THEOLOGIA

Hipparcus
CYCLOPÆDIA

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CYCLOPÆDIA:

OR, AN

UNIVERSAL DICTIONARY

OF

ARTS and SCIENCES;

CONTAINING
The DEFINITIONS of the TERMS,
And ACCOUNTS of
The THINGS ſignify'd thereby,
In the ſeveral ARTS,
Both *LIBERAL* and *MECHANICAL*,
And the ſeveral SCIENCES,
HUMAN and *DIVINE*:
The Figures, Kinds, Properties, Productions, Preparations, and Uſes,
of Things NATURAL and ARTIFICIAL;
The Riſe, Progreſs, and State of Things ECCLESIASTICAL,
CIVIL, MILITARY, and COMMERCIAL:
With the ſeveral Syſtems, Sects, Opinions, *&c.* among Philoſophers, Divines,
Mathematicians, Phyſicians, Antiquaries, Criticks, *&c.*

The Whole intended as a Courſe of Antient and Modern LEARNING.

Compiled from the beſt Authors, Dictionaries, Journals, Memoirs,
Tranſactions, Ephemerides, *&c.* in ſeveral Languages.

In TWO VOLUMES.

By *E. CHAMBERS* Gent.

Floriferis ut apes in ſaltibus omnia libant,
Omnia nos——————————LUCRET.

VOLUME the SECOND.

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I, The ninth Letter of the *Engliſh* Alphabet, is both a Vowel and a Conſonant; agreeable to which two different Powers, it has two different Forms. The *Hebrews* call the *j* Conſonant *Jod* יוד from יד, Hand and Space, in regard it is ſuppoſed to repreſent the Hand clench'd, ſo as to leave the Space underneath, void. With them, it was pronounced as the Conſonant *y*, as it ſtill is among the *Germans* and ſome other People. The *Greeks* had no *j* Conſonant, and for that reaſon, uſed their Vowel *i* inſtead of it, as coming the neareſt in Sound. The *French* and *Engliſh* have two kinds of *j* Conſonants; the firſt has a ſnuffling kind of Sound, and ſerves to modify that of the Vowels, pretty much in the manner of *g*, as Jew, juſt, jovial; the latter is pronounced like the *Hebrew* Jod, Inſtances of which we have in ſome of our Words, which are indifferently written with a *y* or an *i* before a Vowel, as Voiage, Voyage, Loial, Loyal, *&c.* in which caſes, the *i* is apparently a Conſonant, as being a Motion of the Palate, which gives a Modification to the following Vowel. The Vowel *i*, according to *Plato*, is proper for expreſſing fine and delicate things: On which account, that Verſe in *Virgil*,

Accipiunt inimicum imbrem, rimiſque fatiſcunt;

Which abounds in *i*'s, is generally admired. The Vowel *i* was the only Vowel which the *Romans* did not mark with a Daſh of the Pen, to ſhew when it was long; inſtead of which, to denote its Length, they uſed to make it bigger than ordinary, as in PIſo, VIvus, &c. According to *Lipſius*, they repeated it, when it was to be long; as in *Dii*. They ſometimes alſo denoted the Length of this Letter, by adding *e* to it, and turning it into a Dipthong, as *Divei* for *DivI*, *Omneis* for *Omnis*, &c. *I* was antiently a Numeral Letter, and ſignified a Hundred, according to the Verſe, *I. C. Compar erit, & Centum ſignificabit*. *I* in the ordinary *Roman* way of Numbering ſignifies One; and when repeated, ſignifies as many Units as it is repeated times. In Abbreviations and Cyphers, *I.* frequently repreſents the whole Word Jeſus, whereof it is the firſt Letter.

JABAJAHITE, the Name of a Sect among the Muſſulmen, who, according to *Ricaut*, teach, That God is not perfectly wiſe, that his Knowledge does not extend to every thing; and that Time and Experience have furniſhed him with the Knowledge of many things whereof he was before ignorant: Thus, ſay they, not being apprized from all Eternity of every Event that ſhall happen in the World, he is obliged to govern it according to the Chance and Occurrence of thoſe Events.

JACK *in a Ship*, is that Sail that is hoiſted up at the Sprit-Sail-Top-Maſt-Head. In Falconry, *Jack* is the Male of the Birds of Sport.

JACK *by the Hedge*, is an Herb that grows wild by Hedge-ſides, and under Banks, with a broad Leaf, and hath the Smell of Garlick: It is eaten as other Sallad-Herbs, eſpecially by Country People, and much uſed in Broth.

JACK *in a Lanthorn*, or *Will with a Wiſp*, and ſometimes *Ignis Fatuus*, is a certain Meteor, or clammy Vapour in the Air, which reflects Light in the Dark, commonly haunting Church-yards, Fens, and Privies, as ſteaming out of a fat Soil: It alſo flies about Rivers, Hedges, *&c.* where there is a continual Flux of Air, and leads Perſons, who unwarily follow it, out of their way.

JACOB's *Staff*, is a Mathematical Inſtrument for taking Heights and Diſtances; the ſame with Croſs-Staff.

JACOBIN, Dominican. A Name given in *France* to the Religious who follow the Rule of St. *Dominic*, on occaſion of their principal Convent, which is near the Gate of *St. James* at *Paris*, and which before they became poſſeſſed of it in the Year 1218, was an Hoſpital of Pilgrims dedicated to the ſaid Saint. Others maintain, that they have been called *Jacobins* ever ſince they were eſtabliſhed in *Italy*, in regard they pretended to imitate the Lives of Apoſtles. They are alſo called Friars Predicants, and make one of the four Orders of Mendicants. See *Dominican*.

JACOBITE, a Sect of Hereticks who were antiently a Branch of the *Eutychians*, and are ſtill ſubſiſting in the *Levant*. They were ſo called from one *James* of *Syria*, who was one of the Heads of the *Monophyſites*, or Sectaries, who own'd but one Nature in Jeſus Chriſt. The *Monophyſites* are a Sect of vaſt Extent, comprehending the *Armenians*, *Cophti*, and *Abyſſinians*, but thoſe among them who are properly *Jacobites*, are but few; and among thoſe too, there is a Diviſion, ſome being Romaniz'd, and others perfectly averſe to the Romiſh Church: Each of which Parties have their ſeveral Patriarchs, the one at *Caremit*, and the other at *Derzapharan*. As to their Faith, all the *Monophyſites*, both *Jacobites* and others, follow the Doctrine of *Dioſcorus* touching the Unity of Nature and Perſon in Jeſus Chriſt. *Jacobite* in *England*, is a Term of Reproach beſtow'd on ſuch Perſons as diſallow the late Revolution, and ſtill aſſert the Rights, and adhere to the Intereſts of the late King *James* and his Line.

JACOBUS, a Gold Coin worth 25 Shillings; ſo called from King *James* the firſt of *England*, in whoſe Reign they were ſtruck. We uſually diſtinguiſh two kinds of *Jacobus*, the Old and the New; the former worth 25 Shillings, weighing 6 Penny Weight 10 Grains; the latter, called alſo *Carolus*, worth 23 Shillings, in Weight 5 Penny Weight 20 Grains.

JADE, a greeniſh Stone, bordering on the Colour of Olive, much eſteem'd for its Hardneſs, which exceeds that of Porphyry, Agat, and Jaſper, and only to be cut with Powder of Diamond. It is in mighty eſteem among the *Turks* and *Poles*, who adorn all their fine Works with it, and eſpecially the Handles of their Sabres. This Stone applied to the Reins, is ſaid to be a Preſervative from the Nephritic Cholic. Mr. *Bernier* tells us, that the Caravans of *Thibet* carry it to *Cachemire*, and that the *Galibis* prize it as highly as Diamond. The Natives of *South-America* value it on account of the Virtues they attribute to it in the Epilepſy, Diſeaſes of the Reins, the Stone and Gravel. In a Treatiſe of it printed at *Paris*, 'tis called the Divine Stone.

JALAP, is the Root of a Plant not much unlike our Bryony, and is therefore by ſome called *Bryonia [illegible]ana*; for it is brought to us chiefly from *Peru* and *New-Spain*. The *Mechoacan* and this are reckoned of a Species, and therefore as this is ſometimes called *Mechoacana nigra*, that goes as often by the Name of *Jalapium album*. As this does not appear to have been known to the Antients, it has its place in Medicine only ſince thoſe parts of *America*, which produce it, have been traded to by *Europeans*. That which breaks blackeſt, moſt brittle, ſound, and ſhining within ſide, is the beſt; by reaſon the reſinous Parts, which give it thoſe Properties, are ſuppoſed to contain its Medicinal Virtues. Some take great pains to extract its Reſin, which is to be done with any ſpirituous Menſtruum, and afterwards want Correctors for it. The moſt common, is Salt of Tartar or Loaf-Sugar; but if correcting conſiſts in ſeparating its Parts, as it certainly does, the drawing it from the Root, and making it into a Reſin, muſt be very needleſs. Monſieur *Bolduc*, who hath made ſeveral Experiments upon it, ſays, it is one of the beſt Cathartics we have, taken as Nature only has prepared it. See *Quincy*'s Diſpenſatory.

IAMBUS, in the *Greek* and *Latin* Poetry, is the Name of a Foot in a Verſe, conſiſting of a long and ſhort Syllable, as *Horace* expreſſes it,

Syllaba longa brevi ſubjecta vocatur Iambus.

The ſame Poet calls the *Iambus* a ſwift rapid Foot, *Pes Citus.* The Word, according to ſome, takes its Name from *Iambus*, the Son of *Pan* and *Echo*, who invented this Foot, or rather uſed ſharp biting Expreſſions to *Ceres*, when afflicted for the Death of *Proſerpine*. Others rather derive it from the Greek ἰὸς, *Venenum*, *Poiſon*, or from ἰαμβίζω, *maledico*, *I rail* or *revile*, becauſe the Verſes compoſed of *Iambus*'s were at firſt only uſed in Satire.

IAMBIC, a kind of Verſe, found in the *Greek* and *Latin* Poets. An *Iambic* is a Verſe conſiſting wholly, or at leaſt in great part, of *Iambus*'s, or Feet ſo called. *Iambic* Verſes may be conſidered, either with regard to the Diverſity or the Number of their Feet. Under each of which Heads there are diſtinct kinds, which have different Names. (1.) Pure *Iambics* are thoſe which conſiſt entirely of *Iambus*'s, as the fourth Piece of *Catullus*, made in praiſe of a Ship:

Phaſelus ille, quem videtis Hoſpites.

The ſecond kind are thoſe called ſimply *Iambics*. Theſe have no *Iambus*'s but in the even Feet, tho' there are ſometimes *Tribrachia* added to them, excepting to the laſt, which is always an *Iambus*; and in the uneven Feet they have Spondees, Anapeſts, and even a Dactyle in the firſt; Such is that of *Medea* in *Ovid*,

Servare potui, perdere an poſſim rogas?

The third kind are the *Free Iambic* Verſes, in which 'tis not abſolutely neceſſary there ſhould be any *Iambus*, excepting in the laſt Foot; of which kind are all thoſe of *Phædrus:*

Amittit meritò proprium, qui alienum appetit.

In Comedies the Authors ſeldom confine themſelves more, frequently leſs, as we may obſerve in *Plautus* and *Terence*: but the ſixth is always indiſpenſibly an *Iambus*.

As to the Varieties, occaſioned by the Number of Syllables, we call an *Iambic*, or *Dimetre Iambic*, that which has but four Feet:

Queruntur in Sylvis Aves.

Thoſe which have ſix are called *Trimetres*: Theſe are the moſt beautiful, and are uſed principally for the Theatre, particularly in Tragedy; wherein they are vaſtly preferable to the Verſes of ten or twelve Feet uſed in our modern Drama, in regard they come nearer to the Nature of Proſe, and ſavour leſs of Art and Affectation.

Dii Conjugales, tuque genialis Tori
Lucina Cuſtos, &c.

Thoſe with eight are called *Tetrametres*, and are only uſed in Comedies:

Pecuniam in Loco negligere maximum interdum eſt Lucrum. Terence.

Some add an *Iambic* Monometre, with two Feet:

Virtus beat.

They are called *Monometres*, *Dimetres*, *Trimetres*, and *Tetrametres*, that is, of one, two, three, and four Meaſures, becauſe a Meaſure conſiſted of two Feet, the *Greeks* meaſuring their Verſes two Feet by two Feet, or by Epitrites, joining the Iambus and Spondee together. All the *Iambics* hitherto mentioned are perfect; they have their juſt Number of Feet, without any thing either deficient or redundant. The imperfect *Iambics* are of three kinds, the *Catalectic*, which want a Syllable;

Muſæ Jovem canebant.

The *Brachycatalectic*, which want an entire Foot;

Muſæ Jovis Gnatæ.

The *Hypercatalectic*, which have either a Foot or a Syllable too much:

Muſæ Sorores ſunt Minervæ,
Muſæ Sorores Palladis lugent.

Many of the Hymns and Anthems, uſed in the Church, are Dimetre Iambics, that is, conſiſting of four Feet.

S. JAMES *of the Sword*, a Military Order in *Spain* inſtituted in 1170, under the Reign of *Ferdinand* II. King of *Leon* and *Galicia*. Its End was to put a ſtop to the Incurſions of the *Moors*; three Knights obliging themſelves by a Vow to ſecure the Roads. An Union was propoſed and agreed to in 1170, between theſe and the Canons of *St. Eloy*; and the Order was confirm'd by the Pope in 1175. The higheſt Dignity in this Order, is that of Grand Maſter, which has been united to the Crown of *Spain*. The Knights are obliged to make proof of their Deſcent from Families, that have been noble for four Generations on both ſides: They muſt alſo make it appear, that their ſaid Anceſtors have neither been *Jews*, *Saracens*, nor *Heretics*, nor ever to have been called in queſtion by the Inquiſition. The Novices are obliged to ſerve ſix Months in the Galleys, and to live a Month in a Monaſtery; heretofore they were truly Religious, and took a Vow of Celibacy: But *Alexander* III. gave them a Permiſſion to marry. They now make no Vows but of Poverty, Obedience, and Conjugal Fidelity; to which, ſince the Year 1652, they have added that of defending the immaculate Conception of the Holy Virgin. Their Habit is a white Cloak with a red Croſs on the Breaſt. This is eſteem'd the moſt conſiderable of all the Military Orders in *Spain*. The King carefully preſerves the Office of Grand Maſter in his own Family, on account of the rich Revenues and Offices, whereof he gives them the Diſpoſal. The Number of Knights is much greater now than formerly, all the Grandees chuſing rather to be received into this, than into the Order of the Golden Fleece; inaſmuch as this puts them in a fair way of attaining to Commands, and gives them many conſiderable Privileges in all the Provinces of *Spain*, but eſpecially in *Catalonia*.

JANIZARIES, the Grand Signior's Guard, or Soldiers in the *Turkiſh* Infantry. As, in the *Turkiſh* Army, the *European* Troops are diſtinguiſhed from thoſe of *Aſia*, the *Janizaries* are alſo diſtinguiſhed into *Janizaries* of *Conſtantinople* and of *Damaſcus*. Their Pay is from two Aſpers to twelve *per Diem*; for when they have a Child, or do any ſignal Piece of Service, their Pay is augmented. Their Dreſs conſiſts of a Dolyman, or long Robe, with ſhort Sleeves, which is given them annually, by the Grand Signior, on the firſt Day of *Ramazan*. They wear no Turban, but in lieu of that a kind of Bonnet, which they call *Zarcola*, and a long Hood of the ſame Stuff hanging on their Shoulders. On ſolemn Days they adorn them with Feathers, which they ſtick into a little Caſe in the forepart of the Bonnet. Their Arms in *Europe*, in a time of War, are a Sabre, a Carabine, or Muſquet, and a Cartouch-Box hanging on the left Side. At *Conſtantinople*, in a time of Peace, they wear only a Staff in their Hand. In *Aſia*, where Powder and Fire-Arms are more uncommon, they wear a Bow and Arrows, with a Poniard, which they call *Baniare*. The *Janizaries* were heretofore a Body formidable even to their Maſters the Grand Signiors: *Oſman* they firſt ſtripped of his Empire, and afterwards of his Life; and Sultan *Ibrabim* they depoſed, and at laſt ſtrangled in the Caſtle of the *Seven Towers*; but they are now much leſs conſiderable. Their Number is not fixed. The *Janizaries* are Children of Tribute, raiſed by the *Turks* on the Chriſtians, and bred up to the military Life. They are taken at the Age of twelve Years, to the end, that forgetting their Country and their Religion, they may know no other Parent but the Sultan. However, generally ſpeaking, they are not now-a-days raiſed by way of Tribute; for the Carach, or Tax, which the *Turks* impoſe on the Chriſtians, for allowing them the Liberty of their Religion, is now paid in Money, excepting in ſome Places, where Money being ſcarce, the People are unable to pay in Specie, as in *Mingrelia*, and other Provinces near the *Black-Sea*. The Officer who commands the whole Body of *Janizaries*, is called *Janizar Agaſi*; in *Engliſh*, Aga of the *Janizaries*, who is one of the chief Officers of the Empire. Tho' the *Janizaries* are not prohibited Marriage, yet they rarely marry, nor then, but with the Conſent of their Officers, as imagining a married Man to make a worſe Soldier than a Batchelor. It was *Oſman*, or *Ottoman*, or, as others will have it, *Amurath*, who firſt inſtituted the Order of *Janizaries*. They were at firſt called *Jaja*, that is, Footmen, to diſtinguiſh them from the other *Turks*, the Troops whereof conſiſted moſtly of Cavalry. *Menage*, after *Voſſius*, derives the Word from *Genizers*, which, in their Language, ſignifies *Novos Homines*, or *Milites*. *Herbelot* tells us, that *Jenitcheri* ſignifies a new Band or Troop, and that the Name was firſt given by *Amurath* I. called the Conqueror, who chuſing out one fifth part of the Chriſtian Priſoners, whom he had taken from the *Greeks*, and inſtructing them in the Diſcipline of War, and the Doctrines of their Religion, ſent them to *Hagi Bektaſche* (a Perſon whoſe pretended Piety rendered him extremely revered among the *Turks*) to the end that he might confer his Bleſſing on them, and at the ſame time give them ſome Mark to diſtinguiſh them from the reſt of the Troops. *Bektaſche*, after bleſſing them in his manner, cut off one of the Sleeves of the Fur-Gown which he had on, and put it on the Head of the Leader of this new Militia; from which time, *viz.* the Year of Chriſt 1361, they have ſtill retained the Name *Jenitcheri*, and the Fur-bonnet. *Viginerus* tells us, that the Diſcipline obſerved among the *Janizaries* is extremely conformable, in a great many things, to that uſed in the *Roman* Legions.

JANIZARY, at *Rome*, is the Name of an Officer or Penſioner of the Pope, called alſo *Participant*, by reaſon of certain Rights or Dues which they have in the Annates, Bulls, or Expeditions of the *Roman* Chancellory. Moſt Authors are miſtaken in the nature of their Office; but the truth is, they are Officers of the third Bench or College of the *Roman* Chancellory. The firſt Bench whereof conſiſts of Writers, the ſecond of Abbreviators, and the third of *Janizaries*, who are a kind of Correctors and Reviſers of the Pope's Bulls.

JANSENISM, the Doctrine of *Cornelius Janſen*, commonly called *Janſenius*, late Biſhop of *Ypres* in *France*, with relation to Grace and Free-Will. *Janſeniſm* made no great Noiſe in the World, till after the Death of its Author in 1638. when *Fromond* and *Calenus*, his Executors, publiſhed his Book, entitled *Auguſtinus*. The whole Doctrine was reduced by the Biſhops of *France* into five Propoſitions, which follow: I. Some Commands of God are impoſſible to righteous Men, even tho' they endeavour, with all their Powers, to accompliſh them: the Grace being wanting by which they ſhould be enabled to perform them. II. In the State of corrupted Nature, a Man never reſiſts inward Grace. III. To merit and demerit in the preſent State of corrupt Nature, 'tis not requiſite a Man ſhould have that Liberty which excludes Neceſſity: that which excludes Conſtraint is ſufficient. IV. The *Semi-Pelagians* admitted the Neceſſity of inward preventing Grace to each Act in particular, and even to the beginning of Faith; but they were Heretics, in regard they aſſerted that this Grace was ſuch, as that the Will of Man might either reſiſt or obey it. V. It is *Semi-Pelagianiſm* to ſay, that Jeſus Chriſt died, or ſhed his Blood for all Men in general. *Janſeniſm* conſiſts in maintaining this Doctrine, which is done two ways; (1.) By aſſerting that theſe Propoſitions are ſound and orthodox. (2.) In affirming that they are evil and heretical in the Senſe wherein the Church has condemned them; but that this Senſe is not of *Janſenius*. *Janſeniſm* has been condemned by the Popes *Urban* VIII. *Innocent* X. *Alexander* VII. and *Clement* XI.

JANUARY, the Name of the firſt Month of the Year, according to the Computation now uſed in the *Weſt*. The word is derived from the *Latin Januarius*, a Name given it by the *Romans*, from *Janus*, one of their Divinities, to whom they attributed two Faces; becauſe, on the one Side, the firſt Day of *January* looked towards the New Year, and on the other towards the Old one. The word *Januarius* may alſo be derived from *Janua*, *Gate*; in regard this Month being the firſt, is, as it were, the Gate of the Year. It was introduced into the Year by *Numa Pompilius*: *Romulus*'s Year beginning in the Month of *March*. The Chriſtians heretofore faſted the firſt Day of *January*, by way of Oppoſition to the Superſtition of the Heathens, who, in honour of *Janus*, obſerved this Day with Feaſtings, Dancings, Maſquerades, *&c.*

JAPAN-EARTH, alſo called *Catechu*, is an Earth of a dark purple Colour. It is very auſtere upon the Palate, ſeems to melt, like the Bole, in the Mouth, and leaves ſomewhat of a ſweetiſh Taſte behind it. It is famous for ſtopping Fluxes of all kinds.

JAPANNING, the Art of varniſhing and drawing Figures on Wood, *&c.* after the ſame manner as the Workmen do who are Natives of *Japan*, a famous Iſland not far from the Coaſt of *China*. The manner of it is this; they take a Pint of Spirit of Wine well dephlegmated, and four Ounces of Gum-Lacca (which laſt is firſt broke from the Sticks and Rubbiſh) and bruiſing it roughly in a Mortar, they put it to ſteep in Spring-water, tyed up in a Bag of coarſe Linen, together with a little Caſtile-Soap, for the ſpace of twelve Hours. This done, they rub out all the Tincture, and add to it a little Allum, and reſerve it a-part; then add as much Maſtick and white Amber, diſtilled in a Matraſs, with the Spirit of Wine, by a two Days Digeſtion, frequently ſtirring it, that it don't ſtick to the Glaſs; then ſtrain and preſs it out into another Veſſel. This done, they take the Wood to be japanned, and cover it with a Layer of this Varniſh, till it be ſufficiently drenched with it; then taking ſome of the Colour, of which the Figures are to be, they incorporate it with ſeven times as much of the Varniſh, and apply it with a Pencil, going over each part three ſeveral times, each a quarter of an Hour after the other: two Hours after this they poliſh it with Preſtle, or *Dutch* Reeds. As to the Colours uſed in this Art, for a fair Red, they take *Spaniſh* Vermillion, with a fourth part of *Venice* Laque. Black, they make of Ivory calcined between two Crucibles; for Blue they uſe Ultramarine, and only twice as much Varniſh as Colour. The reſt are applied as above directed, except the Green, which is difficult to make fair and lively, and therefore ſeldom uſed. Night-*Japanning* is performed, by applying three or four Layers with the Colours firſt, then two of pure Varniſh uncoloured, made according to the former Proceſs. Before it be dry, they ſift ſome Venturine, or Gold Wire, reduced to Powder, over it, and then cover it with as many Layers of pure Varniſh, as render it like poliſhed Glaſs; and, laſtly, rub it over with Tripoli, Oil of Olive, or a Hatter's Felt.

JARR *of Oil*, is an earthen Veſſel containing from 18 to 26 Gallons. A *Jarr* of green Ginger is about 100 Pounds Weight.

JASPER, a precious Stone, not much different from the Agate, excepting in this, that it is more ſoft, and does not take ſo good a Poliſh. In ſome of theſe, Nature has amuſed herſelf, in repreſenting Rivers, Trees, Animals, Landskips, *&c.* as if they were painted. The *florid* Jaſper, found in the *Pyreneans*, is uſually ſtained with various Colours, tho' there are ſome that have but one Colour, as Red or Green; but theſe are the leaſt valuable. The moſt beautiful is that bordering on the Colour of Laque, or Purple, next to that the Carnation; but what is now uſually taken is Green, ſpotted with Red. Jaſper is a *Hebrew* Word, and has neither been changed by the *Latins*, nor us. Some *Greek* Verſions give it the Name of *Beryl*. *Onkelos* calls it *Panther*, in regard of its being ſpotted like that Animal.

JATRALEPTIC, the Name of that part of Phyſick which cures by Frictions, by the Application of Fomentations and Plaiſters. It was one *Prodicus*, a Diſciple of *Hippocrates*, and a Native of *Corinth*, who firſt inſtituted it.

JAVELIN, a kind of Spear, or Half-Pike, uſed by the Antients, both on Horſeback and on Foot. It was five Foot and an half long, and the Steel, wherewith it was headed, had three Sides or Faces, which all terminated in a Point.

JAUNDICE, a Diſeaſe, which conſiſts in an overflowing of the Bile. Of this there are three kinds; the firſt, properly called the *Jaundice*, is owing to the yellow Bile, which, in this Caſe, is too exalted or too abundant in the Maſs of Blood; or perhaps to an Obſtruction of the Glands of the Liver, which prevents the Gall's being duly ſeparated from the Blood. The ſecond, called, the Black *Jaundice*, is owing to the ſame yellow Bile, mingled with Acids. The third, bordering on Green, takes its Riſe alſo from a Mixture of Bile with an Acid; this is uſually called the Green-Sickneſs, and is a Diſtemper pretty common in young Women. In the *Jaundice*, the White of the Eye and the Skin are yellow, and troubled with an Itching; in the Black *Jaundice* the natural Colour is loſt, by reaſon of an atrabilary Humour ſpread underneath the Skin; it firſt appears browniſh, and afterwards of a Lead-Colour. The *Jaundice* often proves a Forerunner of the Dropſy. A Doctor of the Faculty of *Montpellier*, calls the Yellow *Jaundice*, attended with periodical Pains, a Rheumatiſm of the Liver; and another of the ſame place, calls it a Quartan Ague of the Liver. In the Journal of *Leipſic*, 'tis aſſerted that the *Jaundice* is not occaſioned by Obſtructions. The Acid Spirit of *Sal Ammoniac* is ſaid to be an excellent Remedy againſt the *Jaundice*. The word is derived from the *French*, *Jauniſſe*, *Yellowneſs*, of *Jaune*, *Yellow*.

JAW, ſee *Maxilla*.

ICADES, the Name of an antient Feaſt, celebrated every Month by the *Epicurean* Philoſophers, in memory of their Maſter *Epicurus*. The Day on which it was held was the 20th Day of the Moon or Month, which was that whereon *Epicurus* came into the World. And hence came the Name *Icades*, εικὰς ſignifying a Score, from εικοσι, twenty. They adorned their Chambers on this Day, and bore his Image in State about their Houſes, making Sacrifices.

ICE, a hard tranſparent Body form'd from ſome Liquor congeal'd or fix'd. Towards the *Poles* are found vaſt Piles of *Ice* reaching two or three hundred Feet above the Surface of the Water, and appearing like Iſlands; about whoſe Origin there are different Opinions: Some think 'tis Snow, which falling in great Abundance in theſe cold Climates, and melting in the Sea, accumulates gradually, till thoſe huge Heaps are at length formed. But the more common Opinion is, that the *Ice* is formed from the freſh Waters which flow from the neighbouring Lands. *Bartoli* has written an *Italian* Treatiſe expreſly on Ice and Coagulation. And the *Acta Eruditorum* furniſh us with an Account of a *French* Author on the ſame Subject. See *Freezing* and *Cold*.

ICH-DIEN, the Motto under the Arms of the Prince of *Wales*, which Sir *H. Spelman* judges to be in *Saxon Ic Thien*, the *Saxon D*, with a tranſverſe Stroke, being the ſame with *Th*, and ſignifying, I ſerve, or am a Servant; as the *Saxon* Kings Miniſters were called *Thiens*.

ICHNOGRAPHY in Perſpective, is the View of any thing cut off by a Plane parallel to the Horizon, juſt at the Baſe or Bottom of it. In Architecture it is taken for the Geometrical Plan, or Platform of an Edifice, or the Ground-Plot of an Houſe or Building delineated upon Paper, deſcribing the Form of the ſeveral Apartments, Rooms, Windows, Chimneys, *&c.* and this is properly the Work of the Maſter Architect or Surveyor, being indeed the moſt abſtruſe and difficult of any. In Fortification it is, in like manner, the Plan or Repreſentation of the Length and Breadth of a Fortreſs, the diſtinct Parts of which are marked out, either on the Ground itſelf, or upon Paper. The word is derived from the *Greek*, ἰχνος, *Veſtigium*, and γράφω, *ſcribo*, as being a Deſcription of the Footſteps or Traces of a Work. See *Plan*.

ICHOGLANS, the Grand Signior's Pages, or white Eunuchs ſerving in the Seraglio. They are the Children of Chriſtians, and are bred up in an Auſterity ſcarcely to be conceived. Theſe the Sultan prefers to Offices more or leſs conſiderable, as they appear more or leſs devoted to his Service; but 'tis to be obſerved, they are incapable of Offices till forty Years of Age, unleſs they have ſome particular Diſpenſation from the Grand Signior. They are educated with a great deal of Care in the Seraglios of *Pera*, *Adrianople*, and *Conſtantinople*. They are under the Direction of a Capi Aga, who preſides over their Exerciſes, and treats them with a World of Severity. They are principally converſant in the Oda, or Halls, where, according to their ſeveral Talents or Inclinations, they are inſtructed in the Languages, in their Religion, or in Exerciſes of the Body. The word, according to ſome Authors, is compoſed of the two *Turkiſh* words, *ich*, or *itch*, which ſignifies *within*, and *Oglan*, *Page*. In which Senſe *Ichoglan* is a Page ſerving within-ſide the Palace or Seraglio. Others derive it from the barbarous *Greek*, ἴγκολας or ἴγκολος, which was formed from the *Latin Incola*. Theſe two Etymologies give nearly the ſame Senſe to *Ichoglan*, taking *Incola* for *Domûs Incola*.

ICHOR ſtrictly ſignifies a thin watry Humour, like Serum, but it is ſometimes alſo uſed for a thicker kind, flowing from Ulcers. The word is originally *Greek*, and ſignifies *Sanies*, Rottenneſs.

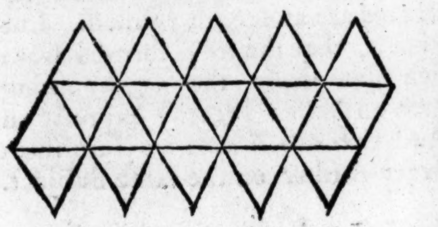
ICHTHYOPHAGI, Fiſh-eaters, the Name given to a People, or rather to ſeveral different People, who lived wholly on Fiſhes. *Pliny* places them in the Provinces of *Nanquin* and *Xantun*. *Agatharcydes* calls all the Inhabitants from the *Anteans* and *Ethiopia* to the *Indus*, *Gedroſia*, *Caramania*, *Perſia*, and all the neighbouring Iſlands, by the Name *Ichthyophagi*. From the Accounts given us of them by *Herodotus*, *Strabo*, *Solinus*, *Plutarch*, &c. it appears, indeed, that they had Cattle, but that they made no uſe of them excepting to feed their Fiſhes withal. They made their Houſes of large Fiſh-Bones, the Ribs of Whales ſerving them for their Beams. The Jaws of theſe Animals ſerved them for Doors, and the Mortars wherein they pounded their Fiſh, and baked it at the Sun, were nothing elſe but their *Vertebræ*. The word is derived from the *Greek*, ἰχθὺς, *Piſcis*, *Fiſh*, and φάγομαι, *edo*, *I eat*.

ICONOCLASTES, a Breaker of Images; a Name which the Church of *Rome* attributes to all who reject the Uſe of Images in religious Matters; in which Senſe, not only the Reformed, but alſo the *Eaſtern* Churches are called *Iconoclaſtes*, and eſteem'd by them Heretics, as oppoſing the Worſhip of the Images of God and the Saints, and breaking their Figures and Repreſentations in Churches. The word is formed from the *Greek*, εἰκὼν, *Imago*, *Image*, and κλαειν, *rumpere*, *to break*.

ICONOGRAPHIA, Deſcription of Images, or of antient Statues of Marbles and Copper, of Buſts and Semibuſts, of Penates, Paintings in Freſco, Moſaic Works, and antient Pieces of Mignature. The word is derived from εἰκὼν, *Imago*, and γράφω, *ſcribo*.

ICONOLATER, one who worſhips Images. a Name which the *Iconoclaſtes* give to thoſe of the *Romiſh* Communion, on account of their adoring Images, and of rendering to them the Worſhip only due to God. The word comes from the *Greek* εἰκὼν and λατρεύω, *colo*.

ICONOLOGIA, Interpretation of various antient Images, Monuments, and Emblems, from the *Greek* εἰκὼν, and λέγω, *I ſpeak*.



ICOSIHEDRON, is a Solid, which conſiſts of twenty triangular Pyramids, whoſe Vertices meet in the Center of a Sphere, that is imagined to circumſcribe it, and therefore have their Height and Baſes equal; wherefore the Solidity of one of thoſe Pyramids, multiplied by twenty, the Number of Baſes, gives the ſolid Content of the *Icoſihedron*. This Figure being drawn on Paſteboard, cut half through, and then folded up neatly together, will repreſent an *Icoſihedron*.

ICTERIC, a Term in Phyſic, apply'd to ſuch Perſons as have the Jaundice, which the *Latins* call *Icterus*, *Aurigo*, or *Morbus Regius*. *Icteric* Medicines are ſuch as are preſcribed in Caſes of the Jaundice. The Word is derived from the *Greek* ἴκτερος, which ſome derive further from ἴκτις, a kind of Weaſel with yellow Eyes.

ICTHYOCOLLA, *Iſinglaſs*: *Schroder* ſays, that this is made from a Fiſh, which is common in the *Danube*; the Fiſh having no Bones but about the Head. After it is cut in ſmall pieces, they boil it in Water to a thick Jelly, which is ſpread abroad and dried, then rolled up, and brought to us in the form we ſee it in the Shops. It is of a very glutinous Quality, and conſequently good in all Diſorders, which ariſe from too thin and ſharp a State of the Fluids. The Word is derived from the *Greek* ἰχθὺς, *Piſcis*, Fiſh, and κόλλα, *Gluten*, Glue.

IDEA, A Term by which we mean that immediate Object of the Mind about which we are employ'd when we perceive or think: Thus, when we look at the Sun, we do not ſee that Luminary itſelf, but its Image or Appearance convey'd to the Soul by the Organ of Sight; and this Image we call *Idea*. The Origin of *Ideas* has been a long time diſputed among the Philoſophers. The *Peripatetics* maintain, that external Objects emit Species that reſemble them all around, and that theſe Species ſtriking on our Senſes, are by them tranſmitted to the Underſtanding; that being material and ſenſible, they are rendered intelligible by the active Intellect, and are at length received by the paſſive. Others are of opinion, that our Souls have of themſelves the power of producing *Ideas* of Things that we would think upon; and that they are excited to produce them by the Impreſſions which Objects make on the Body, tho theſe Impreſſions are not Images in any reſpect like the Objects that occaſioned them. And in this, ſay they, it is, that Man is made after the Image of God, and that he partakes of his Power; for as God made all things out of nothing, and can reduce them to nothing when he pleaſes, ſo Man can create as many *Ideas* as he pleaſes, and annihilate them when he he has done. Others maintain, that the Mind has no occaſion for any thing beſides itſelf to perceive Objects; and that by conſidering itſelf and its own Perfections, it is able to diſcover all things that are without. Others with *Deſcartes* hold, that our *Ideas* were created and born along with us. *Malebranch* and his Followers aſſert, that God has in himſelf the *Ideas* of all Beings that he hath created; that thus he ſees all things, in conſidering his Perfections to which they correſpond; and that as he is intimately united to our Souls by his Preſence, our Mind ſees and perceives things in Him which repreſent created Beings; and that it is thus we come by all our *Ideas*. He adds, that tho we ſee all ſenſible and material things in God, yet that we have not our Senſations in him. When we perceive any ſenſible Object, in our Perception is included both a Senſation and a pure *Idea*. The Senſation is a Modification of the Soul, and it is God who cauſes it in us: but for the *Idea* join'd with the Senſation, it is in God, and it is in him that we ſee it. The *Carteſians* diſtinguiſh three kinds of *Ideas*. The firſt innate, and ſuch is that we have of God, as of a Being infinitely perfect. The ſecond adventitious, which the Mind receives in proportion as bodily Objects preſent themſelves to our Senſes. Such is the *Idea* of Body, Sound, Figure, Light, *&c.* The third, according to theſe Philoſophers, are factitious, which are thoſe which the Mind forms, by uniting and aſſembling the *Ideas* which it already had: and theſe are called complex. But our great Mr. *Locke* ſeems to have put this Matter out of diſpute, having made it appear that all our *Ideas* are owing to our Senſes; and that all innate, created, factitious, *&c.* *Ideas*, are mere Chimera's. He proves, that our Mind has not abſolutely any *Ideas* beſides thoſe preſented to it by the Senſes, and thoſe which it forms by its own Operations, on thoſe others which the Senſes furniſh. So that a Man deſtitute of one of his Senſes, would never have any *Idea* belonging to that Senſe; and ſuppoſing him deſtitute of all the Senſes, he would never have any *Idea* at all: External Objects having no other way of producing *Ideas* in him, but by means of Senſation. He would have no *Idea*, not even of Reflexion, becauſe in wanting all Senſation, he wants that which ſhould excite in him the Operations of his Mind, which are the Objects of his Reflexion. 'Tis plain therefore there is no innate *Idea*; no general Truth, or firſt Principle inherent in the Soul, and created with it; no immediate Object of the Mind before it had perceived external Objects by means of the Senſes, and reflected on that Perception. Thoſe *Ideas* only ſeem to be innate, becauſe we find we have them as ſoon as we come to the Uſe of Reaſon, but are, in effect, what we formed from the *Ideas* wherewith the Mind was inſenſibly filled by the Senſes. Thus, when the Mind is employ'd about ſenſible Objects, it comes by the *Ideas* of bitter, ſweet, yellow, hard, *&c.* which we call Senſation; and when employ'd about its own Operations, perceiving and reflecting on them, as employ'd about the *Ideas* before got by Senſation, we get the *Ideas* of Perception, Thinking, Doubting, Willing, *&c.* which we call inward Senſation or Reflexion: And theſe two, *viz.* external material Things as the Objects of Senſation, and the Operations of our own Minds as the Objects of Reflexion, are the only Originals, whence all our *Ideas* have their Riſe. When we have conſidered theſe, and their ſeveral Modes and Combinations, we ſhall find they contain our whole Stock of *Ideas*; inſomuch, that the Underſtanding does not ſeem to have the leaſt Glimmering of any *Ideas* that it did not receive from one of thoſe Sources. And thus far the Mind appears merely paſſive, as not having it in its power to chuſe whether it will have theſe firſt Beginnings or Materials of Knowledge, or not. For the Objects of Senſe will obtrude their *Ideas* upon the Mind, and the Operations of the Mind will not let us be without ſome (however obſcure) Notion of them.

The ſame excellent Author diſtinguiſhes *Ideas* into two kinds, *viz.* Simple and Complex. Of the former kind are all thoſe *Ideas* which come into the Mind by Senſation: And though the Qualities of Bodies that affect our Senſes are in the things themſelves ſo mix'd and united, that there is no Separation between them; yet the *Ideas* they produce in the Mind are ſimple and unmix'd. Again, ſome *Ideas* we acquire purely by means of one Senſe, as the *Ideas* of Colours only by the Eye, of Sounds by the Ear, of Heat by the Touch, *&c.* Other *Ideas* we gain by ſeveral Senſes, as of Space, Extenſion, Figure, Reſt, Motion, *&c.* for theſe have their Effect both on the Sight and the Touch. There are other ſimple *Ideas*, again, form'd in the Mind both by Senſation and Reflexion jointly, as Pleaſure, Pain, Power, Exiſtence, Unity, Succeſſion, *&c.* And of ſome of theſe kinds of *Ideas* are all, or at leaſt the moſt conſiderable of thoſe ſimple *Ideas* which the Mind hath, and out of which is made all its other Knowledge. The better to comprehend the Nature of theſe ſimple *Ideas*, it will be convenient to diſtinguiſh between them as they are *Ideas* or Perceptions in our Minds, and as they are Modifications of the Bodies that cauſe ſuch Perceptions in us; that we may not think, as is uſually done, that they are exactly the Images and Reſemblances of ſomething inherent in the Subject: for moſt of thoſe of Senſation, are in the Mind no more the Likeneſs of any thing exiſting without us, than the Names that ſtand for 'em are the Likeneſs of the *Ideas*. But here the Qualities of Bodies which produce thoſe *Ideas* in our Minds, are to be diſtinguiſh'd into Primary and Secondary. Primary Qualities are ſuch as are utterly inſeparable from the Body, in what State ſoever it be; and ſuch as our Senſes conſtantly find in every Particle of Matter, which are Solidity, Extenſion, Figure, Mobility, and the like. Secondary Qualities are ſuch as are, in reality, nothing in the Objects themſelves, but only Powers to produce various Senſations in us by means of their primary Qualities; that is, by the Figure, Bulk, Texture, *&c.* of their Particles, as Colour, Sounds, Taſte, *&c.* Now the *Ideas* of primary Qualities are in ſome ſenſe Reſemblances of them, and their Patterns do really exiſt in the Bodies themſelves; but the *Ideas* produced in us by thoſe ſecondary Qualities have no Reſemblance of them at all. There is nothing like our *Ideas* exiſting in the Bodies themſelves that occaſion them. They are in the Bodies we denominate from them, only a Power to produce thoſe Senſations in us; and what is ſweet, warm, blue, *&c.* in the *Idea*, is no more than the Bulk, Figure and Motion of the Particles of the Bodies themſelves that we call ſo.

The Mind hath ſeveral Faculties of managing theſe ſimple *Ideas* that are worthy of notice: as, 1. That of diſcerning juſtly and diſtinguiſhing rightly between one and another; in this conſiſts the Accuracy of Judgment. 2. That of comparing them one with another in reſpect of Extent, Degree, Time, Place, or any other Circumſtances of Relation or Dependance one on another. 3. The Faculty of compounding or putting together the ſimple *Ideas* received by Senſation and Reflexion, in order to make complex ones. 4. Children by repeated Senſations having got ſome *Ideas* fix'd in their Memories, by degrees learn the Uſe of Signs; and when they can ſpeak articulately, they make uſe of Words to ſignify their *Ideas* to others: Hence, the Uſe of Words being to ſtand as outward Marks of our internal *Ideas*, and thoſe *Ideas* being taken from particular things; if every particular *Idea* that we take in, ſhould have a particular Name affixed to it, Names would grow endleſs. To prevent this Inconvenience, the Mind has another Faculty whereby it can make the particular *Ideas* received from ſuch Objects, become general; which is done, by conſidering them as they are in the Mind ſuch Appearances, ſeparate from all other Exiſtences and Circumſtances of Exiſtence, as Time, Place, and other concomitant *Ideas*: and this is called Abſtraction; whereby *Ideas* taken from particular Things become general Repreſentatives of all of that kind, and their Names, general Names applicable to whatever exiſts conformable to ſuch abſtract *Ideas*. Thus the ſame Colour being obſerved to-day in Chalk or Snow, which we obſerved yeſterday in Paper or Milk, we conſider that Appearance alone, make it a Repreſentative of all the ſame Kind, and give it the Name of Whiteneſs: By which Sound we always ſignify the ſame Quality, whereſoever to be met with or imagined.

From the Power which the Mind has of combining, comparing, and ſeparating or abſtracting the ſimple *Ideas*, which it acquires by Senſation and Reflexion, all its complex *Ideas* are formed; and as before in the Perception of *Ideas*, the Underſtanding was paſſive, ſo here 'tis active, exerting the Power it hath in the ſeveral Acts and Faculties abovementioned, in order to frame compound *Ideas*. All complex *Ideas*, tho their Number be infinite, and Variety endleſs, yet may they be all reduced to theſe three Heads, *viz.* Modes, Subſtances, and Relations. Modes are ſuch complex *Ideas*, as however compounded, are not ſuppoſed to exiſt by themſelves, but are conſider'd as Dependencies on, or Affections of Subſtances: Such are the *Ideas* ſignified by the words Triangle, Gratitude, Murder, *&c.* And theſe Modes are of two kinds: 1. Such as are only Variations, or different Combinations of the ſame ſimple *Idea*, without the Mixture of any other, as a Dozen, a Score, *&c.* and theſe may be called ſimple Modes. 2. There are others compounded of ſimple *Ideas* of ſeveral ſorts put together, to make one complex one, as Beauty, Theft. Subſtances have their *Ideas* from ſuch Combinations of ſimple *Ideas*, as are taken to repreſent diſtinct particular things, ſubſiſting by themſelves, in which the ſuppoſed or confuſed *Idea* of Subſtance, ſuch as it is, is always the firſt and chief. Relations are a kind of complex *Ideas*, ariſing from the Conſideration or Compariſon of one *Idea* with another. Of theſe, ſome only depend on the Equality or Exceſs of the ſame ſimple *Idea* in ſeveral Subjects, and theſe may be called proportional Relations, ſuch as equal, more, bigger, ſweeter. Another occaſion of comparing things together, is owing to the Circumſtances of their Origin and Beginning; which, not being afterwards to be altered, make the Relations depending thereon as laſting as the Subjects to which they belong. Thus it is with natural Relations, ſuch as Father, Mother, Uncle, Couſin, *&c.* Thus alſo it is with Relations by Inſtitution, as Prince and People, General and Army, *&c.* As to moral Relations, they are the Conformity or Diſagreement of Mens free Actions to Laws and Rules, whether Human or Divine.

Further, with regard to our *Ideas* it may be obſerved, that ſome are clear and diſtinct, others obſcure and confuſed. Our ſimple *Ideas* are clear, when they continue ſuch as the Objects repreſent them to us, when our Organs of Senſation are in a good Tone and Order, when our Memories retain them, and can produce and preſent them to the Mind whenever it hath occaſion to conſider them; and when, with this, the Mind ſees that theſe ſimple *Ideas* are ſeverally different one from another: The contrary to which, is what we call Obſcurity and Confuſion.

Again, *Ideas*, with reſpect to the Objects whence they are taken, or which they are ſuppoſed to repreſent, come under a threefold Diſtinction; being, 1. Either real or fantaſtical. 2. True or falſe. 3. Adequate or inadequate. By real *Ideas* is meant ſuch as have a Foundation in Nature, ſuch as have a Conformity with the real Being or Exiſtence of Things, or with their Architypes. Fantaſtical are ſuch as have no Foundation in Nature, nor any Conformity with that Being to which they are referred as their Architypes.

Now if we examine our ſeveral kinds of *Ideas*, we ſhall find that, 1. All our ſimple *Ideas* are real; not that they are Images or Repreſentations of what does exiſt, but as they are the certain Effects of Powers in Things without us, ordained by our Maker to produce in us ſuch Senſations. They are real *Ideas* in us, in regard, by them we diſtinguiſh the Qualities that are really in the Bodies themſelves: their Reality lies in the ſteady Correſpondence they have with the diſtinct Conſtitutions of real Beings, but whether with thoſe Conſtitutions to Cauſes or Patterns, it matters not, ſo long as they are conſtantly produced by them. As to complex *Ideas*, in regard they are arbitrary Combinations of ſimple *Ideas* put together, and united under one general Name, in forming whereof the Mind uſeth its own Liberty, ſome are found real, and ſome imaginary. 1. Mix'd Modes and Relations having no other Reality than what they have in the Minds of Men, are real; nothing more being required to their Reality, but a Poſſibility of exiſting conformable to them. Theſe *Ideas* being themſelves Architypes, cannot differ from their Architypes, and ſo cannot be chimerical, unleſs any one jumbles inconſiſtent *Ideas* in them: Indeed, thoſe that have Names aſſign'd to them, ought to have a Conformity to the ordinary Signification of thoſe Names, to prevent their appearing fantaſtical. 2. Our complex *Ideas* of Subſtances being made in reference to things exiſting without us, whoſe Repreſentations they are thought, are no further real, than as they are Combinations of ſimple *Ideas* really united and co-exiſting in things without us. Thoſe are fantaſtical, that are made up of ſeveral *Ideas* that never were found united, as *Centaur*, *&c.*

As to true and falſe *Ideas*, it may be obſerved, that Truth and Falſhood in Propriety of Speech belong only to Propoſitions; and when *Ideas* are term'd true or falſe, there is ſome tacit Propoſition, which is the Foundation of that Denomination. Our *Ideas* being nothing elſe but Appearances or Perceptions in the Mind, can no more be ſaid to be true or falſe, than ſingle Names of things can be ſaid to be ſo; for Truth and Falſhood lying always in ſome Affirmation or Negation, our *Ideas* are not capable of them, till the Mind paſſeth ſome Judgment of them. In a Metaphyſical Senſe they may be ſaid to be true, *i.e.* to be really ſuch as they exiſt; tho in things called true, even in that Senſe, there ſeems to be a ſecret Reference to our *Ideas*, look'd upon as the Standards of that Truth; which amounts to a mental Propoſition. When the Mind refers its *Ideas* to any thing extraneous to it, they are then capable of being true or falſe, becauſe in ſuch a Reference, the Mind makes a tacit Suppoſition of their Conformity to that thing; which Suppoſition, as it is true or falſe, ſo the *Ideas* themſelves come to be denominated. Real *Ideas* are either adequate or inadequate. Thoſe are adequate which perfectly repreſent thoſe Architypes which the Mind ſuppoſeth them taken from, and which it makes them ſtand for. Inadequate are ſuch as do but partially or incompleatly repreſent thoſe Architypes to which they are referred. See *Adequate*, *Truth*, *Pleaſure*, *Name*, *Knowledge*, *Aſſociation*, *Modes*.

IDENTITATE NOMINIS, is a Writ that lies for him who upon a Capias or Exigent is taken and committed to Priſon for another Man of the ſame Name.

IDENTITY of a thing, is its Sameneſs, or that by which it is itſelf, and not any thing elſe. Our Ideas of *Identity* we owe to that Power which the Mind has of comparing the very Beings of Things, whereby conſidering any thing as exiſting at any certain Time and Place, and comparing it with itſelf as exiſting at any other Time, *&c.* we accordingly pronounce it the ſame or different. When we ſee any thing in any certain Time and Place, we are ſure it is that very thing; and can be no other, how like ſoever it may be in all other reſpects: In regard we conceive it impoſſible, that two things of the ſame kind, ſhould exiſt together in the ſame Place, we conclude, that whatever exiſts any where at the ſame Time, excludes all of the ſame kind, and is there itſelf alone. When therefore we demand, whether any thing be the ſame or no, it refers always to ſomething, that exiſted at ſuch a Time, in ſuch a Place, which it was certain, at that inſtant, was the ſame with itſelf, and no other. We have Ideas of three ſorts of Subſtances. *Firſt*, of Gods; *Secondly*, of Finite Intelligences; *Thirdly*, of Bodies. *Firſt*, God being Eternal, Unalterable, and every where, concerning his *Identity* there can be no doubt. *Secondly*, Finite Spirits having had their determinate Place and Time of beginning to exiſt, the Relation to that Time and Place will always determine to each, its *Identity*, as long as it exiſts. *Thirdly*, The ſame will hold of every Particle of Matter to which no Addition or Subſtraction is made. Theſe three exclude not one another out of the ſame Place, yet each exclude thoſe of the ſame kind, out of the ſame Place. The *Identity* and Diverſity of Modes and Relations are determined after the ſame manner, that Subſtances are: only the Actions of Finite Beings, as Motion and Thought, conſiſting in Succeſſion, cannot exiſt in different Times and Places, as permanent Beings: For no Motion or Thought conſidered as at different Times, can be the ſame, each Part thereof having a different beginning of Exiſtence. From whence it is plain, that Exiſtence itſelf is the *Principium Individuationis*, which determines a Being to a particular Time and Place incommunicable to two Beings of the ſame kind. Thus, ſuppoſe an Atom exiſting in a determined Time and Place, it is evident, that conſider'd in any inſtant, it is the ſame with itſelf, and will be ſo, as long as its Exiſtence continues. The ſame may be ſaid of two, or more, or any Number of Particles, whilſt they continue together. The Maſs will be the ſame, however jumbled: but if one Atom be taken away, it is not the ſame Maſs. In Vegetables, the *Identity* depends not on the ſame Maſs, and is not applied to the ſame Thing. The Reaſon of this, is the difference between an animate Body, and Maſs of Matter; this being only the Coheſion of Particles any how united; the other, ſuch a Diſpoſition, and Organization of Parts, as is fit to receive and diſtribute Nouriſhment, ſo as to continue and frame the Wood, Bark, Leaves, *&c.* (of an Oak, for inſtance) in which conſiſts the Vegetable Life. That therefore, which hath ſuch an Organization of Parts, partaking of one common Life, continues to be the ſame Plant, tho' that Life be communicated to new Particles of Matter vitally united to the living Plant. The Caſe is not ſo much different in Brutes, but that any one may hence ſee what makes an Animal, and continues it the ſame. The *Identity* of the ſame Man likewiſe conſiſts in a Participation of the ſame continued Life, in ſucceeding Particles of Matter vitally united to the ſame organized Body. To underſtand *Identity* aright, we muſt conſider what Idea, the Word it is applied to, ſtands for: it being one thing, to be the ſame Subſtance; another, the ſame Man; and a third, the ſame Perſon. An Animal is a living organized Body: and the ſame Animal is the ſame continued Life communicated to different Particles of Matter, as they happen ſucceſſively to be united to that organized living Body; and our Notion of Man, is but of a particular ſort of Animal. Perſon ſtands for an intelligent Being, that reaſons, and reflects, and can conſider itſelf the ſame thing in different Times and Places; which it doth by that Conſciouſneſs, that is inſeparable from Thinking. By this every one is to himſelf, what he calls Self, without conſidering, whether that Self be continued in the ſame or diverſe Subſtances. In this conſiſts Perſonal *Identity*, or the Sameneſs of a Rational Being: and ſo far as this Conſciouſneſs extends backward to any paſt Action, or Thought, ſo far reaches the *Identity* of that Perſon. It is the ſelf-ſame now, it was then: And it is by the ſame Self, with this preſent one, that now reflects on it, that *that* Action was done. Self is that conſcious Thinking Thing, whatever Subſtance, it matters not, which is conſcious of Pleaſure and Pain, capable of Happineſs or Miſery; and ſo is concerned for itſelf, as far as that Conſciouſneſs extends. That with which the Conſciouſneſs of this preſent Thinking Thing can join itſelf, makes the ſame Perſon, and is one Self with it; and ſo attributes to itſelf, and owns all the Actions of that thing, as its own, as far as that Conſciouſneſs reacheth. This Perſonal Identity is the Object of Reward and Puniſhment, being that by which every one is concerned for himſelf. If the Conſciouſneſs went along with the little Finger, when that was cut off, it would be the ſame Self, that was juſt before concern'd for the whole Body. If the ſame *Socrates*, waking, and ſleeping, did not partake of the ſame Conſciouſneſs, they would not be the ſame Perſon: *Socrates* waking could not be in juſtice accountable for what *Socrates* ſleeping did; no more than one Twin, for what his Brother Twin did, becauſe their Outſides were ſo like, that they could not be diſtinguiſh'd. But ſuppoſe I wholly loſe the Memory of ſome Parts of my Life, beyond a poſſibility of retrieving them, ſo that I ſhall never be conſcious of them again; am I not again the ſame Perſon that did thoſe Actions, tho' I have forgot them? I anſwer, We muſt here take notice what the word *I* is applied to, which in this Caſe is the Man only: And the ſame Man being preſumed to be the ſame Perſon, *I* is eaſily here ſuppoſed to ſtand alſo for the ſame Perſon. But if it be poſſible for the ſame Man, to have diſtinct incommunicable Conſciouſneſs at different times, it is paſt doubt the ſame Man would at different times make different Perſons. Which we ſee is the Senſe of Mankind in the ſolemneſt Declaration of their Opinions; Human Laws not puniſhing the Madman for the ſober Man's Actions, nor the ſober Man, for what the Madman did; thereby making them two Perſons. Thus we ſay in *Engliſh*, Such an one is not himſelf, or is beſides himſelf; in which Phraſes it is inſinuated, that Self is changed, and the ſelf-ſame Perſon is no longer in that Man. But is not a Man, drunk or ſober, the ſame Perſon? Why elſe is he puniſhed for the ſame Fact he commits when drunk, tho' he be never afterwards conſcious of it? Juſt as much the ſame Perſon, as a Man that walks, and does other things in his Sleep, is the ſame Perſon, and is as anſwerable for any Miſchief he ſhall do in it. Human Laws puniſh both with a Juſtice ſuitable to their way of Knowledge: Becauſe, in theſe Caſes, they cannot diſtinguiſh certainly, what is real, and what is counterfeit; and ſo the Ignorance in Drunkenneſs or Sleep is not admitted as a Plea. For tho' Puniſhment be annexed to Perſonality, and Perſonality to Conſciouſneſs, and the Drunkard is not conſcious perhaps of what he did; yet Human Judicatures juſtly puniſh him, becauſe the Fact is proved againſt him, but want of Conſciouſneſs cannot be proved for him. But in the great Day, wherein the Secrets of all Hearts ſhall be laid open, it may be reaſonable to think no one ſhall be made to anſwer for what he knows nothing of, but ſhall receive his Doom, his own Conſcience accuſing, or elſe excuſing him. To conclude, Whatever Subſtance begins to exiſt, it muſt, during its Exiſtence, be the ſame: Whatever Compoſition of Subſtances begin to exiſt, during the Union of thoſe Subſtances, the Concrete muſt be the ſame. Whatſoever Mode begins to exiſt, during its Exiſtence it is the ſame: And ſo if the Compoſition be of diſtinct Subſtances, and different Modes, the ſame Rule holds. Whence it appears, that the Difficulty or Obſcurity that has been about this matter, rather ariſes from Names ill uſed, than from any Obſcurity in the things themſelves. For whatever makes the ſpecifick Idea, to which the Name is applied, if that Idea be ſteadily kept to, the Diſtinction of any thing into the ſame and diverſe, will eaſily be conceived.

IDEOT in the original *Greek* ἰδιώτης, ſignifies a private Perſon who has no public Office. Among the *Latins* it is uſed for *Illiteratus*, *Imperitus*; and in our *Engliſh* Law, for a Perſon *non compos mentis*, or a natural Fool. A Perſon that has Underſtanding enough to meaſure a Yard of Cloth, number 20 rightly, tell the Days of the Week, *&c.* is not an Ideot in the Eye of the Law.

IDES, is a Word which was uſed by the *Romans*, in their Calendar, to diſtinguiſh the Days of the Month by. They commonly fell out the 13th of every Month, except in the Months of *March*, *May*, *July*, and *October*, for in theſe, the *Ides* were on the 15th of the Month. This word is ſaid to be derived from the *Hetrurian* word *Iduare*, that is, to divide; becauſe the Month is, in a manner, equally divided into two Parts by the *Ides*; and the *Nones* were perhaps ſo called from *Nono Idus*, the ninth of the *Ides*, becauſe they were in the room of the ninth of the *Ides*. Some others obſerving, that there were three conſiderable Varieties in the Motion of the Moon; the firſt, when ſhe is quite hid under the Beams of the Sun; the ſecond at the firſt Day of her appearing, when we ſee her in an Evening, with her Horns proceeding out of his Rays; and the third when ſhe is in her full Light: The common Opinion was, that from thence *Romulus* took occaſion to divide the Days of the Months; which he began always by the Calends, in the time that the Moon, *ſub Radiis Solis celaretur*, was hid under the

Beams of the Sun; then gave the Name of *Nonæ*, or *Novæ Lunæ*, to the Day of the firſt appearing of the New Moon; and *Idus*, ſay they, took the Name when ſhe was full, and appeared in her Beauty, from the *Greek* word εἶδος, that is, Beauty. From thence they draw an Argument for the Inequality of the Days of the *Nones*: for as it falls out by the Compoſition of the Motions of the Sun and the Moon, that the Moon comes out of the Beams of the Sun, ſometimes ſooner, and ſometimes later, and that this Diverſity is commonly included in the ſpace of two Days; it is likely, they ſay, that in the time that *Romulus* inſtituted his Calendar, the Moon was kept a longer time hid under the Beams of the Sun, in the Month of *March*, *May*, *July*, and *October*: wherefore he allowed ſeven Days to the *Nones* in thoſe four Months, and five Days only to the others, during which, it may be, the Moon got off from theſe Beams, and appeared ſooner. Others draw the word *Idus* from *Idulium*, which was the Name of the Victim offered to *Jupiter*, the Day of the *Ides*, that was conſecrated to him. Some derive it from the *Tuſcan* word *Itis*, which ſignifies, amongſt that Nation, the ſame as *Idus* among the *Romans*. They allowed eight Days for the *Ides*: Thus the eighth Day of the Month, in thoſe four Months, and the ſixth, in the other eight, were accounted the eighth of the *Ides*, and ſo on, always decreaſing to the 12th or 14th, which was called the *Pridie*, or *Eve of the Ides*, and on the 13th or 15th was the Day of the *Ides*. This way of accounting is ſtill in uſe in the *Roman* Chancery, and in the Calendar of the Breviary.

The *Ides* of *May* were conſecrated to *Mercury*; the *Ides* of *March* were ever eſteemed unhappy, after *Cæſar's* Murder on that Day; the Time after the *Ides* of *June* was reckoned fortunate for thoſe who entered into Matrimony; the *Ides* of *Auguſt* were conſecrated to *Diana*, and were obſerved as a Feaſt-Day by the Slaves. On the *Ides* of *September* Auguries were taken for appointing the Magiſtrates, who formerly entered into their Offices on the *Ides* of *May*, afterwards on thoſe of *March*. See *Roſinus*, and others, who have written of the *Roman Antiquities*.

IDIOM, *Dialect*, the Language of ſome particular Province, differing, in ſome reſpects, from the Language of the Nation in general, whence it is derived. The word comes from the *Greek*, ἰδίομαι, *Propriety*, of ἴδιος, *proper*, *ſelf*.

IDIOPATHY, a Diſeaſe or Indiſpoſition proper to ſome particular Member, or Part of the Body, not cauſed by any other Diſeaſe, or preceding Affection, nor having any thing to do with the reſt of the Body. It is oppoſed to Sympathy, which happens when the Indiſpoſition takes its Riſe from a Diſorder in ſome other Part of the Body. Thus a Cataract in the Eye is an *Idiopathy*: an Epilepſy is either *Idiopathic* or *Sympathic*; *Idiopathic* when it happens purely thro' ſome Fault in the Brain, *Sympathic* when it is preceded by ſome other Diſorder. The word is derived from the *Greek*, ἴδιος, *proper*, *particular*, and πάθος, *Paſſion*, *Affection*.

IDIOSYNCRASY, in Phyſic, is a Temperament peculiar to ſome Body, in conſequence whereof, whether in Sickneſs or in Health, it has a more than ordinary Averſion or Inclination to certain things, or is more affected with them, than others uſually are. The word is derived from the *Greek*, ἴδιος, *proper*, σὺν, *with*, and κρᾶσις, *Craſis*, *Mixture*, *Temperament*.

IDIOTA *Inquirenda vel Examinanda*, is a Writ iſſued out to the Eſcheator or Sheriff of any County, where the King has notice that there is an Ideot naturally born, ſo weak of Underſtanding, that he cannot govern or manage his Inheritance, directing him to call before him the Party ſuſpected, and examine him: for the King has the Protection of his Subjects, [and by his Prerogative the Government of the Lands and Subſtance of ſuch as are naturally defective in their own Diſcretion.

IDIOTISM, in Grammar, is an Inflexion of ſome Verb, a particular Conſtruction of ſome Phraſe or Particle that is anomalous, and deviates from the ordinary Rule of the Language of the Nation, but which is in uſe in ſome particular Province of it. Several Authors have written of the *Idiotiſms* in the *Greek* and *Latin* Languages; that is, of the particular Turns in thoſe Tongues which vary the moſt from each other, and from the more popular among the modern Tongues: But the Examples of theſe *Idiotiſms* being borrowed from the beſt Authors, *Idiotiſm*, in this Senſe, cannot properly be called an Irregularity. The word is derived from the *Greek*, ἴδιος, *proper*.

IDOL, a Statue or Image of ſome falſe God, to whom Divine Honours are paid, Altars and Temples erected, and Sacrifices made. Thus the *Coloſſus* at *Rhodes* was an Idol of the Sun, the *Palladium* an Idol of *Minerva*, &c. The word comes from the *Greek* ειδωλων, of εἶδος, *Imago*, *Figura*.

IDOLATRY, the Worſhip and Adoration of falſe Gods, or the giving thoſe Honours to Creatures, or the Works of Man's Hand, which are only due to God. Several Authors have written of the Origin and Cauſes of Idolatry, and among the reſt *Voſſius*, *Selden*, *Goodwin*, and *Tenniſon*; but 'tis ſtill a Doubt who was the firſt Author of it. 'Tis generally allowed, however, that it had not its Beginning till after the Deluge, and many are of Opinion that *Belus*, who is ſuppoſed to be the ſame with *Nimrod*, was the firſt Man that was deified. But whether they had not paid Divine Honours to the Heavenly Bodies before that time, cannot be determined, our Acquaintance with thoſe remote Times being extremely ſlender. All that can be ſaid with Certainty, is, That 426 Years after the Deluge, when God lead *Thara* and his Family out of *Chaldea*, and *Abraham* paſſed over *Meſopotamia*, *Canaan*, the Kingdom of the *Philiſtines* and *Egypt*, it does not appear that Idolatry had then got any footing in any of thoſe Countries, tho' ſome pretend that *Abraham* himſelf was an Idolater. The firſt mention we find made of it, is in *Geneſis*, *chap.* xxxix, *ver.* 19. where *Rachel* is ſaid to have taken the Idols of her Father; for tho' the meaning of the *Hebrew* word תרפים be diſputed, yet 'tis evident they were Idols. *Laban* calls them his Gods, and *Jacob* calls them ſtrange Gods, and looks on them as Abominations. *Cluverius*, *Germ. Antiq. l.* 1. maintains *Cain* to have been the firſt Idolater, and the falſe Gods that he worſhipped to have been the Stars, to whom he ſuppoſed God had left the Government of the lower World: but this is mere Conjecture. The principal Cauſes that have been aſſigned for Idolatry, are theſe: (1.) The indelible Idea which every Man has of a God, and the Evidence which he gives of it to himſelf. (2.) An inviolable Attachment to Senſe, and an Habitude of judging and deciding by it, and it only. (3.) The Pride and Vanity of the human Soul, which is not ſatisfied with ſimple Truth, but mingles and adulterates it with Fables. (4.) The Ignorance of Antiquity, or of the firſt Times, and the firſt Men, whereof we have but a very dark and confuſed Knowledge by Tradition, they having left no written Monuments or Books. (5.) The Ignorance and Changes of Languages. (6.) The Style of the *Oriental* Languages, which is figurative and poetical, and perſonifies every thing. (7.) The Superſtition, Scruples, and Fears, inſpired by Religion. (8.) The Flattery of Writers. (9.) The falſe Relations of Travellers. (10.) The Fictions of Poets. (11.) The Imaginations of Painters and Sculptors. (12.) A ſmattering of Phyſics, that is, a ſlight Acquaintance with natural Bodies, and Appearances, and their Cauſes. (14.) The Eſtabliſhment of Colonies, and the Invention of Arts, which have been perverted by barbarous People. (15.) The Artifices of Prieſts. (16.) The Pride of certain Men, who have affected to paſs for Gods. (17.) The Affection and Gratitude bore by the People to certain of their Great Men and Benefactors. (18.) The Scriptures themſelves ill underſtood. The word comes from the *Greek* εἰδωλολάτρης, which is compoſed of εἶδος, *Imago*, *Image*, and λατρεύειν, *ſervire*, *to ſerve*.

IDYLLION, in Poetry, is a little gay Poem, containing the Deſcription or Narration of ſome agreeable Adventures. *Theocritus* is the oldeſt Author who has written *Idyllions*. The *Italians* imitate him, and have brought the *Idyllion* into modern Uſe. The *Idyllions* of *Theocritus* have a world of Delicacy; they appear with a clowniſh, ruſtic kind of Simplicity, but are full of the moſt exquiſite Beauties; they ſeem drawn from the Breaſt of Nature herſelf, and to have been dictated by the Graces. The *Idyllion* is a kind of Poetry, which paints the Objects it deſcribes; whereas the *Epic* Poem relates them, and the *Dramatic* acts them. The modern Writers of *Idyllions* don't keep up to that original Simplicity obſerved by *Theocritus*; the People of our Days would not bear an amorous Fiction, reſembling the clumſy Gallantries of our Peaſants. *Boileau* obſerves that the ſhorteſt *Idyllions* are uſually the beſt. The word is derived from the *Greek* εἰδύλλιον, of εἶδος, *Figure*, *Repreſentation*; in regard this Poetry conſiſts in a lively natural Image, or Repreſentation of Things.

JEAT, ſometimes called *Black Amber*, is a Mineral, or a foſſile Stone, extremely black, formed of a lapidific or bituminous Juice in the Earth, in the manner of Coal: It works like Amber, and has moſt of its Qualities. It abounds in *Dauphine*, but the beſt in the World is ſaid to be produced in ſome of the *Northern* Parts of *England*. There is alſo a factitious *Jet* made of Glaſs, in imitation of the Mineral *Jet*. This is drawn out into long hollow Strings, which are cut, and formed at pleaſure. It is much uſed in Embroideries, and in the Trimmings of Mourning, and may be made of any Colour, tho 'tis uſually black and white.

JECTIGATION, in Phyſic, is a Trembling or Palpitation felt in the Pulſe of a ſick Perſon, which ſhews that the Brain, which is the Origin of the Nerves, is attacked and threatned with Convulſions.

JECUR. See *Liver*.

JECUR UTERINUM: The *Placenta* is by ſome thus called, from the ſuppoſed Similitude of its Office with that of the Liver.

JEJUNUM. See *Inteſtines*.

JEOFAYLE; a Compound of three *French* words, *Je ay faille, I have failed.* It is uſed in a legal Senſe, when the Parties to any Suit have, in pleading, proceeded ſo far, that they have joined Iſſue, which ſhall be tryed, or is tryed by a Jury, and this Pleading or Iſſue is badly joined, ſo that it will be Error if they proceed. In this Caſe one of the Parties might, by their Counſel, ſhew it to the Court, as well after Verdict given, as before the Jury was charged: But this occaſioning great Delays in Suits, for the Redreſs thereof ſeveral Statutes were made, *viz.* 32 *H.* VIII. *c.* 30. by which it was enacted, 'That if the Jury have once paſſed upon the 'Iſſue, tho' afterwards there be found a *Jeofayle* in the 'Pleading, yet ſhall Judgment be given according to 'the Verdict of the Jury.' Other Statutes have alſo been made relating to the ſame thing, in the time of King *James* I. and Queen *Elizabeth*, and yet the Fault little mended.

S. JEROM, the Name of four ſeveral Orders of Religious, who are ſometimes alſo called *Jeronymites.* The firſt, called the Order of St. *Jerom* of *Spain*, owe their Origin to the third Order of St. *Francis*, whereof the firſt *Jeronymites* were Members. *Gregory* the Eleventh confirmed this Order, under the Name of St. *Jerom*, whom they had choſen for their Patron and their Model, and gave them the Conſtitutions of the Convent of *St. Mary of the Sepulchre*, with the Rule of St. *Auguſtine*; and for Habit, a white Tunic, with a Scapulary, a little Capuche, and a Mantle, all of their natural Colour, without Dying, and of a mean Price. The *Jeronymites* are in poſſeſſion of the Convent of *St. Laurence*, in the *Eſcurial*, where the Kings of *Spain* are buried. In *Spain* is likewiſe an Order of Nuns of St. *Jerom*, founded by a Lady towards the cloſe of the 15th Century. *Sixtus* put them under the Juriſdiction of the *Jeronymites*, and gave them the Conſtitutions of the Monaſtery of *St. Martha* of *Cordova*, which were afterwards changed by *Leo* X. for thoſe of the Order of St. *Jerom.* The ſecond Order of St. *Jerom* is that of *Lombardy*, called *St. Jerom of the Obſervance*, founded by *Loup d'Olmedo* in 1424. in the Mountains of *Cazalla*, in the Dioceſs of *Sevil.* The third Order of *Jeronymites* was founded by *Peter Gambacorti* about the Year 1377; but the Vows they made were only ſimple till 1568, when *Pius* V. appointed them to be ſolemn. They have Houſes in *Tirol*, *Italy*, and *Bavaria.* The fourth Congregation of *Jeronymites*, are the Hermites of St. *Jerom* of *Fiezoli*, begun in 1360, when *Charles de Montegraneli*, of the Family of the Count of that Name, retiring into Solitude, firſt eſtabliſhed it at *Verona.* It was approved by *Innocent* VII. under the Rule and Conſtitutions of St. *Jerom.* But *Eugenius*, in 1441 changed it for that of St. *Auguſtin.* As the Founder was of the third Order of St. *Francis*, they preſerved that Habit; but in 1460, *Pius*, permitting ſuch as pleaſed to change it, occaſioned a Diviſion among them. This Order was finally ſuppreſſed by *Clement* XI. in 1668.

JESILBASCH, Green-Head, is the Name which the *Perſians* give to the *Turks*, becauſe their Emirs wear a Green Turband.

JESSANT, a Term in Heraldry, uſed when, in a Coat of Arms, a Lion or other Beaſt is borne over ſome Ordinary; as over a Chief, a Bend, a Feſſe, &c. that Lion or Beaſt is blazoned *Jeſſant*, or *Jacent*, that is, lying over all.

JESUATES, an Order of Religious, otherwiſe called *Apoſtolical Clerks.* They were founded by *John Columbin*, and approved of by *Urban* V. in 1367. at *Viterba*; where he himſelf gave, to ſuch as were preſent, the Habit they were to wear. They followed the Rule of St. *Auguſtine*, and were ranked by *Pius* V. among the Orders of Mendicants. They were called *Jeſuates*, becauſe their firſt Founders had the Name of Jeſus continually in their Mouths. For two Centuries the *Jeſuates* were mere Seculars; but in 1606, *Paul* V. gave them leave to enter into Holy Orders. In moſt of their Houſes they were employed in Pharmacy, others practiſed Diſtillation, and ſold *Aqua Vitæ*, which occaſioned their being called *Aqua Vitæ-mongers.* Being very rich in the State of *Venice*, that Republick ſollicited their Suppreſſion, and obtained it of *Clement* IX. their Effects being employed towards ſupporting the Expences of the War in *Candia.*

JESUITS, an Order of Religious, founded by *Ignatius Loyola*, who are alſo called *the Company of Jeſus.* This Order has rendered itſelf very conſiderable by its Miſſions into the *Indies*, and by its other Employments relating to the Study of the Sciences, and the Education of Youth. The Council of *Trent* calls them, *Clerks Regulars of the Company of Jeſus.* It was in the Year 1538. that *Ignatius* having aſſembled ten of his Companions at *Rome*, choſen moſtly out of the Univerſity of *Paris*, propoſed to them to make a new Order. After this he preſented the Plan of his Inſtitution to *Paul* III. who appointed three Commiſſioners to examine it; upon whoſe Report, the Pontiff confirmed the Inſtitution, under the Name of *The Company of Jeſus*, by a Bull in 1540. By this Bull, their Number was reſtrained to Sixty, but that Reſtriction was taken away, two Years afterwards, by another Bull. The Order has ſince been confirmed by ſeveral ſucceeding Popes, who have added many new Rights and Privileges to it. The End principally propoſed by this Order, is to gain Converts to the Romiſh Church, with which View they diſperſe themſelves in every Country and Nation, and with amazing Induſtry and Addreſs purſue the End of their Inſtitution. No Difficulty ſo great that they cannot ſurmount, no Danger ſo imminent that they will not undergo, no Crimes ſo ſhocking that they will not perpetrate, provided it may be of any Service to their Cauſe. They have no particular Habit, but change and accommodate it to Times and Occaſions. This Order conſiſts of five different Claſſes; Fellows, ſpiritual Coadjutors, approved Scholars, Lay-Brothers, called alſo temporal Coadjutors, and Novices. The Fellows, which make the Body of the Company, make the three ſolemn Vows of Religion publickly, and to theſe add a ſpecial Vow of Obedience to the Head of the Church, as to what regards Miſſions among Idolaters, Heretics, &c. The ſpiritual Coadjutors alſo make public Vows of Chaſtity, Poverty, and Obedience, but omit the fourth relating to Miſſions. Approved Scholars are thoſe, who, after two Years Noviciate, have been admitted, and have made three Vows of Religion; not ſolemn, indeed, but yet declared. Theſe are in the way to become Fellows, or ſpiritual Coadjutors, according as the General thinks fit. Theſe Degrees, eſpecially that of Fellow, are never conferred till after two Years Noviciate, and ſeven Years Study, ſeven of Regency, a third Year of Noviciate, and thirty three Years of Age. The Vows of the Scholars are abſolute on their ſide, but only conditional on the ſide of the Order; the General having it in his power to diſpenſe with them.

The Order is divided into Aſſiſtances, the Aſſiſtances into Provinces, and the Provinces into Houſes. It is governed by a General, who is perpetual and abſolute. He reſides at *Rome*, and is elected by a General Congregation of the Order. He has with him, five Perſons, who are, as it were, his Miniſters. They are called Aſſiſtants, and bear the Name of the Kingdom or Country to which they belong, and by whom they are appointed, *viz.* of *Italy*, *France*, *Spain*, *Germany*, and *Portugal.* To theſe belongs the Care of preparing the Matters of their reſpective Aſſiſtances, and of putting them in a Method to facilitate their Expedition. It is by theſe, that both Inferiors and Superiors go regularly before the General. They are choſen by the Congregation, and are not only the General's Counſellors to aſſiſt him in his Buſineſs, but alſo to obſerve his Conduct; and, if they find occaſion, they may call a general Congregation without his Conſent, who may depoſe him in form; or they have it in their power to depoſe him, themſelves, after having, by Letter, obtained the Suffrages of their Provinces.

Each Province has four kinds of Houſes, *viz.* profeſſed Houſes, which can have no Lands belonging to them; Colleges, where the Sciences are taught; Reſidences, where are a Number of Workmen employed in ſuch Offices, as have any immediate relation to Preaching, Confeſſion, Miſſions, &c. and Houſes of Novices. Among the Colleges there are ſome called ſimply Colleges, and others called Seminaries. Theſe laſt are ſet aſide, for the young *Jeſuits* to go through their Courſes of Philoſophy and Theology in; the others are for Strangers. Each Province is governed by a Provincial, and each Houſe by a Superior, who is called a Rector in the Colleges, and a Superior in the other Houſes. *Ignatius* regulated the Diſcipline of theſe Houſes, and eſpecially of the Colleges, by what he had obſerv'd in the *Sorbonne*, while he ſtudied at *Paris.* The Fellows of this Order renounce, by a ſolemn Vow, all Preferment, and eſpecially Prelacy; and cannot receive any, unleſs enjoin'd thereto by the Pope under pain of Sin. This the Pope ſometimes does; inſomuch that they have had eight Cardinals of their Order.

JET D'EAU, a *French* Word ſignifying a Fountain, that caſts up Water to any conſiderable Height in the Air. Mr. *Mariotte* ſaith, That a *Jet d'Eau* will never riſe ſo high as its Reſervatory, but always falls ſhort of it by a Space, which is in a ſubduplicate Ratio of that Height; and this he proves by ſeveral Experiments. He ſaith alſo, That if a greater, branches out in many ſmaller ones, or is diſtributed thro' ſeveral *Jets*, the Square of the Diameter of the main Pipe, muſt be proportioned to the Sum of all the Expences of its Branches; and particularly, That if the Reſervatory be 52 Foot high, and the Adjutage half an Inch in Diameter, the Pipe ought to be three Inches in Diameter. See *Fountain*, *Water*, &c.

JETSON. See *Flotſon*.

JEWEL-OFFICE. An Office that takes care of faſhioning and weighing the King's Plate, and delivering it out by ſuch Warrants, as they receive from the Lord Chamberlain. When his Majeſty makes any Preſent of Plate, *&c.* they have the Charge of providing it, with ſome other things leſs material. The principal Officer is the Maſter of the Jewel-Office, whoſe Salary is 450*l.* *per ann.* and beſides, the Yeoman and Groom, at 106 *l.* 15 *s.* *per ann.* each, and a Clerk at 13 *l.* 6 *s.* 8 *d.* which are in the King's Gift. Beſides, there are in this Office, in the Gift of the Lord Chamberlain, the Poet-Laureat, at 100 *l.* *per ann.* Salary; the King's Hiſtoriographer, at 200 *l.* *per ann.* the Hiſtory Painter, and Principal Painter, at 200 *l.* *per ann.* the Painter in Enamel, and the Surveyor and Keeper of the Pictures at 200 *l.* *per ann.* The Goldſmith and Jeweller are employ'd by the Maſter, and are uſually in his Gift.

JEWS-EAR; a kind of Fungus, Muſhroom, or ſpungy Subſtance, that grows about the Root of the Elder-Tree. It is chiefly uſed in Decoction, which is found Detergent and Vulnerary, and a good Gargle in ſore Throats.

JEZIDE, or *Jezidean*, a Term uſed among the Mahometans to ſignify an Heretic. *Leunclavius* tells us, that the Name is derived from an Emir call'd *Jezide*, who kill'd the two Sons of *Ali*, *Haſan* and *Huſſein*, two Nephews of *Mahomet* on their Mother's ſide, and perſecuted the Poſterity of the Prophet. The *Agarenians*, whoſe Emir or Prince he was, look'd on him as an Impious and Heretical Perſon; and hence took occaſion to call all whom they accounted Heretics, *Jezideans.* Some Authors mention the *Jezides* as a particular People, ſpeaking a Language different both from the *Turkiſh* and *Perſian*, tho' ſomewhat akin to the laſt. They further tell us, that there are two kinds of *Jezides*; the one Black, the other White. The White have no Slit in the Boſom of their Shirt; but barely an Opening for the Head to paſs thro': a thing that they obſerve with a great deal of ſtrictneſs, in memory of a Circle of Gold and Light which fell from Heaven upon the Neck of their Grand Scheik or Chief of their Sect. The Black *Jezides* are Fakirs, or Religious. The *Turks* and *Jezides* bear a ſtrong averſion to each other; and the greateſt Affront one can put on a *Turk*, is to call him *Jezide.* On the contrary the *Jezides* love the Chriſtians, being perſuaded that *Jezide*, their Chief, is Jeſus Chriſt: Or rather becauſe ſome of their Traditions mention that *Jezide* made an Alliance with the Chriſtians againſt the Muſſulmen. They drink Wine even to Exceſs when they can get it, and eat Swine's Fleſh. They never undergo Circumciſion, excepting when they are forced to it by the *Turks.* Their Ignorance is ſurprizing; they have no Books. Indeed they pretend to believe in the Goſpel, and in the Sacred Books of the Jews, but go without ever reading either one or other of 'em. They make Vows, and go in Pilgrimage; but have no Moſques, Temples, nor Oratories, no Feaſts nor Ceremonies; all their Religious Worſhip conſiſting in ſinging Hymns to Jeſus Chriſt, the Virgin, *Moſes*, and *Mahomet*. When they pray, they look towards the Eaſt, in imitation of the Chriſtians; whereas the Muſſulmen turn towards the South. They believe the Devil may poſſibly, one day, come into favour again with God; and that he is the Executor of God's Juſtice in the other World: for which reaſon they make it a Point of Conſcience not to ſpeak ill of him, leſt he ſhould revenge himſelf of 'em.

The Black *Jezides* are reputed Saints, and 'tis forbidden to weep at their Death; inſtead whereof, they make Rejoicings: and yet for the generality they are no more than Shepherds. They are not allow'd to kill the Animals they eat; that Office belongs to the White *Jezides.* The *Jezides* go in Companies like the *Arabs.* They often change their Habitations, and live in black Tents made of Goats-Hair, and encompaſs'd with large Ruſhes and Thorns interwoven. They diſpoſe their Tents in a Circle, placing their Flocks in the middle. They buy their Wives; the ſtated Price whereof is 200 Crowns, be they better or worſe. They are allow'd Divorce, provided it be to become Hermites. 'Tis a Crime among them to ſhave the Beard, tho' ever ſo little. They have ſome Cuſtoms which intimate that they ſprang originally out of ſome Sect of Chriſtians: for inſtance, in their Feaſts one of 'em preſents a Cup full of Wine to another, bidding him take the Cup of the Blood of Jeſus Chriſt; which laſt kiſſes the Hand of him who preſents it, and drinks.

IGNIS FATUUS. See *Jack with a Lanthorn.*

IGNITION, in Chymiſtry, ſignifies the Application of Fire to Metals, till ſuch time as they become red-hot, without melting: which happens in Gold and Silver, but eſpecially in Iron. Lead and Tin are too ſoft and fuſible to bear *Ignition.*

IGNORAMUS is a Word uſed by the Grand Inqueſt, impannel'd in the Inquiſition of Cauſes Criminal, and Publick, and written upon the Bill, when they diſlike their Evidence, as defective or too weak to make good the Preſentment. The Effect of which is, that all farther Enquiry upon that Party for that Fault is thereby ſtopt, and he deliver'd without farther Anſwer.

IGNORANCE, or *Want of Knowledge*, is chiefly owing to theſe three Cauſes; *Firſt*, Want of Ideas; *Secondly*, Want of a diſcoverable Connection between the Ideas we have; *Thirdly*, Want of tracing and examining our Ideas. *Firſt*, There are ſome things we are ignorant of for want of Ideas. All the ſimple Ideas we have, are confined to the Obſervation of our Senſes, and the Operations of our own Minds, that we are conſcious of in ourſelves. What other Ideas it is poſſible other Creatures may have, by the aſſiſtance of other Senſes or Faculties, more or perfecter than we have, or different from ours, it is not for us to determine: but to ſay or think there are no ſuch, becauſe we conceive nothing of them, is no better an Argument, than if a blind Man ſhould be poſitive in it, there was no ſuch thing as Sight and Colours, becauſe he had no manner of Idea of any ſuch thing. What Faculties therefore other Species of Creatures have, to penetrate into the Nature and inmoſt Conſtitutions of Things, we know not: This we know, and certainly find, that we want other Views of them, beſides thoſe we have, to make Diſcoveries of them more perfect. The Intellectual and Senſible World are in this perfectly alike, that the Parts which we ſee of either of them, hold no proportion with that we ſee not; and whatſoever we can reach with our Eyes, or our Thoughts of either of them, is but a Point, almoſt nothing in compariſon of the reſt. Again, the Want of Ideas, which we yet ſeem capable of, is another great Obſtacle in our way, and keeps us in Ignorance of things, we conceive capable of being known. Bulk, Figure and Motion we have Ideas of; yet not knowing what is the particular Bulk, Motion, and Figure of the greateſt part of the Bodies of the Univerſe, we are ignorant of the ſeveral Powers, Efficacies and Ways of Operation, whereby the Effects we daily ſee are produced. Theſe are hid from us in ſome things, by being too remote, in others by being too minute. When we conſider the vaſt Extent of the known and viſible Parts of the World, and the Reaſons we have to think, that what lies within our Ken, is but a ſmall Part of the immenſe Univerſe; we ſhall then diſcover an huge Abyſs of *Ignorance:* What are the particular Fabricks of the great Maſſes of Matter, which make up the whole ſtupendous Frame of Corporeal Beings, how far they are extended, and what is their Motion, and how continued, and what influence they have upon one another, are Contemplations, that at firſt glimpſe our Thoughts loſe themſelves in. If we confine our Thoughts to this little Canton, this Syſtem of our Sun, and the groſſer Maſſes of Matter, that viſibly move about it; what ſeveral ſorts of Vegetables, Animals, and Intellectual Corporeal Beings, infinitely different from thoſe of our little Spot of Earth, may probably be in other Planets, to the knowledge of which, even of their outward Figures and Parts, we can no way attain, whilſt we are confin'd to this Earth, there being no natural Means, either by Senſation or Reflexion, to convey their certain Ideas into our Minds? There are other Bodies in the Univerſe no leſs conceal'd from us by their Minuteneſs. Theſe inſenſible Corpuſcles being the active Parts of Matter, and great Inſtruments of Nature, on which depend all their ſecondary Qualities and Operations, our Want of preciſe diſtinct Ideas of their primary Qualities keeps us in incurable *Ignorance* of what we deſire to know about them.

Did we know the mechanical Affections of Rhubarb or Opium, we might as eaſily account for their Operations of purging and cauſing Sleep, as a Watchmaker can for the Motions of his Watch. The diſſolving of Silver in *Aqua Fortis*, or Gold in *Aqua Regia*, and not *vice verſâ*, would be then perhaps no more difficult to know, than it is to a Smith, to underſtand, why the turning of one Key will open a Lock, and not the turning of another. But whilſt we are deſtitute of Senſes acute enough to diſcover the minute Particles of Bodies, and to give us Ideas of their mechanical Affections, we muſt be content to be ignorant of their Properties and Operations; nor can we be aſſured about them any farther, than ſome few Tryals we make, are able to reach: but whether they will ſucceed again another time, we cannot be certain. This hinders our certain Knowledge of univerſal Truths concerning natural Bodies; and our Reaſon carries us herein very little beyond particular Matter of Fact; and therefore it is Matter of Doubt, that how far ſoever human Induſtry may advance uſeful and experimental Philoſophy in Phyſical Things, yet ſcientifical will ſtill be out of our reach; becauſe we want perfect and adequate Ideas of thoſe very Bodies which are neareſt to us, and moſt at our Command. This, at firſt ſight, ſhews us how diſproportionate our Knowledge is to the whole Extent, even of material Beings: to which, if we add the Conſideration of that infinite Number of Spirits that may be, and probably are, which are yet more remote from our Knowledge, and whereof we have no cognizance; we ſhall find this Cauſe of *Ignorance* conceals from us, in an impenetrable Obſcurity, almoſt the whole Intellectual World; a greater, certainly a more beautiful World, than the material: For abating ſome very few Ideas of Spirit, which we get from our own Mind by Reflection, and from thence the beſt we can collect of the Father of all Spirits, the Author of them, and us, and all things, we have no certain Information, ſo much as of the Exiſtence of other Spirits, but by Revelation; much leſs have we diſtinct Ideas of their different Natures, States, Powers, and ſeveral Conſtitutions, wherein they agree, or differ one from another, and from us: and therefore in what concerns their different Species and Properties, we are under an abſolute *Ignorance*.

The ſecond Cauſe of *Ignorance*, is the want of diſcoverable Connection between thoſe Ideas we have: where we want that, we are utterly incapable of univerſal and certain Knowledge, and are, as in the former Caſe, left only to Obſervation and Experiment. Thus the mechanical Affections of Bodies, having no Affinity at all with the Ideas they produce in us, we can have no diſtinct Knowledge of ſuch Operations beyond our Experience, and can reaſon no otherwiſe about them, than as the Effects or Appointmen of an infinitely wiſe Agent, which perfectly ſurpaſs our Comprehenſions. The Operation of our Minds upon our Bodies is as unconceivable: How any Thought ſhould produce a Motion in Body, is as remote from the Nature of our Ideas, as how any Body ſhould produce any Thought in the Mind. That it is ſo, if Experience did not convince us, the Conſideration of the Things themſelves would never be able, in the leaſt, to diſcover to us. In ſome of our Ideas there are certain Relations, Habitudes, and Connections, ſo viſibly included in the nature of the Ideas themſelves, that we cannot conceive them ſeparable from them by any Power whatſoever; in theſe only we are capable of certain and univerſal Knowledge. Thus the Idea of a right-lined Triangle neceſſarily carries with it an Equality of its Angles to two right ones; but the Coherence and Continuity of the Parts of Matter, the Production of Senſation in us, of Colours and Sounds, *&c.* by Impulſe and Motion, being ſuch wherein we can diſcover no natural Connection with any Ideas we have, we cannot but aſcribe them to the arbitrary Will and Good-Pleaſure of the wiſe Architect. The Things that we obſerve conſtantly to proceed regularly, we may conclude do act by a Law ſet them; but yet by a Law we know not, whereby tho Cauſes work ſteadily, and Effects conſtantly flow from them, yet their Connections and Dependencies being not diſcoverable in our Ideas, we can have but an experimental Knowledge of them. Several Effects come every day within the notice of our Senſes, of which we have ſo far ſenſitive Knowledge; but the Cauſes, Manner, and Certainty of their Production, we muſt, for the foregoing Reaſons, be content to be ignorant of. In theſe we can go no further than particular Experience informs us of Matter of Fact, and, by Analogy, gueſs what Effects the like Bodies are upon other Trials like to produce. But as to perfect Science of natural Bodies (not to mention ſpiritual Beings) we are ſo far from being capable of any ſuch thing, that it may be reckoned loſt Labour to ſeek after it.

The third Cauſe of *Ignorance*, is our want of tracing thoſe Ideas we have, or may have; and finding out thoſe intermediate Ideas, which may ſhew us what Habitude of Agreement or Diſagreement they may have one with another: and thus many are ignorant of Mathematical Truths for want of Application, in enquiring, examining, and by due ways comparing thoſe Ideas. See *Knowledge*.

ILIAC, a Term in Phyſick, applied to a violent and dangerous Diſeaſe, called the *Iliac Paſſion*, or *Miſerere*. It conſiſts in an Expulſion of feculent Matter by the Mouth, accompanied with a Swelling of the lower Ventricle, an intenſe Pain, and a total Conſtipation. The immediate Cauſe of the *Iliac* Paſſion ſeems owing to an Irregularity in the Periſtaltic Motion of the Guts, *viz.* when it begins with the lower, and is continued to the higher. Other Cauſes are the Hardneſs of the Excrements, Inflammation of the Inteſtines, and their Engagement in the Anus or Scrotum, as it frequently happens in Hernia's, their twiſting, and their entering within one another. Perſons afflicted with the *Iliac Paſſion*, have ſometimes been found to return Suppoſitories and Gliſters by the Month. Some have been cured of it by ſwallowing a great Quantity of Quick-ſilver, or a Musket-Ball: When the Guts are twiſted, or enter one within another, the Weight of theſe Bodies ſometimes ſetting them to rights again. The *Iliac Paſſion* takes its Name from the Inteſtine *Ilion*, in regard of its being uſually affected in that Diſtemper, or perhaps from the *Greek* Verb εἰλεῖν, *to turn, twiſt*; whence alſo the *Latins* call it *Volvulus*.

ILIAC VESSELS. See *Artery* and *Vein*.

ILIACUS EXTERNUS, or *Pyriforomis*, is a Muſcle of the Thigh, which ariſes from the internal concave Part of the *Os Sacrum*, towards the bottom, and deſcending obliquely along the great Sinus of the *Os Ilium*, from a round fleſhy Origin, joins the *Glutæus Medius*, and is inſerted by a round Tendon at the Bottom of the Great Trochanter.

ILIACUS INTERNUS, the Name of the Muſcle of the Thigh, which ariſes fleſhy from the internal concave Part of the *Os Ilium*; and in its Deſcent over the inferior Part of it, joins with the *Pſoas magnus*, and is inſerted with it, under the Termination of the *Pectineus*. This, with the *Pſoas magnus*, moves the Thigh forward, in walking.

ILIAD, the Name of the firſt of *Homer*'s Poems. The Poet's Deſign in the *Iliad*, was to ſhew the *Greeks*, who were divided into ſeveral little States, how much it was their Intereſt to preſerve an Harmony and good Underſtanding among them. In order to which, he ſets before their Eyes, the Calamities that befel their Anceſtors from the Wrath of *Achilles*, and his Miſunderſtanding with *Agamemnon*, and the Advantages that accrued to them from their Union. The *Iliad* is divided into twenty four Books, which are marked with the Letters of the Alphabet. *Pliny* gives us an Account of an *Iliad* written on ſo very ſlender a Paper, that the whole might be contained in a Nut-ſhell. For the Conduct of the *Iliad*, ſee F. *Boſſu*, Madam *Dacier*, and M. *de la Motte*. The Critics maintain the *Iliad* to be the firſt, and yet the beſt Poem that ever appeared in the World. *Ariſtotle*'s Poetics are almoſt taken wholly from it; the Philoſopher had nothing to do but to form Precepts from the Poet's Practice. Some Authors tell us, that *Homer* invented not only Poetry, but all other Arts and Sciences; and that there are the viſible Marks of a perfect Knowledge in every one of them, to be ſeen in the *Iliad*. The ingenious Mr. *Barnes* of *Cambridge* had prepared a Work for the Preſs, to prove *Solomon* to have been the Author of the *Iliad*. The word is derived from the *Grcek* ἰλιὰς, of ἴλιον, *Ilium*, *Troy*, a famous City in *Aſia*, which the *Greeks* beſieged for the ſpace of ten Years, and at laſt deſtroyed, on account of the Rape of *Helena*, which makes the Subject of the Work.

ILIUM. See *Inteſtines*.

ILIUM OS. See *Oſſa Innominata*. Theſe are both derived from εἰλέω, *circumvolvo*, *to roll about*; becauſe the Gut, which is principally called by this Name, is long, and lies in Folds towards the bottom of the Abdomen, and therefore gives many of the adjacent Parts theſe Appellations.

ILLEVIABLE in Law, ſignifies ſomething that cannot be levied, and therefore the word *Nihil* is ſet on a Debt or Due that is illeviable.

ILLUMINATION, the Action of a luminous Body, or Body that emits Light, or the Paſſion of an opake Body that receives it.

ILLUMINED, a Church-Term, antiently applied to ſuch Perſons as had received Baptiſm. This Name was occaſioned by a Ceremony in Baptiſm, which conſiſted in putting a lighted Taper in the Hand of the Perſon baptized, as a Symbol of the Faith and Grace he had received in the Sacrament.

ILLUMINED, is alſo the Name of a Sect of Hereticks, who ſprang up in *Spain* about the Year 1575, and called by the *Spaniards*, *Alumbrados*. Their Leaders were *Villalpando*, a Prieſt, originally of the *Iſle of Tenarif*, and a Carmelite called *Catherine de Jeſus*. Theſe had a great Number of Diſciples and Followers, moſt of whom were apprehended, and clapp'd up in the Inquiſition at *Cordoua*; ſome whereof were put to death, and the reſt abjured their Errors. Their principal Doctrines were, That by means of a ſublime manner of Prayer, which they had attained to, they entered into ſo perfect a State, that they had no occaſion for Ordinances, Sacraments, nor good Works, and that they could give way, even to the vileſt Actions without Sin. The Sect of *Illumined* was revived in *France* in the Year 1634, and were ſoon after joined by the *Guerinets*, or Diſciples of *Peter Guerin*, who together, made but one Body, called alſo *Illumined*; but they were ſo hotly purſued by *Louis* XIII.

that they were ſoon deſtroyed. The Brothers of the Roſy-Croſs are alſo called *Illumined*.

ILLUSTRIOUS, heretofore in the *Roman* Empire was a Title of Honour peculiar to People of a certain Rank. It was firſt given to the moſt diſtinguiſhed among the Knights, who had a right to bear the *Latus Clavus*, afterwards they were entitled *Illuſtrious*, who held the firſt Rank among thoſe called *Honorati*; that is, to the *Præfecti Prætorii*, the *Præfecti Urbis*, *Treaſurers*, *Comites*, &c. There were, however, different Degrees among the *Illuſtres*: As in *Spain* they have Grandees of the firſt and ſecond Claſs, ſo in *Rome* they had their *Illuſtres*, whom they called *Great*, *Majores*, and others *Leſs*, called *Minores*. For inſtance, the *Præfectus Prætorius* was a Degree below the Maſter of the Offices, tho' they were both *Illuſtres*. The Novel of *Valentinian* diſtinguiſhes as far as five kinds of *Illuſtres*, among whom the *Illuſtres Adminiſtratores* bear the firſt Rank.

IMAGE, a natural, lively Repreſentation of an Object, oppoſed to a ſmooth well-poliſhed Surface. The *Latin* word *Imago*, comes originally from the *Greek* μιμεῖσθαι, *imitari*. *Image* alſo ſignifies any artificial Repreſentation performed by Man, as in Painting, Sculpture, and the like: In which ſenſe, the word is now generally uſed in ſpeaking of Things holy, or Things imagined to be ſo.

The Uſe, and Adoration of Images, are Things that have been a long time controverted in the World. The *Lutherans* condemn the *Calviniſts*, for breaking the Images in the Churches of the Catholics, looking on it as a kind of Sacrilege; and yet they condemn the *Romaniſts*, (who are profeſſed Image-worſhippers) as Idolaters: nor can theſe laſt keep pace with the *Greeks*, who go far beyond them in this Point, which has occaſioned abundance of Diſputes among them. The *Jews* abſolutely condemn all *Images*, and don't ſo much as ſuffer any Statues or Figures in their Houſes, much leſs in their Synagogues, or Places of Worſhip. The *Mahometans* have a perfect Averſion to *Images*, which was what led them to deſtroy moſt of the beautiful Monuments of Antiquity, both Sacred and Profane, at *Conſtantinople*.

The noble *Romans* preſerved the *Images* of their Anceſtors with a great deal of Care and Concern, and had them carried in Proceſſion at their Funerals and Triumphs. They were commonly made of Wax or Wood, tho' ſometimes of Marble or Braſs: They placed them in the Veſtibles of their Houſes, and they were to ſtay there, even if the Houſes happened to be ſold: it being accounted impious to diſplace them. *Appius Claudius* was the firſt who brought them into the Temples, in the Year of *Rome* 259, and he added Inſcriptions to them, ſhewing the Origin of the Perſons repreſented, and their brave and vertuous Atchievements. It was not, however, allowed for all, who had the Images of their Anceſtors in their Houſes, to have them carried at their Funerals; this was a thing only granted to ſuch as had honourably diſcharged themſelves of their Offices, for thoſe who failed in this reſpect forfeited that Privilege, and in caſe they had been guilty of any great Crime, their *Images* were broken in pieces.

IMAGE, *in Philoſophy*, ſignifies the Trace or Mark which outward Objects impreſs on the Mind, by means of the Organs of Senſe. *Image*, in Opticks, ſignifies an Object projected on the Baſe of a Convex-Mirror. As the Diſtance of the Object from the Mirror, is to the Diſtance from the *Image* to the Glaſs; ſo is the Diameter of the Object, to the Diameter of the *Image*. This is a Rule which Mr. *Molyneux* gives us for finding the Diameter of an *Image* on the Baſe of a Convex-Glaſs. See *Optics*. *Image* alſo ſignifies the Deſcription of any thing in a Diſcourſe.

IMAGES, *in Diſcourſe*, are defined, by *Longinus*, to be, in general, any Thoughts proper to produce Expreſſions, and which preſent a kind of Picture to the Mind. But, in the more limited Senſe, he ſays, *Images* are ſuch Diſcourſes as come from us, when by a kind of Enthuſiaſm, or an extraordinary Emotion of the Soul, we ſeem to ſee the Things whereof we ſpeak, and preſent them before the Eyes of thoſe who hear.

IMAGES, *in Rhetoric*, have a very different Uſe from what they have among the Poets; the End principally propoſed in Poetry is Aſtoniſhment and Surprize, whereas the thing chiefly aimed at in Proſe, is to paint things naturally, and to ſhew them clearly. They have this, however, in common, that they both tend to move, each in its kind. Theſe *Images*, or *Pictures*, are of vaſt uſe, to give Weight, Magnificence, and Strength to a Diſcourſe. They warm and animate a Diſcourſe, and when managed with Art, according to *Longinus*, ſeem, as it were, to tame and ſubdue the Hearer, and put him in the power of the Speaker.

IMAGINATION, a Power or Faculty of the Soul, by which it conceives, and forms Ideas of Things, by means of certain Traces and Impreſſions that had been before made in the Fibres of the Brain, by Senſation. The Organs of our Senſes are compoſed of little Threads, or Fibres, which, at one end, terminate in the outward Parts of the Body and Skin, and at the other in the middle of the Brain. Theſe little Fibres may be moved two ways; either beginning at that end which terminates in the Brain, or that which terminates without. Now the Agitation of theſe Fibres cannot be communicated to the Brain, but the Soul will perceive ſomething. If then the Agitation begins where Objects make their firſt Impreſſion, *viz.* on the external Surface of the Fibres of our Nerves, and is communicated thence to the Brain, the Soul, in that Caſe, judges that what ſhe perceives is without, that is, ſhe perceives an Object as preſent: but if only the interior Fibres be moved by the Courſe of the animal Spirits, or in ſome other manner, the Soul then imagines, and judges, that what ſhe perceives is not without, but within the Brain; that is, ſhe perceives an Object as abſent: And herein lies the Difference between Senſation and *Imagination*.

But in order to give a more preciſe and diſtinct Idea of the *Imagination*, it muſt be obſerved, that as often as there happens to be any Alteration in that part of the Brain where the Nerves terminate, there alſo happens an Alteration in the Brain; that whenever there is any Motion in that part, to change the Order of its Fibres, there alſo happens a new Perception in the Soul, and ſhe finds ſomething new, either by way of Senſation or *Imagination*; neither of which can be without an Alteration of the Fibres in that part of the Brain. So that the Faculty of *Imagining*, or *Imagination*, only conſiſts in the Power which the Soul has of forming Images of Objects, by producing a Change in the Fibres of that part of the Brain, which may be called the principal Part, becauſe it correſponds to all the Parts of our Body, and is the Place where the Soul (if it may be ſo ſaid) immediately reſides. It matters not which that Part is, nor whether the Opinion of *Willis* be true, who places the common Senſe in the two Bodies, called *Corpora Striata*, and the *Imagination* in the *Corpus Calloſum*; or that of *Fernelius*, who places Senſation in the *Pia Mater*, that encompaſſes the Subſtance of the Brain; or that of *Deſcartes*, who places it in the Pineal Gland: it ſuffices that there is ſome ſuch Part.

Since then the *Imagination* only conſiſts in a Power which the Soul has of forming Images of Objects, by impreſſing them on the Fibres of the Brain, it follows, that the larger and more diſtinct the *Veſtigia*, or Tracks of the animal Spirits, which are the Lines or Strokes, as it were, of thoſe Images, are, the more ſtrongly and diſtinctly the Soul imagines thoſe Objects. Now as the Breadth, Depth, and Cleanneſs of the Strokes of a Graving depend on the Force wherewith the Graver acts, and the Obedience which the Copper yields; ſo the Depth and Cleanneſs of the Tracks of the *Imagination* depend on the Force of the animal Spirits, and the Conſtitution of the Fibres of the Brain; and it is that Variety which is found in thoſe two things, to which we owe almoſt all that vaſt Difference which we obſerve in Peoples Minds. Thus, on the one ſide are Abundance and Scarcity, Briskneſs and Slowneſs, Largeneſs and Smallneſs of the animal Spirits; and on the other hand Delicacy or Groſsneſs, Humidity or Dryneſs, Stiffneſs or Flexibility of the Fibres of the Brain; and, laſtly, a particular Relation which the animal Spirits may have with thoſe Fibres. From the various Combinations of which Things, will reſult a ſufficiently great Variety, to account for all the different Characters which appear in the Minds of Men: and from the ſame Principle flows that Difference which is obſerved in the ſame Perſon's Mind, at different Times, and under different Circumſtances, as in Childhood, Manhood, and Old Age, in Sickneſs, Health, *&c.* See *Animal Spirits*. It may here be obſerved, that the Fibres of the Brain are much more agitated by the Impreſſion of Objects, than by the Courſe of the animal Spirits; and for this reaſon the Soul is more affected with Objects, which it perceives by Senſation, and which it looks on as preſent, and capable of giving it Pleaſure or Pain, than by thoſe perceived by *Imagination*, which it judges to be diſtant. And yet it ſometimes happens, that in Perſons, whoſe animal Spirits are extremely agitated by Faſting, Waking, Drinking, a Fever, or ſome violent Paſſion, theſe Spirits move the inward Fibres of the Brain as forcibly as outward Objects do; ſo that thoſe Perſons perceive things by Senſation, which they ſhould only perceive by *Imagination*; for *Imagination* and *Senſation* only differ from each other, as the greater from the leſs. See Father *Malebranch*, *Recher. de la Verité*, *lib.* 2.

IMAM or IMAN: A Miniſter in the *Mahometan* Church anſwering to a Vicar among us. The Word properly ſignifies Prelate, or Chief; but the Muſſulmen frequently apply it to a Perſon who has the Care and Intendancy of a Moſque, who is always there the firſt, and reads Prayers to the People, which they repeat after him.

The word *Imam* is alſo applied by way of Excellence to the four Chiefs, or Founders of the four principal Sects in the *Mahometan* Religion. Thus *Ali* is the *Imam* of the *Perſians*, or of the Sect of *Schiaiens*; *Abu-beker* the *Imam* of the *Sunniens*, which is the Sect follow'd by the *Turks*. *Saphii* or *Safi-y*, the *Imam* of another Sect, &c. The *Mahometans* don't agree among themſelves about the *Imamat* or Dignity of the *Imam*. Some think it of divine Right, and attach'd to a ſingle Family, as the Pontificate of *Aaron*. Others hold, that it is indeed of divine Right, but deny it to be ſo attach'd to any ſingle Family, as that it may not be transfer'd to another. They add, that the *Imam* is to be clear of all groſs Sins, and that otherwiſe he may be depoſed, and his Dignity confer'd on another. However this be, 'tis certain that after an *Imam* has once been own'd as ſuch, by the Muſſulmen, he who denies that his Authority comes immediately from God, is accounted impious; he who does not obey him, a Rebel; and he who pretends to contradict what he ſays, a Fool, among the orthodox of that Religion.

IMBARGO, a Stop or Stay put upon Ships uſually by public Authority.

IMBECILITY, is a State of Languor, or Decay, wherein the Body is not able to perform its uſual Exerciſes or Functions.

IMBEZZLE, to waſte, ſcatter and conſume; as where a Perſon intruſted with Goods, waſtes and diminiſhes them, he is ſaid to *imbezzle* them.

IMBIBE, is uſed commonly in the ſame Senſe as *abſorb*; as where a dry porous Body takes up another that is moiſt.

IMBRICATED, is uſed by ſome Botaniſts to expreſs the Figure of the Leaves of ſome Plants, which are hollow like an *Imbrex*, or Gutter Tile.

IMITATION, in Muſic, is where one Party imitates the ſinging of another either throughout the whole Piece, which is one of the Kinds of Canon, or only during ſome Meaſures, which is a ſimple *Imitation*. Sometimes the Motion or the Figure of the Notes, alone, is imitated; and that, ſometimes even by a contrary Motion, which makes what they call a Retrograde *Imitation*. The *Imitation* differs from the Fugue, in regard, in the former the Repetition muſt be a 2d, a 3d, a 6th, 7th, or 9th, either above or below the firſt Voice: Whereas were the Repetition to an Uniſon a 4th, 5th, or 8th, it would be a Fugue.

IMMACULATE, *without Stain or Sin*: A Term much uſed among the *Romaniſts*, when ſpeaking of the Conception of the Bleſſed Virgin, they call it *immaculate*: intimating that ſhe was free from Original Sin. When the Cap is given to a Doctor of the *Sorbonne*, he is obliged to ſwear that he will defend the *immaculate* Conception. This was decreed by an Act of the *Sorbonne* in the 14th Century; in imitation of which, 80 other Univerſities made the ſame Order. The Military Orders in *Spain* are all ſolemnly obliged to defend this Prerogative of the Virgin. See *Conception*.

Congregation of the Immaculate Conception. In moſt Nunneries there is a Society of ſecular Maids, whoſe End is to honour the *immaculate* Conception: Of which they make a public Proteſtation every Year, and a private one every Day.

IMMANENT: A Term in Logic. The Schoolmen diſtinguiſh two kinds of Actions; the one tranſitory, which paſs from the Agent to the Patient; the other *immanent*, which continue in the Agent.

IMMATERIAL, ſomething devoid of Matter; or that is pure Spirit. Thus God, Angels, the Human Soul, are *immaterial* Beings. *Plato* argues the *Immateriality* of the Soul from theſe ſix Topics. 1. From its Simplicity. 2. From its Independency on the Body, which is two-fold; in its *Eſſe* and its *Operare*, in exiſting, and in acting or operating ſeparately. 3. From its Rule and Authority over the Body. 4. From its Likeneſs and Similitude to God, which diſcovers itſelf in the Pleaſure it enjoys in ſpiritual Things, in its aiming at ſpiritual Objects, &c. 5. From its ſpiritual Manner of perceiving material Objects. Laſtly, From its Indiviſibility, Capacity, Activity, Immortality, &c.

IMMEDIATE, that which precedes or follows ſome other thing without any Interpoſition.

IMMEDIATE, alſo ſignifies ſomething that acts without Means, without Medium, as *immediate* Grace, an *immediate* Cauſe, &c. There have been great Diſputes among Divines about *immediate* Grace. The queſtion in debate was, Whether Grace acted on the Heart and Mind by an *immediate* Efficacy, independent of all external Circumſtances; or, Whether a certain Aſſemblage and Improvement of Circumſtances join'd to the Miniſtery of the Word, might produce a Converſion of Soul.

IMMEMORIAL, an Epithet given to the Time of Duration of any thing, whoſe Beginning we know nothing of: in a legal Senſe, a thing is ſaid to be of Time *immemorial*, or Time out of mind, that was before the Reign of our King *Edward* II.

IMMENSE, is that whoſe Amplitude or Extenſion no Finite Meaſure whatſoever, or how oft ſoever repeated, can equal.

IMMERSION, an Action by which any thing is plunged into Water or other Fluid. In the firſt Ages of Chriſtianity, Baptiſm was performed by *Immerſion*; by three *Immerſions*. The Cuſtom of *Immerſion* is ſtill preſerved in *Portugal*, and among the Anabaptiſts in other Parts. *Immerſion*, in Pharmacy, is a Preparation of ſome Medicine, by letting it ſteep for ſome time in Water, in order to take ſome ill Faculty or Taſte from it: as is done in Rhubarb, to moderate its Force; in Lime, to take away its Salt; and in Olives, which are preſerved in Brine.

IMMERSION, in Aſtronomy, is when a Star or Planet is ſo near the Sun with regard to our Obſervations, that we cannot ſee it; being as it were envelop'd and hid in the Rays of that Luminary. *Immerſion* is alſo the Beginning of an Eclipſe of the Moon; that is, the moment when the Moon begins to be darkned, and to enter into the Shadow of the Earth. And the ſame Term is uſed with regard to an Eclipſe of the Sun, when the Disk of the Moon begins to cover it. Emerſion is the Term oppoſite to *Immerſion*, and ſignifies the moment wherein the Moon begins to come out of the Shadow of the Earth; or the Sun begins to ſhow the Parts of his Disk which were hid before. *Immerſion* is frequently applied to the Satellites of *Jupiter*, and eſpecially to the firſt Satellite; the Obſervation whereof is of ſo much Uſe for diſcovering the Longitude. The *Immerſion* of that Satellite is the moment in which it appears to enter within the Disk of *Jupiter*; and its Emerſion the moment wherein it appears to come out. The *Immerſions* are obſerved from the Time of the Conjunction of *Jupiter* with the Sun, to the Time of his Oppoſition: And the Emerſions from the Time of his Oppoſition to his Conjunction. The peculiar Advantage of theſe Obſervations, is, that during eleven Months of the Year, they may be made, at leaſt, every other Day. The Perfection of this Theory, and the Praxis thereon, we owe to M. *Caſſini*.

IMMORTAL, that which will laſt to all Eternity, that has in itſelf no Principle of Alteration or Corruption. Thus God and the Human Soul are *immortal*. *Plato* defines *Immortality*, οὐσία ἐμψυχος ϗ ἀΐδιος μονὴ, *animated Eſſence and eternal Manſion*; and proves the *Immortality* of the Soul from two kinds of Arguments; the one Artificial, the other Inartificial. Inartificial Arguments are Teſtimonies and Authorities, whereof he cites ſeveral, and adds in general, that all the great Men and Poets, who had any thing divine in 'em, aſſerted the *Immortality* of the Soul. His Artificial or proper Arguments are either ſpeculative or practical: Of the firſt kind are thoſe drawn, 1. From the ſimple, uniform, ſpiritual and divine Nature of the Soul. 2. From its infinite Capacity. 3. From its deſiring and longing after *Immortality*, and its inward Horror of falling into Nothing; proving it abſurd that the Soul ſhould die, when Life is its proper and adequate Object. 4. From its rational Activity; proving that whatever has in itſelf a Principle of rational and ſpontaneous Motion, by which it tends towards ſome ſupreme Good, is immortal. 5. From the various Ideas which it has of ſpiritual things; particularly from the Idea it has of *Immortality*. 6. From its Immateriality. His practical or moral Arguments for the *Immortality* of the Soul, are drawn, 1. From the Juſtice of God, which can never ſuffer the Wicked to eſcape unpuniſhed, nor the Good unrewarded after Death. 2. From that Dependance which Religion has on this Opinion, in regard, without this Perſuaſion there would be no Religion in the World. 3. From the Opinion which Men have, that Juſtice and every kind of Virtue are to be cultivated, that they may at laſt live with God. 4. From the Stings of Conſcience, and anxious Sollicitude we are under about a future State.

IMMUNITY, a Privilege or Exemption from ſome Office, Duty, or Impoſition: It is particularly underſtood of the Liberties granted to Cities and Communities. The Princes heretofore granted all kind of *Immunities* to Eccleſiaſtics, exempting them from all Impoſitions; but the Eccleſiaſtics of thoſe Days were not ſo rich as thoſe of ours: They gave all they had to the Poor. There is ſtill a Privilege of *Immunity* in ſome Places, and eſpecially in *Italy*, belonging to Eccleſiaſtical Things and Perſons; theſe are exempted from certain Dues, and are ſhelter'd from the Purſuits of Juſtice. Tho, there are ſome Crimes for which they cannot plead the Privileges of *Immunity*, as premeditated Murder, &c.

IMMUTABILITY, the Condition of ſomething that cannot change. *Immutability* is one of the Divine Attributes. There is a two-fold *Immutability* in God; a Phyſical and a Moral one. The Phyſical *Immutability* conſiſts in this, that the Subſtance of God does not, nor cannot receive any Change or Alteration. His Moral *Immutability* conſiſts in his not being liable to any Change in his Thoughts, or Deſigns; but that what he wills, he has will'd from all Eternity.

IMPALED, when the Coats of Arms of a Man and his Wife (who is not an Heireſs) are borne in the ſame Eſcutcheon, they muſt be marſhalled in Pale, *i. e.* the Huſband's on the Right-ſide, and the Wife's on the Left; and this the Heralds call *Baron and Femme*, two Coats impaled. If a Man hath had two Wives, he may impale his Coat in the middle between theirs; and if he hath had more than two, they are to be marſhalled on each ſide of his, in their proper Order.

IMPALPABLE, that, whoſe Parts are ſo extremely minute, that they cannot be diſtinguiſh'd by the Senſes, particularly by that of Feeling.

IMPANATION, a Term uſed among Divines to ſignify the Opinion of the *Lutherans* with regard to the Euchariſt; who believe, that the Species of Bread and Wine do remain, together with the Body of our Saviour, after Conſecration.

IMPARLANCE, or *Emparlance*, is a Motion made in Court, on the account of the Demandant by the Tenant, or Declaration of the Plaintiff by the Defendant, whereby he craveth Reſpite, or any other Day to put in his Anſwer.

Imparlance is either general or ſpecial. Special is with this Clauſe, *Salvis omnibus Advantagiis, tam ad Juriſdictionem Curiæ, quam breve & Narrationem.* General is made at large, without inſerting that, or any like Charge.

IMPASSIBLE, that which is exempt from Suffering, which cannot undergo Pain or Alteration. The *Stoics* place the Soul of their Wiſe Man in an *impaſſible* imperturbable State.

IMPASTATION, a Work of Maſonry, made of Stuc, or Stone beaten and wrought up in manner of a Paſte. Authors are of opinion that the Obeliſks, and the huge Antique Columns ſtill remaining, were made ſome by *Impaſtation*, and others by Fuſion.

IMPEACHMENT *of Waſte*, comes from the *French Empeſchement*, Impediment, and ſignifies a Reſtraint from committing of Waſte upon Lands and Tenements. And therefore he that hath a Leaſe without *Impeachment of Waſte*, hath by that, a Property or Intereſt given him in the Houſes and Trees, and may make waſte in them without being called to account for it.

IMPECCABILITY, the State of a Perſon who cannot ſin. The Word alſo ſignifies the Grace, Privilege, or Principle which puts him out of a condition of ſinning. The Schoolmen diſtinguiſh ſeveral kinds and degrees of *Impeccability*: That of God belongs to him by Nature: That of Jeſus Chriſt conſider'd as Man, belongs to him by the Hypoſtatical Union: That of the Bleſſed is a Conſequence of their Condition: That of Men is the Effect of a Confirmation in Grace, and is rather called Impeccance than *Impeccability*; accordingly the Divines diſtinguiſh between theſe two, this being found neceſſary in the Diſputes againſt the *Pelagians*, in order to explain certain Terms in the *Greek* and *Latin* Fathers, which without this Diſtinction are eaſily confounded.

IMPENETRABILITY, Quality of that which cannot be pierced or penetrated; a Property of Body which ſo fills up a certain Space, as that there is no room in it, for any other Body. Dr. *Harris* defines *Impenetrability*, the Diſtinction of one extended Subſtance from another, by means whereof the Extenſion of one thing is different from that of another: ſo that two extended things cannot be in the ſame place, but muſt neceſſarily exclude each other. See *Solidity*.

IMPENITENCE, a Hardneſs of Heart, which makes a Perſon perſevere in Vice, and prevents his Repentance. Final *Impenitence* is the Sin againſt the Holy Ghoſt, which is neither pardoned in this Life nor that to come.

IMPERATIVE, in Grammar, is one of the Modes or Manners of Conjugating a Verb, ſerving to expreſs a Commandment; as *Go, Come*, &c. In the *Hebrew* and other Oriental Languages, the Future Tenſe has frequently an *Imperative* Signification.

IMPERFECT TENSE, in Grammar, ſignifies an indefinite Time between the preſent and the paſt: as, *I taught, I heard.*

IMPERFECT FLOWERS, are thoſe which have ſome Defects, and either want the *Petala*, the little Leaves which ſtand round the *Flowers*, or the like.

IMPERFECT NUMBERS, in Arithmetic, are thoſe whoſe aliquot Parts taken together, don't make the juſt *Number* itſelf, but either come ſhort of it; in which caſe they are called *deficient Numbers*; or exceed it, and then they are called *abundant Numbers.*

IMPERFECT PLANTS, among the Botaniſts are ſuch as either really want Flower, and Seed, or are ſuppoſed to want them; ſince no Flower or Seed hath yet been diſcover'd to belong to the greateſt part of them. Theſe Mr. *Ray* diſtinguiſhes according to the Place of their Growth, into,

(1.) Aquatics, or ſuch as grow in the Water: and that either, 1. In the Sea, and then they are called *Marine Plants*; and thoſe are either of an hard and ſtony Conſiſtence, as the Corals, Corallines; or Porous, that is, of a more ſoft and herbaceous one. Of theſe ſome are like Herbs, and are of two kinds; the greater, which are Cauliferous, as the Fucus; the leſſer, as the Alga: the others are more of the Muſcus, or Fungus Appearance, as the Spongia. 2. Freſh Water *Plants*, and thoſe have either no Leaves, but are Capillaceous, as the Conſervæ; or their Leaves divided into three Parts, as the *Lens Paluſtris, Lenticula.*

(2.) Such *imperfect Plants* as grow in dry Ground, he divides into, Firſt, Such as have Subſtance, either woody or fleſhy; and theſe have ſcarce any thing common to the *perfect Plants*, neither the green herbaceous Colour, nor the Texture of Herbs, nor Flower, Seed, nor Leaf, properly ſpeaking, as all the Fungi, which are, 1. Such as grow on Trees, and therefore called Arboreous, as the *Fungus Laricis*, called Agarick, and the *Fungus Sambuci*, which we call Jews-Ear. 2. Terreſtrial, and theſe are either Cauliferous, with Heads either lamellated, or poroſe underneath, or without Stalks, as the *Pezicæ* of *Pliny*, and *Fungus Pulverulentus, Crepitus Lupi*, or common Puff-Balls. 3. Subterraneous, as the *Tuberæ Terræ*, or Trufles. Secondly, Such as have a more ſoft and dry Conſiſtence, and more like that of Herbs; of which ſome are both cauliferous and branched, as the *Muſci*, or Moſſes: Others are without Stalks, adhering like a Cruſt to the Surface of the Earth, Stones, Trees, or Wood; as the *Lichen Terreſtris* and *Arboreus.*

IMPERIAL, ſomething belonging to the Empire; thus we ſay, his *Imperial* Majeſty, the *Imperial* Crown, *&c.*

Imperial Cities in *Germany* are thoſe which own no other Head but the Emperor. Theſe are a kind of little Commonwealths, the chief Magiſtrate whereof does Homage to the Emperor, and pays him the *Roman* Month; but in other reſpects, and in Adminiſtration of Juſtice, he is Sovereign. *Imperial* Cities have a Right of Coining Money, and of Keeping Forces and fortified Places. Their Deputies aſſiſt at the *Imperial* Diets, where they are divided into two Branches, that of the *Rhine*, and that of *Suabia.* There were formerly 22 in the former, and 37 in the latter; but there are now only 48 in all.

Imperial Chamber is a Sovereign Court, eſtabliſh'd for the Affairs of the immediate States of the Empire.

Imperial Diet, is an Aſſembly or Convention of all the States of the Empire. It is uſually held at *Ratisbon*; where the Emperor, either in Perſon, or by his Commiſſioner, the Electors, Secular and Eccleſiaſtical Princes, Prelates, Princeſſes, Counts, and Deputies of *Imperial* Cities, aſſiſt. The *Diet* is divided into three Colleges, which are thoſe of the Electors, the Princes, and the Cities. The Electors alone form the firſt; the ſecond conſiſts of Princes, Prelates, Princeſſes, and Counts; and the third of the Deputies of *Imperial* Cities. Each College has its Director, who preſides in the Conſultations. The Elector of *Mentz* in the College of Electors; the Archbiſhop of *Saltzbourg* in that of the Princes; and the Deputy of the City of *Cologne* in that of the Cities. In the *Diet*, each Principality has a Voice; but all the Prelates (ſo they call the Abbots and Provoſts of the Empire) have but two Voices, and all the Counts but four. Tho the three Colleges agree, yet the Emperor has a negative Voice: when he too conſents, the Reſolutions paſs into a Law, which oblige all the States of the Empire, both mediate, and immediate.

IMPERSONAL, Verb in Grammar, is ſuch an one, as is only uſed in the third Perſon Singular; as *Oportet, Licet*, &c.

IMPERVIOUS, expreſſes ſuch a Cloſeneſs of Pores, or particular Configuration of Parts, as will not admit another thro'.

IMPETIGO, is a Cutaneons Foulneſs, divided into many kinds by the Antients; but a better Knowledge in Secretion, and the Office of the Cutaneous Glands, has taught us the Cure of all ſuch Diſorders, without having any neceſſary Recourſe to ſuch Diſtinctions: The Itch and Leproſy take in the ſeveral kinds, from the moſt eaſy to the moſt obſtinate degree of Infection, according to which the Means of Cure are proportioned.

IMPETRATION, an obtaining by Requeſt or Prayer; this Word is uſed in our Statutes for the pre-obtaining of Benefices and Church-Offices in *England* from the Court of *Rome*, which did belong to the Diſpoſal of the King and other Lay-Patrons of the Realm; the Penalty whereof was the ſame with Proviſors, 25 *E.* 3.

IMPING, is a Term uſed in Falconry, and ſignifies the inſerting of a Feather in the Wing of a Hawk, in the place of one that is broke.

IMPLANTATION: One of the ſix kinds of Tranſplantation; uſed by ſome People for the Cure of certain Diſeaſes. *Implantation* is performed by placing Plants, or at leaſt the Roots of Plants, in a Ground prepared for that purpoſe, and water'd with what the Patient uſed to waſh himſelf withal. By which means 'tis pretended the Diſeaſe is tranſlated into the Plant. If the Plant happen to die before the Cure be perfected, by reaſon of the ill Qualities it imbibes, other Plants muſt be placed inſtead of it, and the Proceſs be continued as in the firſt.

IMPLEAD, from the *French Plaider*, to ſue, arreſt, or proſecute by Courſe of Law.

IMPLEMENTS, comes either from the *French* Word *Employer*, to employ, or the *Latin Impleo*, to fill up; and is uſed for all things neceſſary for a Trade, or the Furniture of an Houſhold: in which Senſe we frequently find it uſed in Wills, and Conveyances of Moveables.

IMPLICITE, ſomething tacitly comprized or underſtood; that is, contain'd in a Diſcourſe, Clauſe, or Propoſition, not in expreſs Terms, but only by Induction and Conſequence. The Word is derived from the *Latin Plico*, I fold.

IMPLY a Contradiction; a Term uſed among Philoſophers to ſignify the Object of Divine Omnipotence. Thus we ſay, God can do every thing that does not *imply* a Contradiction proceeding from God: By which is not meant a Reſpect of the Action to the Executive Power of God; for God by this Power could do whatever does not *imply* a Contradiction proceeding from this Power, which would be to ſay, that God can do what he can do. In that Propoſition therefore is intended a Reſpect to the other Attributes and ſimple Perfections of God. Thus God can do whatever does not *imply* a Contradiction to ſome other of his Attributes. For inſtance, he cannot atteſt a falſe Religion by his Word, or by Miracle, becauſe this is repugnant to his Goodneſs and Truth. But becauſe all things that *imply* a Contradiction, cannot be ſaid to have ſuch a Reſpect to the Attributes of God; therefore we may ſay more generally, that thoſe things *imply a Contradiction*, which involve a Contrariety from the Terms or Object. For there are two things requiſite to the Being of any thing; the one on the ſide of the Agent, *viz.* a Power of Acting; the other on that of the Patient or Object, *viz.* a Non-reſiſtance. For want of the firſt Condition, there are a thouſand things which we cannot do; and for want of the ſecond Condition, there are many things that God cannot do: for that which, when it is affirmed, is yet denied, is impoſſible.

IMPORTATION, is the importing or bringing in of Merchandizes from foreign Countries.

IMPOSITION OF HANDS, an Action by which the Evangelical Miſſion, and the Power of Abſolving, is convey'd. *Impoſition of Hands* was a *Jewiſh* Ceremony, introduced, not by any Divine Authority, but by Cuſtom; it being the Practice among thoſe People, whenever they pray'd to God for any Perſon, to lay their Hands on his Head. Our Saviour obſerv'd the ſame Cuſtom, both when he conferred his Bleſſing on Children, and when he cured the Sick; adding Prayer to the Ceremony. The Apoſtles likewiſe *laid Hands* on thoſe whom they beſtow'd the Holy Ghoſt on. The Prieſts obſerved the ſame Cuſtom when any one was received into their Body. And the Apoſtles themſelves underwent the *Impoſition of Hands* a-freſh, every time they entred upon any new Deſign. In the antient Church *Impoſition of Hands* was practiſed on Perſons when they married; which the *Abyſſinians* ſtill obſerve. But this Term, which in its original Signification, is general; is reſtrain'd by Cuſtom, to that *Impoſition* which is practiſed at Ordination. *Spanheim* has written a Treatiſe *de Impoſitione Manuum*; and *Tribenhorius* and *Braunius* have done the ſame.

IMPOSITION, is alſo a kind of Tranſplantation practiſed for the Cure of certain Diſeaſes. It is performed, by taking ſome of the implanted Spirit or Excrement of the Part affected, or of both together, and placing them in a Tree, or a Plant, between the Bark and the Wood, after which it is covered up with Mud. Inſtead of this, ſome bore a Hole in the Tree with an Auger; and ſhutting up the Hole again with a Tampion of the ſame Wood, cover it over with Mud. If 'tis deſired the Effect ſhould be laſting, a Tree is choſen that will continue long, as an Oak. If 'tis deſired the Effect ſhould be ſpeedy, they chuſe a Tree that grows faſt; in which laſt caſe, the Matter ſerving as the Medium of Tranſplantation muſt be taken out of the Tree as ſoon as the Effect has followed, becauſe the too great Alteration of the Spirit, might be ſome prejudice to the Patient.

IMPOSSIBLE, that which cannot be done: A Thing is ſaid to be *impoſſible*, when it contains two Ideas which mutually deſtroy each other, and which can neither be conceived, nor united together in the Mind. Thus it is *impoſſible* that a Circle ſhould be a Square; becauſe we conceive clearly that Squareneſs and Roundneſs deſtroy each other by the Contrariety of their Figure. There are two kinds of *Impoſſibilities*; the one Phyſical, the other Moral. A Phyſical *Impoſſibility* is that which cannot be done by the Powers of Nature. A thing is morally *impoſſible*, when of its own nature it is poſſible, but yet is attended with ſuch Difficulties, as that all things conſider'd, it appears *impoſſible*. Thus it is morally *impoſſible* that all Men ſhould be virtuous; or that a Man ſhould throw the ſame Number with three Dyes an hundred times ſucceſſively.

Any thing contrary to Decency and good Senſe is alſo ſaid to be *impoſſible*, among thoſe who reaſon from Moral Topics; thus the Lawyers ſay, *Omne turpe impoſſibile*: Thoſe Conditions are *impoſſible*, which Senſe and Decorum don't allow to be perform'd, tho in themſelves very *poſſible* to thoſe who have no regard to good Senſe, *&c.*

IMPOST, in Law, is the Tribute or Tax appointed by the Prince, for ſuch Merchandize as is brought into any Haven in his Dominions from foreign Nations: 31 *Eliz.* 5. It may be diſtinguiſh'd from Cuſtom, in that, Cuſtom properly ſignifies the Duties paid to the King for Goods ſhipp'd off or exported: but they are frequently confounded together.

IMPOSTHUME, is a Collection of Matter or Pus in any Part of the Body, either from an Obſtruction of Fluids in that Part, which makes them change into ſuch Matter; or from a Tranſlation of it from ſome other Part where it is generated.

IMPOSTS, in Architecture, are what are ſometimes called Chaptrels: being the Parts on which the Feet of Arches ſtand; or the Capitals of Pillars, that ſupport Arches. Theſe *Impoſts* conform to their proper Orders. The Tuſcan hath a Plinth only; the Dorick two Faces crown'd; the Ionick a Larmier, or Crown, over the two Faces, and its Mouldings may be carved; the Corinthian and Compoſite have a Larmier, Freeze, and other Mouldings. The Projectures of the *Impoſts* muſt not exceed the Naked of the Pilaſter. Sometimes the Entablature of the Order ſerves for the *Impoſt* of the Arch; and this looks very grand and ſtately. The *Impoſt* is a thing very eſſential to the Compoſition of the Ordonnances; inſomuch that without it, in the place where the curve Line of the Arch meets with the perpendicular Line of the Pillar, there always ſeems a kind of Elbow.

IMPOTENCE, a Want of Strength, Power, or Means to perform any thing. *Impotence* alſo ſignifies a natural Defect or Inability to Generation. The Decretals diſtinguiſh three kinds of *Impotence*, *viz.* Frigidity, Enchantment, and Inability to the Act. *Impotency* annuls Marriage. The Word is derived from the Prepoſition *in*, taken privatively, and *Potentia* Power.

Divines and Philoſophers diſtinguiſh two kinds of *Impotency*. The one Natural, the other Moral. The firſt is a Want of ſome Phyſical Principle neceſſary to an Action, or is ſomething abſolutely defective, or that is not free, and at liberty to act; the ſecond is only a great Difficulty, as a ſtrong Habitude to the contrary: a violent Paſſion or Inclination.

IMPRECATION, a Curſe, or Wiſh that ſome Evil may befall any one. The Antients had their Goddeſſes call'd *Imprecations*, in *Latin Diræ*, i. e. *Deorum Iræ*, who were ſuppoſed to be the Executioners of evil Conſciences. They were called *Imprecations* in Heaven, *Furies* on Earth, and *Eumenides* in Hell. The *Romans* own'd but three of theſe *Imprecations*, and the *Greek* two. They invoked them with Prayers and Pieces of Verſes to deſtroy their Enemies. The Word is derived from the *Latin in* and *precor*.

IMPREGNATION, is the Emiſſion of the Seed of the Male in Coition, by which the Female conceives, or becomes with young. It is alſo, hence, figuratively uſed in Pharmacy, when a Liquor imbibes the Juice of ſome other Body: Thus a Menſtruum is ſaid to be impregnated with a Body diſſolved in it, as much as its Pores are able to receive. The Word is derived from the *Latin Imprægnare*, of *Prægnans*, a Woman with Child.

IMPRESSION, a Term in Philoſophy, apply'd to the Species of Objects, which are ſuppoſed to make ſome Mark or *Impreſſion* on the Senſes, the Mind, and the Memory. The *Peripatetics* tell us, that Bodies emit Species reſembling them, which Species are convey'd by the exterior Senſes to the common Senſe. Theſe *Impreſſions*, or impreſs'd Species, being material and ſenſible, are render'd intelligible by the active Intellect; and when thus ſpiritualiz'd, are called Expreſſions or expreſs Species, as being expreſs'd from the others.

IMPRESSION, is alſo frequently uſed in ſpeaking of the Editions of a Book, or of the Number of Times that they have been printed. Thus M. *Arnaud* aſſures us, there were above 200 *Impreſſions* of the *Lovain* Bible in one Age; and 'tis affirm'd, that *Thomas à Kempis* of the *Imitation of Chriſt*, has undergone more *Impreſſions* than there have been Months ſince it was firſt compoſed. *Impreſſion*, however, differs from Edition. *Impreſſion*, properly ſpeaking, takes in no more, than what belongs to the Printing, the Letter, Paper, Margin, Page, Diſtances of Words and Lines, and the Diſpoſition of every thing that may have a good or bad Effect on the Eye. Edition, beſides all this, takes in the Care of the Editor, who reviſed the Copy, corrected or augmented it, adding Notes, Tables, and other like things, which he judg'd might contribute towards making the Book more uſeful, and correct. Indeed very frequently the word Edition only refers to this latter part; as when, in ſpeaking of the Works of St. *Auguſtin*, we quote the Edition of *Eraſmus*, the *Lovaniſts*, *Benedictins*, *&c.* where we have no regard to the Printing Part, but only to the Care and Pains of the Editors.

IMPROPER FRACTIONS, are ſuch as have their Numerators equal to, or greater than their Denominators; as $\frac{6}{3}$, $\frac{18}{12}$, *&c.* which, properly ſpeaking, are not *Fractions*, but either whole, or mixed Numbers; and are only put into the Form of *Fractions*, in order to be added, ſubſtracted, multiplied, or divided, *&c.* See *Fractions*.

IMPROPRIATION is a Term uſed where the Profits of an Eccleſiaſtical Benefice are in the hands of a Layman: As Appropriation is the Term when it is in the hands of a Biſhop, College, *&c.* tho theſe two are often now uſed promiſcuouſly; there are ſaid to be 3845 *Impropriations* in *England*.

IMPROPRIETY, Quality of ſomething that is not fit or proper. Grammarians obſerve three kinds of Faults in Language, a Solæciſm, a Barbariſm, and an *Impropriety*. An *Impropriety* is committed when a Word is uſed that is not proper, or that has not a ſuitable Signification.

IMPULSIVE, a Term in Philoſophy, applied to the Action of a Body that impels or puſhes another; as the Arm is ſaid to give an impulſive Motion to the Stone that it throws. Sir *I. Newton* accounts for moſt of the Phænomena of Nature from attractive and *impulſive* Powers.

IMPUTATION, a Term much uſed among Divines, ſometimes in a good, and ſometimes in an ill Senſe; in the latter it is uſed to ſignify the Attribution of a Sin committed by another. Thus the *Imputation* of *Adam*'s Sin is made to all his Poſterity; all his Deſcendants, by his Fall, becoming criminal in the ſight of God, as if they had fallen themſelves, and bearing the Puniſhment of his firſt Crime. *Imputation*, when uſed in a good Senſe, ſignifies the *Imputation* of another's Juſtice or Merit. Thus the Juſtice of Jeſus Chriſt is imputed to us, his Merits and the Price of his Sufferings being applied to us: So that the *Imputation* of the Merits of Chriſt ſignifies no more among the Reformed, than an extrinſick Juſtice, which does not make us truly juſt, but only appear ſo, which hides our Sins, but does not efface them. For this reaſon thoſe of the *Romiſh* Communion decline the Uſe of the word *Imputation*, and aſſert that the juſtifying Grace, which applies to us the Merits of Jeſus Chriſt, not only covers our Sins, but alſo effaces them; that this Grace is intrinſic and inherent, renewing entirely the inward Man, and renders him pure, juſt, and without ſpot before God, and that this Juſtice is given him on account of the Juſtice of Jeſus Chriſt, that is, by the Merits of his Death and Paſſion. In a word, ſay they, tho' 'tis the Obedience of Jeſus Chriſt that has merited juſtifying Grace for us, yet it is not the Obedience of Jeſus Chriſt that renders us formally juſt: And in like manner 'tis not the Diſobedience of *Adam* that makes us formally Sinners, but 'tis this Diſobedience that has merited for us, both that we ſhould be Sinners, and that we ſhould undergo the Puniſhment of Sin. The Proteſtants ſay, that the Sin of the firſt Man is imputed to his Deſcendants; they being looked on as culpable, and puniſhed as ſuch, becauſe of the Sin of *Adam*. The Catholics hold, that this is not enough; we are not eſteemed and puniſhed as Criminals, ſay they, but we are actually criminal ourſelves by original Sin. Again, the Proteſtants ſay, that the Juſtice of Jeſus Chriſt is imputed to us, and that our Juſtification is no more than the *Imputation* of that of Chriſt; his Sufferings ſtanding inſtead of ours, and God accepting his Death as a Satisfaction in lieu of our own. But the Catholics teach, that the Juſtice of Chriſt is not only imputed, but actually communicated to the Faithful, by the Operation of the Holy Ghoſt: So that they are not only reputed juſt, but alſo made ſo.

INACCESSIBLE Height, or Diſtance, is that which cannot be meaſured, by reaſon of ſome Impediment in the way, as Water, *&c.* See *Height*.

INACTION, Ceſſation of Action, a Term much in uſe in the myſtical Divinity; by which is underſtood a Privation of Motion, or an Annihilation of all the Faculties; by which the Door is, as it were, ſhut to all external Objects, and a kind of Extaſy is procured, during which God ſpeaks immediately to the Heart. 'Tis this State of *Inaction* that is the moſt proper for receiving the Holy Spirit, and in this Fit of Dozing, it is that God communicates ſublime and ineffable Sentiments and Graces to the Soul. Some don't make it conſiſt in this ſtupid kind of Indolence, or general Suſpenſion of all Senſation. They ſay that by *Inaction* they only mean a Ceſſation of Deſires, in which the Soul does not determine itſelf to certain poſitive Acts, nor does it abandon itſelf to uſeleſs Meditations, or the vain Speculations of Reaſon; but demands in general every thing that may be agreeable to God, without preſcribing any thing to him. This latter is the Doctrine of the antient myſtic Divines; and the former, that of the modern ones, or Quietiſts. In general, however, it may be ſaid, that *Inaction* is not the moſt likely way of pleaſing God; 'tis our Actions chiefly by which we are to gain his Favour: he will have us to act, ſo that *Inaction* cannot be agreeable to him.

INACTIVITY of Matter. See *Vis Inertiæ*.

INADEQUATE Idea, is a partial or incompleat Repreſentation of any thing to the Mind. See *Adequate Idea*.

INALIENABLE, that which cannot be validly alienated, or made over to another; thus the Dominions of the King, the Church, Minors, *&c.* are *inalienable*, unleſs it be with a Reſerve of the Right of Redemption, for ever.

INANIMATE, a Body that has loſt its Soul, or that is not of a Nature capable of having any. Thus a dead Man is an *inanimate* Lump, and Metals are *inanimate* Bodies. The word is derived from the *Latin* Prepoſition *in* taken pritvively, and *Anima*, *Soul*.

INANITION, a Term in Phyſic, ſignifying Emptineſs, or the State of the Stomach, when it is empty, and needs Food. There are Flatuoſities which proceed from Repletion, and others from *Inanition*, which laſt are the more dangerous.

INARTICULATE, an Epithet applied to ſuch words as are not pronounced diſtinctly.

INAUGURATION, the Ceremony performed at the Coronation of an Emperor or King, or the Conſecration of a Prelate; ſo called, in imitation of the Ceremonies uſed by the *Romans*, when they were received into the College of Augurs. The word comes from the *Latin Inauguratio*, *inaugurare*, which ſignifies to dedicate a Temple, or to raiſe any one to the Prieſthood, having, in order to that, firſt taken Auguries.

INCA, or YNCA, the Name which the Natives of *Peru* give to their Kings, and Princes of the Blood. The Chronicle of *Peru* relates the Origin of the *Yncas*, and ſays, that this Country had been a long time the Theatre of all ſorts of Wars, horrible Crimes, and Diſſenſions, till at length appeared two Brothers, the one called *Mangocapa*, of whom the *Indians* uſe to tell Wonders; he built the City of *Cruſco*, ſettled Laws and Policy, and taught them to adore the Sun; and he and his Deſcendants took the Name of *Ynca*, which, in the Language of *Peru*, ſignifies *King*, or *Great Lord*. They grew ſo powerful, that they made themſelves Maſters of the whole Country, from *Paſto* to *Chili*, 1300 Leagues long, and held it till the Diviſions between *Ynca Guaſcar*, and *Atabalipa*; which the *Spaniards* laying hold of, made themſelves Maſters of *Peru*, and put an end to the Empire of the *Incas*. They do but number twelve of theſe *Incas*. 'Tis ſaid the moſt conſiderable among the Nobles of the Country, ſtill bear the Name of *Inca*.

INCALESCENCE denotes the growing hot of any thing by Motion and Friction, or as Quick-lime does, by pouring Water on it, *&c.* from *in* and *caleo*, *to grow warm*.

INCAMERATION, a Term uſed in the Apoſtolical Chancery, ſignifying the Union of ſome Land, Right, or Revenue to the Dominion of the Pope. The word is derived from the *Latin in*, and *Camera*, *Chamber*.

INCANTATION, Enchantment, Words and Ceremonies uſed by Magicians to raiſe Devils; or rather to abuſe the Simplicity of the People. The word is derived from the *Latin*, *in*, and *canto*, *I ſing*.

INCAPACITY in Matters of Benefices, among the *Romaniſts*, &c. is of two kinds; the one renders the Proviſion of a Benefice null in its Original; the other is acceſſionary, and annuls the Proviſions, which at firſt were valid. *Incapacities* of the firſt kind, are the want of a Diſpenſation for Age in a Minor, for Legitimation in a Baſtard, for Naturalization in a Foreigner, *&c.* Of the other kind, are grievous Offences and Crimes, the being concerned in ſeeing a Sentence of Death executed, *&c.* which vacate the Benefice to all intents, or render the holding it irregular.

INCARNATION, *in Divinity*, ſignifies the Union of the Son of God with the Human Nature. The Myſtery by which Jeſus Chriſt, the Eternal Word, was made Man, in order to accompliſh the Work of our Salvation. The *Indians* own a kind of Trinity in the Godhead, and ſay, that the ſecond Perſon thereof, has been incarnate nine times, and will be incarnate a tenth, and give him a different Name in each of theſe *Incarnations*. See *Kercher. China Illuſt.* The Æra uſed among Chriſtians, whence they number their Years, is the time of the *Incarnation*. This Æra was firſt eſtabliſhed by *Dionyſius Exiguus* about the beginning of the 6th Century, till which time the Æra of *Diocleſian* had been in uſe. Some time after this, it was conſidered, that the Years of a Man's Life were not numbered from the time of his Conception, (as was done in that Æra) but from that of his Birth: which occaſioned them to poſtpone the beginning of this Æra, for the ſpace of one Year, retaining the Cycle of *Dionyſius* entire, in every thing elſe. At *Rome* they reckon their Years from the *Incarnation*, or from the Birth of Chriſt, that is, from the 25th of *December*, which Cuſtom has obtained from the Year 1431. In *France*, *England*, and ſeveral other Countries, they alſo reckon from the *Incarnation*; but then they differ from the others in the Day of the *Incarnation*, fixing it not to the Day of the Birth, but to the Conception of our Saviour. However, the *Florentines* ſtick to the Day of the Birth, and begin their Year from *Chriſtmas*. See *Petav. de Doct. Temp. Grandamicus de Die Nat.*

INCARNATION ſignifies the healing and filling up Ulcers and Wounds with new Fleſh; and the Medicines which effect this, are commonly called *Incarnatives*, from *in* and *caro*, *Fleſh*.

INCARNATIVE, *in Chirurgery*, is ſomething that makes Fleſh grow, rejoin, or unite, and is applied to Remedies, Bandages, and Sutures. An *incarnative* Remedy is ſuch a one as makes the Fleſh heal and unite; an *incarnative* Bandage, is a Fillet, with an Eye or Nooſe at one end of it, ſo as the other end may be put thro' it. To make uſe of this Bandage, they apply the middle of it to the Side oppoſite to the Wound, ſo that the Aperture may be over the Wound itſelf; and ſlipping the other end thro' it, draw the Lips of the Wound cloſe to each other, that they may grow together. An *incarnative* Suture, is ſuch a one as, by rejoining the Lips of a Wound, and keeping them together, by means of a Thread drawn thro' them with a Needle, occaſions them to grow up and heal.

INCARTATION, *in Chymiſtry*, is a Purification of Gold, by means of Silver and *Aqua-Fortis*.

INCENSE, an aromatic, odoriferous Reſin. It diſtils from a Tree, that, according to *Theophraſtus*, has Leaves like thoſe of a Pear-Tree, and grows in the Country of *Saba*, in *Arabia Felix*, called by the Antients *Thurifera*, Incenſe-bearing. The Inciſion for the Reſin to ooze out at, is made in the Dog-Days. The Male *Incenſe* is the beſt; it is in round, in white drops, fat within, and inflames immediately, when laid on the Fire. This is alſo called *Olibanum*. The Female *Incenſe* is ſofter, and more reſinous, but of leſs Virtue than the former. *Incenſe* is of conſiderable Uſe in Phyſic, it warms, dries, and binds. It is uſed in ſeveral Diſeaſes of the Head and Breaſt, in caſe of Vomiting, a Diarrhæa, or a Dyſentery; externally it is uſed to fortify the Brain, and in healing of Wounds.

Bark of Incenſe, is the Bark of the Tree whence the *Incenſe* flows, which has the ſame Qualities with the *Incenſe* itſelf. There is another Bark brought from the *Indies*, called alſo *Bark of Incenſe*, and ſometimes *Jews Incenſe*, in regard the *Jews* make frequent Uſe thereof in their Perfumes.

Manna of Incenſe, is the Flower or Farina of *Incenſe*, occaſioned by the Friction of the Grains againſt each other in the Sacks wherein they carry it. There is alſo a Soot of *Incenſe*, which is a Preparation of it.

Incenſe was formerly burnt in the Temples of all Religions, to do honour to the Divinities that were there adored. Many of the Primitive Chriſtians were put to death, becauſe they would not offer *Incenſe* to Idols. In the *Romiſh* Church they ſtill retain the Uſe of *Incenſe* in many of their Ceremonies, particularly at ſolemn Funerals, beſtowing it on ſuch Perſons as they would honour, as on Prelates, &c. and ſometimes alſo on the People. The word comes from the *Latin*, *incenſum*, burnt; taking the Effect, for the Thing itſelf.

INCEPTIVE, a Word uſed to expreſs ſuch Moments, or firſt Principles, which tho' of no Magnitude themſelves, are yet capable of producing ſuch. Thus a Point hath no Magnitude itſelf, but is *inceptive* of a Line which it produceth by its Motion. A Line, conſidered one way, has no Magnitude as to Breadth, but is capable, by its Motion, of producing a Surface which hath Breadth, &c.

INCEST, a Crime committed by Perſons having to do with each other, who are related in a Degree prohibited by the Laws of the Country. Some are of opinion that Marriage ought to be permitted between Kinſfolks, to the end that the Affection, ſo neceſſary in Marriage, might be heightened by this double Tye; and yet the Rules of the Church have formerly extended this Prohibition even to the ſeventh Degree, but time has brought it down to the third or fourth Degree. The words *Adultery* and *Inceſt* are not infamous and indecent, tho' they ſignify very infamous things; becauſe they repreſent them as covered with a Veil of Horror, which makes us look on them only as Crimes: the words, therefore, rather ſignify the Crime of thoſe Actions, than the Actions themſelves. Moſt Nations look on *Inceſt* with Horror, *Perſia* alone excepted. In the Hiſtory of the antient Kings of that Country, we meet with Inſtances of the Brother's marrying the Siſter: the Reaſon was, becauſe they thought it too mean to join in Alliance with their own Subjects, and ſtill more ſo, to have married into the Families of any foreign Princes.

INCEST, SPIRITUAL, is a Crime committed, in like manner, between Perſons who have a ſpiritual Alliance, by means of Baptiſm or Confirmation. *Spiritual Inceſt* is alſo underſtood of a Vicar, or other Beneficiary, who enjoys both the Mother and the Daughter; that is, holds two Benefices, the one whereof depends on the Collation of the other. Such a *Spiritual Inceſt* renders both the one and the other of thoſe Benefices vacant.

INCESTUOUS, the Name of a Sect that aroſe in *Italy* about the Year 1065. It had its Beginning at *Ravenna*; the Learned of which Place being conſulted by the *Florentines* about the Degrees of Affinity which prohibit Marriage, made anſwer, that the ſeventh Generation, mentioned in the Canons, was to be taken on both ſides together; ſo that four Generations were to be reckon'd on one ſide, and three on the other. They proved this their Opinion by a Paſſage in *Juſtinian*'s Inſtitutes, where 'tis ſaid, That a Man may marry his Brother's or Siſter's Grandaughter, though ſhe be but in the fourth Degree: Whence they concluded, that if my Brother's Grandchild be in the fourth Degree with reſpect to me, ſhe is in the fifth with reſpect to my Son, in the ſixth with reſpect to my Grandſon, and in the ſeventh with reſpect to my great Grandſon. *Peter Damian* wrote againſt this Opinion, and Pope *Alexander* II. condemn'd it in a Council held at *Rome*.

INCH, is a known Meaſure, the twelfth Part of a Foot, containing the Space of three Barley Corns in length.

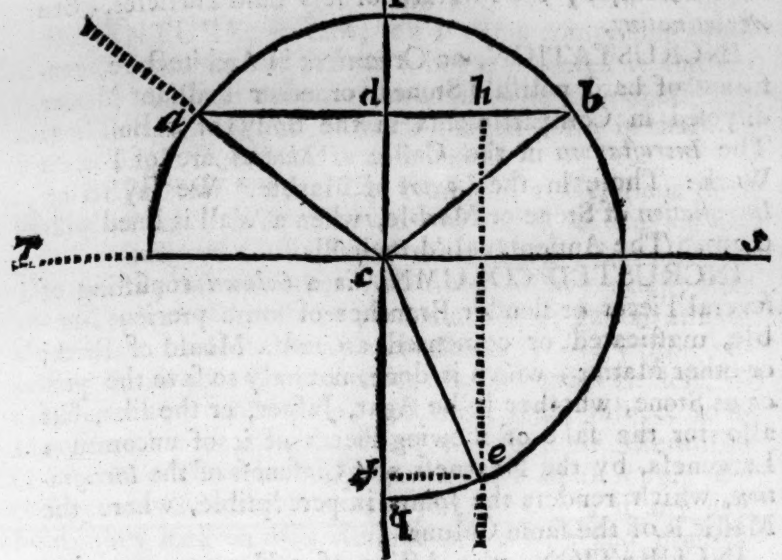
Goods are ſaid to be ſold by *Inch of Candle*, when a Merchant, or Company of Merchants, as the *Eaſt-India* Company, &c. having a Cargo of Foreign Goods arrived, are inclined to make a ſpeedy Sale of them; in which caſe, notice is uſually given upon the *Exchange* by Writing, and elſewhere, when the Sale is to begin: againſt which time the Goods are divided into ſeveral Parcels, called Lots, and Papers printed of the Quantity of each, and of the Conditions of Sale, as that none ſhall bid leſs than a certain Sum more than another has bid before. During the time of Bidding, a ſmall Piece of about an *Inch* of Wax-Candle is burning, and the laſt Bidder, when the Candle goes out, has the Lot or Parcel expoſed to Sale.

INCHOATIVE, a Term ſignifying the Beginning of a Thing or Action. *Inchoative* Verbs, according to the ſtrict Rules of the *Latin* Tongue, are uſed by the beſt Authors indifferently with Primitives, having almoſt all the Tenſes in common with them; nay, ordinarily they expreſs our Sentiments with more Violence, and the Actions themſelves in a more perfect State.

INCIDE. Thoſe Medicines are ſaid to *incide*, which conſiſt of pointed and ſharp Particles, as Acids, and moſt Salts; by the Force or Inſinuation of which, the Particles of other Bodies are divided from one another, which before cohered. And thus ſome expectorating Medicines are ſaid to *incide*, or cut the Phlegm, when they break, it ſo as to occaſion its Diſcharge.

INCIDENCE, expreſſes the Direction with which one Body ſtrikes upon another, and the Angle made by that Line, and the Plane ſtruck upon, is called the *Angle of Incidence*. In the Occurſions of two moving Bodies, their *Incidence* is ſaid to be perpendicular or oblique, as their Directions or Lines of Motion, make a ſtrait Line, or an oblique Angle at the Point of Contact. Beſides what is ſaid under *Angle of Incidence*, (which ſee) Sir *Iſaac Newton* ſaith in his Opticks, That the Sine of *Incidence* is either accurately, or very nearly in a given Ratio to the Sine of Refraction: (And the Angles of *Incidence*, Reflexion, and Refraction, are all in one and the ſame Plane.) Wherefore if that Proportion be known in any one Inclination of the incident Ray, it is known in all; and thereby the Refraction in all Caſes of *Incidence* on the ſame Refracting Body, may be determined. Thus if the Refraction be made out of Air into Water, the Sine of *Incidence* of the Red Light, is to the Sine of Refraction, as 4 to 3. If out of Air into Glaſs, the Sines are as 17 to 11. In

Light of other Colours, the Sines have indeed other Proportions; but the Difference is ſo little, that it need ſeldom be conſider'd. As for example; Let *r s* (in the Figure) be the Surface of the ſtill Water, *c* the Point of *Incidence*, in which any Ray coming in the Air from *a* in the Line *a c*, is reflected or refracted: To know whither this Ray ſhall go after ſuch Reflexion, or Refraction; on the Surface of the Water *r s*, and in the Point *c*, erect the Perpendicular *c p*, and produce it downwards to *q*. Knowing therefore that the Ray after Reflexion or Refraction will be found ſomewhere in the Plane of the *Angle of Incidence a c p* produced; let fall the Sine of that Angle (viz. *a d*) on the Perpendicular *p c*; and then if the Reflected Ray be ſought, produce *a d* to *b*, ſo that *d b* = *a d*, and draw *c b*, which ſhall be the reflected Ray, becauſe the Angle of Reflexion, and its Sine, are equal to the Angle and Sine of *Incidence*, as they ought to be. But if the refracted Ray be ſought, produce *a d* to *b*; ſo that *d b* may be to *a d*, as the Sine of the Refraction, to that of *Incidence*: that is, as 3 to 4. Then with the Radius *a c* deſcribing the Circle *a b e*, and in the Plane *a c p*; draw the Line *b e* parallel to *p q*, and cutting the Circumference in *e*: Then drawing *c e*, That ſhall be the refracted Ray. For if *e f* be let fall perpendicularly on the Line *p q*, it ſhall be the Sine of the Angle of Refraction of the Ray *c e*; and this Sine is equal to *d b*, and conſequently in proportion to the Sine of the *Angle of Incidence a d*, as 3 to 4.



Incidence Point, in Opticks, is that Point in which a Ray of Light is ſuppoſed to fall on a Piece of Glaſs.

INCIDENT, an Event or particular Circumſtance. *Incident*, in a Poem, is an Epiſode or particular Action, tack'd to the principal Action, or depending on it. Thus a good Comedy is full of agreeable *Incidents*, which divert the Spectators, and form the Intrigue. The Poet ought always to make choice of ſuch *Incidents* as are ſuſceptible of Ornaments ſuitable to the Nature of his Poem. The Variety of *Incidents* well conducted make the Beauty of an Heroic Poem, which ought always to take in a certain number of *Incidents* to ſuſpend the Cataſtrophe, that would otherwiſe break out too ſoon.

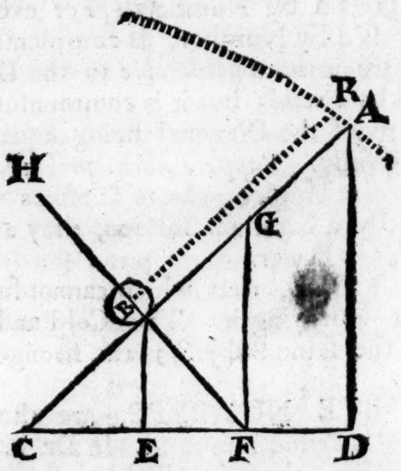
INCINERATION, in Chymiſtry, is the Reduction of Vegetables into Aſhes; which is done by burning them gently. Thus Fern is reduced into Aſhes for the making of Glaſs. The Word is derived from the *Latin* Prepoſition *in*, and *Cinis*, Aſhes.

INCISIVE, in Anatomy, is underſtood of ſeveral Teeth, a double Muſcle, and certain Orifices belonging to thoſe Teeth. The *inciſive* Teeth, *Inciſores* or Cutters, ſometimes alſo called *Riſores*, becauſe they ſhow themſelves in Laughing, are eight in number, four in each Jaw, ſituate in the Fore-ſide, and in the middle of the others. They are ſhorter and ſharper than the others, and are inſerted into their *Alveoli* by a ſingle Root or Twang; for which reaſon they fall eaſily, eſpecially thoſe of the upper ſide. They are called *inciſive*, becauſe their Office is to cut or incide the Meat. The firſt proper Muſcle of the upper Lip has alſo the Epithet of *inciſive*, becauſe it has its Origin in the Bone of the upper Jaw, near the Place of the *inciſive* Teeth; hence it paſſes, and is inſerted into the upper Lip, which it ſerves to draw up. The maxillary Bones have four internal Orifices, two whereof are called *inciſive*, as being directly under the *inciſive* Teeth.

INCLINATION, a Term uſed in Medicine and Chymiſtry, when a clear Liquor is poured off from ſome Fæces, or Sediment, by only gently ſtooping the Veſſel; which is alſo called Decantation.

INCLINATION, in Phyſics, expreſſes the mutual Approach or Tendency of two Bodies, Lines, or Planes towards one another; ſo that their Directions make either a ſtrait Line at the Point of Contact, or an Angle of a greater or leſſer Magnitude. What the *Angle of Inclination* ſignifies in Opticks, ſee in *Angle of Incidence*. The *Inclination* of two Planes is the acute Angle made by two Lines drawn one in each Plane, and perpendicular to their common Section. *Inclination* of the Axis of the Earth is the Angle which it makes with the Angle of the Ecliptick; or the Angle between the Planes of the Equator and Ecliptick. *Inclination* of a Planet is an Arch of the Circle of *Inclination*, comprehended between the Ecliptick, and the Place of a Planet in his Orbit. *Inclination* of a Plane in Dialling, is the Arch of a vertical Circle, perpendicular to both the Plane and the Horizon, and intercepted between them. To find this, take a Quadrant and apply its ſide to the ſide of a Square, and apply the other ſide of your Square to your Plane; if the Plummet fall parallel to the ſide of the Square, then the lower ſide of the Square ſtands level; by which draw an Horizontal Line, whereon erect a Perpendicular, and apply your Square to that Perpendicular; and if the Plummet falls parallel to the ſide of the Square, then that is alſo a level Line, and your Plane ſtands horizontally: If the Plummet falls not parallel to the ſide of the Square, then turn your Square, until it does, and draw an horizontal Line, on which erect a Perpendicular, to which apply your Square, and obſerve what Angle your Plummet makes on the Quadrant, with the ſide of the Square; that is, the Angle of the *Inclination* of the Plane. *Inclination* of a Ray in Dioptricks, is the Angle which this Ray makes with the Axis of Incidence in the firſt Medium, at the Point where it meets the ſecond Medium. *Inclination* of a Right Line to the Plane is the acute Angle, which this Right Line makes with another Right Line drawn in the Plane thro the Point where the inclined Line interſects it, and thro the Point, where it is alſo cut by a Perpendicular drawn from any Point of the inclined Lines. *Inclinations* of the Planes of the Orbits of the Planets to the Plane of the Ecliptick, are thus. *Saturn*'s Orbit makes an Angle of 2 Degrees 30 Minutes. *Jupiter*'s 1 Degree, and ⅓. *Mars*'s little leſs than 2 Degrees. *Venus*'s is 3 Degrees and ⅓. *Mercury*'s is almoſt 7 Degrees.

INCLINED PLANE. Beſides what has been ſaid under *Deſcent* of heavy Bodies upon *inclined Planes*, it may be here added: If a Body as B be partly ſupported by the *inclined Plane* A C, and partly by the Power R acting on a Direction parallel to the Plane A C; then that Power R: is to the Body, or Weight B:: as the Sine of the Angle of the *Plane*'s Inclination A C B: is to the Radius C A. C D, A D, G F, E D, and H F, being drawn, as in the Figure; the Body B will be ſuſtained, as it were, by three Forces, or Powers, all acting according to different Directions, and in Equilibrio one to another. The firſt of which is the Force of Gravity, expreſſed by B E perpendicular to the Horizon C D. The ſecond the Power R, according to the Direction B R parallel to the Plane A C. And the third is ſupplied by the Reſiſtance or Contranitence of the *Plane* A C; and is expreſſed by B H perpendicular thereunto. For Action and Re-action being equal, and one acting directly contrary to the other; the *Plane* which is preſſed by the Body or Weight B, according to the Direction of the Perpendicular H B, muſt act on that Body by a contrary Direction, *viz.* that of F B or B H. And ſince theſe three Powers are all mutually in Equilibrio, and that the Body B is ſuſtained by them, it is plain (when G F is drawn perpendicular to C D, or parallel to B E) that the Force of Gravity will be expreſſed by G F; and that the Power R: will be to the Power of Gravity:: as G B: to G F; but in the Right-angled Triangle C F G, (F B being a Perpendicular to the Baſe C G) B G: G F:: G F: G C, and as F G: G C:: A D: A C (by ſimilar Triangles) wherefore the Power R: is to the Force of Gravity:: as A D: to A C, or as the Sine of the Angle of Inclination to the Radius. Wherefore the Force by which any heavy Body would deſcend on any *inclined Plane*, to the Force of the Deſcent in the Perpendicular, is as the Sine of the Angle of the



Plane's Inclination, to the Radius. From hence alſo it follows, the Inclination of the *Plane* may be ſo little, that the greateſt Weight may be ſuſtained on it by the leaſt Power. For practice therefore, Let the Weight of any Body be W, and P the Power wanted to ſuſtain it on an *inclined Plane*. By this Theorem, R : W : : S. Incl. : P; that is, As Radius is to the Weight : : ſo is the Sine of the Angle of the *Plane*'s Inclination to the Horizon : to the Power ſought. The three firſt of which are given, wherefore the fourth is known.

INCOGNITO, a Term borrow'd literally from the *Italian*, uſed when a Perſon is in any Place where he would not be known. It is particularly applied to Princes or Great Men, who enter Towns or walk the Streets without their ordinary Train, or the uſual Marks of their Diſtinction. The Grandees in *Italy* make a common Cuſtom of walking the Street *incognito*; and always take it amiſs, on ſuch Occaſions, when People pay their Compliments to them. 'Tis not barely to prevent their being known, that they take theſe Meaſures, but becauſe they would not be treated with Ceremony, nor receive the Honours due to their Rank. When the Horſes in Princes, Cardinals, and Ambaſſadors Coaches have no Taſſels, which they call *Fiocchi*; and the Curtains, which they call *Bandinelle*, are drawn, they are judg'd to be *incognito*; and no body that meets them is obliged to ſtop or make his Honours to them. The Cardinals alſo, when they would be *incognito*, leave off the red Hat or Calotte.

INCOMBUSTIBLE, that which cannot be burnt or conſumed by Fire. Metals melt, Stones calcine, and are yet *incombuſtible*. Cloth made of *Lapis Amianthus* is *incombuſtible*; it is clean'd by Fire, but not burnt. *See Asbeſtos.* At *Dole* in *France* is an *incombuſtible* Taper. *Gregory* of *Tours* ſpeaks of ſome wooden Kettles in his Time that bore the Fire as long as thoſe of Iron. *Sylla* undertook to burn down a Tower of Wood which defended *Archelaus*, one of *Mithridates*'s Lieutenants, but he could not attain his End, it being plaiſter'd with Alumn. 'Tis Alumn Water wherewith thoſe People beſmear themſelves, who handle burning Coals, and melt *Spaniſh* Wax on their Tongues.

INCOMMENSURABLE, a Term in Geometry, uſed where two Lines, when compared to each other, have no common Meaſure, how ſmall ſoever, that will exactly meaſure them both. So that after ever ſo many Repetitions and Subſtractions of equal Parts, there will always remain ſome Part, by which the one is greater than the other. And in general, two Quantities are ſaid to be *incommenſurable*, when no third Quantity can be found that will exactly meaſure them both; or when thoſe Quantities are not to one another as Number to Number, or cannot be expreſs'd by Numbers. For every thing that may be expreſs'd by Number, is commenſurable. The Side of a Square is *incommenſurable* to the Diagonal, as is demonſtrated by *Euclid*; but it is commenſurable in Power: the Square of the Diagonal being equal to twice the Square of the Side. *Pappus*, *lib.* 4. *prob.* 17. ſpeaks alſo of *incommenſurable* Angles. As to Surfaces which cannot be meaſured by a common Surface, they are ſaid to be *incommenſurable* in Power.

INCOMPATIBLE, that which cannot ſubſiſt with another without deſtroying it. Thus Cold and Heat are *incompatible* in the ſame Subject; the ſtrongeſt overcomes the weakeſt.

INCOMPOSITE NUMBERS, are the ſame with thoſe *Euclid* calls Prime Numbers. In Dr. *Pell*'s Edition of *Brancker*'s Algebra, there is a Table of *incompoſite Numbers*: It doth not only give an orderly Enumeration of all odd Numbers which are not *compoſite*; but it ſhews alſo, that none of the reſt are ſo. This Table being of good uſe, the Reader is refer'd to it.

INCORPORATION, is the mixing of the Particles of different Bodies ſo together, as to make an uniform Subſtance or Compoſition of the whole, without leaving a poſſibility of diſcerning the Ingredients, or Bodies mixed in any of their particular Qualities. From *in* and *Corpus* Body.

INCORPOREAL, a ſpiritual Subſtance; that has no Body. Thus the Soul of Man is *incorporeal*, and may ſubſiſt independent of the Body. Thoſe Ideas which are independent of Bodies, can neither be corporeal themſelves, nor be received within a corporeal Subject. They diſcover to us the Nature of the Soul, which receives within itſelf what is *incorporeal*, and receives it in a corporeal Manner too. Whence it is that we have *incorporeal* Ideas even of Bodies themſelves. *Fenelon.*

INCORRUPTIBLE, that which cannot corrupt. Thus ſpiritual Subſtances, as Angels, Human Souls, *&c.* and thus alſo Glaſs, Salt, Mercury, *&c.* may be called *incorruptible.*

INCORRUPTIBLES, is the Name of a Sect that ſprung out of the *Eutychians*. Their diſtinguiſhing Tenet was, That the Body of Jeſus Chriſt was *incorruptible*; by which they meant, that after and from the Time wherein he was formed in the Womb of his holy Mother, he was not ſuſceptible of any Change or Alteration; not even of any natural and innocent Paſſions, as of Hunger, Thirſt, *&c.* So that he eat without any occaſion, before his Death, as well as after his Reſurrection. And hence it was that they took their Name.

INCRASSATING, is the rendering Fluids thicker than before, by the Mixture of leſs fluid Particles. See *Agglutinating*.

INCRUSTATION, an Ornament in Architecture, conſiſting of hard poliſh'd Stones, or other brilliant Matter diſpoſed in Compartiments in the Body of a Building. The *Incruſtations* in the Caſtle at *Madrid* are of Potters Work: Thoſe in the *Louvre* of Marble. We ſay 'tis an *Incruſtation* of Stone or Marble, when a Wall is lined with them. The Antients call'd their Plaiſters *Incruſtations*.

INCRUSTED COLUMN, is a *Column* conſiſting of ſeveral Pieces or ſlender Branches of ſome precious Marble, maſticated or cemented around a Mould of Brick, or other Matter; which is done, not only to ſave the precious Stone, whether it be Agat, Jaſper, or the like, but alſo for the ſake of ſhewing Pieces of it of uncommon Largeneſs, by the Neatneſs and Cloſeneſs of the *Incruſtation*, which renders the Joints imperceptible, where the Maſtic is of the ſame Colour.

INCUBATION, the Action of a Hen, or any other Fowl, hatching their Eggs.

INCUBUS, or the *Night-Mare*, is the Name of a Diſeaſe conſiſting in an Oppreſſion of the Breaſt, ſo very violent, that the Patient cannot ſpeak, or even breathe. In this Diſeaſe the Senſes are not quite loſt, but drown'd and aſtoniſh'd, as is the Underſtanding and Imagination; ſo that the Patient ſeems to think ſome huge Weight thrown on him ready to ſtrangle him. Children are very liable to this Diſtemper; ſo are fat People, and Men of much Study and Application of Mind: By reaſon the Stomach in all theſe finds ſome difficulty in Digeſtion. The *Incubus* ſeems to be Couſin-German to the Epilepſy and Apoplexy; for if it laſts long, it degenerates into one or other of thoſe Diſtempers. Others reckon it a kind of Aſthma, and call it *Aſthma Nocturnum*, and ſay it proceeds from the ſame Cauſes, and is helped by the ſame Means as the common Aſthma. The word *Incubus* is derived from the *Latin Incubare*, to lie down on any thing and preſs it. The *Greeks* called it ἐφιάλτης, *Saltator*, Leaper, or one that ruſhes on a Perſon.

INCUMBENT, in Law, is a Clerk reſident in his Benefice with Cure, who is called *Incumbent* of that Church, becauſe he ought to bend his whole Study to diſcharge his Cure.

INCURVATION, is the bending a Bone, or any other Body from its natural Shape. For *Incurvation* of the Rays of Light, ſee *Light* and *Refraction*. From *in* and *curvus*, crooked.

INCUS. See *Ear*.

INDEFEISIBLE, in our Law, ſignifies what cannot be defeated or made void: As a good and *indefeiſible* Eſtate.

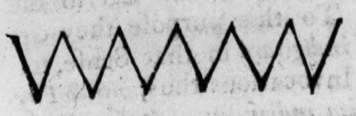
INDEFINITE, indeterminate, that which has no certain Bounds, or to which the Human Mind cannot conceive any. *Deſcartes* uſes this Word, in his Philoſophy, inſtead of infinite, both in Numbers and Quantities, to ſignify an inconceivable Number, or Number ſo great, that an Unit cannot be added to it: and a Quantity ſo great, as not to be capable of any Addition. Thus he ſays, Stars, viſible and inviſible, are in Number *indefinite*, and not as the Antients held, infinite; and that Quantities may be divided into an *indefinite* Number of Parts, not an infinite Number. *Indefinite* is ſometimes uſed in the Schools to ſignify ſomething that has but one Extreme; as for inſtance, a Line drawn from any Point, and extended infinitely: Thus what they call Eternity *à parte ante*, or Eternity *à parte poſt*, are *indefinite* Durations.

Indefinite, in Grammar, is underſtood of Nouns, Pronouns, Verbs, Participles, Articles, *&c.* that are left in an uncertain indeterminate Senſe, and not fix'd to any particular Time, Thing, or other Circumſtance.

INDELIBLE, that which cannot be blotted out, or effaced. Thus, Baptiſm, and the Order of the Prieſthood, are *indelible* Characters. The Word is form'd from the *Latin delere*, to blot, with the Prepoſition *in* taken negatively.

INDEMNITY, an Act by which one promiſes to guarantee or ſave harmleſs ſome other Perſon from any Loſs or Damage that might accrue to him on any particular account. From the Negative *in* and *Damnum*, Loſs.

INDEMNITIES. When a Church is appropriated to an Abbey or College, then the Arch-Deacon loſeth his Inductionduction-Money for ever: In recompence whereof, he ſhall have yearly out of the Church ſo appropriate, one or two Shillings, more or leſs, for a Penſion, as was agreed at the time of the appropriating. And this Penſion is call'd an *Indemnity.*



INDENTED, is a Term in Heraldry, when the Out-Line of a Bordure, Ordinanary, *&c.* is in the Form of the Teeth of a Saw. Thus

INDENTURE, in Law, is a Writing comprizing ſome Contract between two at leaſt; being indented at top anſwerable to ſome other, which likewiſe containeth the ſame Contract. It differs from a Deed-Poll; in that this laſt is a ſingle Deed, and is unindented.

INDEPENDENTS. The Name of a Religious Sect in *England* in *Holland.* They are ſo call'd, as denying not only any Subordination among their Clergy, but alſo all Dependency of any other Aſſembly. They teach, that every ſeparate Church or particular Congregation among them has in itſelf radically and eſſentially every thing neceſſary for its own Government; that it has all Eccleſiaſtical Power and Juriſdiction; and is not at all ſubject to other Churches or their Deputies, nor to their Aſſemblies or Synods. Tho the *Independents* don't think it very neceſſary to aſſemble Synods; yet, they ſay, if any are held, they look on their Reſolutions as wiſe and prudential Councils, not as Deciſions to be peremptorily obey'd. They agree, that one or more Churches may help another Church with their Advice and Aſſiſtance, and even reprove it when it offends, provided they don't pretend to any ſuperior Authority or Right to excommunicate, *&c.* In Matters of Faith and Doctrine, the *Independents* agree with the reſt of the Reformed; ſo that the Difference is rather Political than Religious. During the Civil Wars in *England,* the *Independents* becoming the moſt powerful Party, and getting to the Head of Affairs, moſt of the other Sects that were averſe to the Church of *England,* join'd them: Which occaſion'd them to be diſtinguiſh'd into two Sects. The firſt are in effect *Presbyterians,* only differing from them in Matters of Diſcipline. The others, whom M. *Spanheim* calls *Pſeudo-Independents,* are a confuſed Aſſemblage of *Anabaptiſts, Socinians, Antinomians, Familiariſts, Libertines,* &c.

F. *Orleans* ſpeaks of their Riſe in the following Terms. 'Out of the ſame Sect (the Presbyterians) had riſen 'ſome time ago, on pretence of further Reformation, a 'new Sect, that was not only averſe to the Monarch, but 'the Monarchy, both which it undertook to deſtroy; and 'in lieu thereof to form a Republic-----They were called 'by the Name of *Independents,* in regard that profeſſing 'to carry the Goſpel-Liberty ſtill further than the Puritans, they rejected not only Biſhops, but alſo Synods, 'pretending each Aſſembly ought to govern itſelf independently of all others; in which, ſaid they, conſiſts 'the Liberty of the Children of God. At firſt they were 'only diſtinguiſh'd among the Presbyterians as the more 'zealous from the more indifferent, the more rigid from 'the more remiſs, by a greater Averſion to all Pomp and 'Pre-eminence both in Church and State, and by a more 'ardent Deſire to reduce the Practice of the Goſpel to 'its primitive Purity. It was their Maxim of Independency that firſt diſtinguiſh'd them, and render'd them 'ſuſpected to the reſt. But they had Addreſs and Artifice enough to gain ground, and in effect made abundance of Proſelytes out of all other Parties and Perſuaſions.'

INDEPENDENTISM is peculiar to *Great Britain,* the *Britiſh* Colonies, and the *United Provinces.* One *Morel* in the 16th Century endeavour'd to introduce it into *France,* but it was condemn'd at the Synod of *Rochel,* where *Beza* preſided, and again at the Synod of *Rochel* in 1644.

INDETERMINATE, in Geometry, is underſtood of a quantity of Time or Place that has no certain or definite Bounds; ſee *Indefinite.* An *indeterminate* Problem is that, whereof there may be various Solutions. For inſtance, if a Number is required that may be a Multiple of 4 and 5; the Anſwer may be 20, 40, 60, *&c.* to Infinity. Mr. *Preſtet* calls an *indeterminate* Analyſis, that which admits of an infinite Number of different Solutions.

INDEX, the Fore-Finger, from *indico,* to point or direct; becauſe that Finger is generally ſo uſed. Hence alſo the *Extenſor Indicis* is call'd Indicator. The *Greeks* call it λιχάνος, *Licker;* this Finger being us'd to be dip'd in Sauces, *&c.* in order to taſte 'em; after which 'tis uſually lick'd: or, as others will have it, becauſe the Nurſes uſe it to take up the Food wherewith they feed their Infants; firſt licking it, to taſte whether or no it be hot.

Index, in Arithmetic, is the ſame with what is ſometimes call'd the Characteriſtic, or Exponent of a Logarithm; and ſhews always of how many Places the abſolute Number belonging to the Logarithm doth conſiſt, and of what nature it is, that is, whether an Integer or a Fraction: Thus, In this Logarithm 2.521293, the Number ſtanding on the Left-hand of the Point is called the *Index;* and becauſe it is 2, ſhews you that the abſolute Number anſwering to it, conſiſts of 3 places: for it is always one more than the *Index,* becauſe the *Index* of 1 is 0; of 10 is 1; and of 100 is 2, *&c.* As in this Example:

0 1 2 3 4 5 6 7 8 9
1 2 3 4 5 6 7 8 9 Where the upper Numbers are *Indices* to the lower, And therefore in thoſe ſmall Tables of *Briggs*'s Logarithms, where the *Index* is omitted, it muſt be always ſupply'd, before you can work by them. If the abſolute Number be a Fraction, then the *Index* of the Logarithm hath a negative Sign, and is marked thus, $\overline{2}.562293$; which ſhews the correſponding Number to be a Decimal Fraction of three Places, *viz.* 1.365. Mr. *Townly* hath a peculiar way of noting theſe *Indices,* when they expreſs Fractions, and it is now much in uſe, *viz.* by taking, inſtead of the true *Index,* its Arithmetical Complement to 10; and therefore he would write the Logarithm now mention'd, thus, $\overline{8}.562293$. How they are added and ſubſtracted, ſee in *Addition* and *Subſtraction.*

Index of a Globe, is a little Stile fitted on to the North-Pole, and turning round with it, pointing to certain Diviſions in the Hour-Circle. It is ſometimes alſo call'd *Gnomon.* See *Globe.*

Index, or *Indice:* At *Rome* there is a Congregation that goes by this Name, whoſe Buſineſs is to examine Books, and to put ſuch as they think fit to prohibit the reading and the ſelling of, into an *Index: Indices,* or expurgatory *Indices,* being the Name by which the Catalogues of prohibited Books are call'd; among which, however, there is this difference, that ſome are condemn'd purely and abſolutely; and others only *donec corrigantur,* till they be corrected. *Philip* II. of *Spain,* was the firſt who procured an *Index* to be printed of the Books condemn'd by the Inquiſition of *Spain.* Pope *Paul* IV. took the hint, and in 1559 order'd the Congregation of the Holy Office at *Rome* to print a ſecond. *Pius* V. recommended the Matter to the Council of *Trent,* who made another. After this, the Duke of *Alva* procured another to be printed at *Antwerp* in 1571. *Clement* VIII. in 1596. printed a very copious one, call'd by the Name of the *Roman.* There were two others publiſh'd in 1583 and 1612, by the Cardinals *Guirois* and *Sandovel,* and ſeveral others by the Inquiſitors and Maſters of the Sacred Palace. The moſt conſiderable of all the *Indices* is that of *Sottomayor,* which was made by all the States ſubject to the King of *Spain,* and comprehends all the others; coming down as low as the Year 1667.

INDIAN WOOD, call'd alſo *Jamaica* and *Campeche Wood,* is taken out of the Heart of a large Tree growing plentifully in the Iſles of *Jamaica, Campeche,* &c. It is uſed in Dying; its Decoction is very red: and it has been obſerv'd, that putting ſome of this Decoction into two Bottles, and mixing a little Powder of Alumn with the one, it will become of a very beautiful Red, which will hold; the other in a day's time becoming yellow, though both Bottles were ſtop'd from the Air alike: and if a little of the ſame Decoction were expoſed to the Air, it would become black as Ink in the ſame ſpace of Time.

INDICATION, a Sign diſcovering or pointing out ſomething to be done. The Phyſicians uſe the Word to ſignify the Invention of a Remedy proper to cure a Diſeaſe, from the Knowledge which they have of the Qualities of that Remedy. *Indication* either tends to preſerve a natural ſound State, which is call'd vital *Indication,* or to remove ſomething diſagreeable to Nature. The ſecond *Indication* either relates to Sickneſs, and is call'd curative *Indication;* or to ſome antecedent Cauſe, in which caſe 'tis call'd preſervative or ſymptomatic *Indication.* That part of Phyſic which treats of *Indications,* is call'd *Semeiotica.*

INDICATIVE, in Grammar, is the firſt Mode or Manner of Conjugating Verbs, ſhewing either the Time preſent, paſt, or future. *I love,* is the preſent Tenſe; *I loved,* the paſt; and *I will love,* the future of the *Indicative* Mode.

INDICATOR, in Anatomy, a Muſcle of the Index, or ſecond Finger following the Thumb. The *Indicator* is the firſt proper Muſcle of the Index; and is ſo call'd, becauſe it ſerves us to point at any thing withal. It has its Origin in the middle and hind part of the Cubitus, and is inſerted by a double Tendon into the ſecond Phalanx of the Index, and to the Tendon of the great Extenſor, acting in conjunction with it, in ſtretching out that Finger.

INDICTION ſignifies the Convocation of an Eccleſiaſtical Aſſembly, as of a Synod or Council, and even a Diet. The word is alſo uſed of the ſeveral Seſſions of the ſame Councils. And hence it is, that at the end of the Seſſions of the Council of *Trent*, the Decree by which the Council appoints the Day of the future Seſſion, is called the *Indiction* of that Seſſion.

By *Roman Indiction* is meant an Epoche, or Manner of accounting Time uſed by the *Romans*, containing a Cycle or Revolution of fifteen Years, which when expired it returns to Unity again. This Method of Computation has no Dependance on the heavenly Motions. *Petavius* ſays, there is nothing in Chronology leſs known than the *Roman Indiction*; he means, than its Origin and Commencement. 'Tis the general Opinion it was inſtituted in the time of *Conſtantine*, but this is a mere Gueſs. There were *Indictions* in the time of the Emperor *Conſtans*, as appears from the *Theodoſian* Code. The Learned hold that the *Indictions* were no more than certain annual Taxes, the Tarif whereof was publiſhed every Year: but why they were ſo called, why confined to a Cycle of fifteen Years, when or on what Occaſion inſtituted, is not known. We find three kinds of *Indictions* mentioned in Authors; the *Indiction* of *Conſtantinople*, beginning on the Calends of *September*; the Imperial or *Cæſarian Indiction*, on the 24th of *September*; and the *Roman Indiction*, which is that uſed in the Pope's Bulls, and begins on the 1ſt of *January*. The Popes have dated their Acts by the Year of *Indiction*, ever ſince *Charlemaign* made them Sovereign; before which time they dated them by the Years of the Emperors. At the time of the Reformation of the Calendar in 1582, was reckoned the tenth Year of the *Indiction*: So that beginning to reckon hence, and dividing the Number of Years elapſed between that time and this by 15, the Remainder will be the Year of *Indiction*, correſponding to the preſent Year of our Lord 1722. *viz.* 15. This may alſo be found by adding 3 to the Year of our Lord, and didividing the Sum by 15. The word *Indiction* comes from *Indictio*, which ſignifies Eſtabliſhment, Order, or Denunciation. The Time of the *Indiction* among the *Romans*, was that wherein the People were ſummoned to pay a certain Tribute; and 'tis for this Reaſon that the Imperial *Indiction* began towards the end of *September*, becauſe the Harveſt being then got in, it was ſuppoſed the People could eaſily pay their Tribute.

INDICTIVE, an Epithet given to certain Feaſt-Days appointed by the *Roman* Magiſtrates, *viz.* the Conſul or Prætor. See *Feriæ*.

INDICTMENT, or ENDITEMENT, in our common Law, ſignifies as much as *Accuſatio* among the Civilians; tho' in ſome Points it differs. An *Indictment* is a Bill, or Declaration, made in form of Law for the Benefit of the Commonwealth, exhibited as an Accuſation of one for ſome Offence, either criminal or penal, unto Jurors, and by their Verdict found to be true, and preſented before an Officer that has Power to puniſh the ſame Offence. It ſeems to be an Accuſation, becauſe the Jury that enquireth of the Offence does not receive it, till the Party that offereth the Bill, appearing, ſubſcribe his Name, and proffer his Oath for the Truth of it. It is always at the Suit of the King, and differs from an Accuſation in this, that the Preferrer is no way tied to the Proof thereof upon any Penalty, if it be not proved, except there appear a Conſpiracy. The word is derived from the *French enditer*, *indicare*, or according to Mr. *Lambert*, *ἐνδείκνυμι*.

INDIGESTION, a want of Digeſtion. In the Syſtem of Trituration, *Indigeſtion*, which is a Crudity, may be very naturally accounted for, from the Relaxation of the Fibres of the Stomach. A bilious *Indigeſtion*, in the Opinion of *Hecquet*, a great Advocate for Trituration, is owing to too much Force in the Stomach, too much Vivacity in its Oſcillations, which ſpoil the Digeſtion, by rendering the Trituration imperfect. But this is hardly ſatisfactory, for it ſhould ſeem that Digeſtion would be the more perfect, in proportion as the Force of the Stomach increaſed. See *Digeſtion*.

INDIGETES, a Name which the Antients gave to their Gods, or at leaſt to ſome of them. There are various Opinions about the Origin and Signification of this word; ſome pretending it was given to all the Gods in general, and others only to the Great Men whom they deified; others ſay it was given to ſuch Gods as were originally of the Country, or rather ſuch as were the Gods of the Country that bore this Name; and others again hold it was aſcribed to ſuch Gods as were Patrons and Protectors of Cities.

Thoſe of the firſt Opinion maintain, that the Gods were ſo called by *Antiphraſis*, becauſe they wanted nothing; the word coming from the Verb *indigeo*, *I want*. If this were true, the word *Indigetes* would ſignify nearly the ſame thing in *Latin* with the *Hebrew* שדי, *Schaddai*, which the Scripture frequently gives to God, as ſignifying, that he is ſufficient for himſelf, and needs nothing. Thoſe of the ſecond Opinion derive the word from *indigitare*, *to call*, *invoke*; it being theſe Gods who were ordinarily invoked, and who lent the readieſt Ear to the Vows that were made them. To this purpoſe they cite *Macrobius*, who uſes the word *indigitare* in that Senſe, telling us the Veſtals make their Invocations thus, *Apollo Phyſician! Apollo Pæan! Veſtales ita indigitant*, *Apollo Medice! Apollo Pæan!* They add, that their Book of Prayers and Forms of Invocation were called *Indigitamenta*. Laſtly, others hold *Indigetes* to be derived from *inde genitus*, or *in loco degens*, or from *inde* and *ago* for *dego*, *I live*, *I inhabit*; which laſt Opinion ſeems the moſt probable. In effect it appears, that theſe *Indigetes* were alſo called *Local Gods*, *Dii Locales*, or *Topical Gods*, which is the ſame thing. (2.) The *Indigetes* were ordinarily Men deified, who indeed were, in effect, Local Gods, being eſteemed the Protectors of thoſe Places where they were deified; ſo that the ſecond and third Opinion are very conſiſtent. (3.) *Virgil* joins *Patrii* with *Indigetes*, as being the ſame thing, *Geor.* I. *Dii Patrii*, *Indigetes*. (4.) The Gods to whom the *Romans* gave the Name *Indigetes*, were *Faunus*, *Veſta*, *Æneas*, *Romulus*, all the Gods of *Italy*; and at *Athens Minerva*, ſays *Servius*, and at *Carthage Dido*. 'Tis true we meet with *Jupiter Indiges*, but that *Jupiter Indiges* is *Æneas*, not the Great *Jupiter*; as we may ſee in *Livy*, *l.* 1. *c.* 3. in which laſt ſenſe *Servius* aſſures us, *Indiges* comes from the *Latin*, *in Diis ago*, *I am among the Gods*.

INDIGNATORIUS MUSCULUS, that Muſcle is thus called, which is ſuppoſed to draw the Eye from its inner Corner outwards, which gives an Appearance of Scorn and Anger; but this is properly a compound Motion of two Muſcles: for which ſee *Eye*.

INDIGO, a Drug of a deep blue Colour, brought hither from the *Weſt-Indies*. It is drawn from the Leaves of a Plant which the *Spaniards* call *Anil*, and we *Indigo*. The Method of Preparation is this. When the Plant has attained to a certain height, and its Leaves are in a good Condition, they cut them down, and throw them into a kind of Vat, covering them with Water. Theſe they boil together for the ſpace of twenty four hours: at the Top ſwims a Scum, with all the different Colours of the Rainbow. Then the Water is let off into another Veſſel, where they agitate and churn it, as it were, with five or ſix long Poles, fitted together for that purpoſe. This they continue to do till the Water becomes of a deep Green, and till the Grain, as they call it, forms itſelf, which they diſcover by taking a little of it out into another Veſſel, and ſpitting in it; for if then they perceive a bluiſh Dreg ſubſiding, they ceaſe to beat. The Matter then precipitates of itſelf to the Bottom of the Veſſel, and when it is well ſettled, they pour off the Water. After this they take out the *Indigo*, and put it into little Linen Bags, and let it drain; this done, they put it into ſhallow wooden Boxes, and when it begins to dry, they cut it into ſlices, and let them harden in the Sun.

There are ſeveral kinds of *Indigo*; the beſt is that called *Serquiſſe*, from the Name of a Village where 'tis prepared. We chuſe it in flat Pieces, of a moderate thickneſs, pretty hard, clean, light enough to ſwim in the Water, inflammable, of a fine blue Colour, marked a little on the Inſide with Silver Streaks, and appearing reddiſh when rubbed on the Nail.

Indigo is uſed among the Painters, who grind and mix it with white to make a blue Colour; for without that Mixture it would paint blackiſh. They mix it with Yellow, to make a Green Colour. It is alſo uſed in Dying, and by the Laundreſſes, to give a bluiſh Caſt to their Linen.

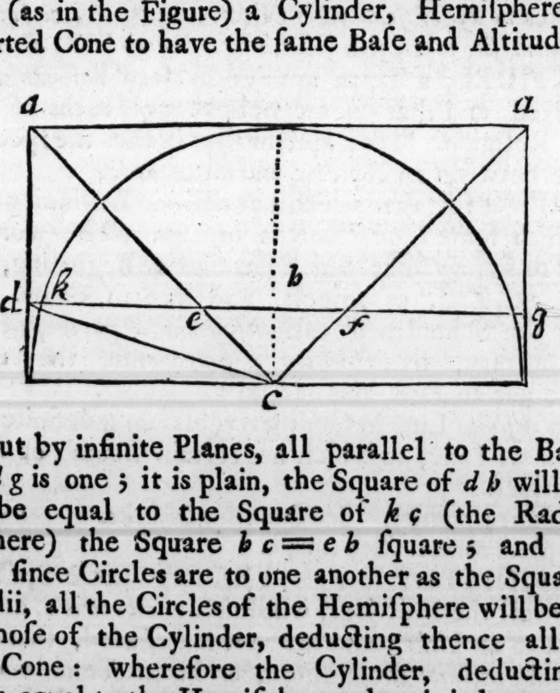
In the *Hortus Malabaricus* is an Account of the Plant whence *Indigo* is drawn: The Decoction of whoſe Root is ſaid to be excellent againſt Nephritic Cholics; its Leaves, applied to the lower Ventricle, good to promote Urine; and the *Indigo* itſelf of good Uſe in drying Tumours.

INDIRECT Modes of Syllogiſms in Logic, are the five laſt Modes of the firſt Figure, expreſſed by the barbarous words *Baralipton*, *Celantis*, *Dabitis*, *Friſeſomorum*. 'Tis the Converſion of the Concluſion which renders the *Modes indirect*. For inſtance, a Syllogiſm in *Darii*, and another in *Dabitis* would be perfectly alike, were it not for that Converſion; the Propoſitions having the ſame Quantity, and the ſame Quality, and the middle Term being the Subject in the Major, and the Attribute in the Minor in both. It remains then, that to make a Diſtinction, that which is the Subject of the Concluſion in *Darii*, is the Attribute in the Conluſion of *Dabitis*; and that which is the Attribute in the firſt, the Subject in the laſt.

D A- Every thing that promotes Salvation is advantageous:
R I- There are Afflictions which promote Salvation;
I. Therefore there are Afflictions which are advantageous.
D A- Every thing that promotes Salvation is advantageous:
B I- There are Afflictions which promote Salvation;
T I S. Therefore ſome things promoting Salvation are Afflictions, or afflicting.

INDIVIDUAL, or INDIVIDUUM, in Logic, is a particular Being of any Species, or that which can't be divided into two or more Beings, equal or alike. The uſual Diviſion in Logic is made into Genera, or Genus's, thoſe Genera into Species, and thoſe Species into *Individuals*. The Schoolmen make a fourfold Diſtinction of *Individuals*: (1.) *Individuum Vagum*, is that, which tho' it ſignifies but one thing, yet may be any of that kind; as when we ſay a Man, a certain Perſon, or one ſaid ſo and ſo, tho' but one Perſon is meant, yet that Perſon, for ought that appears to the contrary, may be any body. (2.) *Individuum Determinatum*, is when the thing is named and determined; as *Alexander*, the River *Nile*, &c. this is alſo called *Signatum*. (3.) *Individuum Demonſtrativum*, is when ſome demonſtrative Pronoun is uſed in the Expreſſion; as this Man, that Woman. (4.) *Individuum ex Hypotheſi*, or by Suppoſition, when an univerſal Name or Term is reſtrained, by the Suppoſition, to a particular thing; as when we ſay, the Son of ſuch an one, and it be known that he had but one Son.

INDIVISIBLES, in Geometry, are underſtood of ſuch Elements or Principles, as any Body or Figure may ultimately be reſolved into; and theſe Elements, or *Indiviſibles*, are, in each peculiar Figure, ſuppoſed to be infinitely ſmall. With regard to which Notion, a Line may be ſaid to conſiſt of Points, a Surface of parallel Lines, and a Solid of parallel and ſimilar Surfaces; and then becauſe each of theſe Elements is ſuppoſed indiviſible, if in any Figure, a Line be drawn thro' the Elements perpendicularly, the Number of Points in that Line will be the ſame, as the Number of the Elements. Whence we may ſee, that a Parallelogram, Priſm, or Cylinder, is reſolvable into Elements or *Indiviſibles*, all equal to each other, parallel, and like to the Baſe: A Triangle into Lines parallel to the Baſe, but decreaſing in Arithmetical Proportion; and ſo are the Circles, which conſtitute the Parabolic Conoid, and thoſe which conſtitute the Plane of a Circle, or the Surface of an Iſoceles Cone. A Cylinder may be reſolved into Cylindrical Curve Surfaces, having all the ſame Height, and continually decreaſing inwards, as the Circles of the Baſe do, on which they inſiſt. This Method of *Indiviſibles* is only the antient Method of Exhauſtion, a little diſguiſed and contracted, and is now allowed to be of excellent Uſe in the ſhortning of Mathematical Demonſtrations. Of which take the following Inſtance in that famous Propoſition of *Archimedes*, That a Sphere is two Thirds of a Cylinder circumſcribing it. For ſuppoſe (as in the Figure) a Cylinder, Hemiſphere, and an inverted Cone to have the ſame Baſe and Altitude, and to be cut by infinite Planes, all parallel to the Baſe, of which dg is one; it is plain, the Square of dh will every where be equal to the Square of kc (the Radius of the Sphere) the Square $hc = eh$ ſquare; and conſequently ſince Circles are to one another as the Squares of the Radii, all the Circles of the Hemiſphere will be equal to all thoſe of the Cylinder, deducting thence all thoſe of the Cone: wherefore the Cylinder, deducting the Cone, is equal to the Hemiſphere; but it is known, that the Cone is one Third of the Cylinder, and conſequently the Sphere muſt be two Thirds of it.



INDORSEMENT is any thing written on the Back of a Deed or Inſtrument; as a Condition, written on the back of an Obligation, is commonly called an *Indorſement*, from *in* and *Dorſum*, *Back*.

INDUCTION, *in Logic*, a Conſequence drawn in reaſoning from ſeveral eſtabliſhed Principles. Thus the Concluſion of a Syllogiſm is an *Induction* made from the Premiſes. An *Induction*, however, may be juſtly ſaid to be a Syllogiſm of itſelf, being a kind of Medium between an Enthymeme and a Gradation, in regard it wants a Propoſition (which, however, is underſtood) as in the Enthymeme, and abounds in Aſſumptions (which yet are collateral, or of the ſame degree) which is the Caſe in a Gradation. Thus, for inſtance, every Terreſtrial Animal lives, every Aerial Animal alſo lives, every Aquatic Animal lives, and every Reptile Animal lives; therefore every Animal lives. There are, it may be obſerved, various Aſſumptions, from the more general Species of the Animal Kind collected into one, which this Propoſition is ſuppoſed to precede, *viz.* every Animal is either Terreſtrial, Aerial, Aquatic, or Reptile.

Suidas reckons three kinds of *Induction*; that juſt mentioned, which concludes or gathers ſome general Propoſition from an Enumeration of all the Particulars of a kind, he calls the *Dialectic Induction*. The ſecond, which proceeds by Interrogation, and concludes probably, or with a Veriſimilitude, by the *Greeks* called ἐπαγωγὴ, and was that which *Socrates* ordinarily made uſe of, as *Cicero* in his Topics, and *Quintilian* have obſerved. The third kind of *Induction* is properly rhetorical; being a Concluſion drawn from ſome Example or Authority. This is a very imperfect *Induction*, all its Force lying in a Propoſition which is concealed, and which will hardly bear being expreſſed. Thus he that ſays, *Codrus* died bravely for his Country, therefore I muſt die bravely for my Country, proves nothing, unleſs this Propoſition be carried in mind, that I muſt do the ſame with *Codrus*. Again, *Archimedes*, and the other Mathematicians ſay, the Sun is much bigger than the Earth; therefore it muſt be owned the Sun is much bigger than the Earth. Where the Propoſition is underſtood, *viz.* whatever *Archimedes* and the other Mathematicians ſay is true.

INDUCTION, in the *Engliſh* Cuſtoms, is uſually taken for the giving Poſſeſſion to an Incumbent of his Church, by leading him into it, and delivering him the Keys by the Commiſſary or Biſhop's Deputy, and by his ringing one of the Bells. When a Clerk is inſtituted into a Benefice, he is to exhibite his Mandate from the Biſhop to the Arch-Deacon, or other Perſon to whom it is directed, and hath a Right thereby to be inducted into his Living; and if he be refuſed *Induction*, he hath a Remedy both in the Eccleſiaſtical Court, and alſo an Action of the Caſe in the Common Law, againſt the Arch-Deacon. If the Inductor, or Perſon to be inducted, be kept out of the Church or Houſe by Laymen, the Writ *de vi Laica* lies for the Clerk, which is directed out of the Chancery to the Sheriff of the County, to remove the Force, *&c.* If another Clergyman, preſented by the ſame Patron, keep poſſeſſion, a Spoliation is grantable out of the ſpiritual Court, whereby the Tithes, *&c.* ſhall be ſequeſtred, till the Right be determined. The Arch-Deacon rarely inducts a Clerk by himſelf in Perſon, but iſſues out a Warrant to all Clerks and Lettered Perſons within the Arch-Deaconry, impowering any of them to do it in his ſtead. The uſual Form and Manner of *Induction*, is, for the Inductor to take the Clerk by the Hand, and then to lay it on the Key of the Church, which muſt be then in the Door, and to ſay, 'By virtue of this Inſtrument, I induct you into the real, actual, and corporal Poſſeſſion of the Rectory or Vicarage of ——, with all its Fruits, Profits, Members, and Appurtenances.' This done, he opens the Door, and puts the Clerk in poſſeſſion of the Church, and ſhuts the Door upon him; who after he hath tolled a Bell (if there be any) comes out, and deſires the Inductor to indorſe a Certificate of his *Induction* on the Arch-Deacon's Warrant, and that all preſent will ſignify it under their Hands. If the Church-Key cannot be had, it is ſufficient that the Clerk lays hold of the Ring of the Door, and within the time limited read the Common-Prayer, and Thirty-nine Articles of the Church in the Church-Porch. Within two Months after this, the Clerk muſt read the Thirty-nine Articles, and all the Service of the Day, both at Morning and Evening-Prayers, and declare his Aſſent and Conſent; he muſt alſo then read the Biſhop's *Engliſh* Certificate, in which is the Declaration of his Conformity; and of all this he muſt have two or three good Witneſſes, who muſt ſign that they heard him do it, and be ready to atteſt it, *viva voce*, if required; and within three Months after *Induction*, he muſt alſo take the Abjuration-Oath at the Quarter-Seſſions, or in ſome one of the Courts at *Weſtminſter-Hall*. The word *Induction* is derived from the *Latin in*, and *duco*, *to lead*.

INDULGENCE, *in the* Romiſh *Theology*, is the Remiſſion of the Puniſhment due to a Sin, granted by the Church, and ſuppoſed to ſave the Sinner from Purgatory. They found their *Indulgences* on the infinite Treaſure of the Merits of Jeſus Chriſt, the Holy Virgin, and all the Saints, which they ſuppoſe the Church has a right of diſtributing, by virtue of the Communion of Saints. The *Roman* Jubilee carries with it a plenary or full *Indulgence* for all the Crimes committed therein. The Pope alſo grants Bulls of plenary *Indulgence* to ſeveral Churches, Monaſteries, and even to private Perſons; and 'tis a frequent thing to have general *Indulgences* for the time of the principal Feaſts of a Year. Their Caſuiſts ſay, that a plenary *Indulgence* does not always prove effectual, for want of complying with the Conditions whereon it was granted.

Indulgence, *Indult*, or *Indulto*, ſignifies alſo a ſpecial Favour or Privilege, conferred either on a Community, or a particular Perſon, by the Pope's Bulls, in virtue whereof he is licenſed to do or obtain ſomething contrary to the Intention and Diſpoſition of the common Laws. There are two kinds of *Indulto's*; the one active, which conſiſts in a Power of nominating and preſenting freely, and without reſerve, to Benefices that are otherwiſe limited and reſtrained by the Laws of the Apoſtolical Chancery; ſuch are thoſe ordinarily granted to Secular Princes, Cardinals, Biſhops, &c. Paſſive *Indulto's* conſiſt in a power of receiving Benefices and expectative Graces; of which kind are thoſe of a Parliament, of Graduates, and Mandatories. The *Indulto* of Kings is the Power given them of preſenting to Conſiſtorial Benefices, either by Treaty, by Favour, or ſpecial Privilege. The *Indulto* of Cardinals is a Licence for holding Regular as well as Secular Benefices, in diſpoſing of them *in commendam*, or continuing them, &c. *Indulto* of Parliament is a Right or Privilege granted to the Chancellor, Preſiſidents, Counſellors, and other Officers in the Parliaments, to obtain a Benefice of the Collator, upon the King's Nomination directed to him. This is a kind of Advowſon or Patronage belonging to the *French* King, the *Indulto* being a Mandate or Grace, by which he is permitted to name to any Collator he pleaſes, a Counſellor, or other Officer of Parliament, on whom the Collator ſhall be obliged to beſtow a Benefice: ſo that the Right of the *Indulto* reſides radically in the King, the Officers being only the Objects thereof. See *Diſpenſation*.

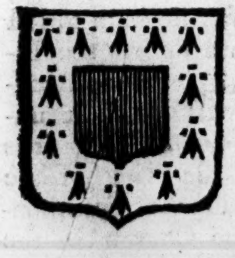
INDURATING, a Term applied to ſuch Things as give a harder or firmer Conſiſtence to others, by a greater Solidity of their Particles, or as diſſipate the thinner Parts of any Matter, ſo as to leave the Remainder harder. Thus a Tumour is indurated, either by the Addition of earthy and ſolid Particles, as in *Schirri* and knotty Swellings, or by tranſpiring the thinner Parts thro' the Skin, whereby the Remainder grows more fixed, as in an *Oedema*.

INEQUALITY of Natural Days. See *Equation*.

INERTIÆ VIS. See *Vis Inertiæ*.

INESCATION, a kind of Tranſplantation, practis'd for the Cure of certain Diſeaſes; it conſiſts in impregnating a proper Medium or Vehicle, with ſome of the Mumia or vital Spirit of the Patient, and giving it to ſome Animal to eat. 'Tis pretended the Animal unites and aſſimilates that Mumia with itſelf, correcting it, and imbibing its vicious Quality, and by that means reſtoring Health to the Perſon whereto the Mumia belonged. If the Animal happens to die before the Cure be effected, a ſecond Animal muſt be pitched on, and the Experiment repeated. Some tell us, that the Blood of the Patient well putrefied or fermented, does the Buſineſs better than any other Part. The word is derived from the privative Prepoſition *in*, and *eſca*, *Food*.

INESCUTCHEON, *in Heraldry*, ſignifies all the *Eſcutcheons* containing $\frac{1}{5}$ of the Field, and is borne within it, as an Ordinary. Thus, 'tis ſaid, he beareth Ermin, an *Ineſcutcheon* Gules. This is alſo ſometimes called an *Ineſcutcheon of Pretence*, which is borne when a Man marries an Heireſs; for then he bears her Coat of Arms on an *Ineſcutcheon*, or *Eſcutcheon of Pretence*, in the middle of his own Coat.



IN ESSE, Authors make this Difference between a thing *in eſſe*, and a thing *in poſſe*; a thing that is not, but may be, they ſay is *in poſſe*, or *potentia*; but a thing apparent and viſible, they ſay is *in eſſe*, that is, has a real Being *eo inſtanti*, whereas the other is caſual, and at beſt but a Poſſibility.

INFALLIBLE, that which cannot deceive, or be deceived. Upon this Term ſtands one of the principal Heads of Controverſy between the Reformed and the Catholicks. The latter of whom maintain, that the Church, aſſembled in General Council, is *infallible*, which the former deny. The principal Reaſons they give for the *Infallibility*, are drawn from the Obſcurity of the Scriptures, the Inſufficiency of private Judgment, and the Neceſſity there is of ſome *infallible* Judge for the Deciſion of Controverſy. The *Infallibility* of the Pope is a Doctrine of a late ſtanding, and not entirely acquieſced in even in their own Communion. *Du Pin*, a Doctor of the *Sorbonne*, has written againſt it, and the late Behaviour of the Cardinal *de Noailles*, and the proteſting Biſhops, ſeconded by a conſiderable Part of the Clergy of *France*, ſhew to how low an Ebb the Pope's *Infallibility* is reduced in that Country. The word comes from the *Latin* Prepoſition *in*, taken privatively, and *fallo*, *I deceive*.

INFAMOUS, in the ordinary Uſe of the Word, ſignifies ſomething notoriouſly contrary to Virtue or Honour. *Aulus Gellius* uſes the words *Infames Materias*, for what we ordinarily call *Paradoxes*, i. e. Diſcourſes remote from the common Opinion; Propoſitions that appear oppoſite to Truth, &c. as the Elogy of *Therſites*; the Praiſe of a Quartan Ague, &c.

Infamous, in Law, is ſomething void of Honour, that has no Repute or Eſteem in the World. There are two kinds of *Infamy*; ſome being *infamous* by Right, *de Jure*, as thoſe who have been noted by the Laws, or ſtigmatized by publick Judgments: Others are *infamous* in Fact, *de Facto*, as thoſe who exerciſe ſome ſcandalous Profeſſion, as a Catchpole, a Merry Andrew, a Hangman, an Informer, &c. Heretofore there were Crowns of *Infamy* given by way of Puniſhment to Criminals: they were made of Wooll. The word *infamous* is derived from the *Latin*, *in*, and *Fama*, *Fame*, *Report*.

INFANT, any Man or Woman under the Age of one and twenty Years is an *Infant* in Law. An *Infant* eight Years of Age, or upwards, may commit Homicide, and be hanged for it, if it appear by any other Act that he had Knowledge of Good and Evil; for here *Malitia ſupplebit Ætatem*; yet *Coke* on *Littleton*, *Sect.* 405. ſays, *An Infant ſhall not be puniſhed till the Age of Fourteen*; which, according to him, is the Age of Diſcretion.

INFANTE, INFANTA, a Title of Honour given to the Children of ſome Princes, particularly to thoſe of the Houſe of *Spain* and *Portugal*. It is uſually ſaid that this Title was introduced into *Spain*, on occaſion of the Marriage of *Eleanor* of *England* with King *Ferdinand* of *Caſtile*, and that their Son *Sancho* was the firſt that bore it. But this is contradicted by *Pelagius* Biſhop of *Oviedo*, who lived in the Year 1100, and informs us, that the Titles *Infante* and *Infanta*, were uſed in *Spain* ever ſince the Reign of King *Evremond* II.

INFANTRY, Troops, or Forces, conſiſting of Foot-Soldiers.

INFATUATE, to prepoſſeſs any one in favour of a Perſon or Thing that does not deſerve it, ſo far as that he can't eaſily be diſabuſed. The *Romans* called thoſe infatuated Perſons *Infatuati*, who fancied they had ſeen Viſions, or imagined the God *Faunus*, whom they called *Fatuus*, had appeared to them. The word *infatuate* comes from the *Latin Fatuus*, *Fool*, of *fari*, *to ſpeak out*, which is borrowed from the *Greek* φάομαι, whence φότης, which ſignifies the ſame with *Vates* in *Latin*, or *Prophet* in *Engliſh*; and the reaſon is, becauſe their Prophets or Prieſts uſed to be ſeized with a kind of Madneſs or Folly, when they began to make their Predictions, or deliver Oracles.

INFECTION, is the catching a Diſeaſe by ſome Effluvia or fine Particles, which fly off from ſome diſtempered Bodies, and mixing with the Juices of others, occaſion the ſame Diſorders, as in the Bodies they came from. The word comes from the *Latin* Verb *inficere*, which properly ſignifies *to dye of ſome other Colour*; *inficere*, *i. e. facere ut aliquid intus ſit*, *to occaſion ſomething to be imbibed*. See *Poiſon*.

INFIDEL, a Term applied to ſuch Perſons as are not baptized, and that do not believe the Truths of the Chriſtian Religion. 'Tis Baptiſm that makes the ſpecific Difference between an Heretic and an *Infidel*.

INFINITE, that which has neither Beginning nor End; in which ſenſe God alone is *infinite*. The word is alſo uſed to ſignify that which has had a Beginning, but will have no End, as Angels, and human Souls. This is what the Schoolmen call *infinitum à parte poſt*; as, on the contrary, by *infinitum à parte ante*, they mean that which has an End, but had no Beginning.

An *infinite* Line in Geometry, is an indefinite or indeterminate Line, to which no certain Bounds or Limits are preſcribed.

Infinite Quantity. See *Quantity Infinite.*

Infinite Series. See *Series.*

INFINITELY INFINITE FRACTIONS, a Term uſed where all the Fractions, whoſe Numerator is 1, are together equal to an Unit: and hence it is deduced, that there are not only *infinite* Progreſſions, or Progreſſions *in infinitum*; but alſo *infinitely* farther than one kind of Infinity. That theſe *infinitely* infinite Progreſſions are notwithſtanding computable, and to be brought into one Sum; and that not only finite, but into one ſo ſmall, as to be leſs than any aſſignable Number: That of Infinite Quantities, ſome are equal, others unequal; that one infinite Quantity may be equal to two, three, or more Quantities, whether infinite or finite.

INFINITIVE, in Grammar, is the Name of one of the Modes ſerving for the conjugating of Verbs. It does not denote any preciſe time, nor does it determine the Number or Perſons, but expreſſes things in a looſe indefinite Senſe, as *to teach*, &c. In moſt Languages, both antient and modern, the *Infinitive* is diſtinguiſhed by a

Termination peculiar to it, as τυπτειν in the *Greek*, *ſcribere* in the *Latin*, *ecrire* in the *French*, *ſcrivere* in the *Italian*, &c. but the *Engliſh* is defective in this point; ſo that to denote the *Infinitive*, we are always obliged to have recourſe to the Article *to*, excepting ſometimes when two or more *Infinitives* follow each other. The Practice of uſing a Number of *Infinitives* ſucceſſively, is a great, but a common Fault in Language, as *he offers to go to teach to write* Engliſh. Indeed, where theſe *Infinitives* have no dependence on each other, they may be uſed elegantly enough; *as to mourn, to ſigh, to ſink, to ſwoon, to die.*

INFINITY. The Idea ſignified by the name *Infinity* is beſt examined, by conſidering to what *Infinity* is by the Mind attributed, and then how it frames it. Finite and Infinite are looked upon as the Modes of Quantity, and attributed primarily to things that have Parts, and are capable of Increaſe or Diminution, by the Addition or Subſtraction of any the leaſt Part. Such are the Ideas of Space, Duration, and Number. When we apply this Idea to the Supreme Being, we do it primarily in reſpect of his Duration and Ubiquity; more figuratively, when to his Wiſdom, Power, Goodneſs, and other Attributes, which are properly inexhauſtible and incomprehenſible: For when we call them infinite, we have no other Idea of this Infinity, but what carries with it ſome Reflection on the Number or the Extent of the Acts or Objects of God's Power and Wiſdom, which can never be ſuppoſed ſo great, or ſo many, that theſe Attributes will not always ſurmount and exceed, tho we multiply them in our Thoughts with the *Infinity* of endleſs Number. We do not pretend to ſay, how theſe Attributes are in God, who is infinitely beyond the reach of our narrow Capacities; but this is our way of conceiving them, and theſe our Ideas of their *Infinity*. We come by the Idea of *Infinity* thus. Every one that has any Idea of any ſtated Lengths of Space, as a Foot, Yard, &c. finds that he can repeat that Idea, and join it to another, to a third, and ſo on, without ever coming to an end of his Additions. From this Power of enlarging his Idea of Space, he takes the Idea of infinite Space, or Immenſity. By the ſame Power of repeating the Idea of any Length or Duration we have in our Minds, with all the endleſs Addition of Number, we come by the Idea of Eternity. If our Idea of Infinity be got, by repeating without end our own Ideas, why do we not attribute it to other Ideas, as well as thoſe of Space and Duration; ſince they may be as eaſily and as often repeated in our Minds as the other? yet no body ever thinks of infinite Sweetneſs, or Whiteneſs, tho he can repeat the Idea of Sweet or White, as frequently as thoſe of Yard or Day? To this it is anſwer'd, that thoſe Ideas which have Parts, and are capable of Increaſe by the Addition of any Parts, afford us by their Repetition an Idea of *Infinity*; becauſe with the endleſs Repetition there is continued an Enlargement, of which there is no end: but it is not ſo in other Ideas; for if to the perfecteſt Idea I have of White, I add another of equal Whiteneſs, it enlarges not my Idea at all. Thoſe Ideas, that conſiſt not of Parts, cannot be augmented to what proportion Men pleaſe, or be ſtretch'd beyond what they have received by their Senſes; but Space, Duration, and Number being capable of Increaſe by Repetition, leave in the Mind an Idea of an endleſs room for more; and ſo theſe Ideas alone lead the Mind towards the Thought of *Infinity*. We are carefully to diſtinguiſh between the Idea of the *Infinity* of Space, and the Idea of a Space infinite. The firſt is nothing but a ſuppoſed endleſs Progreſſion of the Mind over any repeated Idea of Space: But to have actually in the Mind the Idea of a Space infinite, is to ſuppoſe the Mind already paſſed over all thoſe repeated Ideas of Space, which an endleſs Repetition can never totally repreſent to it; which carries in it a plain Contradiction. This will be plainer, if we conſider *Infinity* in Numbers. The *Infinity* of Numbers, to the End of whoſe Addition every one perceives there is no Approach, eaſily appears to any one that reflects on it: But how clear ſoever this Idea of the *Infinity* of Numbers be, there is nothing yet more evident, than the Abſurdity of the actual Idea of an infinite Number.

INFIRMARY, a Place where the Sick belonging to any Society or Community are diſpoſed.

INFLAMMATION, in Phyſic, is underſtood of a Tumour, occaſioned from an Obſtruction; by means whereof the Blood flowing into ſome Part faſter than it can run off again, ſwells up, and cauſes a Tenſion, with an unuſual Soreneſs, Redneſs, and Heat. The immediate Cauſe, therefore of all *Inflammations*, is an overflowing of Blood. Other Cauſes, more remote, may be the Denſity and Coagulation of the Blood, or the Relaxation and Contuſion of the Fibres. Phyſicians have given particular Names to the *Inflammations* of ſeveral Parts. That of the Eyes is call'd *Ophthalmia*, that of the Lungs *Peripneumonia*, and that of the Liver *Hepatites*. The word *Inflammation* comes from the *Latin in*, and *Flamma*, Flame.

INFLATION, a blowing up; is the ſtretching or filling any flaccid or diſtendable Body, with a flatulent or windy Subſtance. From the *Latin in* and *flatus*, of *flo*, I blow.

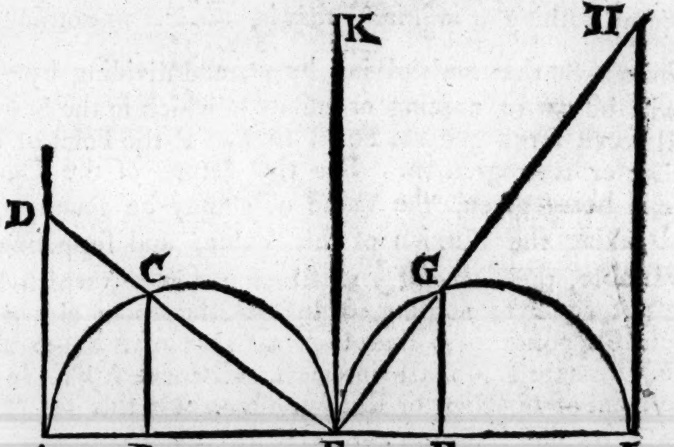
INFLECTION, in Optics, is a multiplicate Refraction of the Rays of Light, cauſed by the unequal Denſity of any Medium, whereby the Motion or Progreſs of the Ray is hindred from going on in a right Line, and is inflected or deflected by a Curve, ſaith Dr. *Hook*, who firſt took notice of this Property: And this, he ſaith, differs both from Reflection and Refraction, which are both made at the Superficies of the Body, but this in the middle of it within. Sir *Iſaac Newton*, as you will find under *Light*, diſcover'd alſo by plain Experiment this *Inflection* of the Rays of Light; and M. *de la Hire* ſaith, he found, That the Beams of the Stars being obſerved in a deep Valley, to paſs near the Brow of a Hill, are always more refracted, than if there were no ſuch Hill, or the Obſervations were made on the top thereof; as if the Rays of Light were bent down into a Curve by paſſing near the Surface of the Mountain. Sir *Iſaac Newton* in his Optics makes ſeveral Experiments and Obſervations on the *Inflection* of the Rays of Light; which ſee under *Light* and *Rays*.

INFLECTION, in Grammar, is the Variation of Nouns and Verbs, in their ſeveral Caſes, Tenſes, and Declenſions. *Inflection* is a general Name, under which are comprehended both the Conjugation and Declenſion.

INFLECTION POINT of any Curve, in Geometry, ſignifies the Point or Place where the Curve begins to bend back again a contrary way: As for inſtance, when a curve Line, as A F K, is partly concave, and partly convex towards any right Line, as A B, or towards a fixed Point, then the Point F, which divides the concave from the convex Part, and conſequently is at the Beginning of the one, and End of the other, is called the *Point of Inflection*, as long as the Curve, being continued in F, keeps its Courſe the ſame; but it is called the Point of Retrogreſſion, when it inflects back again towards that Part or Side, from whence it took its Original. See *Fig.* 2.

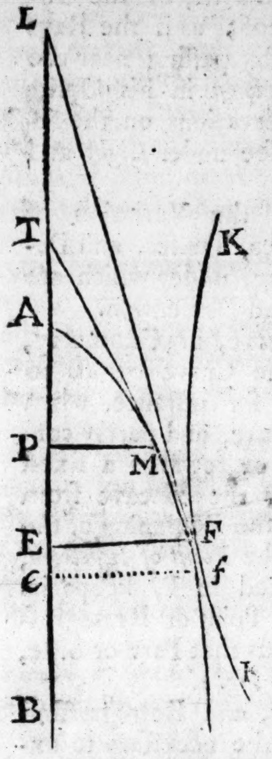
Before the Theory of this *Inflection*, and Retrogreſſion of Curves, can be underſtood, it may be neceſſary to explain this general Principle. Whatſoever finite Quantity (or if it be a Fluxion, it is all one) goes on continually increaſing or decreaſing, it cannot change from a poſitive to a negative Expreſſion, or from a negative to a poſitive one, without firſt becoming equal to an infinite or nothing. It is equal to nothing, if it doth continually decreaſe, and equal to an infinite, if it doth continually increaſe. To illuſtrate this, let there be two Circles touching one another in the Point E (*Fig.* 1.) their Diameters A E and E I lying in one and the ſame right Line. Let A E or E I be $=d$. Let the Diſtance between the Extremity A and any Ordinate in either of the Circles be $=$ to x perpetually. I conſider now, what will be the Expreſſions of the Lines intercepted between E the Point of Contact of the Circles; ſuch as are the Lines E B and E F intercepted between E and the Ordinates C B and G F. It is certain therefore, that taking a Point, as B, any where between A and E, that then the Expreſſion of the intercepted B E is $d-x$; but taking a Point, as F between E and I, the Expreſſion of the intercepted E F, ſhall be $x-d$. For A B, or A F, being taken for x indifferently, the Values of the intercepted Lines will appear with this Change of Signs. In one caſe therefore the Expreſſion is poſitive, in the other negative. But as the Points B or F approach to E, the Quantities B E and E F decreaſe continually, and at the Point E are equal to nothing. So that it is plain there is no paſſing from a poſitive to a negative Expreſſion, in this caſe, of a Quantity continually decreaſing, without paſſing thro nothing. For the other part, let us conſider the Tangents (as D A or H I) cut off by Lines continually drawn from E, the Point of the Circle's Contact. If C B, or G F, be put equal to y, the Expreſſion

(*Fig.* 1.)



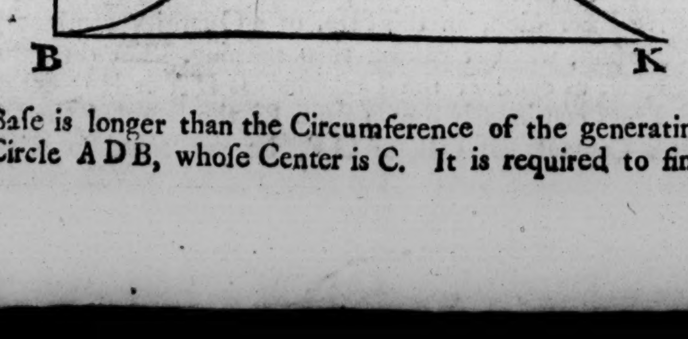
Expreſſion of any ſuch Tangent will be $\frac{yd}{d-x}$, or $\frac{yd}{x-d}$, according as we take it on the one or the other ſide of the Point E; in one caſe therefore it is poſitive, in the other negative. But as the Points B or F approach to E, the Tangents D A and H I increaſe continually, and at the Point E they become infinite. Therefore a Quantity that continually increaſeth, cannot paſs from a poſitive to a negative Expreſſion, without being infinite. All this is univerſally true, whether it be a finite Quantity or a Fluxion that we conſider. There is no changing from poſitive to negative, without paſſing thro nothing or infinite. Applying this therefore to a Fluxion, it will follow from hence, That the Fluxion of a Quantity that expreſſeth a *Maximum* or a *Minimum*, muſt be equal to nothing, or to infinite. And upon this Foundation, we may now eaſily proceed to the Points of *Inflection* and Retrogreſſion. In order to find a general Theorem to aſſiſt us in this Matter, let us conſider the Curve A F K, (*Fig.* 2.) whoſe Diameter is the right Line A B; and its Ordinates P M, *ef*, parallel to one another. If through the Point F be drawn the Ordinate Applicate E F, together with the Tangent F L; and from any other Point, as M on the ſame ſide with A F, be drawn the Ordinate Applicate M P, as likewiſe the Tangent M T: It is evident, (1.) In theſe Curves that have a Point of *Inflection*, that the *Abſciſſa* A P increaſes continually, and that the Part A T of the Diameter, intercepted between A the Origin of the Axis, and T the Concourſe of the Tangent and the Axis, increaſeth ſuch time as the Point P fall upon E, and after it again begins to diminiſh: From whence it is apparent, that A T muſt become the *Maximum* A L, when the Point P falls upon the Point E required. (2.) In thoſe Curves that have a Point of Retrogreſſion, it is evident that the Part A T increaſeth continually, and that the *Abſciſſa* increaſeth ſo long, till the Point T fall upon L, after which it again diminiſheth: From whence it is clear, that A P muſt become a *Maximum*, when the Point T falls upon L. Now if A E be put $=x$, E F $=y$, then will A L be $=\frac{y\dot{x}-x}{\dot{y}}$, whoſe Fluxion, which is $\frac{y^2 x - y\dot{x}\ddot{y} - \dot{x}}{y^2}$ (ſuppoſing $\dot{x}$ invariable) being divided by $\dot{x}$; the Fluxion of A E muſt become nothing or infinite; that is, $\frac{-y\ddot{y}}{y^2}$ = nothing or infinite: So that multiplying by $\dot{y}^2$, and dividing by $-y$, $\ddot{y}$ will be = to nothing or infinite; which in the Sequel will ſerve for a general Form to find F the Point of *Inflection* or Retrogreſſion. For the nature of the Curve A F K being given, the Value of $\dot{y}$ may be found in $\dot{x}$; and taking the Fluxion of this Value, and ſuppoſing $\dot{x}$ invariable, the Value of $\ddot{y}$ will be found in x^2, which being put equal to nothing, or Infinity, ſerves in either of theſe Suppoſitions to find ſuch a Value of A E, as that the Ordinate E F ſhall interſect the Curve A F K in F, the Point of *Inflection* or Retrogreſſion. Of this we ſhall only give one Example.

(*Fig.* 2.)



Let A F K (*Fig.* 3.) be a protracted Semicycloid, whoſe Baſe is longer than the Circumference of the generating Circle A D B, whoſe Center is C. It is required to find E in the Diameter A B; ſo that the Ordinate Applicate E F ſhall cut the Semi-cycloid in F, the Point of contrary Flexion. Suppoſe the known Quantities A D B $=a$, B K $=b$; A B $=2c$, and the unknown Quantities A E $=x$, E D $=z$, the Ark A D $=u$, E F $=y$; then by the Property of the Cycloid $y = z + \frac{bu}{a}$, and therefore $\dot{y} = \dot{z} + \frac{b\dot{u}}{a}$: But by the Property of the Circle $z = \sqrt{2cx - xx}$, conſequently $\dot{z} = \frac{c\dot{x} - x\dot{x}}{\sqrt{2cx - xx}}$, and $\dot{u}\ (\sqrt{\dot{x}^2 + \dot{z}^2}) = \frac{c\dot{x}}{\sqrt{2cx - xx}}$: Therefore ſubſtituting for $\dot{z}$, and $\dot{u}$ their reſpective Values, we have $\dot{y} = \frac{ac\dot{x} - ax\dot{x} + bc\dot{x}}{a\sqrt{acx - xx}}$, and the Fluxion thereof, (ſuppoſing $\dot{x}$ invariable) is $\frac{bcx - acx - bcc \times x}{2cx - xx \times \sqrt{2cx - xx}} = 0$, that is, A E $(x) = c + \frac{ac}{b}$ and C E $= \frac{ac}{b}$. Hence it is evident, That to have F a Point of contrary Fluxion, b muſt be greater than a; for if it be leſs, then C E would exceed C B. Concerning the *Inflection* of the Rays of Light, ſee *Light*.

(*Fig.* 3.)



INFLUENCE, a Quality ſuppoſed to flow from the Bodies of the Stars, or the Effect of their Heat and Light, to which the Aſtrologers vainly attribute all the Events that happen on the Earth. The Alchymiſts, who make it the Philoſopher's Stone, tell us, that every thing in Nature is produced by the *Influence* of the Stars, which, in their Paſſage thro' the Atmoſphere, imbibe many of its moiſt Parts, the groſſeſt whereof they depoſite in the Sands and Earths where they fall; that theſe filtrating thro' the Pores of the Earth, deſcend even to the Center, whence they are driven, by the central Fire, back again to the Surface, and in their Aſcent, by a natural kind of Sublimation, as they find Earths well diſpoſed, they form natural Bodies, as Metals, Minerals, and Vegetables, &c. Thus Chymiſtry conſiſting in an artificial Imitation of theſe natural Operations, and in applying active Principles to paſſive Principles, 'tis pretended it can form natural Bodies, make Gold, &c.

INFLUENT, a Term uſed where any Liquor or Juice, by the Contrivance of Nature, and the Laws of Circulation, falls into another Current and Receptacle. Thus with reſpect to the common Receptacle in the human Body, the Chyle is its *influent* Juice, and ſo is the Bile to the Gall-Bladder, and Venal-Blood to the Heart in its Diaſtole; and the like.

IN FORMA PAUPERIS, in Law, is when any Man that hath a juſt Cauſe or Suit, either in the Chancery, or any of the Courts of Common Law, will come before the Lord-Chancellor, or Maſter of the Rolls, or either of the Chief Juſtices, or Chief Baron, and make Oath, that he is not worth five Pounds, his Debts paid; either of the ſaid Judges will, in his own proper Court, admit him to ſue *in Forma Pauperis*, and he ſhall have Counſel, Clerk, or Attorney aſſigned to do his Buſineſs, without paying any Fees.

INFORMATION, in Law; ſee *Inditement*. *Information* for the King is the ſame; that for a common Perſon we call Declaration, and is not always done directly by the King, or his Attorney, but ſometimes by another, who ſues as well for the King as himſelf; on a Breach of ſome Penal Law or Statute, wherein a Penalty is given to the Party that will ſue for the ſame.

INFORMATUS NON SUM, or *Non ſum Informatus*; a formal Anſwer made of courſe by an Attorney, who is commanded by the Court to ſay any thing he thinks good in behalf of his Client; who having nothing material to ſay, makes anſwer he is not inform'd: on which, Judgment paſſes for the other Party.

INFORMIS, *informed*, that which has not the Form or Perfection it ſhould have. In Aſtronomy we uſe the Terms *Stellæ Informes*, for ſuch Stars as have not yet been reduced into any Conſtellation. Of which kind there was a great Number left by the antient Aſtronomers, tho' *Hevelius*, and ſome others of the Moderns, have provided for the greateſt part of them, by making new Conſtellations.

INFRACTION, a Rupture or Violation of a Treaty, a Law, Ordinance, &c. from the Prepoſition *in*, and the Supine of *frango, to break*.

INFRA-LAPSARII, the Name of a Sect, who maintain, that God has created a certain Number of Men only to be damned, without allowing them the means neceſſary to ſave themſelves, if they would. This Doctrine they maintain in different manners, the Sect itſelf being divided into two Branches. Some of them hold, that God independently of every thing, and antecedently to all Knowledge or Foreſight of the Fall of the firſt Man, reſolved to ſignalize both his Mercy and his Juſtice; his Mercy, by creating a certain Number of Men, to make them happy to all Eternity; and his Juſtice, by creating likewiſe a Number of other Men, to be miſerable to all Eternity. Others hold, that God did not take this Reſolution, but in conſequence of Original Sin, and of the Knowledge which he had from all Eternity, that *Adam* would commit it: for, ſay they, Man, by this Sin, having forfeited all Pretences to his original Juſtice, deſerves nothing now but Puniſhment. All Mankind is become a Maſs of Corruption, which God may abandon to eternal Deſtruction, without any Impeachment of his Juſtice. However, to ſhew his Mercy too, as well as his Juſtice, he has reſolved to ſelect ſome out of this Maſs, to ſanctify them, and to make them happy. Thoſe who maintain the Doctrine in the firſt manner, are called *Supra-lapſarii*, as believing that God formed the Reſolution of damning a Number of Men, *ſupra Lapſum*, before *Adam*'s Fall, and independently of it. Thoſe of the ſecond Opinion, are called *Infra-lapſarii*, as holding that God made that Reſolution, *infra Lapſum*, after his Knowledge of the Fall, and in conſequence thereof.

INFRA-SPINATUS, a Muſcle that ariſes from the inferior Parts of the Baſis, Spine, and Under-Coſta of the Scapula, and filling the lower Interſcapulum, paſſes on between the Spine and Teres Minor in a triangular Form, and growing tendinous at the Cone, is inſerted into the Head of the Humerus, and draws directly backwards.

INFULA, a Name antiently given to ſome of the Pontifical Ornaments. *Feſtus* tells us, that the *Infulæ* were Filaments or Fringes of Wooll, wherewith the Antients uſed to adorn their Prieſts, their Victims, and even their Temples. Several Authors confound the *Infula* with the Mitre, Tiara, or Cap wore by the Prieſts; but there was a great deal of Difference. The *Infula* was properly a Fillet or Headband of white Wooll, covering that Part of the Head where the Hair grows, as far as the Temples, whence, on each Side, hung down two Strings, called *Vittæ*, to bind it withal; and this has given occaſion to ſome Authors to confound the *Infulæ* with *Vittæ*. The *Infula* was the ſame thing to Prieſts that the Diadem was to Kings, *viz.* the Badge of their Dignity and Authority. The Difference between the Diadem and the *Infula* conſiſted in this, that the Diadem was flat and broad, and the *Infula* rounded and twiſted.

INFUNDIBULUM, a *Latin* Word, ſignifying a Funnel; whence many Parts in an human Body, having a Reſemblance thereto in Shape, are thus called; as the *Infundibulum Cerebri*, and *Infundibulum Renum*; for which ſee *Brain and Kidneys*: and ſome Parts of Plants, for the ſame reaſon, are called *Infundibuliformes*. See *Flowers*.

INFUSION is a Part of Pharmacy, whereby the Virtues of Plants, Roots, and the like, are drawn out, by letting them ſteep in ſome convenient Menſtruum. *Infuſion* is uſed in Bodies of a lax Texture, whoſe Parts are ſo light, as not to admit of a greater Motion, without hazard of flying away in Vapour. Its Uſe is to communicate the Virtues out of Bodies to Liquors, either in order to augment their Force, or correct their ill Qualities. Some *Infuſions* are made in common Water, others in Wine, Vinegar, Milk, Spirit of Wine, &c.

Infuſion is alſo uſed to ſignify the Action of conveying a Liquor into the Body by the Veins. Some Phyſicians have found out a new Method of Purging, by infuſing a Cathartic into the Veins, which operates pretty much after the manner of a Clyſter.

INGEMINATED FLOWERS, are when one Flower ſtands on, or naturally grows out of another.

INGENIT, inborn, ſignifies any Diſeaſe, or Habit, that comes into the World with a Perſon, and is nearly the ſame with Hereditary.

INGENUOUS, among the *Romans*, was a Title applicable to a Perſon who was born free, or of free Parents. A Perſon was accounted *ingenuous* if only the Mother were free, and the Father a Servant. Theſe could give their Votes, and enjoy Offices, from which the *Liberti*, or Freed Men, &c. were debarred. *Iſidore* ſays, they are called *Ingenui qui Libertatem habent in Genere, non in Facto*, who are born free, not thoſe who acquire their Freedom.

Ingenuous is ſometimes alſo uſed to ſignify the Native of a Country, in contradiction to a Foreigner.

INGLUVIES, or Crop, a part which in granivorous Fowls ſerves for the immediate Reception of the Food, where it remains ſome time for Maceration, before it be tranſmitted to the Stomach. This *Ingluvies* is furniſhed with Glands, which, the Patrons of Fermentation maintain, convey a Menſtruum thither, that impregnates the Aliment, and ſerves inſtead of Maſtication.

INGOT is a little Wedge or Maſs of Gold and Silver or an uncertain Quantity of Bullion.

INGREDIENTS are all the Simples which go into the Compoſition of any Medicine, Ointment, Sauce, &c.

INGRESS, in Aſtronomy, ſignifies the Sun's entering the firſt Scruple of one of the four Cardinal Signs, eſpecially *Aries*.

INGRESSU, in Law, a Writ of Entry, whereby a Perſon ſeeks Entry into Lands or Tenements. It lies in various Caſes, and has various Forms.

INGROSSATOR MAGNI ROTULI, is the ſame as Clerk of the Pipe, which ſee.

INGROSSER, in Common Law, is one that buys Corn growing, or any Proviſions, before the Market, to ſell again; it alſo ſignifies a Clerk, who writes Records or Inſtruments of Law in Skins of Parchment.

INGUEN is that Part of the Body, reaching from the Head of the Thigh to above the ſecret Parts, and is commonly called the Groin. *Inguinalis* is given to any Subdiviſions made of that Part, or any thing therein contained, or applied thereunto by way of Medicine, or the like. The word is pure *Latin*, and is derived, according to ſome, from *Unguen*, *Ointment*, becauſe theſe Parts are frequently anointed. Others derive it from *ango*, becauſe Pains happen frequently there; others again from *ingenor*, becauſe the genital Parts are here.

INHARMONICAL RELATION is a Term in Muſic. See *Relation inharmonical*.

INHERENCE, a Term in Philoſophy, applied to the Juncture or Connexion of an Accident with its Subſtance. Thus Quantity has a neceſſary *Inherence* with a natural Body.

INHERITANCE is a Perpetuity in Lands and Tenements to a Man and his Heirs: This word *Inheritance* is not only underſtood where a Man hath *Inheritance* of Lands and Tenements by Deſcent or Heritage, but alſo every Fee-Simple and Fee-Tail, that a Man hath by his Purchaſe, may be ſaid to be by *Inheritance*, for that his Heirs may inherit after him.

INHIBITION is a Writ to inhibit or forbid a Judge from farther proceeding in the Cauſe depending before him; ſometimes *Prohibition* and *Inhibition* are put together: but *Inhibition* is moſt commonly a Writ iſſuing out of a higher Court to a lower and inferior; and *Prohibition* out of the King's Court to an inferior Court.

INJECTION, in Pharmacy, is any liquid Medicine made to be injected by a Syringe, Clyſter-Pipe, or any other Inſtrument into any Part of the Body. It is likewiſe a common Term for filling the Veſſels with coloured Wax, or any other proper Matter, to ſhew their Figures and Ramifications; a thing frequent among Anatomiſts.

INITIALIA, a Name antiently given to the Myſteries of *Ceres*. See *Cerealia*.

INITIATED, a Term properly uſed in ſpeaking of the Religion of the antient Heathens, where it ſignifies to be admitted to a Participation of the Myſteries of Religion; tho' the word is alſo ſometimes uſed in ſpeaking of other Religions, and even of Philoſophy and other Sciences. The Antients never diſcovered the deeper Myſteries of their Religion, nor even permitted ſome of their Temples to be open to any but thoſe who had been *initiated* in certain Orders. The word comes from the *Latin initiatus*, of *initiare*, *initiari*. *Initiari* properly ſignifies to begin ſacrificing, or to receive or admit a Perſon to the beginning of Myſteries, or of Ceremonies of leſs importance. *Caſaubon*, upon *Athenæus*, obſerves, that all the Myſteries were not communicated at once to the Perſons who preſented themſelves for the Prieſthood, but that at firſt they purified them, then admitted them to the leſs conſiderable Matters to diſpoſe them for the more important, and at laſt they drew the Veil quite, and laid open all the moſt ſacred and ſolemn Parts of Religion.

INJUNCTION is a Writ grounded upon an interlocutory Order in Chancery, ſometimes to give poſſeſſion to the Plaintiff, for want of the Defendant's Appearance; ſometimes to the King's ordinary Court, and ſometimes to the Court-Chriſtian, to ſtop Proceedings in a Cauſe, upon Suggeſtion made, that the Rigour of the Law, if it take place, is againſt Equity and Conſcience in that Caſe.

INJURY, in the general meaning of the word, ſignifies any thing contrary to Juſtice and Equity. The Civilians define *Injury* a private Offence, committed deſignedly, and with an evil Intention, to any Man's Prejudice. The Author of the Rhetorics to *Herennius* ſays, *Injuria eſt quæ aut Pulſatione, aut Convicio, aut Turpitudine, Corpus, Aures, aut Vitam alicujus violavit.* Action on an *Injury* is annual, that is, no Reparation could be required after the Expiration of a Year. By the Law of the twelve Tables, where the *Injury* was the breaking of a Limb, the injured Perſon might demand *Talionem*, that is, he might break the ſame Limb of the Criminal. For the breaking of a Bone there were conſiderable pecuniary Puniſhments aſſigned: For other *Injuries* only twenty *Aſſes* were decreed, which the Poverty of thoſe times thought a ſufficient Penalty; but the Prætors afterwards finding this too ſlender a Satisfaction, in lieu thereof appointed the injured Perſon to ſet a Rate on the *Injury*, which they afterwards increaſed or leſſened as they thought good. The word is derived from the *Latin* Prepoſition *in*, which here has a negative Power, and *Jus*, *Law*, *Right*; *Injuria dicitur omne quod non Jure fit*. The Antients made a Goddeſs of *Injury*, and called her *Ate*. *Homer* makes her the Daughter of *Jupiter*, and ſays, ſhe did miſchief to every body, even to her Father; that ſhe was very nimble and tender-footed, and walked altogether on Mens Heads, without ever touching the Ground.

INK, the common Writing-Ink is a Compoſition of Vitriol, Galls, Gum and Water. Printing-Ink is made of Nut-Oil or Linſeed-Oil, Turpentine, and a kind of Black.

Indian, or *Chineſe Ink*, is an admirable Compoſition, and has been in vain attempted to be imitated in *Europe*. It is not fluid like our Writing-Inks, but ſolid, like our Mineral Colours, tho much lighter. They make it of all Figures, but the moſt uſual is rectangular about a quarter of an Inch thick. Some of them are gilt with Figures of Dragons, Birds, Flowers, *&c.* In order to this, they have little wooden Molds, ſo curiouſly wrought, that we could hardly equal them in Metals. Before you uſe this *Ink*, there muſt be a little hollow Marble, or other Stone, with Water in it, on which the Stick of *Ink* muſt be ground, till the Water becomes of a ſufficient Blackneſs. It makes a very black ſhining *Ink*, and tho' it be apt to ſink when the Paper is thin, yet it never runs or ſpreads; ſo that the Letters are always ſmooth and evenly terminated, how big ſoever they be. It is of great Uſe in deſigning, becauſe it may be weakened or diminiſhed to any degree one pleaſes; and there are abundance of things which can't be repreſented to the Life without it. The *Chineſe* make it with Smoak-Black of different kinds, but the beſt is made of the Smoak of fat Pork, burnt at a Lamp. They mix a kind of Oil with it, to make it more ſmooth, and add other odorous Ingredients to take away the Rankneſs of the Smell. After they have mixed it into a Paſte of a proper Conſiſtence, they put it into a Mold to figure it.

INLAND, implies any thing ſituated in the main Land, or Heart of a Country far from the Sea-Coaſts. Hence *Inland* Bills in Traffic are ſuch Bills as are payable in the ſame Land wherein they are drawn.

INMATES, are ſuch Perſons as are admitted (for their Money) to live in the ſame Houſe with another Man, tho in different Rooms, and which go in at the ſame Door jointly with others to whom the Houſe belongeth, and which are not able to maintain themſelves. Theſe are inquirable in a Court-Leet.

INNATE HEAT. See *Calidum Innatum*.

INNATE IDEAS, or Principles, are certain primary Notes or Characters, ſuppoſed to be ſtamped on the Mind of Man when it firſt receives its Being, and which it brings into the World with it; but the Doctrine of *Innate Ideas* is abundantly confuted by Mr. *Locke*. See *Idea*.

INNINGS; Lands recovered from the Sea, by draining and banking, are ſo called.

INNOCENTS-DAY, the Name of a Feaſt celebrated in Commemoration of the Infants murdered by *Herod*. heretofore it was the Cuſtom to have Dances in the Churches on this Day, wherein were Perſons who repreſented Biſhops, by way of Deriſion of the Epiſcopal Dignity. This appears by a Canon of the Council of *Cognac*, held in 1260, which expreſly forbids it.

INNOMINATI, *Gli Innominati*, *Anonymi*, Perſons who have no Names; a Title by which the Academiſts of *Parma* diſtinguiſh themſelves. Moſt Cities in *Italy* have an Academy, and each has its proper Name; thus thoſe at *Parma* entitle themſelves *Gli Innominati*, as if it was their Name to have no Name at all.

INNOMINATUM, in general, ſignifies any thing without a Name. Many Parts of the Body are left under this indiſtinct Term, as the *Innominata Glandula Oculi*, now called *Caruncula Oculi*. See *Eye*. *Innominata Tunica Oculi*. See *Eye*. *Innominatum Os*. See *Ilium*.

INNS. Our Colleges of Municipal or Common Law, Profeſſors, and Students, are ſtill called *Inns*; the old *Engliſh* word for Houſes of Noblemen, Biſhops, and others of extraordinary Note, which is of the ſame Signification with the *French* word *Hôtel*.

Inns of Court, are ſo called, as ſome think, becauſe the Students there are to ſerve the Courts of Judicature, or elſe becauſe antiently theſe Colleges received none but the Sons of Noblemen and better ſort of Gentlemen, as *Forteſcue* affirms. Of theſe we have four; *viz.* the two *Temples*, heretofore the Dwelling of the Knights-Templers, purchaſed by ſome Profeſſors of the Common Law about 300 Years ago; and *Lincolns-Inn* and *Grays-Inn*, antiently belonging to the Earls of *Lincoln* and *Gray*. Theſe Societies are no Corporations, nor have any Judicial Power over their Members, but have certain Orders among themſelves, which have, by Conſent, the force of Laws: for lighter Offences they are only excommoned, or put out of Commons; for greater, they loſe their Chambers, and are expelled the College; and when once expelled out of one Society, they are never received by any of the others. The whole Company of Gentlemen in each Society may be divided into four Parts, Benchers, Utter-Barriſters, Inner-Barriſters, and Students. See *Bencher* and *Barriſter*.

Inns of Chancery were probably ſo called, becauſe antiently inhabited by ſuch Clerks as chiefly ſtudied the forming of Writs, which regularly belonged to the Curſitors, who are Officers of Chancery. The firſt of theſe is *Thavies-Inn*, begun in the Reign of *Edward* III. and ſince purchas'd by the Society of *Lincolns-Inn*; then *New-Inn*, *Clements-Inn*; *Cliffords-Inn*, antiently the Houſe of the Lord *Clifford*; *Staple-Inn*, belonging to the Merchants of the Staple; *Lyons-Inn*, antiently a common Inn with the Sign of the Lion; *Furnivals-Inn*, and *Bernards-Inn*.

Theſe were heretofore preparatory Colleges for younger Students, and many were entered here before they were admitted into the *Inns* of Court. Now they are moſtly taken up by the Attorneys, Sollicitors, *&c.* They belong all to ſome of the *Inns* of Court, who ſend yearly ſome of their Barriſters to read to them.

INNUENDO, from *innuo*, *to beck or nod with the Head*, is a word frequently uſed in Writs, Declarations, and Pleadings. The Uſe of it is only to declare and aſcertain the Perſon or Thing which was named, or left doubtful before; as he (*innuendo*, the Plaintiff) is a Thief, mention being before made of another Perſon.

INOCULATION, in Agriculture, is a kind of Grafting, or an artificial Operation, by which the Bud of one Fruit-Tree is ſet into the Stock or Branch of another, ſo as to make different ſorts of Fruit grow on the ſame Tree. There are various ways of performing this. The antient Method was by making a ſhallow Inciſion in the Bark, where the Knot of a Shoot or Oculus (whence the Operation takes its Name) begins to bud forth, into which a promiſing Shoot of another kind was inſerted, and the Inciſion cloſed up with fat Earth or Clay. The Method of *Inoculation*, now in the beſt Repute, is as follows: They cut off a vigorous Shoot from the Tree that is to be propagated, a Month before or after *Midſummer*; then chuſe out a ſmooth Place in the Stock (which ſhould not be of above three or four Years Growth) making a perpendicular Slit in the Bark a little above an Inch long, and another at right Angles to it, at the lower end, to give way to the opening of the Bark. This done, the Bark is gently looſened from the Wood on both Sides with a Penknife, beginning at the bottom; they then prepare the Bud, cutting it off from the aforeſaid vigorous Shoot, and taking with it as much of the Wood above as below it, and as near as may be to the Length of the ſlit in the Stock. When the Bud is thus cut off, they take out the woody part of the Bud, and put the Bud itſelf in, between the Bark and the Wood of the Stock, at the Croſs-ſlit before opened, leading it upwards by the Stalk, where the Leaf grew, till it exactly cloſes. They then bind it about with Woollen Yarn, the better to make all Parts of it cloſe exactly, that the Bud may imbody itſelf with the Stock, which it will do in three Weeks time. This Operation is ſaid to be beſt performed in a cloudy Day, or in an Evening; and 'tis obſerved, that the quicker 'tis done, the better it ſucceeds. This Practice has the advantage of Engrafting in a great many reſpects, both as it is more ſecure, it ſeldom failing of having effect, eſpecially if two or three Buds are put into the ſame Stock, and as its Succeſs is more readily diſcovered. Indeed when large Stocks are to be practiſed on, *Inoculation* is not proper, and they are obliged to have recourſe to Grafting. This one Rule is obſerved to hold univerſally, *viz.* that no Succeſs is to be expected in *Inoculation*, if the Sap does not run well, that is, if the Bark won't part readily from the Wood of the Stock.

In a Phyſical Senſe, *Inoculation* is uſed for the Tranſplantation of Diſtempers from one Subject to another, particularly for the Ingraftment of the Small-Pox, which is a new Practice among us, but of antient Original in the *Eaſtern* Countries. The beſt Method of performing the Operation is as follows: After the Body is rightly diſpoſed and prepared, by proper Diet and Evacuations, two ſmall Inciſions are made, one in the muſcular part of the Arm, about the Place where an Iſſue is uſually cut, and the other in the Leg of the oppoſite Side; then being provided of a ſmall Quantity, as a Drop or leſs of well-concocted *variolous Matter*, choſe from the diſtinct or beſt ſort of Puſtules, before the Turn of the Diſtemper, and imbibed by two ſmall Doſſils of Lint; theſe are immediately put into the Inciſions, whilſt the *Matter* remains warm, and are kept on by a proper Bandage. In a day or two the Bandages are opened, the Lint thrown away, and only Colewort-Leaf applied over the Inciſions. This Dreſſing is continued daily. The Inciſions uſually grow ſore, inflame and inlarge of themſelves, and diſcharge Matter more plentifully as the Diſtemper riſes. The Eruptions generally appear within eight or ten days after the Operation, during which time the Patient is not confined, or obliged to obſerve a very ſtrict Regimen. The Practice ſeems to be uſeful, becauſe the moſt proper Age, the moſt favourable Seaſon of the Year, moſt regular Method of Preparation, and all poſſible Precautions may here be uſed, according to the Wiſhes of the Patient, his Parents, and Phyſician; Advantages impoſſible to be had when the Diſtemper is caught in the natural way. It has alſo been conſtantly obſerved, that the beſt ſort of Small-Pox is hereby occaſioned, that the Eruptions are few, the Symptoms light, the Danger next to none, the Recovery eaſy, and that the Patient is equally ſecured from this Diſtemper for the future, as he would be by having gone thro' it in the natural manner.

INORDINATE PROPORTION is thus: Suppoſing three Magnitudes in one Rank, and three other proportional to them in another, you compare them in a different Order; as if there are in one Rank theſe three Numbers, 2, 3, 9; and in another Rank theſe other three, 8, 24, 36, proportional to the precedent, in a different Order, ſo that 2 ſhall be to 3 as 24 to 36, and 3 to 9 as 8 to 24. Then caſting away the mean Terms in each Rank, conclude the firſt 2 in the firſt Rank is to the laſt 9, as 8, the firſt of the other Rank, to the laſt 36.

INOSCULATION. See *Anaſtomaſis* and *Artery*.

IN PACE, a *Latin* Term, in uſe among the Monks, to ſignify a Priſon, where ſuch of them are ſhut up as have committed any grievous Fault. Formerly there us'd to be a world of Ceremony at the putting a Religious *in pace*, but now 'tis not much regarded. Such as are ſhut up in perpetual Impriſonment, are alſo ſaid to be *in pace*. Sometimes alſo the words *requieſcat in pace* are uſed by way of Alluſion to a Cuſtom in the *Romiſh* Church, of praying that the Souls of the Defunct may reſt in Peace. Thoſe words are alſo frequently ſeen at the bottom of Epitaphs, in lieu of thoſe uſed by the antient *Romans*, S.T.T.L. *i. e. Sit tibi Terræ levis*, Light lie the Earth; *&* *ſit humus Cineri non oneroſa tuo.*

IN PROMPTU, a *Latin* word uſed among the *French*, tho' but rarely in the *Engliſh*. It ſignifies a Piece made off-hand, extemporary, without any previous Meditation, by the mere Vivacity of Imagination. Many Authors pique themſelves on their *in promptu's*, which yet were done at leiſure, and in cold blood.

INQUIRENDO, is an Authority given to a Perſon, or Perſons, to enquire into ſomething for the King's advantage.

INQUISITION, or the Holy Office, an Eccleſiaſtical Juriſdiction eſtabliſhed in *Spain*, *Portugal*, and *Italy*, for the Trial and Examination of ſuch Perſons as are ſuſpected to entertain any religious Opinions contrary to thoſe profeſſed in the Church of *Rome*. It is [called *Inquiſition*, becauſe the Judges of this Office take cognizance of Crimes on common Report, without any legal Evidence. Some People fancy they ſee the Original of the *Inquiſition* in a Conſtitution made by Pope *Lucius*, at the Council of *Verona*, in 1184. in regard he there orders the Biſhops to get Information, either by themſelves, or by their Commiſſaries, of all ſuch Perſons as were ſuſpected of Hereſy; and diſtinguiſhes the ſeveral Degrees, of Suſpected, Convicted, Penitent, and Relapſed, *&c.* However, 'tis generally allowed, that it was Pope *Innocent* III. who laid the firſt Foundations of the Holy Office, and the *Vaudois* and *Albigenſes* were what gave the occaſion to it. He ſent ſeveral Prieſts, with St. *Dominic* at their head, to *Tholouſe*, in order to blow up a Spirit of Zeal and Perſecution amongſt the Prelates and Princes. Theſe Miſſionaries were to give an account to the Pope of the Number of Heretics in thoſe Parts, and of the Behaviour of the Princes and Perſons in Authority, and thence they acquired the Name of *Inquiſitors*; but theſe original Inquiſitors had not any Court, or any Authority, they were only a kind of Spiritual Spies, who were to make Report of their Diſcoveries to the Pope. The Emperor *Frederic* II. at the beginning of the 13th Century, extended their Power very conſiderably, and committed the taking cognizance of the Crime of Hereſy to a Set of Eccleſiaſtical Judges; and as Fire was the Puniſhment decreed for the Obſtinate, the Inquiſitors determined indirectly with regard both to the Perſons and to the Crimes: by which means the Laity was cut off from its own Juriſdiction, and abandoned to the Zeal and devout Madneſs of the Eccleſiaſtics. After the Death of *Frederic*, who had long ago repented the Power he had given the Churchmen, as having ſeen ſome of the Fruits of it; Pope *Innocent* IV. erected a perpetual Tribunal of Inquiſitors, and deprived the Biſhops and Secular Judges of the little Power the Emperor *Frederic* had left them. And this Juriſdiction, which depended immediately on himſelf, he took care to introduce into moſt of the States in *Europe*. But the Inquiſitors were ſo fiery hot, and made ſuch horrible Butchery among the reputed Heretics, that they raiſed an univerſal Deteſtation, even in ſome Catholic Countries, themſelves. Hence it was that their Reign proved very ſhort both in *France* and *Germany*, nor was even *Spain* entirely ſubject to them till the time of *Ferdinand* and *Iſabella* in 1448, when their Power was increaſed, under pretence of clearing the Country of *Judaiſm* and *Mahometaniſm*.

The Power of the *Inquiſition* is very much limited in ſome Countries, particularly at *Venice*, where it is received under ſuch Modifications, as prove a great Check on its Authority. Indeed at *Venice* it ſeems rather a political than a religious Contrivance, and ſerves rather for the Security of the State than of the Church. There are Appeals from the Subaltern *Inquiſitions* in *Italy*, to the Congregation of the Holy Office reſiding at *Rome*. 'Tis the conſtant Practice of the *Inquiſition*, to affect, in all their Procedures, to inſpire as much Terror and Amazement as poſſible; every thing is done with the profoundeſt Silence and Secrecy, and with the greateſt Rigour and Impartiality. When a Perſon is ſeized, all the World abandons him, not the neareſt Friend dares ſpeak a Word in his Defence; that alone would be enough to render them ſuſpected of Hereſy, and would bring them within the Claws of the *Inquiſition*. The Criminals are ſeized, examined, tried, tortured, and, unleſs they recant, condemned and executed, without ever ſeeing or knowing their Accuſers; whence the Revengeful have a fair occaſion of wreaking their Malice on their Enemies. When the *Inquiſition* has done with them, and condemned them to death, they are turned over to the Secular Arm, with a world of Prayer and pious Intreaty, that their Lives may not be touched. Time is no manner of Security in points of Hereſy, nor does the Grave itſelf ſhelter the Accuſed from the Purſuits of the *Inquiſition*; even the Deceaſed have their Trials, and they proceed in all their Form and Solemnity againſt dead Carcaſes. The Executions are always deferred till the Number of the Condemned is very great, that the Multitude of Sufferers may ſtrike the deeper Horror, and make the Scene more terrible and ſhocking.

The *Inquiſition* of *Rome* is a Congregation of twelve Cardinals, and ſome other Officers, where the Pope preſides in Perſon. This is accounted the higheſt Tribunal in *Rome*; it began in the time of Pope *Paul* IV. on occaſion of the ſpreading of *Lutheraniſm*.

The *Inquiſition* is very ſevere in the *Indies*. 'Tis true, there muſt be the Oaths of ſeven Witneſſes to condemn a Man; but then the Depoſitions of Slaves or Children are taken. The Perſon is tortured till he condemns himſelf, for his Accuſers are never brought to confront him. Perſons are accuſed for the ſlendereſt Expreſſion againſt the Church, or even for a diſreſpectful Word of the *Inquiſition*. The Standard of the *Inquiſition* is a red Damask, on which is painted a Croſs, with an Olive-Branch on one ſide, and a Sword on the other, with thoſe words of the Pſalm, *Exurge, Domine, & judica Cauſam meam.*

INQUISITION, in Law, is a manner of proceeding in Matters criminal by the Office of the Judge, or by the great Inqueſt before Juſtices in Eyre. Inquiſitors among us are Sheriffs, Coroners *ſuper viſum Corporis*, or the like, who have Authority to enquire into certain Caſes.

INROLMENT, in Law, is the Regiſtring, Recording, or Entring of any lawful Act in the Records of Chancery; as a Recognizance acknowledg'd, or a Statute, or a Fine levied: or in the Rolls of the Exchequer, King's-Bench, or Common-Pleas, or in the Huſtings at *Guild-Hall*, *London*, or by the Clerk of the Peace in any County.

INSCONCED, is a Term in the Military Art, implying that a Part of an Army have fortified themſelves with a Sconce or ſmall Fort, in order to defend ſome Paſs, *&c.* See *Sconces*.

INSCRIBED, in Geometry: A Figure is ſaid to be inſcribed in another, when all the Angles of the Figure inſcribed touch either the Angles, Sides, or Planes of the other Figure.

Inſcribed Hyperbola, is ſuch an one, as lies intirely within the Angle of its Aſſymptotes, as the Conical Hyperbola doth.

INSCRIPTION, a Title affixed to any thing, to give ſome particular Knowledge thereof. Antiquaries are very curious, in examining antient *Inſcriptions* found on Stones, and other Monuments of Antiquity. *Sanchoniatho*, Cotemporary, as 'tis ſaid, with *Gideon*, drew moſt of the Memoirs, whereof his Hiſtory is compoſed, from *Inſcriptions*, which he found in Temples and on Columns, both among the Heathens and the *Hebrews*. It appears indeed that the Antients ingraved upon Pillars the Principles of Sciences, as well as the Hiſtory of the World. Thoſe mentioned by *Herodotus* ſhew, that this was the firſt way of inſtructing People, and tranſmitting Hiſtories and Sciences to Poſterity. This is confirmed by *Plato*, in his *Hyparchus*, wherein he ſays, that *Piſiſtratus* engraved, on Stone-Pillars, Precepts uſeful for Husbandmen. *Pliny* aſſures us, that the firſt publick Monuments were made with Plates of Lead; and the Treaties of Confederacy, made between the *Romans* and the *Jews*, were written upon Plates of Braſs; that, ſays he, the *Jews* might have ſomething to put them in mind of the Peace and Confederacy concluded with the *Romans*. The *Greeks* and *Romans* were great Dealers in *Inſcriptions*, and were extremely fond of being mentioned in them; and hence it is that we find ſo many, in thoſe Countries of antient Learning, as that large Volumes have been compoſed of them; as the Collection of *Gruterus*, &c. Since *Gruter*'s Collection, *Th. Reineſius* has publiſhed another huge Volume of *Inſcriptions*. M. *Fabretti* publiſhed another Volume at *Rome* in 1699, wherein he has corrected abundance of Errors that had eſcaped *Gruter*, *Reineſius*, and other Antiquaries, &c. and added a great Number of *Inſcriptions* omitted by them. Since all theſe, *Grævius* has publiſhed a compleat Collection of *Inſcriptions*, in three Volumes in *Folio*.

In *France* is an Academy of *Inſcriptions* and Medals, conſiſting of ten honorary and ten penſionary Members, ten Aſſociates, and as many Novices, who are to meet twice a Week, and to employ themſelves in the Examination of Medals and antient Monuments, and other Parts of *Greek* and *Roman* Literature, and to compoſe a Hiſtory of the Kings of *France*, from Medals. Such was the Academy at the time of its Inſtitution, or rather Reſtauration, in the beginning of this Century; but as they are not now wholly employed about Medals and *Inſcriptions*, they have changed their Name for one of a greater Latitude, and are called the Academy *des Belles Lettres*.

INSCRUTABLE, in Theology, is uſually underſtood of the Secrets of Providence, and the Judgments of God, which cannot be found out, or into which Human Reaſon cannot penetrate.

INSECTS, a kind of little Animals ſo called by the Antients, becauſe in ſome of 'em the Body ſeems to be cut; as in Ants, whoſe Belly ſeems divided into two: or perhaps, becauſe the Bodies of *Inſects* are compoſed of ſeveral Circles or Rings, as Worms, Caterpillars, &c. which are a kind of Inciſions, whence the Name might probably ariſe. Mr. *Ray*, in his *Methodus Inſectorum*, thus diſtinguiſheth the ſeveral kinds of *Inſects*. *Inſects* are either, 1. Ἀμεταμόρφωτα, or ſuch as do not change their Form: Or, 2. Μεταμορφούμενα, ſuch as do really change their Form. Thoſe that do not change their Form, are either, (1.) Ἄποδα, without Feet; or, (2.) *Pedata*, with Feet: and of theſe there are ſome kinds that caſt their Skins, and others that do not. *Inſects* without Feet are either Terreſtrial or Land-Inſects, or Aquatic. Terreſtrial *Inſects* are, 1*ſt*, either ſuch as are produced on the Land, or in the Earth, and not in Water; as the *Lumbrici Terreſtres*, which are either of the larger ſort, and are call'd Dew-Worms; or of a ſmaller ſize: And of theſe, there are ſome Red, and others Green with yellow Tails; which laſt are commonly call'd Gilt-Tails. Or, 2*dly*, ſuch as are found in the Bowels of Animals: And of theſe ſome are found in the Inteſtines of Men; as, (1.) The *Lumbrici Teretes*; (2.) *Lumbrici Lati*, which are alſo call'd *Tæniæ*; (3.) *Cucurbitini*, which ſome will have to be only the Fragments of the *Tæniæ*. (4.) The *Aſcarides*, which are chiefly found in the *Rectum*. Thoſe Worms which are found in the Inteſtines of Beaſts are of two ſorts, the *Oblongi*, and *Pellucidi*, of the thickneſs of an Horſe-hair, and therefore call'd *Vermiculi Setiformes*: And the *Breves* and *Craſſiores*, which often are found in Horſes, and are call'd the Botts. To this Genus of Terreſtrial *Inſects*, many natural Hiſtorians refer Snails, whether with or without Shells.

Water *Inſects* without Feet, not changing Form, are either, 1*ſt*, of the greater ſort, which have a peculiar way of moving, by firſt fixing their Head to the ground, and then drawing up their Tail towards it, &c. Of theſe, ſome are *Teretes*, round and ſmooth, of which there are three ſorts; as the Medicinal *Hirudines* or Leaches, the common black Horſe-Leaches, and the aſh-colour'd Sea-Leaches: But there is alſo a ſort of this kind, which is ſmaller and flatter, which are found ſticking to Stones in the bottom of little Brooks. Or, 2*dly*, of the Leſſer ſort, which have a different way of crawling or moving from the former. Theſe are alſo either round or flat: Of the round ſort, there is one that is black with two ſmall Horns on its Head, and is found ſticking to wet Stones in the watry Tops of Hills; and another which is red, of about a finger's length, with a Forceps at the Tail, found at the bottom of Fiſhponds, and ſtagnant Waters. The flat ſort are very ſmall and thin, and are call'd Flukes, being ſometimes found in Waters, and ſometimes in the Branches of the *Porus Bilarius* in Sheep.

Inſects not changing Form, and having Feet, are either, 1. *Hexapoda*, with 6 Feet. 2. *Octapoda*, with 8 Feet. 3. *Decateſſarapoda*, with 14 Feet. 4. *Polypoda*, with many Feet. Thoſe that have but ſix Feet, are either, (1.) Terreſtrial, and theſe are, firſt, of a larger kind; as, [1.] The yellowiſh *Inſect*, found in rotten decaying Oaks. [2.] The black one, on the Ground, called by *Mouffet*, *vermivorous*. [3.] The black one, living under Ground, with a Forceps at the Tail. [4.] A white ſort, with ſquare black Spots on its Back. [5.] The *Farinarium*, bred in Meal, of a whitiſh Colour. Or, ſecondly, a Smaller Sort; ſome of which are found about the Bodies of Animals: as, (1.) The *Cimex*, Bug or Wall-Louſe, of a ſtinking Smell. (2.) *Ricinus*, the Tick. (3.) *Pediculus*, the common Louſe. (3.) *Pediculus ferus ſeu inguinalis*, the Crab-Louſe. (5.) *Pulex*, the Flea; of all which there are various kinds. Others are not troubleſome to Animals, as, 1. One that in Bigneſs and Figure reſembles a Louſe, but is very nimble and ſwift, and is found in Books and rotten Wood. 2. Another there is with a very long Body, and a forcipital Tail. 3. The black *Inſect*, found often in the Flowers of the *Chelidonium*. 4. A ſubterraneous Sort, a little whitiſh. 5. One that skips like a Graſhopper, but is much leſs.

(II.) Aquatic; as, [1.] The *Pediculus Marinus Grandis*, which adheres to Fiſhes. [2.] The *Squilla Fluviatilis*, with a Pyramidal Tail, and two Hairs or Briſtles at the end.

Inſects not changing Form, and having eight Feet, are either with a Tail, as the Scorpion, or without, as the Spider; of which ſome ſpin no Web, have but two Eyes, and very long Legs, as the *Opilio* or the Shepherd. Some do ſpin a Web, and of theſe they count three ſorts: 1. The *Aranea Colceſtrenſis Abdomine tumido, ſubrotundo, & elato*. 2. The Spider with the Thorax, or middle part of his Body, as big as the Abdomen. 3. The Spider with the long Abdomen, found among Reeds, Ruſhes, Graſs, &c. (2.) The *Ricini Octopedes*, which are ſome more flat and compreſs'd; as the rambling Ticks that run over the Bodies of Animals, but don't faſten; and ſome more round and thick, which do adhere to the Skin. (3.) The *Syrones* or Mites.

Inſects not changing Form, and with fourteen Feet, and therefore call'd Τεσσαρεσκαιδεκάποδα, are the *Aſelli*; of which there are three ſorts: As, 1. the *Sea-Aſellus*; the longeſt and largeſt of all; living amongſt the Rocks. 2. *Aſellus Lividus*, which rolls itſelf up into a Ball. The common Wood-Lice, Sows, or Cheſs-bugs. 3. *Aſellus Aſininus*, with a forked Tail; not rolling itſelf up. To this Species may be added, (1.) The *Aſellus Marinus figuræ brevioris*, rolling itſelf up. (2.) *Aſellus Aquarum dulcium*, with long Legs and two Briſtles on its Tail. (3.) *Pulex Aquaticus*, both in freſh and ſalt Water. (4.) *Pediculus Aquaticus*, which faſtens upon Fiſh.

Inſects not changing Form, with twenty-four Feet. Theſe have the eight Fore-Feet leſſer, and the ſixteen hinder-ones larger. There are two kinds of them obſerved; both with long Bodies, one larger and of an obſcure Colour, among the Rocks by the Sea-ſide; the other of a Silver Colour, found in Houſes. There is a Kind with thirty Feet, of an oblong Shape, Cheſnut Colour, and full flattiſh Body, uſually lying under Logs, and Trunks of Trees. It is very agile and ſwift.

Inſects, not changing Form, with many Feet, called, πολύποδα, are ſome on Land, and either roundiſh in Body, with all their Legs riſing out of the middle of the Belly, (nearly) as the *Julus*, or more flat and compreſſed, with their Legs, not riſing, as before, from a Point in the middle of their Body, but growing along on the Sides; as the *Scolopendra*. And ſome of this kind are aquatic, of which Mr. *Ray* makes three Differences: (1.) The *Corniſh* Lugs, uſed for Baits in catching Fiſh, with 38 Legs, and a ſmooth roundiſh Body. (2.) The *Scolopendra Marina Corpore plano*. (3.) *Animalculum Bicorpor*, or rather *Bicaudatum*, lying in the Clefts of Stones, under the Salt-water.

Inſects which do really undergo a Change of their Form, are called Μεταμορφούμενα; of which *Swammerdam* hath given the beſt Account: Tho' he ſhews that this word is improperly uſed, ſince there is by no means any real Transformation, but only an Explication of the Parts of the Animal, latent before, in miniature, (as it were in the *Ovum*, or *Nympha*, like the Plant in the Seed) and an Increaſe of all the Parts by proper Degrees.

The firſt Species of Tranſmutation or Change, which *Swammerdam* makes the ſecond, is inſtantaneous, there being no ſenſible Reſt or Stop between the old and the new Form. And the *Inſects* of this Order do not loſe their Motion at the time they ſhift the *Pellicula*, at leaſt not to appearance. And *Swammerdam* deſcribes the ſecond Order of Change to be, when the *Vermiculus* (leaving the former Shape of the *Nympha*, with which it appeared in the Egg, and ſubſiſted without Food) now beginning to feed, hath its Members or Parts viſibly increaſed and ſtretched out, and takes the Form of a new *Nympha*, which is not without Motion; and from thence becomes a flying *Inſect*. Of this ſort are, (1.) The *Libellæ*, or *Perlæ*, which are produced from an *Inſect* of ſix Feet, and which *Mouffet* takes for the *Pulex Marinus*, or, as before he calls it, *Locuſta Aquatica*. Out of the cruſtaceous Skin, or Husk, of this *Inſect*, the *Libella* breaks by a Fiſſure, which begins between the Eyes, and is continued to the Roots of the Wings, and is there joined to the lateral Fiſſures. (2.) The *Cimices Sylveſtres*, whoſe characteriſtic Marks (according to *Willoughby*) are, 1. A long *Proboſcis*, not ſpiral, but ſtrait. 2. Their upper Wings to the middle are thick, and like Leather; thence to the Ends thin and membranous. 3. There is the Figure of St. *Andrew's-Croſs* on their Backs. (3.) The *Locuſta*, which *Willoughby* refers to the Ἀμεταμόρφωτα. (4.) The *Grylli-Campeſtres*. (5.) The *Grylli-Domeſtici*, or Crickets. (6.) The *Gryllo-Talpa*, Mole-Cricket. (7.) The *Cicada*, or Graſhopper. (8.) The *Blatta*, according to *Swammerdam*. (9.) The *Tipulæ Aquaticæ*, which run very ſwiftly on the Surface of the Water, and have a Sting in their Mouths like the *Cimices*, or *Ticks*. (10.) The *Scorpius Aquaticus*, with a Sting alſo in its Mouth. (11.) The *Muſcæ Aquaticæ*, called by *Androvandus*, *Apes Amphibiæ*. (12.) The *Hemerobius*, or *Ephemera*, or *Diaria* of *Swammerdam*. (13.) The *Forficula*, or *Auricularia*.

The ſecond Species of Tranſmutation includes ſuch *Inſects*, as undergo a double Metamorphoſis, or Change of Shape. (1.) Into a *Chryſalis*, or ſomething analogous to it. (2.) Into a flying *Inſect*. Theſe Kinds of *Inſects*, a while before they change, lie quite ſtill, without Feeding, or changing Place; and in reſpect of their Wings are, (1.) Κολεόπτερα, or *Vaginipennia*, as the *Scarabæi*, Beetles. (2.) Ἀνέλυτρα, whoſe Wings are open and expanded: And the Wings of theſe are either farinaceous, as the *Papiliones*, &c. or membranous, as the *Apes*, *Mucæ*, &c. and theſe are either Δίπτερα, with two Wings, or Τετράπτερα, with four Wings.

The *Scarabæi* may be divided, (1.) In reſpect of their Horns, into the *Naſicornis*, *Bucerota*, and *Cervus volans*, or *Taurus*. (2.) In reſpect of their *Antennæ*, which are of many Kinds; whereof the moſt eminent are thoſe called *Capricorni*. (3.) With regard to their Motion, as the *Saltatrices* (4.) With regard to their Colour, as *Cantharides*. To the Beetle-kind may be referr'd the *Cicindela*, or Glow-Worm; the *Staphylinus* called by *Willoughby* ἡμικολεόπτερος; the *Proſcarabæus*, or Oil-Beetle, ſo called from its emitting from its Joints a kind of Oil, on its being preſſed or ſqueezed. The *Anelytra*, with farinaceous or mealy Wings, are called *Papiliones*, Butter-flies; and theſe are either Diurnal, or Nocturnal. The ſpecific Diſtinction of the Diurnal is, that they always ſettle with their Wings erect, are produced from an angulous *Aurelia*, and have their *Antennæ* ſtudded: of theſe there are about fifty ſorts obſerved in *England*. The nocturnal Butterflies, or *Phalæna*, are vaſtly numerous, and cannot very clearly be methodized. But for Memory and Diſtinction's ſake, they may be divided into, (1.) The *Geometrigenæ*, which come from the *Eruca*, (called *Geometra* from the Manner of its Walk, which is *Anſatinus*, by curling up its Back like the Handle of a Cup) with 8 or 10 Feet. (2.) Such as come from *Erucæ* with 14 Feet: Of this kind, which is very numerous, there hath been diſtinguiſhed the *Phalæna Faſciata*, whoſe Wings are in Patches or Area's of different Colours. *Phalæna Lineata*, whoſe Wings are marked with tranverſe Lines. *Phalæna Punctata*, whoſe Wings are marked with one or more Points: and theſe excepted, all the others are diſtinguiſhed into greater and leſſer, and of a middle Size, between both. One of the larger Kinds may be diſtinguiſhed alſo by their inner Wings running out beyond the upper, when they ſit, or reſt: And another by the Appearance of the Figure of Eyes upon the Wings: And a third, by their long Tails, and narrow ſharp Wings; which by ſome are called *Phalænæ Prædatrices*, or *Accipitrinæ*. The *Anelytra*, with membranous Wings, are Bees, Flies, Waſps, *Bombylii*, *Crabrones*, &c. And to this kind the *Culex Vulgaris*, according to *Swammerdam*, or Gnat is referred; as alſo the *Formica*, or Ant. And hither muſt be referred ſuch Water *Inſects*, as are covered by a *Theca*, according to the Obſervations of *Willoughby*. Theſe have either, (1.) an immoveable *Theca*, or Caſe, which is fixed to the Stones; and this Caſe is either of a round Figure, or one more compreſs'd and flat. (2.) A moveable, portable *Theca*, and theſe are commonly called *Phryganæa*: And this *Theca* is either, (1.) Strait, and that either compoſed of Straws, and little *Feſtucæ* lying parallel one to another; of which there are two Kinds; a greater, where the *Feſtucæ* are two Inches long; and a leſſer, which are very common, and are called Straw-Worms. Or elſe the *Feſtucæ* lie tranſverſly, and are ſhorter, having ſometimes pieces of Shells, or Stones, intermixed with them: Others, whoſe Caſes are ſtrait alſo, have no *Feſtucæ*; but always either Sand, or Gravel: And of theſe ſome have the *Thecæ* round, and are called Cod-baits; others are flat and compreſſed. (2.) Crooked, or horned, which run tapering; of theſe Mr. *Ray* reckons four Kinds; a greater and leſs Black ſort; and a greater and leſs Aſh-colour'd one. Theſe all produce Flies with large Wings like Butter-flies.

The third Species of Tranſmutation, is a ſimple Change from a *Vermiculus* to a flying *Inſect*; but yet with a ſenſible ἀσιτία, reſt, or ſtop, between one Form and the other. This Change *Swammerdam* thus deſcribes: "The *Vermicle* " excluded from the Egg gets Nouriſhment by little and " little from without, and under that firſt Skin, or Cover- " ing, hath its Members increaſed by Degrees; not ſlip- " ping it, or putting it off as other *Vermiculi* do when they " change into *Nymphæ*, but aſſuming the Figure of a *Nym-* " *pha* in it: For a time it is quite motionleſs, till the ſu- " perfluous Moiſture is evaporated, and then, in a few " Days, recovers its Motion again, and caſting off " this Skin, which is as it were double, it becomes a Fly." Of this kind are our Fleſh-flies, and all the *Nymphæ Vermiformes*, the *Veſpæ Ichneumones*, &c.

As to the Generation of *Inſects*, the World is now generally convinced that they are not bred of Corruption, but *ex Ovo*; tho the contrary was believ'd by the Ancients, becauſe of the vaſt Numbers that were ſometimes hatch'd as it were at once, and becauſe they cou'd not diſcern the particular Manner of their Propagation. *Malpighi*, *Swammerdam* and *Redi*, have abundantly diſproved the Doctrine of Equivocal Generation, as well as the Chimerical Transformation of the Caterpillar into the Butter-fly, and other the like Metamorphoſes; and have ſhewn, that all the Members of the Butter-fly were encloſed under the Skin or *Nympha* of the Caterpillar, as the Parts of a Plant are in the Seed.

Inſects take particular Care to depoſite their Eggs, or Seed, in ſuch Places where they may have a ſufficient Incubation, and where the Young when hatch'd may have the Benefit of proper Food till they become able to ſhift for themſelves. Thoſe whoſe Food is in the Water, lay their Eggs in the Water; thoſe to whom Fleſh is a proper Food, in Fleſh; and thoſe to whom the Fruits, or Leaves of Vegetables are Food, are accordingly repoſited, ſome in this Fruit, ſome in that Tree, and ſome in that Plant, and ſome on another, but conſtantly the ſame Kind on the ſame Tree, *&c.* As for others that require a more conſtant and greater Degree of Warmth, they are provided by the Parent Animal with ſome Place in or about the Body of other Animals; ſome in the Feathers of Birds, ſome in the Hair of Beaſts, ſome in the Scales of Fiſhes, ſome in the Noſe, ſome in the Fleſh, nay ſome in the Bowels, and inmoſt Receſſes of Man, and other Creatures. And as for others to whom none of thoſe Methods are proper, they make them Neſts by Perforation in the Earth, in Wood, in Combs, and the like, carrying in and ſealing up Proviſions that ſerve both for the Production of their Young, and for their Food, when produced.

In Flies, Butter-flies, *&c.* it is obſerv'd, there is a kind of Gluten, by which the Female faſtens her Eggs to the bearing Buds of Trees, *&c.* ſo that the Rains cannot waſh them off. Theſe Eggs will not be hurt by the greateſt Froſt. Mr. *Andry*, in his Book *De la Generation de Vers dans le Corps de l'Homme*, takes notice, that the Antients were miſtaken in denying that *Inſects* did breathe, on the account of their wanting Lungs: For modern Obſervations convince us, that *Inſects* have a greater Number of Lungs than other Animals. The Antients thought alſo that *Inſects* had no Blood, becauſe many of them had no red Liquor like our Blood: But it is not the Colour, but the Uſe of the Liquor that is to be regarded. They believed alſo that *Inſects* had no Hearts; whereas our Microſcopes do now diſcover, that when *Inſects* have ſeveral Lungs, they have alſo ſeveral Hearts; and in particular, it is found, that Silk-Worms have a continued Chain of Hearts, from the Head almoſt to the very Extremity of the Tail. And it is this Number of Hearts and Lungs that occaſions thoſe *Inſects* to give Signs of Life a long while after they are divided into ſeveral Parts. He obſerves alſo, that it is wrong to call *Inſects* imperfect Animals, ſince they want no Parts either neceſſary or convenient for their Uſe, or to render them compleat in their Kind. There are ſome, who affirm that the Earth-Worms, and thoſe Round-tailed Worms, which are found in the Inteſtines of Men and Horſes, *&c.* alſo Snails and Horſe-Leaches are Hermaphrodites; but that ſuch Worms as become Flies, and Silk-Worms are not ſo, being of no Sex; but are Neſts full of real Animals, which we ſee in time come out with Wings.

The Moderns have proceeded much further in the Knowledge of *Inſects* than the Antients, as having the Advantages of the Microſcope which diſtinguiſhes their minute Parts, whereof they have publiſh'd Draughts and Deſcriptions. Dr. *Hook* has publiſh'd a Micrography in *Folio*; and *Fran. Redi*, a Phyſician at *Florence*, has publiſh'd ſeveral Figures with new and curious Experiments of his own. Sig. *Malpighi*, *Bartholin*, the *Philoſophical Tranſactions* of *London*, *Paris*, and *Leipſic*, have a great Number of fine Obſervations and Experiments on *Inſects*. *Swammerdam* has written a general Hiſtory of *Inſects* in *Dutch*, and aſſures us, there are above 400 Writers on this Subject; among others are *Wotton*, *Geſner*, *Aldrovandus*, *Mouffet*, *Harvey*, *Fabricius ab Aquapendente*, *Goedart*, *&c.* *Hoeffnagel*, Painter to the Emperor *Rudolphus*, has given very good Deſigns of above 300 Species, *Goedart* has deſcribed above 400, and Mr. *Albin* has given us a new Hiſtory of our *Engliſh Inſects*, with very beautiful Figures.

INSEMINATION, one of the four Kinds of Tranſplantation, in uſe for the Cure of certain Diſeaſes. It is performed by mixing the Medium impregnated with the *Mumia* taken from the Patient with ſome fat Earth wherein has been ſown the Seed of a Plant appropriate to that Diſeaſe; but Care muſt be taken from time to time to ſprinkle it with the Water wherein the Part affected has been waſh'd. 'Tis ſuppoſed the Diſeaſes will decline in proportion as the Plant grows. By *Mumia*, is here meant a Part of the vital Spirit of the Patient.

INSERTION, a Term frequently us'd in Phyſic, to ſignify the Implication of one Part within another. The *Inſertion* of the Bones, Muſcles, and Nerves in the Members of an Animal, is exceedingly artful. The *Vena Cava* has its *Inſertion* in the right Ventricle of the Heart. *Inſertion* is alſo uſed in Agriculture for the Incloſing a Graft within the Cleft of a Tree.

INSESSUS, is a kind of Half-Bath, uſually prepared with a Decoction of ſeveral Herbs, proper for the lower Parts, wherein the Patient ſits down to the Navel. It has ſeveral Uſes, as the eaſing of Pain, ſoftening of Parts, diſpelling of flatulent Matter, and frequently, promoting of the *Menſes*.

INSINUATION, a cunning and covert way of creeping into Favour. *Inſinuation* of a Will, among the Civilians, is the firſt Production of it, or the leaving it with the Regiſter in order to its Probate.

INSIPID, that which has nothing in it ſharp or pungent enough to affect the Palate, Tongue, *&c.* and to occaſion that Senſation we call Taſting.

INSITIO, a Term in Botany, uſed in the ſame Senſe with engrafting; ſignifying in general the Inſertion and Uniting of any Cyon, Bud, *&c.* into the Subſtance of the Stock: And is of various kinds.

INSOLATION, in Pharmacy, is a Preparation of Fruits, Drugs, *&c.* by expoſing them to the Heat of the Sun's Rays; either to dry them, or to bake or ſharpen them, as is done in Vinegar, Figs, *&c.* The Word comes from the *Latin* Verb *inſolare*, which is uſed by *Pliny* and *Columella*, and ſignifies to *expoſe to the Sun.*

INSOLVENT, a Term applied to ſuch Perſons as have not wherewithal to pay their juſt Debts: A Perſon dying, and not leaving Eſtate ſufficient to diſcharge theſe, is ſaid to die *inſolvent.*

INSPECTOR, a Perſon to whom the Care and Conduct of any Work is committed.

The *Jews* have an Officer in their Synagogue, whom they call *Inſpector*, חזן, *Hbazan.* His Buſineſs conſiſts principally in inſpecting or overlooking the Prayers and Leſſons, in preparing and ſhewing them to the Reader, and in ſtanding by him to take care he reads right, and if he make Miſtakes, to correct him. In the *Roman* Law, *Inſpectors* were ſuch Perſons as examin'd the Quality and Value of Lands and Effects, in order to the adjuſting or proportioning Taxes and Impoſitions to every Man's Eſtate.

INSPIRATION, among Divines, *&c.* implies the conveying of certain extraordinary and ſupernatural Notices or Motions into the Soul. Thus the Prophets are ſaid to have ſpoken by Divine *Inſpiration*; and the Sinner is converted, when he ceaſes to reſiſt the *Inſpiration* of Grace. Some Authors reduce the *Inſpiration* of the Sacred Writers to a particular Care of Providence, which prevented any thing they had ſaid from failing, or coming to nought; maintaining they never were really inſpired, either with Knowledge or Expreſſion. According to M. *Simon*, *Inſpiration* is no more than a Direction of the Holy Spirit, which never permitted the Sacred Writers to be miſtaken. And it is a common Opinion, that the *Inſpiration* of the Holy Spirit regards only the Matter, not the Style or Words; which ſeems to fall in with M. *Simon's* Doctrine of Direction. Among the Heathens, their Prieſts and Prieſteſſes were ſaid to be divinely inſpired when they gave Oracles. The Poets, too, laid claim to it; and to this end, always invoked *Apollo* and the Muſes at the beginning of any great Work.

Inſpiration, in Phyſic, is underſtood of that Action of the Breaſt, by which the Air is admitted within the Lungs. This Admiſſion of the Air depends immediately on its Spring or Elaſticity, at the time when the Cavity of the Breaſt is enlarged by the Elevation of the Thorax and Abdomen, and particularly by the Motion of the Diaphragm downwards: ſo that the Air does not enter the Lungs, becauſe they are dilated; but thoſe dilate, becauſe the Air enters within them. Nor is it the Dilatation of the Breaſt which draws in the Air, as is commonly thought; tho this is a Condition abſolutely neceſſary to *Inſpiration*, but an actual Intruſion of the Air into the Lungs. See *Reſpiration*.

INSPISSATE, a Term uſed in Pharmacy for that Operation whereby a Liquor is brought to a thicker Conſiſtence, by evaporating the thinner Parts: and thus Juices, as that of Liquorice, are *inſpiſſated*.

INSTALMENT, is a Settlement, or inſtating any Perſon in his proper Place. It is ſometimes confounded in Law with Abatement. The Word is chiefly uſed for the Induction of a Dean, Prebendary, or other Eccleſiaſtical Dignitary into the Poſſeſſion of his Stall, or proper Seat in the Cathedral Church to which he belongs: it is ſometimes called *Inſtallation*. This Term is likewiſe commonly uſed for that Ceremony wherein the Knights of the Garter are placed in their Rank at *Windſor*. The Word is derived from the *Latin in* and *Stallum*, a Term uſed for a Seat in Church, in the Choir, or a Seat or Bench at a Court of Juſtice, *&c.* Tho *Voſſius* is of opinion, the Word is pure *German*.

INSTANT, is ſuch a part of Duration, wherein we perceive no Succeſſion; or is that which takes up the time of only one Idea in our Minds. The Schools diſtinguiſh three kinds of *Inſtants*; a temporary, a natural, and a rational *Inſtant*. A temporary *Inſtant* is a part of Time immediately preceding another: Thus the laſt *Inſtant* of a Day precedes immediately and really the firſt *Inſtant* of the following Day. A natural *Inſtant* is what we otherwiſe call a Priority of Nature, which is obſerved in things that are ſubordinated in acting; as firſt and ſecond Cauſes; Cauſes and their Effects. For the nature of things requires, that if there be a ſecond Cauſe, there muſt be a firſt; and that there muſt be a Cauſe, if there be an Effect. A rational *Inſtant*, is not any real *Inſtant*, but a Point which the Underſtanding conceives to have been before ſome other *Inſtant*, founded on the nature of the things which occaſion it to be conceiv'd. For inſtance, as God has made ſeveral things voluntarily, which he could, otherwiſe, have let alone; there is a reaſonable Foundation to conceive God ſuch as he is in himſelf, before he had made any of thoſe voluntary Determinations: but as there was no real *Inſtant*, when God had not form'd any Determination, this *Inſtant* is call'd a rational *Inſtant*, by way of oppoſition to an *Inſtant* of Time.

INSTAURATION, the Re-eſtabliſhment of a Religion, a Church, *&c.* The Word is derived from the old *Latin Inſtaurum*, which ſignified every thing neceſſary for the tilling and managing of Grounds; as Cattel, Tools, Harneſs, *&c.*

INSTINCT, a Diſpoſition or natural Sagacity wherewith Animals are endued, by virtue whereof they are enabled to provide for themſelves, know what is good for them, and determined to preſerve and propagate the Species. It bears ſome Analogy to Reaſon, and ſupplies the Defect of it in Brutes.

INSTITUTE, to ordain, found, or eſtabliſh any thing. Thus *Moſes inſtituted* the Ceremonies of the Old Law, and Jeſus Chriſt the Sacraments of the New.

INSTITUTION, is the Act of the Biſhop, or one commiſſion'd by him to act, whereby any Clerk is inveſted with the Spiritualities of a Rectory or Vicarage. The Clerk kneels down before the Biſhop, whilſt he pronounces theſe Words of *Inſtitution*: (*Inſtituo te Rectorem Eccleſiæ de* A. B. *cum Curâ Animarum, & accipe Curam tuam & meam*) and the Clerk holds the written Inſtrument, with the Epiſcopal Seal annexed, in his hand during the Ceremony. But the Clerk muſt have Induction after this, without which he has no Right to his Temporalities, if the Benefice be not a Donative. Before the Clerk is inſtituted, he muſt ſubſcribe the 39 Articles of Religion, in the Preſence of the Ordinary (or his Subſtitute) and the Ordinary is not bound to offer them, but the Clerk is to offer to ſubſcribe them: and he muſt ſubſcribe them without Reſerve, Exception, or Qualification, or elſe his *Inſtitution* is *ipſo facto* void, and null, and the Church is ſtill vacant. At the ſame time the Ordinary requires the Clerk to ſubſcribe the other two Articles, mention'd in the 26th Canon about the King's Supremacy, and the Lawfulneſs and Uſe of the Liturgy. The Clerk muſt alſo before *Inſtitution* ſubſcribe to that part of the Declaration enjoin'd by the Act of Uniformity, 14 *Car.* 2. *c.* 24. viz.

I will conform to the Liturgy of England, *as by Law eſtabliſhed.* Before *Inſtitution*, he muſt alſo take the Oaths mention'd in the firſt Statute of *William* and *Mary*, *c.* 8. inſtead of the former Oaths of Allegiance and Supremacy required by *Stat.* 1 *Eliz.* And then he muſt take the Oath againſt Simony, enjoin'd by the 40th Canon, and the Oath of Canonical Obedience. And he is to have Certificates given him of his ſubſcribing the Declaration contained in the Act of Uniformity, in *Engliſh*, in a diſtinct Inſtrument, under the Hand and Seal of the Biſhop; and of his other Subſcriptions and Oaths in *Latin*. The Clerk ought by all means to have Witneſſes of his *Inſtitution*, his taking the Oaths, making Subſcriptions, *&c.* and therefore he ſhould deſire ſome preſent to write their Names on the back of his Inſtruments; and make Memorandums who they are, and where they live. The Church, by *Inſtitution*, is full againſt all Perſons, but the King; and the Clerk by it may enter upon the Glebe, and take the Tythes: but he cannot let or grant them, nor ſue for them, if they are refuſed to be paid. After *Inſtitution* the Clerk is to receive a written Mandate from the Ordinary to the Arch-Deacon, or other proper Perſon, in order to his Induction: which ſee.

INSTITUTIONS, or *Inſtitutes*: Part of the firſt of the four Tomes or Volumes of the Civil Law; being a Compendium or Summary of the whole in four Books, compoſed by *Tribonianus*, *Theophilus* and *Dorotheus*, by order of the Emperor *Juſtinian*, for the Uſe of young Students; who having the firſt Elements of the whole Profeſſion in this little Treatiſe, might the ſooner gain a competent Knowledge of it, without being diſcouraged by the Bulk of the former Books. *Inſtitutions* are likewiſe a Syſtem of Laws, or Rules in any particular Science; and ſo Phyſical or Medicinal *Inſtitutions* are ſuch as teach the neceſſary *Præcognita* to the Practice of Medicine, or the Cure of Diſeaſes.

INSTRUMENT, properly ſignifies any thing that ſerves as a Cauſe to produce an Effect.

Inſtrument, is alſo uſed in Law to ſignify ſome public Act or authentic Deed, by means whereof any Truth is made apparent, or any Right or Title eſtabliſh'd in a Court of Juſtice.

Inſtruments of Sacrifice, are Ornaments in the Antique Architecture; as Vaſes, Pateræ, Candleſticks, Knives, wherewith the Victims were kill'd, *&c.* Inſtances of which, we ſee in a Corinthian Freeze in the Remains of a Temple behind the Capitol at *Rome*, *&c.*

INSULATED, by the *French* called *Iſolee*, and the *Latins Inſulatus*; is a Term apply'd to a Column that ſtands alone, or free from any contiguous Wall, *&c.* like an Iſland in the Sea; whence the Word is derived.

INSULT, a Military Term, uſed for the attacking of any Poſt with open Force, without the Apparatus of Trenches, Saps, or any regular Approaches.

INSUPER is a Word uſed by the Auditors of the *Exchequer*: In their Accompts, they ſay, ſo much remains *inſuper* to ſuch an Accomptant; that is, ſo much remains due on ſuch an Accompt.

INSURANCE, is Security given in Conſideration of a Sum of Money paid in hand, to make good Ships, Merchandizes, Houſes, *&c.* to the Value of that for which the Reward is received, in caſe of Loſs by Storm, Pirates, Fire, *&c.*

INTACTÆ are Right Lines to which Curves do continually approach, and yet can never meet with them: Theſe are uſually called *Aſymptotes*, which ſee.

INTAGLIO's, precious Stones, having the Heads of great Men, Inſcriptions, and the like, engraven on 'em; ſuch as we frequently ſee ſet in Rings, Seals, *&c.*

IN-TAKER, a Name antiently given to certain Banditti or Robbers, who inhabited a part of the *North* of *England*, and who made frequent Excurſions into the very middle of *Scotland*, plundering the Inhabitants whereever they came. Thoſe who made the Expeditions were called *Out-Parters*, and thoſe who were left behind to receive the Booty *In-Takers*.

INTEGERS, from the *Latin Integrum*, ſignifies, in Arithmetic, whole Numbers, in contradiction to Fractions.

INTEGRAL: the *Integral* Calculus in the new Analyſis, is that which anſwers to the differential Calculus. This laſt has been compleatly explained by the Marquiſs *de l'Hoſpital*, but the other ſtill remains imperfect, having been but little cultivated.

Integral, among the Schoolmen, is underſtood of thoſe Parts which enter the Compoſition of any Whole. Thus the Arms, Legs, *&c.* are *integral* Parts of the Body.

INTEGUMENT, a Term in Anatomy, applied to the Skins or Membranes, which cover the Parts within the Body, as the Coats or Tunics of the Eye. The word is originally *Latin*, and ſignifies any kind of Covering.

INTELLECT, a Term uſed among the Philoſophers, to ſignify that Faculty of the Soul, uſually called the Underſtanding. The *Peripatetics* make two kinds of *Intellect*, the Active and the Paſſive; the Active is that which receives the impreſſed Species emitted by Objects to the exteriour Senſes, which convey to the common Senſorium. Theſe impreſſed Species being material and ſenſible, are rendered intelligible by the Active *Intellect*, and fit to be received into the Paſſive *Intellect*. The Species, ſo ſpiritualized, are called expreſſed Species, as being expreſſed from thoſe others impreſſed, and it is by theſe that the *Intellect* comes to know material things: in effect, however, the two *Intellects* have nothing really diſtinct from each other.

INTELLIGIBLE, any thing capable of being underſtood or conceived by the Mind. The Philoſophers have invented certain Beings that are purely intelligible, and only ſubſiſt in the Underſtanding; ſuch are the *Entia Rationis*, Univerſal Ideas, and other Chimeras. The *intelligible*, or intellectual World, is the Idea of the World in the Divine Mind, frequently referred to by *Malebranch*.

INTENDANT, one who has the Conduct, Inſpection, and Management of any thing. This is a Title very frequent among the *French*: they have their *Intendants* of the Marine, who are Officers in the Sea-Ports, whoſe Buſineſs is to take care the Ordinances and Regulations relating to Sea-Affairs be obſerved; *Intendants* of the Finances, who have the Direction of the Revenues; *Intendants* of Provinces, who are appointed by the King, to take care of the Reformation of Juſtice, Policy, and Finances in the Provinces; *Intendants* of Buildings, of Houſes, *&c.*

INTENDMENT OF LAW, the Underſtanding, Intention, and true Meaning of the Law. The Judges ought to judge according to the common *Intendment* of the Law. *Coke.*

INTENT, in the Civil Law, is to begin or commence an Action or Proceſs.

INTENTION, in Law, is a Writ which lies againſt him who enters after the Death of the Tenant in Dower, or other Tenant for Life, and holds out him in the Reverſion or Remainder.

INTENTION, in Phyſic, is that Judgment or particular Method of Cure, which a Phyſician forms to himſelf from a due Examination of Symptoms.

In Phyſics, it ſignifies the Increaſe of any Power or Quality, as Heat, Cold, *&c.* as Remiſſion ſignifies its Decreaſe or Diminution.

In Metaphyſics, it is uſed for the Exertion of the intellectual Faculties with more than ordinary Vigour: When the Mind with Earneſtneſs fixes its View on any Idea, conſiders it on all ſides, and will not be called off by any Sollicitation.

The Schoolmen alſo uſe the Terms firſt and ſecond *Intention*. A Term of firſt *Intention* is that which ſignifies a thing; the firſt *Intention* of Man, in eſtabliſhing Words, being to expreſs Things, or the Ideas they have of Things. A Thing of ſecond *Intention* is that which does not ſignify a Thing, but another Term or Sign. Thus a Tree, a Man, *&c.* are Terms of firſt *Intention*, and the Terms in Rhetoric, Grammar, *&c.* as Figure, Kind, *&c.* are Terms of ſecond *Intention*.

INTERCALARY-DAY, is uſually underſtood of the odd Day inſerted in the Leap-Year. The Word is derived from the *Latin Intercalaris*, of *Calo calare*, which antiently ſignified to *call with a loud Voice*: an *Intercalary* among the *Romans* ſignifying a Day inſerted between two other Days; which for that reaſon was proclaim'd by the Prieſts with a loud Voice.

INTERCOLUMNS, or *Intercolumniation*, in Architecture, ſignify the Spaces between the Columns. The *Intercolumns* muſt always be proportion'd to the Height and Bulk of the Columns. *Vitruvius* calls it *Intercolumnium*: And according to that Author, the *Intercolumniation* is of five kinds; *viz.* Pychnoſtyle, Siſtyle, Euſtyle, Dioſtyle, and Aræoſtyle: which ſee explain'd in their places. For a Medium, ſome Authors have laid down the following Proportions for the *Intercolumns*. In the Tuſcan Order, the *Intercolumn* muſt be four Diameters of the Body of the Column below; in the Doric three; in the Ionic two; in the Corinthian two, one quarter; in the Compoſite one and a half.

INTERCESSOR, a Perſon who prays or intercedes in behalf of another. In the *Roman* Law *Interceſſor* was the Name of an Officer, whom the Governours of Provinces appointed principally to raiſe Taxes and other Dues. See *the third Law of Juſt. Code.*

Interceſſor was alſo a Term heretofore applied to ſuch Biſhops, as, during the Vacancy of a See, adminiſter'd the Biſhopric, till a Succeſſor to the deceaſed Biſhop had been elected. The third Council of *Carthage* calls theſe *Interventors*. The word *Interceſſor* comes from the *Latin inter* and *cedo*, *I go between*.

INTERCOMMONING, is when the Commons of two Mannors lie together, and the Inhabitants of both have time out of mind cauſed their Cattel to feed promiſcuouſly in each.

INTERCOSTAL, in Anatomy, ſignifies any thing between the Ribs. There are two *intercoſtal* Nerves, which are ſo call'd, becauſe in deſcending they paſs near the Roots of the Ribs. They are formed in the Brain, by three Branches of Nerves, two whereof come from the ſixth Pair, and the third from the fifth. The *intercoſtal* Nerves have a great Communication with thoſe of the eighth Pair, and ſend ſeveral Branches to the Breaſt and lower Ventricle. There are alſo two *intercoſtal* Arteries; the upper, which comes from the Subclavian, and diſtributes itſelf within the four Spaces of the upper Ribs; and the under, which comes from the lower Trunk of the great Artery, and diffuſes itſelf within the Spaces between the eight lower Ribs and the neighbouring Muſcles. There is alſo a Vein call'd *Intercoſtal*, which ariſes from the four Spaces between the upper Ribs, and terminates in the Subclavian.

Intercoſtal Muſcles are the external and internal, which are forty-four in number, one of each ſort being between every two Ribs: They ariſe from the lower Edges of each ſuperior Rib, and are inſerted into the upper Edges of each inferior Rib. Their Fibres croſs one another; thoſe of the external run obliquely from the back-part forwards; but thoſe of the internal from the fore-part backwards: they are thin and fleſhy.

INTERDICT, a Cenſure inflicted by a Pope or Biſhop ſuſpending the Prieſts from their Functions, and depriving the People of the Uſe of Sacraments, Divine Service, and Chriſtian Burial.

Interdict is properly underſtood of a general Excommunication of a Country or City, as appears by the Decretals. There is a local and a perſonal *Interdict*; where theſe two are join'd, the *Interdict* is ſaid to be mix'd. This Puniſhment, as well as general Excommunications, were but little known till the Time of Pope *Gregory* VII. In Excommunicating a Prince, all his Adherents, that is, his Subjects who retain their Allegiance, are excommunicated, and the whole Country is under an *Interdict*. In the Reign of King *John*, the Kingdom of *England* lay under a Papal *Interdict* for above ſix Years together: It began *A.D.* 1208. In Imitation of the Popes, the Biſhops alſo began to *interdict*; and it became a common thing for a City or Town to be excommunicated for the ſake of a ſingle Perſon whom they undertook to ſhelter. But this Severity was found to have ſuch ill Effects, that they have been oblig'd to moderate it. An *Interdict* is denounced, and taken off again, with the ſame Formalities as an Excommunication.

In the Common Law, the word *Interdiction* is uſed alſo in the ſame Senſe as in the Canon Law, where it is defin'd to be *Cenſura Eccleſiaſtica prohibens Adminiſtrationem Divinorum.*

Interdicts, in the *Roman* Law, were certain *Formulæ* of Words, by which the Prætor, when the Poſſeſſion of any thing was conteſted between many, order'd or forbid ſomething to be done with it, till the Buſineſs of Right or Property ſhould be legally determin'd. Which *Formulæ* were call'd *Interdicts*, becauſe they related to the Poſſeſſion of the thing in the *interim*; or till the Right was aſcertain'd. They had three kinds of *Interdicts*, *Prohibitoria*, *Reſtitutoria*, and *Exhibitoria*. *Prohibitoria* were thoſe by which the Judges forbad any one to vex another in the Poſſeſſion of any thing legally belonging to him. *Reſtitutoria* were thoſe by which the Judges appointed any one, who had been expelled out of his Eſtate, to be repoſſeſſed before his Right was legally aſcertain'd; and this was the ſame with what they call'd the *Reintegrant*. *Exhibitoria* were thoſe by which any thing in diſpute was order'd to be exhibited, as a Teſtament, *&c.*

There was alſo a ſecond Diviſion of *Interdicts*, *viz.* into *Adipiſcendæ*, *Retinendæ*, and *Recuperandæ*. The firſt tended to the acquiring a new Poſſeſſion, as the *Interdict quorum bonorum*, &c. the ſecond to the keeping an old one till it was further determin'd, as the *Uti poſſidetis*, &c. the laſt to the recovering one loſt, as *Unde vi*, &c.

Interdiction of Water and Fire; a Sentence antiently pronounced againſt ſuch, as for ſome Crime were to be baniſh'd. They were not directly adjudged to Baniſhment; but by giving order that no body ſhould receive them, but deny them Fire and Water, they were condemned, as it were, to a Civil Death; and this they call'd *Legitimum Exilium. Livy.*

INTEREST, is the Sum reckoned for the Loan and Forbearance of ſome principal Sum lent for, or due at a certain time, according to ſome certain Rate, and therefore called Principal, becauſe it is the Sum that procreates the *Intereſt*, or from which the *Intereſt* is reckoned, and is either Simple or Compound.

(1.) Simple *Intereſt* is counted from the Principal only, and is eaſily computed by the Simple or Compound Golden Rule, thus: Let that which is the principal Cauſe of the *Intereſt* be put in the firſt place, and that which betokeneth Time be in the ſecond place, and the remaining in the third; under this conditional Part place the two other Terms, each under its like, and there will be a Blank to ſupply under one of thoſe above, either under the firſt, ſecond, or third: As for Example, if 100 *l.* in twelve Months gain 6 *l.* (this is the conditional Part) what ſhall 50 *l.* get in three Months? Place them down as in the Rule.

l. *Months.* *l.*
100 . 12 . 6
50 . 3

Here the Blank will be under the third Place, multiply the three laſt for a Dividend, and the two firſt for a Diviſor, the Quotient of theſe gives the ſixth; that is, $6 \times 50 \times 3 = 900$, and $100 \times 12 = 1200$. Now 1200) 900.0(73 = 15 *s.* required. But if the Demand had been, In how many Months would 50 *l.* have gained 15 *s.* or if 100 *l.* in twelve Months gain 6 *l.* what ſhall the Principal be that in three Months would gain 15 *s.* In theſe two Caſes the Blank would have been under the firſt or ſecond Term: Then, by the Rule, multiply the firſt, ſecond, and laſt for a Dividend, and the third and fourth for a Diviſor; the Quotient is the Anſwer.

l. *Months.* *l.*
100 . 12 . 6
3 . 75 = 15 *s.*

Then by the Rule $100 \times 12 \times \cdot 75 = 900.00$ and $6 \times 3 = 18$) 900. (50 *l.* required.

This Rule ſhews Simple *Intereſt*, and all that belongs to it with Eaſe, and was thus found: Put P for the Principal, T for the Time, and G for the Gain in the Conditions, and p, t, g anſwering, it will be, $\mathrm{P} : \mathrm{G} :: t : p : \frac{\mathrm{G}p}{\mathrm{P}}$. And $\mathrm{T} : \mathrm{G}p :: t : \frac{\mathrm{G}pt}{\mathrm{TP}} = g$, which is the firſt Rule; that is, multiply the three laſt for a Dividend, and the two firſt for a Diviſor. And becauſe $\frac{\mathrm{G}pt}{\mathrm{TP}} = g$, therefore $\mathrm{G}tp = \mathrm{TP}g$, and conſequently $t = \frac{\mathrm{TP}g}{\mathrm{G}p}$, and $p = \frac{\mathrm{TP}g}{\mathrm{G}t}$, which is the ſecond Rule.

(2.) *Compound Intereſt* is that which is counted from the Principal, and Simple *Intereſt* forborn, called alſo *Intereſt upon Intereſt*; but becauſe this hath now no Place in human Affairs, it being rendered illegal, it is not worth while to know how to compute it. But beſides the ways of computing *Intereſt*, we ſhall here give another very plain, eaſy, and ready Method of computing all Simple *Intereſt* and Diſcount; as alſo the way to find the Amount or preſent Value of any Sum of Money, or of any Annuity, or other yearly Payment, *&c.* for any Term not exceeding an hundred Years. And in order to this, the following Table of Shillings, Pence, and Farthings, reduced to the Decimal Parts of Pounds, is previouſly neceſſary.

SHIL-

SHILLINGS, PENCE, and FARTHINGS, reduced to the Decimal Parts of a POUND.

s.	d.	Decimal Parts of a Pound.	s.	d.	Decimal Parts of a Pound.	s.	d.	Decimal Parts of a Pound.	s.	d.	Decimal Parts of a Pound.
—	—		—	—		--1	--2¼	.059375	--1	--9½	.089583
—	—¼	.001042	—	--7¼	.030208	--1	--2½	.060417	--1	--9¾	.090625
—	—½	.002083	—	--7½	.03125	--1	--2¾	.061458	--1	10	.091667
—	—¾	.003125	—	--7¾	.032292	--1	--3	.0625	--1	10¼	.092708
—	--1	.004167	—	--8	.033333	--1	--3¼	.063542	--1	10½	.09375
—	--1¼	.005208	—	--8¼	.034375	--1	--3½	.064583	--1	10¾	.094792
—	--1½	.00625	—	--8½	.035417	--1	--3¾	.065625	--1	11	.095833
—	--1¾	.007292	—	--8¾	.036458	--1	--4	.066667	--1	11¼	.096875
—	--2	.008333	—	--9	.0375	--1	--4¼	.067708	--1	11½	.097917
—	--2¼	.009375	—	--9¼	.038542	--1	--4½	.06875	--1	11¾	.098958
—	--2½	.010417	—	--9½	.039583	--1	--4¾	.069792	--2	—	.1
—	--2¾	.011458	—	--9¾	.040625	--1	--5	.070833	--3	—	.15
—	--3	.0125	—	10	.041667	--1	--5¼	.071875	--4	—	.2
—	--3¼	.013542	—	10¼	.042708	--1	--5½	.072917	--5	—	.25
—	--3½	.014583	—	10½	.04375	--1	--5¾	.073958	--6	—	.3
—	--3¾	.015625	—	10¾	.044792	--1	--6	.075	--7	—	.35
—	--4	.016667	—	11	.045833	--1	--6¼	.076042	--8	—	.4
—	--4¼	.017708	—	11¼	.046875	--1	--6½	.077083	--9	—	.45
—	--4½	.01875	—	11½	.047917	--1	--6¾	.078125	10	—	.5
—	--4¾	.019792	—	11¾	.048958	--1	--7	.079167	11	—	.55
—	--5	.020833	--1	—	.05	--1	--7¼	.080208	12	—	.6
—	--5¼	.021875	--1	—¼	.051042	--1	--7½	.08125	13	—	.65
—	--5½	.022917	--1	—½	.052083	--1	--7¾	.082292	14	—	.7
—	--5¾	.023958	--1	—¾	.053125	--1	--8	.083333	15	—	.75
—	--6	.025	--1	--1	.054167	--1	--8¼	.084375	16	—	.8
—	--6¼	.026042	--1	--1¼	.055208	--1	--8½	.085417	17	—	.85
—	--6½	.027003	--1	--1½	.05625	--1	--8¾	.086458	18	—	.9
—	--6¾	.028125	--1	--1¾	.057292	--1	--9	.0875	19	—	.95
—	--7	.029167	--1	--2	.058333	--1	--9¼	.088542			

Examples of the Uſe of the preceding TABLE.

What Decimal Part of a Pound is 7 *d*? Look in the Table for 7 *d.* and even with it you will find 029167, which is the Decimal required. What Decimal Part of a Pound is 17 *s.* 6 *d*? You will find the Decimal of 17 *s.* to be 85, and the Decimal of 6 *d.* to be 025; which added, makes 875. and anſwers the Queſtion. What is the Value of this Decimal .09375 in Shillings, Pence, and Farthings? Look in the Table, and you will find it to be 1 *s.* 10 *d.* ½. Obſerve, that if you cannot find in the Table the exact Decimal ſought for, to take that which is neareſt to it, and you can never err above half a Farthing. Knowing thus the Uſe of theſe Decimal Tables, all the Buſineſs of *Simple Intereſt* will be very eaſily underſtood, and diſpatched as followeth.

The yearly *Intereſt* of any Sum of Money is had, by only multiplying the principal Sum by the hundredth Part of the Rate of *Intereſt*: For the Product in Decimals is the true Anſwer. For Example, what is the Intereſt of 75 *l.* for one Year, at the Rate of ſix *per Cent*?

75 = Principal.
06 = the hundredth Part of 6 *l.*
l. *s.* *d.*
4.50 the Product, which is 4 10 00

What is the yearly Intereſt of 157 *l.* 17 *s.* 6 *d.* at 5 *l. per cent*?

157.875 is the Decimal for 157 *l.* 17 *s.* 6 *d.*
05 the Hundredth Part of five Pounds.

7.89375 which is the Decimal anſwering to 7 *l.* 17 *s.* 10 *d.* ½, the *Intereſt* of 157 *l.* 17 *s.* 6 *d.* for one Year at 5 *l. per Cent.* and ſo for any other Rate or Sum whatſoever. When thus the *Intereſt* for one Year is found, divide it by 365, and the Quotient will be the *Intereſt* for one Day. Thus 01 being the *Intereſt* of one Pound for one Year, if you divide that Decimal by 365, (continuing the Work as long as you pleaſe) you will have 00002739726028, &c. for a Quotient, which will be the Intereſt of one Pound for one Day, and at one *per Cent.* Then will this Decimal 000027, &c. found as above, if you multiply it continually by the Principal, the Number of Days, and the Rate of *Intereſt*, become of itſelf an *Intereſt*-Table for any Sum of Money, for any Time, and at any Rate; As for Example, what is the Intereſt of 150 *l.* for 365 Days at 6 *l. per Cent.*

00002739726028
150
410958904200
365
15000000033000
6
9.00000000198000, which Decimal gives the Anſwer, near enough for any Uſe, to be nine Pounds.

By the ſame Rule .02 divided by 365, will give, in the Quotient, the Intereſt of one Pound for one Day, at 2 *per Cent.* and 03, divided by 365, will do the ſame at 3 *per Cent.* and thus theſe Numbers following were found.

The Intereſt of one Pound for one Day, at all Rates, from 1 to 10 *per Cent.*

At 1 *l. per Cent.* is 000027397260, &c. as above.
2———000054794512
3———000082191781
4———000109589041
5———000136986301
6———000164383562
7———000191780822
8———000219178082
9———000246575342
10———000273972603, &c.

And when thus the Intereſt of one Pound for one Day and any Rate is found, then that *Intereſt*, multiplied by 2, 3, 4, 5, 6, 7, 8, and 9, &c. gives the *Intereſt* of any Sum of Money at the ſame Rate.

Take an Example at 3 *l. per Cent.*

Intereſt of 1 *l.* for 1 Day is 00008219178
2———00016438356
3———00024657534
4———00032876712
5———00041095890
6———00049315068
7———00057534246
8———00065753424
9———00073972602

And then it is eaſy to find that the *Intereſt* of 1 *l.* being, as before, 000082, *&c.* that of

10 will be 000822 *
100———008219
1000———082192 *
10000———8.219178 *
100000———82.191781

Becauſe moving the Point of Separation ſtill one Place nearer to the Left-Hand, multiplies any Decimal by 10, 100. 1000, *&c.* as is ſhewn under Decimals. And thus Tables of daily *Intereſt* may be made at pleaſure. The Reaſon of the Stars above ſet to ſome of the Numbers, is to ſhew, that in the Contraction of a Decimal Fraction to fewer Places, it is proper to add one to the laſt Figure retained, when the next Figure to it, which is omitted, exceeded 5.

To finiſh this Account of Intereſt, we ſhall here ſubjoin the ingenious Mr. *Barton*'s new and univerſal Method of Simple Intereſt, correctly, conciſely, and eaſily finding the Intereſt of any Sum, for any Number of Days, at any Rate *per Cent.* by one General Rule.

Places——— 1 2 3 4 5 6 7 8 9 10
RADIX ———.0000027397 $\frac{19}{73}$ *l.* Sterling.
(*General Rule*) multiply the Principal, Time, Rate, and Radix one into another, and it's done.

EXAMPLE 1.

Intereſt of *l.* 271 for 112 Days at *l.* 3 *per cent. per ann.*

112
20352
3
91056

2.4657
273
13
1
2.494 Anſw. *l.* 2 : 9 : 10½

EXAMPLE 2.

Intereſt of *l.* 110 for 71 Days at *l.* 5 *per cent. per ann.*

11
781
5
3905

.8219
.2465
13
1.069 Anſw. *l.* 1 : 1 : 4½

EXAMPLE 3.

Intereſt of 5000 *l.* for 60 Days at *l.* 4. *per cent. per ann.*

6'''
3'
4
12

32.876 Anſw. *l.* 32 : 17 : 6¼

EXAMPLE 4.

Intereſt of *l.* 800 for 125 Days at *l.* 6 *per cent. per ann.*

8
1'''
6
6

16.438 Anſw. *l.* 16 : 8 : 9¼.

Any Annual Sum given, to find what that is *per* Day.

EXAMPLE 5.

l. 164 *per ann.* what is that *per* Day?

.2739
.1643
109
s. *d.*
.449 Anſw. 8 : 11¾

EXAMPLE 6.

l. 1000 *per ann.* what is that *per* Day?

2.739 Anſw. *l.* 2 : 14 : 9½

EXPLICATION.

In Example 1. the principal Time and Rate multiplied one into another, make 91056, by which I multiply the Radix thus; becauſe 9 is in the * 5th Place, with my Left-hand I hold a Quill's Point in the * 5th Place in the Radix; then I multiply by the ſaid 9, beginning five Figures (more or leſs) to the right of the Quill, and when I come to the fourth Figure, on the right of the Quill, I ſet its Product down, and all the reſt onwards, obſerving when I come to the ſaid 5th Place to make the [.] and the Product is 2.4657: Then I remove the Quill into the fourth Place of the Radix (becauſe 1 ſtands there in the whole Number) and multiply by 1 (ever obſerving punctually the laſt Rule) and the Product is .0273; then 0 in the third place makes nothing, for 5 in the ſecond place (putting the Quill there) the Product is .0013: and for 6 in the firſt Place the Product is .0001: (placing them ever in the Order you ſee) I add them together (never ſetting but three Decimals down) and find their Sum 2.494, and its Value thus.

* Note, *The Places in whole Numbers are reckoned from Right to Left, in Decimals contrary.*

If any thing is to the left of the [.] it's Pounds (*l.* 2) the firſt Figure to the right of the [.] doubled is Shillings (8 *s*): from the ſecond Figure take 5 if you can (if you cannot its whole is Tens) and make the Shillings one more (9): the Remainder (4) in the ſecond place, is Tens, which added to the third (as Units) is Farthings (44 Farthings): for every 20 in that put away 1 (44 Farthings put away 2 is 42 Farthings): the Remainder brought into Pence (10 *d* ½) compleats the Anſwer (*l.* 2. 9. 10½.)

Contraction.] A Cypher or Cyphers (having no Figure to the Right) may be cancelled (I have noted them with a Daſh) multiplying the real Figures one into another; but obſerve that the Figures by which you are to multiply the Radix, are to be uſed as if every cancelled Cypher ſtood before them. In Example 2. the 3905 is uſed like and in reality is 39050. In Example 3. five 0's are cancelled, therefore I uſe 12 like 1200000, putting the Quill for the 2 in the 6th Place in the Radix, and, for brevity's-ſake, multiply by 12 ot once.

Any annual Sum given, to find what that is *per* Day; ever imagine two 0's put to the Right of it, then multiply the Radix by it, and it's done.

Remarks.] (1.) If Cyphers be added to the Numerator of the Vulgar Fraction, and that Dividend be divided by the Denominator, the Radix may be increaſed to any Number of Places.

(2.) If the Radix be multiplied by 3, 4, 5, 6, *&c.* it will be a Radix for 3, 4, 5, 6, *&c. per cent.* and ſave the trouble of always multiplying by the Rate.

INTERJECTION, in Grammar, is an Expreſſion uſed to denote ſome ſudden Motion or Paſſion of the Mind; as *oh! ha! &c.* As the greateſt part of the Expreſſions uſed on theſe occaſions, are taken from Nature alone; the real *Interjections* in moſt Languages are Monoſyllables. And as all Nations agree in thoſe natural Paſſions, ſo do they agree in the Signs and Indications of them; as of Love, Mirth, *&c.* Some deny the *Interjections* to be Words, or any part of Speech, and make them mere natural Signs of the Motions or Paſſions of the Mind, expreſs'd by theſe inarticulate Sounds, ſeveral whereof, Brutes have in common with us. But as theſe are Paſſions, and muſt be repreſented in Diſcourſe, the *Interjection* has a good Foundation in Nature, and is a neceſſary Part of Speech. The *Greeks* confound their *Interjections* with Adverbs, and the *Hebrews* confound them with their Adverbs and Prepoſitions, calling them all by the general Name *Particle.*

INTERIM: A Term borrow'd from the *Latin*, ſignifying *in the mean time. Charles* the Vth was the firſt who brought it into uſe, in order to compoſe the Diſturbances of *Germany.* It was a kind of Ordonnance or Regulation to be obſerv'd in the Empire, with regard to the Articles of Religion then controverted, till ſuch time as they ſhould be determin'd by a Council; and was therefore call'd *Interim.* It was ſaid to have been drawn up by two Catholics and a Proteſtant. But as it retain'd moſt of the Doctrines and Ceremonies of the *Romaniſts*, excepting that of Marriage, which was allow'd to Prieſts, and Communion, which was adminiſter'd to the Laity under both Kinds; moſt of the Proteſtants rejected it: thoſe who admitted it, were nick-named *Interimiſts* or *Adiaphoriſts*: Indeed the *Interim* equally diſguſted both Parties, the Proteſtants and Catholics. Beſides this, there were two other

Interims made; the one call'd the *Interim* of *Leipſic*; the other made by the Divines of *Franconia*, who refuſing to accept the two former, made another for themſelves.

INTERLINEATION, ſomething inſerted between two Lines.

INTERLOCUTORY ORDER, is that which decides not the Cauſe, but only ſettles ſome intervening Matter relating to the Cauſe; as where an Order is made by Motion in Chancery, for the Plaintiff to have an Injunction, to quit his Poſſeſſion till the hearing of the Cauſe: This, or any other ſuch Order, not being final, is *interlocutory*.

INTERLOPE, is to intercept or diſturb the Traffic of a Company; to take up a new Trade or Employment, to the prejudice of thoſe who were brought up in it: And *Interlopers* are properly thoſe, who without due Authority hinder the Trade of a Company or Corporation lawfully eſtabliſh'd, by dealing in the ſame way.

INTERLUCATION, in Husbandry, is a letting in of Light between, by lopping, or cutting away of Boughs.

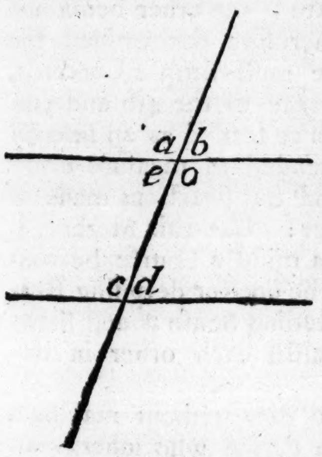
INTERLUDE, an Entertainment exhibited on the Theatre between the Acts of a Play; to amuſe the Spectators while the Actors take breath, and ſhift their Dreſs; or to give time for changing the Scenes and Decorations. Theſe *Interludes* uſually conſiſt of Songs, Dances, Feats of Activity, Conſorts of Muſic, *&c.* In the antient Tragedy, the Chorus ſung the *Interludes*, to ſhew the Intervals between the Acts. *Ariſtotle* and *Horace* give it for a Rule, that the *Interludes* ſhould conſiſt of Songs built on the principal Parts of the Drama: But ſince the Chorus has been laid down, Dancers, Buffoons, *&c.* ordinarily furniſh the *Interludes*.

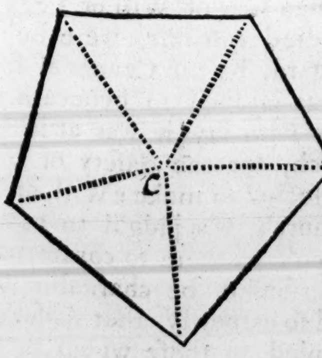
INTERMEDIATE, ſomething betwixt two. It is uſually underſtood of the Space of Time elapſed from any certain Point to any other.

INTERMEWING, in Falconry, is an Hawk's *Mewing* from the firſt Change of her Coat till ſhe turn white.

INTERMITTENT ſignifies a Ceſſation of any particular Action for ſome time, and that Time is called the *Interval*: Thus Fevers which go off, and ſoon return again, as alſo any other Diſtempers, are called *Intermittents*, in oppoſition to thoſe which are always continued; and a Pulſe which after ſo many Strokes, ſtops, or loſes one in its due time, is call'd an intermitting Pulſe. With regard to this it has been obſerved, that as often as the Ventricle is much inflated with Wind, the *Nervus* or *Plexus Cardiacus* at its Orifice muſt ſuffer a Contraction, which being continued to the Heart, will occaſion a Twitching; and this, as it is more or leſs violent, will produce a ſimple Intermiſſion of Pulſe, or a real Palpitation of the Heart.

INTERNAL ANGLES, are all *Angles* made by the Sides of any right-lin'd Figure within: alſo the two *Angles* between the parallel Lines on each ſide the croſſing Line, as *o* and *d*, *e* and *c* in the Figure are call'd the two *internal Angles*, and are always equal to two right ones. The *Angles c* and *d* are alſo called *internal* and oppoſite *Angles* in reſpect of *a* and *b*. The Sum of all the *internal Angles* of any right-lin'd Figure, is equal to twice as many right *Angles* as the Figure hath Sides, except 4. For ſince every ſuch Figure from a Point taken within it, can be divided into as many Triangles as it hath Sides, and ſince the Sum of the *Angles* of each Triangle is equal to 2 right *Angles* (32, *Prop.* 1. *Eucl.*) that will make twice as many *Angles* as the Figure hath Sides; from which Sum take away all thoſe *Angles* about the Point *c*, which (by 13. *Prop.* 1. *Eucl.*) are equal to 4 right *Angles*; wherefore the remaining Sum of all the *internal Angles* is equal to twice as many right *Angles*, as the Figure hath Sides, except 4.





INTERNODII, in Botany, are thoſe little Spaces contained between any two Knots or Joints of the Stalk of a Plant; and in Anatomy, the *Extenſores Pollicis*, which ſee, are alſo ſo called.

INTEROSSEI MANUS, are the Muſcles which move the Fingers, thus called from their Situation, as being contained between the Spaces of the Bones of the *Metacarpus*: Some reckon ſix of them, and others eight; the one half lie between the Spaces theſe Bones leave towards the Palm of the Hand, and they are called the internal *Interoſſei*, ariſing from the upper part of the Bones of the *Metacarpus* next the *Carpus*; and being inſerted on the internal Sides of the firſt Bones of the Fingers with the *Lumbricales*, they are the *Adductores Digitorum*, for they bring the Fingers to the Thumb. The other half are contained in the Spaces that the Bones of the *Metacarpus* leave on the Back of the Hand; they riſe from the upper Part of the Bones of the *Metacarpus*, next the *Carpus*, and are inſerted on the external Sides of the firſt Bones of the Fingers; and theſe are the *Adductores Digitorum*, for they draw the Fingers from the Thumb.

Interoſſei Pedis, the Muſcles which move the Toes; in Number, Uſe, Origin, and Inſertion, they anſwer exactly to thoſe of the Hand. See *Interoſſei Manus*.

INTERPOLATION, a Term uſed by the Critics in ſpeaking of antient Writings and Manuſcripts, to which ſome ſpurious Additions or Alterations have been ſince made. For the aſcertaining an *Interpolation*, *P. Ruinart* gives us the five following Rules. 1. That the Piece ſuppoſed to be interpolated appear to have all the Antiquity it pretends to. 2. That there be good Proofs that it has been interpolated. 3. That the ſuppoſed *Interpolations* agree to the Time of the Interpolator. 4. That the *Interpolations* don't touch the Foundation of the Work, be not too frequent, nor entirely disfigure the Piece. 5. That the Reſtitution made, agree perfectly to the reſt of the Work.

INTERPOSITION, the Situation of a Body between two others hiding them, or preventing their Action. Thus the Eclipſe of the Sun is occaſion'd by an *Interpoſition* of the Moon between the Sun and us; and that of the Moon by the *Interpoſition* of the Earth between the Sun and Moon.

INTERPRETER, a Perſon who explains the Thoughts, Words, or Writings of ſome others, which before were unintelligible. The word *Interpres*, according to *Iſidore*, is compoſed of the Prepoſition *inter* and *partes*, as ſignifying a Perſon in the middle betwixt two Parties, to make them mutually underſtand each other's Thoughts. Others derive it from *inter* and *præs*, i. e. *Fidejuſſor*, a Perſon who cautions another.

There have been great Debates about interpreting the Scripture: The *Romaniſts* contend, that it belongs abſolutely to the Church, adding, that where ſhe is ſilent, Reaſon may be conſulted; but where ſhe ſpeaks, Reaſon is to be diſregarded. The Proteſtants generally allow Reaſon the Sovereign Judge in the Caſe; tho ſome among them have a ſtrong regard to Synods and others to the Authority of the Primitive Fathers. Laſtly, others have recourſe to the Spirit within every Perſon to interpret for them. Which is what *Bochart* calls ἀπόδειξις τȣ̃ πνεύματος.

INTERREGNUM, the Time during which a Throne is vacant, or a Kingdom without a Head. In Hereditary Kingdoms there are no *Interregnums*, at leaſt they are very rare. In Elective Kingdoms, the *Interregnums* are extremely liable to Factions and Diſorders. In *Germany*, the Emperors have loſt the greateſt part of their Dominions during the *Interregnums*.

INTERREX, a Magiſtrate who governs during an *Interregnum*, or in the Interval between the Death of a Monarch, and the Election or Inauguration of his Succeſſor. This Magiſtrature was eſtabliſh'd in old *Rome*, and was almoſt as antient as the City itſelf. After the Death of *Romulus* there was an *Interregnum* of a Year, during which the Senators were each *Interrex* in their turn, five Days a-piece. After the Eſtabliſhment of Conſuls and a Commonwealth, tho there were no Kings, yet the Name and Function of *Interrex* was ſtill preſerved. For when the Magiſtrates were abſent, or there was any Irregularity in their Election, or they had abdicated, ſo that the *Comitia* could not be held, provided they were unwilling to create a Dictator, they made an *Interrex*, whoſe Office and Authority was to laſt five Days; after which they made another. To the *Interrex* was delegated all the Regal and Conſular Authority, and he perform'd all their Functions. He aſſembled the Senate, held *Comitia* or Courts, took care the Election of Magiſtrates was according to the Rules. Indeed, at firſt it was not the Cuſtom for the *Interrex* to hold *Comitia*; at leaſt we have no Inſtance of it in the antient *Roman* Hiſtory. The *Patricii* alone had the Right of electing an *Interrex*. This Office fell with the Republic, when the Emperors made themſelves Maſters of every thing.

INTERROGATE, a Judiciary Act, performed by a Judge or Commiſſioner deputed to examine or queſtion a Party; who firſt gives his Oath that he will anſwer truly to every thing he is *interrogated*.

INTERROGATION is a Figure in Rhetoric, in which the Paſſion of the Speaker introduceth a thing by way of Queſtion, to make its Truth more conſpicuous. It is a kind of Apoſtrophe which the Speaker makes to himſelf; and it muſt be own'd, that this Figure adds an uncommon Briſkneſs, Action and Force to Diſcourſe.

Interrogation, in Grammar, is a Point which ſerves to diſtinguiſh ſuch Parts of a Diſcourſe, where the Author ſpeaks as if he were asking Queſtions. Its Form is this ?

INTERRUPTION, is the ſame with Disjunction of Proportion in Geometry, it is noted thus (::) and ſignifieth the breaking off of the Ratio in the middle of four disjunct or diſcrete Proportionals, as A : B :: C : D; that is, as A is to B ſo is C to D.

Interruption is alſo a Figure in Rhetoric, wherein a Perſon breaks off his Diſcourſe ſuddenly, to ſhew ſome Paſſion.

INTERSECTION, in Mathematics, ſignifies the Point or Line wherein two Lines or two Planes cut each other. Thus we ſay, that the mutual *Interſection* of two Planes is a Right Line. The Centre of a Circle is in the *Interſection* of two Diameters. The Central Point of a regular or irregular Figure of four Sides is the Point of *Interſection* of the two Diagonals. The Equinox happens when the Sun is in the *Interſection* of the Equator and Ecliptic.

INTERSOILING, in Husbandry, is laying one kind of Soil or Mould upon another; as Clay on Sand, Sand on Earth, *&c.*

INTERSPINALES COLLI, the Name of five Pair of ſmall Muſcles diſcover'd by Mr. *Cowper*; and by him ſo call'd from their Poſition. They ariſe from each double Proceſs of the Spine of the Neck, and run from the upper one to the next below, into which they are inſerted. They ſerve to approximate and draw together the *Vertebræ* of the Neck, and are more eſpecially proper to this Part, as having both Origin and Inſertion in it.

INTERSTELLAR, is a Word uſed by ſome Authors to expreſs thoſe Parts of the Univerſe that are without and beyond our Solar Syſtem; in which are ſuppoſed to be ſeveral other Syſtems of Planets moving round the fixed Stars as the Centers of their reſpective Motions: And if it be true, as it is not improbable, That each fixed Star is thus a Sun to ſome habitable Orbs, that move round it, the *Interſtellar* World will be infinitely the greater part of the Univerſe.

INTERTIES, or INTERDUCES, in Architecture, are thoſe ſmall Pieces of Timber that lie horizontally betwixt the Summers, or betwixt them and the Sell or Reſon.

INTERTRANSVERSALES COLLI: Certain Muſcles between the tranſverſe Proceſſes of the *Vertebræ* of the Neck, of the ſame Size and Figure with the *Interſpinales*, and obſerved by the ſame Author. See *Philoſoph. Tranſact. vol.* 21. *p.* 132.

INTERVAL, the Diſtance or Space between two Extremes, either of Time or Place. The Word comes from the *Latin Intervallum*, which, according to *Iſidore*, ſignifies the Space *inter Foſſam & Murum*, between the Ditch and the Wall. Others ſay, that the Stakes or Piles, driven into the Ground in the antient *Roman* Bulwarks, were called *Valla*, and the Interſtices or Vacancy between them *Inter-valla*.

INTERVAL, in Muſic, is the Difference between two Sounds in reſpect of Acute and Grave, or that imaginary Space terminated by two Sounds differing in Acuteneſs or Gravity. When two or more Sounds are compared in this Relation, they are either equal or unequal in the Degree of Tune. Such as are equal are call'd *Uniſons*, with regard to each other, as having one Tune; the other being at a diſtance from each other, conſtitute what we call an *Interval* in Muſic, which is properly the Diſtance in Tune between two Sounds. *Intervals* are diſtinguiſh'd into Simple and Compound. A ſimple *Interval* is without Parts or Diviſion, a Compound conſiſts of ſeveral leſſer *Intervals*. But this Diſtinction regards Practice only, becauſe there is really no ſuch thing as a leaſt *Interval*. Beſides, by a ſimple *Interval* is not meant here the leaſt practiſed, but ſuch as tho it were equal to two or more leſſer which are in uſe, yet when we would make a Sound move ſo far up or down, we always paſs immediately from one of its Terms to the other. What is meant then by a compound *Interval*, will be very plain: It is ſuch, whoſe Terms are in Practice taken either in immediate Succeſſion, or ſuch where the Sound is made to riſe and fall from the one to the other, by touching ſome intermediate Degrees; ſo that the whole becomes a Compoſition of all the *Intervals* from one Extreme to the other. What we here call a ſimple *Interval*, the Antients call'd a *Diaſtem*, and the Compound they call'd a *Syſtem*. Each of theſe has Differences; even of the Simple there are ſome greater, and others leſs: but they are always Diſcord; but of the Compound or Syſtem, ſome are Concord, others Diſcord. *Uniſons*, 'tis plain, cannot poſſibly have any Variety; for where there is no difference, as in Uniſonance, which flows from a Relation of Equality, 'tis plain there can be no Diſtinction: Uniſons therefore muſt all be Concords. But an *Interval* depending on a Difference of Tune, or a Relation of Inequality, admits of Variety; and ſo the Terms of every *Interval*, according to their particular Relation or Difference, make either Concord or Diſcord. Some indeed have reſtrained the word *Concord* to *Intervals*, making it include a Difference in Tune, but this is precarious; for as the word *Concord* ſignifies an Agreement of Sounds, 'tis certainly applicable to Uniſons in the firſt Degree: *Intervals*, 'tis plain, may differ in Magnitude, and there may be an infinite Variety according to the poſſible Degrees of Tune; for there is no Difference ſo great or little, but a greater or a leſs may poſſibly be conceived. 'Tis true, with regard to Practice, there are Limits which are the greateſt and leaſt *Intervals* our Ears are Judges of, and which may be actually produced by Voice or Inſtrument.

The Degrees of Tune are proportional to the Numbers of Vibrations of the ſonorous Body in a given Time, or the Velocity of their Courſes and Recourſes. Now theſe Differences in Tune conſtitute, as has been already ſaid, the *Intervals* in Muſic; theſe therefore muſt be greater or leſs, as the Differences are; and 'tis the Quantity of theſe, which is the Subject of the Mathematical Part of Muſic. Thoſe *Intervals* are meaſured not in the ſimple Differences or Arithmetical Ratio's of the Numbers expreſſing the Lengths or Vibrations, but in their Geometric Ratio's; ſo that the ſame *Interval* depends on the ſame Geometrical Ratio, and *vice verſâ*. It is however to be obſerved, that in comparing the Equality of *Intervals*, the Ratio's expreſſing them muſt be all of one Species; otherwiſe this Abſurdity will follow, that the ſame two Sounds may make different *Intervals*. To deſcribe the particular Methods of meaſuring the Inequality of *Intervals*, would be too tedious: this one Rule may be obſerved, that, to determine in general, which of two or more *Intervals* are the greateſt, take all the Ratio's as proper Fractions, and the leaſt Fraction will be the greateſt *Interval*.

The Antients were extremely divided about the meaſuring of *Intervals*. *Pythagoras* and his Followers meaſur'd them by the Ratio's of Numbers. They ſuppoſed the Differences of Gravity and Acuteneſs to depend on the different Velocities of the Motion that cauſes Sound; and thought, therefore, that they could only be accurately meaſured by the Ratio's of thoſe Velocities. Which Ratio's were firſt inveſtigated by *Pythagoras*, on occaſion of his paſſing by a Smith's Shop, and obſerving a Concord betwixt the Sounds of Hammers ſtriking on the Anvil. *Ariſtoxenus* oppoſed this. He thought Reaſon and Mathematics had nothing to do in the caſe, and that Senſe was the only Judge in the Diſpute; the other being too ſubtile to be of any uſe. He therefore determined the 8ve, 5th, and 4th, which are the moſt ſimple Concords, by the Ear; and by the Difference of the 4th and 5th, he found out the Tone: which once ſettled as an *Interval* the Ear could judge of, he pretended to meaſure every *Interval* by various Additions and Subſtractions made of theſe mentioned one with another: But this Method is very inaccurate. *Ptolemy* keeps a middle Courſe betwixt the two. He finds fault with the one for deſpiſing Reaſon, and with the other for excluding Senſe; and ſhews how theſe two may mutually aſſiſt each other in this Matter. See *Tone*, *&c.*

INTESTATE, a Perſon who dies without making a Will. An Heir *ab Inteſtato*, is a Perſon who inherits an Eſtate by ſome other Right, than that of Will or Teſtament. Heretofore, thoſe who died *Inteſtate*, were held infamous, and accurſed; in regard, by the Canons of ſeveral Councils, every Perſon was injoin'd to bequeath a part of his Eſtate (and *Matthew Paris* ſays it was at leaſt to be a tenth part) to the Church, for the Safety of his Soul; which, a Perſon who neglected to make a Will, and to leave this Legacy to the Church, was judg'd to have abandon'd. Several Councils took on them to command the Prieſts to ſollicite dying Perſons to be charitable to the Church; and this they did ſo earneſtly, that Abſolution and the Viaticum were denied to thoſe whom they could not prevail on; ſo that they made no difference between theſe *Inteſtates* and Self-Murderers: and they were alike denied Chriſtian Burial. *Du Cange* adds, that all who died without Abſolution, without receiving the Viaticum, and without leaving Alms to the Church (even tho they died ſuddenly) had their Effects ſeiz'd and confiſcated to the Uſe of the Church, the Biſhop, *&c.*

In our *Engliſh* Law there are two kinds of *Inteſtates*; the one *de facto*, which are thoſe who make no Will at all, the other *de jure*, which are thoſe who make a Will; but it is null and void, either from the Executors refuſing to act, or from ſome other Cauſe in which he is judg'd to die *inteſtate*.

INTESTINE MOTION, *of the Parts of Fluids.* Where the attracting Corpuſcles of any Fluid are elaſtick, they muſt neceſſarily produce an *Inteſtine Motion*; that is, a viſible Motion or Change of Place among the minute Parts of a fluid Body: and this greater or leſs according to the Degrees of their Elaſticity, and attractive Forces. For two elaſtic Particles after meeting will fly from one another (abſtracting the Reſiſtance of the Medium) with the ſame degree of Velocity, with which they met: But when in flying back from one another, they approach other Particles, their Velocity will be increaſed. See *Elaſticity* and *Fermentation.*

INTESTINES, in Anatomy, are the ſame with what we ordinarily call the Guts or Bowels. Theſe ſeem to be nothing but a Continuation of the Stomach, conſiſting of the ſame Number of Coats, and fabricated in the ſame manner; they are protended with various Circumvolutions and Inflexions to the *Anus*, thro' which they diſcharge the excrementitious part of their Contents out of the Body. They are, when ſeparated from the Meſentery, to which they are all along connected, of a very great Length, ordinarily about ſix times as long as the Perſons whoſe they were. And tho they ſeem to be but one continued Channel or Fiſtula, yet becauſe in ſeveral Parts their Magnitude, Figure, and Thickneſs are different, they are in general divided into the thick and thin, and theſe again are each of them ſubdivided into three; the three thin are called *Duodenum*, *Jejunum*, and *Ileum*; and the thick *Cæcum*, *Colon*, and *Rectum*. They have all of them in common a kind of Vermicular Motion, which, beginning at the Stomach, is propagated downwards, and is called the *Periſtaltic Motion.* To facilitate that, they are generally lubricated with a great deal of fat, eſpecially the thick ones, whoſe Surface being ſomewhat more uneven, and the Contents leſs fluid than thoſe of the thin, they need ſomewhat more to make them ſlide eaſy.

The firſt of the thin Guts is called *Duodenum*, and reaches from the right Orifice of the Stomach, as far as the *Vertebræ* of the Back on the left Side, where, at the firſt Angle made by the *Inteſtines* it ends, which is about 12 Inches, from which Meaſure it ſeems to have taken its Name. This Meaſure however is far from being very exact, as being much too largely computed. Into this Gut the Gall-Duct and Pancreatic-Duct empty themſelves, and their ſeveral Liquors mix with the Chyle. The next *Inteſtine* is the *Jejunum*, ſo called, becauſe it is generally found more empty than the reſt; which may be occaſioned partly by the Fluidity of the Chyle, which is greater in this *Inteſtine* than in any of thoſe that follow it; and partly by its Capacity, being ſomewhat larger than that of the *Duodenum*, and therefore it gives a freer Paſſage, and perhaps alſo the Irritation of this Gut thro' the Acrimony of the Bile, which is diſcharged upon the *Inteſtines* a little before the beginning of this Gut, may contribute ſomething towards accelerating the Paſſage of the Contents. However, it may ſeem ſufficient, that thro' the great Number of Lacteals, with which this Gut abounds more than any other, the Deſcent of the Contents, which are here deprived of the moſt fluid Parts, ſhould in the reſt be more ſluggiſh, by reaſon of their greater Conſiſtence. This *Inteſtine* is allowed to poſſeſs almoſt the whole Umbilical Region, and its Length is generally computed to be about twelve or thirteen Hands breadth. The *Ileum*, which is the third *Inteſtine*, is ſituated below the Navel, and fills the *Ilia* with its numerous Folds and Convolutions. It is the longeſt of all the *Inteſtines*, being eſteemed to be one and twenty Hands long: But theſe Eſtimates are ſomewhat arbitrary, becauſe it is not exactly ſettled among Anatomiſts, where the *Jejunum* ends, or the *Ileum* begins; neither is it eaſy or neceſſary to do it. In both this and the preceding *Inteſtine*, the Inner Tunic is much corrugated, the looſe Folds of which have been thought to do in ſome meaſure the Office of Valves, and have therefore by Authors been called *Valvulæ Conniventes*; which are framed, as in the Stomach, only by the inner Coat being larger than the outward.

Next follow the thick *Inteſtines*, the firſt of which is called the *Cæcum*, which has a lateral Inſertion into the upper end of the *Colon*, and is not perforated at its other Extremity, but hangs to it like the Finger of a Glove, and is about three or four Inches long. The true Uſe of this part is not yet determined, and ſome late Anatomiſts have thought that the Name likewiſe is miſtaken, not allowing this to be the *Cæcum* of the Antients, which they imagined to be that thick globous part of the *Colon*, which is immediately appended to the *Ileum*, and therefore they have given this part the Name of *Appendicula Vermiformis.* This *Cæcum*, or Appendix, is proportionably bigger in Infants than Adults, and in many other Animals even ſmaller than in Men, and is, at the unperforated Extremity, ſlightly connected to the right Kidney. The next of the thick *Inteſtines* is the *Colon*, which is much the largeſt, and moſt capacious of them all. It begins with the *Cæcum*, and is with that connected to the right Kidney. Thence with a winding Courſe it proceeds towards the Liver, where it is ſometimes tied to the Gall-Bladder, and by that tinged with yellow. From the Liver it runs a-croſs under the Bottom of the Stomach, where it is by very fine thin Membranes faſtned to the Spleen, and marches over the left Kidney, where its Cavity is ſometimes very much ſtreightned, and deſcending ſo to the bottom of the *Os Ileum*, and from thence returning to the upper part of the *Os Sacrum*, and there making the Figure of a Circumflex, it ends in the *Rectum*. At the Entrance of the *Ileum* into this Gut is placed a *Valve*, formed out of the Production of the inward Coat of the *Ileum*, which, like the Finger of a Glove, when its Extremity is cut off, hangs looſe in the Cavity of the *Colon*, by which means it ſtops the return of the Excrements, tho' ſometimes, as in Inverſions of the Periſtaltic Motion, it proves not ſufficient for that Uſe. It has a great many *Cellulæ*, or, as it were, diſtinct Cavities, framed by a Coarctation of the Gut by two Ligaments, or Bundles of membranous fleſhy Fibres, about half a Finger broad, each running on either ſide the Gut oppoſite to each other, the whole Length of it, and as it were girting it in at certain Diſtances, thereby making it reſemble a Glaſs Incorporator, uſed in mixing Oil and Vinegar. The next and laſt of the *Inteſtines* is the *Rectum*, which reaches from the *Os Sacrum* to the *Anus*, and is plain without Cells. It is faſt tied to the *Oſſa Sacrum* and *Coccygis*, by means of the *Peritonæum*, and in Men to the Neck of the Bladder of Urine, in Women to the *Vagina Uteri*, to which it is ſtrongly connected by a membranous Subſtance. That Subſtance of the *Vagina* and *Inteſtine* are hardly diſtinguiſhable from one another. The Length of this Gut is ordinarily about a hand's Breadth and an half, and its Capacity about the Thickneſs of three Fingers; its lower end, the *Anus*, is furniſhed with three Muſcles, *viz.* the *Sphincter Ani*, and *Levatores Ani*; which ſee.

There are alſo in the *Inteſtines*, a great Number of *Glands*, which, in the *Inteſtina Tenuia*, are gathered together in Heaps, as it were like Bunches of Grapes. In theſe *Inteſtines* they are very ſmall, and were it not for their Coacervations, ſcarce remarkable. But in the *Inteſtina Craſſa* they are much larger, not gathered like the others, but diſperſed; and, tho' very numerous, come under the Denomination of *Solitary Glands.* Theſe Glands diſcharge a Liquor into the *Inteſtines*, whether ordinarily for any thing more than the Lubrication of the *Inteſtines*, and diluting their Contents, is not certain; tho' thro' theſe ſeems the greateſt part of the Diſcharge to be made, which, either upon extraordinary Fluxes, or upon the Adminiſtration of Cathartics, we have frequent Occaſion to obſerve. Theſe *Inteſtines*, in general, are furniſhed with Blood from the Meſenteric Arteries, which is returned by the Meſeraic Veins: But the *Duodenum* receives a Branch of an Artery from the *Cæliac*, which is called *Duodena*, to which anſwers a Vein of the ſame Name, that likewiſe returns the Blood to the *Porta*; the *Rectum* receives others, which are called *Hemorrhoids*; the internal from the inferior Meſenteric, and the external from the Hypogaſtric, with Veins correſponding of the ſame Name, that alſo go to the *Porta.* Theſe Veſſels ſpread the *Inteſtines* with abundance of Ramifications, and are frequently diverſified in ſeveral Subjects of the ſame Species; much leſs are they to be depended upon for an uniform Appearance in Animals of different kind. The *Nerves* of the *Inteſtines* come ſome of them from thoſe of the Stomach, and ſome from the great Meſenteric Plexus, which diſtributes Branches to all the *Inteſtines*. The remaining Veſſels of the *Inteſtines* are the *Lymphæducts*, and *Venæ Lacteæ*, which ſee.

INTRIGUE, an Aſſemblage of Events or Circumſtances occurring in an Affair, and perplexing the Perſons concerned in it. *Tripaud* tells us the word is properly underſtood of Chickens, that have their Feet intangled in Hair, and is derived from the *Greek* ἐν and θρὶξ.

In this ſenſe *Intrigue* is uſed to ſignify the Nodus, or Plot of a Play or Romance, or that Point wherein the principal Characters are the moſt embaraſſed, through the Artifice and Oppoſition of certain Perſons, or the unfortunate falling out of certain Accidents and Circumſtances. In a Tragedy, Comedy, or Epic Poem, there are always two Deſigns; the firſt and principal is that of the Hero of the Piece; the ſecond contains the Deſigns of all thoſe who oppoſe him. Theſe oppoſite Cauſes produce oppoſite Effects, to wit, the Efforts of the Hero for the Execution of his Deſign, and the Efforts of thoſe who thwart it. As thoſe Cauſes and Deſigns are the beginning of the Action, ſo thoſe Efforts are the middle, and form a Knot or Difficulty, which we call an *Intrigue*, that makes the greateſt part of the Poem. It laſts as long as the Mind of the Reader or Hearer is ſuſpended about the Event of thoſe oppoſite Efforts; the Solution or Cataſtrophe commences when the Knot begins to unravel, and the Difficulties and Doubts begin to clear up. The *Intrigue* of the Iliad is twofold; the firſt comprehends the three Days fighting in *Achilles*'s Abſence, and conſiſts, on the one ſide, in the Reſiſtance of *Agamemnon* and the *Greeks*, and on the other in the inexorable Temper of *Achilles*. The Death of *Patroclus* unravels this *Intrigue*, and makes the beginning of a ſecond. *Achilles* reſolves to be revenged, but *Hector* oppoſes his Deſign, and this forms the ſecond *Intrigue*, which is the laſt Day's Battel. In the Æneid there are alſo two *Intrigues*; the firſt is taken up in the Voyage and Landing of *Æneas* in *Italy*, the ſecond in his Eſtabliſhment there. The Oppoſition he met with from *Juno*, in both thoſe Undertakings, forms the *Intrigue*. As to the Choice of the *Intrigue*, and the Manner of unravelling it, 'tis certain they ought both to ſpring naturally from the Ground and Subject of the Poem. *Boſſu* gives us three Manners of forming the *Intrigue* of a Poem; the firſt is that already mentioned; the ſecond is taken from the Fable and the Deſign of the Poet; in the third the *Intrigue* is ſo laid, as that the Solution follows from it of courſe. See *Cataſtrophe*.

INTRINSIC, a Term applied to the inner, real, genuine Values, Properties, *&c.* of any thing, in oppoſition to their extrinſic, apparent, or popular Values, *&c.*

INTRONATI, the Name of an Academy at *Sienna* in *Italy*. The Members of this Academy contented themſelves, at their firſt Inſtitution, with eſtabliſhing the following ſix ſhort Laws: (1.) To pray. (2.) To ſtudy. (3.) To be merry. (4.) To offend no body. (5.) Not to credit too lightly. (6.) To let the World talk.

INTRUSION, in the Canon Law, ſignifies the Enjoyment of a Benefice, or the Exerciſe of an Office, without a good Title to it. *Intruſion* diſqualifies the Party from ever holding the Benefice. The word is derived from the *Latin* Verb *intrudere, to thruſt in*, or *enter by Force*.

INVALID, a Perſon wounded, maimed, or diſabled for Action by Age. At *Chelſea* and *Greenwich* are magnificent Hoſpitals, or rather Colleges, built for the Reception and Accommodation of *Invalids*, or Soldiers wore out and diſabled in the Service. At *Paris* is a College of the ſame kind, called *les Invalides*, which is accounted one of the fineſt Buildings in that City.

INVECTED, in Heraldry, ſignifies the juſt Reverſe of *Engrail'd*; which ſee.

INVENTION, a Subtilty of Mind, or ſomewhat peculiar in a Man's Genius, which leads him to the Diſcovery of things that are new.

Invention, in Rhetoric, ſignifies the finding out, and the Choice of Arguments which the Orator is to uſe for the proving of his Point, or the moving of his Hearers Paſſions. *Invention*, according to *Cicero*, is the principal Part of Oratory. He wrote four Books *de Inventione*, whereof we have but two remaining. This *Invention* of the Orators cannot, according to my Lord *Bacon*, be properly called *Invention*; to *invent* is to diſcover things not yet known, not to recollect thoſe that are; whereas the Uſe and Office of this Rhetorical *Invention* is only out of the Stock of Knowledge laid up in the Mind, to ſelect ſuch Articles as make for the purpoſe. The ſame Author divides this Faculty of *Invention* into two Parts, the one topical, the other promptuary; the firſt points out the way in which we are to purſue the Argument, the latter only lays up and diſpoſes things, for which we have frequent occaſion in the Mind.

Invention, in Poetry, is underſtood of every thing, that the Poet adds to the Hiſtory of the Subject he has choſen, and of the Turn that he gives it.

Invention, in Painting, is the Choice which the Painter makes of the Ojects that are to enter the Compoſition of his Piece. *Du Pile* obſerves, that *Invention* is different from Diſpoſition, and that 'tis thoſe two things together that form Compoſition: For after having made a good Choice of Objects proper for the Subject, they may be ill-diſpoſed; and then tho' the *Invention* be never ſo good, the Diſpoſition or Ordonnance will be faulty, and the Piece will diſpleaſe. Of all the Parts of Painting, *Invention*, doubtleſs, is that which gives the Painter the faireſt Occaſions of ſhewing his Genius, his Imagination, and good Senſe. M. *Felibien* gives the general Name *Invention* to every thing that depends on the Genius of the Painter, as the Ordonnance, the Diſpoſition of the Subject, and even the Subject itſelf, when it is new. But the Term *Invention*, taken in this Senſe, is no Term peculiar to Painting, but agrees alſo to other Arts. In another place M. *Felibien* diſtinguiſhes *Invention* into two kinds; to wit, that which ariſes immediately from the Mind of the Painter, and that which he borrows from ſome other. The firſt is, when he invents the Subject himſelf, and the ſecond when he borrows it from Hiſtory, Fable, *&c.* but he always affixes the ſame Idea to *Invention*.

Janſon d'Almeloveen has written an Onomaſticon of *Inventions*, wherein are ſhewn, in an Alphabetical Order, the Names of the Inventors, and the Time, Place, *&c.* where they were made. *Pancirollus* has written a Treatiſe of old *Inventions* that are loſt, and new ones that have been made: *Polydore Virgil* has alſo publiſhed ſix Books of the *Inventions* of Things.

INVENTORY, in Law, is a Catalogue or Repertory orderly made of all a dead Man's Goods and Chattels, prized by four or more credible Men, which every Executor or Adminiſtrator is obliged to exhibit to the Ordinary at ſuch time as he ſhall appoint. The Uſe of the *Inventory* is borrow'd from the Civil Law, for whereas by the Law of the antient *Romans*, the Heir was obliged to anſwer all the Teſtator's Debts; by which means, Heritage ſometimes became rather prejudicial than profitable: To obviate this Inconvenience, *Juſtinian* ordained, That if the Heir would firſt exhibit a true *Inventory* of all the Teſtator's Effects, he ſhould be no farther charged than to the Value of the *Inventory*.

Inventory, in Trade, is a Liſt or particular Valuation of Goods, *&c.*

INVERSE is underſtood of a manner of working the Rule of Three, or of Proportion, that ſeems to be inverted, or to go backwards. In the Rule of Three direct the firſt Term is to the ſecond, as the third is to the fourth; that is, if the ſecond be greater than the third, or leſs than the firſt, in any Proportion, the fourth is leſs than the third in the ſame Proportion. But in the *Inverſe* Rule, the fourth Term is as much greater than the third, as the ſecond is leſs than the firſt. In the *inverſe* Rule, therefore, the Proportion is not, as the firſt is to the ſecond, ſo is the third to the fourth; but as the fourth is to the firſt, ſo is the ſecond to the third. For inſtance, in the Direct Rule we ſay, If three Yards of Tapeſtry coſt twenty Pound, how many will ſix coſt? The Anſwer is forty. In the *Inverſe* Rule we ſay, If twenty Workmen make ten Yards in four Days, in how many Days will forty do it? The Anſwer is in two Days.

INVERSE PROPORTION. See *Proportion*.

INVERSION, an Action, by which any thing is inverted, or turned backwards. Problems in Geometry and Arithmetic are often proved by *Inverſion*, or making a contrary Rule or Demonſtration.

INVERSION, in Grammar, is where the Words of a Phraſe are ranged in a manner, not ſo natural as they might be; for inſtance, Of all Vices the moſt abominable, and that which leaſt becomes a Man, is Impurity. Here's an *Inverſion*; the natural Order is this, The moſt abominable of all Vices, and that which leaſt becomes a Man, is Impurity. An *Inverſion* is not always diſagreeable, but ſometimes has a good Effect, and is uſed with Deſign.

INVEST ſignifies to confer on any one the Title of a Fee, Dignity or Office, or to ratify and confirm what has been obtained elſewhere. The Emperor pretends to a Right of inveſting ſeveral Princes both in *Germany* and *Italy*. There was formerly a particular Ceremony for the inveſting of Biſhops.

Inveſt, in the military Art, ſignifies the opening of the Siege of a Place, and the incamping an Army round it to block up all its Avenues, and to prevent all Ingreſs and Egreſs. 'Tis the Cavalry that always begin to *inveſt* a Place. The word comes from the *Latin in* and *veſtire, to clothe*.

Inveſt, in Law, ſignifies to put in poſſeſſion. A Tenant is *inveſted* by giving him a Verge or Rod into his Hands, and adminiſtring an Oath, which is call'd *Inveſting*. Others define it thus, *Inveſtire eſt in ſuum Jus aliquem introducere*, to give Livery of Seiſin or Poſſeſſion. See *Inveſtiture*.

INVESTIGATION properly ſignifies the ſearching or finding any thing out by the Tracks or Prints of the Feet. Hence the Mathematicians and Schoolmen, *&c.* came to uſe the Term in their reſpective Reſearches. *Inveſtigation* of a Theme is the Art, Method, or Manner of finding the Themes in Verbs, that is, the primitive Tenſe, Mode, and Perſon of any Verb, far removed from its Source. To underſtand a *Greek* Author, 'tis abſolutely neceſſary to be well acquainted with the Method of inveſtigating a Theme. This Theme, in the *Greek* Tongue, is the preſent Tenſe of the Indicative Mood. *Clenard* was the firſt who introduced this Term into Grammar; he gives the Title *Inveſtigatio Thematis*, to that part where he teaches the manner of finding whence any Perſon or Tenſe of a Verb proceeds, and of reducing it to its primitive Diction, or of finding its Indicative.

INVESTITURE is uſed both for the Right of inveſting any one, and the Act of inveſting him. This conſiſts in receiving the Faith and Homage, by which the Vaſſal becomes ſeized and poſſeſſed of a Fee by his Lord. *Inveſtiture* was antiently performed by a Form of Words, afterwards by the Delivery of ſuch things as had the neareſt

Reſemblance to what was transferred. Thus Land paſſed by the Delivery of a Turf, and to ſhew the Trees were transferred at the ſame time, a Bough was cut, and delivered along with it. But in After-times the things by which *Inveſtitures* were made, were not ſo ſtrictly obſerved. Many were inveſted by the Delivery of a Staff, a Glove, a Knife, a Piece of a Cloak, of a Strap, and a Girdle, by pricking the Thumb, by giving the Keys, a Spit, a Blow, a Ring, a Turf, a Bough, a Straw, *&c.* The *Inveſtiture* of a Kingdom, or Lordſhip, was performed by a Standard, a Banner, a Cap, a Sword, a Bow, Arrows, Spurs, *&c.* The Symbols were ſometimes preſerved in the Repoſitories of the Houſes, and were annexed to the Titles.

Inveſtiture was alſo uſed with regard to ſpiritual Benefices. This was frequently performed by delivering the Croſier and Paſtoral Ring. The Kings of *England* and *France*, the Emperors of *Germany*, &c. had formerly this Right: ſo that on the Death of a Prelate, his Clergy ſent the Croſier, *&c.* to their Sovereign, to be uſed at the Ceremony of inveſting his Succeſſor. The firſt who diſputed this Privilege with them, was *Gregory* VI. *Gregory* VII. did it to ſome purpoſe; he excommunicated the Emperor *Henry* IV. and forbad all Eccleſiaſtics, under pain of Excommunication, to receive the *Inveſtiture* at the hands of Secular Princes. *Paſchal* II. however, was obliged to confirm *Henry* V. in the Right of giving *Inveſtitures*; but repenting what he had done, he excommunicated him, and reduced him to a Neceſſity of begging Abſolution. At length that Emperor was obliged, by Pope *Gelaſus* II. ſolemnly to renounce all *Inveſtitures* and Elections. In antient Authors we meet with eighty different Forms of *Inveſtiture*.

INVOCATION, an Action by which we adore God, and call on him for his Aſſiſtance. The *Romaniſts* alſo practiſe *Invocation* of Saints, begging them to intercede with God in their behalf. This is one of the grand Articles of Diſpute between the *Romaniſts* and the *Reformed*.

Invocation, in Poetry, is an Addreſs which the Poet makes at the beginning of his Work, wherein he calls for the Aſſiſtance of ſome God, particularly of his Muſe, or the Divinity of Poetry. This part is abſolutely neceſſary in an Epic Poem, in regard the Poet relates things which he could not be ſuppoſed to know, unleſs ſome Deity inſpired him. Beſides, this ſerves his Readers as an Example of Piety and Devotion, which is the Foundation of his whole Work. To theſe it may be added, that the Gods themſelves are to have a part in the Action, and 'tis not decent he ſhould ſet them to work, without firſt asking them leave. Indeed in the Courſe of an Epic Poem, there are uſually ſeveral *Invocations*, particularly where any thing extraordinary or miraculous comes to be related: as when *Virgil* deſcribes the Metamorphoſis of *Æneas*'s Fleet into Sea-Nymphs; but the firſt *Invocation* is always the moſt conſiderable.

In the *Invocation*, *Boſſu* conſiders two things; the firſt is what the Poet requeſts, the ſecond to what Deity he addreſſes his Requeſt. As to the firſt, *Homer* has joined the *Invocation* ſo cloſely to the Propoſition, that he ſeems to invoke his Muſe for the whole Work. *Virgil*, on the contrary, only requeſts his Muſe to furniſh him with a part of his Subject, and even mentions what particular Part it is he deſires. After propoſing his Matter in all its Extent, he begs the Muſe to acquaint him with the Cauſe of it. As to the Deity invoked, the ſame Author obſerves, that it muſt always be, either the Divinity that preſides over Poetry in general, or that which preſides over the particular Subject of this Work. *Ovid*'s *Invocation*, in his *Metamorphoſes*, is of this latter kind, and ſo is that of *Lucretius*, thoſe of *Homer* and *Virgil* are of the former kind; they only invoke the Muſes, and thus they diſtinguiſh between the Divinities who preſide over Poetry, and thoſe who preſide over the Actions of the Poem, and who have Parts in it. By the way, it may be obſerved, that the Deities invoked are not looked on, even by the Poets themſelves, as Divine Perſonages, whence they expect any real Aſſiſtance. Under the Name of Muſe, they wiſh for the Genius of Poetry, and for all the Conditions and Circumſtances neceſſary for the Execution of their Deſign. Theſe are mere Allegories, or Manners of expreſſing themſelves poetically; juſt as when they make Gods of Sleep, of Reſt, Fame, and other natural and moral Things. Thus the Muſes come to be of all Ages, Countries, and Religions; there are *Pagan*, *Chriſtian*, *Greek*, *Latin*, and *Engliſh* Muſes.

INVOLUTION, a Term in Algebra ſignifying the raiſing of any Quantity from its Root to any Height aſſign'd. Suppoſe, for inſtance, $a+b$ were to be ſquared or raiſed to its ſecond Power; we ſay, *involve* $a+b$; that is, multiply it into itſelf, and it will produce $aa+2ab+bb$ of the ſame Quantity. And if it be *involved* again, or if that Square be multiplied by the Root, the Cube or third Power will be produced, *viz.* $aaa+3aab+3bba+bbb$. See *Evolution*.

INVOYCE: A particular Account of Commodities, Cuſtom, Proviſion, Charges, *&c.* ſent by a Merchant to his Factor or Correſpondent in another Country.

JOACHIMITES: The Name of a Sect the Followers of *Joachim*, Abbot of *Flora* in *Calabria*, who was eſteemed a Prophet while he lived, and left, at his Death, ſeveral Books of Prophecies, beſides other Works. In 1215, he and his Works were condemn'd together by the Council of the *Lateran*, and by the Council of *Arles* in 1260. It ſeems they were particularly fond of certain Ternaries. The Father, ſaid they, operated from the Beginning till the Coming of the Son; the Son from that time to theirs, *viz.* the Year 1260. and the Holy Spirit then took it up, and was to operate in his turn. They divided every thing that related to Men, Time, Doctrine, and Manner of Living, into three Claſſes or States, according to the three Perſons in the Trinity; every one of which States either had already, or was hereafter to ſucceed in its turn: and hence they call'd their Diviſions *Ternaries*. The firſt Ternary was that of Men. This comprehended three States or Orders of Men; the firſt State was that of married People, which had laſted, according to them, the whole Period of the Father; that is, the time of the Old Teſtament: The ſecond was that of Clerks, which laſted during the time of the Son: The third was that of Monks, wherein was to be an uncommon Effuſion of Grace, by the Holy Spirit. The ſecond Ternary was that of Doctrine, which they divided alſo into three: The Old Teſtament, which they attributed to the Father; the New, which they attributed to the Son; and the Everlaſting Goſpel, which they attributed to the Holy Spirit. In the Ternary of Time, they gave all the Time elapſed from the Beginning of the World till the Coming of Chriſt, to the Father; in which Time, ſaid they, the Spirit of the Law of *Moſes* prevailed. They gave to the Son the 1260 Years from Jeſus Chriſt to their Time; during which, the Spirit of Grace prevailed. Laſtly, the third, which was to come, and which they call'd the Time of the greateſt Grace, was for the Holy Spirit. Another Ternary conſiſted in the Manner of Living. In the firſt Time, under the Father, Men lived according to the Fleſh; in the ſecond, under the Reign of the Son, Men lived according to the Fleſh and the Spirit; in the third, which was to laſt to the end of the World, they were to live according to the Spirit. The *Joachimites* maintain'd, That in the laſt Times all Sacraments and Signs were to ceaſe; and the Truth was to appear openly, and without any Veil.

JOBBER, a Perſon who undertakes *Jobbs*, or ſmall Pieces of Work. In ſome Statutes it is uſed for a Perſon who buys and ſells Cattel for others.

JOGHI'S: The Name of a Sect of Heathen Religious in the *Eaſt-Indies*. They never marry, nor hold any thing in private Property; but live on Alms, and practiſe ſtrange Severities. They are ſubject to a General, who ſends them from one Country to another to preach. They are properly a kind of penitent Pilgrims, and are ſuppoſed to be a Branch of the antient *Gymnoſophiſts*. They frequent principally ſuch Places as are conſecrated by the Devotion of the People; and pretend to live ſeveral Days together without eating or drinking. After having gone thro a Courſe of Diſcipline for a certain Time, they look on themſelves as impeccable, and privileged to do any thing: upon which they give a Looſe to their Paſſions, and run into all manner of Debauchery.

JOINING OF ISSUE. See *Iſſue*.

JOINT, the Juncture, Articulation, or Aſſemblage of two or more things. *Joint*, in Architecture, is the Separation between the Stones, which is fill'd with Mortar, Plaiſter, or Cement. In Carpentery, *&c.* *Joint* ſignifies the ſeveral Manners of aſſembling or fitting Pieces of Wood together: Thus we ſay, *A Dove-tail Joint*, &c.

JOINT-RULE. See *Carpenters Joint-Rule*.

JOINT-TENANTS, in Law, are thoſe who come to, and hold Lands and Tenements by one Title, *pro Indiviſo*, or without Partition. Theſe are diſtinguiſh'd from ſole or ſeveral Tenants, from Parceners and from Tenants in Common: Antiently they were call'd *Participes*, and not *Hæredes*. They muſt jointly plead, and jointly be impleaded by others; which is common to them and Coparceners. But *Joint-Tenants* have a ſole Quality of Survivorſhip, which Coparceners have not. So that if there be two or three *Joint-Tenants*, and one hath Iſſue, and dies; then he, or thoſe *Joint-Tenants* that ſurvive, ſhall have the whole by Survivorſhip.

JOINTURE, is a Covenant whereby the Husband, or ſome other Friend in his behalf, maketh over to his Wife, on condition of Marriage, certain Lands and Tenements for Term of Life, or otherwiſe.

JOISTS, in Architecture, are thoſe Pieces of Timber framed into the Girders and Summers, on which the

Boards of the Floors are laid: They are from ſix to eight Inches ſquare, and ought ſeldom to lie at a greater diſtance from each other than ten Inches, never than twelve; nor ought they ever to be longer than ten Foot, or to lie leſs into the Wall than eight Inches. Sometimes the Carpenters furr their *Joiſts*, as they call it, that is, lay two Rows of *Joiſts* one over the other.

JONCTURE, or JOINTURE: The ſame with Joint.

IONIC, in Architecture, is the Name of one of the five Orders. The firſt Idea of it was given by the People of *Ionia*; who, according to *Vitruvius*, form'd it on the Model of a young Woman, dreſs'd in her Hair, and of an eaſy elegant Shape: whereas the Doric had been form'd on the Model of a ſtrong, robuſt Man. The *Ionic* Column is the third in order; and is diſtinguiſh'd from the Compoſite, in that it has none of the Leaves of Acanthus in its Capital; and from the Tuſcan, Doric and Corinthian, by the Volutes, or Rams-Horns, which adorn its Capital: and from the Tuſcan and Doric, too, by the Channels or Flutings in its Shaft. Theſe Flutings are in number 24. They are not always concave from the top of the Shaft to the bottom; but for that third of it next the Baſe, are fill'd up with a kind of Rods or Canes, by the *French* call'd *Batons:* and in the other two thirds, are left hollow, or ſtriated, in imitation of the Folds or Plaits of a Garment. This Column is a Medium between the Maſſive and the Delicate Orders, the Simple and the Rich. Its Height is 18 Modules, or 9 Diameters of the Column taken at the bottom. When it was firſt invented, its Height was but 16 Modules; but the Antients, to render it ſtill more beautiful than the Doric, augmented its Height, by adding a Baſe to it, which was unknown in the Doric. M. *le Clerc* makes its Entablement 4 Modules and 10 Minutes, and its Pedeſtal 6 entire Modules: ſo that the whole Order makes 28 Modules 10 Minutes. 'Tis ſaid, the Temple of *Diana* at *Epheſus*, the moſt celebrated Edifice of all Antiquity, was of this Order. At preſent it is properly uſed in Churches and Religious Houſes, in Courts of Juſtice, and other Places of Tranquillity and Devotion. This Order has one advantage above any of the reſt, and it conſiſts in this, that the fore and hind-parts of its Capital are different from its Sides. But this is attended with an Inconvenience, when the Ordonnance is to turn from the Front of the Building to the Side: To obviate which, the Capital may be made Angular, as is done in the Temple of *Fortuna Virilis. Scamozzi*, and ſome other modern Architects, have introduced the upper part of the Compoſite Capital in lieu of the *Ionic*; imitating that of the *Temple of Concord*, whoſe four Sides are alike: to render it more beautiful, the Volute may be made a little oval and inclining. See *Order* and *Volute*.

Ionic Dialect, in Grammar, is a manner of Speaking peculiar to the People of *Ionia*. At firſt it was the ſame with the antient *Attic*, but paſſing into *Aſia*, did not arrive at that Delicacy and Perfection to which the *Athenians* attain'd. Inſtead of that, it rather degenerated, in *Aſia Minor*; being corrupted with the Admiſſion of foreign Idioms. In this *Dialect* it was that *Herodotus* and *Hippocrates* wrote.

Ionic Tranſmigration was heretofore a very celebrated *Epocha*. It took its Riſe from the Retreat of the *Athenian* Colonies, who, upon the Death of *Codrus*, put themſelves under the Command of his Son *Neleus*, and eſtabliſh'd the twelve Cities of *Ionia* in *Aſia*. Theſe Colonies, according to *Eratoſthenes*, were eſtabliſh'd 50 Years after the Return of the *Heraclidæ*; and, according to *Marſham*, 77 Years after the taking of *Troy*.

Ionic Sect, was the firſt of the antient *Sects* of Philoſophy; the others were the *Italic* and *Eleatic*. The Founder of this *Sect* was *Thales*, who being a Native of *Miletus* in *Ionia*, occaſion'd his Followers to aſſume the Appellation of *Ionic*. 'Twas the diſtinguiſhing Tenet of this *Sect*, That Water was the Principle of all Natural Things. This is what *Pindar* alludes to in the beginning of his firſt *Olympic Ode*.

JOURNAL, a Day Book, Regiſter, or Account of what paſſes daily.

In Merchants Accounts, the *Journal* is a Book into which every particular Article is poſted out of the Waſte-Book, and made Debtor: This is to be very clearly expreſs'd, and fairly engroſs'd.

Journal, in Sea-Affairs, is a Regiſter kept by the Pilots; wherein particular notice is taken of every thing that happens to the Ship from Day to Day, and from Hour to Hour, with regard to the Winds, the Rhumbs, the Rake, Soundings, *&c.* in order to enable them to adjuſt their Reckoning, and determine the Place where they are.

Journal is now become a common Name for many of our News-Papers, which detail the daily Tranſactions of *Europe*. It is alſo uſed for the Title of ſeveral Books which come out at ſtated Times, and give Abſtracts, Accounts, *&c.* of the ſeveral new Books that are publiſh'd, and the ſeveral new Improvements daily made in Arts and Sciences. The firſt *Journal* of this kind was the *Journal des Sçavans*, printed at *Paris*. The Deſign was ſet on foot for the Eaſe of ſuch as are too buſy or too lazy to read the entire Books themſelves. It ſeems an excellent way of ſatisfying a Man's Curioſity, and of becoming learned upon eaſy Terms: And ſo uſeful is it found, that it has been executed in moſt other Countries, tho under a great Variety of Titles. Of this kind are the *Philoſophical Tranſactions* of *London*; the *Acta Eruditorum* of *Leipſic*; the *Republique des Lettres*; the *Bibliotheque Univerſelle & Choiſie* of M. *le Clerc*; the *Memoirs* of *Treeves*, &c. In 1692, *Juncker* printed in *Latin*, *An Hiſtorical Treatiſe of the* Journals *of the Learned*, publiſh'd in the ſeveral Parts of *Europe*; and *Wolfius*, *Burchardus*, *Gottelfius*, and *Struvius*, have done ſomething of the ſame kind. The *Memoirs of the Academy of Sciences*; thoſe of the *Academy des Belles Lettres*; The *Miſcellanea Naturæ Curioſorum*, which ended in 1706; The Experiments of the Academy *del Cimento*: The *Acta Philo-Exoticorum Naturæ & Artis*, which appear'd from *March* 1686 to *April* 1687, and which are a Hiſtory of the Academy of *Breſſe*; and the *Miſcellanea Berolinenſia*, or Memoirs of the Academy of *Berlin*, are not properly *Journals*, tho they are frequently rank'd in the Number.

Juncker and *Wolfius* give the Honour of the firſt Invention of *Journals* to *Photius*. His *Bibliotheca*, however, is not altogether the ſame with our *Journals*; nor was his Deſign the ſame. It conſiſts of Abridgments and Extracts of Books that he had read during his Embaſſy in *Perſia*.

M. *Salo* firſt began the *Journal des Sçavans* at *Paris* in 1665, under the Name of the Sieur *Hedouville*; but his Death ſoon after interrupted the Work. Upon this the Abbot *Gallois* took it up, and he in the Year 1674. gave way to the Abbot *de la Roque*, who continued it nine Years, and was ſucceeded by M. *Couſin*, who carried it on till the Year 1702, when the Abbot *Bignon* inſtituted a new Society, and committed the Care of continuing the *Journal* to them. It was now improved, and publiſhed under a new Form. This Society is ſtill continued, and M. *de Voyer* has the Inſpection of the *Journal*; which is no longer the Work of any ſingle Author, but of a great Number. The other *French Journals* are the Memoirs and Conferences on Arts and Sciences, by M. *Denis*, during the Years 1672, 1673, and 1674. New Diſcoveries in all the Parts of Phyſic by M. *de Blegny*. The *Journal* of Phyſic, begun in 1684, and ſome others diſcontinued almoſt as ſoon as begun. The *Nouvelles de la Republique des Lettres*, News from the Republic of Lettres, were begun by M. *Bayle* in 1684, and carried on by him till the Year 1687, when M. *Bayle* being diſabled by Sickneſs, his Friends M. *Bernard* and M. *de la Roque* took 'em up, and continued 'em till 1699. After an Interruption of nine Years, M. *Bernard* reſumed the Work, and continued it to the Year 1710. The *Hiſtory of the Works of the Learned*, by M. *Baſnage*, was begun in 1686, and ended in 1710. The *Univerſal Hiſtorical Dictionary*, by M. *le Clerc*, was continued to the Year 1693, and contained twenty five Volumes. The *Bibliotheque Choiſie*, of the ſame Author, began in 1703. The *Memoirs for a Hiſtory of Sciences and Arts*, uſually called *Memoires de Trevoux*, from the Place where they are publiſhed, began in 1701. The *Eſſays of Literature* reached but to a twelfth Volume in 1702, 1703, and 1704; theſe only take notice of antient Authors. The *Journal Litteraire*, by Father *Hugo*, begun and ended in 1705. At *Hambourgh* they have made two Attempts for a *French Journal*, but the Deſign failed: an *Ephemeris Sçavans* has alſo been undertaken, but that ſoon diſappeared. A *Journal des Sçavans*, by M. *Dartis*, appeared in 1694, and was dropt the Year following. That of M. *Chauvin* begun at *Berlin* in 1696, held out three Years; and an Eſſay of the ſame kind was made at *Genoa*. To theſe may be added, the *Journal Litteraire*, begun at the *Hague* in 1713, and that of *Verdun*, and the *Hiſtoire Litteraire de la Grande Bretagne*, by M. *de la Roche*, whereof there have already been four Volumes, and which is confined to *Engliſh* Books alone.

The *Engliſh Journals* of this kind are the *Hiſtory of the Works of the Learned*, begun at *London* in 1699. *Cenſura Temporum* in 1708. About the ſame time there appeared two new ones; the one under the Title of *Memoirs of Literature*, containing little elſe but an *Engliſh* Tranſlation of ſome Articles in the foreign *Journals*, by M. *de la Roche*; the other a Collection of thoſe Tracts, entitled *Bibliotheca Curioſa*, or a *Miſcellany*.

The *Italian Journals* are that of Abbot *Nazari*, which laſted from 1668 to 1681, and was printed at *Rome*. That of *Venice* began in 1671, and ended at the ſame time with the other; the Authors were *Peter Moretti* and *Francis Miletti*. The *Journal* of *Parma*, by *Roberti* and Father *Bacchini*,

chini, was dropped in 1690, and reſumed again in 1692. The *Journal* of *Ferrara*, by the Abbot *de la Torre*, begun and ended in 1691. *La Galeria di Minerva* begun in 1696, is the Work of a Society of Men of Letters. Signior *Apoſtolo Zeno*, Secretary to that Society, begun another *Journal* in 1710. under the Auſpice of the Grand Duke; it is printed at *Venice*, and ſeveral Perſons of Diſtinction have a hand in it. The *Faſti Eruditi della Bibliotheca Volante* were publiſhed at *Parma*.

The principal among the *Latin Journals* is that of *Leipſic*, under the Title of *Acta Eruditorum*, begun in 1682. *P. P. Manzani* begun another at *Parma*. The *Nova Literaria Maris Balthici*, laſted from 1698 to 1708. The *Journal* of *Hambourg* begun in 1703. The *Acta Literaria ex Manuſcriptis*, and the *Bibliotheca Curioſa*, begun in 1705, and ended in 1707, are the Work of M. *Struvius*. M. *Kuſter* and M. *Sike* in 1697, begun a *Bibliotheca* of new Books, and continued it for two Years. The *Swiſs Journal*, called *Nova Literaria Helvetica* was begun in 1702 by M. *Scheucher*; and the *Acta Medica Hafnenſia*, publiſhed by *F. Bartholin*, make five Volumes, from the Year 1671, to 1679.

There are two *Low-Dutch Journals*; the one under the Title of *Boockz alvan Europe*; it was begun at *Rotterdam* in 1692, by *Peter Rabbus*, and continued from 1702 to 1708, by Meſſieurs *Sewel* and *Gavern*; the other is by a Phyſician, called *Ruiter*, who began in 1710.

The *German Journals* of beſt Note are the *Monatlichen Unterredungen*, which held from 1689, to 1698. The *Bibliotheca Curioſa*, begun in 1704, and ended in 1707, both by M. *Tenzel*. The *Journal* of *Hannover*, begun in 1700, and continued for two Years by M. *Eccard*, under the Direction of M. *Leibnitz*, and was afterwards carried on by others. The *Theological Journal*, publiſhed by M. *Læſcher*, under the Title of *Altes* and *Neues*, that is, Old and New. A third at *Leipſic* and *Francfort*, the Authors Meſſieurs *Wolterck*, *Krauſe*, and *Groſchuffius*; and a fourth at *Hall*, by M. *Turk*.

JOURNEY-MAN, from the *French Journée*, Day or Days-Work, antiently ſignified a Perſon who wrought with another by the Day; tho now by the Statute it extends to thoſe likewiſe who covenant to work with another in their Occupation or Trade by the Year.

JOY. See *Pleaſure* and *Pain*.

JOYNDER, in Law, is the coupling or joining of two Perſons in one Action or Suit againſt another.

JOYNERY, the Art of working in Wood, and of fitting or aſſembling various Parts or Members of it together: The *French* call it *Menuiſerie*, from *Minutaria*, ſmall Work, by which it is diſtinguiſh'd from Carpentry, which is converſant in the larger and leſs curious Works.

IPECACUANHA, a little Root, about the Thickneſs of a moderate Quill, brought hither from ſeveral Places in the *Weſt-Indies*. There are three kinds of it, *viz.* a brown, a grey, and a white one; the firſt is moſt eſteemed in Phyſic; it is firm, twiſted, difficult to break, of a ſharp bitter Taſte, and grows in *Brazil* in the Gold-Mines. The Root of the grey *Ipecacuanha*, in its Virtue and Colour, is inferior to the former; it grows at the feet of Mountains, and in Meadows, and other moiſt Places. The *Spaniards* call it *Bexugillo*. The white *Ipecacuanha* differs from both the others, not only in Colour, but in Figure too, not being twiſted or rugged like them, but rather reſembling the Root of white Dittany. The *Ipecacuanha* is purgative and aſtringent, it is alſo a gentle Vomitive, and is found one of the beſt and ſureſt Remedies hitherto diſcovered for a Dyſentery.

IRASCIBLE, a Term in the old Philoſophy, applied to an Appetite, or a Part of the Soul where Anger, and the other Paſſions that animate us againſt things difficult or odious, reſide. Of the eleven kinds of Paſſions attributed to the Soul, the Philoſophers aſcribe five to the *Iraſcible* Appetite; to wit, Wrath, Boldneſs, Fear, Hope, and Deſpair; the ſix others are charged on the concupiſcible Appetite, *viz.* Pleaſure, Pain, Deſire, Averſion, Love, and Hatred. *Plato* divided the Soul into three Parts, the reaſonable, *iraſcible*, and concupiſcible Parts. The two laſt, according to that Philoſopher, are the corporeal and mortal Parts of the Soul, which give riſe to our Paſſions. *Plato* fixes the Seat of the *Iraſcible* Appetite in the Heart, of the Concupiſcible in the Liver, as the two Sources of Blood and Spirits, which alone affect the Mind.

IRENARCHA, the Name of a military Officer in the *Greek* Empire; his Buſineſs was to provide for the Peace, Security, and Tranquillity of the Provinces. In *Juſtinian's* Code 'tis mentioned, that the *Irenarchæ* are ſent into the Provinces to maintain the public Peace, by puniſhing Crimes, and putting the Laws in execution. Beſides this, there was another *Irenarcha* in the Cities, to whom belonged the preſerving of Peace, and quelling Sedition among the Citizens. This Officer was ſometimes called *Præfectus Urbis*. The Emperors *Theodoſius* and *Honorius* ſuppreſſed the Office of the *Irenarchæ*, on account of their abuſing their Truſt, and diſtreſſing and perſecuting the People, inſtead of maintaining Peace among them. The word is compoſed of the *Greek* ειρήνη, *Peace*, and ἀρχὸς, *Prince*, from ἀρχὴ, *Command*, *Office*.

IRIS, a Rainbow, occaſioned by a Reflection of the Rays of the Sun in a watry Cloud. The word is derived from the *Greek* ἐίρεμι, *to ſpeak*, *to tell*; as being a Meteor that is ſuppoſed to foretel Rain. See *Rain-bow*.

Iris ſignifies alſo that fibrous Circle next the Pupil of the Eye: See *Eye*. It alſo ſignifies thoſe changeable Colours, which ſometimes appear in the Glaſſes of Teleſcopes, Microſcopes, &c. which are ſo call'd from their Similitude to a Rain-bow: as is that colour'd Spectrum, which a Triangular Priſmatic Glaſs will project on a Wall, when placed at a due Angle in the Sun-beams.

IRON, a hard, fuſible and malleable Metal, of vaſt Uſe in the Affairs of Life. It conſiſts of an Earth, Salt, and Sulphur, but all impure, ill mix'd and digeſted, which render it extremely liable to ruſt. It is the hardeſt, dryeſt, and the moſt difficult to melt of all Metals. It may be ſoften'd by heating it often in the Fire, hammering it, and letting it cool of itſelf; and it is harden'd by extinguiſhing it in Water. It may be render'd white, by cooling it in Sal Armoniac and Quick-lime. The ſtrongeſt Temper of *Iron* is ſaid to be that, which it takes in the Juice of ſtrain'd Worms. A red-hot *Iron* applied to a Roll of Sulphur, diſſolves and ſinks into a fine Duſt. *Iron* has a great Conformity with Copper, and they are not eaſily ſeparated when ſolder'd together; whence ariſes that uncommon Friendſhip which the Poets feign between *Mars* and *Venus*. It has a great Conformity, too, with the Loadſtone. *Robault* ſays, it is itſelf an imperfect Loadſtone, and that if it be a long time expoſed in a certain Situation, it becomes a real Loadſtone; and mentions the *Iron* in the Steeple of *Notre Dame* at *Chartres* as an Inſtance.

There are ſeveral kinds of *Iron*, that have Properties very different from one other. As, 1. *Engliſh*, which is coarſe, hard, and brittle, fit for Fire-Bars and ſuch Uſes. 2. *Swediſh*, which, of all others, is the beſt uſed in *England*: It is a fine tough ſort, will beſt endure the Hammer, and is ſofteſt to file, and in all reſpects the beſt to work upon. 3. *Spaniſh*, which would be as good as the *Swediſh*, were it not ſubject to red-ſear, that is, to crack betwixt hot and cold. 4. *German Iron*. This kind goes by the Name of *Dort Square*, becauſe it is brought hither from thence, and is wrought into Bars of three quarters of an Inch ſquare. This is a coarſe *Iron*, and only fit for ordinary Uſes. There is another ſort uſed for making of Wire, which is the ſofteſt and tougheſt of all. This is not peculiar to any Country, but is indifferently made wherever *Iron* is made, tho of the worſt ſort; for 'tis the firſt *Iron* that runs from the Mine-Stone, when 'tis melting, and is reſerved purely for the making of Wire.

Generally ſpeaking, the beſt *Iron* is the ſofteſt and tougheſt, and that which, when it breaks, is of an even greyiſh Colour, without any of thoſe glittering Specks, or any Flaws or Diviſions like thoſe ſeen in broken Antimony.

To give *Iron* a blue Colour, with a Grind-ſtone rub off the black Scurf, then heat it in the Fire, and as it grows hot it will change Colour by degrees; become firſt of a gold Colour, and then of a beautiful blue. Sometimes the Workmen rub a Mixture of Indigo and Salad-Oil on it, while 'tis heating, and let it cool of itſelf.

Square and flat Bars of *Iron* are ſometimes twiſted, for Ornament; and the manner of doing it is this: After the Bar is ſquare or flat forged, they give it a flame Heat, or if the Work be ſmall, but a blood-red Heat; and then 'tis eaſy to twiſt it about as much or as little as they pleaſe, with the Tongs, Vice, or the like.

The ſeveral Heats which Smiths give their *Iron* in working, are, 1. A ſparkling or welding Heat, which is uſed when they double up their *Iron*, or weld two Pieces of *Iron* together, end to end. 2. A flame or white Heat, which is uſed when the *Iron* has not its Form and Size, but muſt be forged into both. 3. A blood-red Heat, which is uſed when the *Iron* has already its Form and Size, but wants a little hammering to ſmooth and fit it for the File. If the *Iron* be made too hot, it will red-ſear, *i. e.* break or crackle under the Hammer while 'tis working, between hot and cold. For the Manner of making and preparing *Iron*, ſee *Iron-Works*. To make *Iron* into Steel, ſee *Steel*.

IRON-MOULDS are certain yellow Lumps of Earth or Stone, found in Chalk-pits, about the Chiltern in *Oxfordſhire*, which are really a kind of indigeſted *Iron* Ore.

IRON-ORES, and *Iron-Works*: Of theſe we have a great number in moſt parts of *England*, but thoſe in the *Foreſt of Dean* in *Glouceſterſhire* are in the moſt repute. The *Ore* is there found in great abundance, differing much in Colour, Weight and Goodneſs. The beſt, call'd *Bruſh Ore*, is of a blueiſh Colour, very ponderous, and full of little ſhining Specks, like Grains of Silver; this affords the greateſt Quantity of *Iron*, but being melted alone, produceth a Metal very ſhort and brittle, and therefore not ſo fit for common Uſe. For the remedying whereof, the Workmen make uſe of another ſort of Material, termed *Cinder*, which is nothing but the Refuſe of the *Ore*, after the Metal has been extracted; and which being mingled with the other, in a due Quantity, gives it the excellent Temper of Toughneſs, that cauſeth this *Iron* to be preferred before any other brought from foreign Parts. After they have provided their *Ore*, their firſt Work is to calcine it, which is done in Kilns, much after the faſhion of our ordinary Lime-Kilns: theſe they fill up to the top with Coal and *Ore*, *ſtratum ſuper ſtratum*; that is, one Layer upon another: and ſo putting Fire to the bottom, they let it burn till the Coal be waſted, and then renew the Kilns with freſh *Ore* and Coal in the ſame manner as before. This is done without Fuſion of the Metal, and ſerves to conſume the more droſſy part of the *Ore*, and to make it malleable, ſupplying the beating, and waſhing, that are uſed in other Metals. From hence they carry it to their Furnaces, which are built of Brick or Stone, about twenty-four Foot ſquare on the outſide, and near thirty Foot in Height within, not above eight or ten Foot over where it is wideſt, which is about the middle; the top and bottom having a narrow Compaſs, much like the Shape of an Egg. Behind the Furnace are fixed two huge Pair of Bellows, the Noſes of which meet at a little hole near the bottom; theſe are compreſs'd together by certain Buttons, placed on the Axis of a very large Wheel, which is turned about by Water, in the manner of an Overſhot-Mill. As ſoon as theſe Buttons are ſlid off, the Bellows are raiſed again by the Counterpoiſe of Weights, whereby they are made to play alternately, the one going its Blaſt the time the other is riſing. At firſt they fill theſe Furnaces with *Ore* and Cinder, intermix'd with Fuel, which in theſe Works is always of Charcoal, laying them hollow at the bottom, that they may more eaſily take fire; but after they are once kindled, the Materials run together into a hard Cake or Lump, which is ſuſtained by the faſhion of the Furnace: and through this the Metal, as it meets, trickles down into the Receivers ſet at the bottom, where there is a Paſſage open, by which the Men take away the Scum and Droſs, and let out the Metal, as they ſee occaſion. Before the Mouth of the Furnace lies a great Bed of Sand, where they make Furrows of the Shape into which they would have their *Iron* caſt. As ſoon as the Receivers are full, they let in the Metal, which is made ſo very fluid by the Violence of the Fire, that it not only runs to a conſiderable diſtance, but ſtands afterwards boiling for a good while. When the Furnaces are once at work, they keep them conſtantly employ'd for many Months together, never ſuffering the Fire to ſlacken Night or Day, but ſtill ſupplying the waſting of the Fuel, and other Materials, with freſh, poured in at the top: Charcoal is uſed altogether in this Work, for Sea-Coal will not do. From theſe Furnaces the Workmen bring their Sows and Pigs of *Iron*, as they call them, to their Forges, where it is wrought into Bars.

IRON-SICK: A Ship or Boat is ſaid to be *Iron-ſick*, when her Spikes are ſo eaten with Ruſt, or Nails, and ſo worn away, that they make Hollows in the Planks, whereby the Ship leaks.

IRONY, is a Figure in Speech, wherein we plainly intend ſomething very different from what our Words expreſs; as when we ſeem to praiſe a Perſon at a time when we evidently railly and diſcommend him. Hence *Quintilian* calls it *Diverſiloquium*, *Diſſimulation*, and *Illuſion*. Thus we ſay, *John*'s a very honeſt Fellow; meaning, he's a rank Knave. The *Irony* diſcovers itſelf rather in the Tone of the Speaker than in the Words. It is derived from the *Greek*, εἰρωνεία, *Diſſimulation*.

IRRADIATION, ſignifies an Emanation or ſhooting out of ſubtile Effluvia from one Body to another. See *Quality*.

IRRATIONAL NUMBERS, are the ſame as *Surd Numbers*; which ſee.

Irrational Quantities: See *Rational Quantities*.

IRREGULAR, ſomething that deviates from the common Forms or Rules. Thus we ſay an *irregular* Fortification, an *irregular* Building, an *irregular* Figure, &c. In Grammar there are ſeveral Declinations and Conjugations that are *irregular*, anomalous, or Heteroclites. Among Caſuiſts the Term *irregular* is applied to a Perſon who is unqualified for entering into Orders, as being a Baſtard, Maimed, &c. or to an Eccleſiaſtic, who is interdicted, ſuſpended, or cenſured, and by that means rendered incapable of holding a Benefice, or diſcharging any of the ſacred Functions.

IRREGULAR BODIES, are Solids not terminated by equal and like Surfaces.

IRREGULAR COLUMN, in Architecture, is ſuch a one as not only deviates from the Proportions of any of the five Orders, but whoſe Ornaments, whether in the Shaft or Capital, are abſurd and ill-choſen.

IRREPLEVIABLE, in the Common Law, ſignifies what may not be replevied, or ſet at large, upon Sureties.

IRRORATION, a kind of Tranſplantation uſed for the Cure of certain Diſeaſes. It conſiſts in the ſprinkling every Day either Trees, or other proper Plants, with the Urine or Sweat of the Patient, or with the Water wherein his Body, or at leaſt the Part affected, has been waſhed, till ſuch time as the Diſeaſe is removed. As ſoon as the Sprinkling has been made, they throw freſh Earth on it, in order to prevent the Virtue of the Mumia, that is, of the vital Spirit of the Liquid, from evaporating into the Air.

ISCHIADIC, an Epithet given by the Phyſicians to two Veins of the Foot, which terminate in the Crural. The firſt, called the *Great Iſchiadic*, is formed by ten little Branches, proceeding from the Toes, which uniting together, paſs by the Muſcles of the Calf of the Leg. The leſſer *Iſchiadic* is formed from ſeveral Ramifications, proceeding from the Skin and Muſcles, which incompaſs the Articulation of the Thigh. They are alſo called *Sciatic*. The Word is derived from the *Greek* ἰσχίας, or ἰσχίον, *Coxa*, *the Hip*.

ISCHIATICA. See *Sciatica*.

ISCHIUM, in Anatomy, is the Name of one of the Bones of the Thigh, wherein is a deep Cavity, called *Cotyla*, or *Acetabulum*, which receives the Head of the Thigh-Bone. This Cavity is incompaſſed with a cartilaginous Circle, which ſerves to ſtrengthen the Thigh. The *Iſchium* is one of the *Oſſa Innominata*, which ſee. The word is derived from the *Greek* ἰσχος, *Robur*, *Strength*.

ISCHURIA, in Phyſic, is a Diſeaſe that conſiſts in an entire Suppreſſion of Urine. It is occaſioned by any thing that may obſtruct the Paſſages of the Reins, Ureters, or the Neck of the Bladder, as Sand, Stone, Phlegm, &c. It may alſo be occaſioned by an Obſtruction of the Nerves, which paſs to the Reins or Bladder, as we ſee it is, in a Paralyſis of the lower Parts from the Diaphragm. The too great Diſtenſion of the Bladder may alſo produce the ſame Effect; for the Fibres being much lengthened, and conſequently condenſed, the Spirits neceſſary for their Contraction cannot get Admittance; whence it is that Perſons, who have retained their Urine a long time, find a great deal of difficulty in diſcharging it. The word is derived from the *Greek* ἰσχω, *I ſtop*, and ȣ̃ρον, *Urine*.

ISELASTIC, the Name of a kind of Combat, or Game, celebrated in the Cities of *Greece* and *Aſia* in the time of the *Roman* Empire. The Victor at theſe Games had very conſiderable Privileges conferred on him, after the Example of *Auguſtus*, and the *Athenians*, who did the like to the Conquerors at the *Olympic*, *Pythian*, and *Iſthmian* Games. They were crowned on the ſpot, immediately after their Victory, had Penſions allowed them, were furniſhed with Proviſions at the public Coſt, and were carried in Triumph into their Country.

ISIA, Feaſts and Sacrifices antiently ſolemnized in honour of the Goddeſs *Iſis*. The *Iſia* were full of abominable Impurities, and for that reaſon thoſe who were initiated were obliged to take an Oath of Secrecy. They held for nine Days ſucceſſively, but were ſo abominable, that the Senate aboliſhed them at *Rome*, under the Conſulate of *Piſo* and *Gabinius*. Two hundred Years after this they were re-eſtabliſhed by the Emperor *Commodus*, who himſelf aſſiſted at them, appearing among the Prieſts of that Goddeſs with his Head ſhaven, and carrying the *Anubis*.

ISIACI, Prieſts of the Goddeſs *Iſis*. *Dioſcorides* tells us, they bore a Branch of Marine Abſynthium in their hands inſtead of Olive. They ſung the Praiſes of the Goddeſs twice a-day, *viz.* at the riſing of the Sun, when they opened her Temple; after which they begged Alms the reſt of the Day, and, returning at night, repeated their Oriſons, and ſhut up the Temple. Such was the Life and Office of the *Iſiaci*; they never covered their Feet with any thing but the thin Bark of the Tree *Papyrus*, which occaſioned *Prudentius* and others to ſay they went barefooted. They wore no Garments but Linnen, becauſe *Iſis* was the firſt who taught Mankind the Culture of this Commodity. See *Diodorus Siculus*, and *Plutarch*'s *Iſis* and *Oſiris*.

ISING-GLASS: See *Icthyocolla*.

ISLAND, a Tract of Ground encompaſſed round with the Sea, or with Rivers. This Term is oppoſed to the Continent or *Terra Firma*. Some conclude from *Gen.* x. 5. and from *Eccl.* xliii. 25. that *Iſlands* are as antient as the World, and that there were ſome at the beginning. Whatever become of this Proof, 'tis by no means probable, that the large *Iſlands*, far remote from the Continent, are new, or that they either aroſe out of the Sea, or were torn from the main Land. Nor is it leſs true, that there have been new *Iſlands* formed, by the caſting up of vaſt Heaps of Clay, Mud, Sand, *&c.* as that for inſtance of *Tſongming*, in the Province of *Tonquin* in *China*: or by the Violence of the Sea, which have torn off large Promontories from the Continent, as the Antients imagined *Sicily*, and even *Great Britain* were formed. It is alſo certain, that ſome have emerged above the Waves, as *Santorini* formerly, and three other Iſles near it lately; the laſt in 1707, which roſe from the bottom of the Sea after an Earthquake, that was ſuppos'd to have looſen'd it from its hold.

Several Naturaliſts are of opinion, that the *Iſlands* were formed at the Deluge; others think they have been ſeparated from the Continent by violent Storms, Inundations, and Earthquakes. Theſe laſt have obſerved, that the *Eaſt-Indies*, which abound in *Iſlands* more than any other part of the World, are likewiſe more annoyed with Earthquakes, Tempeſts, Lightning, Vulcano's, *&c.* than any other Part. *Varenius* thinks moſt of theſe Opinions true in ſome Inſtances, and believes that there have been *Iſlands* produced each of theſe ways. *St. Helena*, *Aſcenſion*, and other ſteep rocky *Iſlands*, he ſuppoſes to have become ſo, by the Sea's overflowing their neighbouring Champains. By the heaping up huge Quantities of Sand, and other terreſtrial Matters, he thinks the *Iſlands* of *Zealand*, *Japan*, &c. were form'd. *Sumatra* and *Ceylon*, and moſt of the *Eaſt-Indian Iſlands* he thinks were rent off from the main Land; and concludes, that the *Iſlands* of the *Archipelago* were form'd in the ſame way; imagining it probable, that *Deucalion's* Flood might contribute towards it. The Antients had a Notion, that *Delos*, and ſome few other *Iſlands*, roſe from the bottom of the Sea. Which, how fabulous ſoever it may appear, agrees with later Obſervations. *Seneca* takes notice that the *Iſland Theraſia* roſe thus out of the *Ægean* Sea in his time, of which the Mariners were Eye-witneſſes. They had alſo an opinion, that there are ſome *Iſlands* which ſwim in the Sea. *Thales*, indeed, thought that the whole Earth which we inhabit, floated, thus, in the Sea; but his Opinion is eaſily refuted, the Channel of the Sea being found continuous to the Shore: But floating *Iſlands* are no ways improbable, eſpecially if the Earth whereof they conſiſt be light and ſulphureous. *Seneca* ſays, that near the *Cutyliæ* he ſaw ſuch an *Iſland*, and mentions ſeveral others of the ſame kind; and it was even a common Opinion among the Antients, that all the *Cyclades* had done the ſame. *Gryphiander* has written a *Latin* Treatiſe expreſly on *Iſlands*, *de Inſulis*.

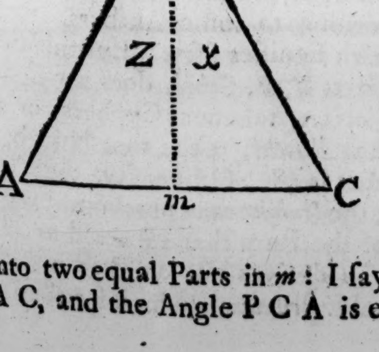
ISLES, in Architecture, are Sides or Wings of a Building.

ISOCHRONAL LINE, is that in which a heavy Body is ſuppoſed to deſcend without any Acceleration. *Leibnitz* in the *Act. Erud. Lipſ.* for *February* 1689, hath a Diſcourſe on this Subject, in which he ſhews, That a heavy Body with a degree of Velocity acquired by the Deſcent from any Height, may deſcend from the ſame Point, by an infinite Number of *Iſochronal* Curves, which are all of the ſame Species, differing from one another only in the Magnitude of their Parameters, ſuch as are all the Quadrato-Cubical Paraboloids, and conſequently ſimilar to one another. He ſhews alſo, there, how to find a Line, in which a heavy Body deſcending ſhall recede uniformly from a given Point, or approach uniformly to it.

ISOCHRONE; a Term applied to ſuch Vibrations of a Pendulum as are performed in equal Times: of which kind are all the Vibrations or Springs of the ſame Pendulum, whether the Arcs it deſcribes be longer or ſhorter; for when it deſcribes a ſhorter Arc, it moves ſo much the ſlower; and when a long one, proportionably faſter.

ISOMERIA, in Algebra, is a Method of freeing an Equation from Fractions, which is done by reducing all the Fractions to one common Denominator, and then multiplying each Member of the Equation by that common Denominator. Thus *e.g.* $\frac{1}{4}x^2 + axx \frac{\qquad}{a} = abb$ becomes $ax^2 + 4aaxx - 4bcx = 4aabb$.

ISOPERIMETRAL FIGURES, are ſuch as have equal Perimeters or Circumferences.



ISOSCELES Triangle, is a Triangle which hath two equal ſides; to which it may be added, that the Angles oppoſite to the equal Sides are equal, and a Line drawn from the Top or Vertex, cutting the Baſe into two equal Parts, is perpendicular to the Baſe. *e.g.* Let the *Iſoſceles* Triangle be A P C, and let its Baſe A C be ſuppoſed to be divided into two equal Parts in *m*: I ſay, P *m* is perpendicular to A C, and the Angle P C A is equal to the Angle P A C; for the Triangle Z hath all its Sides equal to thoſe of X, and therefore muſt have all its Angles equal alſo reſpectively to thoſe in X: And then the Angle $PmA = PmC$, becauſe they are both right; therefore P *m* is perpendicular to A C, and the Angle $PAm = PCm$.

ISSUANT, a Term in Heraldry, underſtood of a Lion, or other Animal, in a Coat of Arms, that ſeems juſt iſſuing out from under a Chief, Feſſe, a Houſe, a Wood, or the like, and only ſhews half his Body. It is not eaſy to diſtinguiſh the Lion *Iſſuant* from the Lion *Naiſſant*. Some ſay, the *Iſſuant* is that which comes out from behind the Field of ſome ample Ordinary, ſhewing his Head, Neck, the Tips of his Fore-Legs and his Tail againſt the chief of the Coat; whereas the *Naiſſant* has its Riſe about the middle of the Field, and ſhews all his Fore-part, with the Tip of his Tail, as if he were riſing out of the Earth.

ISSUE, is a Term in Common Law, having divers Applications; ſometimes it is taken for the Children begotten between a Man and his Wife; ſometimes for Profits growing from Amerciaments or Fines; and ſometimes from Profits of Lands and Tenements; ſometimes for that Point of Matter depending in Suit, whereupon the Parties join, and put their Cauſe to the Tryal of the Jury: And yet in all theſe it hath but one Signification, which is an Effect of a Cauſe preceding; as the Children are the Effect of the Marriage between the Parents: The Profits growing to the King or Lord, from the Puniſhment of any Man's Offence, is the Effect of his Tranſgreſſion: The Point referred to the Tryal of twelve Men, is the Effect of Pleading or Proceſs. *Iſſue*, in this laſt Signification, is either General or Special.

General Iſſue ſeemeth to be that whereby it is referred to the Jury to bring in their Verdict, whether the Defendant hath done any ſuch thing as the Plaintiff lays to his charge: For example, If it be an Offence againſt any Statute, and the Defendant plead Not Guilty; this being put to the Jury, is call'd the *General Iſſue*. And if a Man complain of a private Wrong, which the Defendant denieth, and pleads no Wrong, nor Diſſeiſin; and if this be referred to the Jury, it is likewiſe the *General Iſſue*.

The *Special Iſſue* then muſt be that, when Special Matters being alledged by the Defendant in his Defence, both Parties join thereupon, and ſo grow rather to a Demurrer, if it be *Quæſtio Juris*; or to a Tryal by the Jury, if it be *Quæſtio Facti*.

ISSUES, in Phyſic, are ſmall artificial Apertures in a fleſhy part of the Body, to drain off ſuperfluous Moiſture, or give vent to any noxious Humour. They are uſually made in the Arms, Legs, or Back, either by Cauſtics or Inciſion. Caution is uſed to place them about the middle of a Muſcle, that the neceſſary Motion of the Parts may not incommode them, or pain the Patient. There is an eaſy way of making an *Iſſue*, which ſucceeds beſt in Children; 'tis done after this manner: Having applied a ſmall piece of bliſtering Plaiſter, about the bigneſs of a ſmall Pea, to the Part where you would have an *Iſſue*, and letting it lie on for a few Hours, it will cauſe a Bliſter; the Skin being rais'd, apply a Pea as uſual, and compreſs it tight with a Bandage, till by degrees it ſinks in, and forms an *Iſſue*. *Iſſues* are very uſeful in many Diſtempers, ſeveral of which, when obſtinate, cannot be cured without them; as an *Hydrocephalus*, *Opthalmia*, *Old Ulcers*, &c.

ISTHMUS, a narrow Neck or Slip of Ground that joins two Continents, or joins a Cherſoneſus or Peninſula to the *Terra firma*; and ſeparates two Seas. The moſt celebrated *Iſthmus's* are thoſe of *Panama* or *Darien*, which joins *North* and *South America*; that of *Suez*, which connects *Aſia* and *Africa*; that of *Corinth*, or *Peloponneſus*, in the *Morea*; that of *Crim-Tartary*, otherwiſe called the *Taurica Cherſoneſus*; that near the Iſland of *Romania* and *Eriſſo*, or the *Iſthmus* of the *Thracian Cherſoneſus*, twelve Furlongs broad; being that which *Xerxes* undertook to cut through. The Antients had ſeveral Deſigns of cutting the *Iſthmus* of *Corinth*, which is a rocky Hillock, about ten Miles over; but they were all vain, the Invention of Sluices being not then known. There have been Attempts, too, for cutting the *Iſthmus* of *Suez*, to make a Communication between the *Red-Sea* and the *Mediterranean*. The word comes from the *Greek* ἰσθμὸς, *a Neck*. Hence Anatomiſts uſe the Term for ſeveral Parts of the human Body, particularly that narrow part of the Throat ſituate betwixt the two Tonſils; and the Ridge that ſeparates the two Noſtrils.

ISTHMIAN GAMES were ſacred Sports, the third, in order, of thoſe ſo much celebrated in antient *Greece*. *Plutarch*, in the Life of *Theſeus*, tells us, they were inſtituted by that Hero in imitation of *Hercules*, who had before inſtituted the *Olympian* Games; but *Archias* refers their Inſtitution to *Melicerta* or *Palæmon*, whom the *Latins* call *Portunus*. Others ſay they were inſtituted by *Niſis*, Son of *Neptune*; and others by *Siſyphus*, Brother of *Athamas*,

mas, King of *Corinth*, about 1350 Years before Chriſt: however this be, 'twas in the *Iſthmus* of *Corinth* they were celebrated, and hence aroſe their Name. *Archias* and others ſay, the Conqueror's Prize at theſe Games was a Crown of Parſley. *Plutarch* and *Strabo* ſay, it was at firſt a Crown of Pine, that this was afterwards changed for one of Parſley, but that at length the Pine was reſumed; and to this was added a Reward of 100 Silver Drachmæ. Theſe Games were held every three Years, and eſteemed ſo ſacred, that after the Deſtruction of *Corinth*, the *Sicyonians* were charged with the keeping them up. They were ſo celebrated, and the Concourſe at them was ſo great, that only the Principals of the moſt remarkable Cities could have place in them. The *Athenians* had only as much room allotted them as the Sail of a Ship, which they ſent yearly to *Delos*, could cover.

ITALIAN, the Language ſpoke in *Italy*. This Tongue is derived principally from the *Latin*, and of all the Languages formed from the *Latin*, there is none that carries with it a more viſible Character of its Original than the *Italian*. It is accounted one of the moſt perfect among the modern Tongues, containing Words and Phraſes to repreſent all Ideas, to expreſs all Sentiments, to deliver one's ſelf on all Subjects, to name all the Inſtruments and Parts of Arts, *&c.* 'Tis complained indeed, that it has too many Diminutives and Superlatives, or rather Augmentatives; but without any great reaſon: for if thoſe words convey nothing further to the Mind beſides the juſt Ideas of Things, they are no more faulty than our Pleonaſms and Hyperbole's. The Character of the *Italian* Tongue it muſt be owned, however, is very different from that of our own, which is the Reaſon perhaps why we are ſo apt to find fault with it: for though the *Italian* be proper for all kinds of Writing, for all Stiles, and for all Subjects; yet there are many of their celebrated Authors that don't ſucceed when tranſlated into *Engliſh*, and which an *Engliſhman* cannot read, with pleaſure, even in their Original. The Language correſponds to the Genius of the People, they are ſlow and thoughtful, and accordingly their Language runs heavily, though ſmoothly, and many of their Words are lengthened out to a great degree. They have a good Taſte in Muſic, and to gratify their Paſſion this way, have altered abundance of their primitive Words, leaving out Conſonants, taking in Vowels, ſoftening and lengthening out their Terminations for the ſake of the Cadence. Hence the Language is rendered extremely muſical, and ſucceeds better than any other in Opera's, and ſome Parts of Poetry, but it fails in Strength and Nerves; hence alſo a great part of its Words, borrowed from the *Latin*, become ſo far diſguiſed, that they are not eaſily known again. The Multitude of Sovereign States into which *Italy* is divided, has given occaſion to a great Number of different Dialects in that Language; which, however, are all good in the Place where they are uſed. The *Tuſcan* is uſually preferred to the other Dialects, and the *Roman* Pronunciation to that of the other Cities; whence came the *Italian* Proverb, *Lingua Toſcana in Bocca Romana.* The *Italian* is generally pretty well underſtood throughout *Europe*, and is frequently ſpoken in *Germany*, *Poland*, and *Hungary*. At *Conſtantinople*, in *Greece*, and in the Ports of the *Levant*, the *Italian* is uſed as commonly as the Language of the Country; indeed in thoſe Places it is not ſpoke ſo pure as in *Tuſcany*, but is corrupted with many of the proper Words and Idioms of the Place, whence it takes a new Name, and is called *Frank Italian*. See *Language*.

ITALIAN HOURS, are the 24 Hours of the natural Day, accounted from the Sun-ſetting of one Day to the ſame again the next Day. This way of reckoning was uſed by the *Jews* of old, and by the *Italians* to this day.

ITALIC, the Name of a Character in Printing. See *Printing*.

Italic, the Name of a Sect of antient Philoſophers, founded by *Pythagoras*; they were ſo called, becauſe that Philoſopher taught in *Italy*, ſpreading his Doctrine among the People of *Tarentum*, *Metapont*, *Heraclea*, *Naples*, &c. See *Pythagoric*.

ITCH, a Diſeaſe of the Skin, wherein it is corrupted by the ouzing out of certain ſharp ſaline Humours, which gather into Puſtules, and occaſion a Pruritus or Itching. There are two kinds of *Itch*, a humid and a dry kind. The latter has been uſually ſuppoſed to be owing to an atrabilarious Humour, and the former to a ſaline Pituita: They are both contagious. Dr. *Bononio* has given a much more rational Account of the Cauſe of this Diſtemper than any Author before him. He examined ſeveral Globules of the Matter pick'd out of the Puſtules of itchy Perſons with a Microſcope, and found them to be minute living Creatures, in ſhape reſembling a Tortoiſe, of briſk Motion, with ſix Feet, a ſharp Head, and two little Horns at the end of the Snout. Hence he makes no ſcruple to impute this contagious Diſeaſe to the continual biting of theſe Animalcules in the Skin, by means of which ſome Portion of the Serum ouzing out thro the ſmall Apertures of the *Cutis*, little watry Bladders are made, within which the Inſects continuing to gnaw, the Infected are forced to ſcratch, and by ſcratching increaſe the Miſchief; breaking not only the little Puſtules, but the Skin too, and ſome little Blood-Veſſels, and ſo make Scabs, cruſty Sores, *&c.* Hence we may eaſily perceive how the *Itch* comes to be catching, ſince theſe Creatures, by ſimple Contact, eaſily paſs from one Body to another, their Motion being wonderfully ſwift, and they crawling on the Surface of the Body, as well as under the *Cuticula*. Hence alſo we learn the reaſon of the Cure of this Diſeaſe by Lixivial Waſhes, Baths and Ointments, made of Salts, Sulphurs, Mercury, *&c.* theſe being very powerful in killing the Vermine lodged in the Cavities of the Skin, which ſcratching will never do; they being too minute to be caught under the Nails. And if in Practice it is found that this Diſeaſe, after it ſeem'd to be cured by Unction, frequently returns again; this is eaſily accounted for, ſince tho' the Ointment may have killed all the living Creatures, yet it may not, poſſibly, have deſtroy'd all their Eggs laid, as it were, in the Neſts of the Skin; from which they afterwards breed again, and renew the Diſtemper.

ITINERANT JUDGES, or *Juſtices*, are ſuch as were formerly ſent with Commiſſions into divers Countries, to hear chiefly ſuch Cauſes as were call'd Pleas of the Crown; the ſame with *Juſtices in Eyre:* which ſee.

ITINERARY: The Deſcription that a Traveller makes of the Courſe of his Journey, and of the Curioſities, *&c.* that he obſerved. The *Itinerary* of *Antonine* ſhews all the grand *Roman* Roads in the Empire, and all the Stations of the *Roman* Army. It was made by order of the Emperor *Antoninus Pius*, but is now very defective, having ſuffer'd extremely under the hands of the Copiſts and Editors.

JUBILEE, a Church-Solemnity, or Ceremony obſerved at *Rome*, wherein the Pope grants a Plenary Indulgence to the Univerſal Church; as many of them, at leaſt, as viſit the Churches of St. *Peter* and St. *Paul* at *Rome*. The *Jubilee* was firſt eſtabliſh'd by *Boniface* VIII. in 1300. in favour of thoſe who ſhould go *ad Limina Apoſtolorum*, and was only to return every hundred Years. The firſt Celebration brought in ſuch ſtore of Wealth to *Rome*, that the *Germans* call'd this the Golden Year. This occaſion'd *Clement* VI. to reduce the Period of the *Jubilee* to 50 Years. *Urban* VI. appointed it to be held every 35 Years, that being the Age of our Saviour; and *Sixtus* IV. brought it down to every 25, that every Perſon might have the Benefit of it once in his Life. *Boniface* IX. granted the Privilege of holding *Jubilees* to ſeveral Princes and Monaſteries: For inſtance, to the Monks of *Canterbury*, who had a *Jubilee* every 50 Years.

Jubilees are now become more frequent, and the Pope grants them as often as the Church or himſelf have occaſion for them. There is uſually one at the Inauguration of a new Pope. To be entitled to the Privileges of the *Jubilee*, the Bull enjoins Faſting, Alms, Prayers. It gives the Prieſts a full Power to abſolve, in all caſes, even thoſe otherwiſe reſerved to the Pope; to make Commutations of Vows, *&c.* in which it differs from a Plenary Indulgence. During the Time of *Jubilee*, all Indulgences are ſuſpended.

One of our Kings, *viz.* *Edward* II. cauſed his Birth-Day to be obſerved in manner of a *Jubilee*, when he became 50 Years of Age; but not before or after. This he did, by releaſing Priſoners, pardoning all Offences but Treaſon, making good Laws, and granting many Privileges to the People.

There are particular *Jubilees* in certain Cities, when ſeveral of their Feaſts fall on the ſame Day: At *Puy* in *Velay*, for inſtance, when the Feaſt of the *Annunciation* happens on *Good Friday*; and at *Lyons*, when the Feaſt of St. *John Baptiſt* concurs with the Feaſt of *Corpus Chriſti.* In 1640 the *Jeſuits* celebrated a ſolemn *Jubilee* at *Rome:* that being the Centenary, or hundredth Year from their Inſtitution; and the ſame Ceremony was obſerved in all their Houſes throughout the World.

Jubilee, among the *Jews*, was underſtood of every fiftieth Year, being that following the Revolution of ſeven Weeks of Years; at which time all the Slaves were made free, and all Inheritances reverted to their antient Owners.

The word *Jubilee*, according to ſome Authors, comes from the *Hebrew Jobel*, which ſignifies fifty. But this muſt be a Miſtake; for the *Hebrew* יובל, *Jobel*, does not ſignify fifty; neither does its Letters, taken as Cyphers, or according to their Numerical Power, make that Number; being 10, 6, 2, and 30, that is 48. Others ſay, that *Jobel* ſignifies a Ram, and that the *Jubilee* was proclaim'd with a Ram's-horn, in memory of the Ram that appear'd to *Abraham* in the Thicket. *Maſius* derives the Word from *Jubal*, the firſt Inventor of Muſical Inſtruments, which for that reaſon were call'd by his Name; whence the words *Jobel* and *Jubilee* came to ſignify the Year of Deliverance and Remiſſion, becauſe proclaim'd with the Sound of one of thoſe Inſtruments, which at firſt was no more than the Horn of a Ram.

Jubilee, or *Jubilæus*, is alſo uſed among the *Romaniſts* to ſignify a Religious who has been fifty Years in a Monaſtery, or an Eccleſiaſtic who has been in Orders fifty Years. Such veteran Religious are diſpenſed with in ſome places from attending Mattins, or a ſtrict Obſervation of any other of their Rules. *Jubilæus* alſo ſignified a Man a hundred Years old; and a Poſſeſſion or Preſcription for fifty Years. *Si Ager non invenietur in Scriptione, inquiratur de Senioribus; & ſi ſub certo Jubilæo non ſit, ſine Vituperatione maneat in æternum.*

JUDAICUS LAPIS, a grey, ſoft, brittle Stone, in form of an Acorn, having Lines drawn regularly on its Surface, as if they were turn'd: It is uſed in Phyſic to diſſolve the Stone in the Bladder.

JUDAISM: The Religious Doctrines and Rites of the *Jews*. *Judaiſm* was warranted by Divine Authority, being deliver'd to that People immediately from Heaven; it was, however, but a temporary Diſpenſation, and was to give way, at leaſt the Ceremonial Part of it, at the Coming of the *Meſſias*. For a compleat Syſtem of *Judaiſm*, ſee the Books of *Moſes*. *Judaiſm* was antiently divided into ſeveral Sects; the principal whereof were the *Phariſees*, *Sadduces*, and *Eſſenians:* which ſee. At preſent there are but two, *viz.* the *Karaites*, who admit of no Rule of Religion, but the Law written by *Moſes*; and the *Rabbiniſts*, who add to the Law, the Traditions of the *Talmud*. It has been obſerved, that *Judaiſm*, of all other Religions, is that which is the moſt rarely abjured. In the 18th of *Edward* I. the Parliament granted the King a Fifteenth for the Expulſion of *Judaiſm*. See *Cuneus*, *Spencer*, and *Goodwin*.

In *England*, formerly, the *Jews* and all their Goods belonged to the chief Lord where they lived, and he had ſuch abſolute Property in them, that he might ſell them, for they had not liberty to remove to another Lord without leave. *Mat. Paris* tells us, that *Henry* III. ſold the *Jews* to Earl *Richard* his Brother for a Term of Years, that *quos Rex excoriaverat, Comes eviſcereraret.*

They were diſtinguiſhed from the Chriſtians both living and dying, for they had proper Judges and Courts wherein their Cauſes were tried, and they wore a Badge on their outward Garments upon the Breaſt, in the ſhape of a Table, and were fined if they ſtirred abroad without ſuch Badges. They were never buried in the Country, but brought up to *London*, and buried without the Walls.

JUDGE, an Officer appointed by the Powers of any Country, to diſtribute that Juſtice to their Subjects which they can't adminiſter in Perſon. The Character of *Judge* is a part of the Regal Authority, whereof the Prince diveſts himſelf.

The *Engliſh Judges* are all choſen out of the Sergeants at Law, and are conſtituted by Letters Patents. Their Commiſſions are bounded with this Limitation, *Facturi quod ad Juſtitiam pertinet ſecundum Legem & Conſuetudinem Angliæ*; and at their Creation they take an Oath, that they will indifferently miniſter Juſtice to all them that ſhall have any Suit or Plea before them; and this they will not forbear to do, tho the King by his Letters, or by expreſs Word of Mouth, ſhould command the contrary. They have Salaries of 1000 *l. per annum* each from the King, beſides very conſiderable Perquiſites, and this Salary is granted them, *quamdiu bene ſe geſſerint*, to keep them free and independent of the Court. See *Juſtices*.

Judge, in Scripture, is underſtood of certain eminent Perſons choſen by God himſelf to govern the *Jews*, from the time of *Joſhua* to the Eſtabliſhment of the Kings. The *Judges* were not ordinary Magiſtrates, being only ſent on extraordinary Occaſions, as, to head the Armies, to deliver the People from their Enemies, *&c.* *Salian* has obſerved, that they not only preſided in the Courts of Juſtice, but were alſo at the Head of Councils, of Armies, and of every thing that concerned the Government of the State; tho' they never aſſumed the Title either of Princes, Governors, or the like. The ſame Author has obſerved ſeven Points wherein they differed from Kings: (1.) They were not hereditary. (2.) They had no abſolute Power of Life and Death, but only according to the Laws, and dependantly of them. (3.) They never undertook War at their own pleaſure, but only when they were appointed by God, or called to it by the People. (4.) They exacted no Tribute. (5.) They did not ſucceed each other immediately, but after the Death of one there was frequently an Interval of ſeveral Years e'er a Succeſſor was appointed. (6.) They did not uſe the Enſigns of Sovereignty, the Scepter or Diadem. (7.) They had no Authority to make any new Laws, but were only to take care of the Obſervation of the Laws of *Moſes*. In ſome reſpects they reſembled Kings, *viz.* 1. Their Authority was given them for Life, and not for a limited Time. 2. They ruled alone, and without any dependence, which occaſioned *Joſephus* to call their State Monarchical. The *Hebrews* were governed by fifteen *Judges* for the Space of 340 Years, *viz.* from the time of *Othniel* their firſt, to that of *Heli* their laſt *Judge*.

JUDGES, or the Book of *Judges*, is a Canonical Book of the Old Teſtament, containing the Hiſtory of the *Judges*, whereof we have been ſpeaking. The Author is not known. 'Tis probable the Work did not come from any ſingle Hand, being rather a Collection of ſeveral little Hiſtories, which at firſt were ſeparate, but were afterwards collected by *Eſdras* or *Samuel* into a ſingle Volume; and, in all likelihood, were taken from the antient Journals, Annals, or Memoirs, compoſed by the ſeveral *Judges*.

JUDGMENT, a Faculty of the Soul, by which ſhe perceives the Relation that is between two or more Ideas. Thus when we judge that the Sun is greater than the Moon, the Underſtanding firſt compares the two Ideas of the Sun and the Moon, and finding the Idea of the Sun greater than that of the Moon, the Will perfectly acquieſces in that Perception, nor puts the Mind upon any farther Enquiry. 'Tis not the Underſtanding then that judges, as is ordinarily thought; *Judgments* and Reaſonings, on the part of the Underſtanding, are but mere Perceptions: 'tis the Will alone that judges in reality, in acquieſcing in what is repreſented to it by the Underſtanding. The only Difference, then, between Perception, Judgment, and Reaſoning, ſo far as the Underſtanding is concerned in them, is this, That it perceives a thing ſimply, without any relation to any other thing in a ſimple Perception, that it perceives the Relations between two or more things in *Judgments*, and laſtly that it perceives the Relations that are between the Relations of things in Reaſonings: So that all the Operations of the Underſtanding are in effect no more than pure Perceptions.

When we perceive, for inſtance, twice 2, or 4, this is no more than a ſimple Perception; when we judge that twice 2 are 4, or that twice 2 are not 5, the Underſtanding does no more than barely perceive the Relation of Equality that is between twice 2 and 4, or of Inequality between twice 2 and 5: Further, Reaſoning conſiſts in perceiving the Relation, not between two or more things, for that would be a *Judgment*, but of two or more Relations of two or more things. Thus when I conclude that four being leſs than ſix, twice two being four, are by conſequence leſs than ſix; I perceive not only the Relation of Inequality between two and two and ſix, (for this were only a *Judgment*) but alſo the Relation of Inequality between the Relation of twice 2 and 4, and the Relation between 4 and 6: Which conſtitutes a Reaſoning. The Underſtanding therefore only perceives, and 'tis the Will that judges, and reaſons in aſſenting voluntarily to what the Underſtanding repreſents.

Indeed, when the things which we conſider, appear clear, and perfectly evident, it ſeems as if it were not voluntarily that the Mind conſents to 'em; whence we are led to think, that 'tis not the Will, but the Underſtanding, that judges of 'em. But to clear this Point, it muſt be obſerved, that the things which we conſider, never appear intirely evident till the Underſtanding has examined them on all ſides, and has perceiv'd all the Relations neceſſary to judge of 'em; whence it happens, that the Will not being able to will any thing without Knowledge, cannot act on the Underſtanding; that is, cannot deſire it to repreſent any thing new in its Object, as having already view'd it on all the ſides that have any relation to the Queſtion in hand. It is obliged, then, to reſt in what has been already repreſented, and to ceaſe to agitate and diſturb it any further: in which Ceſſation it is, that *Judgment* conſiſts. This Reſt or *Judgment*, then, not being free, when things are in their laſt Evidence we are apt to imagine that it is not the Effect of the Will. So long as there is any thing obſcure in the Subject that we conſider, or that we are not fully ſatisfied that we have diſcover'd every thing neceſſary to reſolve the Queſtion, as it happens in moſt of thoſe things that are difficult, and that contain various Relations; we are then at liberty not to acquieſce, the Will may command the Underſtanding to purſue its Enquiries further, and to make new Diſcoveries: whence it is, that we are more ready to allow the *Judgments* formed on theſe Subjects to be voluntary.

Moſt Philoſophers, however, maintain that even the *Judgments* which we form on obſcure things are not voluntary, and will have our conſenting to the Truth to be an Action of the Underſtanding, which they call Aſſent, to diſtinguiſh it from our conſenting to Goodneſs, which they attribute to the Will, and call it Conſent. But their

Error is owing to this, that in our preſent State, we frequently ſee things to be evidently true without the leaſt reaſon to doubt of 'em; in which caſe the Will is not at liberty either to give or refuſe her Aſſent: but it is not ſo in Matters of Goodneſs; there being nothing, which we don't know ſome reaſon for forbearing to love. So that we here perceive a manifeſt Indifference, and are fully convinced that when we love any thing, even God for inſtance, we uſe our Liberty, and do it voluntarily. But the Uſe we make of our Liberty is not ſo apparent, when we conſent to the Truth, eſpecially when it appears perfectly evident: And this leads us to think that our Conſent to Truth, that is, our *Judgment*, is not voluntary; as if an Action, to be voluntary, muſt be indifferent: As if the Bleſſed above did not love God voluntarily, becauſe they cannot be diverted from it by any other thing; nor we conſent freely to this evident Propoſition, That twice 2 are 4, becauſe we have no appearance of Reaſon to diſſuade us from it. See *Will*, *Liberty*, *Truth*, *Goodneſs*.

Judgment, in a legal Sentence, is a Sentence or Deciſion pronounced by Authority of the King, or other Power, either by their own Mouth, or by that of their Officers whom they appoint to adminiſter Juſtice in their ſtead. Of *Judgments* ſome are definitive, others only preparatory, proviſional, or interlocutory. The antient words of *Judgment* are very ſignificant, *Conſideratum eſt*, *&c.* becauſe *Judgment* is ever given by the Court upon Conſideration had of the Record before them. In every *Judgment* there ought to be three Perſons, *Actor*, *Reus*, and *Judex*.

JUDICATURE, the Profeſſion of thoſe who adminiſter Juſtice. *Judicature*, is a kind of Prieſthood. The word is alſo uſed to ſignify the Extent of the Juriſdiction of a Judge, and the Court wherein he ſits to do Juſtice.

JUDICIUM DEI, *Judgment of God*, was a Term antiently underſtood of any extraordinary Trials of ſecret Crimes; as thoſe by Arms and ſingle Combat, thoſe by Fire or red-hot Plow-ſhares, by plunging the Arm in boiling Water, or the whole Body in cold Water, in hopes God would work a Miracle rather than ſuffer Truth and Innocence to periſh: *Si ſe ſuper defendere non poſſit*, Judicio Dei *ſcil. Aqua vel Ferro fieret de eo Juſtitia.* Theſe Cuſtoms were a long time kept up, even among Chriſtians, and are ſtill in Uſe in ſome Nations. See *Ordeal*, *Water*, &c. Theſe Trials were held in the Churches, in preſence of the Biſhops, Prieſts, and Secular Judges, after three Days Faſting, Confeſſion, Communion, and a world of Adjurations and Ceremonies, deſcribed at large by *du Cange*.

JUGULAR, a Term, among Anatomiſts, applied to certain Veins of the Neck, which terminate in the Subclaveans. There are two on each Side; the one external, receiving the Blood from the Face and the external Parts of the Head; and the other internal, which receives the Blood from the Brain.

Jugular is alſo applied to certain Glands of the Neck, in the Spaces between the Muſcles. They are in Number 14, and are found of different Figures, ſome larger, others leſs; they are faſtened to each other by certain Membranes and Veſſels, and their Subſtance is like that of the Maxillaries. They ſeparate a Lympha, which is conveyed by thoſe Veſſels to the adjacent Muſcles. 'Tis an Obſtruction in thoſe Glands which occaſions the King's-Evil. *Dionis*.

JUICE, a liquid Subſtance, which makes part of the Compoſition of Plants, communicating itſelf to all the other Parts, and ſerving to feed and increaſe them. *Juice* is that to Plants, which Blood is to Animals. There are *Juices* aqueous, vinous, oleaginous, gummous, reſinous, and bituminous, of all Taſtes and Colours. Dr. *Liſter* obſerves, that moſt *Juices* of Plants coagulate, whether they be ſuch as are drawn from the Wounds of a Plant, or ſuch as ſpontaneouſly exſude; he having made Curds and Cakes of the *Juices* of a great Number of Plants. He adds, that as the *Juices* of Plants ſeem to be compounded and mixed of Liquors of different kinds; 'tis probable, if the Caſeous Part be narcotic, for inſtance, the Whey may not be ſo; or the one may be hurtful, and the other a good and uſeful Medicament. See *Sap*, *Gum*, &c.

The word *Juice* is alſo applied to ſeveral of the Fluids in an animal Body. The nervous *Juice* is a Liquor which, according to ſome Phyſicians, is found in the Nerves, whence it takes its Name. *Gliſſon*, *Wharton*, and *Willis* were the firſt who made mention of the nervous *Juice*; they take it to be a kind of Vehicle to the animal Spirits, preventing them from diſſipating too haſtily, and think it alſo ſerves to nouriſh the Parts of the Body; but a great part of our modern Phyſicians deny the Exiſtence of this *Juice*.

Pancreatic Juice is a Liquor ſeparated in the Glands of the Pancreas. See *Pancreas*.

Juice is alſo applied to the Vapours and Humidities incloſed in the Earth. Thus they ſay Chryſtal is formed of a lapidific *Juice*, and Metals are formed of Vapours and *Juices* condenſed in the Earth.

JUJUBE, the Fruit of a Tree of the ſame Name, growing very commonly in *Provence*, and ſome other Parts. The *Jujubes* are about the Size of a Plumb, oval, red without, yellow within, of a ſweet, very commonly, vinous Taſte; they are pectoral and aperitive, ſoften the Acrimony of the Humours, and promote a Diſcharge by the *Sputum*. *Pliny* tells us, that *Sextus Papinius* brought the firſt *Jujubes* from *Syria*, and Truffles from *Africa*, towards the End of *Auguſtus*'s Reign.

JULAP, in Pharmacy, is an eaſy agreeable Potion preſcribed to ſick Perſons: It uſually conſiſts of diſtilled Waters, or light Decoctions, frequently ſweeten'd with Sugar or clarified Juices. It is ſometimes uſed as the ordinary Drink in certain Diſeaſes, but uſually as a Vehicle for other Forms of Medicines; ſerving to correct the peccant Humours, to reſtore the declining Strength of the Heart, and to promote Sleep. The word, according to *Menage*, is derived from the *Arabic*, *Giulep*, or rather from the *Greek* ζυλάπα. *Olearius* derives it from *Gulap*, a *Perſian* Word, ſignifying *Roſe-Water*.

IULE, a kind of antient Hymn ſung by the *Greeks*, and after them by the *Romans*, during the time of their Harveſt, in honour of *Ceres* and *Bacchus*; in order to render thoſe Deities propitious. The word is derived from the *Greek* οὖλος, or ἴουλος, a Sheaf. This Hymn was ſometimes alſo called *Demetrule*, or *Demetriule*, that is, *Iule* of *Ceres*.

JULIAN YEAR, is the old Account of the Year, ſtill in uſe among us in *England*; it is ſo called from its Founder *Julius Cæſar*, and by that Name is diſtinguiſhed from the new, or *Gregorian* Account, uſed in ſeveral Parts of *Europe*. It is either Common or Biſſextile; the Common conſiſts of 365 Days, and the Biſſextile of 366. *Soſigenes*, whom *Cæſar* made uſe of in the Reformation of the Calendar, judged the mean Solar Year to conſiſt of juſt 365 Days and ſix Hours; and on this Ground it was that *Cæſar* appointed one Year in four to be Biſſextile, and the other three Common. See *Year*.

The *Julian* Period is of great Uſe in Chronology, and was invented by *Scaliger*; it conſiſts of 7980 Years, the Product of the three Cycles multiplied into each other, *viz.* the Indiction, which is 15; the Golden Number 19; and the Cycle of the Sun 28. It is made to commence before the Creation of the World, and that more or leſs, according to the Hypotheſis that is followed. Its principal Advantage conſiſts in this, that the ſame Years of the Cycles of the Sun, Moon, and Indiction, belonging to any Year of this Period, will never fall together again till after the Expiration of 7980 Years, which, according to the received Opinions, will ſcarce happen before the Conſummation of all things. The firſt Year of the Chriſtian Æra, in all our Syſtems of Chronology, is always the 4714th of the *Julian* Period.

To find what Year of the *Julian* Period any given Year of Chriſt anſwers to, work thus: To the given Year of Chriſt add 4713 (becauſe ſo many Years of the *Julian* Period were expired before *A. D.* 1.) and the Sum gives the Year of the *Julian* Period ſought. For Inſtance, I would know what Year of the *Julian* Period *A. D.* 1720 anſwers to: Now $1720 + 4713 = 6433$, the Year ſought of the *Julian* Period. On the contrary, having the Year of the *Julian* Period given, to find what Year of Chriſt anſwers thereto: From the Year of the *Julian* Period given, ſubſtract 4713 (for the Reaſon above-mentioned) and the Reſidue will be the Year ſought. For inſtance, I would know what Year of Chriſt anſwers to the *Julian* Period 6433; wherefore $6433 - 4713 = 1720$ the Year ſought. If the Year of the *Julian* Period given be leſs than 4713, then ſubſtract the ſame from 4714 (which is the Year of the *Julian* Period that anſwers to the Year of Chriſt 1.) and the Reſidue will ſhew how long before (the beginning of the common Computation from the Nativity of) Chriſt, the given Year of the *Julian* Period was. For inſtance, the City of *Rome* is ſaid to have been built, *J. P.* 3960, I would know therefore how long it was built before Chriſt. Now $4714 - 3960 = 754$, wherefore *Rome* was built 754 Years before Chriſt. It is called *Julian* as being adapted to the *Julian* Year. See *Period*.

JULUS, a Name which the Botaniſts give to thoſe Wormlike Tufts, or Palms, as they are called, in Willows, which, at the beginning of the Year, grow out, and hang pendulous down from Hazels, Wallnut-Trees, *&c.* Mr. *Ray* thinks them to be a kind of Collection of the Stamina of the Flowers of the Tree, becauſe in fertile Trees and Plants they have abundance of ſeminal Veſſels and Seed-Pods.

JULY, the ſeventh Month in the Year, when the Sun enters the Sign of *Leo*. About the 24th Day of this

Month the Dog-Days begin. The *French* call this the Month of *Red-Fruits*, and with Reaſon, ſays *Quintinie*, becauſe they are then in their height. On the 17th Day of this Month, according to *Hippocrates* and *Pliny*, the Dog-Star riſes, the Sea boils, Wine turns, Dogs go mad, the Bile is increaſed and irritated, and all Animals decline and languiſh, &c. The word is derived from the *Latin Julius*, the Sirname of *C. Cæſar* the Dictator, who was born in it. *Mark Anthony* firſt gave it this Name; before, it was called *Quintilis*, as being the fifth Month of the Year, in the old *Roman* Calendar eſtabliſhed by *Romulus*, which begun in the Month of *March*. For the ſame reaſon *Auguſt* was called *Sextilis*, and *September*, *October*, *November*, and *December* ſtill retain the Name of their firſt Rank.

Quæ ſequitur, Numero turba notata ſuo. Ovid. Faſt.

JUNCTURE, is any kind of Joint, or cloſing of two Bodies.

JUNE, the ſixth Month of the Year, when the Sun enters the Sign of *Cancer*. In this Month is the Summer Solſtice. The word comes from the *Latin Junius*, which ſome derive *à Junone*. *Ovid*, in the 6th of his *Faſti*, makes the Goddeſs ſay,

Junius à noſtro Nomine Nomen habet.

Others rather derive it *à Junioribus*, this being for young People, as the Month of *May* was for old ones.

Junius eſt Juvenum qui fuit antè Senum.

JUNIPER-BERRIES, the Fruit of a Shrub of the ſame Name; much uſed in Medicine. *Etmuller* had a vaſt Opinion of them, and thought they deſerved a whole Treatiſe to be wrote of them. The Rob (a Form of Medicine now out of uſe) made of the expreſſed Juice of the Green Berries, has been called the *Theriaca Germanorum*; ſo much have they been in eſteem amongſt them for anti-peſtilential Qualities. They are certainly carminative, but their moſt remarkable Properties are in ſcouring the Viſcera, and particularly the Reins and Urinary Paſſages, as all of the Turpentine-kind do. The Wood of this Shrub is alſo of conſiderable Uſe in Phyſic, it ſtrengthens the Stomach, expels Wind, clears the Lungs, provokes the Menſes, and removes Obſtructions of the Viſcera. It is further ſaid to be Sudorific, Cephalic, and Hyſteric. From it they draw a Spirit, a Tincture, an Elixir, Extract, and a Ratifia. 'Tis ſaid it will laſt an hundred Years without corrupting; and the Chymiſts add, that a Coal of *Juniper*, covered with Aſhes of the ſame kind, will keep fire an entire Year.

JUNTA, an Aſſembly, Council, or Society, of ſeveral Perſons meeting for the Diſpatch of any Buſineſs. This Term is particularly in uſe in the *Spaniſh* and *Portugueſe* Affairs. On the Death of *Charles* II. King of *Spain*, the Kingdom was governed, during the Abſence of *Philip* V. by a *Junta*. In *Portugal* they have three conſiderable *Junta's*, the *Junta* of Commerce, that of the three Eſtates, and that of Tobacco. The firſt was eſtabliſhed by King *John* IV. this is a Council of Marine. The ſame King aſſembled the States of his Kingdom to create the Tribunal of the *Junta* of the three Eſtates. K. *Peter* II. created the *Junta* of Tobacco in 1675, it conſiſts of a Preſident and ſix Counſellors.

Junta was the Name of a Society of Bookſellers or Printers at *Venice*, who publiſhed many beautiful and correct Editions of Books, which ſtill go by the Name of *Junta's*.

IVORY, the Tooth or Tusk of an Elephant growing on each ſide of his Trunk, in form of an Horn. *Ivory* is much eſteem'd for its Colour, its Poliſh, and the Fineneſs of its Grain when wrought. *Dioſcorides* ſays, that by boiling it the ſpace of ſix hours with the Root of Mandragoras, it becomes ſo ſoft and tractable, that one may manage it as he pleaſes. The *Ivory* of the Iſle of *Ceylon* and that of the Iſle of *Achem* have this Peculiarity, that they never become yellow, as that of the *Terra-firma* and *Eaſt-Indies* does; on which account 'tis much dearer.

Black Ivory is no more than *Ivory* burnt, and drawn into a Leaf when it is become black. It is ground with Water, and made up into little Cakes or Troches, uſed by the Painters.

JUPITER, one of the ſeven Planets: its Character is ♃. Its Orbit is ſituate between *Saturn* and *Mars*. It has a Rotation round its own Axis in 9 Hours, 56 Minutes; and a periodical Revolution round the Sun in 4332 Days, 12 Hours. It is the biggeſt of all the Planets. Its Diameter to that of the Sun appears, by Aſtronomical Obſervations, to be as 1077 is to 10000, to that of *Saturn* as 1077 to 889, to that of the Earth as 1077 to 104. The Force of Gravity on its Surface is to that on the Surface of the Sun as 797,15 is to 10000, to that of *Saturn* as 797,15 to 534,337, to that of the Earth as 797,15 to 407,832. The Denſity of its Matter is to that of the Sun as 7404 to 10000, to that of *Saturn* as 7404 to 6011, to that of the Earth as 7404 to 3921. The Quantity of Matter contained in its Body is to that of the Sun as 9,248 to 10000, to that of *Saturn* as 9,248 to 4,223, to that of the Earth as 9,248 to 0,0044. The mean Diſtance of *Jupiter* from the Sun is 5201 of thoſe Parts, whereof the mean Diſtance of the Earth from the Sun is 1000, tho' *Kepler* makes it *5196* of thoſe Parts. M. *Caſſini* calculates *Jupiter*'s mean Diſtance from the Earth to be 115,000 Semi-Diameters of the Earth. *Gregory* computes the Diſtance of *Jupiter* from the Sun to be above five times as great as that of the Earth from the Sun; whence he gathers, that the Diameter of the Sun, to an Eye placed in *Jupiter*, would not be a fifth part of what it appears to us; and therefore his Disk would be twenty-five times leſs, and his Light and Heat in the ſame Proportion. The Inclination of *Jupiter*'s Orbit, that is, the Angle formed by the Plane of its Orbit, with the Plane of the Ecliptic, is 1 Deg. 20 Min. His Excentricity is 250; and *Huygens* computes his Surface to be four hundred times as large as that of our Earth. See *Solar Syſtem*.

Jupiter is one of the ſuperior Planets, that is, one of the three above the Sun. Hence it has no Parallax, its Diſtance from the Earth being too great, to have any ſenſible Proportion to the Diameter of the Earth. Though it be the greateſt of the Planets, yet its Revolution about its Axis is the ſwifteſt. Its Polar Axis is obſerved to be ſhorter than its Equatorial Diameter; and Sir *I. Newton* determines the Difference to be as 8 to 9. So that its Figure is a Spheroid, and the Swiftneſs of its Rotation occaſions this Spheroidiſm to be more ſenſible than that of any other of the Planets. *Jupiter* appears almoſt as large as *Venus*, but is not altogether ſo bright. He is eclips'd by the Moon, by the Sun, and even by *Mars*. *Hevelius* obſerved *Jupiter*'s Diameter 7 Inches, having Inequalities like the Moon. He has three Appendages, call'd Zones, or Belts, which Sir *I. Newton* thinks are form'd in his Atmoſphere. In theſe are ſeveral *Maculæ*, or Spots; from whoſe Motion, the Motion of *Jupiter* round its Axis is ſaid to have been firſt determined. The Diſcovery of this is controverted between *Euſtachio*, *P. Gottignies*, *Caſſini*, and *Campani*.

The four little Stars, or Moons, which move round *Jupiter*, were firſt diſcover'd by *Galileo*, who call'd them the *Aſtra de Medicis*; but we the Satellites of *Jupiter*. *Caſſini* obſerved, that the firſt or innermoſt of theſe Satellites was five Semi-diameters of *Jupiter* diſtant from *Jupiter* itſelf, and made its Revolution in 1 Day, 18 Hours, and 32 Minutes. The ſecond, which is ſomewhat greater, he found 8 Diameters diſtant from *Jupiter*, and its Revolution 3 Days, 13 Hours, and 12 Minutes. The third, which is the greateſt of all, is diſtant from *Jupiter* 13 Semi-diameters, and finiſhes its Courſe in 7 Days, 3 Hours, and 50 Minutes. The laſt, which is the leaſt of all, is diſtant from *Jupiter* 23 Semi-diameters; its Period is 16 Days, 18 Hours, and 9 Minutes. Theſe four Moons muſt make a very pleaſing Spectacle to the Inhabitants of *Jupiter*, if it be true there are any; for ſometimes they riſe all together; ſometimes they are all together in the Meridian, ranged one under another; and ſometimes all appear in the Horizon, and frequently undergo Eclipſes: the Obſervations whereof are found of eſpecial Uſe in determining the Longitude. *Caſſini* has made Tables for calculating the Immerſions and Emerſions of *Jupiter*'s firſt Satellite.

The Day and Night are of the ſame Length in *Jupiter* all over his Surface, *viz.* five Hours each; the Axis of his Diurnal Rotation being nearly at right Angles to the Plane of his Annual Orbit. Though there are four primary Planets below *Jupiter*, yet an Eye placed on his Surface would never perceive any of them, except *Saturn*; unleſs, perhaps, as Spots paſſing over the Sun's Disk, when they happen to come between the Eye and the Sun. The Parallax of the Sun, view'd from *Jupiter*, will ſcarce be ſenſible, no more than that of *Saturn*; neither being much above 20 Seconds; ſo that the Sun's apparent Diameter in *Jupiter* will not be above ſix Minutes. The outermoſt of *Jupiter*'s Satellites will appear almoſt as big as the Moon does to us, *viz.* five times the Diameter, and 25 times the Disk of the Sun. Dr. *Gregory* adds, that an Aſtronomer in *Jupiter* would eaſily diſtinguiſh two kinds of Planets, four nearer him, *viz.* the Satellites, and two, *viz.* the Sun and *Saturn*, more remote. The former, however, will fall vaſtly ſhort of the Sun in Brightneſs, notwithſtanding the great Diſproportion in the Diſtances and apparent Magnitudes. From thoſe four different Moons, the Inhabitants of *Jupiter* will have four different kinds of Months, and the Number of Moons in their Year will not be leſs than 4500. Theſe Moons are eclips'd as often as, being in oppoſition to the Sun, they fall within the Shadow of *Jupiter*;

piter; and again, as oft as being in conjunction with the Sun, they project their Shadows to *Jupiter*, they make an Eclipſe of the Sun to an Eye placed in that part of *Jupiter* where the Shadow falls. But in regard the Orbits of theſe Satellites are in a Plane which is inclined to, or makes an Angle with the Plane of *Jupiter*'s Orbit, their Eclipſes become central when the Sun is in one of the Nodes of theſe Satellites; and when out of this Poſition, the Eclipſes may be total, tho not central, becauſe the Breadth of *Jupiter*'s Shadow is nearly decuple to that of the Breadth of any of the Satellites; and the apparent Diameter of any of theſe Moons is nearly quintuple the apparent Diameter of the Sun. 'Tis owing to this remarkable Inequality of Diameters, and the ſmall Inclination the Plane of the Orbits of theſe Satellites has to the Plane of *Jupiter*'s Orbit, that in each Revolution there happen Eclipſes both of the Satellites and of the Sun; tho the Sun be at a conſiderable diſtance from the Nodes. Further, the inferior among theſe Satellites, even when the Sun is at its greateſt diſtance from the Nodes, will occaſionally eclipſe and be eclipſed by the Sun to an Inhabitant of *Jupiter*; tho the remoteſt of them, in this caſe, eſcapes falling into *Jupiter*'s Shadow, and *Jupiter* into his, for two Years together. To this it may be added, that one of theſe Satellites ſometimes eclipſes another, where the Phaſis muſt be different, nay frequently oppoſite to that of the Satellite falling into the Shadow of *Jupiter* juſt mention'd; for in this, the Eaſtern Limb immergeth firſt, and the Weſtern immergeth laſt: but in the others 'tis juſt the Reverſe.

The Shadow of *Jupiter*, tho it reaches far beyond its Satellites, yet falls ſhort of any other Planet; nor could any other Planet, *Saturn* alone excepted, be immerged in it, even tho it were infinite. Indeed, *Jupiter*'s Shadow could not reach *Saturn*, unleſs *Jupiter*'s Diameter were half that of the Sun; whereas, in effect, 'tis not one ninth of it.

The Courſes of *Jupiter*'s Satellites, and their various Eclipſes, would render Navigation very ſure and eaſy on the Globe of *Jupiter*. Even we, at this diſtance, can make very good uſe of them; thoſe Eclipſes being found one of our beſt means for determining the Longitude at Sea. For the Manner of calculating them, *&c.* ſee *Satellites*.

Among the Alchymiſts, *Jupiter* ſignifies the Philoſophers Stone. The Gentlemen of this Profeſſion apply every thing to their Art which the Fable mentions of the God *Jupiter*; pretending the Fables are to be underſtood in a figurative Senſe: for inſtance, *Jupiter* is the Maſter of the Gods, and Gold, ſay they, is the moſt precious of Metals. Mercury is the Ambaſſador of *Jupiter*; and this ſhows with how much eaſe *Mercury* inſinuates into every thing. *Jupiter* holds the Thunderbolt as his Scepter; which evidently points out the external Sulphur uſed in Projection. *Jupiter* has the Heavens for his ordinary Habitation; this ſhews the volatile, dry, and hot. The Debauches of *Jupiter*, who ſought for Pleaſure in the low, but prolific and fruitful Earth, diſcover, ſay they, its Fecundity; and that Gold might be formed, were the way of preparing it diſcover'd. In a word, *Jupiter* is the Son of *Saturn*, which ſhews ſome Reſemblance between the Qualities of Gold and Lead.

JURATS are in the nature of Aldermen, for government of their ſeveral Corporations: as the Mayor and *Jurats* of *Maidſtone*, *Rye*, *Winchelſea*, &c. So *Jerſey* hath a Bailiff and twelve *Jurats*, or ſworn Aſſiſtants, to govern the Iſland.

JURIS-CONSULTUS, among the *Romans*, was a Perſon learned in the Law, a Maſter of Juriſ-prudence, and who was conſulted on the Interpretation of Laws and Cuſtoms, and on the difficult Points in Law-Suits. The fifteen Books of the *Digeſt* were compiled wholly from the Anſwers or Reports of the antient *Juriſ-Conſulti*. *Tribonianus*, in deſtroying the two thouſand Volumes whence the *Code* and *Digeſt* were taken, has deprived the Public of a world of things which would have given 'em light into the Office of the antient *Juriſ-Conſulti*. We ſhould ſcarce have known any thing beyond their bare Names, had not *Pomponius*, who lived in the ſecond Century, taken care to preſerve ſome Circumſtances of their Office. The *Roman Juriſ-Conſulti* ſeem to have been the ſame with our Chamber Counſellors, who arrived at the Honour of being conſulted, through Age and Experience, but never pleaded at the Bar. Their pleading Advocates or Lawyers never became *Juriſ-Conſulti*. In the Times of the Commonwealth the *Advocati* had by much the more honourable Employment; as being in the ready way to attain to the higheſt Preferments. They then deſpiſed the *Juriſ-Conſulti*, calling them in deriſion *Formularii* and *Legulei*, as having invented certain Forms, and certain Monoſyllables, in order to give their Anſwers the greater appearance of Gravity and Myſtery. But in proceſs of time they became ſo much eſteem'd, that they were call'd *Prudentes* and *Sapientes*, and the Emperors appointed their Judges to follow their Advice. *Auguſtus* advanced them to be public Officers of the Empire; ſo that they were no longer confined to the petty Counſels of private Perſons. *Bern. Rectilius* has written the Lives of the moſt famous *Juriſ-Conſulti*, who have lived within theſe 2000 Years.

JURISDICTION is a Power or Authority which a Man hath to do juſtice in caſes of Complaint made before him. There are two kinds of *Juriſdiction*, the one Eccleſiaſtical, the other Secular. Secular belongs to the King and his Delegates: Eccleſiaſtical to Biſhops and their Deputies. Biſhops, *&c.* have two kinds of *Juriſdiction*; the one Internal, which is exerciſed over the Conſcience in things purely Spiritual; and this they are ſuppoſed to hold immediately of God: The other is a Privilege which ſome Princes have given them of terminating Diſputes between Eccleſiaſtics and Laymen.

JURIS-PRUDENCE, the Knowledge of what is juſt and injuſt, or of the Laws, Rights, Cuſtoms, Statutes, *&c.* neceſſary for the doing of Juſtice. *Civil Juriſ-Prudence* is that of the *Roman* Law, *Canonical* that of the Canon Law, *Feudal* that of Fees.

JUROR, in a legal ſenſe, is one of thoſe twenty-four or twelve Men, who are ſworn to deliver Truth upon ſuch Evidence as ſhall be given them touching any matter in queſtion. The Puniſhment of Petty Jurors attainted of giving a Verdict contrary to Evidence, willingly, is very ſevere. See *Attaint*.

JURY, in Common Law ſignifies either Twenty-four or Twelve Men ſworn to enquire of the Matter of Fact, and declare the Truth upon ſuch Evidence, as ſhall be delivered them touching the Matter in queſtion. The *Jury* is to be choſen out of the ſame Claſs or Rank with the Accuſed, and if he be a Foreigner, he may demand a Jury half Foreigners and half *Engliſhmen*. There are ordinarily Thirty-ſix impannel'd, whereof in Criminal Caſes the Perſon accuſed has the Liberty to challenge or ſet aſide Twenty-four, and to pick out Twelve at his pleaſure. Theſe Twelve are preſent at the Trial, after which they withdraw into a Chamber by themſelves, where they are to be ſhut up without Fire or Candle, Victuals or Drink, till ſuch time as they agree in their Verdict, and declare unanimouſly that the Defendant is either Guilty of the Charge laid againſt him, or Not Guilty. Upon which, the Judge paſſes the Sentence preſcribed by the Law. In *England* there are three ſorts of Trials, *viz.* One by Parliament, another by Battle, and a third by Aſſize or Jury. The Trial by Aſſize (be the Action Civil or Criminal, Public or Private, Perſonal or Real) is referred for the Fact to a Jury, and as they find it, ſo paſſeth the Judgment. This *Jury* is not only uſed in Circuits of Juſtices Errant, but alſo in other Courts and Matters of Office: But tho' it appertains to moſt Courts of the Common Law, yet is it moſt remarkable in the Half-Year Courts of the Juſtices Errant, commonly call'd the Great Aſſizes, and in the Quarter-Seſſions; and in them it is moſt ordinarily called a *Jury*, and that in a Civil Cauſe: whereas in other Courts, it is uſually called an Inqueſt, and in the Court-Baron a *Jury* of the Homage. In the General Aſſize there are uſually many *Juries*, becauſe there are a great many Cauſes, both Civil and Criminal, commonly to be tried; whereof one is called the *Grand Jury*, and the reſt the *Petit Juries*; of which, it ſeems, there ſhould be one in every Hundred.

The *Grand Jury* conſiſts of Twenty-four Grave and Subſtantial Gentlemen, or ſome of the better ſort of Yeomen, choſen indifferently by the Sheriff out of the whole Shire, to conſider of all Bills of Indictment prefer'd to the Court; which they do either approve, by writing upon them *Billa vera*; or elſe diſallow, by indorſing *Ignoramus*. Such as they do approve, if they touch Life and Death, are farther refer'd to another *Jury*, to be conſider'd of, becauſe the Caſe is of much importance; but others of lighter moment are, upon their allowance, without more work, fined by the Bench: except the Party traverſe the Indictment, or challenge it for Inſufficiency, or remove the Cauſe to a higher Court by *Certiorari*; in which two former Caſes it is refer'd to another *Jury*, and in the latter, tranſmitted to a higher. And preſently upon the allowance of this Bill, by the Grand Inqueſt, a Man is ſaid to be indicted: Such as they diſallow, are delivered to the Bench, by whom they are forthwith cancelled or torn.

The *Petit Jury* conſiſts of Twelve Men at the leaſt, and are impannel'd as well upon Criminal as upon Civil Cauſes: Thoſe that paſs upon Offences of Life and Death, do bring in their Verdict either Guilty or Not Guilty; whereupon the Priſoner, if he be found Guilty, is ſaid to be convicted, and ſo afterwards receiveth Judgment and Condemnation; or otherwiſe is acquitted, and ſet free. Thoſe that paſs upon Civil Cauſes Real, are all, or ſo many, as can conveniently be had, of the ſame Hundred, where the Land or Tenement in queſtion doth lie, being four at leaſt; and they, upon due Examination, bring in their Verdict either for the Demandant or Tenant.

JURY-MAST: ſo the Seamen call whatever they ſet up in the room of a Maſt, loſt in a Fight or by a Storm, with which they make ſhift to ſail, inſtead of the Maſt which they have loſt.

JUS CORONÆ, the *Rights of the Crown*, is part of the Law of *England*, which differs in many things from the general Law concerning the Subject. *Coke* on *Litt.*

JUS PATRONATUS, in Law, is the Right of preſenting a Clerk to a Benefice.

JUS and JURA, ſee *Law*, *Right*.

JUST, a Combat on Horſeback, Man againſt Man, arm'd with Lances. Antiently, *Juſts* and Tournaments made a part of the Entertainment at all ſolemn Feaſts and Rejoicings. The *Spaniards* borrow'd theſe Exerciſes from the *Moors*, and call them the *Cane-Play*. This is the ſame with the *Ludus Trojanus* antiently practiſed by the Youth of *Rome*. The *Turks* uſe it ſtill, and call it lancing the *Gerid*. The difference between *Juſts* and Tournaments conſiſts in this, That the latter is the Genus, of which the former is the Species. Tournaments were all kinds of Military Races and Engagements, made out of Gallantry and Diverſion. *Juſts* were ſuch particular Combats where Parties were near each other, and engaged with Lance and Sword: The Tournament was frequently performed by a Number of Cavaliers, who fought in a Body. The *Juſt* was a ſingle Combat of one Man againſt another: Though the *Juſts* were uſually made in a Tournament, after the general Rencounter of all the Cavaliers, yet they were ſometimes ſingly, and independent of any Tournament. He who appear'd for the firſt time at a *Juſt*, forfeited his Helm or Caſque, unleſs he had forfeited before at a Tournament.

The Word is derived from the *Latin juxta*, becauſe the Combatants fought near one another. *Salmaſius* derives it from the modern *Greek zouſtra*, or rather τζȣϛρα, which is uſed in this ſenſe by *Nicephorus Gregorius*. Others derive it from *Juſta*, which in the corrupt Age of the *Latin* Tongue was uſed for this Exerciſe; this being ſuppoſed to be a more juſt and equal Combat than the Tournament.

JUSTICE, is a conſtant Deſire or Inclination to give every one his Due, or a Habit by which the Mind is always diſpoſed and determined to give every Man his own. *Juſtice* may be divided into Diſtributive, Commutative, and Legal. *Diſtributive Juſtice* is concern'd in Matters of Government, and of Beneficence, and is either remuneratory or punitive; it obſerves an Equality in dealing Rewards and Puniſhments, according to each Man's Condition and Merit: for as Actions are either good or evil, for the good, Rewards muſt be aſſigned, and for the evil, Puniſhments; and herein a Geometrical Proportion is obſerved. *Commutative Juſtice* is converſant in Matters of Commerce, and in the equal Commutation or Exchanging of things, and proceeds according to an arithmetrical Equality, without any regard to Perſons and Circumſtances. *Legal Juſtice* is that which reſides in the State or Monarch, by whoſe Power and Authority the Effects of commutative and diſtributive *Juſtice* are frequently ſuperſeded or ſuſpended; as in a Dearth of Corn, if a Perſon that has a Stock by him will not ſell it, it ſhall be taken from him: and the like.

JUSTICE is likewiſe the Name of an Officer appointed by the King or Commonwealth, to do Right by way of Judgment. He is called *Juſtice*, and not Judge, becauſe he was antiently called *Juſticia*, and not *Juſticiarius*, and becauſe he has his Authority by Deputation, as Delegate to the King, and not *Jure Magiſtratus*; and therefore cannot depute any other in his ſtead, the *Juſtice* of the Foreſt only excepted. Of theſe *Juſtices* we have various kinds in *England*.

Juſtice, or *Chief Juſtice* of the *King's-Bench*, is the capital *Juſtice* of *Great Britain*, and a Lord by his Office. His Buſineſs is chiefly to hear and determine all Pleas of the Crown, that is, ſuch as concern Offences againſt the Crown, Dignity, and Peace of the King, as Treaſons, Felonies, &c. See *King's-Bench*.

Juſtice, or *Chief Juſtice* of the *Common-Pleas*, is he who, with his Aſſiſtants, hears and determines all Cauſes at the Common Law, that is to ſay, all Civil Cauſes between common Perſons, as well Perſonal as Real, and he is a Lord by his Office. This Officer was formerly not only *Chief Juſtice*, but alſo Chief Baron of the *Exchequer*, and Maſter of the Court of Wards. He uſually ſat in the King's Palace, and there executed that Office, formerly performed *per Comitem Palatii*; he determined, in that Place, all the Differences happening between the Barons and other Great Men. He had the Prerogative of being Vicegerent of the Kingdom, whenever the King went beyond Sea, and was uſually choſen to that Office out of the prime Nobility; but his Power was reduced by King *Richard* I. and King *Henry* I. His Office is now divided, and his Title changed from *Capitalis Angliæ Juſticiarius*, to *Capitalis Juſticiarius ad Placita*, &c. See *Common-Pleas*.

Juſtice of the Foreſt is a Lord by his Office, and hath Power and Authority to determine Offences committed in the King's Foreſts, &c. which are not to be determined by any other Court or *Juſtice*, except ſuch as are appointed by ſpecial Commiſſion to aſſiſt him in his Office. Of theſe there are two, whereof the one hath Juriſdiction over all the Foreſts on this ſide *Trent*, and the other beyond it. By many antient Records it appears to be a Place of great Honour and Authority, and is never beſtowed but on ſome Perſon of great Diſtinction. The Court where this *Juſtice* ſits, is called the *Juſtice-Seat of the Foreſt*. This is the only *Juſtice* who may appoint a Deputy; he is alſo called *Juſtice in Eyre of the Foreſt*.

Juſtices in Eyre, *Juſticiarii Itinerantes*, or *Errantes*, are ſo termed from the old *French* word *Erre*, i. e. *Iter*. Theſe, in antient time, were ſent with Commiſſion into divers Counties to hear ſuch Cauſes, eſpecially, as were termed Pleas of the Crown; and that for the Eaſe of the Subject; who muſt elſe have been hurried to the Courts of *Weſtminſter*, if the Cauſe were too high for the County-Courts. According to ſome, theſe *Juſtices* were ſent once in ſeven Years, but others will have them to be ſent oftner. *Cambden* ſays, they were inſtituted in the Reign of King *Henry* II. but they appear to be of an older Date. They were much like our *Juſtices* of Aſſize at this Day, tho' for Authority and Manner of Proceeding very different.

Juſtices of Aſſize, are ſuch as were wont, by ſpecial Commiſſion, to be ſent into this or that County, to take Aſſizes, for the Eaſe of the Subjects: for whereas theſe Actions paſs always by Jury, ſo many Men might not, without great Damage and Charge, be brought up to *London*; and therefore *Juſtices*, for this purpoſe, by Commiſſion particularly authorized, were ſent down to them. Theſe continue twice every Year to paſs the Circuit, by two and two, thro' all *England*, diſpatching their ſeveral Buſineſſes by ſeveral Commiſſions; for they have one Commiſſion to take Aſſizes, another to deliver Goals, and another of Oyer and Terminer, &c. See *Aſſize*.

Juſtices of Goal-Delivery, are ſuch as are commiſſioned to hear and determine Cauſes appertaining to thoſe, who for any Offence are caſt into the Goals. Their Commiſſion is now turned over to the *Juſtices of Aſſize*.

Juſtices of Niſi Prius are now all one with *Juſtices of Aſſize*, for it is a common Adjournment of a Cauſe in the *Common Pleas* to put it off to ſuch a Day; *Niſi Prius Juſticiarii venerint ad eas Partes ad capiendas Aſſiſas*: and from the Clauſe of Adjournment, they are called *Juſtices of Niſi Prius*, as well as *Juſtices of Aſſize*, by reaſon of the Writ and Actions they have to deal in.

Juſtices of Oyer and Terminer, were *Juſtices* deputed, on ſome ſpecial Occaſions, to hear and determine ſome particular Cauſes. The Commiſſion of Oyer and Terminer is directed to certain Perſons, upon any Inſurrection, heinous Demeanour, or Treſpaſs committed.

Juſtices of the Peace, are Perſons of Intereſt and Credit, appointed by the King's Commiſſion to attend the Peace of the Country where they live; of whom, ſome, for ſpecial Reſpect, are made of the *Quorum*, becauſe no Buſineſs of Importance may be diſpatched without the Preſence, or Aſſent of them, or one of them. See *Quorum*. The Office of a *Juſtice of the Peace* is to call before him, examine, and commit to Priſon all Thieves, Murderers, wandring Rogues, thoſe that hold Conſpiracies, Riots, and almoſt all Delinquencies, that may occaſion the Breach of the Peace and Quiet of the Subject; to commit to Priſon ſuch as cannot find Bail, and to ſee them brought forth in due time to Trial. The Original of *Juſtices* of the Peace is referred to the fourth Year of *Edw.* III. They were at firſt called *Wardens of the Peace*.

JUSTIFICATION, in Theology, is that Grace which renders a Man juſt in the Sight of God, and worthy of eternal Happineſs. The *Romaniſts* and *Reformed* are extremely divided about the Doctrine of *Juſtification*; the latter contending for *Juſtification* by Faith alone, and the former by good Works. See *Imputation*.

JUSTNESS, the Exactneſs or Regularity of any thing. The word is particularly uſed in Matters of Language or Thought. The *Juſtneſs* of a Thought conſiſts in a certain Preciſeneſs or Accuracy, by which every part of it is perfectly true, and pertinent to the Subject. *Juſtneſs* of Language conſiſts in uſing proper and well-choſen Terms; in not ſaying either too much or too little. M. *de Mere*, who has written on *Juſtneſs* of Mind, diſtinguiſhes two kinds of *Juſtneſs*; the one ariſing from Taſte and Genius, the other coming from good Senſe or right Reaſon. There are no certain Rules to be laid down for the former, *viz.* to ſhew the Beauty and Exactneſs in the Turn, or Choice of a Thought; the latter conſiſts in the juſt Relation which things have to one another.

JUVENALIA, Games, Exerciſes of Body, or Combats, inſtituted by *Nero* the firſt time his Beard was ſhaved. They were celebrated in private Houſes, and even the

Women had a ſhare in them; they were the ſame with the *Neroniana*.

JUXTA-POSITION, is that Diſpoſition of Parts in any Body; whereby they are joined and combined together.

K

K. A double Conſonant, and the 10th Letter of the Alphabet. It is borrowed from the *Greek Kappa*; and was but little uſed among the *Latins*. *Priſcian* looked on it as a ſuperfluous Letter, and ſays, it was never to be uſed except in words borrowed from the *Greek*. *Dauſquius*, after *Saluſt*, obſerves, that it was unknown to the antient *Romans*. Indeed we ſeldom find it in any *Latin* Authors, excepting in the word *Kalends*, where it ſometimes ſtands in lieu of a C. *Karthage* is frequently ſpelt on Medals with a K, SALVIS AUGG. CAES. F E L. KART. and ſometimes the Letter K alone ſtood for *Carthage*. M. *Beger* has obſerved, that a Capital K, on the Reverſe of the Medals of the Emperors of *Conſtantinople*, ſignified KONSTANTINUS; and on the *Greek* Medals he will have it to ſignify ΚΟΙΛΗ ΣΥΡΙΑ, *Cœle-ſyria*. *Lipſius* obſerves, that K was a Stygma antiently marked on the Foreheads of Criminals with a red-hot Iron; and *Quintilian* tells us, that in his time ſome People had gotten a miſtaken Notion, that wherever the Letters C and A occurred at the beginning of a Word, K ought to be uſed inſtead of the C.

The Letter K has various Significations in old Charters and Diploma's; for Inſtance, K R ſtood for *Chorus*, K R. C for *Cara Civitas*, K R M for *Carmen*, K R. A M. N, *Carus Amicus noſter*, K S *Chaos*, K T *Capite tonſus*, &c.

The *French* never uſe the Letter K, excepting in a few Terms of Art, and proper Names borrowed from other Countries. *Ablancourt*, in his Dialogue of the Letters, brings in K complaining, that he has been often in a fair way to be baniſhed out of the *French* Alphabet, and confined to the Countries of the *North*. In *Engliſh* the K is uſed much more than needs be, particularly at the ends of Words after C, as in Publick, Phyſick, *&c.* where it is of no manner of Service.

K is alſo a Numeral Letter, ſignifying 250, according to the Verſe;

> K *quoque ducentos & quinquaginta tenebit*.

When it had a Stroke at top, it ſtood for 150000.

KABIN, or KEBIN, a temporary Marriage, in uſe among the *Mahometans*. The *Kabin* is contracted before the Cadi, in whoſe Preſence the Man eſpouſes the Woman for a certain time, upon condition that if he quits her at the end of that Term, ſhe ſhall be allowed a certain Sum of Money. Some Authors ſay, that the *Kabin* is only permitted among the *Perſians*, and in the Sect of *Ali*; but others maintain that it is alſo practiſed among the *Turks*.

KADARE, or KADARITE, the Name of a Sect among the *Mahometans*, who deny the Favourite Tenet of the Muſſulmen, Predeſtination; and maintain the Doctrine of Liberty and Free-Will in all its Latitude.

KALENDAR, See *Calendar*.

KALENDS. See *Calends*.

KALI, a Plant, otherwiſe called *Glaſſwort*; it grows in the Sands on the Sea-ſhore, where the People ſow it in order to burn it green. Of its Aſhes they make Soap, Glaſs, Alkali-Salt, *&c.* This Plant grows in great abundance in *Egypt* and *Syria*; its Name *Kali* was given it by the *Arabs*. It is found pretty plentifully, too, in *Languedoc*, where the People turn it to a very good account. Their manner of preparing it is this: When the Tree is grown up to its pitch, they cut it down, and let it dry; afterwards they burn and calcine it in certain Pits like Lime-Kilns dug in the Ground for that purpoſe, which are cloſe covered up with Earth, ſo as no Air may come at the Fire. The Matter by this means is not reduced into Aſhes only, but made into a very hard Stone, like Rock-Salt, which they are forced to break with Hammers to get it out, and this Matter they call *Salicor*, or *Soude en Pierre*. They make ſuch Quantities of it here, that they export it into ſeveral other Countries, but principally into *Italy*, where the *Venetians* manufacture it into thoſe beautiful Glaſſes, which they afterwards return into moſt Countries in *Europe*. However, the *Salicor* made here is inferiour to that brought from *Alicant*. The beſt is in little dry ſonorous Stones, of a blueiſh grey Colour, and full of little Eyes or Holes.

KAN, the Name of an Officer in *Perſia*. The *Kans* are the ſame things in *Perſia* that Governours are in *Europe*: There are *Kans* of Provinces, Countries, and Cities, who have different Additions to diſtinguiſh them.

KAPI, a Term in the *Eaſtern* Countries for Gate. Thus the chief Gate of the Palace of the Emperor of *Perſia* is called *Alla Kapi, the Gate of God.* Thus alſo the Officer who has the Command of the Grand Signior's Palace-Gates, is called *Kapighi Bachi*.

KARATA, a kind of Aloes growing in *America*. Its Leaves, when boiled, are made into a Thread, of good uſe in making Cloth, Fiſhing-Nets, *&c.* Its Root, or Leaves, thrown into the River, ſtun the Fiſhes to that degree, that they are eaſily taken with the Hand. Its Stalk, when dried and burnt, burns like a Match; and when briskly rubbed on a harder Wood, takes fire, and conſumes itſelf.

KARKRONI, a Building where the Royal Manufactures of *Perſia* are carried on. Here are made their Tapeſtries, Cloth of Gold, Silk, Wool, and Brocades, Velvets, Taffeta's, Coats of Mail, Sabres, Bows, Arrows, and other Arms. There are alſo Painters in Miniature, Goldſmiths, Lapidaries, *&c.*

KARLE, a *Saxon* Word, uſed in our Laws, ſometimes for a Man, and ſometimes for a Servant, or Clown. Hence the *Saxons* call a Seaman a *Buſcarle*, and a Domeſtic Servant *Huſcarle*: whence, by Corruption, comes our word *Churle*.

KASI, a Term in the *Eaſt*, applied to the fourth Pontiff of *Perſia*, who, at the ſame time, is the ſecond Civil Lieutenant, and judges of Temporal as well as Spiritual Affairs. He has two Deputies who determine Matters of leſs Conſequence, particularly Quarrels ariſing in Coffee-houſes, which make a great part of their Buſineſs.

KAURYSAOUL, a Body of Soldiers, who form the laſt of the five Bodies of the King of *Perſia's* Guards. They are in Number 2000, all Horſe, commanded by the Conſtable, and in his Abſence by the Captain of the Watch. They keep watch in the Night around the Palace, ſerve to keep off the Crowd when the King goes on Horſeback, keep Silence at the Audience of Ambaſſadors, ſeize the Kans and other Officers when diſgraced, and cut off their Heads when the King commands it.

KAY, a Wharf or Place by the Water-ſide, in a Sea-Port, for the loading and unloading of Merchandize; the Number of theſe in *England* is determined by Act of Parliament. The Verb *cajare*, in old Writers, according to *Scaliger*, ſignifies to keep in or reſtrain; and hence came our Term *Kay*; the Ground where they are made being bound in with Planks and Poſts.

KAYAGE, the Money, or Toll, paid for loading or unloading Wares at Kays.

KEBER, the Name of a Sect among the *Perſians*. Thoſe of this Sect are, for the generality, rich Merchants. Tho' they inhabit in the middle of *Perſia*, and are found in great Numbers in the Suburbs of *Iſpahan*, yet 'tis not known, whether or no they are originally *Perſians*, as having nothing in common with the other *Perſians* but the Language. They are diſtinguiſhed by their Beard, which they wear very long, and by their Dreſs, which is quite different from the reſt. They are in effect Heathens, but are in great Reputation for the Regularity of their Life. Some Authors ſay they adore the Fire, in imitation of the antient *Perſians*; but this is contradicted by others: They believe the Immortality of the Soul, and have ſome things like what the Antients taught of Hell and the *Elyſian* Fields. When any of them die, they let looſe a Cock in his Houſe, and drive it out into a Field; if a Fox ſeizes it, and bears it off, they make no doubt but the Soul of the Defunct is ſaved. If this firſt Experiment don't ſatisfy them, they have recourſe to a ſecond, which is concluſive; they carry the Carcaſs into the Church-yard, and prop it up againſt the Wall with a Fork: if the Birds peck out the right Eye, they look on him as one of the Predeſtinated, and bury him with a great deal of Ceremony, letting him down gently into the Grave; but if the Birds begin with the left Eye, they conclude him a Reprobate, and throw him headlong into a Ditch. The word *Keber* ſignifies Infidel, from the *Turkiſh Keapher*, a Renegado, or, rather, they both come from כפר, *Caphar*, which, in the *Chaldee*, *Syriac*, and *Arabic*, ſignifies to deny.

KEBLEH, or KIBLEH, a Term uſed among the *Turks*, for that Point or Quarter to which they turn themſelves when they make their Prayers. *Mahomet* at firſt durſt not propoſe any other *Kebleh* to his Followers but the Temple of *Jeruſalem*, which was the *Kebleb* of the *Jews* and *Chriſtians*. In courſe of time, however, being willing to bring his own, off from any Communication in Matters of Religion with the *Jews* and *Chriſtians*, he appointed them, in the Alcoran, to turn themſelves, at Prayer, towards the Temple of *Mecca*, from which time they called thoſe two Temples the *Kebletan*, or two *Keblebs*. *Ricaut* adds, that 'tis not the Temple of *Mecca*, properly ſpeaking, that the *Turks* call *Kebleb*, but rather the large ſquare Tower in the middle of the Amphitheatre of the Moſque.

Kebleb is alſo uſed for an Altar, or rather a Niche, as *Ricaut* calls it, which the *Mahometans* have in all their Churches, and which is placed very exactly on that Side towards the Temple of *Mecca*. Hence the word *Kebleb* comes to be uſed metaphorically for the Object or End propoſed, or the Intention a Man has in doing a thing. Thus the *Kebleb* of Kings is their Crown and Authority, that of Men of Buſineſs Money, that of Gluttons good Cheer, *&c.*

KEBLEH-NOMA, the Name which the *Turks* and *Perſians* give to a little Pocket Compaſs, which they always carry with them, in order to place themſelves the more exactly when they go to Prayers.

KEDGING, a Sea-Term, uſed when a Veſſel is brought up or down a narrow River by the Wind, tho the Tide be contrary to it. To do this the Seamen ſet their Fore-ſail, or Foretop-ſail, and the Mizen, and let her drive with the Tide, that they may flat her about; if ſhe come too near the Shore, they have a little Anchor ready, called the *Kedger*, or *Kedge-Anchor*, with a Hawſer faſtened to it from the Ship: and this Anchor they drop in the midſt of the Current, by which means they wind her Head about, and this done, take up the Anchor again.

KEEL, the Name of the loweſt Piece of Timber in a Ship, in the Bottom of her Hull, one End whereof is at the Stern, the other at the Stem; into ~~this are~~ all the Ground-Timbers and Hooks faſtened and bolted fore and aft. When a Ship hath a deep *Keel*, ſhe is ſaid to have a rank *Keel*, and this ſerves to keep her from rolling.

KEEPER *of the Foreſt*, otherwiſe called *Chief Warden of the Foreſt*, is an Officer that hath the principal Government of all things belonging to a Royal Foreſt, and the Check of all the other Officers. The Lord Chief Juſtice in Eyre of the Foreſt, when he thinks fit to hold his Juſtice-Seat, ſends out his general Summons to the *Keeper* forty Days before, to warn all Under-Officers to appear before him at a Day aſſigned in the Summons.

Keeper of the Great Seal is a Lord by his Office, and ſtiled *Lord Keeper of the Great Seal*. He is one of the King's Privy Council, through whoſe Hands paſs all Charters, Commiſſions, and Grants of the King under the Great Seal, without which Seal, all ſuch Inſtruments, by Law, are of no force; for the King is, in the Interpretation of the Law, a Corporation, and paſſeth nothing firmly but under the ſaid Seal, which is, as the public Faith of the Kingdom, in the higheſt Eſteem and Reputation. The Lord *Keeper* hath the ſame Place, Authority, Preeminence, Juriſdiction, Execution of Laws, and all other Cuſtoms, Commodities, and Advantages as the Lord Chancellor of *England* hath for the time being. Both theſe Officers cannot properly ſubſiſt at the ſame time, ſince the Statute of 5 *Eliz.*

Keeper of the Privy Seal is a Lord by his Office; thro' whoſe Hands paſs all Charters, ſigned by the King, before they come to the Great Seal, and ſome things which do not paſs the Great Seal at all. He is of the King's Privy Council, and was antiently called Clerk of the Privy Seal.

KERAMIAN, the Name of a Sect among the Muſſulmen, ſo called from *Mohammud Ben Keram* its Author. The *Keramians* maintain, that whatever the Alcoran ſays of the Arms, Eyes, and Ears of God, is to be underſtood literally; ſo that they admit the *Targiaſſum*, that is, a kind of Corporeity in God; which however they explain variouſly.

KERANA, a long Trumpet, in form of a Speaking-Trumpet, uſed by the *Perſians*: To the Sound of this they add a confuſed Noiſe of Hautboys, Timbrels, Drums and other Inſtruments every Evening at Sunſet, and two Hours after Midnight.

KERMES, a kind of Husk or Excreſſence, as 'tis generally thought, about the Bigneſs of a Juniper-Berry, round, ſmooth, and ſhining, of a beautiful Red, and full of a mucilaginous Juice of the ſame Colour. It is found ſticking to the Leaves and Bark of a kind of *Ilex* or Holm-Oak, in *Spain*, *Languedoc*, and other hot Countries. It has a vinous Smell, a bitter, tho agreeable Taſte, and its Liquor contains an infinite Number of little round or oval Eggs. The Origin of the *Kermes* is ſuppoſed owing to a little Worm, which pricking the Holm-Oak, to draw its Food from it, raiſes a little Tumor or Veſſel, which fills with Juice, and as it ripens becomes red. When the *Kermes* is dried, there comes out of it an infinite Number of little Inſects and Flies, ſo ſmall that they are ſcarce ſenſible; inſomuch that the whole inward Subſtance ſeems converted into them: For this reaſon it is that they ſometimes call it *Vermillion*, (unleſs, perhaps, it be ſo call'd from its beautiful Vermillion Colour.) To prevent that Inconvenience, they uſually ſteep the *Kermes* in Vinegar before they dry it. They draw the Juice or Pulp from the *Kermes*, and make a Syrup of it, by adding a ſufficient Quantity of Sugar. Sometimes they dry the Pulp ſeparate from the Husk, which Pulp, thus dried, they call *Paſtel of Kermes*. The Grain of *Kermes* is of great uſe in Phyſic. It is Cardiac, Deſiccative, Aſtringent, fortifies the Stomach, and prevents Abortion; of this, is made that celebrated Confection, call'd *Alkermes*. It is, however, of greater uſe in dying Scarlet.

The manner of preparing it for Dying, is as follows: The Grain being taken when ripe, they ſpread it on Linnen; and at firſt, while it abounds moſt in Moiſture, turn it twice or thrice a day, to prevent its heating: till ſuch time as there appears a red Powder among it; then they ſeparate it, paſſing it thro a Searce, and then again they ſpread abroad the Grain on the Linnen, till they perceive the ſame Redneſs of Powder, when they repeat the ſifting: and thus they proceed, till they diſcover a red Powder on the Surface of the Grain, which is ſtill paſs'd thro the Searce till it yield no more. In the beginning, when the ſmall red Grains are ſeen to move, as they will do, they are ſprinkled over with ſtrong Vinegar, and rubb'd between the Hands. Were not this Precaution taken, out of every Grain would be formed a little Fly, which would skip and fly about for a day or two, and at laſt changing its Colour, fall down dead. The Grain being quite emptied of its Pulp or red Powder, is waſh'd in Wine, and then expoſed to the Sun; after this, 'tis put up in ſmall Sacks, putting along with it, the Proportion of red Duſt that the Grain had afforded.

According to M. *Marſilli*'s Experiments made at *Montpellier*, the Grain of *Kermes* has the Effect of Galls when mix'd with Vitriol, and makes a good Ink. Mix'd with Oil of Tartar or Lime-Water, its Colour turns from a Vermillion to a Crimſon Colour. In a Decoction of Tournſoil Flowers it retains its proper Colour. They have not been able to get a fix'd eſſential Salt from it, but a volatile Salt it yields in abundance; which, in M. *Marſilli*'s opinion, would have a better Effect in Medicine, if taken in a Liquid, than when incloſed in Conſerves and Confections, which hinder its Action. Thoſe who have obſerved the Manner of producing the *Kermes* in the hot Countries tell us, that the little Grains gather'd on the *Ilex Coccigera* change into a great number of little Maggots of a red Colour, which run backwards and forwards in the Tree where they were bred; and wherever they ſtay any time, leave the Semen of thoſe Grains, which break out the Year following. Theſe the *Greeks* call *Coccos*, the *Latins Vermiculus*, and thoſe of the Country, *Grain of Vermillion*, becauſe of the Worms, Maggots, or Butterflies, into which the Grain changes.

KERNE, a Term in the antient *Iriſh* Militia, ſignifying a Foot-Soldier. *Camden* tells us, the Armies of *Ireland* conſiſted of Cavalry, call'd *Galloglaſſes*, and Infantry lightly armed, called *Kernes*. The *Kernes* bore Swords and Darts; to the laſt were fitted Cords, by which they could recover them after they had been launched out. *Kerne*, in our Laws, ſignifies idle Perſons or Vagabonds.

KEY, a little Iron Inſtrument for the opening of Locks. Its Uſe and Figure are too well known to need a particular Deſcription. *L. Molineus* has written a Treatiſe of *Keys*, printed at *Upſal*. He derives the *Latin* Name *Clavis* from the *Greek* κλείω, *claudo*, *I ſhut*, or from the Adverb *clam*, *privately*; and adds, that the Uſe of *Keys* is not known in ſome Parts of *Sweden*. The firſt Invention of *Keys* is owing to one *Theodore* of *Samos*, according to *Pliny* and *Polydore Virgil*; but this muſt be a Miſtake, the Uſe of *Keys* having been known before the Siege of *Troy*, and mention is even made of them in the 19th Chapter of *Geneſis*. *Molineus* is of Opinion, that *Keys*, at firſt, only ſerved for the untying certain Knots, wherewith they antiently ſecured their Doors; but the *Laconic Keys*, he maintains, were nearly a-kin in uſe to our own: they conſiſted of three ſingle Teeth, and made the Figure of an E, of which Form there are ſome ſtill to be ſeen in the Cabinets of the Curious. There was another *Key*, called Βαλάναγρα, made in the manner of a Male-Skrew, which had its correſponding Female in a Bolt affixed to the Door. *Key*, hence, becomes a general Name for ſeveral things that ſhut up, or cloſe other things.

Key of an Arch or Vault is the laſt Stone placed a-top of a Vault, which being wider and fuller at the Top than Bottom, wedges, as it were, and binds in all the reſt. This *Key* is different in the different Orders; in the *Tuſcan* and *Doric* 'tis a plain Stone, having a Projecture; in the *Ionic* 'tis cut and waved in Veins, after

ter the manner of *Conſoles*; in the *Corinthian* and *Compoſite*, 'tis a *Conſole* enriched with Sculpture, Foliages, &c.

Key is alſo uſed for Eccleſiaſtical Juriſdiction, and for the Power of Excommunicating and Abſolving. Thus the *Romaniſts* ſay, the Pope has the power of the *Keys*, and can open and ſhut Paradiſe as he pleaſes, grounding their Opinion on that Expreſſion of Jeſus Chriſt, *I will give thee the Keys of the Kingdom of Heaven.* In S. *Gregory* we read, that 'twas the Cuſtom heretofore for the Popes to ſend a Golden *Key* to Princes, wherein they incloſed a little of the Filings of St. *Peter*'s Chains, kept with a world of Devotion at *Rome*, and that theſe *Keys* were wore in the Boſom, as being ſuppoſed to contain ſome wonderful Virtues.

Key is alſo a Term in Polygraphy and Steganography, ſignifying the Alphabet of a Cypher, which is a Secret known only to the Perſon who writes the Letter, and him who decyphers it. Some Cyphers have a ſingle *Key*, where the ſame Characters are uſed throughout, in other Cyphers the Characters are varied, and the *Key* muſt be double. In this Senſe it is that we uſe the words *Key* of a Book, *Key* of an Author, as being let by it into ſome Secrets, with regard to Perſons, Times, Places, &c. which don't appear without it.

Key, in Muſic, is a certain fundamental Note or Tone, to which the whole Piece, be it Concerta, Sonata, Cantata, &c. is accommodated, and with which it uſually begins, but always ends. To get an Idea of the Uſe of the *Key*, it may be obſerved, that as in an Oration there is a Subject, *viz.* ſome principal Perſon or Thing to which the Diſcourſe is referred, and which is always to be kept in view, that nothing unnatural and foreign to the Subject may be brought in; ſo in every regular Piece of Muſic there is one Note, *viz.* the *Key*, which regulates all the reſt. The Piece begins, and ends in this; and this is, as it were, the muſical Subject, to which a regard muſt be had in all the other Notes of the Piece. Again, as in an Oration there are ſeveral diſtinct Articles, which refer to different Subjects, yet ſo as that they have all a viſible Connection with the principal Subject, which regulates and influences the whole; ſo in Muſic there may be various ſubaltern Subjects, that is, various *Keys*, to which the different Parts of the Piece may belong: but then they muſt be all under the Influence of the firſt and principal *Key*, and have a ſenſible Connection with it. Now to give a more diſtinct Notion of the *Key*, we muſt obſerve, that the Octave contains in it the whole Principles of Muſic, both with reſpect to Conſonance or Harmony, and Succeſſion or Melody; and that if either Scale be continued to a double Octave, there will, in that Caſe, be ſeven different Orders of the Degrees of an Octave, proceeding from the ſeven different Letters with which the Terms of the Scale are marked. Any given Sound therefore, *i. e.* a Sound of any determinate Pitch or Tune, may be made the *Key* of the Piece, by applying to it the ſeven natural Notes ariſing from the Diviſion of an Octave, and repeating the Octave above or below at pleaſure. The given Note is applied as the principal Note or *Key* of the Piece, by making frequent Cloſes or Cadences upon it; and in the Progreſs of the Melody no other but thoſe ſeven natural Notes can be admitted, while the Piece continues in that *Key*, every other Note being foreign to the Fundamental, or *Key*: For Inſtance, ſuppoſe a Song begun in any Note, and carried on upwards or downwards by Degrees and Harmonical Diſtances, ſo as never to touch any Notes but what are referable to that firſt Note as a Fundamental, *i. e.* are the true Notes of the natural Scale proceeding from the Fundamental; and let the Melody be ſo conducted thro' thoſe natural Notes, as to cloſe and terminate in the Fundamental, or any of its Octaves above or below, that Note is called the *Key* of the Melody, becauſe it governs all the reſt, limiting them ſo far, as that they muſt be, to it, in relation of the ſeven eſſential Notes of an Octave; and when any other Note is brought in, 'tis called, going out of the *Key*. From which way of ſpeaking, *viz.* a Song's continuing in, or going out of the *Key*, it may be obſerved, that the whole Octave, with its natural Notes, come under the Idea of a *Key*, tho the Fundamental, or principal Note is, in a peculiar Senſe, called the *Key*. In which laſt Senſe of the word *Key* (*viz.* where it is applied to one fundamental Note) another Note is ſaid to be out of the *Key*, when it has not the Relation to that Fundamental of any of the natural Notes belonging to the concinnous Diviſion of the Octave. Here too it muſt be added, with reſpect to the two different Diviſions of the Octave, that a Note may belong to the ſame *Key*, *i. e.* have a juſt muſical Relation to the ſame Fundamental in one kind of Diviſion, and be out of the *Key* with reſpect to the other.

Now a Piece of Muſic may be carried through ſeveral *Keys*; i. e. it may begin in one *Key*, and be led out of that into another, by introducing ſome Note foreign to the firſt, and ſo on to another: but a regular Piece muſt not only return to the firſt *Key*, but thoſe other *Keys*, too, muſt have a particular Connection with the firſt. It may be added, that thoſe other *Keys* muſt be ſome of the natural Notes of the principal *Key*, tho' not any of them at pleaſure.

As to the Diſtinctions of *Keys*, we have already obſerved, that to conſtitute any given Note or Sound, a *Key*, or fundamental Note, it muſt have the ſeven eſſential or natural Notes added to it, out of which, or their Octaves, all the Notes of the Piece muſt be taken, while it keeps within the *Key*, i. e. within the Government of that Fundamental. 'Tis evident therefore there are but two different Species of *Keys*, which ariſe according as we join the greater or leſs Third, theſe being always accompanied with the ſixth and ſeventh of the ſame Species; the third *g*, for inſtance, with the ſixth and ſeventh *g*; and the third *l* with the ſixth and ſeventh *l*. And this Diſtinction is expreſſed under the Names of a *Sharp-Key*, which is that with the third *g*, &c. and the *Flat-Key*, which is that with the third *l*, &c. whence 'tis plain, that how many different Cloſes ſoever there be in a Piece, there can be but two *Keys*, if we conſider the eſſential Difference of *Keys*; every *Key* being either flat or ſharp, and every *Sharp-Key* being the ſame, as to Melody, as well as every flat one. It muſt be obſerved, however, that in common Practice the *Keys* are ſaid to be different, when nothing is conſidered but the different Tune, or Pitch of the Note, in which the different Cloſes are made: In which Senſe the ſame Piece is ſaid to be in different *Keys*, according as it is begun in different Notes, or Degrees of Tune. To prevent any Confuſion which might ariſe from uſing the ſame Word in different Senſes, M. *Malcolm* propoſes the word *Mode* to be ſubſtituted inſtead of the word *Key*, in the former Senſe; that is, where it expreſſes the melodious Conſtitution of the Octave, as it conſiſts of ſeven eſſential, or natural Notes, beſides the Fundamental; and in regard there are two Species of it, he propoſes, that with a third *g* be called the greater Mode, and that with a third *l* the leſſer Mode; appropriating the word *Key* to thoſe Notes of the Piece in which the Cadence is made; all of which may be called different *Keys*, in reſpect of their different Degrees of Tune. To diſtinguiſh then accurately between a Mode and a *Key*, he gives us this Definition, *viz.* an Octave, with all its natural and eſſential Degrees, is a Mode, with reſpect to the Conſtitution or Manner of dividing it; but with reſpect to its Place in the Scale of Muſic, *i.e.* the Degree or Pitch of Tune, it is a *Key*; tho' that Name is peculiarly applied to the Fundamental: whence it follows, that the ſame Mode may be with different *Keys*, i. e. an Octave of Sounds may be rais'd in the ſame Order and Kind of Degrees which makes the ſame Mode, and yet be begun higher or lower, *i. e.* be taken at different Degrees of Tune with reſpect to the whole, which makes different *Keys*; and, *vice verſa*, that the ſame *Key* may be with different Modes, *i. e.* the Extremes of two Octaves may be in the ſame Degree of Tune, yet the Diviſion of them be different. See *Modulation*, *Harmony*, *Melody*, *Clef*.

Keys alſo ſignify thoſe little Pieces in the forepart of an Organ, Spinette, or Virginal, by means whereof the Jacks play, ſo as to ſtrike the Strings of the Inſtrument; and Wind given to the Pipes, by raiſing and ſinking the Sucker of the Sound-board. They are in number 28 or 29. In large Organs there are ſeveral Sets of theſe *Keys*, ſome to play the ſmall ſecondary Organ, ſome for the main Organ, ſome for the Trumpet, and ſome for the Echoing-Trumpet. In ſome there are but a part that play, the reſt being for Ornament. There are twenty Slits in the large *Keys*, which make the Half-Notes. M. *Baljouski* of *Douliez* pretends to have invented a new kind of *Keys* vaſtly preferable to the common ones. With theſe, he ſays, he can expreſs Sounds, which follow each other in a continual Geometrical Proportion, and ſo can furniſh all the Sounds in Muſic, and by conſequence all the imaginary Intervals and Accords; whereas the common *Keys* do but furniſh ſome of them.

KHAZINE, the Grand Signior's Treaſury. Here are kept Regiſters of Receipts, Accounts of Provinces, in Drawers mark'd with the Years and the Places Names. Here alſo is kept part of the Emperor's Wardrobe. Every Day of the Divan this Treaſury is opened, either to take out or put ſomething in. And the Principal Officers who have the Charge of it, are all to aſſiſt at this Opening. The *Tchaouch-Bachi*, in their Preſence, firſt breaks the Wax wherewith the Key-hole had been ſeal'd up, and carrying it to the Grand Viſier, that Miniſter firſt kiſſes it, and then draws out of his Boſom the Grand Signior's Gold Seal; in the mean time he looks narrowly ly after the Officer, who, when he has done his Buſineſs in the Treaſury, locks and ſeals up the Place, and returns the Seal to the Vizier with the ſame Ceremony as before. Beſides this, there are other Apartments for the Money, where the Officers are never allowed to enter with any Clothes that have Pockets in them.

KIDNEY, or Rein, a Part of an Animal, whoſe Uſe is to ſeparate the Urine. The *Kidneys* are ſituate on each Side, the one between the Liver and *Muſculus Lumbaris*, on the right Side; the other between the Spleen and the ſame Muſcle on the left Side. In Man the right is lower than the left, but in Quadrupedes 'tis uſually the contrary; they are faſtened to the Loins and the Diaphragm by their exterior Membrane, and to the Bladder by the Ureters; the right is alſo faſtened to the Inteſtine Cæcum, and the left to the Colon: their Figure reſembles a Bean, or rather a Creſcent, being curve on the ſide of the *Vena Cava*, and on the outſide gibbous. There are ordinarily but two *Kidneys*, tho' ſometimes there are found three, and ſometimes four, and ſometimes but one. In Men they are commonly about five Inches long and three broad, and one and an half thick: Their Subſtance is compoſed of Glands, and very ſmall urinary Pipes, or Canals; the Glands form the Circumference, and ſerve to ſeparate the Urine; the Papillæ, or urinary Tubes, form the inner part, they come out of the Glands, and carry the Urine into a Cavity, in the concave Part of the *Kidney*, called the *Pelvis*, whence it paſſes thro' the Ureters into the Bladder. The *Kidneys* are covered with two Membranes; they have each of them Arteries and Veins; the Arteries come from the *Aorta*, and the Veins terminate in the *Cava*; theſe are all called Emulgents. They have Nerves alſo, which take their Origin from the *Plexus Renalis*, formed by the Ramifications of the intercoſtal Nerve, and the Nerves of the Loins. The *Kidneys* ſecrete the Urine from the Blood, which, by the Motion of the Heart, is driven thro' the Arteries into the emulgent Arteries, and theſe carry it into the little Glands, where its Seroſity being ſeparated, is received in at the Orifices of the urinary Pipes, which go from the Glands to the Pelvis, and thence runs by the Ureters into the Bladder: the Blood, which could not enter the Glands, is brought back by the emulgent Veins. See *Urine*, *Secretion*, &c.

KILDEKRIN, is a kind of Liquid Meaſure, which contains two Firkins, or eighteen Gallons; and two ſuch *Kilderkins* make a Barrel.

KING, a Monarch or Potentate, who rules ſingly and ſovereignly over a People. *Cambden* derives the word *King* from the *Saxon Cyning*, of *Can*, *Power*, or *Ken*, *Knowledge*, wherewith every Monarch is ſuppoſed to be inveſted. The *Latin Rex*, the *Scythian Reiks*, the *Punic Reſeb*, and the *Spaniſh Rey* and *Roy*, come all, according to *Poſtel*, from the *Hebrew* ראש, *Roſeb*, *Chief*, or *Head*.

Kings, both among the antient *Greeks* and *Romans*, were Prieſts as well as Princes. *Virgil* ſpeaking of *Anius*, King of *Delos*, ſays,

> *Rex Anius*, *Rex idem Hominum Phœbique Sacerdos.*

As to the *Romans*, *Livy* and *Dionyſius* are expreſs; they ſay, that tho' *Numa* inſtituted a great Number of Orders of Prieſthood, yet ſome he diſcharged himſelf, and in Perſon. After the Expulſion of *Kings*, they were obliged to create a *Rex Sacrorum*, *a King of the Sacrifices*, for the Adminiſtration of the Prieſtly Part of the Royalty.

Among the *Greeks*, the King of *Perſia* had antiently the Appellation of *the Great King*; the King of *France* now has that of the *Moſt Chriſtian King*, and the *King* of *Spain* that of *Catholic King*. The *King* of the *Romans* is a Prince choſen by the Emperor, as a Coadjutor in the Government of the Empire. The *Hungarians* formerly gave the Name *King* to their Queen *Mary*, to avoid the Infamy which the Laws of that Country caſt on thoſe who are governed by Women: Accordingly ſhe bore the Title of *King Mary*, till her Marriage with *Sigiſmund*, at which time ſhe laid aſide her Kingſhip, and took up the Quality of Queen.

The *Kings* of *England*, by the *Lateran* Council under Pope *Julian* II. had the Title of *Chriſtianiſſimus* conferred on them, and that of *Defender of the Faith* was added by Pope *Leo* X. tho' it had been uſed by them ſome time before. The Title of *Grace* was firſt given to our *Kings* about the time of *Henry* IV. and that of *Highneſs* and *Majeſty* to *Henry* VIII. In all public Inſtruments and Letters the King ſtiles himſelf *Nos*, *We*, tho' till the time of King *John* he ſpoke in the ſingular Number. Our Lawyers ſay, the *King* of *England* is a mixed Perſon, a Prieſt as well as a Prince. At his Coronation he is anointed with Oil, as the Prieſts and *Kings* of *Iſrael* were, to intimate, that his Perſon is ſacred. The Laws make it High-Treaſon barely to imagine or intend the Death of the *King*; and, becauſe the Deſtruction of the *King* may enſue that of his Great Counſellors or Officers, 'tis Felony in any of the King's Servants to conſpire even that: tho' in other capital Caſes, 'tis a Rule, that *Voluntas non reputabitur pro Facto*, and an *Engliſhman* ſhall not, in any other Caſe, be put to death, unleſs the Deed follow the Intent.

His Office (as he promiſes at his Coronation) is to preſerve the Rights and Privileges of the Church, the Prerogative of the Crown, the Laws and Cuſtoms of the Realm, *&c.* or, as *Forteſcue* has it, he is *pugnare Bella Populi ſui & eos rectiſſime judicare*. He acknowledges no Precedence in any other Prince but the Emperor. He has the ſupreme Right of Patronage, called *Patronage Paramount*, over all the Eccleſiaſtical Benefices in *England*.

He has Power, by his Prerogative, without any Act of Parliament, to make War or Peace, make Leagues and Treaties, give Commiſſions for impreſſing Soldiers, diſpoſe of Magazines, Caſtles, Ships, public Moneys, *&c.* He convokes, adjourns, prorogues, and diſſolves Parliaments, and may refuſe his Aſſent to any Bill paſſed by both Houſes, without giving his Reaſons for it. He may increaſe the Number of Members of either Houſe at pleaſure, by creating new Peers, and beſtowing Privileges on other Towns for ſending Burgeſſes to Parliament. He has power to enfranchiſe an Alien, and make him a Denizen. Debts due to him are always to be ſatisfied in the firſt place, in caſe of Executorſhip, *&c.* and till his Debt is diſcharged, he may protect the Creditor from the Arreſts of others. He may diſtrain for the whole Debt on a Tenant that holds but part of the Land, is not obliged to demand his Rent as others are, may ſue in what Court he pleaſes, and diſtrain where he liſts. In all doubtful Caſes, *ſemper præſumitur pro Rege*: no Statute reſtrains him unleſs he be particularly named. In all Caſes where the *King* is Plaintiff, his Officers, with an Arreſt, may enter; and if Entrance be denied, break open a Houſe, and ſeize the Party: tho', in other Caſes, a Man's Houſe is his Caſtle, and has a Privilege to protect him againſt all Arreſts. He has the Cuſtody of the Perſons and Eſtates of Idiots and Lunatics; he is *Ultimus Hæres Regni*, to him revert all Eſtates, when no Heir appears. All Treaſure-Trove (*i. e.* Money, Plate, or Bullion found, and the Owners not known) belongs to him; ſo all Waifs, Strays, Wrecks, Lands recovered from the Sea, Gold and Silver Mines, Royal Fiſhes, *&c.* belong to him. He can unite, ſeparate, enlarge, or contract the Limits of Biſhoprics or Eccleſiaſtical Benefices, and by his Letters erect new Biſhoprics, Colleges, *&c.* He can diſpenſe with the Rigour of the Eccleſiaſtical Laws, except thoſe that have been confirmed by an Act of Parliament, or declared by the Bill of Rights, as for a Baſtard to be a Prieſt, for a Biſhop to hold a Benefice *in commendam*, *&c.* He has Power to diſpenſe with ſeveral Acts of Parliament and penal Statutes, by a *Non obſtante*, where he himſelf is alone concerned; to moderate the Rigour of the Law, according to Equity; to pardon a Man condemned by Law, except in Appeals of Murder; to interpret by his Judges in Statutes and Caſes not defined by Law.

The Laws eſteem him God's Vicegerent on Earth, and aſcribe various Perfections to him, not belonging to any other Man. No Flaw or Weakneſs is found in him, no Injuſtice or Error, no Negligence, Infamy, Stain, or Corruption of Blood. By his Crown he is *ipſo facto* cleared of all Attainder: No Nonage or Minority are allowed in him, and his very Grants of Lands, tho' held in his natural Capacity, cannot be avoided by Nonage. Nay more, the Law aſcribes a kind of Perpetuity, or Immortality, to him; *Rex Angliæ non moritur*. His Death is termed his Demiſe, becauſe the Crown is thereby demiſed to another. He is ſaid not to be liable to Death, as being a Corporation of himſelf, that lives for ever. There is no *Interregnum*, but the Minute one *King* dies, his Heir is *King*, fully and abſolutely, without any Coronation, Ceremony, *&c.* To theſe it may be added, that the Law attributes a kind of Ubiquity to the *King*; he is, in a manner every where, in all his Courts, and therefore cannot be nonſuited.

Some things, however, there are which he cannot do, *viz.* he cannot do Wrong, nor can he diveſt himſelf, or Succeſſors, of any part of his Regal Prerogative, Authority, *&c.* There are ſeveral things alſo which he cannot do, *Salvo Jure*, *Salvo Juramento*, *& Salva Conſcientia ſua*. In particular there are two things which he cannot do without the Conſent of Parliament, *viz.* Make new Laws, or raiſe new Taxes.

King of the Sacrifices, was the Title of a Prieſt or Miniſter of Religion in antient *Rome*. He was ſuperior to the *Flamen Dialis*, but inferior to the *Pontifex Maximus*. He was created at the *Comitia*, or Aſſembly of the Centuries, and was at firſt choſen out of the Number of the *Patricii*. He could not, during his Office, hold any Magiſtracy, nor harangue the People. He preſided at all the Sacrifices, proclaimed the Feaſts, *&c.* His Wife bore the Title of *Queen of the Sacrifices*, and had herſelf a part in the Ceremonies of Religion.

KINGDOM, among the Chymiſts, is a Term, which they apply to each of the three Orders, or Claſſes of natural Bodies; Animal, Vegetable, and Mineral.

KINGS AT ARMS, Officers of great Antiquity, and antiently of great Authority; they direct the Heralds, preſide at their Chapters, and have the Juriſdiction of Armory. In *England* we have three kinds, *viz.* *Garter*, *Clarencieux*, and *Norroy*.

The firſt and principal is called *Garter*, inſtituted by *Henry* V. His Office is to attend the Knights of the Garter at their Aſſemblies, to marſhal the Solemnities at the Funerals of the higheſt Nobility, and to carry the Garter to Kings and Princes beyond the Sea; on which occaſion he uſed to be joined in Commiſſion with ſome principal Peer of the Kingdom.

The next is *Clarencieux*, ſo called from the Duke of *Clarence*, to whom he firſt belonged. His Office is to marſhal and diſpoſe the Funerals of all the inferior Nobility, as Baronets, Knights, Eſquires, and Gentlemen, on the South-ſide of the *Trent*.

The third is *Norroy*, or *Northern*, whoſe Buſineſs is to do the ſame on the North-ſide of the River *Trent*. Theſe two laſt are called *Provincial Heralds*, in regard they divide the Kingdom between them into two Provinces.

Theſe two laſt, by Charter, have power to viſit Noblemens Families, to ſet down their Pedigrees, diſtinguiſh their Arms, appoint Perſons their Arms, and, with *Garter*, to direct the Heralds.

Antiently the *Kings at Arms* were created and ſolemnly crowned by the Kings of *England* themſelves; but of later Days the Earl Marſhal has a ſpecial Commiſſion, at every Creation, to perſonate the King.

To the former may be added *Lyon*, *King at Arms* for *Scotland*, who is the ſecond *King at Arms* for *Great Britain*; he is inveſted and crown'd with great Solemnity. To him belongs the publiſhing the King's Proclamation, the marſhalling Funerals, reverſing Arms, *&c.*

KING'S-BENCH, a Court, or Judgment-Seat, ſo called, in regard the King is ſuppoſed to ſit in Perſon as Judge of the Court, and may do ſo whenever he pleaſeth; for which reaſon all Writs, and other Proceſs in this Court, are made returnable *coram nobis*, that is, before the King himſelf, and not *coram Juſticiariis noſtris*, as is the Form in the *Common Pleas*. The Judges of this Court are the Chief Juſtice, and three other Judges. In this Court are principally determined Matters relating to the Crown, and the Peace. When any Perſon is aggrieved by any Order of Juſtices, or Quarter-Seſſions, they have recourſe hither; the Rights of Elections of Mayors, Bailiffs, Conſtables, *&c.* are often, upon *Mandamus*'s, brought before this Court to be ſettled, and Prohibitions are hence iſſued out to ſtay Proceedings in the Eccleſiaſtical, Admiralty, or any inferior Court, where the Matters appear to be tryable at Common Law. The Subject hath alſo a Right to ſue any Perſon in this Court for any Debt or Contract, as well as in any other Court, and may as advantageouſly and expeditiouſly proceed. The Chief Juſtice is conſtituted by Writ, and is to hold, *Quamdiu ſe bene geſſerit*, and ſo cannot be diſplaced without ſome great Miſdemeanour; tho' formerly the Chief Juſtice, and other inferior Judges, were made only *durante bene placito*, and accordingly were turned out at the King's pleaſure. The Salary of the Lord Chief Juſtice uſed to be but 1500 *l. per ann.* but 'tis now 500 *l. per* Term. He preſides under his Majeſty in this Court; but when the Court divides, in giving Judgment upon any ſpecial Argument, he hath but one Voice: ſo that if the Opinion of the Court ſhould be equally divided, the Matter muſt reſt till one of the Judges ſhall ſee juſt Reaſon to alter his Opinion. He is to attend the Lords in Parliament, tho' he has no Vote, unleſs he be a Peer himſelf, but is to give his Opinion and Advice to the Houſe by virtue of a Writ of Aſſiſtance; and is frequently therefore conſulted by them, both in making and repealing Laws, and in altering or explaining them. He makes a Return of all Writs of Error in Parliament directed to this Court, and with his own Hand delivers the Writ of Error, and a Tranſcript of the Proceedings in the Cauſe into the Houſe of Lords. The three inferior Judges of this Court go the Circuits, and are in Commiſſion of Oyer and Terminer at the *Old-Bailey*, their Salary is 375 *l. per* Term, to which they, as well as the Chief Juſtice, are entitled, tho' they happen not to ſit one Day in Court in the Term, unleſs they give their Aſſent ſo ſlightly, as, on a *Scire Facias*, to be charged with Negligence; and theſe alſo hold by *Quamdiu ſe bene geſſerint*. There are ſeveral Officers belonging to this Court, as two chief Clerks or Prothonotaries, who are ſuppoſed to enter all the Pleadings and Judgments between Party and Party, altho' this is done by an Entring-Clerk under them; and all Writs of *Latitat*, *non omittas*, Bills of *Middleſex*, *Habeas Corpus*, &c. are ſubſcribed with the Names of theſe chief Clerks. The Secondary acts as the Maſter of the Office on the Pleas Side, and is the Chief Clerk's Deputy; his Office is to examine any Perſon, who is to be ſworn an Entring-Clerk, or Attorney at large, whether he is duly qualified, and to preſent him to the Chief Juſtice. He alſo ſigns all Judgments, and gives Coſts upon them; and the Court, upon any Motion, in relation to the irregular Practice of any Clerk or Attorney, generally refers the Examination thereof to him. He alſo takes all Affidavits in Court (unleſs on the Crown-ſide) and takes the Acknowledgment of all Deeds in Court.

KING's-SILVER, is that Money due to the King in the Court of Common-Pleas, *pro Licentia Concordandi*, in reſpect of a Licence there granted to any Man for levying a Fine.

KINTAL, or *Quintal*, is a Weight of One Hundred Pounds, more or leſs, according to the different Uſage of divers Nations. The *Kintal* of *Smirna* is 123 Pounds, 3 Ounces, 9 Drams; or 120 Pounds, 7 Ounces, 12 Drams; but that of *Aleppo* is 465 Pounds, 11 Ounces, 15 Drams.

KIPPER-TIME is a Space of Time between the Feſtival of the *Finding of the Holy Croſs*, *May* the 3d, and *Twelfth-Day*; during which, Salmon-Fiſhing in the River *Thames*, from *Graveſend* to *Henley*, is forbidden by *Rot. Parl.* 50 *Edw.* 3.

KIRKMOTE, a Synod; ſometimes 'tis taken for a Meeting in the Church or Veſtry.

KIRK-SESSIONS, the Name of a petty Eccleſiaſtical Judicatory in *Scotland*. Each Pariſh, according to its Extent, is divided into ſeveral particular Diſtricts, every one of which has its own Elder and Deacon to overſee it. A Conſiſtory of the Miniſters, Elders, and Deacons of a Pariſh form a *Kirk-Seſſions*. This meets once a Week, the Miniſter being Moderator, but without a negative Voice. It regulates Matters relating to publick Worſhip, Elections, Catechizing, Viſitations, *&c.* It judges in Matters of leſs Scandal; but greater, as Adultery, are left to the Presbytery, and in all Caſes an Appeal lies from it to the Presbytery.

KIZILBACHE, a *Turkiſh* word, ſignifying *Red-Head*. This Term the *Turks* have applied, by way of Obloquy, to the *Perſians*, ever ſince *Iſhmael Sophi*, Founder of the Family now reigning in *Perſia*, ordered his Soldiers to wear a red Cap, round which is a Scarf or Turban with a dozen Plaits in it, in memory of the twelve *Imams*, Succeſſors of *Ali*, from whom he pretended to deſcend. *Viginere* writes the word *Kezeilbaſs*, and adds, that according to the vulgar Interpretation among the *Perſians*, the twelve Plaits ſignify the twelve Sacraments of their Law. But as this does not ſatisfy him, he looks out for another Original, and tells us there is a Myſtery in it, derived from the antient Paganiſm, when the *Perſians* adored the Fire, whoſe Heat is denoted by the red Colour, which in ſome meaſure ſymbolizes with the Sun, held by them in the higheſt Veneration. He adds, that the twelve Plaits ſhew the twelve Months of the Year, and the twelve Signs in which that Luminary performs his Courſe.

KNAVE is an old *Saxon* Word for a Man-Servant, and is ſo uſed in 14 *E.* 3. *Stat.* 1. *c.* 3. *Verſtegan* thinks it comes from the *Dutch Cnapa*, ſignifying the ſame. It ſometimes alſo ſignifies a Male-Child, or Boy, in which ſenſe a *Knave* Child hath been frequently uſed, formerly, in contradiſtinction to a Girl; and in this ſenſe *Wickcliff* uſes the word in his Tranſlation of *Exodus* 1. 16. and other Places of the Bible. In the old *Saxon* Tranſlation of *Mat.* 8. 6. *Puer meus jacet in Domo Paralyticus*, was turned, Myn Knapa.

Knave was ſometimes alſo uſed as an additional Title, as *Willielmus Cowper de Denby*, *Knave*, *&c.* 'Tis a common Opinion, that *Rom.* 1. 1. was tranſlated, *Paul a Knave of Jeſus Chriſt*. This Miſtake has been occaſioned by a Bible in the Duke of *Lauderdale*'s Library, where the word *Kneawe* is inſerted in leſs Characters than the others, and a Raſure may be eaſily diſcerned.

KNIGHT, in its original *German*, *Knecht*, ſignifies a luſty Servant. The Word has ſince been uſed for a Soldier or Man of War. We have but one Inſtance among us, where the word *Knight* is uſed in the firſt Senſe, and that is in *Knight of the Shire*, who properly ſerves in Parliament for ſuch a County. In the *Latin*, *French*, *Spaniſh*, *Italian*, and *Dutch* Languages, *Knight* is expreſs'd by a Word which properly ſignifies a Horſeman, as being uſually employ'd on horſeback. Indeed our Common Law calls them *Milites*, Soldiers, becauſe they commonly held Lands, in *Knight-Service*, to ſerve the King as Soldiers in his Wars; in which ſenſe the word *Miles* was uſed *pro Vaſſallo*. The word *Knight* now ſignifies a Perſon, who for his Vertue and martial Proweſs, is, by the King, raiſed above the Rank of Gentlemen, into an higher Claſs of Dignity and Honour. *Knighthood* being uſually conferred for perſonal Deſert, dies with the Perſon deſerving, and does not deſcend to his Heirs.

Knight was the firſt Degree of Honour, in the antient Militia, and was conferred with a great deal of Ceremony on thoſe who had diſtinguiſh'd themſelves by ſome notable Exploit in Arms. They were originally ſaid to be adopted, which we now call dubb'd; as being ſuppoſed, in ſome meaſure, the Sons of him who knighted them. The Ceremonies at the Creation of a *Knight* have been various. The principal were a Box on the Ear, and a Stroke with a Sword on the Shoulder. Afterwards they put on him a Shoulder-belt and gilt Sword, Spurs, and the other military Accoutrements; after which, being armed as a *Knight*, he was led in great Pomp to the Church. The Manner of making a *Knight* with us, is deſcribed by *Cambden* in a few words: *Qui Equeſtrem Dignitatem ſuſcipit, flexis Genibus leviter in Humero percutitur, Princeps his Verbis affatur, Sus vel ſois Chevalier au Nom de Dieu, Surge vel ſis Eques in Nomine Dei.* This is meant of *Knights-Batchelors*, which is the loweſt, tho the moſt antient Order of *Knighthood* among us. *Knights* grew ſo very numerous, that the Dignity became of much leſs Repute. *Charles* V. is ſaid to have made 500 in a ſingle Day: On which account therefore, new Orders of *Knighthood* were inſtituted, in order to diſtinguiſh the more deſerving from the Croud. For the ſeveral kinds of *Knights* among us, ſee *Batchelor, Banneret, Baronet, Bath*, &c.

Knight is alſo underſtood of a Perſon admitted into any Order, either purely military, or military and religious, inſtituted by ſome King or Prince according to a certain *Formula*, with certain Marks and Tokens of Honour and Diſtinction: as the *Order of the Garter, of the Elephant, of the Holy Ghoſt, of* Malta, *&c.* All which ſee under their proper Names.

Knight, among the *Romans*, was the ſecond Degree of Nobility, following immediately that of the Senators. At the time of founding the City of *Rome*, the whole Militia of *Romulus* conſiſted in 3000 Foot and 300 Horſe; which three hundred Horſe were the Original of the *Roman Equites* or *Knights*. Theſe made the ſecond Order that had Places in the Senate. *Manutius* and *Sigonius* are of opinion, that beſides the Equeſtrian Order, and thoſe *Knights* immediately below the Senators, *Romulus* inſtituted a Military Order in oppoſition to the Infantry. But no antient Author takes notice of any Order of Knighthood, inſtituted on purpoſe for the War, nor any other *Knights* but thoſe 300, which, as we have obſerved, were the firſt Foundation of the Equeſtrian Order. They had a Horſe kept then at the public Charge; but when they were taken in among the Senators, they reſign'd that Privilege. To be a *Knight*, 'twas neceſſary they ſhould have a certain Revenue; that their Poverty might not diſgrace the Order: And when they fail'd of the preſcribed Revenue, they were expunged out of the Liſt of *Knights*, and thruſt down among the Plebeians. Ten thouſand Crowns is computed to have been the Revenue required. The *Knights* grew ſo very powerful, that they became a Balance between the Power of the Senate and the People. They neglected the Exerciſes of War, and betook themſelves principally to Civil Employments in *Rome*; inſomuch that *Pliny* obſerves, in his time they had no longer a Horſe kept at the public Expence. Some ſay, that the Order of *Knights*, diſtinct from the People, did not begin before the Time of the *Gracchi*, Others ſay, the Privilege was then firſt granted them, that no Judge ſhould be choſen, but out of their Order: Some time after which, they took 'em into the Senate. This however is certain, 'twas only from that time that a certain Revenue was neceſſary, and that this intitled them to the Knighthood, without being deſcended from antient *Knights*.

KNIGHT-ERRANT, a pretended Order of *Knights*, whereof ample mention is made in old Romances. They were a kind of Heroes who travel'd the World in ſearch of Adventures, redreſſing Wrongs, reſcuing Damſels, and taking all occaſions of ſignalizing their Prowe ſs. This Romantic Bravery of the Old *Knights* was heretofore the Chimæra of the *Spaniards*; among whom, there was no Cavalier but had his Miſtreſs, whoſe Eſteem he was to gain by ſome heroic Action. The Duke of *Alva*, for all his Age and Gravity, is ſaid to have vow'd the Conqueſt of *Portugal* to a young Lady.

KNIGHTHOOD, a Military Order or Honour; a Mark or Degree of antient Nobility, or Reward of Perſonal Virtue and Merit. There are four kinds of *Knighthood*; Military, Regular, Honorary, and Social. Military is that of the antient Knights, who acquired it by high Feats of Arms. Theſe are call'd *Milites* in antient Charters and Titles, by which they were diſtinguiſh'd from bare Batchelors, *&c.* Several Princes have been inſtalled Military Knights with a great deal of Ceremony. Theſe Knights were girt with a Sword and a Pair of gilt Spurs, whence they were call'd *Equites Aurati*. Regular *Knighthood* is underſtood of ſuch of the Military Orders, which profeſs to wear ſome particular Habit, to bear Arms againſt the Infidels, to ſuccour and aſſiſt Pilgrims in their paſſage to the Holy Land, and to ſerve in Hoſpitals where they ſhould be receiv'd; as Knights Templars, Knights of *Malta*, &c. which ſee. Honorary *Knighthood* is that which Princes confer on other Princes, and even on their own Great Miniſters and Favourites; as Knights of the Garter, of St. *Michael*, &c. Social *Knighthood* is that which is not fixed, nor confirmed by any formal Inſtitution, nor regulated by any laſting Statutes; of which kind there have many riſen on occaſion of Factions, of Tilts and Tournaments, Maſquerades, *&c.*

Knighthood is not hereditary, but acquired. It does not come into the World with a Man, like Nobility; nor can it be revoked. The Sons of Kings, and Kings themſelves, with all other Sovereigns, heretofore had *Knighthood* confer'd on 'em as a Mark of Honour. They were uſually knighted at their Baptiſm or Marriage, at their Coronation, before or after a Battel, *&c.*

The Abbot *Bernardo Juſtiniani*, at the beginning of his Hiſtory of *Knighthood*, gives us a very compleat Catalogue of the ſeveral Orders, according to whoſe Computation they are in number 92. *Favin* has given us two Volumes of 'em, under the Title of *Theatre of Honour and Chivalry*. *Menenius* has publiſh'd *Deliciæ Equeſtrium Ordinum*, and *And. Mende* has written *de Ordinibus Militaribus*. *Beloi* has traced their Original, and *Geliot* in his *Armorial Index* has given us their Inſtitutions. To theſe may be added, Father *Meneſtrier's Antient and Modern Knighthood*, *Michieli's Treſor Militaire*, *Caramuel's Theologia Regolare*, *Miræus's Origines Equeſtrium ſive Militarium Ordinum*.

KNIGHT-MARSHAL, is an Officer in the King's Houſe, having Juriſdiction and Cognizance of any Tranſgreſſion within the King's Houſe and Verge; as alſo of Contracts made there, whereof one of the Houſe is Party.

KNIGHTS OF THE SHIRE, or *Knights of Parliament*, are two *Knights* or Gentlemen of Worth choſen on the King's Writ *in pleno Comitatu*, by ſuch of the Freeholders of every County as can expend 40 *s. per annum* Theſe, when every Man who had a Knights-Fee were cuſtomarily conſtrain'd to be *Knights*, were of neceſſity to be *Milites Gladio cincti*, for ſo the Writ runs to this day; but now Cuſtom admits Eſquires to be choſen to this Office. They muſt have at leaſt 500 *l. per annum*; and their Expences are to be defray'd by the County, though this be ſeldom, now, required.

KNIGHTS, in a Ship, are two Pieces of Timber, to each of which go four Shivers, three for the Halliards, and one for the Top-Ropes: they are uſually in the figure of ſome Head. One of 'em ſtands aft the Main-Maſt, and for that reaſon is call'd the *Main-Knight*; another ſtands abaft the Fore-Maſt, on the ſecond Deck, and is call'd the *Fore-Knight*.

KNIGHT-SERVICE, a Tenure whereby ſeveral Lands in this Nation were antiently held of the King; which drew after it Homage, Eſcuage, Wardſhip, Marriage, *&c.* But taken away by the Statute 12 *Car.* 2.

KNIGHTS-FEE, an antient Law-Term, ſignifying ſo much Inheritance as is ſufficient to maintain a Knight with ſuitable Retinue; which, in *Henry* the Third's days was reckon'd at Fifteen Pounds. But Sir *T. Smith* rates it at 40 *l.* By a Stat. 1 *Edw.* 2. ſuch as had 20 *l. per annum* in Fee or for Life, might be compelled to be Knights; but this Statute is repeal'd 17 *Car.* 1.

Stow ſays, that there were found in *England*, at the time of the Conqueror, 60,211 *Knights-Fees*; according to others, there were 60,215, whereof the Religious Houſes, before their ſuppreſſion, were poſſeſs'd of 28,015. According to *Coke*, a *Knights-Fee* contain'd twelve Plow-Lands.

KNOT, part of a Tree whence it ſhoots out Branches or Roots. The Wood is harder and cloſer in the *Knots* than in any other part, but it is alſo more ſubject to ſplit. Vines and low Fruit-Trees are lopp'd at the ſecond *Knot* of the new Shoot. The Uſe of the *Knots* of Plants is to ſtrengthen the Stem: They ſerve alſo as Searces to filtrate, purify, and refine the Juice rais'd up for the Nouriſhment of the Plant.

The Diviſions of the Log-Line at Sea are alſo call'd *Knots*. Theſe are uſually ſeven Fathoms or forty-two Feet aſunder, but they ſhould be fifty Feet; and then as many *Knots* as the Log-Line runs out in half a Minute, ſo many Miles doth the Ship ſail in an Hour, ſuppoſing her to keep going at any equal rate, and allowing for Yaws, Lee-way, *&c.*

Knot, in Medicine, is a Tuberoſity form'd in the Joints of old Gouty People, conſiſting of a thick viſcous, crude, indigeſted Pituita, accompanied with a bilious Humour, hot and acrimonious; the groſſeſt and moſt terreſtrial part whereof clogs and converts into a ſtony Subſtance like Chalk: whence *Knots* are ingendred, like Stones in the Bladder. The Phyſicians ſometimes call 'em *Tophi*.

Knot, or *Nodus*, is alſo uſed for the Intrigue of a Romance or Dramatic Piece: that is, for that part where the Perſons are the moſt embaraſs'd, by a Conjuncture of Affairs whoſe End it is not eaſy to foreſee. *Ariſtotle*, under this Term, includes all the Incidents of a Tragedy, from its Beginning to the Place where it begins to unravel. The *Knot* holds as long as the Mind is kept ſuſpended on the Event. The *Knot* ought always to laſt to the middle of the fifth Act, otherwiſe the reſt of the Piece becomes feeble and languiſhing.

Order of the Knot, the Name of a Military Order in the Kingdom of *Naples*, inſtituted in the Year 1352, by Queen *Jane* I. on occaſion of the Peace eſtabliſh'd between her and the King of *Hungary*, by means of her Marriage with *Louis* Prince of *Tarentum*. The Order conſiſted of ſixty Knights. *Clement* VI. approved this Order, and gave it the Rule of St. *Baſil*: It choſe St. *Nicholas* for its Protector, but dwindled away after the Death of its Foundreſs.

KNOWLEDGE, according to Mr. *Locke*, conſiſts in the Perception of the Connection and Agreement, or Diſagreement and Repugnancy of our Ideas. Thus we *know* that White is not Black, by perceiving that theſe two Ideas do not agree. Again, in *knowing* that the three Angles of a Triangle are equal to two right ones; what do we more than perceive that Equality to two right ones doth neceſſarily agree to, and is inſeparable from the three Angles of a Triangle? As to the Agreement or Diſagreement of Ideas, we may reduce the whole Doctrine, (conſequently the whole Stock of our *Knowledge*) to theſe four Heads; *viz.* Identity or Diverſity, Relation, Co-exiſtence, and Real Exiſtence.

With regard to the Identity or Diverſity of our Ideas, we may obſerve, That 'tis the firſt Act of the Mind to perceive its own Ideas, and ſo far as it perceives them, to know each what it is, and thereby to perceive their difference, that is, the one not to be the other: By this the Mind clearly perceives each Idea to agree with itſelf, and to be what it is; and all diſtinct Ideas to diſagree. This it does without any Pains or Deduction, by its natural Power of Perception, and Diſtinction; and this Men of Art have reduced to thoſe general Rules, *viz.* What is, is; and, It is impoſſible for the ſame thing to be, and not to be. But no Maxim can make a Man know it clearer, that Round is not Square, than the bare Perception of thoſe two Ideas which the Mind at firſt ſight perceives to diſagree. The next kind of Agreement or Diſagreement the Mind perceives in any of its Ideas, may be call'd Relative, and is nothing but the Perception of the Relation between any two Ideas, of what kind ſoever; that is, their Agreement or Diſagreement one with another, in the ſeveral ways or reſpects the Mind takes of comparing them. The third ſort of Agreement or Diſagreement to be found in our Ideas, is Co-exiſtence or Non-Co-exiſtence in the ſame Subject, and this belongs particularly to Subſtances. Thus when we pronounce concerning Gold that it is fixed, it amounts to no more but this, that Fixedneſs, or a Power to remain in the Fire unconſumed, is an Idea that always accompanies that particular Sort of Yellowneſs, Weight, Fuſibility, *&c.* which makes our complex Idea ſignified by the word *Gold.* The fourth Sort is that of actual and real Exiſtence, agreeing to any Idea. Within theſe four Sorts of Agreement or Diſagreement, ſeems contained all the *Knowledge* we have, or are capable of; for all that we know or can affirm concerning any Idea, is, That it is, or is not the ſame with ſome other; as that Blue is not Yellow: that it does or does not co-exiſt with another in the ſame Subject; as that Iron is ſuſceptible of magnetical Impreſſions: that it hath that or this Relation to ſome other Ideas, as That two Triangles, upon equal Baſes, between two Parallels, are equal: or that it has a real Exiſtence without the Mind, as, That God is.

The Mind becomes poſſeſſed of Truth in ſeveral manners, each of which comes under the Term *Knowledge.* Thus when the Mind has a preſent View of the Agreement or Diſagreement of any of its Ideas, or of the Relation they have one with another, it is called actual *Knowledge.* Secondly, A Man is ſaid to *know* any Propoſition, when having once evidently perceived the Agreement or Diſagreement of the Ideas whereof it conſiſts, and ſo lodged it in his Memory, that whenever it comes to be reflected on again, the Mind aſſents to it without Doubt or Heſitation, and is certain of the Truth of it: And this may be called *Habitual Knowledge.* And thus a Man may be ſaid to *know* all thoſe Truths which are lodged in his Memory, by a foregoing, clear, and full Perception. Of Habitual *Knowledge* there are two ſorts; the one conſiſts of ſuch Truths laid up in the Memory, as whenever they occur to the Mind, it actually perceives the Relation that is between their Ideas; and this is in all thoſe Truths where the Ideas themſelves, by an immediate View, diſcover their Agreement or Diſagreement one with another. The other is of ſuch Truths, whereof the Mind having been convinced, it retains the Memory of the Conviction, without the Proofs. Thus a Man that remembers certainly, that he once perceived the Demonſtration, That the three Angles of a Triangle are equal to two right ones, knows it to be true, when that Demonſtration is gone out of his Mind, and cannot poſſibly be recollected: But he knows it in a different way from what he did before, namely, not by the Intervention of thoſe immediate Ideas, whereby the Agreement or Diſagreement of thoſe in the Propoſition was at firſt perceived; but by remembring, that is, knowing, that he was once certain of the Truth of this Propoſition, That the three Angles of a Triangle are equal to two right ones. The Immutability of the ſame Relations between the ſame immutable things, is now the Idea, that ſhews him, that if the three Angles of a Triangle were once equal to two right ones, they will always be ſo. And hence he comes to be certain, that what was once true, is always true; what Ideas once agreed, will always agree; and conſequently, what he once knew to be true, he will always know to be true, as long as he can remember that he once knew it.

As to the different Degrees, or Clearneſs of our *Knowledge*, it ſeems to lie in the different way which the Mind has of perceiving the Agreement or Diſagreement of any of its Ideas. When the Mind perceives this Agreement or Diſagreement of two Ideas immediately by themſelves, without the Intervention of any other, we may call it *Intuitive Knowledge*, in which Caſes the Mind perceives the Truth, as the Eye doth Light, only by being directed towards it. Thus the Mind perceives, that White is not Black; that three are more than two, and equal to one and two. This Part of *Knowledge* is irreſiſtible, and, like the bright Sun-ſhine, forces itſelf immediately to be perceived, as ſoon as ever the Mind turns its View that way. It is on this Intuition that depends all the Certainty and Evidence of our other *Knowledge*, which Certainty every one finds to be ſo great, that he cannot imagine, and therefore cannot require a greater. The next Degree of *Knowledge* is, where the Mind perceives not this Agreement or Diſagreement immediately, or by the Juxta-Poſition, as it were, of the Ideas, becauſe thoſe Ideas, concerning whoſe Agreement or Diſagreement the Enquiry is made, cannot by the Mind be ſo put together as to ſhew it. In this Caſe the Mind is obliged to diſcover the Agreement or Diſagreement, which it ſearches for, by the Intervention of other Ideas: and this is that which we call Reaſoning. And thus if we would know the Agreement or Diſagreement in Bigneſs, between the three Angles of a Triangle, and two right Angles, we cannot do it by an immediate View and Compariſon of them, becauſe the three Angles of a Triangle cannot be brought together at once, and compared with any other one or two Angles; and ſo of this the Mind has no immediate, or intuitive *Knowledge.* But we muſt find out ſome other Angles, to which the three Angles of a Triangle have Equality; and finding thoſe equal to two right ones, we come to know the Equality of theſe three Angles to two right ones. Thoſe intervening Ideas, which ſerve to ſhew the Agreement of any two others, are called *Proofs*; and where the Agreement or Diſagreement is by this means plainly and clearly perceived, it is called *Demonſtration.* A Quickneſs in the Mind to find thoſe Proofs, and to apply them right, is that which is called *Sagacity.* This *Knowledge*, tho it be certain, is not ſo clear and evident as intuitive *Knowledge*; it requires Pains and Attention, and ſteady Application of Mind, to diſcover the Agreement or Diſagreement of the Ideas it conſiders, and there muſt be a Progreſſion by Steps and Degrees before the Mind can in this way arrive to any Certainty. Before Demonſtration there was a Doubt, which, in intuitive *Knowledge*, cannot happen to the Mind, that has its Faculty of Perception left in a Degree capable of diſtinct Ideas, no more than it can be a Doubt to the Eye (that can diſtinctly ſee White and Black) whether this Ink and Paper be all of a Colour. Now in every Step that Reaſon makes in Demonſtrative *Knowledge*, there is an Intuitive *Knowledge* of that Agreement or Diſagreement it ſeeks with the next intermediate Idea, which it uſes as a Proof; for if it were not ſo, that yet would need a Proof, ſince without the Perception of ſuch Agreement or Diſagreement there is no *Knowledge* produced. By which it is evident, that every Step in Reaſoning, that produceth *Knowledge*, has intuitive Certainty; which when the Mind perceives, there is no more required but to remember it, to make the Agreement or Diſagreement of the Ideas, concerning which we enquire, viſible and certain. This intuitive Perception of the Agreement or Diſagreement of the intermediate Ideas in each Step, and Progreſſion of the Demonſtration, muſt alſo be exactly carried in the Mind; and a Man muſt be ſure that no part is left out, which, becauſe in long Deductions, the Memory cannot eaſily retain, this *Knowledge* becomes more imperfect than intuitive, and Men often embrace Falſhoods for Demonſtrations.

It has been generally taken for granted, that Mathematicks alone are capable of demonſtrative Certainty; but to have ſuch an Agreement or Diſagreement, as may be intuitively perceived, being, as we imagine, not the Privilege of the Ideas of Number, Extenſion, and Figure alone; it may poſſibly be the want of due Method and Application in us, and not of ſufficient Evidence in Things, that Demonſtration has been thought to have ſo little to do in other Parts of *Knowledge*. For in whatever Ideas the Mind can perceive the Agreement or Diſagreement immediately, there it is capable of intuitive *Knowledge*; and where it can perceive the Agreement or Diſagreement of any two Ideas, by the intuitive Perception of the Agreement or Diſagreement they have with any intermediate Ideas, there the Mind is capable of Demonſtrations, not limited to the Ideas of Figure, Number, Extenſion, or their Modes. The Reaſon why it has been generally ſuppoſed to belong to theſe only, is becauſe, in comparing their Equality or Exceſs, the Modes of Numbers have every, the leaſt Difference, very clear and perceivable: And in Extenſion, tho' every the leaſt Exceſs is not ſo perceptible, yet the Mind has found our ways to diſcover the juſt Equality of two Angles, Extenſions, or Figures; and both Numbers and Figures can be ſet down by viſible and laſting Marks. But in other ſimple Ideas, whoſe Modes and Differences are made, and counted by Degrees, and not Quantity, we have not ſo nice and accurate a Diſtinction of their Differences, as to perceive or find ways to meaſure their juſt Equality, or their leaſt Differences. For thoſe other ſimple Ideas being Appearances or Senſations produced in us, by the Size, Figure, Motion, *&c.* of minute Corpuſcles ſingly inſenſible, their different Degrees alſo depend on the Variation of ſome, or all of thoſe Cauſes; which ſince it cannot be obſerved by us in Particles of Matter, whereof each is too ſubtile to be perceived, it is impoſſible for us to have any exact Meaſures of the different Degrees of theſe ſimple Ideas. Thus, for inſtance, not knowing what Number of Particles, nor what Motion of them is fit to produce any preciſe Degree of Whiteneſs, becauſe we have no certain Standard to meaſure them by, nor means to diſtinguiſh every, the leaſt Difference; the only help we have, is from our Senſes, which in this Point fail us. But where the Difference is ſo great as to produce in the Mind Ideas clearly diſtinct, theſe Ideas of Colours as we ſee in different kinds, Blue and Red (for inſtance) are as capable of Demonſtration, as Ideas of Number and Extenſion. What is here ſaid of Colours, holds true in all ſecondary Qualities. Theſe two then, Intuition and Demonſtration, are the Degrees of our *Knowledge*; whatever comes ſhort of one of theſe, is but Faith, or Opinion, not *Knowledge*, at leaſt in all general Truths. There is indeed another Perception of the Mind employed about the particular Exiſtence of finite Beings without us, which going beyond Probability, but not reaching to either of the foregoing Degrees of Certainty, paſſes under the Name of *Knowledge*.

Nothing can be more certain, than that the Idea we receive from an external Object, is in our Minds: This is intuitive *Knowledge*; but whether we can thence certainly infer the Exiſtence of any thing without us, correſponding to that Idea, is that whereof ſome Men think there may be a Queſtion made, becauſe Men may have ſuch an Idea in their Minds, when no ſuch Thing exiſts, no ſuch Object affects their Senſes. But it is evident, that we are invincibly conſcious to ourſelves of a different Perception, when we look on the Sun in the Day, and think on it by Night; when we actually taſte Wormwood, or ſmell a Roſe, or only think on that Savour, or Odour: ſo that we may add to the two former ſorts of *Knowledge*, this alſo of the Exiſtence of particular external Objects, by that Perception and Conſciouſneſs we have of the actual Entrance of Ideas from them, and allow theſe three Degrees of *Knowledge*, *viz.* intuitive, demonſtrative, and ſenſitive. But ſince our *Knowledge* is founded on and imployed about our Ideas only, will it follow thence, that it muſt be conformable to our Ideas, and that where our Ideas are clear and diſtinct, obſcure and confuſed, there our *Knowledge* will be ſo too? We anſwer, No: For our *Knowledge* conſiſting in the Perception of the Agreement or Diſagreement of any two Ideas, its Clearneſs or Obſcurity conſiſts in the Clearneſs or Obſcurity of that Perception, and not in the Clearneſs or Obſcurity of the Ideas themſelves. A Man (for inſtance) who hath a clear Idea of the Angles of a Triangle, and of Equality to two right ones, may yet have but an obſcure Perception of their Agreement, and ſo have but a very obſcure *Knowledge* of it: But obſcure and confuſed Ideas can never produce any clear or diſtinct *Knowledge*, becauſe as far as any Ideas are obſcure or confuſed, ſo far the Mind can never perceive clearly, whether they agree or diſagree: Or, to expreſs the ſame thing in a way leſs apt to be underſtood, he that hath not determined Ideas to the Words he uſeth, cannot make Propoſitions of them, of whoſe Truth he can be certain.

From all this it follows; (1.) That we can have no *Knowledge* farther than we have Ideas. (2.) That we have no *Knowledge* farther than we can have Perception of the Agreement or Diſagreement of our Ideas, either by Intuition, Demonſtration, or Senſation. (3.) We cannot have an intuitive *Knowledge*, that ſhall extend itſelf to all our Ideas, and all that we would know about them; becauſe we cannot examine and perceive all the Relations they have one to another by Juxta-Poſition, or an immediate Compariſon one with another. Thus we cannot intuitively perceive the Equality of two Extenſions, the Difference of whoſe Figures makes their Parts uncapable of an exact immediate Application. (4.) Our rational *Knowledge* cannot reach to the whole Extent of our Ideas, becauſe between two different Ideas, which we would examine, we cannot always find ſuch Proofs as we can connect one to another, with an intuitive *Knowledge* in all the Parts of the Deduction. (5.) Senſitive *Knowledge* reaching no farther than the Exiſtence of Things, actually preſent to our Senſes, is yet much narrower than either of the former. (6.) From all which it is evident, that the Extent of our *Knowledge* comes not only ſhort of the Reality of Things, but even of the Extent of our own Ideas. We have the Ideas of a Square, a Circle, and Equality, and yet perhaps ſhall never be able to find a Circle equal to a Square.

The Affirmations or Negations we make concerning the Ideas we have, being reduced to the four Sorts abovementioned, *viz.* Identity, Co-exiſtence, Relation, and Real Exiſtence, let us enquire how far our *Knowledge* extends in each of theſe. (1.) As to Identity and Diverſity, our intuitive *Knowledge* is as far extended as our Ideas themſelves; and there can be no Idea in the Mind, which it does not preſently, by an intuitive *Knowledge*, perceive to be what it is, and to be different from any other. (2.) As to the Agreement or Diſagreement of our Ideas of Co-exiſtence, our *Knowledge* herein is very defective, tho' 'tis in this that the greateſt and moſt material Parts of our *Knowledge* concerning Subſtances conſiſts: For our Ideas of Subſtances being nothing but certain Collections of ſimple Ideas, co-exiſting in one Subject, (our Idea of Flame, for inſtance, is a Body hot, luminous, and moving upwards.) When we would know any thing farther concerning this or any other ſort of Subſtance, what do we but enquire what other Qualities or Powers theſe Subſtances have or have not? which is nothing elſe but to know what other ſimple Ideas do, or do not exiſt with thoſe that make up that complex Idea. The Reaſon of this is, becauſe the ſimple Ideas, which make up our complex Ideas of Subſtances, have no viſible neceſſary Connection or Inconſiſtence with other ſimple Ideas, whoſe Co-exiſtence with them we would inform ourſelves about. Theſe Ideas being likewiſe for the moſt part ſecondary Qualities, which depend upon the primary Qualities of their minute or inſenſible Parts, or on ſomething yet more remote from our Comprehenſion; it is impoſſible we ſhould know which have a neceſſary Union or Inconſiſtence one with another, ſince we know not the Root from whence they ſpring, or the Size, Figure, and Texture of Parts on which they depend, and from which they reſult. Beſides this, there is no diſcoverable Connection between any ſecondary Quality, and thoſe primary Qualities that it depends on. We are ſo far from knowing what Figure, Size, or Motion produceth, (for inſtance) a yellow Colour, or ſweet Taſte, or ſharp Sound; that we can by no means conceive how any Size, Figure, or Motion, can poſſibly produce in us the Idea of any Colour, Taſte, or Sound, whatſoever; there being no conceivable Connection between the one and the other. Our *Knowledge* therefore of Co-exiſtence reaches little further than Experience. Some few indeed of the primary Qualities have a neceſſary Dependance, and viviſible Connection one with another: As Figure neceſſarily ſuppoſeth Extenſion; receiving or communicating Motion by Impulſe, ſuppoſeth Solidity: but Qualities co-exiſtent in any Subject, without this Dependence and Connection, cannot certainly be known to co-exiſt any farther, than Experience by our Senſes informs us. Thus tho', upon Tryal, we find Gold yellow, weighty, malleable, fuſible, and fixed; yet becauſe none of theſe have any evident Dependance or neceſſary Connection with the other, we cannot certainly know, that where any four of theſe are, the fifth will be there alſo, how highly probable ſoever it may be. But the higheſt Degree of Probability amounts not to Certainty, without which there can be no true *Knowledge*: For this Co-exiſtence can be no farther known, than it is perceived; and it cannot be perceived but either in particular Subjects, by the Obſervation of our Senſes, or, in general, by the neceſſary Connection of the Ideas themſelves. As to Incompatibility or Repugnancy to Co-exiſtence, we know that no Subject can have of each ſort of primary Qualities, more than one Particular at once, as one Extenſion, one Figure; and ſo of ſenſible Ideas peculiar to each Senſe: For whatever of each kind is preſent in any Subject, excludes all other of that ſort; for inſtance, one Subject cannot have two Smells, or two Colours at the ſame time. As to Powers of Subſtances, which makes a great part of our Enquiries about them, and is no inconſiderable Branch of our *Knowledge*; our *Knowledge*, as to theſe, reaches little farther than Experience, becauſe they conſiſt in a Texture and Motion of Parts, which we cannot by any means come to diſcover; and, I doubt, whether with thoſe Faculties we have, we ſhall ever be able to carry our general *Knowledge* much farther in this Part. Experience is that which in this Part we muſt depend on, and it were to be wiſhed that it were more improved. We find the Advantages ſome Mens generous Pains have this way brought to the Stock of natural *Knowledge*; and if others, eſpecially the Philoſophers by Fire, had been ſo wary in their Obſervations, and ſincere in their Reports, as thoſe who call themſelves Philoſophers ought to have been, our Acquaintance with the Bodies here about us, and our Inſight into their Powers and Operations, had been yet much greater. As to the third ſort, the Agreement or Diſagreement of our Ideas in any other Relation; this is the largeſt Field of *Knowledge*, and it is hard to determine how far it may extend: this Part depending on our Sagacity in finding intermediate Ideas, that may ſhew the Habitudes and Relations of Ideas, it is an hard matter to tell when we are at an end of ſuch Diſcoveries. They, who are ignorant of Algebra, cannot imagine the Wonders of this kind that are to be done by it: and what farther Improvements and Helps, advantageous to other Parts of *Knowledge*, the ſagacious Mind of Man may yet find out, it is not eaſy to determine. This at leaſt we may believe, that the Ideas of Quantity are not thoſe alone that are capable of Demonſtration and *Knowledge*; and that other, and perhaps more uſeful Parts of Contemplation would afford us Certainty, if Vices, Paſſions, and domineering Intereſt did not oppoſe or menace Endeavours of this kind.

The Idea of a ſupreme Being, infinite in Power, Goodneſs, and Wiſdom, whoſe Workmanſhip we are, and on whom we depend; and the Idea of ourſelves, as underſtanding rational Creatures; would, if duly conſidered, afford ſuch Foundations of our Duty, and Rules of Action, as might place Morality among the Sciences capable of Demonſtration; wherein we need not doubt, but that from Principles as inconteſtable as thoſe of the Mathematicks, by neceſſary Conſequences the Meaſure of Right and Wrong might be made out to any one, who will apply himſelf, with the ſame Indifferency and Attention to the one, as he doth to the other of theſe Sciences. The Relations of other Modes may certainly be perceived, as well as thoſe of Number and Extenſion. Where there is no Property, there is no Injuſtice, is a Propoſition as certain as any Demonſtration in *Euclid*; for the Idea of Property being a Right to any thing, and the Idea of Injuſtice being the Invaſion or Violation of that Right, it is evident, that theſe Ideas being thus eſtabliſhed, and theſe Names annexed to them, I can as certainly know this Propoſition to be true, as that a Triangle has three Angles equal to two right ones. Again, no Government allows abſolute Liberty; the Idea of Government being the Eſtabliſhment of Society, upon certain Rules or Laws, which require Conformity to them; and the Idea of abſolute Liberty being for any one to do whatever he pleaſes, I am as capable of being certain of the Truth of this Propoſition, as of any in Mathematicks.

What has given the Advantage to the Ideas of Quantity, and made them thought to be more capable of Certainty and Demonſtration, is, *Firſt*, That they can be repreſented by ſenſible Marks, which have a nearer Correſpondence with them than any Words or Sounds. Diagrams drawn on Paper are Copies of the Ideas, and not liable to the Uncertainty that Words carry in their Signification; but we have no ſenſible Marks that reſemble our moral Ideas, and nothing but Words to expreſs them by, which tho', when written, they remain the ſame; yet the Ideas they ſtand for may change in the ſame Man, and it is very ſeldom that they are not different in different Perſons. *Secondly*, Moral Ideas are commonly more complex than Figures; whence theſe two Inconveniences follow, (1.) That their Names are of more uncertain Signification: the preciſe Collection of ſimple Ideas they ſtand for, not being ſo eaſily agreed on, and ſo the Sign that is uſed for them in Communication always, and in Thinking often, does not readily carry with it the ſame Idea. (2.) The Mind cannot eaſily retain thoſe preciſe Combinations ſo exactly and perfectly, as is neceſſary in the Examination of the Habitudes and Correſpondencies, Agreements or Diſagreements of ſeveral of them one with another, eſpecially where it is to be judged of by long Deductions, and the Intervention of ſeveral other complex Ideas, to ſhew the Agreement or Diſagreement of two remote ones. One part of theſe Diſadvantages in moral Ideas, which has made them be thought not capable of Demonſtration, may in a good meaſure be remedied by Definitions, ſetting down that Collection of ſimple Ideas which every Term ſhall ſtand for, and then uſing the Term ſteadily and conſtantly for that preciſe Collection.

As to the fourth ſort of *Knowledge*, *viz.* of the real actual Exiſtence of Things, we have an intuitive *Knowledge* of our own Exiſtence, a demonſtrative *Knowledge* of the Exiſtence of God, and a ſenſitive *Knowledge* of the Objects that preſent themſelves to our Senſes. And hitherto we have examined the Extent of our *Knowledge*, in reſpect of the ſeveral Sorts of Beings that are. There is another Extent of it in reſpect of Univerſality, which will alſo deſerve to be conſidered; and this in regard our *Knowledge* follows the Nature of our Ideas. If the Ideas, whoſe Agreement or Diſagreement we perceive, are abſtract, our *Knowledge* is univerſal; for what is known of ſuch general Ideas, will be true of every particular thing in which that Eſſence, that is, that abſtract Idea is found: And what is once known of ſuch Ideas, will be perpetually and for ever true; ſo that, as to all general *Knowledge*, we muſt ſearch, and find it only in our own Minds; and it is only the examining our own Ideas that furniſhes us with it. Truths belonging to Eſſences of Things (that is, to abſtract Ideas) are eternal, and are to be found out by the Contemplation only of thoſe Eſſences; as the Exiſtence of Things is to be known only from Experience. As to the Reality of our *Knowledge*, it is evident, that the Mind knows not Things immediately, but by the Intervention of the Ideas it has of them. Our *Knowledge* therefore is real only ſo far, as there is a Conformity between our Ideas, and the Reality of Things. But how ſhall we know when our Ideas agree with Things themſelves? To which it is anſwered, There are two Sorts of Ideas, that we may be aſſured agree with Things; theſe are, (1.) Simple Ideas, which ſince the Mind can by no means make to itſelf, muſt be the Effect of Things operating upon the Mind in a natural way, and producing therein thoſe Perceptions, which, by the Will of our Maker, they are ordained and adapted to. Hence it follows, that ſimple Ideas are not Fictions of our Fancies, but the natural and regular Productions of Things without us, really operating upon us; which carry with them all the Conformity our State requires, which is to repreſent Things under thoſe Appearances they are fitteſt to produce in us. Thus the Idea of Whiteneſs, as it is in the Mind, exactly anſwers that Power which is in any Body to produce it there; and this Conformity between our ſimple Ideas, and the Exiſtence of Things, is ſufficient for real *Knowledge*. (2.) All our complex Ideas, except thoſe of Subſtances, being Archetypes of the Mind's own making, and not referred to the Exiſtence of Things as to their Originals, cannot want any Conformity neceſſary to real *Knowledge*; for that which is not deſigned to repreſent any thing but itſelf, can never be capable of a wrong Repreſentation. Here the Ideas themſelves are conſidered as Archetypes, and Things no otherwiſe regarded than as conformable to them. Thus the Mathematician conſiders the Truth and Properties belonging to a Rectangle or Circle only, as they are Ideas in his own Mind, which poſſibly he never found exiſting mathematically, that is, preciſely true; yet his *Knowledge* is not only certain, but real, becauſe real Things are no farther concerned, nor intended to be meant by any ſuch Propoſitions, than as Things really agree to thoſe Archetypes in the Mind. It is true of the Idea of a Triangle, that its three Angles are equal to two right ones; it is true alſo of a Triangle, where-ever it exiſts: What is true of thoſe Figures, that have barely an Ideal Exiſtence in the Mind, will hold true of them alſo, when they come to have a real Exiſtence in Matter. Hence it follows, that moral *Knowledge* is as capable of real Certainty as Mathematicks: For Certainty being nothing but the Perception of ſuch Agreement, by the Intervention of other Ideas, our moral Ideas, as well as mathematical, being Archetypes themſelves, and ſo adequate or compleat Ideas, all the Agreement or Diſagreement we ſhall find in them, will produce real *Knowledge*, as well as in mathematical Figures. That which is requiſite to make our *Knowledge* certain, is the Clearneſs of our Ideas; and that which is required to make it real, is that they anſwer their Archetypes. But it will here be ſaid, That if moral *Knowledge* be placed in the Contemplation of our own moral Ideas, and thoſe are of our own making, what ſtrange Notions will there be of Juſtice and Temperance? What Confuſion of Virtues and Vices, if every Man may make what Ideas of them he pleaſes? To which it is anſwered, No Confuſion or Diſorder at all in the Things themſelves, nor the Reaſonings about them, no more than there would be a Change in the Properties of Figures, and their Relations one to another, if a Man ſhould make a Triangle with four Corners, or a Trapezium with four right Angles; that is, in plain *Engliſh*, change the Names of the Figures, and call that by one Name which is called ordinarily by another The Change of Name will indeed at firſt diſturb him, who knows not what Idea it ſtands for; but as ſoon as the Figure is drawn, the Conſequences and Demonſtration are plain and clear. Juſt the ſame is it in moral *Knowledge*: Let a Man have the Idea of taking from others, without their Conſent, what they are juſtly poſſeſſed of, and call this Juſtice if he pleaſeth; he that takes the Name there, without the Idea put to it, will be miſtaken, by joining another Idea of his own to that Name; but ſtrip the Idea of that Name, or take it, ſuch as it is, in the Speaker's Mind, and the ſame things will agree to it, as if you called it Injuſtice. One thing we are to take notice of, That where God, or any other Law-maker, has defined any moral Names, there they have made the Eſſence of that Species to which that Name belongs; and there it is not ſafe to apply or uſe them otherwiſe; but in other Caſes it is bare Impropriety of Speech to apply them contrary to the common Uſage of the Country they are uſed in. (3.) But the complex Ideas, which we refer to Archetypes without us, may differ from them, and ſo our *Knowledge* about them may come ſhort of being real; and ſuch are our Ideas of Subſtances. Theſe muſt be taken from ſomething, that does, or has exiſted, and not be made up of Ideas arbitrarily put together, without any real Pattern. Herein therefore is founded the Reality of our *Knowledge* concerning Subſtances, that all our complex Ideas of them muſt be ſuch, and ſuch only, as are made up of ſuch ſimple ones, as have been diſcovered to co-exiſt in Nature: And our Ideas being thus true, tho' not perhaps very exact Copies, are the Subjects of real *Knowledge* of them. Whatever Ideas we have, the Agreement we find they have with others, will be *Knowledge*. If thoſe Ideas be abſtract, it will be General *Knowledge*; but to make it real concerning Subſtances, the Ideas muſt be taken from the real Exiſtence of Things. Where-ever therefore we perceive the Agreement or Diſagreement of our Ideas, there is certain *Knowledge*; and where-ever we are ſure thoſe Ideas agree with the Reality of Things, there is certain real *Knowledge*.

As to the Improvement of our *Knowledge*, it being the received Opinion amongſt Men of Letters, that Maxims are the Foundation of all *Knowledge*, and that Sciences are each of them built upon certain *Præcognita*, from whence the Underſtanding was to take its Riſe, and by which it was to conduct itſelf in its Inquiries in the Matters belonging to that Science; the beaten Road of the Schools has been to lay down, in the beginning, one or more general Propoſitions, called *Principles*, as Foundations whereon to build the *Knowledge* that was to be had of that Subject. That which gave occaſion to this way of Proceeding, was the good Succeſs it ſeemed to have in Mathematicks, which, of all other Sciences, have the greateſt Certainty, Clearneſs, and Evidence in them. But if we conſider it, we ſhall find that the great Advancement and Certainty of real *Knowledge* Men arrived to in theſe Sciences, was not owing to the Influence of theſe Principles, but to the clear, diſtinct, and compleat Ideas their Thoughts were employed about; and the Relation of Equality and Exceſs ſo clear between ſome of them, that they had an intuitive *Knowledge*, and by that a way to diſcover it in others, and this without the help of thoſe Maxims. For is it not poſſible for a Lad to know, that his whole Body is bigger than his little Finger, but by virtue of this Axiom, The whole is bigger than a Part; nor be aſſured of it, till he has learned that Maxim? Let any one conſider from what has been ſaid, which is known firſt and cleareſt by moſt People, the particular Inſtance, or the general Rule, and which it is that gives Life and Birth to the other. Theſe general Rules are but the comparing our more general and abſtract Ideas, which Ideas are made by the Mind, and have Names given them, for the eaſier Diſpatch in its Reaſonings: But *Knowledge* began in the Mind, and was founded on Particulars, tho' afterwards perhaps no Notice be taken thereof; it being natural for the Mind to lay up thoſe general Notions, and make the proper Uſe of them, which is to disburden the Memory of the cumberſome Load of Particulars. The way to improve in *Knowledge*, is not to ſwallow Principles with an implicite Faith, and without Examination, which would be apt to miſlead Men, inſtead of guiding them into Truth; but to get and fix in our Minds clear and compleat Ideas, as far as they are to be had, and annex to them proper and conſtant Names: and thus barely by conſidering our Ideas, and comparing them together, obſerving their Agreement or Diſagreement, their Habitudes and Relations, we ſhall get more true and clear *Knowledge* by the Conduct of this one Rule, than by taking up Principles, and thereby putting our Minds into the Diſpoſal of others. We muſt therefore, if we will proceed as Reaſon adviſes, adapt our Methods of Inquiry to the Nature of the Ideas we examine, and the Truth we ſearch after. General and certain Truths are only founded in the Habitudes and Relations of abſtract Ideas; therefore a ſagacious methodical Application of our Thoughts for the finding out theſe Relations, is the only way to diſcover all, that can with Truth and Certainty be put into general Propoſitions. By what Steps we are to proceed in theſe, is to be learned in the Schools of the Mathematicians, who from very plain and eaſy Beginnings, by gentle Degrees, and a continued Chain of Reaſonings, proceed to the Diſcovery and Demonſtration of Truths, that at firſt ſight appear beyond human Capacity. This may reaſonably be ſaid, that if other Ideas, that are real as well as nominal Eſſences of their Species, were purſued in the way familiar to Mathematicians, they would carry our Thoughts farther, and with greater Evidence and Clearneſs than, poſſibly, we are apt to imagine. This is Reaſon ſufficient to advance that Conjecture above-mentioned, *viz.* That Morality is capable of Demonſtration as well as Mathematicks; for moral Ideas being real Eſſences, which have a diſcoverable Connection and Agreement one with another, ſo far as we can find their Habitudes and Relations, ſo far we ſhall be poſſeſſed of real and general Truths.

In our *Knowledge* of Subſtances, we are to proceed after a quite different Method; the bare Contemplation of their abſtract Ideas (which are but nominal Eſſences) will carry us but a very little way in the Search of Truth and Certainty. Here Experience muſt teach us what Reaſon cannot, and it is by trying alone, that we can certainly know what other Qualities co-exiſt with thoſe of our complex Idea; for inſtance, whether that yellow, heavy, fuſible Body, I call Gold, be malleable or no; which Experience (however it prove in that particular Body we examine) makes us not certain that it is ſo in all, or any other yellow, heavy, fuſible Bodies, but that which we have tried: becauſe it is no Conſequence one way or the other from our complex Idea. The Neceſſity or Inconſiſtence of Malleability hath no viſible Connection with the Combination of that Colour, Weight, and Fuſibility in any Body. What is here ſaid of the nominal Eſſence of Gold, ſuppoſed to conſiſt of a Body of ſuch a determinate Colour, Weight, and Fuſibility, will hold true, if other Qualities be added to it. Our Reaſonings from thoſe Ideas will carry us but a little way in the certain Diſcovery of the other Properties in thoſe Maſſes of Matter wherein all thoſe are to be found. As far as our Experience reaches we may have certain *Knowledge*, and no farther. It is not denied, but that a Man, accuſtomed to rational and regular Experiments, ſhall be able to ſee farther into the Nature of Bodies, and their unknown Properties, than one that is a Stranger to them: But this is but Judgment and Opinion, not *Knowledge* and Certainty. This would make it ſuſpected, that Natural Philoſophy is not capable of being made a Science. From Experiments and Hiſtorical Obſervations we may draw Advantages of Eaſe and Health, and thereby increaſe our Stock of Conveniences for this Life; but beyond this, it is to be feared, our Talents reach not, nor are our Faculties able to advance farther. From whence it is obvious to conclude, that ſince our Faculties are not fitted to penetrate the real Eſſence of Bodies, but yet plainly to diſcover to us the Being of a God, and the *Knowledge* of ourſelves, enough to give us a clear Diſcovery of our Duty and great Concernment, it will become us, as rational Creatures, to employ our Faculties about what they are moſt adapted to, and follow the Direction of Nature where it ſeems to point us out the way. For it is rational to conclude, that our proper Employment lies in thoſe Enquiries, and that ſort of *Knowledge* which is moſt ſuited to our natural Capacities, and carries in it our greateſt Intereſt; and therefore it is that Morality is the proper Science and Buſineſs of Mankind in general (who are both concerned and fitted to ſearch out their *Summum Bonum*) as ſeveral Arts, converſant about the ſeveral Parts of Nature, are the Lot and private Talent of particular Men, for the common Uſe of human Life, and their own particular Subſiſtence in this World.

The Ways to enlarge our *Knowledge*, as far as we are capable, ſeem to be theſe two: The firſt is, to get and ſettle in our Minds, as far as we can, clear, diſtinct, and conſtant Ideas of thoſe Things we would conſider and know; for it being evident that our *Knowledge* cannot exceed our Ideas, where they are either imperfect, confuſed, or obſcure, we cannot expect to have certain, perfect, or clear *Knowledge*. The other Art is of finding out the intermediate Ideas, which may ſhew us the Agreement or Repugnancy of other Ideas, which cannot be immediately compared. That theſe two, (and not relying on Maxims, and drawing Conſequences from ſome general Propoſitions) are the right Method of improving our *Knowledge* in the Ideas of other Modes, beſides thoſe of Quantity, the Conſideration of mathematical *Knowledge* will eaſily inform us: Where, Firſt, we ſhall find, that he who has not clear and perfect Ideas of thoſe Angles or Figures, of which he deſires to know any thing, is utterly thereby incapable of any *Knowledge* about them. Suppoſe a Man not to have an exact Idea of a right Angle, Scalenum, or Trapezium, and it is clear that he will in vain ſeek any Demonſtration about them. And farther it is evident, that it was not the Influence of Maxims, or Principles, that had led the Maſters of this Science into thoſe wonderful Diſcoveries they have made. Let a Man of good Parts know all the Maxims of Mathematicks never ſo well, and contemplate their Extent and Conſequences as much as he pleaſeth, he will, by their Aſſiſtance, ſcarce ever come to know, that the Square of the Hypothenuſe, in a right-angled Triangle, is equal to the Squares of the two other Sides. This, and other mathematical Truths, have been diſcovered by the Thoughts otherwiſe applied. The Mind had other Objects, other Views before it, far different from thoſe Maxims, which Men, well enough acquainted with thoſe received Axioms, but ignorant of their Method who firſt made theſe Demonſtrations, can never ſufficiently admire.

Our *Knowledge*, as in other Things, ſo in this, has ſo great a Conformity with our Sight, that it is neither wholly neceſſary, nor wholly voluntary. Men, who have Senſes, cannot chuſe but receive ſome Ideas by them; and if they have Memory, they cannot but retain ſome of them; and if they have any diſtinguiſhing Faculty, cannot but perceive the Agreement or Diſagreement of ſome of them one with another. As he that has Eyes, if he will open them by Day, cannot but ſee ſome Objects, and perceive a Difference in them; yet he may chuſe whether he will turn his Eyes towards an Object, curiouſly ſurvey it, and obſerve accurately all that is viſible in it. But what he doth ſee, he cannot ſee otherwiſe than he doth; it depends not on his Will to ſee that Black which appears Yellow. Juſt thus it is with our Underſtanding: All that is voluntary in our *Knowledge*, is the employing or with-holding any of our Faculties from this or that ſort of Objects, and a more or leſs accurate Survey of them; but they being employed, our Will hath no power to determine the *Knowledge* of the Mind one way or other; that is done only by the Objects themſelves, as far as they are clearly diſcovered. Thus he that has got the Ideas of Numbers, and has taken the pains to compare one, two, and three, to ſix, cannot chuſe but know they are equal. He alſo that hath the Idea of an intelligent, but weak and frail Being, made by, and depending on another, who is Eternal, Omnipotent, perfectly Wiſe, and Good, will as certainly know that Man is to honour, fear, and obey God, as that the Sun ſhines when he ſees it. But yet be theſe Truths never ſo certain, never ſo clear, he may be ignorant of either, or both of them, who will not take the pains to employ his Faculties as he ſhould, to inform himſelf about them.

KUL, or KOUL, a *Turkiſh* Term, properly ſignifying a Slave, or Servant. *Meningsky* tells us, the Name is given to all the Soldiers in the *Ottoman* Empire, particularly to thoſe of the Grand Signior's Guard, and the Infantry. The Captains of the Infantry, and thoſe who command the Guards, are called *Kul Zabytlers*, and the Soldiers of the Guard *Kapu Kulleri*, i. e. *Slaves of the Court*. Others ſay, that all who hold any Places depending on the Crown, or receive Wages from it, in a word, all who are in any meaſure the Grand Signior's Servants, take the Title of *Kul*, as more creditable than that of Subject; even the Grand Viſier and the Baſhaws value themſelves upon it. A *Kul*, or Slave, of the Grand Signior has Authority to abuſe any who are only his Servants; but a Subject that ſhould affront a *Kul*, or Slave, would be ſeverely puniſhed. The *Kuls* are entirely devoted to the Will of the Grand Signior, and look on it as a kind of Martyrdom that merits Heaven, when they die either by his Order, or in the Execution of his Commands.

KURTCHI, the Name of a Militia among the *Perſians*. The word, in its Original, ſignifies Army, and is applied to a Body of Cavalry conſiſting of the Nobility of the Kingdom of *Perſia*, and the Poſterity of the conquering *Turks*, who placed *Iſmael Sophi* on the Throne. They are in Number about 18000 Men. Their Commander is called *Kurtchi Baſchi*, which was formerly the firſt Poſt in the Kingdom.

KYPHONISM, an antient Puniſhment, frequently undergone by the Martyrs in the Primitive Times. The Body of the Perſon who was to ſuffer was anointed with Honey, and ſo expoſed to the Sun, that the Flies and Waſps might be tempted to torment him. This was performed in three Manners; ſometimes they only tied the Patient to a Stake; ſometimes they hoiſted him up into the Air, and ſuſpended him in a Baſket; and ſometimes they ſtretched him out on the Ground, with his Hands tied behind him. *Suidas* gives us the Fragment of an old Law, which puniſhed thoſe, who treated the Laws with Contempt, with *Kyphoniſm* for the ſpace of twenty Days, after which they were to be precipitated from a Rock, dreſſed in Womens Habit. The word is originally *Greek*, and comes from κύφων, which ſignifies the Stake to which the Patient was tied, the Collar fitted to his Neck, or an Inſtrument wherewith they tormented him. The Scholiaſt, on *Ariſtophanes*, ſays, it was a wooden Lock, or Cage, and that it was called κύφων from the Verb κυπτεῖν, *to crook, or bend*, becauſe it kept the Tortured in a crooked bowing Poſture. Others ſay, Logs of Wood were laid over their Heads, to prevent their ſtanding upright. *Heſychius* defines the κύφων, a Piece of Wood, whereon Criminals were ſtretched and tormented; and 'tis probable the word might ſignify all theſe ſeveral things. It was a Generical Name, whereof theſe were the Species.

KYSTUS, in Medicine, is the Name of a Bag, or Membrane, in form of a Bladder, full of unnatural Humours. The word comes from the *Greek* κύστις, *Bladder*.

L, *El* is the Name of the Eleventh Letter of the Alphabet; it has a ſweet Sound, and is pronounced by applying the Tongue to the Palate. *Paſſerat* obſerves, that *l* has been frequently uſed for *b*, as *cillibæ* for *cibillæ*; for *d*, as *alipe* for *adipe*, *rallus*, *rallum*, from *radens*; for *c*, as *mutila* for *mutica*; for *n*, as *arvilla* for *arvina*, *belle* for *bene*, *colligo* for *conligo*; for *r*, as *fratellus* of *frater*, *balatrones* for *baratrones*; for *ſ*, as *ancile* of *am* and *cæſum*, *equilio* for *equiſio*; for *t*, as *equiſelis* for *equiſetis*, *Thelis* for *Thetis*. The double *ll* is a modern Contrivance, and was never uſed among antient *Roman* Authors They wrote *alium* not *allium*, *macelum* not *macellum*, *polucere* not *pollucere*. Two *l l* were changed into *li*, ἅλλομαι *ſalio*, ἄλλος *alius*, φύλλον *folium*; and *r* into two *l l*, as *bira billa*, *ſaturare ſaturlare*, &c. and *l* into *x* or *xill*, as *ala axilla*, *mala maxilla*, *velum vexillum*. *d* was alſo uſed for *l*, *n* for two *l l*, and *r* for one *l*. *l* is frequently uſed inſtead of *d*, as in *Ulyſſes* from the *Greek* Ὀδυσσεὺς, in the *Æolic* Dialect Ὀλύσσης. Thus alſo for *Dautia* we ſay *Lautia*; for *dacrumæ*, *lacrymæ*, &c.

There are ſeveral People, for inſtance, the *Chineſe* in *Aſia*, the *Ilinois* in *America*, *&c.* who cannot pronounce the *r* but always change it into *l*. Thus when any of 'em have been baptiz'd by the Name of *Petrus*, *Franciſcus*, &c. they always pronounce it *Petlus*, *Flanciſcus*, &c. The *Spaniards* and *Welſh* uſually double the *l* at the beginning of a Word, which ſounds nearly the ſame with our *bl* or *fl*.

The Figure of our L we borrow'd from the *Latins*, they from the *Greeks*, and they again from the *Hebrews*, whoſe *Lamed* is perfectly like ours, excepting that the Angle is ſomewhat more acute.

L was alſo a numeral Letter among the Antients, and is ſtill ſo in the *Roman* Cyphering, ſignifying fifty; according to the Verſe,

> *Quinquies* L *denos numero deſignat habendos.*

When a Daſh was added at top L̄, it ſtood for fifty thouſand. L was uſed for fifty as being half a C, which ſignified a hundred, and was formerly written thus ᑕ, which according to *Paſquier* makes two L L, the one upright, the other inverted.

The *French* Louis d'Ors have a Croſs on 'em, conſiſting of eight L's interwoven and diſpoſed in form of a Croſs.

The Epocha's on *Greek* Medals are uſually written with the antient *Lambda* L; which, according to the Tradition of the Antiquaries, ſtands for Λυκόβαντος, a Poetical Word, unknown in common Speech, ſignifying *Anno*, and which 'tis probable was more uſed in *Egypt* than *Greece*.

LABARUM, an Enſign or Standard bore before the *Roman* Emperors in the Wars: It conſiſted of a long Lance, with a Staff at top, croſſing it at right Angles; from which hung a rich Streamer, of a purple Colour, adorn'd with precious Stones. Till the Time of *Conſtantine* it had an Eagle painted on it, but that Emperor, in lieu thereof, added a Croſs with a Cypher expreſſing the name of Jeſus. He choſe fifty of the braveſt Men in his Guards to bear it on their ſhoulders, each in his turn. *Euſebius* tells us, that in the Battel againſt *Maxentius*, the Perſon who bore it being fatigued gave it to another, and that he had no ſooner parted with it but he was kill'd; all the Strokes he receiv'd while the *Labarum* was in his charge, not being able to wound him. The Author adds, he had this Miracle from the Emperor's mouth. This Standard the *Romans* took from the *Germans*, *Dacæ*, *Sarmatæ*, *Pannonians*, &c. whom they had overcome.

The Name *Labarum* was not known before the Time of *Conſtantine*, but the Standard itſelf, in the form we have deſcribed it, abating the Symbols of Chriſtianity, was uſed by all the preceding Emperors. Some derive the word from *Labor*, as if this finiſhed their Labours; ſome from εὐλαβεια, Piety; others from λαμβεῖν, to take; and others from λάφυρον, Spoils. The *Labarum* has afforded ample matter for Criticiſm, and has been diſcourſed of by *Fuller*, *Alciatus*, *Cujas*, *Gyraldus*, *Lipſius*, *Meurſius*, *Voſſius*, *Höffman*, *Valois*, *Du Cange*, &c.

LABEL, is a long thin Braſs Ruler, with a ſmall Sight at one end, and a Centre Hole at the other; commonly uſed with a Tangent Line on the Edge of a Circumferenter, to take Altitudes, *&c.*

Label in the Law is a narrow Slip of Paper or Parchment affixed to a Deed or Writing, in order to hold the appending Seal. So any Paper annexed by way of Addition, or Explication, to any Will or Teſtament, is called a *Label* or Codicil.

Label, in Heraldry, a kind of Addition to the Arms of a younger Brother, to diſtinguiſh him from the elder. It is eſteem'd the moſt honourable of all others, and is formed by a Fillet uſually placed in the middle, and along the Chief of the Coat without touching its Extremities. Its Breadth ought to be a ninth part of the Chief. It is adorn'd with Pendants ſomewhat like the Drops under the Triglyphs in the *Doric* Freeze. When there are above three Pendants, the Number muſt be ſpecified in Blazoning: There are ſometimes ſix in the Coats of younger Brothers.

LABIAL, a Term in Law uſed in the ſame ſenſe with Oral. *Labial* Offers are ſuch as are only made by Word of Mouth, or even by Writing, where there is no valuable Conſideration: In Courts of Equity theſe are not regarded. The Grammarians, and eſpecially the Orientals, apply the Terms *Labial*, *Dental*, *Guttural*, to ſuch Letters as are pronounced with the Lips, the Teeth, or the Throat.

LABIATE FLOWERS, from the word *Labium*, a Lip, is a Term applied by Herbaliſts to ſuch Flowers, as have one or two Lips, ſome of which repreſent a kind of Helmet or Monk's Hood. See *Flower*.

LABORATORY, or *Elaboratory*, in Chymiſtry, the Place where the Chymiſts perform their Operations, where their Furnaces are built, their Veſſels kept, *&c.* In general, the Term *Laboratory* is applied to any Place, where Phyſical Experiments and Operations in Pharmacy, Chymiſtry, *&c.* are performed. The *Laboratory* of an Hoſpital is the Place where the Remedies are made up.

LABYRINTH, among the Antients was a large intricate Edifice cut out into various Iſles and Meanders running into each other, ſo as to render it difficult to get out of it. There is mention made of four celebrated *Labyrinths* of Antiquity. That of *Crete* is the moſt famed; it was built by *Dædalus*, and it was hence that *Theſeus* made his Eſcape by means of *Ariadne*'s Clue. That of *Egypt*, according to *Pliny*, was the oldeſt of all, and was ſubſiſting in his Time, after having ſtood 3600 Years. He ſays it was built by King *Peteſucus* or *Tithöes*, but *Herodotus* makes it the Work of ſeveral Kings: it ſtood on the Banks of the Lake *Myris*, and conſiſted of 12 Palaces and 1500 Apartments: *Mela* ſays, *ter mille domos*. That of *Lemnos* was ſupported by Columns of wonderful Beauty, there were ſome Remains of it at the Time when *Pliny* wrote. That of *Italy* was built by *Porſenna* King of *Hetruria*, for his Tomb.

Labyrinth, in Anatomy, is the Name of the ſecond Cavity of the Internal Ear, which is hollowed out of the *Os Petroſum*, and is ſo call'd as having ſeveral Windings in it. This Cavity is divided into three Parts; the firſt is that call'd the *Veſtibulum* of the *Labyrinth*, becauſe it leads in to the other two. The ſecond comprehends three Canals crooked ſemicircularly, and thence call'd Semicircular Canals, placed on one ſide of the *Veſtibulum*, towards the back of the Head; and the other call'd the *Cochlea*, ſituate on the other ſide. See *Ear*. Dr. *Vieuſſens* obſerves, that the Bone out of which the *Labyrinth* is dug, is white, hard, and very compact, that the Ethereal Matter of Sounds laden with Impreſſions ſtriking againſt its ſide, may loſe little or nothing of its Motion, but communicate it entire to the Nerves of the Ear.

LACCA, a Gum, or rather Wax, hard, red, brittle, clear and tranſparent, brought from *Malabar*, *Bengall*, and *Pegu*, and uſed in dying of Scarlet, *&c.* Authors differ as to the Production of this curious Wax. F. *Tachard*, who was on the ſpot, tells us that a kind of little Ants fixing themſelves to the Branches of ſeveral Trees, leave behind them a reddiſh Moiſture, which lying expoſed to the Air and Sun, hardens in five or ſix days time. Some imagine this is not the Production of the Ants, but a Juice which they draw out of the Tree, by making little Inciſions in it; and in effect, the Trees where the *Lacca* is found, do yield a Gum: but then 'tis of a very different Nature from the *Lacca*. The Ants are, as it were, a kind of Bees, and the *Lacca* is their Honey. They work at it eight Months in the Year, and the reſt of the time lie by, becauſe of the Rains.

To prepare the *Lacca*, they firſt ſeparate it from the Branches to which it adheres, pound it in a Mortar, and throw it into boiling Water; and when the Water is well dyed, they pour on freſh, till ſuch time as it will tinge no more. Part of the Water thus tinged is evaporated in the Sun; after which, the thicken'd Tincture is ſtrain'd through a Linnen Cloth.

M. *Geoffroy* examining the Gum *Lacca*, found it to be a kind of Comb, ſuch as the Bees and ſome other Inſects are accuſtomed to make. Upon breaking it into pieces, it appears divided into a great number of *Alveoli* or little Cells of an uniform figure, and which plainly ſhew that it never ouz'd from Trees. Theſe Cells are not mere Excrements, as ſome imagine, but are intended for ſomething to be depoſited in 'em. And accordingly are found to contain little Bodies, which the firſt Obſervers took for the Wings or other Parts of the Inſects that produced the *Lacca*. Theſe little Bodies are of a beautiful Red; and when broke, make a Powder as fine as Cochineal. 'Tis moſt probable theſe Cells are deſtined to lodge the young Brood, as thoſe of the Bees; and that theſe little Carcaſſes are the Embryo's of Inſects, or perhaps their Skins.

There are ſeveral ſorts of *Lacca*: that mention'd in the laſt Article is the natural: when it is prepared, as in the former, thoſe kinds of dry Cells are not ſeen. M. *Geoffroy* reckons ſix or ſeven different Kinds; beſides which, there are ſeveral Paſts uſed by the Painters, that go by this name, or that of *Laque*. This Gum boil'd in Water with Acids, makes a beautiful Red Dye. The *Engliſh* and *Dutch* uſe it in Scarlet.

Lemery having examined the Gum *Lacca* chymically, judges it to be a mean Mixture between a Gum and a Reſin, more abundant in Salt than Oil.

Artificial Lacca, or *Laque*, is a coloured Subſtance, drawn from ſeveral Flowers; as the Yellow from the Flower of the Juniper, the Red from the Poppy, and the Blue from the Iris or Violet. The Tinctures of theſe Flowers are expreſs'd by diſtilling them ſeveral times in *Aqua Vitæ*, or by boiling them over a Stove-Fire in a Lixivium of Pot-Aſhes and Alumn. Artificial *Lacca* is alſo made of Braſile boil'd in a Lixivium of the Branches of the Vine, adding a little Cochineal, Terramerita, Alumn calcin'd, and Arſenic incorporated with the Bones of the Cuttle-fiſh pulveriz'd, made up into little Cakes and dry'd. If it is to be very red, they add Juice of Citron to it; to make it brown, they add Oil of Tartar. Dove-colour'd or Colombine *Lacca* is made with Braſile of *Fernambouc* ſteep'd in diſtill'd Vinegar for the ſpace of a month, mix'd with Alumn incorporated in the Bones of the Cuttle-fiſh.

LACERNA, the Name of a Garment worn by the Antients. It was a kind of Cloke made of Wool, only uſed by the Men: they wore it over the *Toga*, and when that was not on, over the *Tunica*. It was at firſt very ſhort, but growing popular in the *Roman* Army, was ſoon lengthen'd. The *Lacerna* was ſcarce known in *Rome* till the Time of the Civil Wars and the Triumvirate. Then indeed it came into faſhion, for the Soldiers being then frequently in the City, or at the City-Gates, the Sight became familiar to the Citizens, and they fell into the Uſe of it; inſomuch that it became the common Dreſs of the Knights and Senators, till the Time of *Valentinian* and *Theodoſius*, when the Senators were prohibited the wearing of it in the City. The *Lacerna* was the ſame with the *Chlamys* and *Birrus*. *Martial* mentions *Lacernæ* of ten thouſand Seſterces price. The word comes from the *Greek* λάκη or λάκκη, a Garment.

LACHRYMALIS GLANDULA, in Anatomy, the Name of a ſmall oblong Gland ſituate above the Eye, near the little Canthus, whence proceed two or three ſmall Ducts, which opening on the inner Surface of the Eye-lid, filtrate a Seroſity ſerving to moiſten the Ball of the Eye, and to facilitate its Motion. Near the larger Angle is alſo a little Eminence, in form of a Caruncle, which ſome have taken for another *Glandula Lachrymalis*, but by miſtake, this being no more than the Duplicature of the inner Membrane of the Eye-lids. On the ſame ſide, near the leſſer Angle, are two little Perforations, call'd *Puncta Lachrymalia*; which are the Openings of a little membranous Bag at the Entrance of the Excretory Canal, that deſcends into the Cavity of the Noſe, by which means the ſuperfluous Moiſture of the Eye is diſcharged into the Noſe. On the ſame ſide is a very ſmall Bone, one of thoſe of the upper Jaw, ſometimes call'd *Os Lachrymale*, but more uſually *Os Unguis*.

Fiſtula Lachrymalis is a Fiſtula in the larger Angle of the Eye. It uſually happens after an Abſceſs formed in the Bag above mention'd, by means of the Seroſity lodg'd there; which being retain'd too long, becomes acrimonious, and occaſions an Ulcer which frequently degenerates into a Fiſtula.

LACHRYMALIA PUNCTA, in Anatomy, two little Apertures in the extreme Angles of each Eye-lid, into which an aqueo-ſaline pellucid Humour, ſecreted from the Blood by the *Glandula Lachrymalis*, is convey'd, and thence carried off by the Lachrymous Canals into a little Bag in the Canal of the Noſe; whence by a Pipe, always open, it is carried into the Cavity of the Noſe immediately under the lower *Os Spongioſum*. Hence appears the Reaſon why People in crying run at the Noſe. This Humour ſeparated by the *Glandula Lachrymalis*, ſerves to moiſten and lubricate the Ball of the Eye, and prevent any hurtful Attrition: When it is ſecreted in any great quantity, ſo as to overflow the Eye-lids, it is call'd Tears.

LACHRYMATORIES were antiently ſmall Earthen Veſſels, wherein the Tears of the weeping Friends that ſurvived were repoſited, and buried with the Aſhes and Urns of the Dead. Some of theſe are ſtill ſeen in the Cabinets of the Curious.

LAC LUNÆ, *Milk of the Moon*. See *Milk*.

LACONISM, a ſhort, briſk, ſententious Speech, in the manner of the *Lacedemonians*, who were remarkable for the Cloſeneſs and Conciſeneſs of their way of delivering themſelves.

LACTATION, the giving of Suck, and the Time the Mother doth that Office to her Young.

LACTEAL VEINS, a kind of long ſlender Tubes for the Conveyance of the Chyle from the Inteſtines to the common Reſervatory: They were firſt diſcovered by *Aſellius* an *Italian* Phyſician in 1622, and call'd *Lacteal*, from the Liquor they contain, which reſembles that of Milk. Their Coats are ſo thin, as to be inviſible, except when diſtended with Chyle or Lympha. They ariſe from all the Parts of the ſmall Guts, and as they run from the ſides of the Guts to the Glands in the Meſentery, unite and form larger Branches, called *Venæ Lacteæ primi generis*. The Mouths of theſe *Lacteals*, which are open into the Cavity of the Guts, from whence they receive the Chyle, are ſo ſmall as not to be ſeen by the beſt Microſcope. It was neceſſary they ſhould be ſmaller than the fineſt Arteries in the Body, that nothing might enter to ſtop the Circulation of the Blood. The ſame Extremity of the *Lacteals* has likewiſe communication with the Capillary Arteries of the Guts, by which they receive a Lympha that dilutes, and propels the Chyle forwards, and waſhes the *Lacteals* and Glands, that they might not fur, and be obſtructed by the Chyle's ſtaying in them upon faſting. The other Extremity of the *Lacteals* diſcharges the Chyle into the veſicular Cells of the Glands diſperſed up and down the Meſentery: And from theſe ariſe other *Lacteals* of a larger ſize, which carry the Chyle immediately into the *Receptaculum Chyli*; theſe are called *Lacteæ ſecundi generis*. The *Lacteal* Veins have Valves at ſeveral diſtances, which hinder the Chyle from returning back into the Inteſtines.

It is ſtill doubted whether or no the *Inteſtina Craſſa* afford any *Lacteals* or not. The Impoſſibility of human Diſſection proper for ſuch an Enquiry, gives no room either to affirm or deny. But the Contents of the *Inteſtina Craſſa* ſeem not likely to afford much Chyle, and therefore if there be any, 'tis probable they are very few.

In Brutes, if diſſected at a reaſonable time after feeding, as two or three hours, the *Lacteals* appear very tumid and white; and if wounded, the Chyle flows plentifully from 'em. But if inſpected when the Stomach of the Animals has lain ſome time empty, they appear like Lymphaticks, viſible indeed, but fill'd with a tranſparent Liquor. That the *Lacteals* have a Communication from the Cavities of the Inteſtines, is demonſtrated by their Contents, the Chyle; but how their Pores are diſpoſed to receive it, has not yet been diſcovered: Nor is there any way known whereby to fill the *Lacteals* from the Cavities of the Guts after Death. 'Tis probable then, their Entrance into the Gut is oblique, ſince neither Wind nor Liquors can paſs from thence. As 'tis found theſe Pores can only receive any thing in the living State, we may be allow'd to imagine that 'tis the Periſtaltic Motion of the Guts which diſpoſes them in that State to receive the Chyle. And this may be done by means of the Circular and Longitudinal Fibres of the Inteſtines ſtill applying the Internal Coats of the Guts to their Contents, by which means its Pores abſorb the Chyle from the Excrementitious Part.

LACTEA VIA, *the Milky Way*. See *Galaxy*.

LACUNÆ, among Anatomiſts the Name of certain excretory Canals. Between the fleſhy Fibres of the Ureter and the Membrane of the Vagina in Women, is found a whitiſh glandulous Body about a finger thick, running round the Neck of the Bladder, having a great number of excretory Ducts, which *Graef* calls *Lacunæ*, and which terminate in the lower part of the Orifice of the Womb, conveying thither a ſlimy Matter, that mixes with the Seed of the Male. See *Generation*.

LACUNAR, in Architecture, an arched Roof or Cieling, more eſpecially the flanking or flooring above the Portico's and Piazza's.

LADANUM, or *Labdanum*, in Pharmacy, the Name of a Gummous or Reſinous Matter ouzing out of the Leaves of a Shrub call'd *Ciſtus Ladanifera*, which is very common in the hot Countries, and whereof there are various kinds. They gather the *Ladanum* by means of Goats, which brouzing on the Leaves of this Shrub, return to the Stable with their Beards loaden with a fat Subſtance, which the Peaſants rake off, with a kind of Combs made for that purpoſe. This Matter they thus collect into Lumps, and, as 'tis mix'd with the Goats Hair and other Impurities, call it *Ladanum* in the Beard, or natural *Ladanum*. Others draw Cords over the Leaves and other Parts of the Shrub, and ſcraping off what had ſtuck to the Cords, make up the *Ladanum* into little Balls. *Ladanum* is uſed in Phyſick to ſoften, digeſt, attenuate

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and reſolve. That which is brittle, of an aſh-colour, ſweet-ſcented, *&c.* is the beſt. *Pietro della Valle* tells us he was inform'd by the *Indians*, that *Ladanum* is formed like Dew, and falls from Heaven like Manna, that it is gather'd on the Leaves of a Plant, a Palm and an half high; that after gathering they boil it, by which means it becomes ſoft like Wax.

Liquid Ladanum is a Preparation of the natural *Ladanum*, by melting and purifying it from the Hairs, *&c.* This is ſometimes ſold for a black Amber.

LAGAN, at firſt was the Right which the chief Lord of the Fee had to take Goods caſt on the Shore by the Violence of the Sea, but afterwards ſignified a Right which any one had to Goods ſhipwrecked and floating in the Sea, becauſe being remote from the Shore, it could not be determined to whoſe Fee they properly belonged. The word *Lagan* comes from the *Saxon* Liggan, *cubare*, *to lie*, and not from *ligare*, *to bind*, as ſome will have it, becauſe the Goods are frequently tied together to prevent their ſinking.

LAGOPHTHALMIA, a Diſeaſe of the Eye-Lids, when the upper Lid is ſo contracted that the Eye can't be quite ſhut, but remains open even in the time of Sleep. The word comes from the *Greek* λαγὼς, *Hare*, and ὀφθαλμὸς, *Eye*: this being the Property of the Eyes of Hares.

LAIR is a Term in Hunting, for the Place where Deer harbour by day; alſo a Place where Cattel uſually reſt under ſome Shelter, the Ground being enriched by their Dung.

LAKE, a large Quantity of Water incloſed in the Cavity of ſome Inland Place, of a conſiderable Extent and Depth. Properly ſpeaking, however, thoſe only are called *Lakes*, which receive and emit Rivers. *Lakes* are of four kinds; (1.) Such as neither emit nor receive Rivers. (2.) Such as emit Rivers without receiving any. (3.) Such as receive without emitting any. (4.) Such as both receive and emit Rivers. Of the firſt kind ſome are perennial, others temporary; the temporary owe their Origin moſt of them to Rain, and to the Cavity or Depreſſion of the Place where they are lodged. In the *Indies* they make artificial *Lakes*, which they wall about, to catch the Rain in wet Seaſons, and preſerve it for their Uſe in the dry ones. There are ſeveral of this kind of *Lakes*, formed by the Inundations of the Sea and Rivers, particularly the *Nile* and *Niger*; which, when they retire within their Banks, leave Floods of Water, which the Inhabitants take care to incloſe, to ſerve as a Magazine for the enſuing Months. The Generation of perennial *Lakes* may be alſo referred to Rain, where the Cavity is ſo deep as to receive a Quantity in Winter more than the Heat of the Sun will exhale in Summer; tho 'tis probable many of theſe *Lakes* have their Springs at bottom, by which they are continually ſupplied. To this Claſs may be referred the Turloughs, *i. e. Terreus Lacus*, or Land-Lakes in *Ireland*, which are *Lakes* one part of the Year, and the reſt very ſmooth Fields: At the bottom of theſe Turloughs are found Holes, through which the Water runs in Winter, and ſinks towards Summer.

The ſecond Species of *Lakes*, which emit without receiving Rivers, is very numerous; they owe their Origin to Springs, the Cavities where the Spring is found not being able to contain all the Waters it yields.

The third kind, *viz* thoſe which receive Rivers without emitting any, apparently owe their Origin to thoſe Rivers, which, in their Progreſs from their Source, falling into ſome ample Cavity, are collected together, and form a *Lake* of ſuch Dimenſions as may loſe as much by Exhalation as it continually receives from its Spring; or ſometimes happening on a ſoft ſpongy Soil, that imbibes the Water, and tranſmits it to the neighbouring Grounds. The Number of theſe is ſmall.

The fourth Species both receives and emits Rivers. Of theſe we reckon three different kinds, as the Quantity of Water they emit is greater, equal, or leſs than that they receive. If the Quantity they emit be greater, 'tis plain they muſt have a Spring at the bottom; if leſs, there muſt be ſome ſubterraneous Ducts or Canals, or elſe the Earth muſt be ſpongy; if it be equal, we gather that they have neither any hidden Springs nor Canals. Of theſe *Lakes* we have a great Number, and thoſe very conſiderable ones.

The Generality of *Lakes* conſiſt of freſh Waters, as moſt of thoſe which are ſupplied either from ſome Spring far from the Sea, or a River, or from the Rain: Some few of Salt-water; as thoſe produced by the Inundation of the Sea, or by its Immiſſion through ſome Duct of the Earth, or that have Salt Springs at bottom. Dr. *Halley* is of Opinion, that all great perennial *Lakes* are ſalt, either in a greater or leſs Degree, and that this Saltneſs increaſes with Time, and on this Foundation propoſes a Method for determining the Age of the World.

The large *Lakes*, wherewith the *Northern* Regions abound, ſerve for very good Purpoſes; inaſmuch as the warm Vapours ariſing from them ſerve for a Defenſative againſt the pinching Cold of thoſe Climates. To this it is owing, that *Ireland*, *Scotland*, &c. are leſs affected with Froſts than much warmer Countries.

LAMA, the Title of an Order of Prieſts among the *Weſtern Tartars*, on the Frontiers of *China*; theſe *Lama's* are held in great Veneration. They have a Grand *Lama*, who is their High-Prieſt, and who is the ſecond Perſon in the Kingdom, being the next in Authority to the King. He receives Homage and Adoration not only from the People, but from the neighbouring Kings; none of whom are ever inthroned, without ſending Ambaſſadors to him to obtain his Benediction. The *Lama's* are extremely ſuperſtitious, and are remarkably given to Magick.

LAMBATIVES, a Form of Medicines to be lick'd off the End of a Liquorice-Stick. The ſame with *Linctus's*, *Lobocks*, and *Eclegmas*, which ſee.

LAMBDOIDES, in Anatomy, an Epithet applied to the third proper Suture of the Cranium, in regard it reſembles the Form of a *Greek* λ *Lambda*; for the ſame reaſon it is ſometimes called *Ypſiloides*, as bearing ſome Reſemblance to a *Greek* Υ *Ypſilon*.

LAMELLÆ, a Diminutive of *Laminæ*, little thin Plates, whereof the Scales and Shells of Fiſhes, *&c.* are compoſed.

LAMIÆ, among the Antients, were eſteemed a kind of Demons, or evil Spirits, who, under the Form of beautiful Women, devoured Children. *Horace* makes mention of them in his *Art of Poetry*. Some Authors call them *Laniæ*, *à laniando*. *Philoſtratus* ſays, they are alſo called *Larvæ*, or *Lemures*, as if they were the ſame thing. *Bochart* will have the word to be *Phœnician*, and derives it from לחם, *to devour*, alledging the Fable of the *Lamiæ* came from *Lybia*.

LAMINÆ, thin Plates or Tables, whereof any thing conſiſts, particularly the human Skull, which are two, the one laid over the other.

LAMMAS-DAY, *quaſi Lamb-mas*, is the firſt of *Auguſt*, ſo called, as ſome will have it, becauſe Lambs were not then fit to eat, as being grown too big. Others derive it from a *Saxon* word, ſignifying *Loaf-Maſs*, becauſe on that Day our Forefathers made an Offering of Bread made with new Wheat. On this Day the Tenants, who formerly held Lands of the Cathedral Church in *York*, were bound by their Tenure to bring a Lamb alive into the Church at High-Maſs. See *Gale*.

LAMP, a Preparation of Oil, *&c.* in a proper Veſſel, for burning. The Uſe of lighted Lamps in Churches and Places of Devotion is very antient. In the City of *Fez* is a Moſque wherein are 900 brazen *Lamps* burning every Night. In *Turkey* all their Illuminations are with *Lamps*. *Polydore Virgil* aſcribes the firſt Invention of *Lamps* to the *Egyptians*, and *Herodotus* deſcribes a Feaſt of *Lamps* held annually in *Egypt*.

Kircher ſhews the manner of preparing Lamps which diffuſe a Light ſo diſpoſed, as to make the Faces of thoſe preſent appear black, blue, red, or any other Colour. There has been a great Diſpute among the Learned about the Sepulchral Lamps of the Antients: ſome maintain they had the Secret of making Lamps that were inextinguiſhable, alledging ſeveral that had been found burning at the opening of Tombs 15 or 16 Hundred Years old. But others treat theſe Relations as Fables; and others think that the Lamps which before were extinguiſh'd, take Light a-freſh upon the Admiſſion of freſh Air. Dr. *Plott* however is of Opinion ſuch perpetual Lamps are things practicable, and has himſelf made ſome Propoſals of this kind. The *Linum Asbeſtinum* he thinks may do pretty well for the Wick, and that Naptha, or Liquid Bitumen, conſtantly ſpringing into ſome of the Coal Mines, will anſwer for the Oil. If the Asbeſtos won't make a perpetual Wick, he thinks there is no matter in the World that will; and argues that the Tradition of ſuch Lamps muſt be fabulous, or that they made them without Wicks. Of this Kind he thinks it poſſible to make one of the Bitumen ſpringing into the Coal Mines at *Pitchford* in *Shropſhire*; which, he ſays, like other liquid Bitumens, will burn without a Wick. He makes a Propoſal too, for imitating thoſe Lamps that kindle on the Immiſſion of freſh Air; by incloſing ſome of the liquid Phoſphorus in the Recipient of an Air-Pump; which, under thoſe Circumſtances, will not ſhine at all, but on letting in the Air into the Recipient, there will poſſibly, ſays he, appear as good a perpetual Lamp as ſome that have been found in the Sepulchers of the Antients.

Cardan's Lamp, is a Contrivance of that Author which furniſhes it ſelf with its own Oil. It conſiſts of a little Column of Braſs, Tin, or the like, well cloſed every where, excepting a ſmall Aperture at Bottom, which opens into the Middle of a little Neck where the Wick is placed. Here the Oil cannot get out, but in proportion as it ſpends, and ſo clears the Paſſage of that little Aperture. This Kind of Lamp has become much in Uſe within theſe twenty or thirty Years; but it has ſeveral Inconveniences, as that the Air gets into it by Starts and Gluts; and that when the Air in the Cavity comes to be much rarefied by Heat, it drives out too much Oil, ſo as ſometimes to extinguiſh the Lamp. Dr. *Hook* and Mr. *Boyle* have invented other Lamps that have all the Conveniences of *Cardun*'s, without the Inconveniences. See ſome Improvements in the Doctrine of Lamps under *Mirror.*

LAMPADARY, an Officer in the antient Church of *Conſtantinople.* His Buſineſs was to ſee the Church well lighted, and he bore a Taper before the Emperor, the Empreſs, and the Patriarch, when they went to Church, or in Proceſſion. The Taper born before the Emperor was incompaſſed with various Circles of Gold in manner of Crowns, thoſe held before the Empreſs and Patriarch had but one. It ſeems they were of emblematical Uſe, and were intended to keep thoſe great Perſons in mind, that their Light was to illumine thoſe underneath them. See the *Greek* Euchology, *Balſamon*, &c.

There were alſo *Lampadaries* in the Emperor's Palaces; at firſt the Privilege was only granted to the Great Officers of the Crown, and the Chief Magiſtrates, but afterwards the Emperor allowed it to other inferior Officers, as Queſtors, Treaſurers, *&c.* Together with the Taper, they bore before the Magiſtrates the Emperor's Image, *&c.* On which account, 'tis probable, they were firſt permitted to have a Lampadary. The word is formed from the *Latin*, *Lampas* a Lamp.

LAMPADIAS is a kind of bearded Comet, reſembling a burning Lamp, tho' of ſeveral Shapes; for ſometimes its Flame or Blaze runs tapering upward like a Sword, and ſometimes is double or triple pointed.

LAMPERS, is a kind of Swelling in the Mouth of an Horſe, ſo called becauſe it is cured by burning with a Lamp, or an hot Iron: it proceeds from abundance of Blood reſorting to the firſt Furrow of the Mouth, near the Fore-teeth, that cauſes the ſaid Furrow to ſwell as high as his Gathers, which will hinder his feeding, and makes him let his Meat fall half chewed out of his Mouth again. It is a natural Infirmity which every Horſe has firſt or laſt, and every common Smith can cure.

LAMPETIANS, a Sect of antient Hereticks who fell in with ſome of the Opinions of the *Arians.* Their Founder *Lampetius* is ſaid to have been one of the Chiefs of the *Marcionites.* They condemn'd all Kind of Vows, particularly that of Obedience, as inconſiſtent with the Liberty of the Sons of God.

LAMPROPHORUS, a Name antiently given to the *Neophytes* during the ſeven Days that ſucceeded their Baptiſm. In the Ceremony of Baptiſm the new Chriſtian was cloath'd with a white Robe, which he wore for the Week following, and was thence call'd *Lamprophorus*, which ſignifies a Perſon wearing a ſhining Garment, from λαμπρὸς and φέρω, I carry. The *Greeks* alſo give this Name to the Day of the Reſurrection, in regard their Houſes were adorned and illumined on this Day with an infinite Number of Torches as a Symbol of the Light which that Myſtery diffuſed in the World.

LANAR. See *Lanner.*

LANCE, an offenſive Weapon, bore by the ancient Cavaliers in form of a half Pike. It conſiſted of three Parts, the Handle, the Wings, and the Dart. *Pliny* attributes the Invention of Lances to the *Etolians.* *Varro* and *Aulus Gellius* ſay, the Word *Lance* is *Spaniſh*; whence others conclude the Uſe of this Weapon was borrow'd by the People of *Italy* from the *Spaniards.* *Diodorus Siculus* derives it from the *Gauliſh*, and *Feſtus* from the Greek λόγχη; *Pezron* from the *Celtic*, and *Borell* from the *Hebrew.*

LANCETI, a Name given by the antient Laws of *England* to a kind of Vaſſals who were obliged to work for their Lord one Day in a Week from *Michaelmas* to *Autumn*, either with Fork, Spade, or Flail, at the Option of the Lord.

LANCETTE, is a Chirurgeon's little Knife, ſtreight-pointed, two edged, uſed in opening Veins, *&c.*

LANDAU, a Tree in the *Molucca*'s, whereof the Natives make their Bread. When it is fell'd they cleave it into two in the Middle, and dig out the Pith, which is even eatable when it comes freſh out of the Tree. They chop it very ſmall, till ſuch time as it is reduced into a kind of Powder ſomewhat like Meal. This done, they put it in a Searce made of the Bark of the ſame Tree, and place the Searce over a Ciſtern made of its Leaves, pouring Water upon it, and by this means ſeparating the pure Part of the Powder from the Veins of Wood wherewith the Pith abounds. The Flower thus filtrated, they call Sagu; they make it into Paſte, and bake it in earthen Furnaces; and this they do with ſo much Expedition, that in three or four hours a Man makes as much Bread as will feed an hundred Perſons a day. From the ſame Tree they draw a Liquor as agreeable to drink as our Wines. The Leaves, when they are young, are cover'd with a kind of Cotton, whereof they make their Cloth, and as they grow older they ſerve them to tile their Houſes. The larger Veins of theſe Leaves ſerve 'em for Stakes in building; and of the ſmaller they make a kind of Hemp, wherewith they make very good Ropes.

LAND-CHEAP, is an antient cuſtomary Fine paid either in Cattle or Money, upon the alienating or ſelling of Land in ſome particular Mannor, or within the Liberty of ſome Borough; as at *Malden* in *Eſſex*, a Payment is ſtill made of 13 *d.* in every Mark of the Purchaſe-Money, for certain Lands and Houſes ſold in that Town.

LAND-FALL, is a Sea-Term, ſignifying to fall in with the Land. Thus when a Ship out at Sea expects to ſee Land in a little time, and it ſo happens that ſhe doth, they ſay they have made a good *Land-fall.*

LAND-GABLE, an antient Term for a Tax or Rent iſſuing out of Land.

LAND-LOCKED. A Ship is ſaid to ride *Land-locked*, when ſhe is at Anchor in ſuch a Place where there is no Point open to the Sea, ſo that ſhe is ſafe from the Violence of Winds and Tides.

LANDSKIP, or *Landſchape*, the View or Proſpect of a Country, extended as far as the Eye will carry. *Landſkips* in Painting, are Pieces repreſenting ſome Champaign or Rural Subject, as Hills, Vales, Rivers, Country Houſes, *&c.* where human Figures are only introduced as Accidents or Circumſtances. This is eſteemed one of the loweſt Branches of Painting.

LANGREL SHOT, is a ſort of Shot uſed at Sea; it is made of two Bars of Iron, with a Joint in the Middle, by which means it can be ſhortened, and ſo put the better into the Gun; and at each End there is an half Bullet either of Lead or Iron. When it is diſcharged, it flies out at length, and is of uſe to cut the Enemies Rigging, *&c.*

LANGUAGE, a Set of Words which any People have agreed upon, in order to communicate their Thoughts to each other. The firſt Principles of all *Languages*, *F. Buffier* obſerves, may be reduced to Expreſſions ſignifying, *1ſt*, The Subject ſpoke of. *2dly*, The Thing affirmed of it. *3dly*, The Circumſtances of the one and the other: But as each *Language* has its particular Ways of expreſſing each of theſe; *Languages* are only to be looked on as an Aſſemblage of Expreſſions, which Chance or Caprice has eſtabliſhed among a certain People; juſt as we look on the Mode of Dreſſing, *&c.* 'Tis Uſe and Cuſtom is the Rule of a *Language*, and theſe hold their Empire independent of Reaſon or any other Cauſe: Nor has Reaſon any thing to do in *Language*, unleſs to ſtudy or teach it, ſuch as it is: Here then commences Grammar; a juſt Plan of which, ſuppoſes a *Language* already introduced by Uſe, and without pretending to alter or amend a tittle, only furniſhes Reflections, call'd Rules, to which the Manners of ſpeaking uſed in that *Language* can be reduced; which Aſſemblage of Reflections is what we call the Grammar of that *Language.* This Remark may obviate an Abuſe introduced among Grammarians, who are ever crying out, *Uſe is in this Point oppoſite to Grammar, or the* Language *here frees itſelf from* the Rules of Grammar, *&c.*

'Tis Chance then to which we owe Uſage and Uſage that makes the Rules and Meaſures of a *Language.* Uſe indeed is ſomewhat dubious, and may be divided into good and bad: If 'tis ask'd wherein the difference between theſe lies; 'tis in this, that the one is better eſtabliſhed or authorized than the other: And if it be ask'd wherein that Difference of Authority conſiſts, 'tis anſwer'd, that in dead Languages, that which makes the good Uſe is the Writings of the beſt Authors in that *Language*: And if it be further queſtioned, which are the beſt; thoſe are allow'd ſuch who wrote when that State was in its greateſt Glory. Thus the Age of *Auguſtus* being the moſt diſtinguiſhed by great Men who then flouriſh'd, we call that good *Latin* which is conformable to the Manners of Speaking uſed by Authors who wrote fifty Years before, and fifty after the Reign of that Emperor. As to the living *Languages*, their good Uſe, or their Mode, is derived from the Expreſſions uſed by the moſt eminent Perſons among that People; whether as to Quality and Authority, or as to Learning and the Reputation of writing well. With this View M. *Vaugelas* defines the Uſe of a *Language*, The Manner of Speaking uſed by the beſt Part of the Court, conformably to the Manner of Writing among the beſt Part of the Authors of the Time. But this Definition, how judicious ſoever, may occaſion infinite doubt; for which is to be deem'd the beſt Part of the Court and of the Writers? Each Party doubtleſs thinks itſelf the beſt. *F. Buffier*, therefore, very juſtly, inſtead of the beſt Part ſubſtitutes the *greateſt* Part, which brings the Matter to a Certainty; the moſt numerous Part being ſomething fix'd and palpable, whereas the moſt ſound Part may be inſenſible or arbitrary. See *Grammar*.

There is found a conſtant Reſemblance between the Genius or Natural Complexion of each People and the Language they ſpeak. Thus the *Greeks*, a polite but voluptuous People, had a *Language* perfectly ſuitable, full of Delicacy and Sweetneſs. The *Romans*, who ſeemed only born to command, had a *Language* noble, nervous, and auguſt; and their Deſcendants, the *Italians*, are ſunk into Softneſs and Effeminacy, which is as viſible in their *Language* as their Manners. The *Language* of the *Spaniards* is full of that Gravity and Haughtineſs of Air which make the diſtinguiſhing Character of the People. The *French*, who have a World of Vivacity, have a *Language* that runs extremely briſk and lively. And the *Engliſh*, who are naturally blunt, thoughtful, and of few Words, have a *Language* exceedingly ſhort, conciſe, and ſententious.

The Diverſity of Languages is generally allowed to have took its Riſe from the Confuſion of *Babel*, both by *Jews*, *Chriſtians*, and *Mahometans*: But the Manner in which this Diverſity was effected, is ſtill in diſpute among the Learned. The Queſtion is, Whether God only expunged the Remembrance of the Signification of Terms in thoſe who built the Tower; or whether he immediately inſpired them with new Words. *Scaliger* holds that they only forgot the Meaning of the Words, and named one thing inſtead of another; tho' all indifferently ſpoke the *Hebrew* Tongue. Nor does *Caſaubon* allow that they immediately ſpoke different *Languages*: the Confuſion of Tongues he thinks might be very well effected, without introducing a Multiplicity of *Languages*. *See* Ziegra *de Confuſione Linguarum Babylonica ad Geneſ. XI.*

As to the Point of Antiquity, that too has been extremely controverted. *Herodotus* tells us, that in the Diſpute between the *Egyptians* and *Phrygians* about the Antiquity of their *Languages*, *Pſammeticus* King of *Egypt*, ordered two Children to be brought up, with expreſs Prohibition not to have one Word pronounced before them, but to leave Nature to ſpeak of her ſelf; and the firſt Word they ſpoke happen'd to be *Beccos*, which in the *Phrygian Language* ſignifies Bread. The *Egyptians* however were not convinced with this Proof. The *Arabs* diſpute the Point of Antiquity with the *Hebrews*: But the *Jews*, jealous even to Exceſs of the Honour of their Nation, poſitively inſiſt on it, that the *Hebrew* Tongue, ſuch as it is found in the Holy Scriptures, is the primitive Language, and that ſpoken by the firſt Man. Others maintain that the *Language* ſpoken by *Adam* is loſt, and that the *Hebrew*, *Chaldee*, and *Arabic*, are only Dialects of that original Tongue. So far are they from giving the Priority to the *Hebrew*, that they maintain *Abraham* ſpoke *Chaldee* before he paſs'd the *Euphrates*; and that he firſt learn'd the *Hebrew* in the Land of *Canaan*: ſo that this was not a ſpecial *Language* conſecrated to the People of God, but was originally the Language of the *Canaanites*.

M. *le Clerc* is of Opinion the *Hebrew* is far inferior to the *Greek*, both in Copiouſneſs, Elegancy and Perſpicuity; it is dry and deſtitute of Ornaments, inſomuch that wanting Expreſſions to vary the Phraſe, the ſame Periods are perpetually returning. The *Rabbins* ſay 'tis ſo pure and chaſte, that it has no proper Names for the Parts of Generation, nor for thoſe by which the Excrements are diſcharged. The *Arabic* is held the moſt copious of all *Languages*; it has 300 different Words to expreſs a Lion, and no leſs than 1200 for a Sword.

Languages are divided into matriculate or original *Languages*, as the *Hebrew* and *Arabic* in the Eaſt, the *Teutonic* and *Sclavonic* in the Weſt; and into ſecundary or derived *Languages*, which are thoſe formed out of a Mixture of ſeveral Tongues, as *Latin*, *French*, &c. *Kircher* will have the *Cophtic* a Mother Tongue, independent of all others; and *Du John* maintains the *Gothic* to be primitive, and the Mother of all the *Teutonic* Tongues; that is, of all thoſe ſpoke in the North. Some add the *Baſque* and *Low Briton* to the Number of Mother Tongues, imagining them to have been thoſe of the antient *Celtæ* or *Gauls*.

The learned or dead Languages are thoſe which only ſubſiſt in Books, which muſt be learned by the Rules of Grammar, as the *Greek*, *Hebrew*, *Syriac*, and *Chaldee*. See theſe under *Hebrew*, *Greek*, &c. *Raimond Lully* ſollicited the Eſtabliſhment of the Study of theſe Languages a long time in the 13th and 14th Centuries. At length, in the Year 1312, Pope *Clement* and the Council of *Vienna*, appointed that in the Court of *Rome*, and in the Univerſities of *Paris*, *Oxford*, *Boulogne*, and *Salamanca*, there ſhould be inſtituted Profeſſors of each, who ſhould have Salaries from the reſpective Courts. The Monks however vigorouſly oppoſed the ſpreading of theſe Studies, and with ſo much Succeſs, that *Eraſmus* tells us in his Time, *Græce noſſe ſuſpectum Hebraice prope Hæreticum*.

The living *Languages* are thoſe ſtill ſpoke in ſome Country or other, and which may be learn'd by Converſation. The moſt popular among theſe are the *French*, *Italian*, *Spaniſh*, and *Engliſh*; which ſee under their reſpective Names.

The *Spaniards* ſeem to place the Nobleneſs and Gravity of their *Language*, in the Number of Syllables, and the Swelling of Words; and ſpeak leſs to make themſelves underſtood, than to make themſelves admired. Their Terms are big and ſonorous, their Expreſſions haughty and boiſterous, and Pomp and Oſtentation run thro' all they ſay: their *Language* cannot paint a Thought to the Life; it always magnifies it, frequently diſtorts it; and does nothing if it do not exceed Nature. The *Italian* Tongue does not ſwell up Things to that Degree, but it adorns and embelliſhes them more; yet theſe Ornaments and Embelliſhments are not real Beauties. The *Italian* Expreſſions, thus rich and brillant, are like thoſe Faces cover'd with Patch and Paint, which make a fine Show; but that Finery, all Deceit. The *French Language* (as ſome of their Authors expreſs themſelves) is ſimple without Lowneſs, bold without Indecency, elegant and florid without Affectation, harmonious without Swelling, majeſtick without Pride, delicate without Softneſs, and ſtrong without Roughneſs. As to the Points of Strength and Majeſty, the *French* muſt give Way to the *Engliſh*, which in theſe, as well as in Copiouſneſs, exceeds moſt of the living *Languages*; as far as it comes behind ſome of them in Smoothneſs and Delicacy. Of all the modern *Languages*, the *Engliſh* is allowed to be the cloſeſt and the moſt clear, the chaſteſt and the moſt reſerved in its Diction, the moſt judicious and ſevere in its Ornaments: Of all others it is the moſt honeſt, open, and undeſigning; it won't bear double-meanings, nor can it palliate or hide Nonſenſe: bad Senſe and good *Engliſh* being Things inconſiſtent. With all its Sublimity it is gay and pleaſant on occaſion; but its Gaiety is ſtill moderated and reſtrained by good Senſe; it hates exceſſive Ornaments, and for the greater Simplicity, would almoſt chuſe to go naked: It never dreſſes more than Decorum and Neceſſity requires. The *Spaniſh* reſembles thoſe Rivers whoſe Waters are always ſwelling, and always muddy and turbulent; that never keep long within their Channel, but are ever overflowing, and their Overflowings ever noiſy and precipitate. The *Italian* is like thoſe pleaſing Rivulets that purl agreeably among the Stones, and glide in Meanders through Meadows full of Flowers. The *French* reſembles one of thoſe beautiful Streams that always run briſkly, but at the ſame time ſmoothly and equally; without much Noiſe or much Depth. The *Engliſh*, like the *Nile*, preſerves a Majeſty even in its Abundance; its Waters roll rapidly, notwithſtanding their Depth; it never roars but when its Banks are too narrow, nor overflows without enriching the Soil. The *Latin* is the common Mother of the three former, but the Daughters have very different Genius's and Inclinations. The *Spaniſh*, a haughty Dame, that piques herſelf on her Quality, and loves Exceſs and Extravagancy in every thing. The *Italian*, a Coquette, full of fine Airs; always appearing dreſs'd, and taking all Occaſions of ſhewing her Finery: to be admired, being all ſhe aims at. The *French*, an eaſy Prude, that has her Share of Modeſty and Diſcretion, but on occaſion can lay them both aſide. The *Engliſh* is of a more Maſculine Temperament. 'Tis not only of a different Family from the others, but appears of a different Sex too: Its Virtues are thoſe of a Man: indeed 'tis the Product of a colder Climate and a rougher People, and its Features may be ſomewhat coarſer than thoſe of its Neighbours; but its Faculties are more extenſive, its Conduct more ingenuous, and its Views more noble. See *Engliſh*, *French*, &c.

Ennius and *Cecrops* are celebrated for their Knowledge of various *Languages*. *Mithridates* King of *Pontus* underſtood twenty two Tongues, which was the Number of different People over whom he commanded; and thoſe *Languages* he knew ſo well, that he was able to harangue each of his People in their own *Language*. 'Twas a Saying of *Charles* the Vth, that ſo many *Languages* as a Man underſtands, ſo many times he is Man. Sultan *Soliman*'s Interpreter ſpoke perfectly well 17 different *Languages*. But among the Moderns none have been more remarkable in this Way than *Poſtellus*, who, beſides a perfect Knowledge of all the dead *Languages*, was ſo well acquainted with the living, that 'tis ſaid he could have made the Tour of the Globe without the Uſe of an Interpreter.

Bibliander has written of the Analogy and Proportion of all *Languages* and Letters, *De ratione Communi Linguarum*, in 1518. *Geſner* of the difference of *Languages* in 1572. *Lazius* publiſhed an Introduction to the Learning of the politeſt *Languages* in a common Method, in 1548. *Megiſſier* a Scheme of 40 different *Languages*, and different Dialects, Specimens of each whereof he gives in the Lord's-Prayer in 1593. *De Recoles*, in his Addition to the World of *Daviti*, has publiſhed the *Pater-noſter* in all the *Languages* ſpoke among Chriſtians; and M. *Chamberlayne* has lately propoſed to do the ſame in 100 *Languages*, a Specimen of which has been already publiſhed. *Alberia Gentilis* wrote of the Mixture of *Languages*, in 1603. And Father *Reinier*'s Diſcourſe on Etymologies, is a Work of the ſame Kind. In 1613, *Duret* publiſhed a Treaſure of the Hiſtory of *Languages*; and *Guichart* of the Etymological Harmony of *Languages*, in 1619. *Brerewood* has made curious Enquiries into the Difference of *Languages* and Religions.

Among the *Malteſe*, the Word *Language* is uſed for Nation. The Order of Knights is divided into eight *Languages*, three whereof are for *France*, *viz.* the *Language* of *Provence*, of *Auvergne*, and of *France*; two for *Spain*, thoſe of *Caſtile* and *Arragon*; the other three are the *Languages* of *Italy*, *England*, and *Germany*. Each of theſe *Languages* has its Chief, who preſides in Aſſemblies of the *Language* to which he belongs.

LANGUED, a Term in Heraldry, applied to ſuch Animals whoſe Tongue appears out of their Mouths, being of a Colour different from that of the Animal.

LANGUOR ſignifies a Faintneſs, which may ariſe from a Want or Decay of Spirits thro' Indigeſtion, or too much Exerciſe; or from an additional Weight of Fluids, from a Diminution of Secretion by the common Diſcharges.

LANIGEROUS, any thing that bears Wool. Hence *Lanigerous* Trees, among Herbaliſts, are thoſe Trees that bear a woolly downy Subſtance, as the black, white, and trembling Poplars, Oſiers, and Willows of all Sorts.

LANTHORN, an Utenſil of tranſparent Matter, ſerving for the Preſervation and Conveyance of Light, notwithſtanding the Inconveniences of Wind or Weather. *Epictetus*'s *Lanthorn* is ſaid to have been ſold for 3000 Drachms. *Lanthorns* are made of Glaſs, Horn, Paper, *&c.* That of *Diogenes* was held in great Veneration among the Antients; and that of *Judas* is ſtill preſerved in the Treaſury of St. *Denys*, as a very curious Piece of Antiquity. *Lanthorns* were formerly made of the Horn of a wild Bull call'd *Urus*; which when cut into thin Laminæ, *Pliny* tells us was very tranſparent. A Dark *Lanthorn*, is a *Lanthorn* with only one Opening, or Light, which, too, may be cloſed up, when the Light is to be intirely hid, and may be preſented to the Perſon one would ſee, without being perceiv'd one's ſelf. The Antients had their Dark *Lanthorns*, but they differ'd from ours; they were covered with four Skins, one of each Side or Light, three whereof were black, and only the fourth tranſparent. *Caſaubon* who gives us the Deſcription, took it from a Manuſcript of *Julius Frontinus*. Theſe were principally uſed in their Armies when they were to march privately off from their Enemies in the Night-time. The Word *Lanthorn* is derived from the Latin *laterna* of *lateo*, I am hidden, *eo quod lucem habeat interius clauſam*, in regard the Light is hidden within, ſays *Iſidore* and *Lambin*. But according to *Pezron*, *Laterna* comes from the *Celtic Letern*; and according to *Salmaſius*, *Lanthorn* comes from *lato*, in regard it bears a Lamp or a Light.

In *China* they have a celebrated Feaſt call'd the Feaſt of *Lanthorns*, held on the 15th Day of the firſt Month: 'Tis ſo call'd from the infinite Number of *Lanthorns* hung out in the Houſes and Streets; which, 'tis ſaid, is not leſs than two hundred Millions: inſomuch that it rather appears a Fit of Madneſs than of Feaſting. On this Day are expoſed *Lanthorns* of all Prices, whereof ſome are ſaid to coſt 2000 Crowns. Some of their Grandees retrench ſomewhat every day out of their Table, out of their Dreſs, Equipage, *&c.* to appear the more magnificent in *Lanthorns*. They are adorn'd with Gilding, Sculpture, Painting, Japanning, *&c.* and as to their Size, 'tis extravagant; ſome are from 25 to 30 Foot Diameter: they repreſent Halls and Chambers, and two or three ſuch Machines together would make handſome Houſes; ſo that in *China* they are able to eat, lodge, receive Viſits, have Balls, and act Plays in a *Lanthorn*. To illumine them, they ſhould have Bonefires; but as that would be inconvenient, they content themſelves with lighting up in them an infinite Number of Torches or Lamps, which at a diſtance have a beautiful Effect. In theſe they exhibit various Kinds of Shews to divert the People. Beſides theſe monſtrous *Lanthorns*, there is an infinite Number of leſs: theſe uſually conſiſt of ſix Faces or Lights, each about 4 Feet high, and one and a half broad, framed in Wood finely gilt and adorned; over theſe they ſtretch a fine tranſparent Silk, curiouſly painted with Flowers, Trees, and ſometimes Human Figures: the Painting is very extraordinary, and the Colours extremely bright; and when the Torches are lighted, they appear very beautiful and ſurprizing.

Lanthorn in Architecture, a kind of little Dome raiſed over a large one, or over the Roof of a Building, to give Light, and to ſerve for a Corona, or to finiſh the Building. The Word is alſo uſed for a ſquare Cage of Carpentry, with Glaſs in it, placed over the Ridge of a Corridor, or a Gallery between two Rows of Shops, to illumine them, as that in the *Royal-Exchange*, *London*.

Magic Lanthorn, in Opticks, the Name of a Machine, which in the Dark repreſents various Images and Spectres on a Wall, or other white Surface, ſo odd and ſurprizing, that thoſe who are not in the Secret, think them the Effect of Magic. See *Magic*.

LANUGO ſignifies a Down, or ſoft woolly Subſtance, which grows upon ſome Plants, which therefore are called lanuginous Plants.

LAPIDARY, an Artificer who cuts precious Stones. The Word is alſo applied to Merchants who trade in 'em, and Vertuoſo's well vers'd in their Nature, Kind, *&c.* in which Senſe, the preſent *Great Mogul* is ſaid to be one of the greateſt Lapidaries in the World.

The Art of cutting precious Stones is very antient; but like other Arts, its Original was very imperfect: The *French* have ſucceeded in it the beſt; and the Lapidaries of *Paris*, who have been a Corporation ſince the Year 1290, have carried it, eſpecially cutting of Diamonds called Brillants, to its laſt Perfection. There are various Machines uſed in the cutting of precious Stones, according to the Quality of the Matter to be cut. The Diamond, which is extremely hard, is cut and form'd on a Wheel of ſoft Steel, turn'd by a kind of Mill, with Diamond Duſt, temper'd in Oil of Olives; and this ſerves to poliſh 'em as well as to cut 'em. Oriental Rubies, Saphires, and Topazes, are cut and form'd on a Copper Wheel, with Oil of Olives, and Diamond Duſt: they are poliſh'd on another Copper Wheel, with Tripoli and Water. Rubies, Emeralds, Hyacinths, Amethyſts, Grenats, Agats, and other Stones leſs hard, are cut on a Leaden Wheel, with Smalt and Water, and poliſhed on a Tin Wheel with Tripoli. Turquois of the old and new Rock, Lapis, Giraſol, and Opal, are cut and poliſh'd on a Wooden Wheel with Tripoli. See *Diamond*, *Ruby*, &c.

Lapidary Stile, is a Stile proper for Inſcriptions. This is a kind of Medium between Proſe and Verſe; the jejune and the brillant are here equally to be avoided. *Cicero* has preſcribed the Rules of it; *Accedat oportet Oratio varia, vehemens, plena Spiritus. Omnium Sententiarum Gravitate, omnium Verborum ponderibus eſt utendum.* The *Lapidary Stile*, which was loſt with the ancient Monuments, has been retriev'd at the Beginning of this Age, by Count *Emanuel Theſauro*: It is now uſed various Ways at the beginning of Books; and even Epiſtles Dedicatory are compoſed in it, whereof we have no Example among the Antients.

LAPIDESCENT, from *Lapis* a Stone, any thing which has a Property of turning Bodies into a ſtony Nature, as many Spring-Waters will do to Pieces of Wood, and other like Subſtances. See *Petrifaction*.

LAPIDIFICATION, in Chymiſtry; an Action by which any Subſtance is converted into Stone: This is done by diſſolving a Metal, for inſtance, in a corroſive Spirit or Menſtruum, and afterwards boiling that Diſſolution into the Conſiſtence of a Stone. *Lapidification* is practiſed in Metals, fixed Salts, and Salts of Plants. The Term is alſo uſed in making artificial Stones. See *Petrifaction*.

LAPIS CALAMINARIS. See *Calamine*.

LAPIS DE GOA. See *Goa*-Stone.

LAPIS INFERNALIS, a cauſtick Stone prepared various Ways; ſometimes of ſtrong Soap-Lees evaporated to a Dryneſs, and the Remainder kept in a Glaſs well ſtopp'd from the Air: ſometimes it is made of Vitriol and Tartar, calcined Sal Armoniac, and Quick-Lime boil'd in Water to a ſtrong Lixivium, then ſtrain'd and evaporated till it is dry.

LAPIS LAZULI, a Mineral Stone of a blue Colour. *Pliny* and *Dioſcorides* make it a Sand, *Agricola* a Mineral found in the Veins of the Earth; but the truth is, 'tis a mere Stone, call'd by way of Excellence *Lapis*, or *Lapis Lazuli*. When perfect, 'tis ſtudded with little Specks or Stars of Gold; for which Reaſon, *Meſue* calls it *Lapis Stellatus*: and to be good, ſhould be able to reſiſt Fire and Smoak, and to come out of 'em with new Luſtre. It is found in Mines of Gold, Silver, and Copper, as alſo in Pits of Marble; which laſt is that generally in Uſe. Naturaliſts diſtinguiſh three Kinds of *Lapis*. The firſt call'd old Rock, which is pure, ſmooth, a fine blue, with beautiful yellow Streaks like Veins of Gold, which yet are frequently no more than Veins of Pyrites. The ſecond called the new Rock, is ſtuffed with common Stones; its Colour is weaker, and its Price lower: theſe two Kinds are brought from *Perſia* and *Siam*; the third Kind is brought from the Mountains of *Auvergne*. This is mix'd with the common Rock whence it is dug, it is of a pale blue, and is ſprinkled with greeniſh Spots, with Veins of Pyrites. This when ſufficiently charged with Spots of Green, is ſold for the *Armenian* Stone. The *Lapis* is of ſome Uſe in Medicine; they prepare it by calcining and waſhing it ſeveral times; which done, it makes an Ingredient in the famous Confection of *Alkermes*. Sometimes, in ſpight of all its Lotions, it continues to be a Purgative, by reaſon of the Vitriolic Matter it contains.

LAPIS MEDICAMENTOSUS, the medicinal Stone, a Compoſition of green and white Vitriol, Alum, Anatron of *Sandiver*, common Salt, and Salt of Tartar, melted over the Fire, and ſtirr'd till they thicken; then mix'd with Powder of Venice, Ceruſs, and *Armenian* Bole, ſtirring the whole till it grows hard. This is ſaid to faſten the Teeth, preſerve the Gums, heal and dry up Ulcers and Wounds, and is uſed in Injections, and in Compoſitions for ſore Eyes.

LAPSE, a Slip or Omiſſion of a Patron to preſent a Clerk to a Benefice within ſix Months of its being void; in which Caſe the Benefice is ſaid to be in *Lapſe*, or lapſed.

LAQUEARIUS, the Name of a Kind of Athleta among the Antients: In one Hand he held a kind of Snare, wherewith to embaraſs and intangle his Antagoniſt, and in the other a Poniard to ſtab him. The Word comes from the Latin *Laqueus*.

LAQUEUS in Chirurgery is a Band ſo tied, that if it be attracted, or preſſed with Weight, it ſhuts up cloſe. Its Uſe is to extend broken or diſjointed Bones, to keep them in their Places, when they are ſet, and to bind the Parts cloſe together.

LAR-BOARD is the Left-hand Side of a Ship when you ſtand with your Face to the Head.

LARCENY, in Law, is a Theft of perſonal Goods or Chattels in the Owner's abſence. In reſpect of the Thing ſtolen, it is either great or ſmall; great *Larceny* is when the Things ſtolen, tho' ſeverally, exceed the Value of 12 *d.* Petty *Larceny* is when the Goods ſtolen exceed not that Value. The ſtealing of a Horſe or a Cow, was formerly reckoned petty *Larceny*. The Civilians define *Larceny*, a fraudulent Subtraction of another Man's Property, with deſign to appropriate it without the Owner's Leave. When it is done by Force, it is called a Robbery. By the *Roman* Law, the Penalty of ſimple and ſecret *Larceny*, was the returning it twofold; and of manifeſt *Larceny* fourfold: Manifeſt *Larceny* was where the Criminal was taken in the Fact; ſimple, where he was not. The *Lacedemonians* never puniſhed *Larceny*, provided the Perſon were not caught in the Fact; but on the contrary, it was applauded as a Mark of Dexterity and Addreſs: The *Circaſſians* are ſaid to honour it at this day; inſomuch that at their publick Feaſts their Youth are not ſuffered to drink, if they have not performed ſomething remarkable in that Way. *Solinus* tells us, that in *Sardinia* there was a Fountain that had the Virtue of diſcovering a Perſon that had committed *Larceny*. The Word comes from the French *Larcin*, and that from the Latin *Latrocinium*.

LARENTINALIA, the Name of a Feaſt among the *Romans*. Some take this for a Feaſt of the *Lares*, but 'tis no wiſe probable, that the 22d Day of *December* being conſecrated to them under the Name of *Compitales*, the 23d ſhould alſo be devoted to them under a new Name. *Manutius*, *Goltzius*, *Roſinus*, and others take *Larentinalia* to be the ſame with *Laurentinalia*, which ſee.

LARES, among the Antients, were a kind of Domeſtic Genii, or Divinities, worſhip'd in Houſes, and eſteem'd the Guardians and Protectors of Families; ſuppoſed to reſide in the Chimney-Corner. *Plutarch* diſtinguiſhes between Good and Evil *Lares*, as he had before done between Good and Evil *Genii*. There were ſome public, others private. *Apuleius* tells us the Domeſtic *Lares* were no more than the Souls of departed Perſons, who had lived well, and diſcharged the Duties of their Station; whereas thoſe who had done otherwiſe, were Vagabonds, wandering about and frightening People, and call'd *Larvæ* and *Lemures*. The firſt were alſo call'd *Penates*, and were worſhip'd under the figures of little Marmouſets, or Images of Wax, Silver, or Earthen Ware. The Pantheons, or Images repreſenting ſeveral Gods at once, were alſo call'd *Lares*. *Harpocrates* had one of theſe. *Varro* and *Macrobius* ſay the *Lares* were the Children of *Mania*. *Ovid* makes them the Children of *Mercury* and the Naid *Lara*, whom *Lactantius* and *Auſonius* call *Larunda*. The Temple of the *Lares* was in the eighth Region of *Rome*. *T. Tatius* King of the *Sabins* was the firſt who built a Temple to the *Lares*. The Chimney and Fire-place in the Houſe were particularly conſecrated to 'em. The *Lares* were alſo genial Gods, and were ſuppoſed to take care of Children from their birth. 'Tis for this reaſon, that when *Macrobius* tells us the *Egyptians* had four Gods who preſided over the Births of Children, *viz.* the *Genius*, *Fortune*, *Love* and *Neceſſity*, call'd *Præſtites*; ſome interpret him as if he had ſaid the *Egyptians* had *Lares*: but there was a world of difference between the *Lares* of the *Romans* and the *Præſtites* of the *Egyptians*.

The public *Lares* were alſo call'd *Compitales*, from *Compitum* a Croſs-Way, and *Viales* from *Via* a Way or public Road; as being placed at the Meetings of Roads and in the High-ways, and eſteem'd the Patrons and Protectors of Travellers. Their private *Lares* took care of particular Houſes and Families: Theſe they alſo call'd *Præſtites* from *præſto*,

Quod præſtant oculis omnia tuta ſuis. Ovid. Faſt.

They gave the name *Urbani*, *i. e. Lares* of Cities, to thoſe who had Cities under their Care; and *Hoſtilii*, to thoſe who were to keep their Enemies off. There were alſo *Lares* of the Country, called *Rurales*, as appears by ſeveral Antique Inſcriptions.

The Antients differ extremely about the Origin of the *Lares*: *Apuleius* aſſures us they were the Poſterity of the *Lemures*. *Nigridius*, according to *Arnobius*, made 'em ſometimes the Guardians and Protectors of Houſes, and ſometimes the ſame with the *Curetes* of *Samothracia*, which the *Greeks* call *Idean Dactyles*, and whereof we have made mention under the words *Curetes* and *Dactyle*. Nor was *Varro* more conſiſtent in his Opinion of theſe Gods; ſometimes making them the *Manes* of Heroes, and ſometimes Gods of the Air.

Tertullian tells us, the Cuſtom of worſhipping the *Lares* aroſe from this, that they antiently interred their Dead in their Houſes, whence the credulous People took occaſion to imagine their Souls continued there alſo, and proceeded to pay 'em divine Honours. To this it may be added, that the Cuſtom being afterwards introduced of burying in the Highways, hence they might take occaſion to regard 'em as Gods of the Highways. The Victim offered to the *Lares* in the public Sacrifices, was a Hog: In private they offered 'em Wine, Incenſe, a Crown of Wool, and a little of what was left at the Table. They crown'd them with Flowers, particularly the Violet, Myrtle, and Roſemary. Their Symbol was a Dog, which was uſually repreſented by their ſide, on account of its Fidelity and the Service it does to Man, in watching his Houſe. They were alſo repreſented as clothed in a Dog's Skin. See *Penates*. On the *Lares*, ſee alſo *Arnobius*, *Lactantius*, *Auguſtin de Civit.* *Natalis Comes*, *Lambin* on *Plaut. Aulul.* and on *Hor.* *Caſaubon* on *Sueton.* &c.

LARGE, a Sea-Term. See *Veering*.

LARMIER, in Architecture, a flat ſquare maſſive Member of the Cornice, between the Cymatium and Ovalo; ſo called from its Uſe, which is to diſperſe the Water, and to cauſe it to fall at a diſtance from the Wall drop by drop, or as it were by Tears, *Larme* in *French* ſignifying a Tear. The *Larmier* is alſo call'd *Corona*: See *Entablature* and *Corona*.

LARYNGOTOMIA, a Chirurgical Operation, or an Inciſion in the *Trachea* or Wind-pipe between two of its *Annuli* or Rings, in order to give paſſage for the Breath, when there is danger of Suffocation, from an Inflammation of the Larynx, &c. Dr. *Muſgrave* obſerves, that in all Medicine there is not one Method that works ſo great a Change, for the better, in ſo ſhort a time. However, it is ſeldom practiſed, in regard that Gap which appears on the cutting a Throat, (the divided Parts being then drawn towards their more fixed Ends) together with the great Efflux of Blood when the Jugulars and Carotid Arteries are alſo wounded, create in moſt Men a Dread of the Operation, and make many believe all Wounds of the *Trachea* mortal. The ſame Author makes no ſcruple however to ſay it ought to be practiſed in Quinzies, and other Dangers of Suffocation from Cauſes of a like nature with 'em; from an extraordinary Cure which he himſelf had wrought in this way. The word is derived from the *Greek* λαρυγξ and τέμνω, *ſeco*. This is the ſame with *Bronchotomy*. See *Bronchotomy*.

LARYNX, in Anatomy, is the upper Part, or Head of the Trachea, lying below the Root of the Tongue, and before the Pharynx. It is one of the Organs of Reſpiration, and the principal Inſtrument of Voice. Its Body is almoſt wholly cartilaginous, and it is to be conſtantly open to give room for the Air to paſs and repaſs. Its Figure is circular, tho' it jets out a little before, and is a little flatted behind, leſt it ſhould incommode the Oeſophagus whereon it is placed. The *Larynx* is of different Diameters, according to the different Ages; in young People 'tis narrow, whence their Voice comes to be acute; in thoſe more advanced in Years, 'tis more ample, which occaſions their Voice to be ſtronger and deeper. In Men 'tis bigger than in Women, for which reaſon Mens Voice is more grave than that of Women. It appears the leſs in Women, in regard the Glands, ſituate at the bottom of the *Larynx*, are bigger in Women than in Men. The *Larynx* moves at the time of Deglutition; when the Oeſophagus is lowered for the

Reception of the Food, the *Larynx* raiſes itſelf to compreſs it, and facilitate its Deſcent.

There are five different kinds of Parts belonging to the *Larynx*, *viz.* Cartilages, Muſcles, Membranes, Nerves, and Glands. Its Cartilages are the Thyroides, Cricoides, Arytænoides, Glottis, and Epiglottis, by means of which it can eaſily dilate and contract, ſhut and open itſelf. Theſe form the whole Body of the *Larynx*, and grow dry and harden, in proportion as the Perſon grows old, whence the *Larynx* ſometimes appears as if it were bony. The biggeſt of theſe is the Thyroides or Scutiformis, this guards the Forepart, and has its Name from ſome ſuppoſed Reſemblance it bears to a Shield. It is of a Concavo-convex ſquare figure, the hollow part being inward, and the gibbous outward, having a little Prominence in the middle, called *Pomum Adami*, as if ſome of the forbidden Fruit had ſtuck in *Adam*'s Throat, and occaſioned that Swelling. The ſecond is called *Cricoides*, or *Annularis*, from its Reſemblance to a Ring which the *Turks* put on their Thumb for the drawing of their Bows. The forepart of this is very narrow, coming under the other Cartilage, but behind it is broad, thick, and ſtrong, being as it were the Baſis of all the others. The third and fourth are called *Arytænoides*, or *Guttales*, from the Figure of an Ewer, which theſe two together ſomewhat reſemble. At the Juncture of theſe two there is a little Cleft, or Chink, in form of a little Tongue, and for that reaſon called *Glottis*, or *Lingula*. Through this Chink the Air deſcends into the Lungs, and the pituitous Matter ejected by coughing in Catarrhs is let out. It ſerves alſo for modulating the Voice, and is imitated in Flutes and the Pipes of Organs. Over the Glottis lies a fifth Cartilage called the Epiglottis, which is very thin and ſoft, and in Non-adults almoſt membranous, concave on the under Side, and convex on the upper: It defends the Entrance of the *Larynx*, and hinders the Liquids which in drinking ſlip over it into the Oeſophagus, from falling into the Trachea. The *Larynx* has ſeven Pair of Muſcles, which ſerve to move its ſeveral Cartilages, and to contract or dilate them at pleaſure; two Pair of them are common, the other five proper: the proper are thoſe which have both their Origination and Inſertion into the *Larynx*, the common have only their Inſertion there. Of the former Kind are the Crycothyroides, which moves the ſcutiform Cartilage; the Crico-arytænoides Poſticum, which ſerves, by its Contraction, to draw the Arytænoides Cartilage, and to open the Rima. The third is the Arytænoides; this ſerves to bring the two Cartilages of that Name together, and to ſhut the Rima. The fourth is the Crico-arytænoides Laterale; and the fifth the Thyreo-arytænoides, which ſhuts the *Larynx*. The common Muſcles are the Sternothyroides, which ſerve to draw down the Thyroide Cartilage, and the Hyothyroides which lift up that Cartilage. The *Larynx* has but too Membranes, the one external, which is a Continuation of that which covers the Trachea; and the other internal, which is the ſame that lines the whole Mouth: It receives two Branches of Nerves from the Recurrents, and it is moiſtened by four large Glands, two ſituate above called Tonſils, and two underneath call'd Thyroides.

The *Larynx* is of very conſiderable Uſe, not only in forming and modulating the Voice, by the different Apertures of its Rima or Chink, but alſo in compreſſing the Lungs in a greater or leſs Degree by the Air: For if the internal Diameter of the *Larynx* had been equal to that of the Trachea, the Lungs could have undergone little or no Compreſſion at all; nor, conſequently, without the *Larynx* could we have reaped any Advantage from Breathing, in regard the Air would not have reſiſted that Force wherewith it is driven out in Expiration, nor conſequently could the Compreſſion have been made in the Lungs, which is found neceſſary for the Comminution of the Globules of the Blood, and the mixing of the two Fluids, Air and Blood, together. For the Action of the *Larynx* in Sound, ſee *Glottis* and *Sound*; ſee alſo *Epiglottis*, *Trachea*, &c.

LASH, the Sea-Word for binding up to the Ship's ſide Muskets, Butts of Water or Beer, or Pieces of Timber to make ſpare Top-Maſts. When any thing is thus faſten'd to the Ship, it is called *Laſking*. But the *Laſhers* are properly thoſe Ropes only, which bind faſt the Tackles, and the Breeches of the Ordnance, when they are haled, or made faſt within board.

LASKING, a Sea-Term. See *Veering*.

LASSITUDE, among Phyſicians, expreſſes that Wearineſs or Heavineſs of Members that proceeds from a diſtempered State of Body, and not from Exerciſe; either from an Increaſe of Bulk, from a Diminution of proper Evacuation, or from too great a Conſumption of that Fluid which is neceſſary to maintain the Force and Spring of the Solids, as in Fevers and Convulſions; or from a vitiated Secretion of that Juice, whereby the Fibres are not ſupplied either in due Quantity or Quality. The Remedy in the firſt Caſe is Evacuation, in the latter proper Diet, or ſuch Alterative Medicines as influence ſuch a Secretion.

LAST, or *Leſt*, in general ſignifies the Burden, or Load of a Ship. It is alſo uſed for a certain Weight and Meaſure, which is various in various Countries; tho in the general, the *Laſt* is eſtimated at 4000 *lib.* weight. A *Laſt* of Cod-Fiſh, White Herrings, Meal, and Aſhes for Soap, is 12 Barrels for each: Of Corn or Rape-Seed 10 Quarters: Of Gunpowder 24 Barrels, or 2400 *lib.* weight: Of Red Herrings 20 Cades: Of Hides 12 Dozen: Of Leather 20 Dickers: Of Pitch or Tar 14 Barrels: Of Wool 12 Sacks: Of Stock-fiſh 1000: Of Flax or Feathers 1700 *lib.* weight.

LASTAGE, or *Leſtage*, according to *Raſtal*, is a Duty exacted in ſome Fairs and Markets to carry things bought where one will. *Laſtage*, ſays another Author, is properly that Cuſtom, which is paid for Wares ſold by the Laſt. In a Law of *R.* 1. the ſecond *Laſtage* is taken for the Balance or Lading of a Ship. Laſtly, *Laſtage* is ſometimes uſed for Garbage, Rubbiſh, or ſuch Filth.

LAST HEIR, is he to whom Lands come by Eſcheat for want of lawful Heirs; which in many Caſes is the Lord whereof they are held, but in others the King.

LATERAL EQUATION, in Algebra, an Equation having only one Root; whereas a Quadratick hath two, and a Cubick 3 Roots, &c. And ſuch Equations can be determined and conſtructed by the Interſection of two Right Lines, which is a Compoſition of $1 + 1 = 2$. But a Quadratick cannot be determined or conſtructed, without a Strait Line and a Circle cutting each other.

LATERAN, was originally the proper Name of a Man, whence it deſcended to an antient Palace in *Rome*, and to the Buildings ſince erected in its place: Particularly to a Church called *St. John of the Lateran*, which is the principal See of the Popedom.

Councils of the Lateran are thoſe held in the Baſiliſque of the *Lateran*: Of theſe there have been five, held in 1123, 1139, 1179, 1215, and 1513.

Canon Regular of the Congregation of the Lateran, is a Congregation of Regular Canons, whereof that Church is the principal place. 'Tis pretended, there has been an Uninterrupted Succeſſion of Clerks, living in common, from the Time of the Apoſtles, and that a number of theſe were eſtabliſh'd in the *Lateran* in the Time of *Conſtantine*. But the Canons were not introduced till the Time of *Leo* I. and theſe held the Church 800 Years, till the Reign of *Boniface*, who took it from 'em, and placed Secular Canons in their room, 150 Years after, the Regulars were reinſtated.

A LATERE, a *Latin* Term uſed for the Qualification of Cardinals whom the Pope ſends as Legates into foreign Courts, who are called Cardinals *a latere*, as being his Holineſs's Counſellors in ordinary and Aſſiſtants. See *Legate*. The Guards of Princes were heretofore called *Laterones*, becauſe always attending at their Sides, *a latere*. *Du Cange*, in his Gloſſary, ſays there were antiently Counts *a latere*, and Monitors *a latere*.

LATH, in Building, long, thin, narrow Slips of Wood uſed in Tyling and Walling. Theſe are divided into three kinds, with regard to the different Woods they are made of, *viz.* Heart of Oak, Sap-Laths and Deal-Laths: the two laſt uſed only for Ceiling and Partitioning, and the firſt only for Tyling. Again, *Laths* are diſtinguiſh'd into three kinds more, with regard to their Length, *viz.* into 5 foot, 4 foot, and 3 foot *Laths*; tho the Statute allows but of two lengths, *viz.* thoſe of 5 foot and of 3, each of which are to be an inch and half in breadth, and half an inch in thickneſs. Theſe are what *Vitruvius* calls *Ambrices*.

LATHE, or *Leathe*, a very uſeful Engine for the turning of Wood, Ivory, Metals, and other Materials. The Invention of the *Lathe* is very antient. *Diodorus Siculus* ſays, the firſt who uſed it was a Nephew of *Dædalus*, named *Talus*. *Pliny* aſcribes it to *Theodore* of *Samos*, and mentions one *Thericles*, who render'd himſelf very famous by his Dexterity in managing the *Lathe*.

With this Inſtrument the Antients turn'd all kinds of Vaſes, many whereof they enrich'd with Figures and Ornaments in Baſſo Relievo. Thus *Virgil*,

Lenta quibus Torno facili ſuperaddita Vitis.

The *Greek* and *Latin* Authors make frequent mention of the *Lathe*, and *Cicero* calls the Workmen who uſed it *Vaſcularii*. 'Twas a Proverb among the Antients, to ſay a thing was formed in the *Lathe*, to expreſs its Delicacy and Juſtneſs.

The *Lathe* is compoſed of two wooden Cheeks or Sides, parallel to the Horizon, having a Groove or Opening between; perpendicular to theſe, are two other Pieces called Puppets, made to ſlide between the Cheeks, and to be fix'd down at any Point at pleaſure. Theſe have two

Points, between which the Piece to be turned is ſuſtained; the Piece is turn'd round, backwards and forwards, by means of a String put round it, and faſtened above to the End of a pliable Pole, and underneath to a Tredle or Board moved with the Foot. There is alſo a Reſt which bears up the Tool, and keeps it ſteady.

As 'tis the Uſe and Application of this Inſtrument that makes the greateſt Part of the Art of Turning, we refer the particular Deſcription thereof, as well as the Manner of applying it in various Works, to that Head. See *Turning*.

LATHE, in our Law. See *Lethe*.

LATIAR, a Feaſt, or Ceremony inſtituted by *Tarquinius Superbus*, in honour of *Jupiter Latialis*. The Founder only appointed one Day for this Feaſt; the firſt Conſuls added another to it upon concluding the Peace with the *Latins*; a third was added after the People who had retired to the *Mons Sacer* were returned to *Rome*; and a fourth after appeaſing the Sedition raiſed on occaſion of the Conſulate, in which the People would needs have a Share. Theſe four Days were called the *Latin Feriæ*, and every thing done during the Courſe of theſe *Feriæ*, as Feaſts, Sacrifices, Offerings, *&c.* were called *Latiares*. *Tarquin* having made a Treaty of Alliance with the *Latins*, propoſed, in order for perpetuating it, to erect a common Temple, where all the Allies, the *Romans*, *Latins*, *Hernici*, *Volſci*, &c. ſhould aſſemble themſelves every Year, hold a kind of Fair, exchange Merchandizes, feaſt, ſacrifice, and make merry together. Such was the Inſtitution of the *Latiar*.

LATICLAVUS, a Garment of Diſtinction and Dignity among the *Romans*. It was a kind of Tunic, or long Coat faced with one or two Slips of Purple applied lengthwiſe to the two Sides of the Tunic. In the *Laticlavus* theſe Slips were pretty broad, and in the *Anguſticlavus* narrower; though there is nothing about which the Learned differ more, than the Difference between thoſe two Habits. There were Buttons ſet on the *Laticlavus*, which appear'd like the Heads of large Nails; whence ſome think it took its Name. The Senators, Prætors, and the chief Magiſtrates of Colonies and municipal Cities, had a Right to wear it. The Robe called Prætexta, was wore over the *Laticlavus*. When the Prætor pronounced Sentence of Death, he put off the Prætexta, but retained the *Laticlavus*.

LATINE, a dead Language firſt ſpoken in *Latium*, and afterwards at *Rome*, and ſtill uſed in the *Romiſh* Church, and among the Men of Learning. Some Authors rank the *Latin* among the Number of original Languages, but by Miſtake: It is formed principally from the *Greek*, and particularly the *Æolic* Dialect of that Tongue; tho' it has a great Number of Words which it borrow'd from the Languages of the *Etruri*, *Oſci*, and other antient People of *Italy*; and their foreign Commerce and Wars, in courſe of Time, added a great many more. The *Latin* is a ſtrong, firm Language, perfectly ſuitable to the Character of the People who ſpoke it. We have, ſtill, Works of every kind, admirably well written in *Latin*, tho' there are an infinite Number loſt. The *Latin* is more figurative than the *Engliſh*, leſs pliant than the *French*, leſs copious than the *Greek*, leſs pompous than the *Spaniſh*, leſs delicate than the *Italian*, but cloſer and more nervous than any of them. For a while, the *Latin* Tongue was confined almoſt wholly within the Walls of *Rome*; nor would the *Romans* allow the common Uſe of it to their Neighbours, or to the Nations they ſubdued. *Cicero* obſerved that even in his Time *Greek* was uſed almoſt among every People, but the *Latin* only confined to a very narrow Compaſs; *Græca leguntur in omnibus ferè Gentibus, Latina ſuis finibus exiguis ſanè continentur.* By degrees they were brought to grant the Uſe of it as a Favour, and in time became ſenſible of the Neceſſity there was of its being generally underſtood for the Conveniency of Commerce; and accordingly uſed their utmoſt Endeavours that all the Nations ſubject to their Empire, ſhould be united by ſome common Language; ſo that at length they impoſed that as a Law, which they had before granted as a Favour. After the Tranſlation of the Seat of the Empire, from *Rome* to *Conſtantinople*, the Emperors of the Eaſt, being always deſirous of retaining the Titles of *Roman* Emperors, appointed the *Latin* to be ſtill retained in Uſe both in their Reſcripts and Edicts, as appears by the Conſtitution of the Eaſtern Emperors collected in the *Theodoſian* Code: But at length the Emperors neglecting the Empire of the Weſt, abandon'd all Care of the *Latin* Tongue, and allowed their Judges to paſs Sentence in *Greek*; and accordingly we find the Emperor *Juſtinian*'s Novels compoſed in *Greek*. *Charlemagne* coming to the Empire of the Weſt, appointed the Proceedings in ſovereign Courts to be in *Latin*; and the Notaries were to draw their Acts and Inſtruments in the ſame Tongue: This Practice continued a long time through a great Part of *Europe*, but at length it gave way, and the *French* took place of the *Latin*, not only in *France*, but in ſome meaſure in *England* too: and the Reaſon given for it, was, that abundance of Difficulties aroſe about the underſtanding of *Latin* Terms. The *Latin* however was prodigiouſly degenerated and corrupted e'er it came to be laid aſide. The Incurſions of the *Goths* and *Vandals* into *Italy*, brought an Inundation of foreign Words and Phraſes into it; inſomuch that *Valla* and *Naudeus* call *Boetius* the laſt *Latin* Author. However, that was not all, but when it once got into the Courts of Juſtice, it was ſtill worſe handled; till at laſt being introduced amongſt the Monks, and become the common Language of Miſſals and Breviaries, it was debauched to that degree, that it was almoſt become ſcandalous to uſe it. In this Condition it was found at the time of the Reformation; when *Vives*, *Eraſmus*, &c. began to open the way for its Recovery: ſince which time, Monkiſh Latinity has been declining, and all Endeavours have been uſed to retrieve the pure Language of the *Auguſtan* Age. 'Twas ſaid of Cardinal *Bembo*, that he would never read the Breviary, for fear of corrupting his fine *Latin*.

LATIN CHURCH, is a Term uſed for the *Romiſh* Church, by way of Oppoſition to the *Greek* Church.

LATISSIMUS DORSI, in Anatomy, is a Muſcle called ſo from its Shape, covering almoſt the whole Back. It hath a thin broad tendinous Beginning, which comes from the poſterior part of the Spine of the Ilium, from the ſuperior Spines of the *Os Sacrum*, from all the Spines of the Vertebræ of the Loins, and from the ſeven lower of the Thorax; it paſſeth by the inferior Angle of the Scapula, from which ſome of its fleſhy Fibres ſometimes ariſe, and is inſerted with the Teres major, by a ſtrong and broad Tendon, with which it pulls the Arm downwards: It is alſo called *Ani Scalptor*, becauſe it carries the Arm to the *Anus*.

LATITAT, a Writ, whereby all Men in perſonal Actions are called originally to the *King's-Bench*; and it hath this Name, as ſuppoſing the Defendant does lurk, and lie hid, and therefore being ſerved with this Writ, he muſt put in Security for his Appearance at the Day: by this Writ, a Man being brought in, is committed to the Marſhal of the *King's-Bench*, in whoſe Cuſtody when he is, he may be ſued upon an Action in that Court.

LATITUDE, in Geography, is the Diſtance between the Equator and Zenith, or vertical Point of any Place, reckoned on the Degrees of the Meridian, or the Secundaries of the Equator. *Latitude* of a Place is its Diſtance from the Equator; and is either Northern or Southern, according as the Place whoſe *Latitude* is ſpoke of, is on this or that Side of the Equator. Thus *London* is ſaid to be in 52 Degrees, thirty Minutes, Northern Latitude.

Circles parallel to the Equator, are called Circles of *Latitude*, becauſe they ſhew the *Latitudes* of Places by their Interſection with the Meridian. If through the Poles of the World we conceive innumerable great Circles drawn, theſe are called Secundaries of the Equator; and by their help the Poſition of every Point, either on Earth, or in the Heavens, with regard to the Equinoctial (that is, the *Latitude* of any Point) is determined. One of theſe Secundaries paſſing thro' any Place in the Earth's Surface, is called the Meridian of that Place, and on it the *Latitude* of that Place is meaſured.

The *Latitude* of a Place, and the Elevation of the Pole of that Place above the Horizon, are Terms uſed indifferently for each other, in regard the *Latitude* and the Elevation of the Pole are always equal, (as will appear by *Fig.* 4. *Plate Geography*) where the Circle H Z Q repreſents the Meridian, H O the Horizon, Æ C Q the Equator, Z the Zenith, and P the Pole. Here the *Latitude* of the Place, or its Diſtance from the Equator, is the Arch ZÆ, and the Elevation of the Pole, or its Diſtance from the Horizon, the Arch P O. Now the Arch P Æ between the Pole and the Equator, is a Quadrant of a Circle, and the Arch Z O, from the Zenith to the Horizon, is likewiſe a Quadrant. Therefore the two Arches ZÆ and P O muſt be equal; and taking away the Arch Z P, which is common to both, there will remain the Arch Z Æ equal to the Arch P O: that is, the *Latitude* of the Place equal to the Height of the Pole above the Horizon. Thence we have a Method of meaſuring the Circumference of the Earth, or of determining the Quantity of a Degree on its Surface: For by going directly Northward or Southward, till the Pole be elevated one Degree more or leſs, and then meaſuring that Interval accurately, we ſhall have the Number of Miles in a Degree of a great Circle of the Earth's Globe. See *Degree*.

The Knowledge of the *Latitude* of the Place, is of the utmoſt Conſequence both in Geography, Navigation, and Aſtronomy: The Methods of determining it both at Sea and Land, are as follow.

We have already obſerved that the Altitude of the Pole is always equal to the *Latitude*, for which Reaſon the *Latitude* might be beſt found by obſerving the Pole's Height: But in regard the Pole is only a mathematical Point, and no ways to be obſerved by our Senſes, its Height cannot be determined in the ſame manner as that of the Sun and Stars, &c. for which Reaſon another Manner has been contrived. In order to this, a Meridian Line is firſt drawn; the Method of doing which, ſee under the Word *Meridian*. Place your Quadrant on this Line, ſo as its Plane may be in the Plane of the Meridian; then take ſome Star near the Pole, *v. g.* the Pole Star, which never ſets, and obſerve both its greateſt and leaſt Altitude (ſee *Quadrant.*) Let the greateſt, *v. g.* be S O, (*Fig.* 5. *Plat. Geography*) and the leaſt *s* O; the Half of which P S or P *s*, deducted from the greateſt Altitude S O, or added to the leaſt *s* O will give P O, the Altitude of the Pole above the Horizon, which is equal to the *Latitude* of the Place.

The *Latitude* may alſo be found, by having the Sun's, or a Star's Declination, and Meridian Altitude taken with a Quadrant or Aſtrolabe. The Method is this: Obſerve the Meridian Diſtance of the Sun from the Vertex or Zenith, which is always the Complement of his Meridian Altitude; and add to this the Sun's Declination, when the Sun and the Place are on the ſame Side the Equator, or ſubſtract the Declination when they are on different Sides: the Sum in the former Caſe, and the Difference in the latter, will be the *Latitude* required. But when the Declination of the Sun is greater than the *Latitude* of the Place, which is known from the Sun's being nearer to the elevated Pole than the Vertex of the Place is, as it frequently happens in the Torrid Zone; then the Difference between the Sun's Declination, and his Zenith Diſtance, is the *Latitude* of the Place. If the Sun, or Star, have no Declination, but move in the Equinoctial that Day; then the Elevation of the Equator will be equal to his Meridian Altitude, and conſequently his Meridian Altitude is the Complement of the *Latitude* to 90. This latter Method is beſt accommodated to the Uſes of Navigation, as being practicable at Sea: but the former Method preferable at Land.

Latitude, in Aſtronomy, is the Diſtance of a Star or Planet from the Ecliptic, or from the Sun's Orbit, towards one of the Poles of the Zodiac. Through the Poles of the Ecliptic are ſuppoſed to paſs an indefinite Number of great Circles, cutting the Ecliptic at Right Angles, called Circles of *Latitude*, or Secundaries of the Ecliptic: By means of which, every Star and Point of the Heavens is reduced to the Ecliptic, and has its Place in regard thereto determined. The *Latitude* of a Star is an Arch of one of theſe Secundaries, intercepted between that Star and the Point where it interſects the Ecliptic; in which it differs from the Declination, which is the Diſtance of a Star from the Equator towards one of the Poles of the World: So that the Geographical *Latitude* is the ſame thing with the Aſtronomical Declination, and the Aſtronomical *Latitude* a quite different thing. The Sun never has any *Latitude*, but the Planets have: For which reaſon, in the common Sphere the Zodiac has ſome Breadth. The Antients only allow'd ſix Degrees on each Side the Ecliptic, but the Moderns have extended it to nine. According to the Obſervation of ſome of the modern Aſtronomers, the greateſt *Latitude* of the Planets is not always the ſame; but *Venus* never exceeds 9 Degrees Northern *Latitude*, *Mercury* 5 Degrees, the *Moon* in her Quadrant with the *Sun* 5 Degrees; *Saturn* 2 Degrees, 50 Minutes; *Jupiter* 1 Degree, 50 Minutes; *Mars* 7 Degrees, 31 Minutes. When they have no *Latitude*, they are ſaid to be in the Nodes of the Ecliptic, or in the Interſection of their Orbit with that of the Sun; and in this Situation it is that they eclipſe, or are eclipſed by the Sun.

North Aſcending *Latitude* is when the Moon proceeds from the Aſcending Node towards her Northern Limit, or greateſt Elongation; North Deſcending *Latitude*, when the Moon returns from her Northern Limit to the Aſcending Node: South Deſcending *Latitude*, is when ſhe proceeds from the Deſcending Node to her Southern Limit; South Aſcending *Latitude*, is when ſhe returns from her Southern Limit to her Aſcending Node: And the ſame holds good of the other Planets. Heliocentric *Latitude* of a Planet, is its Diſtance from the Ecliptic, ſuch as it is ſeen from the Sun; and this, when the Planet comes to the ſame Point of its Orbit, is always the ſame, and unchangeable. Geocentric *Latitude* of a Planet, is the Diſtance of the Planet from the Ecliptic, as it is ſeen from the Earth: And this, though the Planet be in the ſame Point of its Orbit, yet is not conſtantly the ſame, but alters according to the Poſition of the Earth, in reſpect to the Planet. See *Heliocentric* and *Geocentric*.

Dr. *Halley* has ſome Conſiderations in the *Philoſophical Tranſactions*, which make it probable the *Latitudes* of ſome of the principal fix'd Stars, particularly *Palilicium*, *Sirius*, and *Arcturus*, alter in time; whence it may be argued, the reſt likewiſe alter, tho' the Variation may be leſs conſpicuous in theſe, by reaſon they are ſuppoſed at a greater Diſtance from us. See *Star*.

LATITUDINARIAN, among the Divines, ſignifies a moderate Perſon, not over-cloſely tied to any religious Opinions, but thinks there is a Breadth or Latitude in the Road to Heaven.

LATOMIA properly ſignifies a Quarry, or Place whence Stones are dug. Theſe were antiently uſed as Goals for Criminals. *Dionyſius* had a Place of this kind dug in a Rock near *Syracuſe*, where an infinite Number of People were ſhut up. *Cicero* reproaches *Verres* with impriſoning *Roman* Citizens in *Latomia's*; ſo that *Latomia* became a general Name for a Priſon, and the Priſoners incloſed in 'em, were called *Laatomarii*. The Word comes from the Greek λας Stone, and τέμνω I cut.

LATRIA, in Theology, is a religious Worſhip due only to God. The *Romaniſts* ſay they honour God with the Worſhip of *Latria*, and the Saints with the Worſhip of *Dulia*. But theſe Terms, however diſtinct, are uſually confounded. This Worſhip of *Latria*, beſides its inner Characters, has its external Marks to diſtinguiſh it; the principal whereof is Sacrifice, which cannot be offered to any other but God himſelf, as being a ſolemn Acknowledgment or Recognition of the Sovereignty of God, and our Dependance on him. Mr. *Daille* ſeems to own that ſome of the Fathers of the fourth Century allowed the Diſtinction between *Latria* and *Dulia*. The Word comes from the Latin *latere*, to lie hid. See *Idolatry*.

LATUS RECTUM, a Term in Conicks, the ſame with *Parameter*; which ſee.

LATUS TRANSVERSUM of the Hyperbola, is a Right Line intercepted between the Vertices of the two oppoſite Sections; or that part of the common Axis which is between the Vertices of the upper and lower Cone, as the Line E D (in *Fig.* 5. *Plat. Conicks*) where alſo D *d* and E *e* may be the Parameters, or Latus Rectums belonging to the two oppoſite Sections G L R O, and O E O R. To this *Latus Tranſverſum* anſwers the longeſt Diameter in the Ellipſis; which *Apollonius* calls the tranſverſe Axis or Diameter. *Latus Primarium* is a Right Line belonging to a Conick Section drawn thro' the Vertex of the Section of the Cone, and within it; as the Line E E or D D in the Figure above referr'd to.

LAVATORY, or LAVADERO, a Name given to certain Places in *Chili* and *Peru*, where Gold is got out of Earth by waſhing. M. *Frezer* gives us the following Deſcription of the *Lavatories* of *Chili*: They dig deep into the Earth, in ſuch Places as they have reaſon to expect Gold in; and in order to facilitate this Digging, turn a Stream of Water upon the Spot, looſening the Earth as much as poſſible all the time, that the Current may have the greater Effect, and tear up the Earth more ſtrongly. When they are got to the Earth they want, they turn off the Stream, and dig dry. The Earth that they, now, get is carried on Mules, and diſcharged into a Baſon, made ſomewhat in the manner of a Smith's Bellows, into which a little Rivulet of Water runs with a great deal of Rapidity, diſſolving the Parts of the Earth, and carrying every thing away with it excepting the Particles of Gold, which by their great Weight precipitate to the Bottom of the Baſon, and mix with a fine black Sand, where the ſmaller Parts are almoſt as much hidden as before they were in the Earth. Sometimes they find very conſiderable Pieces in *Lavatories*, particularly Pieces of twenty-four Ounces each. There are ſeveral *Lavatories*, where they find *Pepitas*, or Grains of Virgin Gold, of a prodigious Size. Among others they tell of one that weighed 512 Ounces, bought by the Count *de la Moncloa*, Viceroy of *Peru*. Nine or ten Leagues to the *Eaſt* of *Coquimbo*, are the *Lavatories* of *Andacoll*, the Gold whereof is twenty-three Carats fine. Their Work, here, always turns to great Profit, excepting when the Water fails them. The Natives maintain that the Earth is *creadice*, that is, it produces Gold continually; becauſe after having been waſhed ſixty or eighty Years, they find it impregnated afreſh, and draw almoſt as much out of it as at firſt.

LAUDANUM, a Name given by the Chymiſts to certain Preparations of Opium, by reaſon of their excellent Qualities, as who ſhould ſay *laudandum* from *laudare*, *to praiſe*. To theſe ſeveral add Coral, Pearls, Treacle, &c. *Laudanum* is eſteemed an excellent Medicine, it aſſuages Pain, ſtops the ſpitting of Blood, the Flux of the Menſes and Hemorrhoides, &c.

LAUDS, or LAUDES, the ſecond Part of the ordinary Office of the Breviary, ſaid after Matins, though heretofore it ended the Office of the Night. The *Laudes* conſiſt principally of Pſalms, Hymns, &c. whence they took their Name. See *Matins* and *Breviary*.

LAUGHTER, an Action which Authors attribute to the fifth Pair of Nerves, which by ſending Branches to the Eye, Ear, Lips, Tongue, Palate and Muſcles of the Cheek, Parts of the Mouth, *Præcordia*, &c. there hence ariſes a Sympathy between all theſe Parts, *i. e.* when one of them is acted upon, the other are proportionably affected. Hence a ſavoury thing ſeen or ſmelt, affects the Glands and Parts of the Mouth ; a thing ſeen or heard, that is ſhameful, affects the Cheeks with Bluſhes : on the contrary, if it pleaſe and tickle the Fancy, it affects the Præcordia and Muſcles of the Mouth and Face with Laughter ; if it cauſe Sadneſs and Melancholy, it likewiſe affects the Præcordia, and demonſtrates itſelf, by cauſing the Glands of the Eyes to emit Tears. And Dr. *Willis* accounts for the Pleaſure of Kiſſing from the ſame Cauſes, the Branches of this fifth Pair being ſpread to the Lips, the Præcordia, and the genital Parts ; whence ariſes a Sympathy between thoſe Parts.

LAUNCH, in the Sea-Phraſe, is to put out ; thus they ſay, *launch a Ship out of the Dock*, or *out of the Key*, &c.

LAURA, a Place where Monks antiently dwelt. Authors can't agree about the Difference between a *Laura* and a Monaſtery. Some pretend that a *Laura* was a Monaſtery, wherein there lived at leaſt a thouſand Monks ; but this is in no wiſe credible. The more credible Opinion is, that the antient Monaſteries were the ſame with the Modern, conſiſting of large Buildings, divided into Halls, Chapels, and Cells, poſſeſſed by the Monks, each of whom had his Apartment ; but the *Lauræ* were a kind of Villages, whereof, each ſeveral Houſe was inhabited by one or two Monks at the moſt : ſo that the Houſes of the Chartreux ſeem, in ſome meaſure, to repreſent the antient *Lauræ*, and thoſe of the other Monks proper Monaſteries. The Term *Laura* was only underſtood of the religious Places in *Egypt* and the *Eaſt*, where their Houſes ſtood apart from each other, and were not joined by any common Cloiſter, the Monks that inhabited them only meeting in publick once a Week. The word comes from the *Greek* λαῦρα, *Hamlet*, *Village*.

LAUREATION, a Term in the *Scottiſh* Univerſities, uſed for the Action of taking up the Degree of a Maſter of Arts, to which the Students are admitted after four Years Study in the Univerſity.

St. LAURENCE, an Order of Regular Canons, ſo called from the Monaſtery of *St. Laurence d'Oulx* in *Dauphiné*. This Congregation is ſaid to have been founded by St. *Bennet*. It was deſtroyed by the *Vandals*, and continued uninhabited till the middle of the XIth Century. In 1057, *Odo* Count of *Savoy* gave it to one *Gerrard* and his Canons. This Donation was confirmed in 1065, by *Cumbert* Biſhop of *Turin*, who added to it above forty other Churches. By which means a very conſiderable Congregation was formed, to whom the ſucceeding Popes and Counts of *Savoy* granted a great many Privileges. It had thirty Priories. The Chief, who is the Prior of the Congregation, bears the Title of Provoſt, and exerciſes a ſpiritual Juriſdiction throughout his Provoſtſhip.

LAURENTALIA were Feaſts inſtituted by the *Roman* People, in Honour of *Acca Laurentia*, kept during the Feaſts called *Saturnalia*, which afterwards were ſolemnized as a part thereof. She was a debauched Woman, and nurſed *Romulus* and *Remus*, which occaſioned the Fable to ſay, *That a She-Wolf ſuckled them.* She afterwards married a very rich Man, who brought her great Wealth, which, at her death, ſhe left to the *Roman* People, in conſideration whereof they performed her theſe Honours.

LAW, a Command or Precept coming from ſome ſuperior Authority, to which an inferior is obliged to obey ; or, more properly, a Command or Mandate of ſome Perſon, or Power, whoſe Precept carries with it the Reaſon of Obedience. Thus the Commands of God with reſpect to Men, of a City with regard to the Citizens, and univerſally of all powerful Beings in reſpect to thoſe who cannot reſiſt, are called their *Laws*. The Nature of a *Law* will be the moſt clearly diſcovered, by ſhewing wherein it differs from Covenant, Counſel, and Right or Equity, with all which it is frequently confounded. The Difference between a Counſel and a *Law* will be beſt determined from the Difference between Counſel and Command. Now a Counſel is a Precept wherein the Reaſon of Obedience is taken from the Thing itſelf preſcribed ; a Command is a Precept, wherein the Reaſon of Obedience depends on the Will of the Preſcriber ; for we cannot properly ſay, *ſic volo, ſic jubeo*, unleſs *ſtet pro ratione Voluntas*. But ſince in *Laws* we do not obey for the ſake of the thing itſelf, but for the ſake of the Perſon who preſcribes it, a *Law* is not properly a Counſel, but a Command. A *Law* comes from a Perſon who has a power over thoſe whom he commands, a Counſel from him who has no ſuch power. To do what is enjoined by a *Law* is an Act of Duty, what by a Counſel an Act of Choice or Free-will. A Counſel is directed to his Advantage who receives it, a *Law* to his who gives it. A Counſel only takes effect over thoſe who are willing, a *Law* over thoſe that are unwilling. Laſtly, the Authority of the Counſellor is taken away at the Diſcretion of him to whom the Counſel is given ; but the Authority of the Legiſlator is not taken away at the Diſcretion of him on whom the *Law* is impoſed.

Law is always confounded with Covenant, by thoſe who take *Laws* to be nothing elſe but ὁμολογηματα or Forms of Living determined by the Conſent of Mankind : Among whom is *Ariſtotle*, who defines a *Law*, a *Declaration determined by the common Conſent of a City, ſhewing in what manner Things are to be done* ; which is not ſo much the Definition of a *Law*, as of a *Civil Law* : nor yet properly of a *Civil Law* ; for this common Conſent is no more than a mutual Covenant, which does not oblige any Perſon, and conſequently is not any *Law*, till ſome ſupreme Power be conſtituted with a Power to compel, and to make it penal to tranſgreſs it. Here then the Covenant is confounded with the *Law*, which leads into Abſurdities ; for a Covenant is a Promiſe, a *Law* a Command. In a Covenant 'tis ſaid, *I will do* ; in a Law, *do*. By a Covenant we are obliged, (that is, we muſt perform becauſe of our Promiſe) by a *Law* we are preſerved under that Obligation (that is, we are forced to perform for fear of the Puniſhment awarded by it ;) a Covenant obliges by itſelf, a *Law* preſerves the Obligation by force. In a Covenant therefore we conſider what is to be done e'er we are obliged to do it ; in a *Law* we are obliged *to do*, in the firſt place, and what is to be done is determined afterwards.

Law is confounded with Right or Equity, by thoſe who perſiſt in doing what is permitted by the *Divine Law*, tho prohibited by the *Laws* of the Country. What is prohited by the *Divine Law*, cannot be permitted by the Civil *Law*, nor what is commanded by the Divine *Law* be prohibited by the *Civil Law* ; but what is permitted by the Divine *Law*, may notwithſtanding be prohibited by the *Civil Law* : for the inferior *Laws* have a power of reſtraining the Liberty left the ſuperior *Laws*, tho' they cannot enlarge it. Now Right or Equity is a natural Liberty, not conſtituted by *Laws*, but free of them ; for take away *Laws*, and Liberty is compleat. This Liberty is firſt reſtrained by the *Natural* and the *Divine Law*, the reſt reſtrained by the *Civil Laws* ; and what remains unreſtrained by the Civil *Law*, may be again reſtrained by the Conſtitutions of particular Cities and Societies. There is a great Difference therefore between *Law* and Right, *Lex & Jus* ; for *Law* is a Chain, but Right, a Liberty ; and they differ as two Contraries.

All *Law* may be divided, with reſpect to its different Authors, into Divine and Human. The Divine, again, may be conſidered as twofold, with reſpect to the two different Manners in which God notifies his Will to Man, *viz.* Natural (or Moral) and Poſitive. Natural is that which he has made known to all Mankind, by that innate Light, called *Natural Reaſon* ; Poſitive is that which He has revealed by his Prophets ; as thoſe *Laws* delivered to the *Jews*, relating to the Divine Worſhip and Polity, which may be called *Divino-Civil Laws*, as being peculiarly directed to that People. Again, *Natural Law* may be divided into that natural *Law* of Men, which, in a peculiar Senſe, is called *The Law of Nature*, and the natural *Law* of Countries, commonly called *The Law of Nations*. The Precepts are the ſame in both. But becauſe, when Societies are once inſtituted, certain perſonal Properties become veſted in Men, that *Law* which, when we ſpeak of the Duties of Men ſeverally, we call *The Natural Law*, when transferred to Cities or Countries, we call *The Law of Nations*.

Again, All *Human Laws* are Civil ; for, according to *Hobbes*, the State of Man out of Society is a State of War, wherein no one being ſubject to another, there can be no other *Law* beſides the Dictates of Natural Reaſon, which is the *Divine Law*. *Civil Laws* may be divided with regard to the Difference of the ſubject Matter, into Sacred and Secular. Sacred are thoſe that relate to Religion, that is, to the Ceremonies and Worſhip of the Deity, and which are not preſcribed by any *poſitive Divine Law*. Secular are thoſe that relate to Property, *&c.* commonly call'd by the name Civil.

Further, *Civil Laws* conſidered with regard to the two Offices of the Legiſlator, *viz.* to judge, and to compel, may be divided into two Branches ; the one Diſtributive, the other Vindicative and Pœnary. Diſtributive is that Branch by which every Man has his Right ; or that which conſtitutes the Rules and Meaſures of Things, whereby we know what belongs to us, and what to others, ſo as we may not diſturb or interrupt others in the Enjoyment of their own, nor be interrupted by them, and what each Man may lawfully do or not do. Vindicative is that Branch by which the Puniſhments to be inflicted on thoſe who violate the *Laws* are determined. The Diſtributive and Vindicative are not two Species of *Laws*, but two Parts of the ſame *Law*. For if a *Law* ſay no more than *Whatever you catch in your Net in the Sea ſhall be yours*, 'tis in vain; for tho another take from you what you have caught, 'tis ſtill yours; in regard in the State of Nature, where all things are common, yours and another's are the ſame thing. So that what the *Law* defines to be yours, was yours before that *Law*, and will be yours after it, tho poſſeſs'd by another. A *Law* therefore is but an empty Sound, unleſs it determine the thing to be yours in ſuch a ſenſe, as to forbid every body elſe from diſturbing you in the poſſeſſion of it. But ſuch Prohibition will be vain, unleſs there be a Penalty annex'd to it. A *Law* therefore muſt contain both thoſe Parts, that which prohibits, and that which puniſhes. The firſt whereof, which is call'd Diſtributive, is prohibitory, and ſpeaks to all. The latter, call'd Vindicative or Pœnary, is Mandatory, and ſpeaks only to the public Officers. Whence it follows, that to all *Civil Laws* there is annex'd a Penalty, either implicitly or explicitly: and where that Puniſhment is not aſcertain'd, either by Writing or by Example, 'tis ſuppoſed to be Arbitrary, and to depend on the Pleaſure of the Legiſlator; for that is no *Law*, which may be violated *impunè*.

Moreover, *Civil Laws* conſidered with regard to the different Manners of promulging them are of two kinds; *Scriptæ* and *Non-Scriptæ*, thoſe written, and thoſe not written. By written, I mean thoſe which require either the Voice or ſome other Sign of the Legiſlator's Will to become *Laws*. Thoſe unwritten, are ſuch as need no other Promulgation beſides the Voice of Nature, or Natural Reaſon; of which kind are all Natural *Laws*. Hence it appears, that tho the Natural *Laws* be deſcribed in the Writings of Philoſophers, they are not therefore to be call'd, *Written Laws*. Nor are the Writings of Lawyers *Laws*, for want of the Supreme Authority: nor the *Reſponſa Prudentum*, or Opinions of Judges *Laws*, excepting ſo far as they are allow'd by the Supreme Power to paſs into Uſe; and then they are call'd *Leges ſcriptæ*, *written Laws*; not becauſe of their Uſe, but becauſe of the Will of the Supreme Power, which is argued from their paſſing into Uſe.

The firſt Principle, or *Law* of Nature, according to *Hobbes*, is Self-preſervation. *Thomaſſius* will have it to be our own Happineſs, which falls in at laſt with the Sentiment of *Hobbes*. *Puffendorf* maintains it to be Sociality. *Valentine Alberti*, the Belief that we are the Image of God. *Henry* and *Samuel Cocceius*, the Will of God. *Grotius*, Right Reaſon. *Velthenius*, the intrinſic Decency or Turpitude of Actions. *Strimeſius* and *Janus*, that we are to love God, Ourſelves, and our Neighbour. *M. Regis* ſays, that the *Laws* of Nature are the Dictates of Right Reaſon, which teach every Man how he is to uſe his natural Right; and the *Laws* of Nations, the Dictates in like manner of Right Reaſon, which teach every State how to act and behave themſelves towards others.

Law is alſo uſed for the ſeveral Policies of States and People, or the Maxims and Rules they have agreed upon or receiv'd from their Magiſtrates, to live in Peace and mutual Society. The *Laws* of the Twelve Tables were the antient *Laws* of the *Romans*, for which the *Decemviri* were ſent into *Greece*, and which ſerv'd them for the Ground-work of all their Juriſprudence. The celebrated *Laws* of the more modern Days are thoſe of the *Angli*, *Verines*, or *Thuringi*, of the *Boii* or *Bavarians*, thoſe of the *Burgundi*, of the *Rymarii*, *Germans*, *Danes*, and *Norwegians*, of the *Franks*, the *Friſons*, the *Lumbards*, the *Gothic Laws*, the *Martiane* or *Mercian Law*; the *Laws* of the *Saxons*, *Scots*, *Sicilians*, *Viſigoths*, the *Laws* of *Oleron*, the *Molmutin Law*, the *Salic Law*, the *Law Gombette*. See *Salic*, *Sumptuary*, &c.

Among the firſt *Romans*, the word *Law* properly ſignified an Ordonnance of the People made at the Requeſt of a Magiſtrate, particularly a Conſul. Theſe Ordonnances differ'd from the *Plebiſcita* and *Senatus-Conſulta*, and even from other Ordonnances made at the Requeſt of any other Magiſtrate beſides a Conſul, tho thoſe too bore the name of *Law*. Thus tho *Aquilius* and *Falcidius* were only Tribunes when they made their Requeſt, yet we ſtill ſay the *Aquilian Law*, the *Falcidian Law*. The *Laws* of the *Romans* are diſtinguiſhed, 1ſt, By the Name of him at whoſe Requeſt they were paſs'd; as the *Cornelian Law*, the *Julian Law*, &c. 2dly, By the Matter or Subject of the Law; and hence came the Terms *Teſtamentary Laws*, *Judiciary Laws*, *Agrarian Laws*, &c. 3dly, Sometimes by the Crimes againſt which they were made; for inſtance, the *Laws* touching Poiſonings, Parricides, &c. the *Laws* of Concuſſion, Peculate, &c. The *Codex* and *Authenticæ* are the *Laws* and Conſtitution of the *Roman* Emperors: The *Digeſt* a Compilation made by the Emperor *Juſtinian's* Order of the ſeveral Opinions and Judgments of the moſt Learned in the *Roman Law*; to which he gave the Sanction of Laws, as appears by the Epiſtle prefix'd to the Work: And 'tis this that conſtitutes the *Roman Law*.

The *Lex Talionis*, or *Law of Like for Like*, is the moſt antient and equitable *Law* in the World. It was obſerv'd by the *Hebrews*.

The *Law* of *England* conſiſts of three Parts. 1. The Common *Law*, which is the moſt antient and general *Law* of the Realm. 2. Statutes, or Acts of Parliament. 3. Particular Cuſtoms. The Common *Laws* of *England* are derived from the *Engliſh*, *Saxons*, and *Danes*, and were antiently divided into three Parts, *viz.* the *Mercian Laws*, the *Weſt-Saxon Laws*, and the *Daniſh Laws*. Thoſe call'd *Mercian* were compoſed by *Martia* Queen of the *Britons*, from whom there was a Province call'd *Provincia Merciorum*. Many *Laws* were publiſhed by *Ethelred* King of *Kent*, by King *Ina* and *Offa*: But *Alfred*, who ſubdued the whole Kingdom, having reviſed all the *Laws* of his Predeceſſors, retain'd thoſe which he thought proper, and aboliſh'd the reſt; whence he was call'd *Anglicarum Legum Conditor*, and theſe *Laws* were call'd *Weſſenelagan*. But the Kingdom being afterwards ſubdued by the *Danes*, they introduced another *Law* call'd *Danalag*, by which their People were governed: And they being afterwards deſtroy'd, *Edward the Confeſſor* out of the former *Laws* compoſed that which we now call the *Common Law*; for which reaſon he is call'd by our Hiſtorians, *Anglicarum Legum Reſtitutor*. Theſe *Laws* were only general Cuſtoms obſerved thro the Nation, and for that reaſon were call'd *Common*: And perhaps alſo becauſe *Leges omnibus in commune reddidit*, to be obſerv'd by all with ſuch Amendments as were made by his Father. *William the Conqueror* did not enact many new *Laws*, but confirm'd the old; *viz.* St. *Edward's Laws*, and abrogated none that any way concern'd Compoſitions or Mulcts of Delinquents.

The *Common Law* is alſo call'd *Lex non ſcripta*, (not but that we have moſt of 'em written in the old *Norman* Dialect) but becauſe it cannot be made by Charter or Parliament; for thoſe are always Matters of Record, whereas Cuſtoms are only Matters of Fact, and are no where but in the Memory of the People, and of all *Laws* muſt be the beſt for the *Engliſh*: for the Written *Laws* made by King and Parliament, are impoſed upon the Subjects before any Probation or Trial whether they are beneficial to the Nation, or agreeable to the Nature of the People, except where they are firſt made temporary, and for their experienc'd Uſefulneſs afterwards made perpetual; but Cuſtoms bind not till they have been tried and approved Time out of Mind.

Beſides the *Common Law* of *England* in general, there are in ſeveral Parts of it certain Cuſtoms and Common Uſages, which have the force of *Common Law* among thoſe People to whoſe Property they belong; as *Borough-Engliſh*, a Cuſtom ſo call'd as not being in uſe out of *England*, where the youngeſt Son, or for want of Sons the youngeſt Brother, is to inherit, the eldeſt being ſuppoſed to have learnt the Father's Trade, and the youngeſt the leaſt able to ſhift for himſelf. See *Gavelkind*.

Where the Common *Law* is ſilent, there we have *Statute Laws* made by the ſeveral Kings of *England*, with the Advice and Conſent of both Houſes of Parliament.

Beſides theſe, we make uſe of the Civil and Canon *Laws* in Eccleſiaſtical Courts. See *Civil* and *Canon*. We have alſo *Military* or *Martial Law*, in uſe among the Soldiery in time of War; and *Foreſt Law*, for the Regulation of Foreſts. See *Military*, *Foreſts*, &c.

Law has alſo a ſpecial Signification, wherein it is taken for that which is lawful with us, and not elſewhere; as *Tenant by the Courteſy of England*. Thus we alſo ſay, to *wage Law* (*vadiare Legem*) and to *make or do Law* (*facere Legem*.) When an Action of Debt is brought againſt one upon ſome ſecret Agreement or Contract, the Defendant may *wage his Law*, if he pleaſes; that is, ſwear, and certain Perſons with him, that he owes the Plaintiff nothing: But this is only allow'd in caſe of the Plaintiff's want of Evidence, and when he cannot prove his Surmiſe by any Deed or open Act. When one *wages his Law*, he ſhall bring with him ſo many of his Neighbours as the Court ſhall aſſign (Sir *Ed. Coke* ſays, eleven) to ſwear with him that they believe in their Conſciences he hath ſworn truly; and theſe in the Civil *Law* are call'd *Compurgators*. The Offer to make Oath is call'd the *Wager of Law*, and when it is accompliſh'd, it is call'd the making or doing of *Law*. This Cuſtom is ſaid to have obtained, formerly, among the *Egyptians*.

The Word *Law* is alſo uſed figuratively, in ſpeaking of the Rules or Order according to which any thing is perform'd. Thus we ſay, the *Laws of Motion*, the *Laws of Mechanics*, the *Laws of Fluids*, the *Laws of a Game*, &c. See *Motion*, &c.

LAW OF ARMS, is that which gives Precepts how rightly to proclaim War, to make and obſerve Leagues, to attack the Enemy, and to puniſh Offenders in the Camp.

LAWING OF DOGS, a Term uſed in our Law-Writers. Thus Maſtiffs muſt be *Lawed* every three Years; *Crompton Juris*, fol. 163. that is, three Claws of the Fore-Foot ſhall be cut off by the Skin, or the Ball of the Fore-Foot cut out.

The Word *Law* is derived from the *Saxon*, *Lag* or *Laugh*.

LAWLESS COURT. On *Kings-hill* at *Rochford* in *Eſſex* every Wedneſday Morning next after *Michaelmas*-Day, at Cock-Crowing, is held a Court vulgarly call'd the *Lawleſs Court*. They whiſper, and have no Candle, nor any Pen and Ink but a Coal; and he that owes Suit or Service there, forfeits double his Rent every hour he is miſſing. This Court is call'd *Lawleſs*, becauſe held at an unlawful Hour, or *quia dicta ſine lege*. It is mention'd by *Cambden*, who ſays this ſervile Attendance was impoſed on the Tenants for conſpiring at the like unſeaſonable Time to raiſe a Commotion.

LAWLESS MAN, *Exlex*. See *Outlaw*.

LAW OF MARQUE, from the *German* Word *March*, a Bound or Limit, is a Law ſo call'd, by which thoſe who are driven to make uſe of it, take the Goods or Shipping of the Party that has done 'em wrong, and of whom they cannot get ordinary Juſtice whenever they can take them within their own Bounds or Precincts. See *Repriſals*.

LAW MERCHANT, is become a Part of the Laws of the Kingdom; it conſiſts in this, that if there be two joint Merchants of Wares, and one of 'em dies, his Executor ſhall have the Moiety: which is not ſo in the Caſe of others, not Merchants.

LAW OF THE STAPLE, the ſame with *Law Merchant*.

LAWS OF MOLMUTIUS. See *Molmutian Laws*.

LAWS OF MOTION, or of *Nature* (taken in a phyſical Senſe.) See *Motion*.

LAWS OF OLERON. See *Oleron*.

LAW SPIRITUAL, is the Eccleſiaſtical or Canon Law allow'd by the Laws of the Realm; ſo far as it is not againſt the Common Law, nor againſt the Statutes and Cuſtoms of the Kingdom. And regularly, according to ſuch Eccleſiaſtical Laws, the Ordinary and other Eccleſiaſtical Judges do proceed in Caſes within their Cognizance. See *Canon*.

LAXATIVE, in Medicine, is uſed to ſignify a looſe State or Diſpoſition of the Body, ſo as to go frequently to ſtool. Hence *laxative* Medicines are ſuch as promote that Diſpoſition, which they do by ſome ſmooth ſoftening Quality, taking away the Tenſity of the Fibres, and facilitating the Paſſage of the Contents of the inteſtinal Tube thro it; for which Reaſon all oily Subſtances come under this Claſs. See *Purgatives*.

LAY, an old *French* Word, ſignifying Moan, or Complaint. *Lay* is alſo the Name of a kind of antient Poetry, conſiſting of very ſhort Verſes. There were two ſorts of *Lays*, the great and the little; the great *Lay* was a Poem, conſiſting of twelve Couplets of Verſes of different Meaſures; the little *Lay* was a Poem conſiſting of ſixteen or twenty Verſes, divided into four Couplets. Theſe *Lays* were the *Lyric* Poetry of the old *French* Poets, who were imitated by ſome among the *Engliſh*. They were principally uſed on melancholy Subjects, and are ſaid to have been formed on the Model of the Trochaic Verſes of the *Greek* and *Latin* Tragedies. Father *Morgues* gives us an extraordinary Inſtance of one of theſe antient *Lays* in his Treatiſe of *French* Poetry:

Sur l'Appui du Monde
Que faut il qu'on fonde
D'Eſpoir?
Cette Mer profonde,
En Debris feconde
Fait voir
Calme au Matin, l'Onde
Et l'Orage y gronde
Le Soir.

LAY THE LAND, a Sea-Phraſe, uſed for ſailing out of ſight of Land, in which Caſe, they ſay, *they have laid the Land*; and if another Point of Land exclude the ſight of the former, they ſay, *They have ſhut the firſt Land in*. *Lay-Land* in Huſbandry is alſo Fallow Ground which lies untilled.

LAY-BROTHER, among the *Romaniſts*, is a pious but illiterate Perſon, who devotes himſelf, in ſome Convent, to the Service of the Religious. He wears a Habit different from theirs, nor ever enters into the Choir or the Chapter. He is not in any Orders, nor does he make any Vow, excepting of Conſtancy and Obedience. A *Lay-Brother* is alſo uſed for an illiterate Religious, who takes care of ſome of the temporal Concerns of the Convent, as the Kitchin, the Gate, &c. There are alſo *Lay-Brothers*, who make the three Vows of Religion. In the Nunneries are alſo *Lay-Siſters*, who never enter the Choir, &c. and who are only retained for the Service of the Convent. The Inſtitution of *Lay-Brothers* began in the eleventh Century. The Perſons on whom this Title was conferred, were ſuch as were too ignorant to become Clerks, and who therefore applied themſelves wholly to bodily Work. It ſeems to have taken its Riſe from hence, that the Laity in thoſe Days had not, for the generality, the leaſt Tincture of Learning; whence alſo thoſe came to be called Clerks, by way of Diſtinction, who had ſtudied a little, and were able to read. The word comes from the *Latin Laicus*, of the *Greek* λαὸς, *People*.

LAYERS, are the low Branches of Trees or Shrubs, which are covered with good Mould when you would raiſe their Kind from them, leaving out their Ends till they are rooted; when they are to be cut off.

LAYMAN, a Perſon not engaged in any Order of Eccleſiaſticks.

Layman, among Painters, is a Statue of Wood, whoſe Joints are ſo made that it may be put into any Poſture. its chief Uſe is for the caſting and adjuſting of Draperies for the clothing of Figures.

LAZARETTO, or **LAZAR-HOUSE**, a publick Building in form of an Hoſpital, for the Reception of poor Sick. In ſome Countries it is appointed for Perſons coming from Places ſuſpected of the Plague to quarantain in. This is uſually a large Building, at a diſtance from any City, whoſe Apartments ſtand at a diſtance from each other, &c. where Ships are unladen, and their Equipage is laid up for forty Days, more or leſs, according to the Time and Place of Departure.

ST. LAZARUS, the Name of a military Order inſtituted at *Jeruſalem* by the Chriſtians of the *Weſt*, when they became Maſters of the *Holy Land*. They received Pilgrims under their Care, guarded them on the Roads, and defended them from the Inſults of the *Mahometans*. Some ſay it was inſtituted in 1119. Pope *Alexander* IV. confirmed it by a Bull in 1255, giving it the Rule of St. *Auguſtine*. The Knights of this Order being driven out of the *Holy Land*, part of them retired into *France*, and were eſtabliſhed there under *Louis* the IIId, who beſtowed on them the Country of *Boigny* near *Orleans*. *Innocent* VIII. ſuppreſſed the Order of St. *Lazarus* in *Italy* in 1490, or rather united it to that of *Maltha*. *Leo* X. reeſtabliſhed it in *Italy* in the beginning of the 16th Century. In 1572, *Gregory* XIII. united it in *Savoy* to that of St. *Maurice*, juſt inſtituted by Duke *Emanuel Philibert*. In *France* this Order was united to that of N. D. of *Mount Carmel* in 1608, and had ſome new Advantages conferred on it by the late King *Louis* XIV. The Knights of St. *Lazarus* are allowed to marry, and yet have Penſions upon Benefices.

Fathers of St. Lazarus, or *Lazarites*, a Name given to certain Regular Clerks of a Congregation inſtituted in *France* in the 17th Century by M. *Vincent*. They take their Name from a Houſe in the *Fauxbourg* of *Paris*. They have a Seminary in *Paris*, called *The Seminary des Bons Enfants*. The Vows they make are ſimple, and on occaſion may be diſpenſed withal.

LEAD, a coarſe, heavy, impure Metal, of all others the ſofteſt and moſt fuſible, when purified; called by the Chymiſts *Saturn*. Thoſe who have made an Analyſis of it, find it contains a little Mercury, ſome Sulphur, and a great deal of bituminous Earth. *Lead* is found in various Countries, but abounds particularly in *England*. 'Tis found, too, in ſeveral kinds of Soils and Stones, ſome whereof, beſides, contain Gold, ſome Silver, others Tin, &c. 'Tis melted on a Furnace provided for the purpoſe, with a ſtrong Coal-Fire upon it; as it melts, it runs thro' a Canal on one Side of it, leaving the Earth, Stone, and Scoria, with the Aſhes of the Coals. 'Tis purified by ſkimming it e'er cold, and throwing Suet and other fat Bodies into it. Some very able Naturaliſts obſerve, that the Weight of *Lead* increaſes, either in the open Air, or under Ground. Mr. *Boyle* obſerves this particularly of the *Lead* of Churches, which, he ſays, frequently grows both in Bulk and Weight, ſo as to become too ponderous for the Timber that before ſuſtained it; which ſome account for from the Impurity, Heterogeneity, and looſe Texture of its Parts, by means whereof the Particles of the Air getting Admiſſion within its Pores, are attracted, and eaſily aſſimilated to it. But others, who rely wholly on Experience, abſolutely deny the Effect, as alſo that it is reproduced in Mines before exhauſted, by letting them lie long open to the Air, which others aſſert. *Lead* is found of a lighter or deeper Colour, according as it is more or leſs purified, tho' ſome make a difference in the Colour of the Ore, always eſteeming that moſt which is the whiteſt.

Lead is a Metal of much Uſe; it eaſily melts, and mixes with Gold, Silver, and Copper, and communicates, as they talk, its Humidity to them; but not being able to endure the Violence of the Fire which they undergo, it retires, and carries with it all that was heterogeneous in them; ſo as neither Gold nor Silver are refined without *Lead*. To which it may be added, that the coarſer kind of precious Stones, boiled in Lead, are thereby rendered much more brillant.

Lead is much uſed in Building, particularly for Covering, Gutters, Pipes, and Glaſs. *Lead* is either caſt into Sheets in a Mold, or milled; which laſt is found by much the leaſt ſerviceable, not only on account of its Thinneſs, but alſo becauſe 'tis ſo exceedingly ſtretched in milling; that when it comes to lie in the hot Sun, it ſhrinks and cracks, and conſequently will not keep out the Water. The *Lead* uſed by Glaziers is firſt caſt into ſlender Rods, twelve or fourteen Inches long, called *Canes*; which being afterwards drawn thro' their Vice, comes to have a Groove on either Side for the Panes of Glaſs; and this they call *Turned Lead*.

The Method of paling or ſoldering *Lead* for fitting on of Imboſs'd Figures, &c. is by placing the Part whereon the Figure is to be paled, horizontal, and ſtrewing on it ſome pulverized Roſin; under this place ſome Coals, till ſuch time as the Roſin becomes reddiſh, and riſes in Pimples; then apply the Figure, and rub ſome ſoft Sodder in to the joining: when this is done, the Figure will be paled on, and as firm as if it had been caſt on it.

Borrichius aſſerts, that *Lead* reverberated into Minium, melted into Glaſs, reduced into Ceruſs, and burnt into Litharge, immediately reſumes its original Figure, upon the dexterous Application of a lixivial Salt. The Antients, according to *Schindlerus*, uſed to compoſe Books of Plates of Leaves of *Lead*.

For the Manufacture of *Lead*, ſee *Plumbery*.

There are various Preparations of *Lead*, ſerving for various Purpoſes:

Lead-Duſt, a Preparation uſed by the Potters, made by throwing Charcoal-Duſt in melted *Lead*, and ſtirring them a long time together; to ſeparate the Coal again, they only waſh it in Water, and dry it afreſh. Its Uſe is to give a Varniſh and Gloſs to their Works.

Burnt-Lead is a Chymical Preparation uſed in Medicine, made of Plates of *Lead* melted in a Pot with Sulphur, and reduced into a brown Powder.

White Lead, uſed by Painters, is only thin Plates of *Lead* diſſolved by Fumes of boiling Vinegar. See *Ceruſs*.

Maſſicots of ſeveral Colours, and the Sandix, are alſo Preparations of *Lead*. See *Maſſicot* and *Sandix*.

Litharge of Gold or Silver, is only the *Lead* uſed in purifying Copper. See *Litharge*.

Red Lead, a Preparation of Mineral *Lead* calcined, uſed by Painters, Potters, and Phyſicians. See *Minium*.

By help of Chymiſtry there are alſo drawn from *Lead*, Salts, Balſams, Oils, Vinegar, a Magiſtery, &c. diſguiſed under the Name of *Saturn*, to amuſe the Ignorant.

Salt or Sugar of Lead, or *Saccharum Saturni*, is an eſſential Salt of Vinegar, incorporated with the proper Subſtance of *Lead*, diſſolved in the Spirit of Vinegar. *Balm of Lead*, or *Saturn*, is an Oil drawn from the Salt of *Lead* by Diſtillation, after having diſſolved it in Spirit of Turpentine. Magiſtery of *Lead* is the Calx of *Lead* purified and ſubtilized, which is made of *Lead* diſſolved in *Aqua fortis*, pouring a filtrated Salt-water into it; whence reſults a Magiſtery extremely white, which, when ſoftened by ſeveral Lotions, is mixed with Pomatums for the Face and Complexion.

Black Lead, a kind of Mineral Stone, of a black Colour, but ſilvered, and ſhining, found in *Lead* Mines, and appearing to be nothing elſe but *Lead* not yet arrived at Maturity; much uſed for Pencils or Crayons for deſigning. 'Tis melted like the common *Lead*.

Mr. *Glanvil* obſerves, that the Smoke of the *Lead*-Works in *Somerſetſhire* is a prodigious Annoyance, and ſubjects both the Workmen, and the Cattel that graze about them, to a mortal Diſeaſe. The Trees that grow near them have their Tops burnt, and their Leaves and Outſides diſcoloured and ſcorched.

When the *Lead-Ore* is dug out, they beat it ſmall, then waſh it clean in a running Stream, and ſift it in Iron Rudders. Their Hearth or Furnace is made of Clay or Fireſtone; this they ſet in the Ground, and on it build their Fire, which they light with Charcoal, continuing it with young Oaken Gads, blown with Bellows, by Mens treading on them. After the Fire is lighted, and the Fire-Place hot, they throw their *Lead*-Ore on the Wood, which melts down into the Furnace, and then with an Iron Ladle they take it out, and upon Sand caſt it into what Form they pleaſe.

The Mine-Men ſometimes find the Vein run up into the Roots of Trees, and yet don't obſerve any Difference between thoſe and other Trees. When the Mine is near the Surface, the Graſs is ſometimes found yellow. They make no account of the *Virgula Divinatoria*; yet ſay, that when a Mine is open, they may gueſs by it how far the Vein will lead. The Ore runs ſometimes in a Vein, ſometimes diſperſed in Banks; it lies many times between Rocks; ſome of it is harder, others milder; ſometimes they have branched Ore in the Spar; about the Ore is Spar and Chalk, and another Subſtance, which they call *Crootes*.

LEAF, LEAVES, part of a Plant, ordinarily very thin and flat, growing in the Spring, and falling off in Autumn. There are ſome Plants without *Leaves*, as Truffles and Muſhrooms. As to the Structure of *Leaves*, Dr. *Grew* obſerves, that their Fibres never ſtand on the Stalk in an even Line, but always in an angular or circular Poſture, and their vaſcular Fibres or Threads are 3, 5, or 7. The Reaſon of which Poſition is for their more erect Growth and greater Strength of the *Leaf*. Another Obſervable in the Fibres of Leaves, is their orderly Poſition, ſo as to take in an eighth part of a Circle, as in Mallows; in ſome a tenth, but in moſt a twelfth. The ſame Author obſerves ſix ſeveral Parts intended by Nature for the Preſervation of Gems; *viz. Leaves*, Sunfoils, Interfoils, Stalks of *Leaves*, Hoods, and Mantlings that cover them. The Skin or Coat of the *Leaves* is no more than that of the Branches extended, as Gold, by beating, is reduced into *Leaves*. In the Gem they are folded, ſometimes in two, and ſometimes in ſeveral Plaits, ſomewhat after the manner of a Fan. If the *Leaves* be too thick to plait commodiouſly in two, and to be ranged againſt each other; or if they be in too ſmall a Number, and their Fibres too delicate, inſtead of being plaited, they are rolled up, and form either a ſingle Roll, as the *Leaves* of the Mountain Cowſlip, which are thick; or two Rolls, which begin at each Extremity of the *Leaf*, and meet in the middle. There are ſome Plants whoſe *Leaves* form three Rolls, as Fern; ſeveral *Leaves* are covered with Hair of ſeveral Figures, thoſe of Lavender and Olive-Tree have Hair reſembling Stars.

Botaniſts conſider the *Leaves* of Plants, with regard to their Structure, to their Surface, Figure, Conſiſtence, their Edges, Situation, and Size. With regard to their Structure, *Leaves* are either ſingle, as thoſe of the Apple-Tree, Pear-Tree, &c. or double, as thoſe of Angelico, Parſley, &c. With regard to their Surface, *Leaves* are either flat, as the Nummularia, Aſarum, Organy, Androſæmum, Brionia Canadenſis, &c. or hollow, as thoſe of the Onion and Aſphodel; or in Bunches, as ſeveral kinds of Kali, Salicot, and Houſe-Leeks. With regard to their Conſiſtence, *Leaves* are either thin and fine, as thoſe of St. *John's*-Wort, and Dog's Graſs; or thick and groſs, as thoſe of Porculata; or fleſhy, as thoſe of ſeveral kinds of Houſe-Leeks; or woolly, as thoſe of the Wooll-Blade. With regard to their Edges, *Leaves* are either cut ſlightly, as ſome Species of Geum, and Cannabis Lutea; or deep, as Trefoil, &c. With regard to their Situation, *Leaves* are either alternate, that is, ranged alternately, as the Phylica; or oppoſite to each other, as the Phyllyrea, and ſome Species of the Rubia. With regard to their Size, *Leaves* are either very big, as thoſe of the Colocaſia and Sphondylium; or moderate, as thoſe of Biſtort, the Fig-Tree; or ſmall, as thoſe of the Apple-Tree, Pear-Tree, Peach-Tree; or very ſmall, as thoſe of Mille-Pertuis, or St. *John's*-Wort.

Leaf, or *Leaves*, is alſo uſed to expreſs the moſt ſenſible and agreeable Parts of Flowers. 'Tis true, all Flowers have not *Leaves*, and 'tis ſometimes difficult to determine which is to be called the *Leaves*, and which the Calix of the ſame Flower. To prevent the confounding of the *Leaves* of the Flower with thoſe of the reſt of the Plant, the former are called *Petala*, from a *Greek* Word which the Botaniſts have adopted into their *Latin* Deſcriptions, when they ſpeak of the *Leaves* of Flowers. The *Leaves* of Plants they call *Folia*, and thoſe of the Flowers *Petala*. See *Petalum*.

Leaves in Architecture, an Ornament in the *Corinthian* Capital, and thence borrowed into the Compoſite; conſiſting in the Repreſentation of a double Row of *Leaves* covering the Vaſe, Tympanum, or Neck of the Column. Theſe *Leaves* are uſually made in imitation of thoſe of the Acanthus, ſometimes of thoſe of Olive, and ſometimes of Laurel. The *Leaves* are divided, each making three Ranges of leſſer, and are bent, a-top, one third of their Height. See *Capital*, *Acanthus*, &c.

LEAGUE, an Extent of Ground, conſidered lengthwiſe, ſerving to meaſure the Diſtances of one Place from another, and containing more or leſs Geometrical Paces, according to the different Uſages and Cuſtoms of Countries.

A *Sea League* is 3000 Geometrical Paces, or three *Engliſh* Miles; the large *Leagues* of *France*, are uſually 3000, and in ſome Places 3500 Paces; the mean or common *League* is 2400 Paces, and the little *League* 2000. *Chorier* obſerves, that the antient *Gauliſh Leagues* were but 1500 Paces. The *Spaniſh Leagues* are larger than the *French*, 17 *Spaniſh*

Leagues make a Degree or 20 *French Leagues*, or 69 ½ *Engliſh* Statute Miles. The *Leagues* of *Germany* and *Holland* contain four Geographical Miles each. The *Perſian Leagues* are nearly the ſame with the *Spaniſh*, that is, they are equivalent to four *Italian* Miles; which comes pretty near to what *Herodotus* mentions of the *Paraſanga*, an antient Meaſure among the *Perſians*, containing thirty Stadia, eight whereof, according to *Strabo*, make a Mile. The *Perſians* mark their *Leagues* by Trees, as the antient *Romans* did by Stones, *Lapides*; for which reaſon they call them *Agag*, a *Turkiſh* Word ſignifying Tree. In *Japan* the *League* conſiſts of 1800 Fathoms. Theſe are all diſtinguiſhed by little Hillocks, raiſed on purpoſe by the Road-ſide. See *the Leagues of moſt Countries, reduced to the* Roman *Foot, under the word* Mile.

The word comes from *Leuca*, or *Leuga*, an antient *Gauliſh* Word, as *Menage* has proved from *Iſidore*, St. *Jerom*, *Am. Marcellinus*, &c. Some derive the word *Leuca* from λευκὴ *white*, in regard the *Gauls*, in imitation of the *Romans*, marked the Spaces and Diſtances of their Roads by white Stones.

LEAGUE, an Union or Confederacy between Princes and States for their mutual Aid, either in attacking ſome common Enemy, or in defending themſelves. There have been ſeveral holy *Leagues* entered into by the Chriſtians againſt the *Saracens* and *Infidels*, ſometimes alſo called *Cruſado's*. The *League* is uſed by way of Eminence for that famous one on foot in *France*, from the Year 1576, to 1593. Its Intent was to prevent the Succeſſion of *Henry* IV. who was of the Reformed Religion, to the Crown, and it ended with his Abjuration of that Faith. The *Leaguers*, or Confederates, were of three kinds: The *zealous Leaguers* aimed at the utter Deſtruction, not only of the *Hugonots*, but alſo of the Miniſtry. The *Spaniſh Leaguers* had principally in view the transferring the Crown of *France* to the King of *Spain*, or the Infanta his Daughter. The *moderate Leaguers* aimed only at the Extirpation of Calviniſm, without any Alteration of the Government. The Word comes from *liga*, which, in the corrupt *Latin*, was uſed for Confederation, *Quâ quis cum alio ligatur.*

LEAKAGE, is a Leaking or Leak in a Veſſel, through which the Liquor runs out: Alſo an Allowance made to a Merchant in Liquid Goods of 12 *l. per cent.* Alſo an Allowance of Brewers of 2 in 22 Barrels of Ale, and 3 in 23 Barrels of Beer.

LEAP-YEAR,. or Biſſextile, is every fourth Year, ſo called from its *leaping* a Day more that Year than in a Common Year; for in the Common Year any fixed Day of the Month changeth ſucceſſively the Day of the Week, but in the *Leap-Year* it skips or leaps over one Day. The Common Year hath 365 Days in it, but the *Leap-Year* 366 Days, and then *February* hath 29 Days, which, in the Common Year hath but 28. To find the *Leap-Year*, this is the Rule;

Divide by 4, *what's left ſhall be,*
For Leap-Year 0, *for paſt* 1, 2, *or* 3.

For Example, what is the Year 1720, a *Leap-Year*, or Common Year

4) 1720 (430

There is 0 Remainder, ſo that it is *Leap-Year.*

LEASE, *in Law*, ſignifies a Demiſe, or letting of Lands, Tenements, Right of Common, Rent, or any Hereditament unto another, for Term of Years, or for Life, for a Rent reſerved, and is either written, called alſo *Indenture*, *Deed Poll*, or *Leaſe* in writing; or by word of Mouth, called *Leaſe Parol.* The Party that letteth this *Leaſe* is called the *Leſſor*, and the Party to whom it it is lett the *Leſſee.* A *Leaſe* hath in it ſix Points; (1.) Words ſufficient to import a Demiſe. (2.) A Leſſee named. (3.) A Commencement from a Day certain. (4.) A Term of Years. (5.) A Determination. (6.) A Reſervation of Rent.

LEASH is a Term uſed in the Game for three Creatures of any Kind, as a *Leaſh* of Greyhounds; as a Brace expreſſeth two.

LEAVEN, any thing that will make a Body ſwell by means of the moſt ſubtile and penetrating of its Parts; which being agitated and divided, divide and agitate the more groſs, as we may obſerve in Paſte, in ſeveral Liquors, &c. The word comes from *levanum*, *a levando*, becauſe *Leaven* makes the Paſt, &c. riſe. See *Ferment.*

LEAVER. See *Lever.*

LECTICARIUS, an Officer in the *Greek* Church, whoſe Buſineſs it was to bear off the Bodies of thoſe who died, and to bury them. The chief of the *Lecticarii* was the Deacon. The *Romans* had two Kinds of *Lecticarii* different from thoſe of the *Greeks*, and who anſwered nearly to the Office of our Chairmen.

LECTISTERNIUM, a religious Ceremony among the antient *Romans*; it conſiſted in a Feſtival prepared, and ſolemnly given in the Temple. And becauſe, according to the Cuſtom of thoſe Times, they placed Beds a-round the Tables, and ſet the Statues of the Gods on thoſe Beds, in the ſame manner as Men ſate at Meals: They call'd this Practice *Lectiſternium*, from *Lectus*, Bed, and *ſternere* of *ſterno* to ſpread, prepare. In this Ceremony the *Epulones* (mentioned under that Head) preſided. *Caſaubon* has obſerved from a Paſſage in the Scholiaſt of *Pindar*, that the *Greeks* had alſo the *Lectiſternium* in Uſe. *Livy* obſerves that the firſt *Lectiſternium* ſeen in *Rome*, was that which held for eight Days ſucceſſively, in honour of *Apollo*, *Latona*, *Diana*, *Hercules*, *Mercury*, and *Neptune*, on occaſion of a contagious Diſeaſe that kill'd all their Cattle, in the Year of *Rome* 354, tho *Valerius Maximus* mentions one before that.

LEE, a Term variouſly uſed at Sea, but its general Uſe is to ſignify the Part oppoſite to the Wind: Thus the *Lee*-ſhore is that on which the Wind blows, and therefore to be under the *Lee* of the Shore, is to be cloſe under the Weather-ſhore, or under Wind. When they ſay *A-Lee the Helm*, they mean, put the Helm to the *Lee-ward* Side of the Ship. They ſay alſo, take care of the *Lee-latch*, which is a Word of Command to the Man at the Helm, to take care that the Ship do not go to the *Lee-ward* of her Courſe; wherefore they call a *Lee-ward* Ship one that is not faſt by a Wind, or which doth not ſail ſo near the Wind, nor make ſo good way as ſhe ſhould. To lay a Ship by the *Lee*, or to come by the *Lee*, is to bring her ſo, that all her Sails may lie flat againſt her Maſts and Shrouds, and that the Wind may come right upon her Broad-ſide. The *Lee-way* of a Ship, is the Angle made by the Line on which the Ship ſhould run, according to her Courſe, or the Point of the Compaſs ſteered upon, and the real Line of the Ship's Way; for all Ships are apt to make ſome *Lee-way*, wherefore in caſting up the Log-board, ſomething muſt always be allowed for *Lee-way*. The ordinary Rules are theſe: (1.) If the Ship be upon a Wind, you muſt allow one Point for *Lee-way*. (2.) If the Wind blow hard, ſo that you are forced to take in one Top-ſail, allow two Points for *Lee-way*. (3.) If it blow ſo hard, that both Top-ſails muſt be taken in, and the Sea runs high, allow three Points for *Lee-way*. (4.) If her Fore-ſail being furled, ſhe try under a Main-ſail or Mizzen, ſhe will make her way four Points before the Beam. (5.) If ſhe try with a Main-ſail only, ſhe will make her way near three Points before the Beam. But (6.) If under a Mizzen only, ſhe will make her way about two Points before the Beam.

LEES, the groſſeſt and thickeſt Parts of Wine, Oil, and other Liquors; or the Sediment found at bottom of the Veſſel. A kind of gravelly Sand is made with the *Lees* of Wine burnt and prepared, uſed by Dyers, &c. which ought to ſtand as a Caution to People troubled with the Stone, &c. The Word comes from the *French Lie*, and that either from *Limus Mud*, or from *Lyeus* one of the Surnames of *Bacchus*; or, according to *Du Cange*, from *Lia*, a corrupt Latin Word ſignifying the ſame thing. The Vinegar-Makers make a great Trade of the *Lees* of Wine dried and made into Cakes, after having ſqueez'd out the Remains of the Liquor in Preſſes.

LEET, an old *Saxon* Word for a Law-day; from the *Saxon Lite* little, *quaſi* a little Court; or from the *German Laet*, i. e. a Country Judge. The Court-*Leet* is a Court held by the Lord of a Mannor, tho' in reality 'tis the King's Court, in whoſe Mannor ſoever it is held, in regard the Authority thereof belongs originally to the Crown, and is derived thence to other Perſons: It is a Court of Record, and inquires of all Offences under High-Treaſon, tho it cannot puniſh many, but muſt certify them to the Juſtices of Aſſize.

LEGACY in Law, any particular Thing given by a Laſt Will and Teſtament; for if the whole Eſtate be ſo given, it is ſaid to be Hereditary, and he to whom it is ſo given, is called *Hæres* by the Civilians; though in common Law, the Diſtinction is this, that he to whom all the Man's Lands and Hereditaments deſcend by Right of Blood, is *Hæres Natus*; the other to whom 'tis bequeath'd is called *Hæres Factus*. In the Eccleſiaſtical Senſe *Legacy* was formerly a Soul-Seat, a Bequeſt to the Church, or accuſtomed Mortuary: and this was to hold good, even tho' the Teſtament it ſelf were declar'd null and invalid.

LEGALIS HOMO, in Law; a Perſon who ſtands *rectus in Curia*, not out-law'd, nor excommunicated, nor defamed; and in this Senſe are thoſe Words ſo often uſed, *Probi & Legales Homines.* Hence Legality is taken for the Condition of ſuch a Man.

LEGATE, a Prelate whom the Pope ſends as Embaſſador to any ſovereign Prince. There are three Kinds of *Legates*, viz. *Legates à latere*, *Legates de latere*, and *Legates* by Office, or *Legati Nati.* Of theſe the moſt conſiderable are the *Legates à latere*; ſuch are thoſe whom the Pope commiſſions to take his Place in Councils, ſo called, in regard the Pope never gives this Office to any but his greateſt Favourites and Confidents, who are always at his Side, *à latere*: that is, to the Cardinals. He may confer Benefices without Mandate, legitimate Baſtards to hold Offices, and has a Croſs carried before him as the Enſign of his Authority. The *Legates de latere*, are thoſe who are not Cardinals, but are yet intruſted with an Apoſtolical Legation. *Legates* by Office are thoſe who have not any particular Legation given them, but who by virtue of their Dignity and Place in the Church become *Legates*. Such are the Archbiſhops of *Rheims* and *Arles*. But the Authority of theſe *Legates* is much inferior to that of the *Legates à latere*. The Power of a *Legate* is ſometimes given without the Title. Some of the Nuntio's are inveſted with it.

The Term *Legate* comes from that of *Legatus*, which *Varro* derives from *legere* to chuſe, and others from *legare*, *delegare*, to ſend, delegate. See *Wicquefort*.

LEGATORY, a Term uſed in ſpeaking of the Government of the antient *Romans*; *Auguſtus* divided the Provinces of the Empire into Conſular, *Legatory*, and Preſidial. *Legatory* Provinces were thoſe whereof the Emperor himſelf was Governour, but where he did not reſide, but adminiſtred Affairs by his Lieutenant or *Legatus*.

LEGATUS, or LEGAT, among the *Romans*, was an Officer of Diſtinction, who commanded under the firſt or leading Officer. Of theſe there were two Kinds, *viz.* a *Legatus* in the Army under the General, anſwering to our Lieutenant-General, and a *Legatus* in the Provinces under the Proconſul or Governour. When any conſiderable Perſon among the *Roman* Citizens had occaſion to paſs thro' any of the Provinces, the Senate gave him the Title of *Legatus*; that is, of Envoy from the Senate, to the end he might be received with the greater Reſpect, and that the Cities and Towns thro' which he travelled might defray his Expences. This they call'd a free Legation, in regard the Perſon was not incumber'd with any Truſt, and might lay it aſide as ſoon as he pleaſed.

LEGEND, was originally a Book uſed in the old *Romiſh* Churches, containing the Leſſons that were to be read in the holy Office: hence the Lives of Saints and Martyrs came to be call'd *Legends*; becauſe Chapters were to be read out of them at Matins, and in the Refectories of the Religious Houſes. The *Golden Legend* is a Collection of the Lives of the Saints, compiled by *James de Varaſe*, better known by his Latin Name of *J. de Voragne*, Vicar General of the *Dominicans*, and afterwards Archbiſhop of *Genoa*, who died in 1298. It was received into the Church with a world of Applauſe, which it maintained for 200 Years; but, in effect, is ſo full of ridiculous and romantic Accounts, that the *Romaniſts* themſelves are now generally aſhamed of it. The Word *Legend* it ſelf is on that account come into diſrepute.

Legend is alſo uſed to ſignify the Words or Letters engraven about the Edges, &c. of Coins. Thus the *Legend* of a *French* Crown, is, *Sit nomen Domini Benedictum*; that of a *Moidore*, *In hoc Signo vinces*; and on thoſe of the laſt Emperors of *Conſtantinople*, we find, *Jeſus Chriſtus Baſileus Baſileon*, IHS XPS NIKA, *Jeſus Chriſtus Vincit*.

Legend, is alſo uſed for the Inſcriptions of Medals, which ſerve to explain the Figures or Device. In ſtrictneſs, the *Legend* differs from the Inſcription; this laſt properly ſignifying Words placed on the Reverſe of a Medal, in the place of Figures. It ſeems as if the Antients had intended their Medals ſhould ſerve both as Images and as Emblems; the one for the common People, and the other for Perſons of Quality and Parts: the Images to repreſent the Faces of Princes, and Emblems to repreſent their Virtues and great Actions: So that the *Legend* is to be looked on as the Soul of the Medal, and the Figures as the Body. Every Medal has two *Legends*, that on the Front, and that on the Reverſe. The firſt, for the generality, ſerves only to diſtinguiſh the Perſon by his Name, Titles, Offices, &c. the latter is intended to expreſs his noble and virtuous Sentiments, his good Deeds, and the Advantages the Public has reap'd by him; this however does not hold univerſally, for we ſometimes find the Titles ſhared between both Sides, and ſometime the *Legend*. In the Medals of Cities and Provinces, as the Head is uſually the Genius of the Place, or at leaſt ſome Deity adored there; the *Legend* is the Name of the City, Province, or Deity, or of both together; and the Reverſe, ſome Symbol of the City, &c. frequently without a *Legend*; ſometimes with that of one of its Magiſtrates. The Subjects of *Legends* are the Virtues of Princes, the Honours they have receiv'd, Conſecrations, ſignal Events, public Monuments, Deities, public Vows, Privileges, &c.

Legends and Inſcriptions of Medals, are either in *Latin* or *Greek*. The *Greek* Character, conſiſting of Majuſcule or Capital Letters, appears uniform on all the Medals, no Change or Alteration appearing in confronting the ſeveral Characters, tho 'tis certain there was in the ordinary Uſe and Pronunciation. All we obſerve on Medals, is ſometimes a Mixture of *Greek* and *Latin* Letters. The Character was preſerved in all its Beauty till the time of *Gallian*. From the time of *Conſtantine*, and for the Space of 500 years, the *Latin* Tongue alone was uſed in the *Legends* of Medals, even in thoſe ſtruck at *Conſtantinople*. *Michael* begun the firſt, whoſe *Legend* was in *Greek*, and from his Time the Language, as well as the Characters, began to alter for the worſe.

LEGION, a kind of Regiment or Body of Forces, whereof the *Roman* Armies were compoſed. The Number of Soldiers and Officers whereof the *Legion* conſiſted, was different at different Times: But 'tis impoſſible to determine the preciſe Time and Manner of their Alteration. In the Time of *Romulus* each Legion contained 3000 Foot, and a Hundred *Equites*, or Knights: Theſe were divided into three Bodies, which made as many Orders of Battel. Each Body conſiſted of ten Companies, or Manipules, ranged at ſome diſtance from each other, tho in the ſame Front. Each Body had two General Officers to command it, called *Tribunes*, and each Manipule two Centurions. Under the Conſuls the *Legion* conſiſted of 4000 Men, who made four Bodies, commanded by a Conſul or one of his Lieutenants, and each *Legion* had its ſhare of Cavalry, which was from two to three hundred Horſe. Afterwards, in the time of *Marius*, theſe four Diviſions of the *Legion* were united into one, and augmented, and Cohorts were appointed from five to ſix hundred Men, each under the Command of a Tribune. Each Cohort conſiſted of three Companies or Manipules, each Manipule of two Centuries, and the *Legion* divided into ten Cohorts, who made as many diſtinct Battalions diſpoſed in three Lines; ſo that the *Legion*, then, conſiſted of five or ſix Thouſand Men. *Iſidore* tells us, that the *Legion* conſiſted of ſix Thouſand Men, divided into ſixty Centuries, thirty Manipules, twelve Cohorts, and two Hundred Troops. According to the *French* Academy, the *Legion* conſiſted of ſix Thouſand Foot, and ſeven Hundred twenty-five Horſe. The *Legions* were by far the moſt conſiderable part of the *Roman* Army; their Number in the time of *Auguſtus* was thirty-three; they were compoſed wholly of *Roman* Citizens. The Allies formed a Body of Auxiliary Forces. The Standard bore by the *Legions* was as various. At firſt a Wolf, in honour of that which ſuckled *Romulus*, afterwards a Hog; by reaſon, ſays *Romulus*, War is only undertaken with a View to Peace, which was concluded by ſacrificing a Hog. Sometimes they bore the Minotaur, to remind their General that their Deſigns were to be kept ſecret, and inacceſſible as the Minotaur in the Labyrinth. They alſo bore a Horſe, a Boar, &c. *Pliny* tells us, that *Marius* was the firſt who changed all theſe Standards into Eagles. The Word *Legion* comes from the Latin *legere*, *to chuſe*; becauſe when the *Legions* were raiſed, they made choice of ſuch of their Youth as were the moſt proper to bear Arms.

LEGISLATOR, he who makes the Laws of a Kingdom, or State, which he has founded. The principal antient *Legiſlators* are, *Moſes*, *Legiſlator* of the *Hebrews*; *Mercurius Triſmegiſtus* and *Bococes* of the *Egyptians*; *Italus* of the *OEnotrians*; *Theſeus*, *Draco*, and *Solon* of the *Athenians*; *Zoroaſter* of the *Bactrians*; *Charondas* of the *Cappadocians*; and *Charondas*, or *Phaleas*, of the *Carthaginians*; *Androdamas* of the *Chalcidians*; *Eudoxus* of the *Cnidians*; *Phido* of the *Corinthians*; *Ephorus* and *Minos* of the *Cretans*; *Pythagoras* of the *Crotoniates*, and moſt of the Cities of *Græcia Major*; *Parmenides* and *Zeno* of *Elea* in *Lucania*; *Arribas*, or *Tharcitas*, of the *Epicores*; *Zamolnis* of the *Getæ*; *Phoroneus* of the *Greeks*; *Bacchus* of the *Indians*; *Saturn* of *Italy*; *Macarius* of the *Iſle of Lesbos*; *Zaleucus* of the *Locrians*; *Nicodorus Athleta* of the City of *Mutina*; *Hippodonne* of *Miletus*; *Charonidas* of *Rheggio*; *Lycurgus* of the *Lacedemonians*; *Archytas* of *Tarentum*; *Philolaus* of the *Thebans*. At *Rome* the People were, in great meaſure, their own *Legiſlators*, tho' *Solon* may be ſaid, in ſome ſenſe, to have been their *Legiſlator*, in regard the *Decemviri*, who were created for the making of Laws, borrowed a great Number from thoſe of *Solon*.

LEGITIMATION, an Act by which Natural Children are rendered legitimate. The Father and Mother by marrying render their Children begotten before Marriage legitimate, and this is called *Legitimation*, *per ſubſequens Matrimonium*. The Right of *Legitimation* was a thing unknown to Princes till the time of *Conſtantine*, but ſince his Time has been exerciſed by moſt of them. The *Greek* Emperors invented ſeveral kinds of *Legitimation*. *Anaſtaſius* put it in the power of the Father to legitimate his natural Children by a bare Adoption, provided he had no legitimate Children. But *Juſtin* by his Conſtitution, and *Juſtinian* by his Novel 74, aboliſhed this *Legitimation*, as fearing the too eaſy acceſs to *Legitimation* ſhould encourage Concubinage. In lieu of this he eſtabliſhed a way of *Legitimation* by the Emperor's Letters. This rendered Baſtards capable of attaining to Honours, and even of ſucceeding to Inheritances, provided the Perſons were legitimated with the Conſent of their Father and Mother; which is agreeable to the Canon Law.

LEGS, the lower Parts of the Bodies of Animals, ſerving them for Support and for Motion. Some Anatomiſts divide the Foot of Man into three Parts, *viz.* the Thigh, the *Leg*, and the leſſer Foot. In the *Leg* there are two conſiderable Bones, the one called *The Great Focile*, or the *Tibia*; the other *The Little Focile*, or the *Fibula*.

The *Legs* and Feet of the ſeveral Animals, Mr. *Derham* obſerves, are exactly conformable to the Poſture, Make, nay to the Motion and Exerciſes of thoſe Animals. In ſome they are made for Strength only, in others for Agility and Swiftneſs; in ſome for walking and running, in others for ſwimming, in others for digging, and in others for flying. In ſome more lax and weak for traverſing the plain Land, in others ſtiff and rigid for Ice and Precipices. In ſome ſhod with tough and hard Hoofs, ſome whole, ſome cleft. In ſome the Feet are compoſed of Toes, ſome ſhort for only going, others long to ſupply the Place of Hands; ſome armed with Talons to catch and tear their Prey, ſome with ſhort Nails to confirm their Steps in running and walking. In Birds the *Legs* are curved for their eaſy Perching, Rooſting, and Reſt, as alſo to help them on the Wing in taking their Flight, and to be therein commodiouſly tucked up to the Body, ſo as not to obſtruct their Flight. In ſome long for wading, &c.

Legs of a Triangle; when one Side of a Triangle is taken as a Baſe, the other two are called *Legs*.

LEGUMEN, in Botany, is that Species of Plants called *Pulſe*; which are ſo named as being gathered with the Hand, by which they are diſtinguiſhed from Wheat, Corn, &c. which are mowed or reaped. Of this kind are all that grow in Pods, as Beans, Peaſe, &c. In the general, all Plants, which have a Papilionaceous, or Butterfly-like Flower, are reckoned by Mr. *Ray* among the *Legumina*. The word *Legumen*, according to *Varro* and *Servius*, is formed *ex eo quod Manu legatur, & non ſecatur; in regard it is gathered with the Hand, and not cut.*

LEMMA, a Term chiefly uſed in Geometry. It ſignifies an Aſſumption, or preparatory Propoſition, laid down to clear the way for ſome following Demonſtration: frequently prefix'd to Theorems, in order to render their Demonſtration leſs perplex'd and intricate, and to Problems in order to make their Reſolution more eaſy and ſhort. Thus to prove a Pyramid one third of a Priſm, or Parallelopiped, of the ſame Baſe and Height with it; the Demonſtration whereof in the ordinary way, is difficult and troubleſome, this *Lemma* may be premiſed, which is proved in the Rules of Progreſſion; That the Sum of the Series of the Squares in Numbers in Arithmetical Progreſſion, beginning from 0, and going on 1, 4, 9, 16, 25, 36, &c. is always ſubtriple of the Sum of as many Terms equal to the greateſt; or is always $\frac{1}{3}$ of the greateſt Term multiplied by the Number of Terms. Thus to find the Inflection of a Curve Line, this *Lemma* is firſt premiſed; That a Tangent may be drawn to the given Curve in a given Point. Thus in Phyſics, to the Demonſtration of moſt Propoſitions, ſuch *Lemmata* as theſe are neceſſary firſt to be allowed; That there is no Penetration of Dimenſions; That all Matter is diviſible; and the like. As alſo in the Theory of Medicine, That where the Blood circulates, there is Life, &c.

LEMNIAN EARTH, a Medicinal Aſtringent, uſed in the ſame Caſes as Bole, which ſee. It hath its Name from the Iſland of *Lemnos*, whence it is chiefly brought: Many form it into round Cakes, and impreſs a Seal upon it, whence it is call'd *Terra Sigillata*.

LEMONADE, a Drink prepared of Water, Sugar, and Citrons or Lemons. This factitious Liquor is ſo popular in *Paris*, that it has given its Name to a new eſtabliſh'd Company, call'd *Lemonadiers*.

LEMURES, Sprites, Hobgoblins; Reſtleſs Ghoſts of departed Perſons, who return to torment the Living. Theſe are the ſame with the *Larvæ*, which the Antients imagined to wander round the World, to frighten good People, and plague the bad. For this reaſon, at *Rome* they had their *Lemuralia*, or Feaſts inſtituted to appeaſe the *Manes* of the Defunct. *Socrates* explains the *Manes* thus: The Soul of Man releaſed from the Bands of the Body, and freed from performing his bodily Functions, becomes a kind of Demon or Genius, formerly called *Lemures*. Of theſe *Lemures*, thoſe that were kind to their Families, were called *Lares Familiares*; but thoſe, who for their Crimes were condemned to wander continually without meeting with any Place of Reſt, and terrified good Men, and hurt the bad, were vulgarly called *Larvæ*. An antient Commentator on *Horace* mentions, that the *Romans* uſed the Term *Lemures* for *Remures*; which laſt Word was formed from *Remus*, who was kill'd by his Brother *Romulus*, and who returned to Earth to torment him. But *Apuleius* obſerves, that in the antient *Latin* Tongue *Lemures* ſignified the Soul of a Man ſeparated from the Body by Death.

LEMURIA, or *Lemuralia*, the Name of a Feaſt ſolemnized at *Rome* on the ninth of *May*, to pacify the *Manes* of the Dead, or in honour of the *Lemures*. The Inſtitution of this Feaſt is aſcribed to *Romulus*, who to rid himſelf of the Phantoms of his Brother *Remus* (whom he had ordered to be murdered) appearing always before him, ordained a Feaſt called after his Name *Remuria*, and *Lemuria*. They offered Sacrifices for three Nights together, during which time all the Temples of the Gods were ſhut up, nor any Marriage permitted. There were a world of Ceremonies in this Feaſt, chiefly intended to exorciſe the *Lemures*, and to prevent their appearing or giving any diſturbance to the Living.

LENITIVE, in Phyſic, is any ſoftening reſolutive Remedy, that moiſtens the Part diſeaſed, and diſſipates any ſharp Humour collected there. *Lenitive*, in Pharmacy, is a gentle Electuary, compoſed of Sena, Polypody, &c. ſo called in regard it purges eaſily, and by reſolving.

LENS, in Dioptricks, is any Glaſs (not very thick) which either collects the Rays of Light into a Point, in their paſſage through it, or diſperſes them further apart, according to the Laws of Refraction. *Lens's* have various Figures; that is, are terminated by various Surfaces, from which they acquire various Names. Some are plane on one ſide, and convex on the other; others convex on both ſides; both which are ordinarily called Convex *Lens's*: tho when we ſpeak accurately, the former is call'd Plano-Convex. Again, ſome are plane on one ſide and concave on the other, and others are concave on both ſides, which are both uſually rank'd among the Concave *Lens's*; tho when diſtinguiſh'd, the former is call'd a Plano-Concave. Others again are concave on both ſides; others are concave on one ſide, and convex on the other, which are call'd Convexo-Concave or Concavo-Convex *Lens's*, according as the one or the other Surface is more curve, or a Portion of a leſs Sphere. It is to be here obſerv'd, that in every *Lens* terminated in any of the forementioned manners, a right Line perpendicular to the two Surfaces is call'd the Axis of the *Lens*. Which Axis, when both Surfaces are ſpherical, paſſes thro both their Centres; but if one of 'em be plain, it falls perpendicularly upon that, and goes thro the Centre of the other.

For *Convex Lens's*, the Laws of their Refraction, and their Effects depending thereon, are as follow.

A Ray of Light E G near the Axis, (*Fig.* 1. *Plate Opticks*) and parallel thereto, ſtriking on the plane Surface of a Plano-Convex *Lens*, directly oppoſite to the luminous Body, after Refraction concurs with the Axis in the Point F; and if C be the Centre of the Convexity, C F will be to C L, that is, the Diſtance of the Centre from the Point of Concourſe or Focus, will be to the Diſtance of the Centre from the Convex Surface, in the Ratio of the Refraction. See *Refraction*.

For the plane Surface being directly oppoſed to the luminous Body, the Ray E G is perpendicular to A B, and therefore will paſs unrefracted to H: Thus it ſtrikes on A H B ſtill parallel to the Axis; and therefore coming out of a denſer Medium into a rarer, will meet the Axis of the *Lens* in F, and ſo, as that C F will be to E L in the Ratio of the Sine of the refracted Angle to the Sine of the Angle of Inclination. As will be demonſtrated under the Head *Refraction*.

Cor. If then the Refraction be out of a Glaſs *Lens* into Air $CF : EL :: 3 : 2$, and therefore $FL = 2\,CL$. That is, parallel Rays near the Axis will concur with it at the diſtance of the Diameter. Again, if the Refraction were out of a *Water-Lens*, *i. e.* out of a *Plano-Convex Lens* fill'd with Water, $CF : EL = 4 : 3$, and therefore $EL = 3\,CL$. *i. e.* parallel Rays near the Axis will concur with it at the diſtance of half the Diameter. So that if a lighted Candle be placed in the Focus of a *Plano-Convex Lens*, that is, in the Point F, diſtant from the Surface of the *Lens* A L B, by the length of the Diameter, and from the Surface of the *Water-Lens*, by half the Diameter, its Rays after Refraction will become parallel. See *Refraction*.

If the Ray K I (*Fig.* 2. *Plate Opticks*) near the Axis of a *Plano-Convex Lens*, and parallel thereto, ſtrike on its convex Surface A H B, after a double Refraction it will meet the Axis in F; ſo as that H G will be to G C, and G E to F H in the Ratio of the Refraction.

For the Ray K I, parallel to the Axis E G, by virtue of the firſt Refraction in I, will tend to the Point G, ſo as G H will be to G C in the Ratio of the Sine of the Angle of Inclination to the Sine of the Refracted Angle: therefore by virtue of the ſecond Refraction in L, it will concur with the Axis in F; ſo as G D will be to E D in the Ratio of the Sine of the refracted Angle, to the Sine of the Angle of Inclination: (See *Refraction*) So that the Semidiameter and Thickneſs of the *Plano-Convex Lens*, with the Ratio of Refraction being given, hence ariſes a Method of determining the Focus of parallel Rays ſtriking on the Convex Surface. For

Cor. Hence, if the *Lens* be Glaſs, $FD = 2\,CH - \frac{2}{3}\,HD$. So that if two thirds of the Thickneſs of the *Lens* be inconſiderable (as in Practice it uſually happens) parallel Rays meet with the Axis at the Diſtance of the Diameter from the *Lens*, even when they ſtrike on the Convex Surface.

So that as to the Place of the Focus, 'tis the ſame thing whether the plane Surface, or the convex one, be turned to a Luminary of parallel Rays; tho' it appears both from Experience and trigonometrical Calculation, that there are more Rays united in a leſs Space, if the convex Surface, than if the plane one be turn'd towards the Sun.

If the *Lens* were full of Water $ED = 3\,CH - \frac{3}{4}\,HD$. Wherefore if $\frac{3}{4}\,HD$ be inconſiderable $FD = 3\,CH$, or if $\frac{1}{4}\,HD$ be inconſiderable $FH = 3\,CH$. Parallel and near Rays, therefore, are united at the Diſtance of half the Diameter, if the Refraction be in Water, even when the Convex Surface is oppoſed to the luminous Body. Hence, alſo, ariſes a Method of determining the Focus of parallel Rays ſtriking on a *Lens* Convex on both Sides, the two Semidiameters, and the Thickneſs of the *Lens*, being given.

On theſe Principles is founded the Structure of refracting Burning-Glaſſes; the Sun's Light and Heat being exceedingly augmented in the Focus of a *Lens*, whether Convex or Plano-Convex: ſince the Rays falling parallel to the Axis of the *Lens*, are reduced into a much narrower Compaſs; ſo that 'tis no wonder they burn ſome Bodies, melt others, and produce other extraordinary Phænomena. See *Burning-Glaſs*.

If a luminous Body be placed in the Focus behind a *Lens*, whether Plano-Convex, or Convex on both Sides; or whether equally or unequally, the Rays after Refraction become parallel.

Hence by means of a *Convex-Lens*, or a little Glaſs Bubble full of Water, a very intenſe Light may be projected to a vaſt Diſtance. See *Mirror*.

And this furniſhes us with the Structure of a Lamp or Lanthorn, to project an intenſe Light to any immenſe Diſtance: For a *Lens* convex on both Sides, being placed oppoſite to a Concave Mirror; if in the common Focus of both be placed a lighted Candle, or Wick, the Rays reflected back from the Mirror to the *Lens*, will be parallel to each other; and after Refraction will converge, till they arrive at the Diſtance of the Semi-diameter, after which they will again diverge. But the Candle being likewiſe in the Focus of the *Lens*, the Rays it throws on the *Lens* will be parallel: and therefore a very intenſe Light meeting with another equally intenſe, at the Diſtance of the Diameter from the *Lens*, the Light will be ſurprizing: and tho' it afterwards decreaſe, yet the parallel and diverging Rays going a long way together, it will be very great at a very great Diſtance. Lanthorns of this kind are of conſiderable Service in the Night-time to diſcover remote Objects, and are uſed with Succeſs by Fowlers and Fiſhermen, to gather their Prey together, in order to take them.

If it be required to have the Light at the ſame time tranſmitted to ſeveral Places, as through ſeveral Streets, &c. the Number of *Lens's* and Mirrors are to be encreaſed. See *Lamp*.

If the luminous Body placed in the Focus, be of a large Extent, the Rays flowing from Points ſenſibly diſtant from each other, can't be parallel, but will conſtitute ſeveral Trains or Pencils of Rays parallel to each other.

The Images of Objects oppoſed in any manner to a Convex-*Lens*, are exhibited, invertedly, in its *Focus*.

Hence if a Paper be applied to a *Convex-Lens* (eſpecially in a dark Room) at the diſtance of its *Focus*, the Images of Objects ſhining upon it, will be repreſented diſtinctly, and in their natural Colours thereon: Nor is the Focus of the Sun's Rays any thing elſe, in effect, but the Image of the Sun. Hence in Solar Eclipſes, the Sun's Image, eclipſed as it is, may be burnt by a large *Lens* on a Board, &c. a very entertaining Phænomenon!

Hence alſo, if a *Convex-Lens* of any kind, be expoſed both to nearer and remoter Objects, and a Paper at the ſame time be applied, ſo as to receive the Images of Objects diſtinctly, the Diſtance of the Focus from the *Lens*, and thence the Diameter of the Convexity, may be determined.

If a Concave-Mirror be ſo placed, as that an inverted Image formed by Refraction thro' a *Lens*, be found between the Centre and the Focus, or even beyond the Centre; it will again be inverted by Reflexion, and ſo appear erect in the firſt Caſe beyond the Centre, and in the latter between the Centre and the Focus. On theſe Principles is built the *Camera Obſcura*; which ſee.

The Diameter of the Image of an Object delineated beyond a *Convex-Lens*, is to the Object it ſelf in a Ratio of the Diſtance of the Image, to that of the Object.

Since then the Image of a remoter Object, is leſs diſtant from the *Lens*, than that of the nearer, the Image of the more remote, will be leſs than that of the nearer. And becauſe the Diſtance of the Image from the *Lens* is greater, if the *Lens* be a Segment of a greater Sphere, than of a leſs; hence the Image will be greater in the former Caſe than in the latter. The Image therefore will be of ſuch a Magnitude, as it would be of, were the Object to ſhine into a dark Room thro' a little Hole upon a Wall, at the ſame Diſtance from the Hole, at which the Focus is from the *Lens*. When an Object is leſs diſtant from a *Lens* than the Focus of parallel Rays, the Diſtance of the Image is greater than that of the Object, otherwiſe the Diſtance of the Image is leſs than that of the Object; in the former Caſe, therefore, the Image is greater than the Object, in the latter, leſs.

If the Images be made greater than the Objects, they will not appear diſtinctly; becauſe in that Caſe there are fewer Rays which meet after Refraction in the ſame Point; whence it happens that Rays proceeding from different Points of an Object, terminate in the ſame Point of an Image, which is the cauſe of Confuſion. Hence it appears that the ſame Aperture of a *Lens* mayn't be admitted in every Caſe, if we would keep off the Rays which produce Confuſion. However, tho' the Image is then moſt diſtinct, when no Rays are admitted but thoſe near the Axis, yet for want of Rays the Image is apt to be dim.

If the Eye be placed in the Focus of a *Convex-Lens*, an Object view'd thro' it, appears erect and enlarg'd, in a Ratio of the Diſtance of the Object from the Eye, to that of the Eye from the *Lens*, if it be near; but infinitely, if remote. See *Microſcope*; ſee alſo *Priſm*.

For *Concave-Lens's*, their Laws are as follow.

If parallel Rays ſtrike on a *plano-Concave-Lens* K L, and F C be to F B in the Ratio of the Refraction, the Rays will diverge from the Axis, and the Point of Divergency, or Diſperſion, call'd the virtual Focus, will be F. (*Fig.* 3. *Plate Opticks*)

For the Ray H I, parallel to the Axis, is perpendicular to K L, and will therefore paſs unrefracted to E. Wherefore F C being to F B in the Ratio of Refraction, F will be the virtual Focus. See *Refraction*.

If then the *Lens* be Glaſs, $FB = 2\,BC$; *i. e.* the virtual Focus F will be diſtant from the *Lens* K L by the Space of the Diameter 2 B C

If the Refraction be in Water $FB = 3\,CB$; *i. e.* the virtual Focus F will be diſtant from the *Lens* K L a Diameter and an half 3 B C.

If the Ray A E, parallel to the Axis F P, ſtrike on a *Lens* Concave on both ſides; and both F C be to F B, and I P to P H in the Ratio of Refraction: and $FP : PH :: FB : BG$; G will be the Point of Diſperſion, or the virtual Focus. (*Fig.* 4. *Plate Opticks*)

If therefore the Refraction be in a *Glaſs Lens*, the Sums of the Semi-diameters C B and H I, will be to the Diameter of the Concavity of either 2 H I, as the Semidiameter of the other C B, to the Diſtance of the virtual Focus from the *Lens* B G.

Hence the Sun's Rays ſtriking on a *Concave Lens*, their Light after Refraction will be conſiderably weakened; ſo that the Effect of *Concave-Lens's* is oppoſite to that of convex ones.

Laſtly, An Object view'd thro' a *Concave Lens*, appears erect, and diminiſhed in a Ratio compounded of the Ratio's of the Space in the Axis, between the Point of Incidence, and the Point to which an oblique Ray would paſs without Refraction, to the Space in the Axis between the Eye and the Middle of the Object; and the Space in the ſame Axis between the Eye and the Point of Incidence, to the Space between the Middle of the Object and the Point, the oblique Ray would paſs to without Refraction.

Tho' the Properties of *Lens's* have been here conſidered principally with regard to Rays falling near the Axis, and parallel thereto; yet the Reaſoning will be eaſily transferr'd to Rays remoter from the Axis, and falling in any Direction. Thus we may ſay univerſally, that in a *Convex Lens*, all parallel Rays become converging, and concur in a Focus; that diverging Rays either become leſs diverging, or run parallel, or converge; and that converging Rays converge the more: All which Alterations are more ſenſible in oblique Rays, than in perpendicular ones, by reaſon the Angles of Incidence in that Caſe are greater.

In *Concave Lens's* all parallel Rays become diverging, diverging Rays diverge more; converging Rays either converge leſs, or become parallel, or go out diverging: all which things hold of oblique as well as direct Rays, but more ſenſibly in the firſt.

A *Lens*, one of whoſe Surfaces is Convex, and the other Concave, is called a *Meniſcus*; the Properties of which ſee under *Meniſcus*. See alſo *the Theory of Lens's demonſtrated* under *Refraction*, and the Application thereof under *Microſcope*, *Teleſcope*, *Burning-Glaſs*, *Focus*, &c.

Some confine *Lens's* within the Diameter of five or ſix Lines, and will have ſuch as exceed that Diameter, call'd Lenticular Glaſſes. *Lens's* are diſtinguiſh'd with regard to their Preparation into ground and blown: *blown Lens's* are little Globules of Glaſs melted in the Flame of a Lamp or Taper: (ſee *Microſcope*) but the Figure of theſe is ſeldom exact; beſides that the Smoke of the Lamp cleaves to the Surface in melting: on both which accounts they come ſhort of the Clearneſs of thoſe that are ground, or turned and poliſh'd in the Lathe, in little Copper Baſons or Diſhes. The Secret is now found of making theſe exquiſitely ſmall, ſo as ſome of 'em don't exceed in Diameter the ſixth part of a Line, which are found to magnify Objects ſeveral Millions of times.

The Manner of grinding Lens's: A little Piece of Copper is cemented to the End of the Arbor of a Lathe, and turned, till it form a Diſh or Baſon of the Diameter of the *Lens* required. Then a Piece of clear Glaſs is cemented on one of its flat Sides to the end of a little Mandrel with black *Spaniſh* Wax, and thus ground, on the Side not cemented, on a Grindſtone, with Water, till it have nearly acquired a Convex Figure. 'Tis finiſhed in the Lathe, by turning it in the Baſon, with fine wet Sand, or Free-ſtone. (See *Baſon*.) The Free-ſtone muſt be often repeated freſh, till the *Lens* appear very round; when it is come to that Point, they ceaſe to take any freſh Stone, but continue to turn it in the Baſon, till the Remains of the Sand be become ſo fine as to have poliſhed it. This, they perceive, when, upon wiping it, the Image of the Window of the Place is ſeen painted on its Surface; if it don't, 'tis wetted in Water without any Sand, and turned till it have got a Poliſh. The Baſon is then covered, within-ſide, with two or three Folds of Linnen, and the Poliſh finiſhed with Putty, or *Tripoly* of *Venice* ſteeped in Water. 'Tis known to be perfectly poliſhed, when, viewing it with a Magnifier, there appear no Traces of the Sand. The Cement is then broke off, and the Side poliſhed, cemented; to work and grind the other as before, till the Edges of the *Lens* be become ſharp, and it be perfectly poliſhed on either ſide. When finiſhed, 'tis waſhed in Spirit of Wine, to take off all Remains of the Wax. See *Microſcope*.

LENT, *Quadrageſima*, or *Quarantine*, a Time of Mortification, conſiſting of the Space of forty Days, wherein thoſe eſpecially of the *Romiſh* Church are enjoined to faſt, in Commemoration of our Saviour's miraculous Faſting ſo long in the Deſart, and by way of Preparation for the Feaſt of *Eaſter*. In the antient *Latin* Church, *Lent* only conſiſted of 36 Days. In the IXth Century, to come ſomewhat nearer the Miracle, ſome took upon them to add four Days more, which, in time, became a general Practice; tho the Church of *Milan* is ſaid ſtill to take up with the antient 36.

According to St. *Jerom*, St. *Leo*, St. *Auguſtine*, and others, *Lent* muſt have been inſtituted by the Apoſtles. Their way of Reaſoning is thus: Whatever is generally received throughout the whole Church, and whoſe Inſtitution we don't find in any Council, muſt be eſteemed to have been eſtabliſhed by the Apoſtles. Now ſuch, they ſay, is the Faſt of *Lent*. Its Inſtitution is not ſpoke of in any Council, but many of the antient Councils, particularly that of *Nice*, that of *Laodicea*, &c. and ſome of the Fathers, particularly *Tertullian*, ſpeak of it as a thing of ſome ſtanding. The Reformed generally hold *Lent* to be a ſuperſtitious Inſtitution, ſet on foot by ſome vain Enthuſiaſts, who durſt undertake to ape the Miracles of Jeſus Chriſt, as in effect it appears to have been from a Paſſage of *Irenæus*, quoted by *Euſebius*. Some will have it to have been firſt introduced by Pope *Teleſphorus*, in the IId Century; others, who own that there was a kind of Abſtinence obſerved in the antient Church before *Eaſter*, yet contend that it was voluntary, and was never enjoined by any Law till the IIId Century.

There was ſome Difference between the Practice of the *Greek* and the *Latin* Church as to the Buſineſs of *Lent*; the *Greeks* beginning it a Week ſooner, but at the ſame time allowing more Days of Intermiſſion than the *Latins*: thoſe who held it ſeven Weeks, did not faſt on Saturdays, as thoſe who obſerved it but ſix did.

The antient *Latin* Monks had three *Lents*; the Grand *Lent* before *Eaſter*; another before *Chriſtmas*, call'd, *The Lent of St.* Martin; and a third after *Whitſunday*, call'd that of St. *John Baptiſt*: each of which conſiſted of forty Days. The *Greeks*, beſides that before *Eaſter*, obſerved four others; that of the *Apoſtles*, of the *Aſſumption*, of *Chriſtmas*, and of the *Transfiguration*; but they reduced each of them to the ſpace of ſeven Days. The *Jacobites* added a fifth, which they call *The Repentance of* Nineveh; and the *Maronites* a ſixth, call'd *The Exaltation of the Holy Croſs*. By the 8th Canon of the Council, 'tis ordain'd, That if any Perſons, without evident Neceſſity, eat Fleſh in *Lent*, they ſhall be deprived the Uſe of it all the reſt of the Year.

The forty Days in *Lent*, ſay ſome, are obſerved in remembrance of the forty Days wherein the World was drowned; others of the forty Years wherein the *Jews* wandered in the Deſart; of the forty Days allowed *Nineveh* for Repentance; the forty Stripes by which Malefactors were to be corrected; the forty Days faſted by *Moſes* at the receiving of the Law; the forty Days faſted by *Elias*; or the forty Days faſted by our Saviour.

LENTIGO, a freckly or ſcurvy Eruption upon the Skin, ſuch eſpecially as is common to Women in the time of Child-bearing. Authors diſtinguiſh this Eruption into ſeveral kinds.

LENTIL, the Name of a Weight among the old *Romans*. It was the hundred and eighth Part of a Drachm. A *Lentil* and an half made a Grain. The Word is a Diminutive of *Lens*.

LENTISCUS, the Wood of a Tree of the ſame Name, of ſome Uſe in Phyſic; it is aſtringent and fortifying, and much uſed for Tooth-Picks. It contains a kind of Gum, or rather reſinous Pitch, much like Maſtic, or perhaps the Maſtic itſelf or Incenſe of *Perſia*, ſo highly commended by *Strabo*. The *Lentiſcus* has nearly the ſame Properties with the *Saunders*, but has more of the Turpentine in it, and ſometimes paſſes by Urine.

LEO, *Lion*, the fifth of the twelve Signs of the Zodiack. This the Aſtrologers account a hot dry Sign, and the Houſe of the Sun. The Antients gave it 27 Stars, beſides 8 *Informes*: *Kepler* gives it 40, and *Bayer* 43; two whereof are of the firſt Magnitude, two of the ſecond, five of the third, &c. See *Star*.

Cor Leonis, *the Lion's Heart*, one of the moſt conſiderable Stars in the Heavens. See *Star*

LEONTICA, the Name of a Feaſt or Sacrifice celebrated among the Antients, in honour of the Sun. They were called *Leontica*, and the Prieſts who officiated at them *Leoni*, in regard they repreſented the Sun under the Figure of a Lion radiant, bearing a Tiara, and griping in his two fore Paws the Horns of a Bull, who ſtruggled in vain to diſengage himſelf. The Critics are extremely divided about this Feaſt, ſome will have it to be anniverſary, and make its Return not in a Solar, but a Lunar Year; but others hold its Return to be more frequent, and give Inſtances where the Period was not above 220 Days. The Ceremony was ſometimes alſo call'd *Mithriace*, *Mithra* being the Name of the Sun among the antient *Perſians*. There was always a Man ſacrificed at theſe Feaſts till the time of *Hadrian*, who prohibited it by a Law. *Commodus* introduced the Cuſtom afreſh, after whoſe time it was again exploded.

LEONTINE, *in Poetry*, a kind of Verſes which rhyme at every Hemiſtic, the middle always chiming to the end; of which kind we find ſeveral antient Hymns, Epigrams, Prophecies, &c. For inſtance, *Muretus* ſpeaking of the Poetry of *Lorenzo Gambara* of *Breſſo*, ſays,

> *Brixia, veſtratis merdoſa Volumina Vatis,*
> *Non ſunt noſtrates tergere digna Nates.*

The following one is from the School of *Salerna*;

> *Ut Vites* Pœnam *de potibus incipe* Cœnam.

The Origin of the Word is ſomewhat obſcure, *Paſquier* derives it from one *Leoninus*, or *Leonius*, who excelled in this way, and dedicated ſeveral Pieces to Pope *Alexander* III. Others derive it from Pope *Leo*, and others from the Name of *Lion*, as being the loftieſt of all Verſes. M. *Fauchet* makes the *Leonine* Rhyme the ſame with what the *French* call *The Rich*, and we *The Double Rhyme*; i. e. where two Syllables have the ſame Orthography, Accentuation, and Pronunciation with two others.

LE ROY LE VEUT. By theſe Words the Royal Aſſent is ſignified by the Clerk of the Parliament to public Bills; to private Bills this Aſſent is expreſſed by *ſoit fait comme il eſt Deſirè*.

LE ROY S'ADVISERA. By theſe Words to a Bill, preſented to the King by his Parliament, are underſtood his abſolute Denial of that Bill in a more civil way; and the Bill thereby becomes wholly null and void.

LEPIDOIDES, *in Anatomy*, the Name of the ſcaly Suture of the Cranium, from the *Greek* λεπὶς, *Scale*, and εἶδος, *Form*, *Figure*.

LEPRA, *Leproſy*, a foul contagious Diſeaſe, ſeated in the Cuticle or Surface of the Skin, ariſing, as moſt other cutaneous Diſeaſes do, from thin ſalt Humours, thrown off from the Blood, and arreſted by the Denſity and Cloſeneſs of the Cuticula. This Diſtemper has been much more frequent in former Times than at preſent, and much more in the hot Countries of the *Eaſt*, particularly among the *Jews*, than among us; for the Salts which, by the Appointment of Nature, are to be eliminated thro' the Pores of the Skin, along with the recrementitious Serum, their proper Vehicle, are, in hot Countries, conveyed in greater plenty to the Surface of the Body, than in theſe *Northern* Regions they ordinarily are; and ſticking in their Paſſage in the thin dry Membrane of the Cuticle, the aqueous Parts, which are their Vehicle, ſlip away from them by inſenſible Evaporation, and leave them there to corrode and fret it, till at length, thro' the Quantity ſo gathered, the Membrane becomes dry, brittle, and white, which is the Cauſe of that Diſquamation, or falling away in white Scales: that Whiteneſs as well as the Brittleneſs proceeding merely from the Quantity of theſe Salts, which are themſelves white; and when the Moiſture is drawn from them, being aculeated, and having inſinuated themſelves into the Pores of the Cuticle, diſſolve the Continuity of it by their Points and Edges, which, ſo dead and broken, is apt, on the leaſt Friction, to fall off as above-mentioned. This is what they call the *Lepra Græcorum*, from its Frequency among that People.

Lepra Arabum was another Species of the Diſtemper, which tho' different in Appearance, as carrying a dry ſcabby Cruſt, yet ſeems only a different Degree of the ſame Diſeaſe. For as in the former Caſe the Salts, being left deſtitute of their Humidity, are not ſo active, and therefore affect only the Cuticle; in the latter Caſe theſe Salts, with their Vehicle, crowding faſter than they can be evaporated thro' the Pores of the Skin (being ſtill *in fluore*, and ſo more cauſtic) corrode deeper, and eat not only the Cuticle, but the excretory Veſſels, and Surface of the Skin itſelf, which thereby ſpews out a Liquor ſomewhat thicker than uſual; which, when the thinneſt and moſt aqueous Parts are evaporated, are condenſed into that Cruſt or Scab, which is the diſtinguiſhing Character of this Diſeaſe.

Galen defines the *Lepra* to be an Effuſion of thick diſorderly Blood, that corrupts the whole Habitude of the Body. *Avicenna* calls it *An Univerſal Cancer*. The *Greeks* give it the Name of ἐληφάνθιασις, in regard the Patient has his Skin rough, wrinkled, and unequal, like that of an Elephant. The *Lepra* begins within-ſide, a long time before it appears without-ſide. It was frequent in *Europe* in the Xth and XIth Centuries, but ſeems at preſent quite extinct, unleſs we allow the Venereal Diſeaſe to be the ſame with the *Lepra*; as it was the Opinion, among many others, of the Great *Pitcairn*, and as has been lately endeavoured to be proved by Mr. *Becket*, in a Treatiſe expreſly on the Subject in the *Philoſophical Tranſactions*. The Symptoms of the antient *Lepra*, as laid down by *Galen*, *Aretæus*, *Pontanus*, *Ægineta*, *Cardan*, *Varanda*, *Gordon*, *Paræus*, and others, are as follow: The Patient's Voice is hoarſe, and comes rather thro' the Noſe than the Mouth; the Blood full of little white ſhining Bodies, like Grains of Millet, that upon filtration ſeparate themſelves from it; the Serum is ſcabious, and deſtitute of its natural Humidity, inſomuch that Salt applied to it does not diſſolve; it is ſo dry, that Vinegar poured on it boils; and is ſo ſtrongly bound together by little imperceptible Threads, that calcined Lead thrown into it ſwims. The Face reſembles a Coal half extinct, unctuous, ſhining, and bloated, with frequent hard Knobs, green at bottom, and white at top. The Hair is ſhort, ſtiff, and brinded, and not to be torn off without bringing away ſome of the rotten Fleſh to which it adheres; if it grows again, either on the Head or Chin, 'tis always white. Athwart the Forehead run large Wrinkles, or Furrows, from one Temple to the other; the Eyes red and inflamed, and ſhine like thoſe of a Cat; the Ears ſwollen and red, eaten with Ulcers towards the bottom, and incompaſſed with little Glands; the Noſe ſunk, becauſe of the rotting of the Cartilage; the Tongue dry and black, ſwollen, ulcerated, divided with Furrows, and ſpotted with Grains of white; the Skin covered with Ulcers, that die and revive on each other, or with white Spots or Scales like a Fiſh; it is rough and inſenſible, and when cut, inſtead of Blood, yields a ſanious Liquor. It arrives in time to ſuch a Degree of Inſenſibility, that the Wriſt, Feet, or even the large Tendon may be pierced with a Needle, without the Patient's feeling any Pain. At laſt the Noſe, Fingers, Toes, and even Privy Members fall off entire, and by a Death peculiar to each of them anticipate that of the Patient. 'Tis added, that the Body is ſo hot, that a freſh Apple, held on the Hand an Hour, will be dried and wrinkled, as if expoſed to the Sun for a Week.

Matthew Paris ſays, that in *Chriſtendom* there were fifteen Thouſand Hoſpitals for *Lepers*; but the Diſeaſe having been diſcontinued for two Hundred Years, the Revenues of thoſe Hoſpitals were abuſed, and Perſons feigned themſelves *leprous*, to be entitled to the Proviſion; which occaſioned their Regulation in ſome Countries, and their entire Suppreſſion in others. In *France* they were united to the Order of the Religious of St. *Lazarus* and Mount *Carmel* in 1664, and the Adminiſtration of them given to the Knights of that Order; in *England* they have been converted to other Purpoſes.

Formerly the Cauſes of *Lepers* were committed to the Eccleſiaſtical Tribunals, and it was prohibited to proſecute a *Leper* before a Lay-Judge, in regard they were under the Protection of the Church, which ſeparated them from the reſt of the People by a Ceremony ſtill to be ſeen in the Rituals.

The *Lepra* appeared differently in different Nations, according to the Climate and the Manner of Living; whence it was diſtinguiſhed into ſeveral kinds, as the *Lepra Arabum*, *Lepra Græcorum*, &c. As to the Cure, that which proved effectual in thoſe *Southern* Countries, fails among us, where the ſtrongeſt Medicaments, and the moſt powerful Mercurials are neceſſary. Bathing is judged to be of good Uſe in the *Lepra*. Dogs and Hares are ſaid to be ſubject to this Diſeaſe. Among the *Indians* a white Man is deſpiſed, this paſſing with them for the Mark of a *Leper*. The word *Lepra* is derived from the *Greek* λεπὶς, *Scale*, in regard this Diſeaſe forms a kind of Scales on the Skin.

LEPUS, the Hare, is a *Southern* Conſtellation. See *Star* and *Conſtellation*.

LESSOR and LESSEE, are Terms of the Common Law. The *Leſſor* is he that leaſeth out Lands or Tenements to another for Term of Life, for Years, or at Will; and the Perſon to whom ſuch a Leaſe is made, is called the *Leſſee*.

LETHARGY, in Medicine, a Diſeaſe conſiſting in a profound Drowſineſs or Sleepineſs, wherein the Patient can ſcarce be awaked; or, if awaked, remains ſtupid, without Senſe or Memory, and preſently ſinks again into his former Sleep. The *Lethargy* is uſually accompanied with a Fever and Delirium. The *Lethargy*, *Boerhaave* makes a gentle Apoplexy, ariſing from the ſame Cauſes, and to be known and cured in the ſame manner. Some Authors diſtinguiſh the *Lethargy* from the *Carus*, in that this latter is without a Fever, or at moſt is preceded with a violent one, whereas the *Lethargy* is attended with a ſlow one. *Celſus* ranks the *Lethargy* in the Number of acute Diſeaſes, the Patient uſually dying on the 7th Day. A *Lethargy* frequently ſucceeds a Frenzy. The Word comes from the *Greek* λῆθη, *Oblivion*, and ἀργία, *Numbneſs*, *Lazineſs*.

LETHE, or LATHE, a Meaſure or Portion of Lands, making one of the antient Diviſions in *England*. King *Elfred* divided *England* into Counties, as it ſtands at preſent, thoſe Countries he divided into Hundreds or Tithings. The Hundred was a Diviſion, wherein were an hundred Officers to ſecure the Peace; the *Lethe* or *Lathe* comprehended three or four of theſe Hundreds. *Lethe* was alſo the Juriſdiction of a Vicount, or a kind of Aſſize, held once a Year in each Village about *Michaelmas*. Whether this was inſtituted by *Elfred*, or no, is a Queſtion.

LETTER, a Sign or Character either in Print or in Writing, by which any People have agreed to expreſs the ſeveral Sounds, uſed in conveying their Thoughts to each other in Speech: Or a *Letter* may be defined, A ſimple uncompounded Sound of the Voice, that cannot be ſubdivided into any more ſimple, and generally marked with a particular Character. It muſt be owned however, ſtrictly ſpeaking, a *Letter* is not the Sound itſelf, but rather the Sign of a Sound, for the γράμματα of the *Greeks* comes from writing, and the *Litera* of the *Latins* from *lineando*, or *linendo*, each ſignifying ſomething marked on Paper. Where a Sign or Character does not expreſs a Sound entirely ſimple, but one reſolvible into ſeveral, it is not ſo properly a *Letter* as an Abbreviation, containing in itſelf as many *Letters* as its Power does ſimple Sounds. This is evident in the *Latin* &, *x*, and the *Greek* ξ, ψ, ϛ, &c. which are compoſed of *et*, *cs*, κς, πς, στ, &c. On the contrary, a ſimple Sound, tho expreſſed by ſeveral Characters, is yet to be eſteemed one *Letter*, for *th*, *ph*, are ſingle *Letters*, as much as φ, θ, and *f*.

Letters make the firſt part or Elements of Grammar; an Aſſemblage of theſe make Syllables, of thoſe Words, and of theſe Sentences. The Alphabet of every Language conſiſts of a certain Number of theſe *Letters*, which ought each to have a different Sound, Figure, and Signification. As the Difference of articulate Sounds was to expreſs the different Ideas of the Mind, ſo one *Letter* was originally intended to ſignify only one Sound, and not, as at preſent, to expreſs ſometimes one Sound, and ſometimes another; which Practice has brought a great deal of Confuſion into the Languages, and render'd the learning of the modern Tongues infinitely more difficult than it would otherwiſe have been. This Conſideration, together with the Poverty of all the known Alphabets, and their want of ſome *Letters* to expreſs certain Sounds by, has occaſioned ſeveral Attempts towards an univerſal Alphabet, to contain an Enumeration of all ſuch ſingle

Sounds or *Letters* as are uſed in any Language. A thing of very conſiderable Uſe; a Specimen of which is given us by Mr. *Lodwick*, in the *Philoſophical Tranſactions*.

There are few things on which there has been ſo much written as on the Original *Hebrew Letters*; ſince *Origen*, *Euſebius Cæſarienſis*, St. *Jerom*, &c. have made it the Subject of their Enquiry. If they don't always go back to the Beginning of the World, and the Origin of *Letters*, 'tis at leaſt enquired what were the Characters made uſe of by *Moſes* to tranſmit the Law to Poſterity, or thoſe uſed by the other Hiſtorians and Prophets of the Old Teſtament, or even thoſe uſed by the *Hebrews* before the *Babylonian* Captivity. With regard to which, there are three principal Opinions: Some imagine the antient *Hebrew Letters* the ſame with thoſe now in Uſe; of this Opinion are ſeveral Doctors of the Thalmud, *Poſtellus*, *Buxtorf*, &c. The ſecond Opinion is of thoſe who believe the *Samaritan Letters* the more antient; which is now the more common Opinion, as without doubt it is the elder: Several *Miſchnique* and *Gemaric* Doctors, many of the Rabbins and Fathers, *Origen*, *Jerom*, *Euſebius*, *Beda*, *Genebrard*, *Ramban*, *Bellarmine*, *Scaliger*, *Druſius*, *Capella*, *Bibliander*, *Brerewood*, *Montanus*, *Walton*, the two *Voſſius's*, *Bochart* and *Bernard* are of this Opinion. The third is, that from the beginning there were two Characters, the one ſacred, the other profane; which is the Opinion of *Azarias*, *A. de Bartenora*, *Poſtel*, *Buxtorf*, *Conringius*, &c. But this Diſtinction of two kinds of Characters ſeems a mere Chimera. See *P. Souciet* on the *Samaritan* Medals, where he proves that the *Letters* in the Inſcriptions of thoſe Medals are the genuine original *Hebrew* Characters.

As to the firſt *Letters*, what they were, who firſt invented them, and among what People they were firſt in uſe, there is ſtill room to doubt; however, ſetting aſide Conjectures and Prejudice, the Buſineſs of Antiquity ſeems to lie between the *Egyptians* and *Chineſe*. *Philo* attributes the firſt Invention of *Letters* to *Abraham*; *Joſephus*, S. *Irenæus*, and others, to *Enoch*; *Bibliander*, to *Adam*; *Eupolemes*, *Euſebius*, *Clemens Alexandrinus*, *Corn. Agrippa*, &c. to *Moſes*; *Pomponius Mela*, *Herodian*, *Rufus*, *Feſtus*, *Pliny*, *Lucan*, &c. to the *Phœnicians*; S. *Cyprian* to *Saturn*; *Tacitus* to the *Egyptians*, and ſome to the *Ethiopians*.

The *Egyptian* Mummies and Obeliſks prove a great Antiquity on the Side of the Hieroglyphics; but if the *Chineſe* Chronology may be credited, their Characters are vaſtly more antient than thoſe of the *Egyptians*. The *Chineſe* make *Fobi*, the firſt of their Kings, the Inventor of their *Letters*, and compute him to have lived 2950 Years before Chriſt. During all which time they pretend to have certain and written Accounts in their Books. If this holds true, their Character muſt be older than *Moſes* by 1400 Years, and even before *Menes* the firſt King of *Egypt* by 500 Years: So that the *Chineſe Letters* appear to be the moſt antient of that kind, and the Book *Yekim*, ſaid to be written by *Fobi*, the moſt antient Book.

But as *China* is ſo remote, and had ſo little Communication with theſe Parts of the World, we may reaſonably make another Enquiry into the Original of *Letters* in the hither Parts of *Aſia*, *Egypt*, and *Europe*. Here indeed the *Egyptians* ſeem to have the beſt Title. 'Tis more than probable from the Obeliſks, &c. that their Hieroglyphics were the firſt manner of writing, and the Original Characters in theſe Parts, as being prior to *Moſes*, and made, at leaſt in great meaſure, while the *Iſraelites* were Slaves among them, and of conſequence not well qualified for Inventions ſo very curious and judicious. Whether *Cadmus* and the *Phœnicians* learnt *Letters* from the *Egyptians*, or from their nearer Neighbours of *Judah* and *Samaria*, is a queſtion; ſince ſome of the Books of the Old Teſtament being written in *Letters*, is more likely to have given them the Hint than the Hieroglyphics of *Egypt*. But when or whereſoever the *Phœnicians* learnt this Art, it is generally agreed, that *Cadmus*, the Son of *Agenor*, firſt brought *Letters* into *Greece*, whence, in the following Ages, they ſpread over the reſt of *Europe*.

According to *Crinitus*, *Moſes* invented the *Hebrew Letters*, *Abraham* the *Syriac* and *Chaldee*; the *Phœnicians* that of *Attica*, brought into *Greece* by *Cadmus*, and thence by the *Pelaſgians* into *Italy*; *Nicoſtrata* the *Latin*; *Iſis* the *Egyptian*; and *Vulfila* that of the *Goths*.

Rudbecks, who in his *Atlantica* claims the Glory of all Inventions from all other Nations for the *Swedes*, maintains that the *Ionians* had Letters before *Cadmus*; that at the time of the Siege of *Troy*, the *Greeks* had but 16 Letters, whereas the *Phœnicians* had 22: whence he concludes, that it was not either *Cadmus* or the *Phœnicians* who taught this Art to the *Greeks*. But in regard the antient Northern Nations had juſt 16 *Letters*, like the *Greeks*, he concludes the *Greeks* muſt either have taught them to the People of the *North*, or have learnt 'em of them. But becauſe the Form and Make of the *Runic Letters* is more coarſe than that of the *Greek Letters*, he concludes that theſe laſt muſt be derived from the former; taking it as a Principle, that thoſe who derive any thing from another, poliſh and perfect it. He even aſſerts, that by the Golden Apples which *Hercules* was obliged to ſteal, muſt be underſtood the *Letters* in uſe among the *Hyperboreans*.

The *Letters* F, G, H, K, Q, X, Y, Z, were unknown to the antient *Romans*, as is proved by *Daſqueius* in his *Orthography*, where he traces the Origin of the ſeveral *Letters*.

The Grammarians diſtinguiſh *Letters* into Vowels and Conſonants; into Mutes, Dipthongs, Liquids, and Characteriſtics. The *Hebrews* divide their *Letters* into Guttural, *a*, *h*, *ch*, *gn*, aleph, he, cheth, hain; Dental, *z*, *ts*, *r*, zain, tſade, reſch; Labial, *b*, *m*, *u*, *p*, beth, mem, vau, phe; Lingual, or thoſe of the Tongue, *d*, *t*, *l*, *n*, daleth, tau, lamed, nun; and thoſe of the Palate, *g*, *i*, *c*, *k*, ghimel, jod, caph, coph.

The Art of aſſembling *Letters* to form Words, and of combining the one and the other into a number of different Senſes, is a Secret unknown to the *Chineſe*. Inſtead of the Letters of an Alphabet, they at firſt, like the *Egyptians*, uſed Hieroglyphics; they painted rather than wrote: ſtriving by the Natural Images of Things drawn on Paper, to expreſs and communicate their Ideas to one another. To write a Bird, they were obliged to paint its Figure; and to ſignify a Foreſt, they drew a great number of Trees. A Circle ſerved for the Sun, and a Creſcent for the Moon. But this Manner of writing was not only very incommodious, but alſo very imperfect. For beſides that they could but expreſs their Thoughts by halves, even that little that they could expreſs was but very imperfectly conceiv'd; and it was ſcarce poſſible not to be frequently deceived in it. Further, they were under a neceſſity of writing large Volumes to ſay very little Matters, in regard their Pictures took up a great deal of room. To remedy theſe Inconveniences, they changed by little and little their Manner of Writing, making it more ſimple, tho leſs natural. They even invented ſeveral Characters, to expreſs things that did not come within the reach of Painting to repreſent, as Voice, Smell, Thoughts, Paſſions, and a thouſand other Objects that have no Body or Figure. From ſeveral ſimple Strokes, they afterwards framed others more compound, and in this manner multiplied their Letters and Characters to Infinity; contriving one or more for every Word. This Abundance of *Letters* ſeems the Source of that Ignorance which we find among the *Chineſe*. Their whole Lives being ſpent in learning their *Letters*, they have no time to apply themſelves to the Study of Things, but think themſelves very learned when they are able to read. There are ſcarce any of 'em that know all their *Letters*: They think 'tis a great progreſs they have made, when after forty or fifty Years hard Study they are able to underſtand fifteen or twenty thouſand. But the Generality of their learned Men come far ſhort of this: Father *le Compte* is of opinion, that the greateſt Doctor among 'em never underſtood half of their *Letters* well; for the whole Number he reckons Eighty Thouſand. This is a prodigious Inconvenicnce to Foreigners, of which the Miſſionaries into that Country make loud Complaints. Among the *Chineſe Letters*, there are ſome now almoſt wore out of uſe, and only preſerved out of Reſpect to Antiquity. There is a ſecond Claſs much leſs antient than the former, only uſed in public Inſcriptions. A third much more regular and beautiful, uſed in Printing, and even in ordinary Writing. However, as the Strokes are to be diſtinctly formed, they can't be wrote with any expedition. For this reaſon they have invented a fourth kind, where the Strokes being cloſer, and leſs diſtant from each other, allow them to be writ with more eaſe and readineſs. And this they call the running *Letter*.

The *Americans* had no *Letters* before the Diſcovery of that Country by the *Spaniards*. The *Acaanibas* engrave their Memorable Events and Epocha's on Stones and Metals. Their Songs ſupply the reſt. In *Peru* and *Chili*, to keep an Account of their Goods and Chattels, and to preſerve the Memory of their particular Affairs, the *Indians* have recourſe to certain Knots of Wool, which by the Variety of their Colours and Ties, ſerve inſtead of Characters and Writing. The Knowledge of theſe Knots, which they call *Quipos*, is one of their great Sciences; but which is always kept as a Secret, and never revealed to the Children till the Fathers think themſelves at the end of their days.

The Printers diſtinguiſh their *Letters* into Capital, Majuſcule, or Initial *Letters*, which ſerve for the Titles of Books, proper Names, &c. And Minuſcule or Small *Letters*, which are again divided according to their Size, into *Pearl*, *Nonpareil*, *Pica*, *Great Canon*, &c. See *Type* and *Printing*. They have alſo their Hiſtory or Figured Letters engraven on Wood or Metal, which take place of the Illumined *Letters* of the antient Manuſcripts.

Numeral Letters, are thoſe uſed by the antient *Romans* inſtead of Cyphers, to expreſs their Numbers by. Theſe *Numeral Letters* are ſeven in number, C, D, I, L, M, V, X; which are all form'd in deſcribing a Circle, and drawing two Lines thro it, croſſing each other at right Angles in the Center.

Dominical Letter, ſee *Dominical*.

Nundinal Letter, ſee *Nundinalia*.

LETTERED, *Letrados*, *Litterati*, an Epithet given to ſuch Perſons among the *Chineſe* as are able to read and write their Language. Theſe alone are capable of being made *Mandarins*.

This is alſo the Name of a particular Sect either in Religion, Philoſophy, or Politicks, conſiſting principally of the Learned Men of that Country: among whom 'tis called *Jukio*, *i. e.* Learned. It had its Riſe in the Year of Chriſt 1400; when the Emperor, to awaken the native Affection of the People for Knowledge, which had been quite baniſhed by the preceding Civil Wars among 'em, and to ſtir up Emulation among the *Mandarins*, choſe out forty-two of the ableſt among their Doctors, to whom he gave a Commiſſion to compoſe a Body of Doctrine agreeable to that of the Antients, which was then become the Rule or Standard of the Learned. The Delegates applied themſelves to the Buſineſs with a world of Attention; but they ſeem rather to have wreſted the Doctrine of the Antients, to make it conſiſt with theirs, than to have built up theirs to the Model of the Antients. They ſpeak of the Deity as if it were no more than mere Nature; or the Natural Power or Virtue that produces, diſpoſes, and preſerves the ſeveral Parts of the Univerſe. It is, ſay they, a pure, perfect Principle without Beginning or End; 'tis the Source of all Things, the Eſſence of every Being; and that which determines it to be what it is. They make God the Soul of the World, ſay he is diffuſed throughout all Matter, and produces all the Changes that happen there. In ſhort, 'tis not eaſy to determine whether they reſolve God into Nature, or lift up Nature into God; for they aſcribe to it many of thoſe things which we attribute to God. This Doctrine, in lieu of the Idolatry that prevailed before, introduced a refin'd kind of Atheiſm. The Work being compoſed by ſo many Perſons of Learning and Parts, and approved by the Emperor himſelf, was received with infinite Applauſe by all the World. Many were pleaſed with it, in regard it ſeem'd to ſubvert all Religion: others approved it, becauſe the little Religion that it left 'em could not give 'em much trouble. And thus was form'd the Sect of the *Litterati*; which conſiſts of the Maintainers and Adherents to this Doctrine. The Court, the Mandarins, and the Perſons of Fortune and Quality, *&c.* are generally Retainers to it; but a great part of the common People ſtill hold to their Worſhip of Idols. The *Litterati* freely tolerate the *Mahometans*, becauſe they adore, with them, the King of Heaven and Author of Nature; but they bear a perfect Averſion to all other Sects of Idolaters among 'em, and it was once reſolved to extirpate them. But the Diſorder this would have occaſion'd in the Empire, prevented it: they now content themſelves with condemning them in general as Hereſies; which they do ſolemnly every Year at *Pekin*.

LETTER OF CREDIT, among Merchants, a Letter which a Merchant or Banker gives a Perſon he truſts in, to take up Money of his Correſpondents in remote places, in caſe of need. *Letters of Credit*, tho different from thoſe of *Exchange*, yet have the ſame Privileges, to compel the Payment of Sums received in conſequence of 'em.

LETTER OF EXCHANGE, ſee *Bill of Exchange*; ſee alſo *Exchange*.

LETTER OF LICENCE, in Trade, is an Inſtrument or Writing granted to a Man who has fail'd or broke, ſign'd and ſeal'd by his Creditors; which *Letter* uſually gives a longer Time for Payment: ſo that the Debtor having ſuch an Aſſurance, can go about his Buſineſs without fearing an Arreſt.

LETTERS OF ATTORNEY, are Writings authorizing an Attorney, that is, a Man appointed to do a legal Act in our ſtead. As a Letter of Attorney to give Seiſin of Lands, to receive Debts, to ſue a third Perſon, *&c.*

LETTERS OF MART, are Letters under the Privy-Seal, granted to the King's Subjects; impowering them to take by Force of Arms, what was formerly taken from them contrary to the Law of *Mart*: and regards any Nation with whom Truce is broken. See *Reprizal*.

LETTERS PATENTS, are Writings ſealed with the Great Seal of *England*, whereby a Man is authorized to do, or enjoy any thing, that otherwiſe of himſelf he could not. And they are ſo call'd by reaſon of their Form, becauſe they are open, with the Seal affixed, ready to be ſhewn for the Confirmation of the Authority given by them. Common Perſons may grant *Letters Patents*; but they are rather call'd *Patents* than *Letters Patents*, yet for difference thoſe granted by the King are call'd *Letters Patents Royal*. *Letters Patents* conclude with *Teſte meipſo*, *Charters* with *hiis Teſtibus*.

LETTERS OF RESPITE, Letters iſſued out by a Prince in favour of honeſt unfortunate Debtors, againſt too rigorous Creditors, whereby Payment is delay'd, for a certain Term. The Uſe of theſe Letters is very antient: *Caſſiodorus* obſerves, they were in uſe in the Time of *Theodoric* King of the *Goths*; others will have 'em introduced towards the End of the eleventh Century by Pope *Urban* II. in favour of thoſe who went on the Cruzados. They are ſtill in uſe in *France*, and ſome other Countries: and take their Name *à reſpirando*, becauſe they give the Debtor a breathing while.

LEVANT, in Geography, ſignifies any Country ſituate to the Eaſt of us, or the Eaſtern ſide of any Continent or Country, or that on which the Sun riſes. In Matters of Commerce, *&c.* the Word is generally reſtrain'd to the *Mediterranean Sea*, or the Country on the Eaſtern part of it: Hence our Trade thither is call'd the *Levant* Trade, and a Wind that blows from thence out of the *Streights*-mouth, is call'd a *Levant* Wind.

LEVANT AND COUCHANT, in Law, is when Cattel have been ſo long in another Man's Ground, that they have lain down, and have riſen again to feed.

LEVARI FACIAS, a Writ directed to the Sheriff for the Levying a Sum of Money on his Land and Tenements who has forfeited a Recognizance.

LEVATOR, an Epithet which the Anatomiſts give to ſeveral Muſcles, whoſe Uſe is to raiſe or lift up the Parts to which they belong. There are *Levators* of the Eye-Lids, ſee *Attollens Palpebr.* of the Omoplate, ſee *Omoplate*; of the Anus, ſee *Anus*; and of the Scapula, ſee *Scapula*.

LEUCOMA, in Phyſic, is a little white Spot on the Cornea of the Eye, call'd by the *Latins*, *Albugo*. It is occaſioned by an Humour gather'd in this Membrane, or by the Scar following a Wound, or by an Ulcer in this Part, as ſometimes happens in the Small-Pox. The Word is *Greek*, and is formed from λευκὸς, *white*.

LEUCOPHLEGMATIA, a kind of Dropſy, otherwiſe call'd *Anaſarcha*. It conſiſts in a Tumor or Bloating of the whole outer Surface of the Body, or ſome of its Parts; white and ſoft, eaſily giving way to the Touch, and preſerving the Impreſſion made by the Finger for ſome time. It may either be owing to ſome Diſorder of the Blood, which in this Diſeaſe is of a pale Colour, viſcid, and cold; or to an aqueous Humour extravaſated, and gathered together in the Muſcles and the Pores of the Skin. The Word is *Greek*, and comes from λευκὸς, *white*, and φλεγμα, *Pituita*, *Phlegm*.

LEVEL, a Mathematical Inſtrument, ſerving to draw a Line parallel to the Horizon, to lay off Floors, the Courſes of Maſonry, *&c.* horizontally, to meaſure the difference of Aſcent or Deſcent between ſeveral Places, to convey Waters, drain Fens, *&c.* The Word comes from the *Latin Libella*, the Croſs Beam that forms the Brachia of a Balance, which to be juſt, muſt ſtand horizontally. There are ſeveral Inſtruments of different Contrivance and Matter, that have been invented for the Perfection of Levelling; all of which, for the Practice, may be reduced to theſe that follow.

Water Level, which ſhews the horizontal Line by means of a Surface of Water, or other Liquid; founded on this Principle, that Water always naturally places itſelf *level*. The moſt ſimple is made of a long wooden Trough or Canal, whoſe Sides are parallel to its Baſe; ſo that being equally fill'd with Water, the Surface thereof ſhews the Line of *Level*: this is the *Chorobates* of the Antients, deſcribed by *Vitruvius*, *Lib.* 8. *Chap.* 6. This *Level* is alſo made with two Cups fitted to the two Ends of a Pipe, 3 or 4 Foot long, about an Inch in Diameter; by means whereof the Water communicates from the one to the other Cup: and this Pipe being moveable on its Stand, by means of a Ball and Socket, when the two Cups become equally full of Water, their two Surfaces mark the Line of *Level*. This Inſtrument, inſtead of Cups, may be made with two ſhort Cylinders of Glaſs 3 or 4 Inches long, faſten'd to each Extreme of the Pipe with Wax or Maſtic. Into the Pipe is fill'd ſome common or coloured Water, which ſhews itſelf through the Cylinders, by means whereof, the Line of *Level* is determined; the Height of the Water, with reſpect to the Center of the Earth, being always the ſame in both Cylinders. This *Level*, tho' very ſimple, is yet very commodious for levelling of ſmall Diſtances.

Air Level, that which ſhews the Line of *Level*, by means of a Bubble of Air incloſed with ſome Liquor in a Glaſs Tube of an indeterminate Length and Thickneſs, whoſe two Ends are ſealed hermetically; that is, are cloſed with the Glaſs itſelf, by heating it with the Flame of a Lamp, till it become ſoft and tractable. When the Bubble of Air fixes itſelf at a certain Mark made exactly in the Middle of the Tube, the Plan or Ruler wherein it is fixed is *level*. When it is not *level*, the Bubble will riſe to one End. This Glaſs Tube may be ſet in another of Braſs, having an Aperture in the Middle, whence the Bubble of Air may be obſerved. The Liquor wherewith the Tube is fill'd, is ordinarily either Oil of Tartar, or *Aqua ſecunda*; thoſe not being liable to freezing as common Water, nor to Rarefaction and Condenſation as Spirit of Wine. The Invention of this Inſtrument is aſcribed to Mr. *Thevenot*.

Air Level with Sights, is an Improvement on that laſt deſcribed, which by the Addition of more Apparatus, becomes more commodious and exact: It conſiſts of an *Air Level* 1, (*Plat. Surveying*, *Fig.* 4.) about eight Inches long, and ſeven or eight Inches in Diameter, ſet in a Braſs Tube 2, with an Aperture in the Middle. The Tubes are carried in a ſtrong ſtreight Ruler, a Foot long, at whoſe Ends are fixed two Sights exactly perpendicular to the Tubes, and of an equal Height, having a ſquare Hole, form'd by two Fillets of Braſs, croſſing each other at right Angles, in the Middle whereof is drilled a very little Hole; through which little Hole, a Point on a *Level* with the Inſtrument is deſcried. The Braſs Tube is faſtened on the Ruler by means of two Screws, one whereof, mark'd 4, ſerves to raiſe or depreſs the Tube at pleaſure, for bringing it towards a *Level*. The Top of the Ball and Socket is riveted to a little Rule that ſprings, one End whereof is faſten'd with Screws to the great Ruler, and the other End has a Screw 5, ſerving to raiſe and depreſs the Inſtrument when nearly *level*. This Inſtrument is yet leſs commodious than the following one, becauſe tho' the Holes be ever ſo ſmall, yet they will ſtill take in too great a Space to determine the Point of *Level* preciſely.

Air Level with Teleſcope Sights. This *Level* (*Plate Surveying*, *Fig.* 5.) is like the laſt *Plate Fig.* with this Difference, that inſtead of plain Sights, it carries a Teleſcope to determine exactly a Point of *Level* at a good diſtance. The Teleſcope is in a little Braſs Tube, about 15 Inches long, faſtened on the ſame Rule as the *Level*. At the End of the Tube of the Teleſcope, mark'd 1, enters the little Tube 1, carrying the Eye-Glaſs, and a Hair horizontally placed in the Focus of the Object-Glaſs 2; which little Tube may be drawn out, or puſh'd into the great one, for adjuſting the Teleſcope to different Sights. At the other End of the Teleſcope is placed the Object-Glaſs: The Screw 3, is for raiſing or lowering the little Fork carrying the Hair, and making it agree with the Bubble of Air when the Inſtrument is *level*; and the Screw 4, is for making the Bubble of Air agree with the Teleſcope. The whole is fitted to a Ball and Socket. M. *Huygens* is ſaid to have been the Inventor of this *Level*; which has this Advantage, that it may be inverted, by turning the Ruler and Teleſcope half round: And if then the Hair cut the ſame Point that it did before the Turn, 'tis a Proof the Operation is juſt. It may be here obſerved, that one may add a Teleſcope to any kind of *Level*, by applying it upon, or parallel to the Baſe or Ruler, when there is occaſion to take the *Level* of remote Objects.

Plumb or *Pendulum Level*: That which ſhews the Horizontal Line by means of another Line perpendicular to that deſcribed by its Plummet or Pendulum. This Inſtrument (*Plate Surveying*, *Fig.* 6.) conſiſts of two Legs or Branches, join'd together at Right Angles; whereof that which carries the Thread and Plummet, is about a Foot and an half long. This Thread is hung towards the Top of the Branch, at the Point 2. The Middle of the Branch where the Thread paſſes is hollow, that ſo it may hang free every where but towards the Bottom at the Place 3, where there is a little Blade of Silver, whereon is drawn a Line perpendicular to the Teleſcope. The ſaid Cavity is cover'd by two Pieces of Braſs, making, as it were, a kind of Caſe, leſt the Wind ſhould agitate the Thread; for which reaſon the Silver Blade is covered with a Glaſs, to the end that it may be ſeen when the Thread and Plummet play upon the Perpendicular. The Teleſcope 1, is faſtened to the other Branch or Leg of the Inſtrument, and is about two Foot long, having a Hair placed horizontally a-croſs the Focus of the Object-Glaſs; which determines the Point of *Level*, when the String and Plummet hang againſt the Line on the Silver Blade. All the Accuracy of this Inſtrument depends on the Teleſcope's being fitted at Right Angles to the Perpendicular. It has a Ball and Socket, by which it is faſten'd to its Foot, and is ſaid to have been the Invention of M. *Picard*.

Reflecting Level: That made by means of a pretty long Surface of Water, repreſenting the ſame Object inverted, which we ſee erect by the Eye; ſo that the Point where thoſe two Objects appear to meet, is in a *Level* with the Place where the Surface of Water is found. This is the Invention of M. *Marriotte*. There is alſo another *Reflecting Level*, conſiſting of a Mirror of Steel or the like, well poliſh'd, and placed a little before the Object-Glaſs of a Teleſcope ſuſpended perpendicularly. This Mirror muſt make an Angle of 45 Degrees with the Teleſcope; in which Caſe the Perpendicular Line of the ſaid Teleſcope is converted into an Horizontal; which is the ſame with the Line of *Level*. The Invention of this is owing to Mr. *Caſſini*.

We have another *Level* of Mr. *Huygens*'s Invention, conſiſting of a Teleſcope *a*, (*Plate Surveying*, *Fig.* 7.) in form of a Cylinder, going through a Ferril, in which it is faſten'd by the middle. This Ferril has two flat Branches *b b*, one above, and the other below; at the ends whereof are faſten'd little moving Pieces, which carry two Rings, by one of which the Teleſcope is ſuſpended to a Hook at the end of the Screw 3, and by the other a pretty heavy Weight is ſuſpended, in order to keep the Teleſcope *in Equilibrio*. This Weight hangs in the Box 5, which is almoſt fill'd with Linſeed Oil, Oil of Wallnuts, or other Matter that will not eaſily coagulate, for more aptly ſettling the Ballance of the Weight and Teleſcope. The Inſtrument carries two Teleſcopes cloſe and very parallel to each other, the Eye-Glaſs of the one being againſt the Object-Glaſs of the other, that one may ſee each way without turning the *Level*. In the Focus of the Object-Glaſs of each Teleſcope muſt a little Hair be ſtrain'd horizontally, to be rais'd and lower'd as occaſion requires, by a little Screw. If the Tube of the Teleſcope be not found level when ſuſpended, a Ferril or Ring 4 is put on it, to be ſlid along, till it fixes to a *Level*. The Hook on which the Inſtrument is hung, is fix'd to a flat Wooden Croſs, at the Ends of each Arm whereof, there is a Hook ſerving to keep the Teleſcope from too much Agitation in uſing or in carriage. To the ſaid flat Croſs is applied another hollow Croſs, that ſerves as a Caſe for the Inſtrument; but the two Ends are left open, that the Teleſcope may be ſecured from the Weather, and always in a condition to uſe. The Foot of this Inſtrument is a round Braſs Plate, to which are faſten'd three Braſs Ferrils moveable by means of Joints wherein are put Staves: And on this foot is placed the Box. See the *Figure*.

Maſons Level, is compoſed of three Rules, ſo joined as to form an Iſoſceles Rectangle, ſomewhat like a Roman A; at the Vertex whereof is faſtened a Thread, from which hangs a Plummet; which paſſes over a fiducial Line marked in the Middle of the Baſe, when the thing to which the *Level* is applied, is horizontal; but declines from the Mark, when the Thing is lower on one Side than the other.

Carpenters and Paviours Level, conſiſts of a long Ruler, in the Middle whereof is fitted, at Right Angles, another ſomewhat bigger, at the Top whereof is faſtened a Line with a Plummet; which, when it hangs over a fiducial Line at Right Angles with the Baſe, ſhews that the ſaid Baſe is horizontal. Theſe two laſt Levels, tho' very common, are eſteemed the beſt for the Practice of Building, tho' the Operations made by 'em muſt needs be ſhort.

Gunners Level, for levelling Cannons and Mortars, is an Inſtrument (*Plate Surveying*, *Fig.* 8.) conſiſting of a Triangular Braſs Plate about four inches high, at the bottom of which is a Portion of a Circle divided into 45°; which Number is ſufficient for the higheſt Elevation of Cannons and Mortars, and for giving Shot the greateſt Range. On the Center of this Segment of a Circle is ſcrewed a piece of Braſs, by means whereof it may be fix'd or moved at pleaſure. The End of this Piece of Braſs is made ſo as to ſerve for a Plummet and Index, in order to ſhew the Degrees of different Elevations of Pieces of Artillery. This Inſtrument has alſo a Braſs Foot to ſet upon Cannon or Mortars, ſo as when thoſe Pieces are horizontal, the whole Inſtrument will be perpendicular. The Uſe of the Inſtrument is obvious; and conſiſts in placing the Foot thereof on the Piece to be elevated, in ſuch manner as that the Point of the Plummet may fall on the proper Degree: this is what they call *levelling* the Piece.

Artillery Foot Level, is in form of a Square, having its two Legs or Branches of equal Length; at the Juncture whereof is a little Hole, whence hangs a Thread and Plummet playing on a perpendicular Line in the Middle of the Quadrant: it is frequently divided into 90 Degrees, or rather into twice 45 Degrees from the Middle. This Inſtrument may be uſed on ordinary Occaſions, by placing the Ends of its two Branches on a Plane; for when the Thread plays perpendicularly over the middle Diviſion of the Quadrant, that Plane is aſſuredly *level*. To uſe it in Gunnery, place the two Ends on the Piece of Artillery, which you may raiſe to any propoſed Height by means of the Plummet, whoſe Thread will give the Degree above the *Level*.

LEVELLING, an Operation with a Level, for finding a Line parallel to the Horizon, at one or more Stations, in order to determine the Height of one Place with reſpect to another; for the laying off Grounds even, regulating of Deſcents, draining of Moraſſes, conducting of Waters, *&c.* One Place is ſaid to be higher than another, or out of Level with it, when it is more remote from the Centre of the Earth; and a Line equally diſtant from the Centre of it in all its Points, is called the Line of true Level: whence, becauſe the Earth is round, that Line muſt be a Curve, and make a part of the Earth's Circumference, or an Arch concentrical with it, as the Line B C F G; *Plate Surveying, Fig.* 9. all the Points whereof are equally diſtant from the Centre of the Earth A. But the Line of Sight which the Operations of Levels give, is a Tangent or a Right Line perpendicular to the Semi-diameter: One Extreme of which Tangent, being the Point of Contact, the other will be that of a Secant drawn from the Centre of the Earth; and the Point which determines it, will be above the Surface of the Earth, and of the true Level, as much as that Secant exceeds the Radius or Semi-diameter of the Earth.

This Extremity of the Tangent is ſaid to be in the apparent Level, as being that given by the Sight, but is eaſily reduced to the true Level, becauſe we know by Trigonometry, how much each Secant exceeds the Radius; and becauſe by meaſuring we have diſcovered the preciſe Length of that Radius. It was for want of the Knowledge of this, the Antients were not able to reduce the apparent Level to the true one; and accordingly, to prevent falling into an Error, never levell'd above 20 Feet at once, where ſuch Reduction was not neceſſary. By the Tables ſince made, it appears that at the Diſtance of 100 Yards, the apparent Level is raiſed above the true one about $\frac{1}{3}$ of a Line: So that the Antients, in this reſpect, were more ſcrupulous than needed. By means of this Reduction, we are now able to level Diſtances of one or two Miles, at one Operation, which the Antients could not do in leſs than 300.

The Operation of *Levelling* is as follows: Suppoſe the Height of the Point A (*Plate Surveying, Fig.* 10.) on the Top of a Mountain, above that of the Point B, and at the Foot thereof required: Place the Level about the middle Diſtance, between the two Points, as in D, and Staffs in A and B, and let there be Perſons inſtructed with Signals for raiſing and lowering on the ſaid Staffs little Marks of Paſteboard, or other Matter. The *Level* being placed horizontally by the Bubble, *&c.* look towards the Staff A E, and cauſe the Mark to be raiſed or lowered, till the Middle, upper Edge, or other moſt conſpicuous Part appear in the viſual Ray. Then meaſuring exactly the perpendicular Height of the Point A above the Point E, which ſuppoſe 6 Feet 4 Inches, ſet that down in your Book; then turn the Level horizontally about, that the Eye-Glaſs of the Teleſcope may be ſtill next the Eye when you look the other way (if you have only plain Sights, the Inſtrument need not be turned) and cauſe the Perſon at the Staff B to raiſe or lower his Mark, till ſome conſpicuous part of it fall in the viſual Ray, as at C. then meaſure the perpendicular Height of C above B, which ſuppoſe 16 Feet, 16 Inches; ſet this alſo down in the Book above the other Number of the firſt Obſervation; ſubſtract the one from the other, the Remainder will be 10 Feet, 4 Inches, which is the Difference of Level between A and B, or the Height of the Point A above the Point B. Where Note, that if the Point D, where the Inſtrument is fixed, be in the middle between the two Points A and B, there will be no Neceſſity for reducing the apparent Level to the true Level, the viſual Ray in that Caſe being raiſed equally above the true Level.

If it be further required to know whether there be a ſufficient Deſcent for conveying Water from the Source A to the Point B, *Plate Surveying, Fig.* 11. Here in regard the Diſtance from A to B is conſiderable, 'tis required that ſeveral Operations be made. Having then choſen a proper Place for the firſt Station, as at I, ſet up a Staff in the Point A near the Source, with a proper Mark to ſlide up and down the Staff as L, and meaſure the Diſtance from A to I, which ſuppoſe 2000 Yards. Then the Level being adjuſted in the Point I, let the Mark L be raiſed and lowered till ſuch time as you ſpy ſome conſpicuous Part of it thro' the Teleſcope or Sights of the Level, and meaſure the Height A L, which ſuppoſe 13 Foot 5 Inches. But in regard the Diſtance A I is 2000 Yards, you muſt have recourſe to your Table for a Reduction, ſubſtracting 11 Inches, which will leave the Height A L 12 Foot 6 Inches; and this note down in your Book. Now turn the Level horizontally about, ſo as the Eye-Glaſs of the Teleſcope may be towards the Staff at A; and fixing up another Staff at H, cauſe the Mark G to be moved up and down, till you ſpy ſome conſpicuous Part thro the Teleſcope or Sights. Meaſure the Height H G, which ſuppoſe 6 Yards, 4 Feet, 2 Inches. Meaſure likewiſe the Diſtance of the Points I H, which ſuppoſe 1300 Yards; for which Diſtance, according to the Table, 4 Inches, 8 Lines, muſt be ſubſtracted from the Height H G, which conſequently will but leave 6 Yards, 3 Feet, 9 Inches, 4 Lines, to be taken down in your Book.

This done, remove the Level forwards to ſome other Eminence, as E, whence the Staff H may be view'd, as alſo another Staff at D, the Place whither the Water is to be convey'd. The Level being again adjuſted in the Point E, look back to the Staff H; and managing the Mark as before, the viſual Ray will give the Point F. Meaſure the Height H F, which ſuppoſe 11 Feet, 6 Inches. Meaſure likewiſe the Diſtance H E, which ſuppoſe 1000 Yards; for which Diſtance the Table gives 2 Inches, 9 Lines of Abatement; which being taken from the Height H F, there will remain 11 Feet, 3 Inches, 3 Lines, which enter in your Book. *Laſtly*, turning the Level to look at the next Staff D, the viſual Ray will give the Point D. Meaſure the Height of D from the Ground, which ſuppoſe 8 Feet, 3 Inches. Meaſure alſo the Diſtance from the Station H to B, which ſuppoſe 900 Yards; for which Diſtance the Table gives 2 Inches, 3 Lines of Abatement; which being taken from the Height B D, there will remain 8 Feet, 9 Lines, which enter as before.

For the Manner of entering down Obſervations in your Book, obſerve that when a proper Place or Station for the Level, between the two Points, has been pitched upon, you muſt write down the two Heights obſerved at that Station, in two different Columns, *viz.* under the firſt Column, thoſe obſerved in looking thro' the Teleſcope when the Eye was from the Source, or towards the Point, which we may call *Back-Sights*; and under the ſecond Column thoſe obſerved, when the Eye was next the Source, which we call *Fore-Sights*, in the manner following:

Back-Sights.	*Foot.*	*Inc.*	*Line.*	Fore-Sights.	*Foot.*	*Inc.*	*Lin.*
Firſt Height Corrected	12	6	0	Second Height	21	9	4
Third Height	11	3	3	Fourth Height	8	0	9
	23	9	3		29	10	1

Having ſummed up the Heights of each Column ſeparately, ſubſtract the leſſer from the greater, the Remainder will be the Difference of Level between the Points A and B; as in this Example,

Feet.	*Inch.*	*Lin.*	
29	10	1	
23	09	3	
6	00	10	*The Difference of Height or Level between the Points* A *and* B.

If the Diſtance of the two Points be required, add all the Diſtances meaſured, together, and dividing the Difference of Height by the Yards of the Diſtances, for each 200 Yards you will have a Deſcent of about 2 Inches, 9 Lines.

Levelling Staffs are Inſtruments uſed in *Levelling*, ſerving to carry the Marks to be obſerv'd, and at the ſame time to meaſure the Height of thoſe Marks from the Ground. They uſually conſiſt each of two long ſquare Wooden Rulers, made to ſlide over one another, and divided into Feet, Inches, *&c.*

For the common Occaſions of *Levelling* to be perform'd without much Apparatus of Inſtruments, Time, or Trouble, the following Method is recommended. Set a Pole upright in a Spring, Pond, River, or other Place whence Water is to be brought, and mark how many Feet and Inches of it are above Water. Then ſet up another Pole, of equal length with the other, in the place to which the Water is to come. Place the Center of a Quadrant on the top of this laſt Pole, the Plummet hanging free; ſpy thro the Sights the Top of the Pole that is in the Water, and if the Thread cuts any Degree of the Quadrant, the Water may be convey'd by a Pipe laid in the Earth. If you can't ſee from one Extreme to the other, the Operation may be repeated in the manner already directed.

Dr. *Halley* ſuggeſts a new Method of *Levelling*, which has been put in practice by ſome of the *French* Academy: This is performed wholly by means of the Barometer, in which the Mercury is found to be ſuſpended to ſo much the leſs Height, as the Place is further remote from the Centre of the Earth. Hence it follows, that the different Heights of the Mercury in two Places give the Difference of Level. Mr. *Derham*, from ſome Obſervations he made at the top and bottom of the Monument, found that the Mercury fell $\frac{1}{10}$ of an Inch at every 82 Foot of perpendicular Aſcent, when the Mercury is at 30 Inches. Dr. *Halley* allows of $\frac{1}{10}$ of an Inch for every 30 Yards; which, conſidering how accurately the Barometers are now made, an Inch in ſome of 'em being divided into an hundred or more Parts, all very ſenſible, he thinks this Method ſufficiently exact to take the Levels for the Conveyance of Water, and leſs liable to Errors than the common Levels. The ſame Author found a Difference of 3 Inches 8 Tenths between the Height of the Mercury at the top and bottom of *Snowdon* Hill in *Wales*.

LEVER, in Mechanics, an inflexible Right Line ſupported by a ſingle Point on a Fulcrum or Prop; and uſed for the raiſing of Weights: being either void of Weight itſelf, or at leaſt having ſuch a Weight as may be balanced. The *Lever* is the firſt of thoſe call'd *Mechanical Powers* or *Simple Machines*, as being of all others the moſt ſimple, and is chiefly applied for raiſing Weights to ſmall Heights. It has its Name *Lever* from its Office *levare* or *lever*, to raiſe.

In a *Lever* there are three things to be principally conſidered: 1. The Weight to be rais'd or ſuſtain'd, as O, (*Plate Mechanicks, Fig.* 1.) 2. The Power by which it is to be rais'd or ſuſtain'd, as B. 3. The Fulcrum or Prop D, whereon the *Lever* is ſuſtain'd, or rather on which it moves round, the Fulcrum remaining fixed.

The *Lever* is threefold: Sometimes the Fulcrum is placed between the Weight and the Power, as in *Fig.* 1. *Plate Mechanicks*; and this we call a *Lever* of the firſt kind. Sometimes the Weight is between the Fulcrum and the Power, which is the ſecond kind; as in *Fig.* 2. And ſometimes the Power acts between the Weight and the Fulcrum; *Fig.* 3. the third kind.

The Power of the *Lever* is founded on the following Theorem, *viz.* That the Space or Arch deſcribed by each Point of a *Lever*, and conſequently the Velocity of each Point of a *Lever* is as its Diſtance from the Fulcrum or Prop.

From hence it follows, that the Action of a Power and the Reſiſtance of the Weight increaſe in proportion to their Diſtance from the Fulcrum. And hence alſo it follows, that a Power will be able to ſuſtain a Weight, if the Diſtance of the Point in the *Lever* to which it is applied, be to the Diſtance of the Weight, as the Weight to the Intenſity of the Power; which if it be ever ſo little increaſed, muſt raiſe the Weight. See this Doctrine demonſtrated under the Word *Mechanic Powers*, and further illuſtrated under the Word *Balance*: between which and the *Lever* there is a great Analogy; a *Lever* of the firſt kind being a ſort of Steel-yard to raiſe Weights.

The Power and Action of the *Lever* will be fully illuſtrated by the following Propoſitions.

I. If the Power applied to a *Lever* of any kind ſuſtain a Weight, the Power is to the Weight in a reciprocal Ratio of the Diſtances from the Fulcrum. This is the Converſe of that demonſtrated under the Head *Mechanic Powers*.

II. The Weight of a *Lever* of the firſt and ſecond kind AB, the Diſtance of the Centre of Gravity from the Fulcrum CV, and the Diſtances of the Weight and the Power AC and CB, being all given; to find the Power that will ſuſtain it.

Suppoſe the *Lever* void of Gravity, but in lieu thereof a Weight hung at V; if then AC be made to CV as the Gravity of the *Lever* to a fourth Number, we ſhall have the Weight which the *Lever* is able to ſuſtain, and this ſubſtracted from the given Weight, the Remainder will be the Weight to be ſuſtain'd by the Power. Let CB then be to CA as the remaining Weight to a fourth Weight; and we ſhall have the Power to be applied in B, in order to ſuſtain the given Weight with the given *Lever*.

III. The Gravity of a *Lever* of the firſt or ſecond kind AB, the Diſtance of its Centre of Gravity from the Fulcrum CV, the Diſtances of the Power and the Weight BC and CA being all given, to find the Weight to be ſuſtain'd.

Find the Part of the Weight ſuſtain'd by the *Lever* alone, as in the former Problem; in the ſame manner find the other Part of the Weight which the Power applied in B is able to ſuſtain: Add the two Numbers together, the Sum is the Weight required.

IV. The Gravity and Centre of Gravity F of a *Lever* of the ſecond kind CB, with the Weight G, its Diſtance from the Fulcrum CA, and from the Power CB, being given; to find the Power capable to ſuſtain the Weight.

Suppoſe the *Lever* void of Gravity, but in lieu thereof a Weight equal thereto hung in F, the Power required to ſuſtain the *Lever* alone. Then find the Power requiſite to ſuſtain the given Weight G; add the Powers together, the Sum will be the Power required.

V. If a Power applied to a *Lever* of any kind lift a Weight, the Space of the firſt is to that of the laſt, as this laſt to a Power able to ſuſtain the ſame Weight; whence it follows, that the Gain of Force is always attended with the Loſs of Time, and *vice verſâ*.

LEVERET, a young Hare, ſo call'd in the firſt Year of its Age.

LEVIGATION ſignifies the Reduction of any hard ponderous Bodies, as Coral, Tutty, Precious Stones, *&c.* into a light ſubtile Powder, by grinding upon Porphyry, a Sea-ſhell, Marble, Stone, *&c.* as Painters do their Colours. This is much uſed in Pharmacy and Chymiſtry, but unleſs the grinding Inſtruments are extremely hard, they will wear away, ſo as ſometimes to double the Weight of the Medicine thus managed.

LEVITE, a *Hebrew* Prieſt, or Sacrificer, ſo call'd as being of the Tribe of *Levi*, or the Deſcendant of the Patriarch of that Name. In the Primitive Church they alſo gave the Name *Levite* to the Deacons, and Miniſters of the Altar. The *Levites* of the Old Law had no ſettled Lands allotted 'em for their Maintenance, but lived chiefly of the Offerings made to God. They were diſtributed through all the Tribes, each of which gave ſome of their Cities to the *Levites*, with Grounds in their Neighbourhood for the Subſiſtence of their Flocks. According to the Numeration made by *Solomon*, from the Age of Twenty there were Thirty-eight Thouſand capable of ſerving: Twenty-four Thouſand of theſe he appointed for the daily Miniſtery under the Prieſts; Six Thouſand to be inferior Judges in the Cities, and to decide Matters relating to Religion, and of no great conſequence to the State; Four Thouſand to be Door-keepers, and to take care of the Riches of the Temple; and the reſt to do the Office of Chanters or Singers.

The Word comes from the *Latin Levita*, which is form'd from the *Greek* λευιτης; the Root of which is the Name *Levi*, which was given to this Patriarch by his Mother *Leah*, from the *Hebrew* לוה *lavah, to be tied* or *united*; *Leah* hoping, by the Birth of this Son, to be more cloſely link'd to her Husband *Jacob*.

LEVITY, the Privation or Want of Weight in any Body, when compared with another that is heavier, in which ſenſe it is oppoſed to Gravity. The Schools maintain that there is ſuch a thing as poſitive and abſolute *Levity*, and impute to this the Riſe or Emergency of Bodies lighter in Specie than the Fluids wherein they riſe. But beſides that the common Senſe of Mankind diſcovers that *Levity* is only a Relative Term, we find by Experience that all Bodies tend toward the Earth, ſome ſlower, and ſome faſter, in all Fluids or Mediums, whether Water, Air, *&c.* Thus Cork is ſaid to be lighter than Gold, becauſe under equal Dimenſions the Gold will ſink in, and the Cork ſwim upon Water. *Archimedes* hath demonſtrated, That a ſolid Body will float any where in a Fluid of the ſame ſpecifick Gravity, and that a lighter Body will keep above a heavier. The Reaſon of this is becauſe of Bodies falling towards the Earth, thoſe which have a like number of equal Parts have equal Gravity; ſince the Gravity of the Whole is the Sum of the Gravity of all its Parts. Now two Bodies have an equal number of equal Parts, if under the ſame Dimenſions there are no Intervals deſtitute of Matter; whence it follows, that as no Portion of Matter is ſo ſmall, but that Body wherein it is contained may be wholly divided into Parts equally ſmall, there can be no reaſon for the Deſcent of theſe, which will not equally hold for the Deſcent of that. Hence it may be concluded, that thoſe Bodies which do not equally gravitate under the ſame Dimenſions, do not contain the ſame equal Portions of Matter; and therefore when we ſee, that a Cube of Gold ſubſides in Water, at the ſame time that an equal Bulk of Cork ſwims upon it, 'tis evident that the Gold muſt have a greater number of equal Parts of Matter under the ſame Bulk than the Cork, or the Cork muſt have a greater number of Vacuities than the Gold; and that there are alſo in the Water, a greater number of Vacuities than in Gold. Hence we have a clear Idea both of Denſity or Gravity, and of *Levity*; and know, that the latter cannot in a ſtrict ſenſe be accounted any thing poſitive, but a mere Negation or Abſence of Body, which determines that Body to be lighter than another which contains more Matter.

Dr. *Hook*, 'tis true, ſeems to maintain ſomething like a poſitive *Levity*. This, if we miſtake not, is what he means by the Term *Levitation*; *viz.* a Property of Bodies directly contrary to that of Gravitation towards the Sun. This he thinks he has diſcovered in the Steams of Comets, which tho they had a Deſcent from the Nucleus of the Comet towards the Sun, yet they quickly return'd, and went oppoſite to the Sun, and that to a prodigious Extent. In effect, where the Power of Gravitation ceaſes, it ſhould ſeem ſome ſuch contrary Force does begin, whereof we have Inſtances in the Phænomena of Attraction. This is what Sir *I. Newton* calls the *Vis Repellens*, and appears

pears to be one of the Laws of Nature; without which it would be hard to account for Rarefaction, and ſome other Appearances. See *Repulſion*.

LEURE, in Falconry, a piece of red Leather, cut in form of a Bird, or a Ball ſet off with a Beak, Claws, and Wings, hung out on a Crook by the Falconer to reclaim his Birds. They ſometimes tie Meat to the *Leure*, wherewith to feed the Bird. The Word comes from the *Latin Lorum*, tho others derive it from *Leora, Craftineſs, Deceit*.

LEVY ſignifies to gather or exact; as to *levy* Money, to *levy* Troops. *Levy* is ſometimes alſo uſed to erect or ſet up; as to *levy* a Mill; alſo to raiſe or caſt up, as to *levy* a Ditch, to *levy* a Fine, &c. from the *French lever*, to *raiſe*.

LEX, ſee *Law*.

LEX AMISSA, or *Legem amittere*, in Law is underſtood of an infamous perjured Perſon, who is ſaid to *loſe his Law*; or, as *Bracton* has it, *non eſt ulterius dignus Lege*.

LEX JUDICIALIS, is properly *Purgatio per Judicium Ferri*, ſometimes call'd ſimply *Judicium*.

LEX SACRAMENTALIS; *Purgatio per Sacramentum*.

LEX TERRÆ, is the Law and Cuſtom of the Land, by which Name it is diſtinguiſh'd from the Civil Law.

LEXICON, the ſame with Dictionary. The Word is ſeldom uſed, excepting in ſpeaking of certain antient *Greek* Dictionaries which bear this Name. 'Tis derived from the *Greek* λέξις *Diction*, of λέγω *I ſpeak*.

LIBATION, a Ceremony in the Heathen Sacrifices, wherein the Prieſt ſpilt ſome Wine, Milk, or other Liquor, in honour of the Deity to whom the Sacrifice was offered, after having firſt taſted it himſelf. *Alexander* is ſaid to have ſacrificed a Bull to *Neptune*; and for an Offering to the Sea-Gods, threw the Golden Veſſel, uſed for the *Libation*, into the Sea. *Libations* were alſo in uſe under the Law of *Moſes*, being injoined by God in *Exodus* xxix. and *Numbers* xv. See *Lipſius* on *Libations*.

LIBEL, a Writing containing Injuries, Reproaches, or Accuſations againſt the Honour and Reputation of any Perſon, particularly of a Superior or Governour. *Platina* is of opinion that a Writing, how injurious ſoever it is, cannot be call'd a *Libel*, if the Author's Name be to it. Libellers, among the antient *Romans*, were puniſh'd with Death, but in After-Times they were only whipp'd. *Auguſtus* rank'd *Famoſos Libellos*, Defamatory Libels, among the Crimes *Læſæ Majeſtatis*, of High-Treaſon. *F. Baudoin* has publiſh'd a Comment on the Imperial Laws againſt *Libels*. Scandalous Pictures are reckoned amongſt *Libels*.

The Lawyers ſay a *Libel* may be either *in Scriptis*, or *ſine Scriptis*. *In Scriptis*, when a Writing is compoſed or publiſhed to another's Diſgrace, which may be done *Verbis, aut Cantilenis*; as where this is maliciouſly repeated or ſung in the preſence of others: Or elſe *Traditione*, when the *Libel*, or any Copy of it, is delivered out to ſcandalize the Party. *Famoſus Libellus ſine Scriptis*, may be two-fold. (1.) *Picturis*, as to paint the Party in a ſhameful, or ignominious manner: Or, (2.) *Signis*, as to fix a Gallows, or other ignominious Signs, at the Door of the Party, or elſewhere. The Puniſhment of Libelling in *England*, is putting the Criminal on the Pillory, Whipping, &c.

Libel alſo ſignifies the Original Declaration of any Action in the Civil Law.

LIBELLATICI. Under the Perſecution of *Decius* there were ſeveral Chriſtians, who, to prevent their being obliged to renounce the Faith, and ſacrifice to Idols in Public, made Application to the Magiſtrates, and abjured their Faith in private, obtaining Certificates of 'em, either by Intreaty, or by Money; by which they were atteſted to have complied with the Orders of the Emperor, and were thereby ſheltered from any further Moleſtation on account of their Religion. Theſe Certificates were called *Libelli*, whence the People who obtained them came to be denominated *Libellatici*. Others, particularly the *Centuriators* of *Magdeburg*, are of Opinion, that the *Libellatici* were only ſuch as fed the Magiſtrates with Money, to ſkreen them from Perſecution, and from being obliged to renounce Chriſtianity. M. *Tillemont* retains ſomewhat of each Opinion; he thinks the *Libellatici* applying themſelves to the Magiſtrates, bought off the Sacrificing and Abjuration, and obtained Letters, by which they were declared to have renounced Chriſt, and ſacrificed to Idols, tho' in effect they had done neither.

LIBERAL ARTS, in oppoſition to Mechanical *Arts*, are ſuch as depend more on the Labour of the Mind, than on that of the Hand; that conſiſt more in the Speculation than the Operation, and that have a greater Regard to Amuſement and Curioſity, than the ſervile Mechanical Works: Such are Grammar, Rhetoric, Painting, Sculpture, Architecture, Muſic. The *Liberal Arts* uſed formerly to be ſummed up in the following *Latin* Verſe.

Lingua, Tropus, Ratio, Numerus, Tonus, Angulus, Aſtra.

And the Mechanical *Arts*, which however are innumerable, under this;

Rus, Nemus, Arma, Faber, Vulnera, Lana, Rates.

The Word comes from the Latin *Liberalis*, which among the *Romans* ſignified a Perſon who was not a Slave, and whoſe Will, of conſequence, was not check'd by the Command of any Maſter.

LIBERALIA, Feaſts celebrated by the antient *Romans* in honour of *Bacchus*. Theſe were the ſame with thoſe which the *Greeks* call'd *Dionyſiaca* and *Agonia*; which ſee.

They took their Name from *Liber*, i. e. Free; a Title conferred on *Bacchus*, in memory of the Liberty or Freedom which he granted to the People of *Bœotia*; or perhaps becauſe Wine, whereof he was the reputed Deity, delivers Men from Care, and ſets their Minds at eaſe and freedom. *Varro* derives the Name of this Feaſt from *Liber*, conſidered as a Noun Adjective, and ſignifying Free; becauſe the Prieſts were free from their Function, and eas'd of all Care during the Time of the *Liberalia*. For, in effect, it was the old Women who officiated in the Ceremonies and Sacrifices of theſe Feaſts.

LIBERIA, a Feaſt held among the *Romans* on the Day wherein their Children laid aſide their Juvenile Habits, and aſſumed the Robe called *Toga libera*. The *Liberia* were kept on the ſixteenth of the Calends of *April*; that is, the 17th of *March*.

LIBERTIN, among the *Romans*, was what we call a Freed Man, a Perſon ſet free from a Legal Servitude. Theſe ſtill retain'd ſome Mark of their antient State. He who made a Slave free, had a Right of Patronage and of Patron over the *Libertin*; if the *Libertin* fail'd of ſhewing due Reſpects to his Patron, he was reſtored to his Servitude; and if the *Libertin* died without Children, his Patron was his Heir.

LIBERTINES, the Name of a Sect in Religion, that aroſe in the Year 1525. Their principal Tenets were, That there is but one only Spirit, which is that of God; who is diffuſed through all Things, who is and lives in all Creatures; that our Souls are nothing but this Spirit of God: That the Soul dies with the Body; that Sin is a mere Chimæra, and only ſubſiſts in Opinion, for that it was God that did all, both Good and Evil; that Paradiſe is a Dream, and Hell a Phantom, invented by the Divines, and Religion a State-Trick to keep Men in Awe; that ſpiritual Regeneration conſiſts in nothing but ſtifling the Remorſe of Conſcience; Repentance in avowing to have done no Evil; and that it is lawful, and even expedient to diſſemble in Matters of Religion. To theſe they added horrible Blaſphemies againſt Jeſus Chriſt, ſaying, he was nothing but a mere *Je ne ſçai quoi*, compoſed of the Spirit of God, and of the Opinion of Men. Theſe Maxims occaſioned their being called *Libertines*; and the Word has been uſed in an ill Senſe ever ſince.

They ſpread principally in *Holland* and *Brabant*. Their Leaders were one *Quintin* a *Picard*, and another called *Chopin*, who aſſociated with him, and became his Diſciple.

LIBERTY, is uſually underſtood of that State wherein a Man acts freely; or that Power by which he determines himſelf voluntarily either to Good or Evil, to this thing or to that: Or *Liberty* is an active Indifference of the Will, to will, or not will any thing. *F. Malbranch* gives us a ſtill more Philoſophical Definition. The Will he defines to be that Impreſſion, or natural Motion, which inclines towards Good in the general; and by *Liberty* he underſtands, that Power which the Mind has of determining this general Impreſſion towards ſuch Objects as pleaſe us; and ſo of directing our general Inclinations to ſome particular Things: whence it is eaſy to perceive, that tho' all natural Inclinations be voluntary, yet they are not all free; not, we mean, with a Freedom of Indifference, which includes a Power of willing, or not willing; or of willing quite the contrary to that which our natural Inclinations lead us to: For tho' 'tis voluntarily and freely that we love Good in general, it being abſurd to ſuppoſe we ſhould love any thing without the Will, or that the Will can ever be conſtrain'd; yet we don't love freely, (in the Senſe juſt laid down) becauſe 'tis not in the power of the Will not to deſire to be happy. It muſt be obſerved, however, that the Mind, conſidered as determined towards Good in general, cannot divert its Motion to any particular Good, unleſs the ſame Mind, conſidered as capable of Ideas, have ſome Knowledge of that particular Good. That is, in plainer Terms, the Will is a blind Power, that cannot apply itſelf to any thing but what the Underſtanding repreſents to it: So that the Power which the Will has to determine its Impreſſion towards general Good, or its natural Inclinations, variouſly, conſiſts in the Power it has to command the Underſtanding to repreſent ſome particular Good. Thus, a Perſon, for inſtance, repreſents ſome Dignity to himſelf as a Good to be wiſh'd for, immediately the Will deſires this Good; that is, the Impreſſion which the Mind continually receives towards Good in general, determines it to this Dignity. But as that Dignity is not the univerſal Good, nor is conceived clearly and diſtinctly as ſuch by the Mind, (for the Mind cannot conceive a thing clearly which is not;) the Impreſſion we have towards Good in general, is not entirely exhauſted by that particular Good; the Mind has an Inclination to go further; it does not love that Dignity neceſſarily or invincibly, and in this reſpect is free. Now its *Liberty* conſiſts in this, that not being fully convinced that this Good contains in it all the Good it is capable of loving, it may ſuſpend its Judgment and its Love. The Caſe is nearly the ſame with regard to the Knowledge of Truth. We love this as we do the Enjoyment of Good, by a natural Impreſſion; which Impreſſion is not invincible in the latter, excepting Evidence be full, and our Knowledge of the Object compleat: We have the ſame *Liberty* in our falſe Judgments, that we have in our irregular Appetites. See *Judgment*, *Will*, &c.

Moſt of the Schoolmen confound *Liberty* and the Will together, and make one Definition ſerve for 'em both. They diſtinguiſh *Liberty* into a great many Kinds; as *Liberty* of Contrariety, *Contrarietatis*; which is a *Liberty* of doing two things not only different, but contrary to each other. *Liberty* of Contradiction, is a Power of doing a thing, or letting it alone. Jeſus Chriſt had not the *Liberty* of Contrariety, with regard to Good and Evil, for he could not do Evil; but he had a *Liberty* of Contradiction with regard to Good. *Next Liberty*, *Proxima*, is a full abſolute Freedom of doing any thing. *Liberty remote*, is a *Liberty* that comprehends a natural Power, tho' embarraſs'd with Obſtacles, which it is in its power to remove, and to attain to a *next Liberty*. Thus he who has not actual Grace neceſſary for the fulfilling of his Duty, but has yet the actual Grace of Prayer, has a *next Liberty* with regard to Prayer, and a *remote Liberty* with regard to his Duty.

Cicero defines *Liberty* the Power of living after a Man's own Deſire, without any Cauſe or Impediment to oblige him to do one thing rather than another. The Doctrine of *Pelagius*, with regard to *Liberty*, is built on Philoſophy, which does not allow us to have loſt our original *Liberty* of doing good.

LIBERTY OF CONSCIENCE, a Right or Power of making Profeſſion of any Religion that a Man ſees fit. This ſeems to be a natural Right; it is vigorouſly oppoſed by the Generality of the *Romaniſts*, and even by many of the Reformed, tho' it ſeems as if the Reformation could ſcarce ſubſiſt without it.

LIBRA, *Balance*, one of the twelve Signs of the Zodiack, exactly oppoſite to *Aries*.

LIBRA, one of the Mechanical Powers. See *Balance*.

LIBRA, the antient *Roman* Pound, borrowed from the *Sicilians*, who called it *Libra*. It was divided into twelve Unciæ, or Ounces, equal to about 10$\frac{1}{2}$ Ounces of our Weight. The Diviſions of their *Libra* were the *Uncia* $\frac{1}{12}$, the *Sextans* $\frac{1}{6}$, the *Quadrans* $\frac{1}{4}$, the *Triens* $\frac{1}{3}$, the *Quincunx* five Ounces, the *Semis* ſix, the *Septunx* ſeven, the *Bes* eight, the *Dodrans* nine, the *Dextrans* ten, the *Deunx* eleven; laſtly, the *As* weighed twelve Ounces, or one *Libra*. The *Roman Libra* was uſed in *France* for the Meaſure of their Coin till the time of *Charlemagne*, or perhaps till that of *Philip* I. in 1093. their Sols being ſo proportioned, as that twenty of them were equal to the *Libra*. By degrees it became a Term of Account, and every thing of the Value of twenty Sols was called a Livre. See *Livre*. The *Romans* had alſo a Coin called *Libra*, equal to twenty *Denarii*. *Scaliger* will have it, that *Libra* was even among them a Term of Account, not a Coin. See *Pound*.

LIBRA PENSA, in our Law-Books, is a Pound of Money in Weight: it being uſual in former Days not only to tell the Money, but to weigh it; in regard many Cities, Lords, and Biſhops having their Mints, coin'd Money, and often very bad too: for which reaſon, tho the Pound conſiſted of 20 Shillings, they always weigh'd it.

LIBRARII, among the Antients, were properly thoſe who tranſcribed in beautiful, or at leaſt legible Characters, what had been wrote by the *Notarii* in Notes and Abbreviatures. The Word was alſo uſed for Copiſts, or thoſe who wrote Books for the Bookſellers.

LIBRARY, an Apartment or Place deſtined for the placing of Books; or the Books themſelves lodg'd in that Apartment. Some Authors refer the Origin of *Libraries* to the *Hebrews*, and obſerve that the Care they took for the Preſervation of their Sacred Books, and the Memory of what concern'd the Actions of their Anceſtors, became an Example to many other Nations, and particularly the *Egyptians*. *Oſymandrias* King of *Egypt* is ſaid to have taken the hint firſt, and had a *Library* built in his Palace, with this Inſcription over the door, Ψυχῆς Ἰατρεῖον. Nor were the *Ptolemys*, who reign'd in the ſame Country, leſs curious and magnificent in Books. The Scripture ſpeaks of a *Library* of the Kings of *Perſia*, *Eſdras* V. 15. VI. 1. which ſome imagine to have conſiſted of the Hiſtorians of that Nation, and of Memoirs of the Affairs of the State; but, in effect, it appears rather to have been a Depoſitory of Laws, Charters, and Ordinances of the Kings. The *Hebrew* Text calls it *the Book of Treaſures*, and afterwards *the Houſe of the Books of Treaſures*. We may with more juſtice call that a *Library*, mention'd in the ſecond of *Eſdras* to have been built by *Nehemiah*, and in which were preſerv'd the Books of the Prophets and of *David*, and the Letters of their Kings.

The firſt who erected a *Library* at *Athens*, was the Tyrant *Piſiſtratus*; and yet *Strabo* refers the Honour of it to *Ariſtotle*. That of *Piſiſtratus* was tranſported by *Xerxes* into *Perſia*, and afterwards brought by *Seleucus Nicanor* to *Athens*. Long after, it was plundered by *Sylla*, and reeſtabliſhed by *Hadrian*. *Plutarch* ſays, that under *Eumenes* there was a *Library* at *Pergamus* containing 200000 Books. *Tarannion*, a celebrated Grammarian, Cotemporary with *Pompey*, had a *Library* of 3000 Volumes: That of *Ptolemy Philadelphus*, according to *Ammianus Marcellinus*, contain'd 7000, all in Rolls, burnt by *Cæſar*'s Soldiers. *Conſtantine* and his Succeſſors erected a magnificent one at *Conſtantinople*, which in the eighth Century contain'd 300000 Volumes, all burnt by order of *Leo Iſauricus*; and among the reſt, one wherein the *Iliad* and *Odyſſee* were written in Letters of Gold on the Guts of a Serpent.

The moſt celebrated *Libraries* of antient *Rome* were the *Ulpian* and the *Palatin*. They alſo boaſt much of the *Libraries* of *Paulus Emilius*, who conquer'd *Perſius*; of *Lucilius Lucullus*, of *Aſinius Pollio*, *Atticus*, of *Julius Severus*, *Domitian*, *Seranus*, *Pamphylus*, *Martyr*, and the Emperors *Gordian* and *Trajan*.

Antiently every large Church had its *Library*; as appears by the Writings of St. *Jerom*, *Anaſtaſius*, and others. Pope *Nicholas* laid the firſt Foundation of that of the *Vatican* in 1450. It was deſtroy'd by the Conſtable *Bourbon* in the ſacking of *Rome*, and reſtored by Pope *Sixtus* V. and has been conſiderably enrich'd with the Ruins of that of *Heidelberg*, plunder'd by Count *Tilly* in 1622.

One of the moſt compleat *Libraries* in *Europe* is ſaid to be that erected at *Florence* by *Coſmo de Medicis*; over the Gate whereof is wrote, *Labor abſque Labore*. Tho it is now exceeded by that of the *French* King; begun by *Francis* I. augmented by Cardinal *Richlieu*, and compleated by M. *Colbert*. The Emperor's *Library*, according to *Lambecius*, conſiſts of 80000 Volumes, and 15940 Curious Medals.

The *Bodleian Library* at *Oxford*, built on the Foundation of that of Duke *Humphry*, exceeds that of any Univerſity in *Europe*, and even thoſe of all the Sovereigns of *Europe*, except the Emperor's and *French* King's, which are each of 'em older by a hundred Years. It was firſt open'd in 1602, and has ſince found a great number of Benefactors; particularly Sir *Rob. Cotton*, Sir *H. Savil*, Archbiſhop *Laud*, Sir *Kenelm Digby*, Mr. *Allen*, Dr. *Pocock*, Mr. *Selden*, and others. The *Vatican*, the *Medicean*, that of *Beſſarioni* at *Venice*, and thoſe juſt mention'd, exceed the *Bodleian* in *Greek* Manuſcripts; which yet outdoes 'em all in Oriental Manuſcripts. As to printed Books, the *Ambroſian* at *Milan*, and that of *Wolfenbuttel*, are two of the moſt famous, and yet both inferior to the *Bodleian*. The *Cotton* Library conſiſts wholly of Manuſcripts, particularly of ſuch as relate to the Hiſtory and Antiquities of *England*; which, as they are now bound, make about 1000 Volumes.

LIBRATA TERRÆ, a Portion of Ground containing 4 Oxgangs, and every Oxgang 13 Acres. With us it is ſo much Land as is yearly worth 20 *s*. In *Henry* the IIId's time, he that had *quindecim Libratas Terræ*, was to receive the Order of Knighthood.

Some ſay, that as Money is divided into Pounds, Shillings, Pence, and Farthings, the ſame Degrees are to be obſerved in the Diviſion of Lands; and therefore as *Quadrans* ſignifies a Farthing, ſo *Quadrantata* is the fourth part of an Acre, *Oblata* an half, *Denaria* a whole Acre, *Solidata* 12 Acres, and *Librata* 20 times 12 Acres, *i. e.* 240 Acres.

Spelman compares an Acre to a Mark in Money; and as in one there are 160 Pence in Money, ſo in the other there are 160 Perches of Land.

LIBRATION, in Aſtronomy, which ſome call *Trepidation*, an apparent Irregularity in the Motion of the Moon, by which ſhe ſeems to librate or ſhake about her own Axis, ſometimes from the Eaſt to the Weſt, and ſometimes from the Weſt to the Eaſt: whence ſome Parts in her Weſtern Limb or Margin recede from the Centre of the Diſk, and ſometimes move towards it.

Some of thoſe Parts which were before viſible, ſet and hide themſelves in the inviſible ſide of the Moon, and afterwards become again conſpicuous. This *Libration* of the Moon is owing to her equable Rotation round her own Axis, and her unequal Motion in the Perimeter of her Orbit. For if the Moon moved in a Circle, whoſe Centre co-incided with the Centre of the Earth, and turn'd round its Axis in the preciſe Time of its Period round the Earth; the Plane of the ſame Lunar Meridian would always paſs thro the Earth, and the ſame Face of the Moon would be conſtantly and exactly turn'd towards us. But ſince the real Motion of the Moon is an Ellipſis, in whoſe Focus is the Earth, and the Motion of the Moon about the Earth is equable; or, which is the ſame thing, every Meridian of the Moon by the Rotation deſcribes Angles proportional to the Times: the Plane of no one Meridian will conſtantly paſs thro the Earth.

LIBRATION OF THE EARTH, that Motion, whereby the Earth is ſo retain'd in its Orbit, as that its Axis continues conſtantly parallel to the Axis of the World. This, *Copernicus* calls the *Motion of Libration*; and may be illuſtrated thus: Suppoſe a Globe, with its Axis parallel to that of the Earth, painted on the Flag of a Maſt, moveable on its Axis, and conſtantly driven by an Eaſt Wind, while it ſails round an Iſland, 'tis evident the painted Globe will be ſo librated, as that its Axis will be parallel to that of the World in every Situation of the Ship.

LICENCE, a Permiſſion or Leave granted by a Superior. *Juſtinian* appointed four Years to be ſpent in the Study of the Law; after which, thoſe who had diſcharged this Obligation, were ſaid to have *Licence*, or Permiſſion, to retire from Study. And hence the Word comes to be uſed in this ſenſe among us.

Licence is alſo uſed for the Letters or Certificates taken out in the Univerſities, whether in Law, Phyſic, or Divinity. *Licence* in the *Sorbonne* is a Period of two Years, which the Batchelors are obliged to paſs in aſſiſting at Acts, and diſputing in 'em, to qualify themſelves for being admitted Doctors.

LICENCES, in Painting, are the Liberties which the Painter takes in diſpenſing with the Rules of Perſpective, and the other Laws of his Art.

Poetical Licence is the Liberty which Poets claim of diſpenſing with the ordinary Rules of Grammar; and antiently the Poets had much greater *Licences* than are now allow'd. The *Greeks*, by having recourſe to the ſeveral Dialects of their Tongue, could lengthen out a Word if it were too ſhort, or retrench ſomething from it if it were too long. The old Poets did what they pleas'd with their Language, and ſubjected it not only to all their Neceſſities, but their Caprices too.

Et data Romanis venia eſt indigna Poetis.

But theſe became ridiculous in courſe of Time; and the Poets are now deſpoil'd of moſt of their antient Privileges.

LICENCE TO ARISE, in Law, is a Liberty or Space of Time given by the Court to a Tenant, to ariſe out of his Bed, who is eſſoin'd *de Malo Lecti* in a real Action.

LICENTIATE, he who has obtain'd the Degree of a Licence. Moſt of the Officers of Judicature in *Spain* are known by no other Name than that of *Licentiates*. To paſs *Licentiate* in the Canon Law, Civil Law, or Phyſic, they muſt have ſtudied ſeven Years, in Divinity ten. A *Licentiate* among us is uſually underſtood of a Phyſician who has a Licence to practiſe, granted him by the College or Biſhop of the Dioceſe. A Perſon practiſing Phyſic without ſuch Licence, in caſe his Patient dies under his hands, is guilty of Felony in the eye of the Law.

LICHEN, a cutaneous Diſtemper, in many reſpects the ſame with a Leproſy; for which, a Moſs of the ſame name is ſaid to be an extraordinary Remedy: but this the preſent Practice ſeldom meets with.

LIEGE, properly ſignifies a Vaſſal who holds a kind of Fee, that binds him in a cloſer Obligation to his Lord than other People. The Term ſeems to be derived from the *French lier, to bind*; in regard of a Ceremony uſed in rendering Faith or Homage, which was by locking the Vaſſal's Thumb or his Hand in that of the Lord, to ſhew that he was faſt bound by his Oath of Fidelity. *Cujas*, *Viginer*, and *Bignon* chuſe rather to derive the Word from the ſame Source with *leudis* or *leodi*, *loyal*, *faithful*. But *Du Cange* falls in with the Opinion of thoſe who derive it from *Litis*; a kind of Vaſſals ſo firmly attach'd to their Lord on account of Lands or Fees held of him, that they were obliged to do him all manner of Service, as if they were his Domeſtics. He adds, this was formerly call'd *Litgium Servitium*, and the Perſon *Litge*. In this ſenſe the Word is uſed *Leg. Edw. cap.* 29. *Jur. ſub Tutela Regis Ligea debeat eſſe*; that is, wholly under his Protection.

By *Liege Homage* the Vaſſal was obliged to ſerve his Lord towards all, and againſt all, excepting his Father. In which ſenſe, the Word was uſed in oppoſition to *ſimple Homage*; which laſt only obliged the Vaſſal to pay the Rights and accuſtomed Dues to his Lord, and not to bear Arms againſt the Emperor, Prince, or other Superior Lord: So that a *Liege Man* was a Perſon wholly devoted to his Lord, and intirely under his Command.

However, as the Word *Liege* is variouſly uſed by Authors, it muſt be obſerved that there were formerly two kinds of *Liege Homage*: the one by which the Vaſſal was obliged to ſerve his Lord, againſt all without exception, even his Sovereign; the other, by which he was to ſerve him againſt all, except ſuch other Lords as he had formerly owed *Liege Homage* to.

In our old Statutes, *Lieges* and *Liege People* are Terms peculiarly appropriated to the King's Subjects, as being *Liges*, *Ligati*, or obliged to pay Allegiance to him, 8 *Hen.* 6. 14 *Hen.* 8. &c. Tho private Perſons had their *Lieges* too——*Reinaldus Dei gratia Abbas Ramuſiæ, præpoſito & hominibus de Branceſtre, & omnibus vicinis Francis & Anglis, Salutem. Sciatis me dediſſe terram Ulfe, in Depedene (hodie Depedalé) huic Boſelino & Uxori ejus Alfniæ——ea Conditione quod effecti ſint homines* Liges. *Lib. Rames.*

Omnibus, &c. Reginaldus Rex Inſularum, Salutem. Sciatis quod deveni homo Ligeus *Domini Regis Angliæ Johannis, contra omnes Mortales quamdiu vixero, & inde ei fidelitatem & ſacramentum præſtiti, &c.* MS *penes* W. Dugdale.

LIENTERY, in Phyſic, a kind of Looſeneſs wherein the Food paſſes ſo ſuddenly thro the Stomach and Guts, as to be thrown out by Stool with little or no Alteration. The *Lientery* is owing either to a Defect in the Ferment of the Stomach, or to a Relaxation of the Pylorus, attended with ſo briſk an Irritation of the Fibres of the Ventricle, that inſtead of retaining the Aliment it lets it paſs. Exceſs of Drinking ſometimes occaſions this Diſeaſe, by relaxing the Stomach, and eſpecially the Pylorus, too immoderately. The Antients were of opinion the *Lientery* was owing to the too great Smoothneſs and Slipperineſs of the Inſide of the Inteſtines, by which they let the Food ſlip off before it was digeſted: and hence they gave it this Name, which is formed from λεῖος, *poliſhed*, and ἔντερον, *Inteſtine*.

LIE UNDER THE SEA: The Sailors ſay, a Ship *lies under the Sea*, when her Helm being made faſt a-Lee, ſhe lies ſo a-Hull, that the Sea breaks upon her Bow, or Broad-ſide.

LIEUTENANT, a Deputy or Officer who holds the place of a Superior, and diſcharges that Function in his abſence, which he ought to exerciſe in perſon. Of theſe ſome are Civil, as *Lords Lieutenants* of Kingdoms, who are the King's Viceroys, and govern in his ſtead; *Lords Lieutenants* of Counties, ſee *County*. But the Term is moſt popular with Military Men, among whom there is a Variety of *Lieutenants*. As,

Lieutenant-General, the ſecond Officer in an Army, who commands a Body of Forces, a Detachment, Quarter Attack, &c. under the General.

In *France* they have alſo *Lieutenants-General* of their Naval Forces, who command immediately under the Admirals.

In *Holland* they have a *Lieutenant-Admiral*, which is the ſame with what we call a Vice-Admiral.

Lieutenant-General of the Ordnance, is he who has the Charge of the Artillery, Batteries, &c. under the Maſter-General, or in his abſence.

Lieutenant-Colonel, in a Body of Horſe, is the firſt Captain of the Regiment; he commands in the abſence of the Colonel, taking place of all the other Captains.

Lieutenant-Colonel of Foot, is the ſecond Officer in the Regiment; he commands in the abſence of the Colonel, and in a Battel takes poſt at his Colonel's Left. The Dragoons have alſo a *Lieutenant-Colonel*; but the Horſe have not, properly, any.

LIFE, the Duration of Animal Being, or the Space of Time that paſſes between their Birth and Death. *Life* is alſo uſed for the Conſtitution; or the Principle of Heat and Motion that animates Bodies, and makes 'em Perceive, Act, and Grow; in which ſenſe, *Life* is divided into Animal, Senſitive, and Vegetative. *Life*, in a ſtrictly phyſical ſenſe, is the Circulation of the Blood.

My Lord *Bacon* makes the Prolongation of *Life* one of the three Branches of Medicine; the other two relating to the Preſervation of Health, and the Cure of Diſeaſes. And the Theory of this he numbers among the *Deſiderata*. Some Means or Indications that ſeem to lead to it, he lays down as follows.

Things are preſerved in two manners; either in their Identity, or by Reparation. In their Identity, as a Fly or Ant in Amber, a Flower or Fruit or Wood in a Conſervatory of Snow; a dead Carcaſs in Balſams. By Reparation, as a Flame, and as Mechanical Engines, &c. To attain to the Prolongation of *Life*, both theſe Methods muſt be uſed, and the Human Body muſt be preſerved both as Inanimates, as Flame, and as Mechanical Inſtruments are preſerved. Hence ariſe three Intentions for the Prolongation of *Life*: Retardation of Conſumption, proper Reparation, and Renovation of what begins to grow old. Conſumption is occaſion'd by two kinds of Depredation; a Depredation of the Innate Spirit, and a Depredation of the Ambient Air. Theſe may be each prevented two ways; either by rendering thoſe Agents leſs predatory, or by rendering the paſſive Parts (*viz.* the Juices of the Body) leſs liable to be prey'd on. The Spirit will be render'd leſs predatory, if either its Subſtance be condenſed, as by the Uſe of Opiates, Grief, *&c.* or its Quantity diminiſhed, as in ſpare and monaſtic Diets; or its Motion calm'd, as in Idleneſs and Tranquillity. The Ambient Air becomes leſs predatory, if it be either leſs heated by the Rays of the Sun, as in cold Climates, in Caves, Mountains, and Anchorites Cells; or be kept off from the Body, as by a denſe Skin, the Feathers of Birds, and the Uſe of Oil and Unguents without Aromatics. The Juices of the Body are rendered leſs liable to be prey'd on, either by making them harder, or more moiſt and oily. Harder, as by a coarſe ſharp Diet, living in the Cold, robuſt Exerciſes, and ſome Mineral Baths. Moiſter, as in the Uſe of ſweet Foods, *&c.* in abſtaining from Salts and Acids, and eſpecially in ſuch a Mixture of Drink, as conſiſts wholly of fine ſubtile Particles without any Acrimony or Acidity. Reparation is performed by means of Aliment. Alimentation is promoted four ways: By the Concoction of the *Viſcera*, ſo as to extrude the Aliment; by exciting the exterior Parts to the Attraction of the Aliment, as in proper Exerciſes and Frications, and ſome Unctions and Baths; by the Preparation of the Food it ſelf, ſo as it may more eaſily inſinuate it ſelf, and in ſome meaſure anticipate the Digeſtion, as in various Ways of dreſſing Meats, mixing Drinks, fermenting Breads, and reducing the Virtues of theſe three into one; by promoting the Act of Aſſimilation it ſelf, as in ſeaſonable Sleep, ſome external Applications, *&c.* The Renovation of what begins to grow old, is performed two ways, by the Inteneration of the Habit of the Body, as in the Uſe of Emollients, Emplaſters, Unctions, *&c.* of ſuch a nature, as do not extract, but impreſs; or by purging off the old Juices, and ſubſtituting freſh ones, as in Seaſonable Evacuations, Attenuating Diets, *&c.*

The ſame Author adds theſe three Axioms: That the Prolongation of *Life* is to be expected rather from ſome ſtated Diets, than either from any ordinary Regimen, or any extraordinary Medicines; more from operating on the Spirits, and mollifying of the Parts, than from the Manners of feeding: and this mollifying of the Parts without, be performed by Conſubſtantials, Impriments, and Occludents. See *Longævity*.

LIGAMENT, a Term in Anatomy. In its general Signification, *Ligament* is any thing that ties or binds one Part to another, in which Senſe the Antients uſed the Word for Membranes, Skin, Fleſh, Veins, and Arteries, as being common *Ligaments*. But in its more proper Signification, *Ligament* is a white, tough, ſolid inflexible Body, incloſing and keeping together the Junctures of the Body. It has no conſpicuous Cavities, nor has it any Senſe; leſt it ſhould ſuffer on the moving of the Bones, and is very different according to the different Parts where it is found. It is harder than a Membrane, yet ſofter than a Cartilage; its principal Uſe is to gird and ſtrengthen the Junctures, to prevent the Diſlocation of the Bones, and even to faſten them together when they have no Articulation. It alſo ſerves as a Covering to the Tendons, to ſeparate them from the Muſcles, and to hold up the ſuſpended Entrails, leſt their Weight ſhould throw them down; ſuch are the *Ligaments* of the Liver, the Bladder, and Matrix. They are of different Subſtances, ſome hard, others ſoft, membranous, nervous, and cartilaginous; as alſo of different Figures and Situations: Some ariſe from Bones, others from Cartilages, and others from Membranes. The *Ligament* is the moſt Terreſtrial of all the Parts of the Body after the Bone and Cartilage, being cold, dry, hard, and inſenſible like them.

In particular, the ſeveral *Ligaments* of the Body are the cartilaginous *Ligaments*, which bind the four Bones of the Metacarpus with the Carpus. The *Ligaments* of the Spine are very ſtrong, being fitted to the Articulations of the Vertebræ, to prevent their Luxations in violent Motions. They are of two kinds, the one thick and fibrous, in form of a Creſcent, which bind them both at top and bottom; and the others membranous, ſerving to faſten them the more ſecurely. The *Ligaments* of the Liver are two in Number, the firſt, which is the chief, called *Ligamentum Suſpenſorium*, holds it ſuſpended to the Diaphragm, penetrating into the Subſtance of the Liver, to hold it the more firmly; the latter is larger, but more lax, it comes from the external Coat of the Liver, and is faſtened to the Cartilage Xiphoides. Some add a third, which is formed out of the Umbilical Veſſels, which in Adults dry up and become a *Ligament*. There are two *Ligaments* belonging to the Tongue, one that faſtens it by its Root to the *Os Hyoides*, and another larger, inſerted into the middle and inferior Part; this laſt is called, *The Bridle of the Tongue*. There are alſo *Ligaments* belonging to the Spleen. The *Penis* has a ſtrong *Ligament*, call'd *Suſpenſorium Penis*, from its Office in holding up the *Penis* to the *Oſſa Pubis*; it ariſes from the Foreparts of thoſe Bones, and is faſtened to the upper Part of the *Corpora Cavernoſa Penis*; it has another *Ligament*, which faſtens the Prepuce to the Glans. The *Uterus* has four *Ligaments*, two of them called broad, and two round from their Figure; the broad *Ligaments* are membranous, and ariſe from the *Proceſſus* of the *Peritonæum*, and are faſtened to the lateral Parts of the *Fundus* or Bottom of the *Uterus*, and ſerve to prevent the *Fundus* from falling down upon the Neck, as it ſometimes happens when theſe *Ligaments* are too much relaxed. The round *Ligaments* ariſe from the Sides of the Womb, at the place where the *Tubæ Fallopianæ* are joined to it. At their firſt Riſe they are broad, but, by degrees, as they recede farther from the Womb, grow round and ſmooth; and as the ſpermatic Veſſels do in Men, paſs betwixt the Duplicature of the *Peritonæum*, and ſo out of the *Abdomen* thro' the *Foramina* of the oblique and tranſverſe Muſcles of the *Abdomen*, and running obliquely on the *Os Pubis*, terminate under the Fat near the *Clitoris*. By the Paſſages of theſe *Ligaments*, Women, and Girls eſpecially, are expoſed to inguinal Ruptures, as Men are by the Paſſages of the ſpermatic Veſſels. The Subſtance of the broad *Ligaments* is membranous, looſe, and ſoft, whence ſome have compared them to the Wings of a Batt, and called them *Alæ Veſpertilionum*. The round *Ligaments* are of a firmer Texture, and conſiſt of a double Membrane, wrapping up in it Veins, Arteries, Nerves, and Lymphæducts, and both theſe and the former have been ſometimes taken for Muſcles. By theſe *Ligaments* the *Uterus* is kept ſo tight, that no Violence of internal Flatus or Humours can raiſe it above its Place.

LIGAMENTUM ANNULARE. See *Wriſt*.

LIGAMENTUM CILIARE. See *Ciliare Ligamentum*.

LIGAMENTUM LATUM, and ROTUNDUM. See *Generation, Parts of, proper to Women*.

LIGATURE, in Chirurgery, a Bandage or Fillet of Cloth or Linnen, ſerving to bind the Arm, and facilitate the Operation of bleeding. *Ligature* is alſo the Art and Manner of diſpoſing and applying Bandages for the cloſing of Wounds, and performing many of the Operations of Chirurgery. There are various kinds of *Ligatures*. Some Authors reckon them upwards of five hundred.

Ligature, among the myſtic Divines, ſignifies a total Suſpenſion of the ſuperior Faculties or intellectual Powers of the Soul. They pretend that when the Soul is arrived at a perfect Contemplation, ſhe remains deprived of all her Operations, and ceaſes to act, in order to be more ready and prepared to receive the Impulſe and Communications of Divine Grace. This paſſive State of theſe contemplative People they call their *Ligature*.

Ligature is alſo uſed to ſignify a kind of Bandage or Fillet, tied round the Neck, Arm, Leg, or other Part of the Bodies of Men or Beaſts, to divert or drive off ſome Diſeaſe, Accident, *&c.*

Kempfer tells us of an uncommon kind of *Ligature* in uſe among the People of *Macaſſar*, *Java*, *Malaja*, *Siam*, &c. By this Charm, or Spell, a Man binds up a Woman, and a Woman a Man, ſo as to put it out of their power to have to do with any other Perſon; the Man being thereby rendered impotent to any other Woman, and all other Men impotent to the Woman. Some of their Philoſophers pretend, that this *Ligature* may be effected by the ſhutting of a Lock, the drawing of a Knot, the ſticking of a Knife in the Wall at the Point of Time wherein the Prieſt is joining a Couple together, and that a *Ligature* thus effected may be diſſolved by the Spouſe's urining through a Ring. This Piece of Superſtition is ſaid to obtain alſo amongſt the Chriſtians of the *Eaſt*. The ſame Author tells us, that during the Ceremony of Marriage in *Ruſſia*, he obſerved an old Fellow lurking behind the Church-Door, and mumbling over a Heap of Words, and at the ſame time cutting a long Rod which he held under his Arm into pieces; which, it ſeems, is a common Practice at the Marriages of great Perſons, and done with Deſign to elude and counterwork any other Perſon that might poſſibly be inducing the *Ligature*.

The Secret of inducing a *Ligature* is delivered by the ſame Author, as he was taught it on the Spot by one of their Adepts; which being a Curioſity, we ſhall not ſcruple to add: *Puella Amaſium, vel Conjux matritum Ligaturus, abſterget a Concubitus Actu, Priapum, Induſio——ut Seminis quantum poteſt excipiet. Hoc probe convolutum ſub limine Domus ſuæ in Terram ſepeliat. Ibi quamdiu ſepultum reliquerit, tamdiu ejus haſta in nullius præterquam ſui (faſcinantis) Servitium obediet, & prius ab hoc Nexu non liberabitur quam ex clauſtro liminis liberetur ipſum linteum. Vice verſa, Vir Lecti Sociam Ligaturus, menſtruatum ab eo linteum comburito: ex cineribus cum propria Urina ſubactis, efformato Figuram Priapi, vel ſi Cineres Icunculæ fingendæ non ſufficiant eoſdem ſubigito cum Parte Terræ quam recens perminxerit. Formatam Iconem cauté exſiccato, ſiccamque aſſervato Loco ſicco, ne Humorem contrahat. Quamdiu ſic ſervaverit, omnes Arcus dum ad Scopum Sociæ collimaverint, momento contabeſcent: Ipſe vero Dominus—— Abrunum hunc ſuum prius humectato, quamdiu ſic manebit, tamdiu ſuſpenſo nexu Priapus ipſi parebit, quin & alios quotquot Fæmina properantes admiſerit.*

M. *Marſhal* mentions another Form of *Ligature* which he received from a Bramine at *Indoſtan*: 'If, *ſays he*, the little Worm in the Wood *Lukerara Kara* be cut into two, and the one Part ſtirs, and the other not; if the ſtirring Part be bruiſed and given with half a Beetle to a Man, and the other half to a Woman, the Charm will keep each from ever having to do with any other Perſon.' *Philoſophical Tranſactions*, Numb. 268.

Ligatures, among Printers, are Types conſiſting of two Letters, or Characters which ſerve to connect two Letters together, as *ff, ſt, fi*. The old Editions of the *Greek* Authors are extremely full of *Ligatures*; the *Ligatures* of *Stephens* are by much the moſt beautiful. Some Editions have been lately printed without any *Ligatures* at all, and there was a Deſign to explode them quite out of Printing. Had this ſucceeded, the fineſt antient Editions would in time have grown uſeleſs, and the reading of old Manuſcripts have been rendered almoſt impracticable to the Learned themſelves.

LIGHT, a Term uſed in various Senſes: Sometimes it ſignifies that Senſation occaſioned in the Mind by the View of luminous Bodies; ſometimes that Property in thoſe Bodies, whereby they are fitted to excite thoſe Senſations in us; and, laſtly, ſome mean by it a certain Action of the luminous Body on the Medium, between that and the Eye, by means whereof they ſuppoſe the one to act on the other, and this they call *ſecundary*, or *derived Light*, to diſtinguiſh it from that of luminous Bodies, which is called *primary*, or *innate*.

Ariſtotle explains the Nature of *Light*, by ſuppoſing ſome Bodies to be tranſparent, as Air, Water, Ice, *&c.* but ſince in the Night-time we don't ſee any thing thro' thoſe Bodies, he ſays, they are only tranſparent potentially; whereas in the Day they become really and actually tranſparent: and ſince 'tis *Light* alone that can reduce that Power into Act, he defines *Light* to be the Act of the tranſparent Body conſidered as ſuch; Φῶς δὲ ἐστιν ἡ τούτου ἐνέργεια τοῦ διαφανοῦς ᾗ διαφανές. He adds, that *Light* is not Fire, nor is it any thing bodily radiating from the luminous Body, and tranſmitted thro the tranſparent one; but the mere Preſence of Fire, or ſome other luminous Body at the tranſparent one. This is *Ariſtotle*'s Doctrine of *Light*, which his Followers miſtaking, have foiſted on him another, very different; making *Light* and Colours to be Qualities of the luminous and colour'd Bodies themſelves, and in all reſpects like thoſe Senſations which they occaſion in us: adding, that Lucid or Colour'd could not produce any Senſations in us, unleſs they had ſomething ſimilar in themſelves, ſince *nihil dat quod in ſe non habet*. But the Sophiſm is apparent; for we find that a Needle in pricking the Fleſh gives us Pain, which no body ever imagined to exiſt in the Needle. But that 'tis not neceſſary there ſhould be any Similitude between the Quality of the Object, and the Senſation it produces, appears ſtill more evident from a Glaſs Priſm, which is found to exhibite Blue, Yellow, Red, and other Colours extremely vivid, and yet no body will ſay there is any thing in the Glaſs Priſm like thoſe Senſations.

The *Carteſians* have refined conſiderably on this Notion of *Light*, and own, that *Light*, as it exiſts in the luminous Body, is nothing elſe but a Power or Faculty of exciting in us a very clear and vivid Senſation; adding, that what is required to the Perception of Light, is, that we be ſo formed as to be capable of ſuch Senſations, that in the hidden Pores of tranſparent Bodies there be a certain ſubtile Matter, which by reaſon of its exceeding Smallneſs may penetrate even Glaſs, and yet be ſtrong enough to ſhake certain Capillaments at the bottom of the Eye; and, laſtly, that this Matter be impelled by the luminous Body, ſo as to move the Organ of Sight. Primary *Light* therefore, they ſay, conſiſts in a certain Motion of the Particles of the luminous Body, whereby they are enabled to propel every way the *Materia Subtilis* lodged in the Pores of tranſparent Bodies, and ſecundary or derived *Light* in a *Conatus* to Motion, or an Inclination of that Matter to recede from the Centre of the luminous Body in right Lines.

Father *Malebranch* explains the Nature of *Light*, from a ſuppoſed Analogy between it and Sound; the latter, 'tis allowed, is produced by the ſhaking or Vibrations of the inſenſible Parts of the ſonorous Body, which Vibrations, if they be greater or leſs, that is, if they run through greater or leſs Arches of the ſame Circle, are ſtill performed in the ſame time, and the Sounds produced by them only differ in a greater or leſs Degree of Strength; but if there be a greater Number of Vibrations, in the ſame time, in one ſonorous Body than in another, theſe being cloſer, become of a different kind: and thus their Sounds alſo differ, forming what we call different Tones or Notes; the quick Vibrations forming the acute, and the ſlower the grave Notes. Thus he ſuppoſes it to be with *Light* and Colours. All the Parts of a luminous Body are in a very rapid Motion, which, by very quick Shakes, is conſtantly compreſſing the ſubtle Matter between the luminous Body and the Eye, and excites Vibrations of Preſſion. As theſe Vibrations are more great, the Body appears more luminous; as they are more quick or more ſlow, the Body is of this or that Colour.

This Hypotheſis, how ingenious ſoever, is now deſervedly diſcarded, ſince the great Diſcoveries made by Sir *Iſaac Newton* on this wonderful Phænomenon: The *primary Light* they talk of, we now know conſiſts wholly in a certain Motion of the Particles of the lucid Body, whereby they don't propel any fictitious Matter ſuppoſed to be lodged in the hidden Pores of tranſparent Bodies, but throw off, from the luminous Body, certain very ſmall Particles, which are emitted every way with great force: And the *ſecundary* or *derived Light* conſiſts, not in a *Conatus*, but a real Motion of theſe Particles receding every way from the luminous Body in right Lines, and with an incredible Velocity. For if *Light* conſiſted in a mere Preſſure or Pulſe, it would be propagated to all Diſtances in the ſame Inſtant of Time; the contrary of which appears from the Phænomena of the Eclipſes of *Jupiter*'s Satellites, whoſe Immerſions, as the Earth approaches towards *Jupiter*, are found to anticipate ſomewhat on the true time, and to commence ſooner; and again as the Earth retires from *Jupiter*, their Emerſions, which alone in that Caſe can be obſerved, happen later and later, loſe time: deviating thus, very conſiderably on either ſide, from the true time marked by the Tables. This was firſt obſerved by M. *Romer*, and ſince by other Aſtronomers; the Reaſon of which is not owing to any Eccentricity, but does apparently follow from this, that the *Light* of the Sun reflected from the Satellites has further to travel, e'er it reaches the Eye, in the one Caſe than in the other, by a Space equal to the Diameter of the Earth's annual Orbit. *Light* therefore, like other real Bodies, does not move inſtantaneouſly, but in Time. Sir *Iſaac Newton* has ſhewn paſt contradiction, that the *Light* of the Sun is near ſeven Minutes in its Paſſage to the Earth, which is the Space of 50,000,000 Miles; a Velocity 10,000,000 Times greater than that wherewith a Ball flies out of the Mouth of a Cannon.

Further, if *Light* were not a Body, but conſiſted in a mere Preſſure or Pulſion, it would never be propagated in right Lines, but would be continually inflected *ad Umbram*. Thus Sir *Iſaac Newton*, 'A Preſſure on a fluid Medium (*i. e.* a Motion propagated by ſuch a Medium) beyond any Obſtacle which impedes any Part of its Motion, cannot be propagated in right Lines, but will be always inflecting and diffuſing itſelf every way to the quieſcent Medium beyond that Obſtacle. The Power of Gravity tends downwards, but the Preſſure of Water riſing from it tends every way with an equable Force, and is propagated with equal Eaſe and equal Strength in Curves as in ſtreight Lines. Waves, on the Surface of the Water, gliding by the Extremes of any very large Obſtacle, inflect and dilate themſelves, ſtill diffuſing gradually into the quieſcent Water beyond that Obſtacle. The Waves, Pulſes, or Vibrations of the Air, wherein Sounds conſiſt, are manifeſtly inflected, tho' not ſo conſiderably as the Waves of Water, and Sounds are propagated with equal Eaſe thro' crooked Tubes, and thro' ſtreight Lines; but *Light* was never known to move in any Curve, nor to inflect itſelf *ad Umbram*.' The Rays of *Light* therefore are ſmall Corpuſcles, emitted with exceeding Celerity from the luminous Body. As to the Force wherewith theſe Corpuſcles are emitted, ſo as to enable them to move at the inconceivable Rate of 7,000,000 Miles in a Minute, hear the ſame great Author: 'Among Bodies of the ſame

Kind and Virtue, by how much any one is ſmaller, by ſo much is its attractive Power greater, in proportion to its Bulk. This Power we find ſtronger in ſmall Magnets than in large ones, regard being had to the Difference of their Weights; and the Reaſon is, that the Particles of ſmall Magnets being nearer each other, more eaſily unite their Forces intimately together, and act conjointly. For the ſame Reaſon the Rays of *Light*, being of all other Bodies the moſt minute, it may be expected that their attractive Powers ſhould be of all others the ſtrongeſt. And how ſtrong in effect they are, may be gathered from the following Rules: The Attraction of a Ray of *Light*, according to the Quantity of its Matter, is to the Gravity which any projected Body has, according likewiſe to the Quantity of its Matter, in a Ratio compounded of the Velocity of the Ray of *Light*, to the Velocity of that projected Body, and of the Bending or Curvature of the Line, which the Ray deſcribes in the Place of Refraction, to the Bending or Curvature deſcribed by that projected Body; provided, however, the Inclination of the Ray to the refracting Surface be the ſame with that of the projected Body to the Horizon. From which Proportion I gather, that the Attraction of the Rays of *Light* is above 1,000,000,000,000,000 times greater than the Gravity of Bodies on the Surface of the Earth, in proportion to the Quantity of Matter in each, if the *Light* paſs from the Sun to the Earth in the Space of ſeven Minutes. But now as in Algebra, where affirmative Quantities ceaſe, there negative ones begin; ſo in Mechanics, where Attraction ceaſes, there the repelling Power muſt ſucceed: Therefore a Ray of *Light*, as ſoon as it is caſt off from the luminous Body by the vibrating Motion of its Parts, and is got out of the Sphere of its Attraction, is propelled with an immenſe Velocity.’ See *Attraction* and *Repulſion.*

The wonderful Diviſibility of the Parts of Matter is no where more apparent than in the Minuteneſs of the Particles of *Light*. Dr. *Niewentiit* has computed, that an Inch of Candle, when converted to *Light*, becomes divided into 269617040 Parts. The Expanſion or Extenſion of any Portion of *Light* is inconceivable; Dr. *Hook* ſhews ’tis as unlimited as the Univerſe; proving it from the immenſe Diſtance of ſome of the fixed Stars, the *Light* whereof becomes ſenſible to the Eye by means of a Teleſcope; nor, adds he, is it only the great Bodies of the Sun or Stars that are thus able to diſperſe their *Light* thro’ the vaſt Expanſum of the Univerſe; but the ſmalleſt Spark of a lucid Body muſt do the ſame, even the ſmalleſt Globule ſtruck from a Steel by a Flint.

Dr. *s’Graaveſand* affirms a lucid Body to be that, which emits or gives Fire a Motion in right Lines; and makes the Difference between *Light* and Heat to conſiſt in this, That to produce the former, the fiery Particles muſt enter the Eye in a rectilinear Motion, which is not required in the latter: On the contrary, an irregular Motion ſeems more proper for it, as appears from the Rays coming directly from the Sun to the Top of the Mountain, which have not near that Effect with thoſe in the Valley, agitated with an irregular Motion by ſeveral Reflections. Whether or no there be always *Light* where there is Fire, is diſputed among Authors, as alſo whether or no there be any luminous Body without Heat; Heat being a Motion that may be infinitely diminiſhed, and *Light* a Matter that may be infinitely rare; to which we may add, that no Heat is ſenſible to us, unleſs it be more intenſe than that of our Organs of Senſe.

Sir *Iſaac Newton* obſerves, that Bodies and *Light* act mutually on one another; Bodies on *Light*, in emitting, reflecting, refracting, and inflecting it; and *Light* on Bodies, by heating them, and putting their Parts into a vibrating Motion, wherein Heat principally conſiſts. For all fix’d Bodies, he obſerves, when heated beyond a certain Degree, do emit *Light*, and ſhine; which Shining, *&c.* appears to be owing to the vibrating Motion of the Parts; and all Bodies abounding in earthy and ſulphureous Particles, if ſufficiently agitated, emit *Light*, which way ſoever that Agitation be effected Thus Sea-Water ſhines in a Storm, Quick-ſilver when ſhaken *in Vacuo*, Cats or Horſes when rubb’d in the dark; and Wood, Fiſh, and Fleſh when putrefied.

The late Mr. *Hawksbee* has furniſh’d us with a great Variety of Inſtances of the artificial Production of *Light* on the Attrition of Bodies naturally not luminous; as of Amber rubb’d on Woollen Cloth *in vacuo*, of Glaſs on Woollen, of Glaſs on Glaſs, of Oyſter-Shells on Woollen, and of Woollen on Woollen, all *in vacuo*. On the ſeveral Experiments whereof, he makes the following Reflections: That different ſorts of Bodies afford remarkably different kinds of *Light*, different both in Colour and in Force; That the Effects of an Attrition are various, according to the different Preparations and Managements of the Bodies that are to endure it; and that Bodies which have yielded a particular *Light*, may be brought by Friction to yield no more of that *Light*.

M. *Bernoulli* found by Experiment that Mercury amalgamated with Tin, and rubb’d on Glaſs, produced a conſiderable *Light* in the Air; that Gold rubb’d on Glaſs did it ſtill in a greater degree: but that of all others the moſt exquiſite *Light* was that produced by the Attrition of a Diamond; being equally vivid with that of a burning Coal briskly agitated with the Bellows.

Mr. *Boyle* tells us of a piece of ſhining rotten Wood, which upon exhauſting the Air from it was extinguiſh’d; but upon its Re-admiſſion, ſeemed to come to life again, and ſhone as before: being no doubt a real Flame, and like other Flames not to be preſerved without Air. See *Phoſphorus.*

That the Particles of Light are attracted by thoſe of other Bodies, is evident from innumerable Experiments. This Phænomenon was firſt obſerved by Sir *I. Newton*, who found by repeated Tryals, that the Rays of *Light* in their paſſage near the Edges of Bodies, whether opake or tranſparent, as Pieces of Metals, the Edges of Knives, broken Glaſſes, *&c.* are diverted out of the right Lines, and always inflected or bent towards thoſe Bodies. This Action of Bodies on *Light* is found to exert itſelf at a ſenſible Diſtance, tho it always increaſes as the Diſtance is diminiſh’d; as appears very ſenſibly in the paſſage of a Ray between the Edges of two thin Planes at different Apertures, in which there is ſomething very peculiar, the Attraction of one Edge being increaſed as the other is brought nearer it. The Rays of *Light* in their paſſage out of Glaſs into a *Vacuum* are not only inflected towards the Glaſs, but if they fall too obliquely, will revert back again to the Glaſs, and be totally reflected. The Cauſe of which Reflection cannot be attributed to any Reſiſtance of the *Vacuum*, but muſt be entirely owing to ſome Force or Power in the Glaſs, which attracts or draws back the Rays as they were paſſing into the *Vacuum*. And this appears farther from hence, that if you wet the poſterior Surface of the Glaſs with Water, Oil, Honey, or a Solution of Quickſilver, then the Rays which would otherwiſe have been reflected will paſs into and through that Liquor: which ſhews that the Rays are not reflected till they come to that poſterior Surface of the Glaſs, nor even till they begin to go out of it; for if at their going out they fall into any of the foreſaid Mediums, they will not then be reflected, but perſiſt in their former Courſe, the Attraction of the Glaſs being in this Caſe counter-balanced by that of the Liquor.

From this mutual Attraction between the Particles of *Light* and other Bodies, ariſes two other grand Phænomena, which we call the *Reflexion* and *Refraction* of *Light*.

We know that the Determination of a Body in Motion is chang’d by the Interpoſition of another Body in its way. Thus *Light* impinging on the Surface of ſolid Bodies, ſhould be turn’d out of its courſe, and beaten back or reflected, ſo as like other falling Bodies to make the Angle of its Reflexion equal to that of Incidence. This ’tis found by experience *Light* does, and yet the Cauſe of this Effect is different from that juſt now aſſign’d: the Rays of *Light* are not reflected by ſtriking on the very Parts of the reflecting Bodies, but by ſome Power equably diffuſed throughout the whole Surface of the Body, whereby it acts on the *Light*, either attracting or repelling it without Contact: by which ſame Power, in other Circumſtances the Rays are refracted; and by which alſo, the Rays are firſt emitted from the luminous Body; as is abundantly proved, by great variety of Arguments, by Sir *I. Newton*. See *Reflexion.*

That great Author puts it paſt doubt, that all thoſe Rays which are reflected, tho they approach the Body infinitely near, yet never touch it; and that thoſe which do really ſtrike on the ſolid Parts of Bodies, adhere to ’em, and are as it were extinguiſh’d and loſt. If it be ask’d, how it happens, ſince we aſcribe the Reflexion of the Rays to the Action of the whole Surface of the Body without Contact; how, I ſay, it happens that all the Rays are not reflected from every Surface, but while ſome are reflected, others paſs through and are refracted: The Anſwer given by Sir *I. Newton* is as follows——Every Ray of *Light* in its paſſage thro any refracting Subſtance, is put into a certain tranſient Conſtitution or State, which in the progreſs of the Ray returns at equal Intervals, and diſpoſes the Ray at every Return to be eaſily tranſmitted thro the next refracting Surface, and between the Returns to be eaſily reflected by it: which Alternation of Reflexion and Tranſmiſſion appears to be propagated from every Surface and to all Diſtances. What kind of Action or Diſpoſition this is, and whether it conſiſt in a circulating or vibrating Motion of the Ray or the Medium, or ſomewhat elſe, he does not inquire; but allows thoſe who are fond of Hypotheſes to ſuppoſe that the Rays of *Light*, by impinging on any reflecting or refracting Surface, excite Vibrations in the reflecting or refracting Medium, and by that means agitate the ſolid Parts of the Body. Theſe Vibrations, thus propagated in the Medium, move faſter than the Rays, ſo as to overtake them; and when any Ray is in that part of the Vibration which conſpires with its Motion, its Velocity is increaſed, ſo that it eaſily breaks thro a refracting Surface: but when it is in a contrary part of the Vibration, which impedes its Motion, it is eaſily reflected, and conſequently that every Ray is ſucceſſively diſpoſed to be eaſily reflected or tranſmitted by every Vibration which overtakes it. The Return of which Diſpoſition of any Ray to be reflected, he calls *Fits of eaſy Reflexion*; and thoſe of its Diſpoſition to be tranſmitted, he calls *Fits of eaſy Tranſmiſſion*; and the Space between the Returns, the *Interval of the Fit.* The Reaſon then why the Surface of all thick tranſparent Bodies reflect part of the *Light* incident on 'em, and refract the reſt, is, that ſome Rays at their Incidence are in Fits of eaſy Reflexion, and others of eaſy Tranſmiſſion. For the Properties and Laws of reflected *Light*, ſee *Reflexion* and *Mirrour*.

Further, a Ray of *Light* paſſing out of one Medium into another of different Denſity, and in its paſſage making an oblique Angle with the Surface that ſeparates the Mediums, will be refracted or turn'd out of its right Line; by reaſon the Rays are more ſtrongly attracted by a denſer than a rarer Medium.

That theſe Rays are not refracted by ſtriking on the ſolid Parts of Bodies, but without any Contact, by that ſame force wherewith they are emitted and reflected, exerting itſelf differently in different Circumſtances, is proved in great meaſure by the ſame Arguments which demonſtrate Reflexion to be perform'd without Contact. For the Properties, *&c.* of refracted *Light*, ſee *Refraction*, *Lens*, &c. In Iſland Chryſtal is obſerved a kind of double Refraction, very different from what we find in any other Body: the Rays that fall obliquely being not only diſperſed, with a double Refraction in one and the ſame Surface, but even the perpendicular Rays themſelves are moſt of 'em divided into two Beams by means of the ſame double Refraction; which Beams are of the ſame Colour with the incident Beams, and are equal in degree of *Light*, at leaſt nearly, to each other: Whence the great Philoſopher, ſo often cited, takes occaſion to ſuſpect that there are in *Light* ſome other original Properties beſides thoſe hitherto deſcribed; and particularly, that the Rays have different Sides endued with ſeveral original Properties. For of theſe Refractions, the one is performed in the uſual manner, *i. e.* the Sine of Incidence is to that of Refraction as 5 is to 3; and the other in an unuſual manner: and yet the ſame Ray is refracted ſometimes in the one manner, and ſometimes in the other, according to the various Poſitions which its ſeveral Sides have, in reſpect of the Chryſtal. Theſe Diſpoſitions, he ſhews, muſt have exiſted originally in the Beams, without having undergone any Alterations in that reſpect, by the Chryſtal. Every Ray of *Light* therefore has two oppoſite Sides, the one originally endued with a Property whereon its unuſual Refraction depends, and the other not endued with that Property.

Sir *I. Newton* having obſerved the vividly colour'd Image projected on the Wall of a darken'd Room, by the Sun-Beams tranſmitted thro a Priſm, to be five times as long as broad; ſetting himſelf to inquire into the Reaſon of this Diſproportion, was led from other Experiments to the *Experimentum Crucis*; whence he diſcovered the Cauſe of the Phænomenon to be, that ſome of the Rays of *Light* were more refracted than others, and therefore exhibited ſeveral Images of the Sun under the appearance of one, extended lengthwiſe. Thence he proceeded to conclude, that *Light* itſelf is an heterogeneous Mixture of Rays differently refrangible. Hence he diſtinguiſhes *Light* into two kinds, *viz.* that whoſe Rays are equally refrangible, which he calls Homogeneal, Similar or Uniform *Light*; and that whoſe Rays are unequally refrangible, which he calls Heterogeneal *Light*.

There are but three Affections of *Light*, wherein he obſerved its Rays to differ, *viz.* Refrangibility, Reflexibility, and Colour; and thoſe Rays which agree in Refrangibility, agree alſo in the other two: whence they may be well defined Homogeneal, tho in ſome other reſpects they may poſſibly be Heterogeneal. Again, the Colours exhibited by Homogeneal *Light*, he calls Homogeneal Colours; and thoſe produced by Heterogeneal *Light*, Heterogeneal Colours. Theſe Definitions laid down, he advances ſeveral Propoſitions.

As *1ſt*, That the Sun's *Light* conſiſts of Rays differing by indefinite Degrees of Refrangibility. *2dly*, That Rays which differ in Refrangibility, when parted from one another, do proportionably differ in the Colours which they exhibit. *3dly*, That there are as many ſimple and homogeneal Colours, as Degrees of Refrangibility, for to every Degree of Refrangibility belongs a different Colour. *4thly*, Whiteneſs in all reſpects like that of the Sun's immediate *Light*, and of the uſual Objects of our Senſes, cannot be compounded of ſimple Colours, without an indefinite Variety of them; for to ſuch a Compoſition there are required Rays endued with all the indefinite Degrees of Refrangibility, which infer as many ſimple Colours. *5thly*, The Rays of *Light* do not act on one another in paſſing thro the ſame Medium. *6thly*, The Rays of *Light* do not ſuffer any Alteration of their Qualities from Refraction, nor from the adjacent quieſcent Medium. *7thly*, There can no Homogeneal Colours be produced out of *Light* by Refraction, which are not commix'd in it before; ſince Refraction, as was before obſerv'd, changes not the Qualities of the Rays, but only ſeparates thoſe which have divers Qualities by means of their different Refrangibility. *8thly*, The Sun's *Light* is an Aggregate of Homogeneal Colours; whence Homogeneal Colours may be call'd Primitive or Original.

We have already obſerved that the Rays of *Light* are compoſed of diſſimilar or heterogeneous Parts; ſome of them being in all probability greater, others leſs. Now the ſmaller the Parts are, by ſo much the more refrangible they are, *i. e.* they are ſo much the more eaſily diverted out of their rectilinear Courſe; and thoſe Parts which differ in Refrangibility, (*i. e.* in Bulk) we have alſo obſerved differ in Colour. Hence ariſes the whole Theory of Colours. Thoſe Parts, *v. g.* which are the moſt refrangible, conſtitute Violet Colour; that is, the moſt minute Particles of *Light* when ſeparately impelled on the Organ, do there excite the ſhorteſt Vibrations in the Retina, which are thence communicated by the ſolid Parts of the Optic Nerve into the Brain, and excite in us the Senſation of Violet Colour, the dimmeſt and moſt languid of all other Colours: And thoſe Particles, on the contrary, which are the leaſt refrangible, conſtitute a Ray of a Red Colour; *i. e.* the greateſt Particles of *Light* excite the longeſt Vibrations in the Retina, and ſo convey the Senſation of a Red Colour, as being the moſt bright and vivid of all others. The other Particles being diſtinguiſhed into little Rays, according to their reſpective Magnitudes and Degrees of Refrangibility, excite intermediate Vibrations, and ſo occaſion the Senſations of the intermediate Colours; in like manner as the Vibrations of the Air, according to their different Magnitudes, excite the Senſations of different Sounds. The Colours then of theſe little Rays not being any adventitious Modifications of them, but connate, primitive, and neceſſary Properties, reſulting, in all probability, from their different Magnitudes, muſt be perpetual and immutable, not to be altered by any Reflexion, Refraction, or other ſubſequent Modification. See *the Doctrine of Colours, laid down under* Colour. For the Manner in which *Light* affects our Senſes, and how it contributes to Viſion, ſee *Viſion*.

LIGHT is alſo uſed to ſignify the Diſpoſition of Objects with regard to the receiving of *Light*; thus we ſay, a Painting is ſeen in its proper *Light*, when its Situation, with regard to the *Light*, is the ſame with that for which it was painted.

LIGHTS ABOARD SHIPS. See *Signals*.

LIGHTS, in Architecture, are underſtood of the Openings of Gates and Windows, and other Places thro' which the Air and *Light* have a Paſſage. In the Pantheon all the *Light* comes from on high; it has no *Lights* but in the Dome.

LIGHTS, in Painting, are thoſe Parts of a Piece that are illumined, or that lie open to the Luminary, by which the Piece is ſuppoſed to be enlightened; and that for this reaſon are painted in bright vivid Colours: in which ſenſe *Light* is oppoſed to Shadow. *Light* is alſo uſed for the luminous Body that emits it. There are various kinds of *Lights*; general *Lights*, as the Air; particular *Lights*, as a Fire, a Candle, and even the Sun. Different *Lights* have very different Effects on the Piece, and occaſion a Difference in the Management of every Part. A great deal therefore depends on the Painters chuſing a proper *Light* for his Piece to be illumined by, and a great deal more in the Conduct of the *Lights* and Shadows when the Luminary is pitched upon. The Strength and Relievo of a Figure, as well as its Graceſulneſs, depends entirely on the Management of the *Lights*, and the joining of thoſe to the Shadows. The *Light* a Figure receives, is either direct or reflected, to each of which ſpecial Regard muſt be had. The Doctrine of *Lights* and Shadows makes that Part of Painting, called *Clair-obſcure*, which ſee.

LIGHT-HORSE, an antient Term in our *Engliſh* Cuſtoms, ſignifying an ordinary Cavalier or Horſeman lightly armed, and ſo as to enter a Body or Regiment; in oppoſition to the others, who were heavily accoutred, and armed at all Points.

LIGHTER, a ſmall floating Veſſel. *Lighters* are of ſeveral kinds; as,

A Ballaſt Gin, A cloſe *Lighter*, A Kiele,
A Camel, A Huy, An open *Lighter*.

LIGHTNESS, ſee *Levity*.

LIGNUM ALOES, or *Wood of Aloes*; ſee *Aloes*. *Lignum Caſſiæ*, ſee *Caſſia*. *Lignum Balſami*, ſee *Balſam*.

LIKE QUANTITIES, in Algebra, are ſuch as are expreſſed by the ſame Letters, equally repeated in each Quantity. Thus $2b$, and $3b$, and $9ff$, and $3ff$ are *like Quantities*; but $2b$, and $3bb$, and $9ff$, and $3fff$ are unlike ones, becauſe the *Quantities* have not every where the ſame Dimenſions, nor are the Letters equally repeated. *Like Signs* in Algebra are when both are Affirmative, or both Negative; but if one be Affirmative, and the other Negative, they are unlike Signs. Thus $+64d$, and $+5d$, have like Signs; but $9f$, and $-7f$ have unlike Signs. *Like Figures* in Geometry are ſuch as have their Angles equal, and the Sides about theſe equal Angles proportional. *Like Arcs* in the Projection of the Sphere *in Plano* are Parts of leſſer Circles, containing an equal Number of Degrees with the correſponding Arcs of greater ones. *Like ſolid Figures* in Geometry, are ſuch as are contained under like Planes, equal in Number.

LIMB, the outermoſt Border or graduated Edge of a Quadrant, or the like Mathematical Inſtrument; or the Circumference of the Primitive Circle in any Projection of the Sphere *in Plano*. Aſtronomers obſerve the lower and the upper *Limb* of the Sun, in order to find its true Height, which is that of his Center.

Limb alſo ſignifies the outermoſt Border or Edge of the Sun or Moon, when the Middle or Diſk is hid in an Eclipſe of either Luminary.

Limb is alſo uſed among Botaniſts for the outer Edge or Border or Plants, their Leaves, and Flowers.

LIMB, or LIMBUS, is alſo a Term in the *Romiſh* Theology, uſed for that Place where the Patriarchs are ſuppoſed to have waited for the Redemption of Mankind, and where they imagine our Saviour continued from the time of his Death to that of his Reſurrection. *Du Cange* ſays, the Fathers called this Place *Limbus*, *eo quod ſit Limbus Inferorum*. The word *Limbus* is alſo uſed by the Catholics for the Place deſtined to receive the Souls of Infants who die without Baptiſm; who have not deſerved Hell, as dying in Innocence, nor yet are worthy of Heaven, becauſe of the Imputation of Original Sin.

LIME, Calcined Stone, Marble, Free-ſtone, Chalk, or other Matter burnt by a large Fire in a Kiln or Furnace built expreſs; to be afterwards uſed in the Compoſition of Mortar, for building; the Fire taking away all its Humidity, and opening its Pores, ſo that it becomes eaſily reducible to Powder. Quick Lime or Unſlack'd *Lime* is that which comes out of the Furnace; Slack'd *Lime* is that waſh'd or ſteep'd in Water, and reſerv'd for the making of Mortar. The beſt *Lime* is that made of the hardeſt and firmeſt Stones, and which is ſlack'd at its coming out of the Furnace. Sir *H. Wotton* looks on it as a great Error in the *Engliſh* to make *Lime* as they do, of Refuſe, and Stuff without any Choice; whereas the *Italians*, at this day, and much more the Antients, burnt their firmeſt Stones, and even Fragments of Marble where it was plentiful; which in time became almoſt Marble again for its hardneſs, as appears in their ſtanding Theatres, *&c.*

We have two kinds of *Lime* in common uſe in *England*; the one made of Stone, and the other of Chalk; whereof the former is much the ſtrongeſt. That made of ſoft Stone or Chalk is fitteſt for plaiſtering of Ceilings and Walls within doors; and that made of hard Stones, for Buildings and for plaiſtering without doors. Good *Lime* may alſo be made of Mill-ſtone, not coarſe and ſandy, but fine and greaſy; as alſo of all kinds of Flints; tho 'tis hard to burn 'em, unleſs in a Reverberatory Furnace, as being apt to run to Glaſs.

Dieuſſant recommends *Lime* made of Sea-ſhells as the beſt, but *Goldman* finds fault with it, as being impatient of Moiſture, and therefore eaſily peeling off from the Outſides of Walls: It is, however, the common *Lime* uſed in the *Indies*.

Before the Stones be thrown into the Kiln, they are to be broke in pieces; otherwiſe the Air contain'd in their Cavities, too much expanded by the Heat, makes 'em fly with ſo much violence as to damage the Kiln. According to *Alberti* and *Palladio*, *Lime* will not be ſufficiently burnt in leſs than ſixty Hours intenſe Heat.

The Marks of a well-burnt *Lime*, according to *Alberti*, are, that its Weight is to that of the Stone in a ſeſquialterate Proportion; that it is white, light, and ſonorous; that when ſlaked it ſticks to the Sides of the Veſſel: To which *Boeckler* adds, that when ſlaked it ſends forth a copious thick Smoak; and *Dieuſſant*, that it needs a great deal of Water to ſlake it.

To preſerve *Lime* ſeveral Years, ſlake and work it up; dig a Pit under ground, into which let it paſs thro a hole open at the bottom of the Veſſel. As ſoon as the Pit is full, cover it up with Sand, to prevent its drying; thus keeping it moiſt till it be uſed. *Boeckler* gives another Method: Cover a Stratum of *Lime* two or three foot high with another of Sand of the like height; pour on Water enough to ſlake the *Lime*, but not to reduce it to duſt after ſlaking. If the Sand cleave into Chinks, as the Smoak aſcends, cover 'em up, ſo as no Vent may be given thereto. This *Lime*, he adds, kept ten or twelve Years, will be like Glue; and will, further, be of particular Uſe in painting Walls, as being no way prejudicial to the Colours. See *Mortar*.

Lime is much uſed by Tanners, Skinners, *&c.* in the Preparation of their Leather.

Lime, or *Calx*, in Chymiſtry, is a kind of fine Powder, or Aſhes remaining of Metals or Minerals, that have been a long time in a violent Fire. See *Calx*.

Lime is of ſome medicinal Uſe, being applied externally in Deſiccative and Conſumptive Medicines. Its Water is ſaid to be an excellent Medicine, taken internally. M. *Burlet* has written an ample Account of its Effects in the *French Memoirs*, in good meaſure from his own Experience. But he obſerves it ſucceeded much better in *Holland*, &c. than in *France*. It is a powerful Alterant, and like a pure Alkaline Water, fitted to blunt and deſtroy acid Ferments, which are the Principles of all Obſtructions, and the Cauſe of moſt Chronic Diſeaſes. Its principal Uſe is in a Cachexy, Green-ſickneſs, Dropſy, Scurvy, Obſtructions of the Liver, Spleen, *&c.* It is made by pouring ſix Pounds of hot Water on one of Quick-Lime, leaving them to ſoak and macerate for the ſpace of 24 hours.

LIME-STONE, is a Stone of a whitiſh Colour, which being burnt in a Kiln, enters the Compoſition of Mortar, Plaiſter, *&c.* which ſee.

LIMITATION OF ASSIZE, in Law, is a certain Time ſet down by the Statute, wherein a Man muſt alledge himſelf or his Anceſtors to have been ſeiz'd of Lands ſued for by Writ of Aſſize.

LIMITED PROBLEM, ſignifies a Problem that has but one only Solution, or which can be done only one way; as to make a Circle paſs through three Points given, not lying in a Right Line, to deſcribe an equilateral Triangle on a Line given, *&c.*

LIMITS of a Planet, its greateſt Excurſion or Diſtance from the Ecliptic.

LIMNING, the Art of Painting in Water-Colours; in contradiſtinction to Painting properly ſo called, which is done in Oil-Colours.

Limning is much the more Antient Kind of Painting: Till a *Flemiſh* Painter, one *John van Eyck*, better known by the Name of *John* of *Bruges*, found out the Art of Painting in Oil, the Painters all painted in Water and in Freſco alone, both on their Walls, on Wooden Boards, and elſewhere. When they made uſe of Boards, they uſually glued a fine Linnen Cloth over 'em, to prevent their opening; then laid on a Ground of White; laſtly, they mix'd up their Colours with Water and Size, or with Water and Yolks of Eggs, well beaten with the Branches of a Fig-Tree, the Juice whereof thus mix'd with the Eggs; and with this Mixture they painted their Pieces.

In *Limning* all the Colours are proper enough, excepting the White made of Lime, which is only uſed in Freſco. But the Azure and Ultramarine muſt always be mix'd up with Size, or with Gum, in regard the Yolks of Eggs give yellow Colours a greeniſh Tincture. But there are always applied two Lays of hot Size e'er the Colours, mix'd even with Size, are laid on: the Compoſition made with Eggs, and the Juice of the Fig-tree, being only uſed for touching up and finiſhing, and to prevent the Neceſſity of having a Fire always at hand to keep the Size hot; yet 'tis certain, that the Size-Colours hold the beſt, and are accordingly always uſed in Cartoons, *&c.* This Size is made of Shreds of thin Leather, or of Parchment.

To *limn* on Linnen, they chuſe that which is old, half worn, and cloſe. This they ſtamp with White Lead, or with a fine Plaiſter beaten up with Size; which once dry, they go over it with a Lay of the ſame Size.

The Colours are all ground in Water, each by itſelf; and in proportion as they are required in working, are diluted with Size-Water. If the Yolks of Eggs are deſired, they dilute 'em with Water made of equal Quantities of common Water and Vinegar, with the Yolk, White and Shell of an Egg, and the Ends of the little Branches of a Fig-tree cut ſmall, all well beaten together in an Earthen Pan.

If 'tis deſired to varniſh the Piece when finiſh'd, they go over it with the White of an Egg well beaten, and then with Varniſh. This, however, is only to preſerve it from the Wet: for the great Advantage of *Limning* conſiſts in its being free from any Luſtre; in regard all its Colours thus void of Luſtre may be ſeen in all kinds of Lights; which Colours in Oil, or cover'd with Varniſh, can't.

LINCTUS, a Form of Medicine the ſame as *Lambative*, and probably from the ſame Derivation; or from *Lingua* the Tongue, as being to be licked up with the Tongue. See *Eclegma.*

LINE, a ſmall *French* Meaſure, conſiſting of the 12th part of an Inch, or 144th part of a Foot. The Geometricians, notwithſtanding its Smallneſs, conceive it divided into ſix Points.

LINE, in Genealogy, is a Series or Succeſſion of Relations in various Degrees, all deſcending from the ſame common Father. *Direct Line* is that which goes from Father to Son, which is the Order of Aſcendants and Deſcendants. *Collateral Line* is the Order of thoſe who deſcend from ſome common Father related to the former, but out of the *Line* of Aſcendants and Deſcendants. In this are placed Uncles, Aunts, Couſins, Nephews, &c.

LINE, in Geometry, is a Quantity extended in Length only, without either Breadth or Thickneſs, and is formed by the Motion of a Point. There are two kinds of *Lines*, *viz.* Right *Lines* and Curve *Lines.* Thus if the Point A move towards B, (*Fig.* 1. *Plat. Geometry*) by its Motion it deſcribes a *Line*; and this, if the Point go the neareſt way towards B, will be a Right or Streight *Line*, whoſe Definition therefore will be the neareſt or ſhorteſt Diſtance between any two Points, or a *Line* all whoſe Points tend the ſame way. If the Point go any way about, as in any of the *Lines* A C B, A *c* B, it will trace out either a crooked *Line*, as the upper A *c* B; or elſe two or more ſtreight ones, as in the lower A C B.

Lines conſidered as to their Poſitions, are either *Parallel*, *Perpendicular*, or *Oblique*; the Conſtruction and Properties whereof, ſee under *Parallel*, *Perpendicular*, &c.

Euclid in his ſecond Book treats moſtly of *Lines*, and of the Effects of their being divided, and again multiplied into one another; the Subſtance of his Doctrine may be thus demonſtrated Algebraically. (1.) If there be two *Lines* z and x; one of which, as z, is divided into any number of Parts, as into $a+e+i+o$, the Rectangle under the two whole *Lines* zx is equal to the Sum of all the Rectangles made by x multiplied into the Parts of z.

Z | —— *a* —— | —— *e* —— | —— *i* —— | —— *o* ——
X | ———————————— |

that is, $zx = xa + xe + xi + xo$. This is ſo plain, it needs no proof. (2.) If a Right *Line*, as z, be divided into two Parts $a + e$, the Rectangles made by the whole *Line*, and both its Parts, are equal to the Square of the whole *Line*: That is, $za + ze = zz$. For $za = aa + ae$; and $ze = ae + ee$; therefore $zz = aa + za + ee$. (3.) Let the *Line* 2 be cut into $a + e$; then ſhall the Rectangle under the whole *Line* (Z) and the Part (a) be equal to the Square of that Part a, together with the Rectangle made by the two Parts a and e; that is, $Za = aa + ae$. Z —— *a* —— | —— *e* —— | For $Z = a + e$. And $a + e \times a = aa + ae$. (4.) The Square of any *Line*, as Z, divided into any two Parts, a and e, is equal to both the Squares of thoſe Parts, together with the Rectangles made out of thoſe Parts, that is, $Zz = aa + 2ae + ee$. Z —— *a* —— | —— *e* —— | Multiply $a + e$ by itſelf, and the Thing is plain.

$$\begin{array}{l}
a + e \\
a + e \\
\hline
aa + ee \\
\quad + ae + ee \\
\hline
aa + 2ae + ee.
\end{array}$$

Hence it is plain, that the Square of any *Line* is equal to four times the Square of its Half. For ſuppoſe Z to be biſected, then each Part will be a; and multiplying $a + a$ by itſelf, the thing will plainly appear.

Z —— *a* —— | —— *a* —— |

$$\begin{array}{l}
a + a \\
a + a \\
\hline
aa + aa + aa + aa = 4aa.
\end{array}$$

(5.) If a *Line* be divided into two Parts equally, and into two other Parts unequally, the Rectangle under the unequal Parts, together with the Square of the intermediate Part, will be equal to the Square of half that *Line.* Let the whole *Line* be $2a$, then each Part will be a. Let the leſſer unequal Part be e, then the greater unequal Part will be $2a - e$; which multiplied by e, produces $2ae - ee$: To which adding the Square of the Difference or intermediate Part $a - e$, which is $aa - 2ae + ee$, the Sum will be only aa, the Square of half the *Line.* (6.) If a *Line* be biſected, and then another Right *Line* be added to it, the Rectangle or Product of the whole augmented *Line* multiplied by the Part added, together with the Square of the half *Line*, will be equal to the Square of the half *Line*, and Part added, as one *Line.*

Z —— *a* —— | —— *a* —— | ……… *e* ……… |

Let the firſt *Line* be $2a$, and the Part added e, then the whole will be $2a + e$, which multiplied by e, produceth $2ae + ee$; and the Square of half the *Line* aa being added to it, it will be $2ae + ee + aa$, which is equal to the Square of $a + e$. (7.) If a Quantity or *Line* be divided any how into two Parts, the Square of the Whole added to the Square of one of the Parts, ſhall be equal to two Rectangles contained under the whole *Line*, and that part, added to the Square of the other Part.

Z —— *a* —— | —— *e* —— |

Let a be one Part, and e the other; the Square of the Whole, and of the leſſer Part e makes $aa + 2ae + 2ee$. then if the Whole $a + e$ be multiplied by twice e, it will produce $2ae + 2ee$; and if to this be added the Square of the other Part aa, the Sum will be $aa + 2ae + 2ee$, equal to the former. (8.) If a *Line* be cut any how into two Parts, the Rectangle under the whole *Line* and one of the Parts taken four times, and added to the Square of the other Part, is equal to the Square of the Whole, and the other Part added to it, as if it were but one *Line.*

Z —— *a* —— | —— *e* —— |

Let the whole *Line* be $a + e$, then four times that multiplied by e (or the Quadruple Rectangle under that and e) will be $4ae + 4ee$; to which adding the Square of the other Part aa, the Sum will be $aa + 4ae + 4ee$. And if you ſquare $a + 2e$, which expreſſeth the whole *Line* with e added to it, the Product will be the former Sum of $aa + a\,4ae + 4ee$. (9.) If a *Line* be biſected, and alſo cut into two other unequal Parts, the Sum of the Squares of the unequal Parts will be double the Sum of the Squares of the half *Line*, and of the Difference between the two unequal Parts. Let the whole *Line* be $2a$, and the Difference between the equal and unequal Parts b; then the greater unequal Part will be $a + b$, and the leſſer $a - b$: The Sum of the Squares of the unequal Parts will be $2aa + 2bb$, which is double to the Square of half the *Line* added to the Square of the Difference. (10.) If a *Line* be biſected, and then another *Line* added to it; the Square of the whole increaſed *Line*, together with the Square of the Part added, is double the Sum of the Squares of the half *Line*, and of the half *Line* and Part added, taken as one *Line.*

Z —— *a* —— | —— *a* —— | —— *e* ——

Let the whole *Line* be $2a$, and the Part added e; then the whole increaſed *Line* will be $2a + e$, and the half *Line* and Part added will be $a + e$; the Sum of the Squares of $2a + e$, and of e, is $4aa + 4ae + 2ee$; which is plainly double to aa, and $aa + 2ae - ee$ added together.

LINE, in Geography and Aſtronomy, is uſed by way of Eminence for the Equator or Equinoctial *Line*, which, in the Heavens, is a Circle deſcribed by the Sun in his Courſe on the 21ſt Day of *March*, and the 21ſt of *September.* On the Earth 'tis an imaginary Circle, anſwering to that in the Heavens. It divides the Earth from *Eaſt* to *Weſt* into two equal Parts, and is at an equal Diſtance from the two Poles; ſo that thoſe who live under the *Line*, have the Poles always in their Horizon. The Latitudes commence from the *Line.* The Seamen uſe to duck their Paſſengers the firſt time they cut the *Line.*

LINE, in the Art of War, is underſtood of the Diſpoſition of an Army ranged in Order of Battel. An Army uſually conſiſts of three *Lines*; the firſt is the Front, Van, or Advance Guard; the Main Body forms the ſecond, in which is the General's Poſt; the third is a Reſerved Body or Rear-Guard. 'Tis a Rule to leave 150 Paces diſtance between the firſt *Line* and the ſecond, and twice as much between the ſecond and third, to give room for rallying.

Line is alſo underſtood of the Diſpoſition of a Fleet on the Day of Engagement; on which occaſion the Veſſels are always drawn up in one *Line*: A Ship of the *Line*, is a Veſſel large enough to be drawn up in the *Line*, and to have place in a Sea-Fight.

LINE of *Demarcation*, or *Alexandrian Line*, is a Meridian paſſing over the Mouth of the River *Maragnon*, and by the Capes of *Hoamas* and *Malabrigo.* 'Tis ſo call'd from Pope *Alexander* VI. who to end the Diſputes between the Crowns of *Caſtile* and *Portugal*, about their Boundaries in 1493, drew an imaginary *Line* on the Globe, which was to terminate the Pretenſions of each. By which Partition the *Eaſt-Indies* fell to the Lot of the *Portugueſe*, and the *Weſt-Indies*, then newly diſcovered, to the *Caſtilians.*

LINE of *Direction*, in Mechanics, is that, according to which a Body endeavours to move, The Term is alſo uſed to ſignify the *Line* that paſſes thro' the Center of Gravity of the heavy Body to the Center of the Earth; which muſt alſo paſs thro' the *Fulcrum* or Support of the heavy Body; without which it would fall.

LINE, in Fencing, is that directly oppoſite to the Enemy, wherein the Shoulders, the right Arm, and the Sword ought always to be found; and wherein are alſo to be placed the two Feet at the diſtance of 18 Inches from each other. In this ſenſe a Man is ſaid to be in his *Line*, to go out of his *Line*, &c.

LINE, in Fortification, is ſometimes taken for a Ditch bordered with its Parapet, and ſometimes for a Row of Gabions, or Sacks of Earth, extended in Length on the Ground, to ſerve as a Shelter againſt the Enemies Fire. Thus they ſay, when the Trenches were carried on within thirty Paces of the Glacis, they drew two *Lines*, one on the Right, and the other on the Left, for a Place of Arms. *Line* fundamental is the firſt *Line* drawn for the Plan of a Place, and which ſhews its Area. *Line Capital* is that which is drawn from the Angle of the Gorge to the Angle of the Baſtion. *Line Cogritel* is that which is drawn from the Angle of the Center to that of the Baſtion. *Line of Defence*, is that which repreſents the Courſe of the Bullet of any ſort of Fire-Arms, more eſpecially of a Muſquet-Ball, according to the Situation which it ought to have to defend the Face of the Baſtion. *Line of Defence Fixed*, or *Fichant*, is that which is drawn from the Angle of the Curtain to the flank'd Angle of the oppoſite Baſtions, but yet without touching the Face of the Baſtion. This muſt never exceed 800 Feet, which they reckon the Diſtance at which a Muſquet-Ball will do Execution. *Line of Defence Razant*, is that which being drawn from a certain Point of its Curtain, razeth the Face of the oppoſite Baſtion; this is alſo called the *Line of Defence*, *Stringent*, or *Flanking*. *Line of Approach*, or *Attack*, ſignifies the Work which the Beſiegers carry on under Covert, to gain the Moat, and the Body of the Place. *Line of Circumvallation*, is a *Line* or Trench cut by the Beſiegers within Cannon-Shot of the Place, which rangeth round their Camp, and ſecures its Quarters againſt the Relief of the Beſieged. *Line of Contravallation* is a Ditch bordered with a Parapet, which ſerves to cover the Beſiegers on the Side of the Place, and to ſtop the Sallies of the Gariſon. *Lines of Communication* are thoſe which run from one Work to another; but the *Line of Communication*, more eſpecially ſo call'd, is a continued Trench, with which a Circumvallation, or Contravallation, is ſurrounded, and which maintains a Communication with all its Forts, Redoubts, and Tenailles. *Line of the Baſe* is a right *Line*, which joins the Points of the two neareſt Baſtions. To *line* a Work, is to ſtrengthen a Rampart with a firm Wall, or to encompaſs a Parapet or Moat with good Turf, *&c.*

LINE *Geometrical*, in Perſpective, is a right *Line* drawn in any manner on the Geometrical Plane. *Line Terreſtrial*, or *Horizontal*, in Perſpective, is a right *Line*, wherein the Geometrical Plane and that of the Picture or Draught interſect one another. *Line of the Front*, in Perſpective, is any right *Line* parallel to the *Terreſtrial Line*. *Line Vertical* in Perſpective, is the common Section of the Vertical and of the Draught. *Line Viſual* is the *Line* or Ray imagined to paſs from the Object to the Eye. *Line of Station* in Perſpective, according to ſome Writers, is the common Section of the Vertical and Geometrical Planes; others mean by it the perpendicular Height of the Eye above the Geometrical Plane; others a *Line* drawn on that Plane, and perpendicular to the *Line*, expreſſing the Height of the Eye. *Line Objective*, in Perſpective, is the *Line* of an Object, from whence the Appearance is ſought for in the Draught or Picture.

LINE of *Gravitation* of an heavy Body, is a *Line* drawn thro' its Centre of Gravity, and according to which it tends downwards.

LINE, *Horizontal*, in Dialling, is the common Section of the Horizon, and the Dial-Plane. *Line Horary*, or the *Hour-Lines*, are the common Interſections of the Hour-Circles of the Sphere, with the Plane of the Dial. *Line Subſtylar*, is that *Line* on which the Style or Cock of the Dial is erected, and is the Repreſentation of ſuch an Hour-Circle as is perpendicular to the Plane of that Dial. *Line Equinoctial*, in Dialling, is the common Interſection of the Equinoctial, and the Plane of the Dial.

LINE *of Meaſures*; ſo Mr. Oughtred calls the Diameter of the Primitive Circle in the Projection of the Sphere *in Plano*, or that *Line* in which the Diameter of any Circle to be projected falls. In the Stereographick Projection of the Sphere *in Plano*, it is that *Line* in which the Plane of a great Circle perpendicular to the Plane of the Projection, and that oblique Circle, which is to be projected, interſects the Plane of the Projection; or it is the common Section of a Plane, paſſing thro' the Eye-Point, and the Centre of the Primitive; and at right Angles to any oblique Circle which is to be projected, and in which the Centre and Pole of ſuch Circle will be found.

LINE *of the ſwifteſt Deſcent* of an heavy Body, is that Curve which a Body would deſcribe in its Deſcent, if it moved the ſwifteſt poſſible.

LINE of the *Apſides*, in Aſtronomy, is the *Line* which joins the *Apſides*, or the greater Axis of the Orbit of a Planet. See *Apſides*.

LINE FIDUCIAL. See *Fiducial Line*.

HORIZONTAL LINE, a *Line* Parallel to the Horizon. See *Horizon*.

MERIDIAN LINE. See *Meridian*.

LINE of the Nodes, in Aſtronomy, is the *Line* which joins the Nodes of the Orbit of a Planet, or the common Section of the Plane of the Orbit with the Plane of the Ecliptic. See *Nodes*.

LINE of a Projectile. See *Projectile*.

LINES *on the Plain Scale*, are the *Line* of Chords, *Line* of Sines, *Line* of Tangents, *Line* of Secants, *Line* of Semi-Tangents, *Line* of Longitude. The Conſtruction and Application whereof, ſee under the word *Plain Scale*.

LINES *on* Gunter's *Scale*, are, the *Line* of Numbers, *Line* of Artificial Sines, *Line* of Artificial Tangents, *Line* of Artificial Verſed Sines, *Line* of Artificial Sines of Rhumbs, *Line* of Artificial Tangents of the Meridian *Line*, and *Line* of equal Parts. The Conſtruction and Application whereof, ſee under the Word *Gunter's Scale*.

LINES *of the Sector*, are, the *Line* of equal Parts, or *Line* of *Lines*, *Line* of Chords, *Line* of Sines, *Line* of Tangents, *Line* of Secants, *Line* of Polygons, *Line* of Numbers, *Line* of Hours, *Line* of Latitudes, *Line* of Meridians, *Line* of Metals, *Line* of Solids, *Line* of Planes. The Conſtruction and Uſe whereof, ſee under the word *Sector*.

LINES Converging. See *Converging Lines*.

LINES Diverging. See *Diverging Lines*.

LINES Proportional, the Manner of conſtructing them, their Properties, *&c.* See *Proportional Lines*.

LINES Reciprocal. See *Reciprocal*.

LINEA ALBA, in Anatomy, is the Concourſe of the Tendons of the oblique and tranſverſe Muſcles, dividing the Abdomen in two, in the middle. It is called *Linea*, *Line*, as being ſtrait, and *Alba* from its Colour, which is white. It receives a Twig of a Nerve from the Intercoſtals in each of its Digitations or Indentings, which are viſible to the Eye, in lean Perſons eſpecially.

LINEAMENT, a fine Stroke or Line obſerved in the Face, and forming the Delicacy thereof; being that which preſerves the Reſemblance, and occaſions the Relation of Likeneſs or Unlikeneſs to any other Face. 'Tis by theſe that the Phyſiognomiſts pretend to judge of the Temper and Manners of People. The word *Lineament* is uſed by the Painters for the Out-Line of a Face.

LINEAR PROBLEM, in Mathematicks, is ſuch an one as may be ſolved Geometrically by the Interſection of two right Lines; as to meaſure an inacceſſible Height by the means of two unequal Sticks, *&c.* This is alſo called a *Simple Problem*, and is capable but of one Solution. *Linear* Numbers are ſuch as have Relation to Length only, as ſuch as repreſent one Side of a Plane Figure; if the Plane Figure be a Square, the *Linear* Number is called a Root.

LINE-SEED, a Grain, that has ſeveral uſeful Properties. It enters the Compoſition of ſeveral Medicines, and yields, by Expreſſion, an Oil that has moſt of the Qualities of Nut-Oil, and is accordingly ſometimes uſed in lieu thereof in Painting, and to burn. That drawn without the Aſſiſtance of Fire, is of much Eſteem in Medicine, and ſuppoſed good in the Cure of ſeveral Diſeaſes.

LINGOT, or INGOT, a Bar or Piece of Gold, Silver, *&c.* from the Mines, melted down, but not coined or wrought.

Lingot, is alſo a Term in Chymiſtry, for the Molds they make to caſt melted Metals, or the Regulus of Antimony, *&c.* into.

LINGUA, the Tongue, in Anatomy, an oblong Member, whoſe Form and Situation are ſufficiently known, and whoſe Uſe is to be the Organ of Taſte, and the principal Inſtrument of Speech and Deglutition. It is faſtened to the *Os Hyoides*, the *Larynx*, and to the *Fauces*, by means of a membranous Ligament running along the lower Side of it, about half way, called the *Frænum*. See *Os Hyoides*, &c.

The main Bulk and Body of the Tongue is made up of Muſcles, which are covered on the upper Part with a papillar nervous Subſtance, over which are ſpread two Membranes. The outer of theſe Membranes is pretty thick and ſhort, and full of *Papillæ*, of a Pyramidal Figure, eſpecially towards the Tip; which *Papillæ* ſtand pointing towards the Root of the Tongue in a bending Poſture; which makes their Figure to be Concavo-convex.

Theſe *Apices* or *Papillæ* are ſo very minute and ſlender in Men, that they make the Coat appear on the upper Part to be villous; eſpecially as they approach nearer to the Root. The Figure of the *Papillæ*, in human Tongues, is not ſo plainly diſcernible to the naked Eye as not to need the Microſcope. In Brutes they are generally larger, ſtiffer, and more conſpicuous, and in ſome almoſt cartilaginous, as may be felt in the Tongues of Cats, Oxen, but more ſenſibly in Lions. On the upper ſide, at a little diſtance from the Tip, this Membrane becomes thin, ſmooth, and glabrous, and, as it were, poliſhed by the lower Parts of the Mouth whereon it ſlides.

Under this lies a thin ſoft reticular kind of Coat, punched through with innumerable Holes, and always lined with a thick and white yellowiſh Mucus. This Membrane is ſo exceeding tender, and full of Mucus, that it is not to be examined by the naked Eye unleſs boiled; by which it grows tough, and eaſily ſeparable from the external Membrane, and from the nervous Part of the Tongue which lies immediately under it. After boiling it appears like a kind of Gawſe, between whoſe Threads innumerable Holes appear, through which the Apices of the papillary Body underneath it are exerted. This Membrane on the upper Side, next the outward, appears white, with a Caſt towards yellow, but black on the Side next the Tongue.

Many Authors don't allow this to be a Membrane, and will only have it to be a Mucus hardened by boiling; but ſince it has ſo much of the Reſemblance of a Membrane, and that Authors agree in allowing two Membranes to the Tongue, Dr. *Drake* does not ſcruple to number it among them; ſince there does not appear to be any other ſecond Membrane: reckoning, with *Malpighi*, the ſmooth Part under the Tongue, a Part of the outer Membrane.

Immediately under this appears a nervous papillary Body ſpreading itſelf to a pretty Thickneſs over the whole Surface of the Tongue. This Body, on the under Side, is every where level and ſmooth, except in ſome few Places, where it is connected to the ſubjacent muſculous Part by ſome nervous Twigs which it ſends into it. *Malpighi* diſtinguiſhes the *Papillæ*, which make the principal Part hereof, into three kinds, from their different Magnitudes and Figures when obſerved with the Microſcope; of which, thoſe ſeated on the Sides and Tip are very ſingular, reſembling little round Pyramids, with Globes on their Tops like the Horns of Snails. All theſe *Papillæ*, which are the immediate Organs of Taſting, ſend their Apices, or Extremities, through the mucous Membrane, into the pyramidal *Papillæ* of the outward Membrane, which are hollow to receive them, and ſeem to be nothing elſe but a kind of Caſes to defend theſe nervous *Papillæ* from Injuries which the Salts and Aſperities of thoſe Bodies, which we take into our Mouths, might do them.

The reſt, and much the greateſt Part, of the Body of the Tongue is muſculous, conſiſting of Plans of Fibres in different Directions: The firſt, or external Plan, conſiſts of ſtrait Fibres, which cover the Tongue from one Extreme to the other; when theſe contract, they ſhorten it. Under this are ſeveral other Plans, running from the under to the upper Side, which ſerve to make it broad and thin. Theſe two kinds of Fibres lie *ſtratum ſuper ſtratum*, a Plate of the one, and then a Plate of the other. Authors are not agreed about the Number of Muſcles which compoſe the Tongue, ſome confounding thoſe of the *Os Hyoides* with thoſe of the Tongue, reckon eight, others nine, others ten, and more Pair. Some number thoſe proper to the Tongue alone ſix Pair, others five, others four, and ſome no more than three. Of this laſt Opinion is our accurate Mr. *Cowper*, who allows no more than three genuine Pair of Muſcles to the Tongue, *viz.* the Pair *Genioglosſum*, which pull the Tongue forwards, and put it out of the Mouth; the *Ceratogloſſum*, which draws it into the Mouth, or pulls it on one ſide; and the *Styloglosſum*, which draws the Tongue up in the Action of Deglutition. See *Genioglosſum*, &c. under their proper Heads.

Beſides the Muſcles, the Tongue is alſo moved by a Bone ſituated at its Root, and making as it were its Baſis, called *Os Hyoides*, which ſee.

Down the middle of the Tongue, lengthwiſe, runs a Seam, call'd *Linea Mediana*, which divides it to the bottom into two equal Parts, but not ſo effectually, but that the Blood-Veſſels of one Side communicate with thoſe of the other. Theſe Veſſels are Arteries from the Carotides and Veins called *Ranulæ*, and are very conſpicuous about the *Frænum* under the Tongue, ſerving to reconvey the Blood to the external Jugulars. Theſe Veins are frequently opened in the Angina, and are the laſt Reſort of old Women in this Caſe. The Nerves of the Tongue come from the fifth, ſixth, and ninth Pairs; the two firſt of which have been called *Guſtatorii*, and the latter *Motorii Linguæ*.

Howſoever neceſſary an Organ the Tongue be in Speech, *&c.* yet *Jac. Rolandus* has publiſhed an Account of a Mouth without a Tongue, which ſpake perfectly, and perform'd its other natural Functions; the Perſon he ſpeaks of is *Pet. Durand*, who loſing his Tongue by a Gangreen, could yet ſpeak perfectly, as alſo taſte, ſwallow, and chew his Food; which laſt, however, he could only do on that Side he put it into, being unable to turn it to the other Side of his Mouth.

LINIMENT, a Topical Remedy, ſerving to ſoften the Aſperities of the Skin, and to moiſten thoſe Parts that are to be ſoftened, for reſolving the Humours that afflict the Patient, and give him Pain. There are various kinds of *Liniments* uſed according to the various Occaſions. The *Liniment* is of a mean Conſiſtence, between an Oil and an Unguent. The word comes from the *Latin linire, to anoint gently*.

LINSTOCK, is a ſhort Staff of Wood, about three foot long, having at one end a Piece of Iron divided into two Branches, each of which hath a Notch to hold a Piece of Match, and a Screw to faſten it there; the other end of the Staff is alſo ſhod with Iron, and pointed, to ſtick into the Ground. It is uſed by the Gunners in firing Cannon.

LINTEL, in Architecture, the Piece of Timber that lies horizontally over Door-Poſts and Window-Jaums, as well to bear the Thickneſs of the Wall over it, as bind the Sides of the Walls together.

LINUM CATHARTICUM, Mountain-Flax; this is much uſed by common People. It is a rough harſh Purge, and powerfully deterges, and evacuates viſcid and watery Humours from the moſt remote Lodgments; which makes them fond of it in Rheumatiſms: but it is only fit for robuſt Conſtitutions

LINUM INCOMBUSTIBILE, a Mineral Subſtance, of a whitiſh Silver Colour, and a woolly Texture; conſiſting of ſmall Threads or Longitudinal Fibres, endued with the wonderful Property of reſiſting Fire, and remaining unconſumed in the intenſeſt Heat. This lanuginous Mineral is ſometimes called *Amianthus* and *Asbeſtos*, which ſee; ſometimes *Salamandra*, or *Salamander's Wooll*, from the Candle-Wicks ſaid to be made antiently of it. From a pungent Quality, which *Agricola* ſays it has on the Tongue without Aſtringency, it is call'd *Alumen*, having the Epithet of *Plumeum* added to it, taken from its downy Filaments, to diſtinguiſh it from the other Alums. From its light grey Colour it is call'd *Polia* and *Corſoides*; and from its Likeneſs to the hoary Fibres of ſome ſorts of Mat-Weed, *Spartapolia*. From the Capacity it has of being ſpun into Thread, it is call'd *Linum*, with ſome diſtinguiſhing Epithet, taken either from its Quality, as *Linum Asbeſtinum Vivum*, or *Incombuſtible*; or from the Place where it is found, as *Linum Foſſile*, *Linum Indicum*, *Creticum*, *Cypricum*, and *Carpaſium*, or *Caryſtium*. But beſides the Places whence it borrows Names, it is alſo found in *Tartary*, at *Namur* in the *Low Countries*, in *Thuringia*, among the Mines in the *Old Noricum* in *Egypt*, in the Mountains of *Arcadia*, at *Puteoli* in the Iſland of *Corſica*, in the Iſland of *Angleſey* in *Wales*, and in *Aberdeenſhire* in *Scotland*.

The Naturaliſts generally reckon it among the Stones, whence its Appellation of *Lapis Asbeſtos*, &c. but Dr. *Plot* rather judges it a *Terra Lapidoſa*, or middle Subſtance, between Stone and Earth. As to its Generation, the ſame Author takes it to be a Mixture of ſome Salt, and a pure Earth without Sulphur, coagulated in the Winter, and hardened by the Heats in Summer. The Salt *J. Heſſus* ſays is a liquid Alum, of a milky Subſtance, inclining to yellow, that ſweats out of the Earth, and ſmells like rotten Cheeſe.

As to the Art of managing this Mineral, and of ſpinning and weaving it, *&c.* the Accounts we have are various. Signior *Caſtagnata*, Superintendant of ſome Mines in *Italy*, gives us the Art of reducing it either into a very white Skin, or a very white Paper, either of which reſiſts the moſt violent Fire.

Mr. *Lloyd* took ſome of that found in *Angleſey*, and pounding it in a Stone Mortar till it became a downy Subſtance, ſifted it thro a fine Searce; by which means the earthy Parts were ſeparated from it: the *Linum* remaining. He then brought it to a Paper-Mill, and putting it in Water, in a proper Veſſel, ſtirred it pretty much, ordering the Workmen to proceed on it in their uſual manner of making Paper, with their Writing-Paper Mold; only to ſtir it about conſtantly before putting their Mold in; conſidering it as a far more ponderous Subſtance than what they uſed, and conſequently, if not immediately taken up after it was agitated, it would ſubſide. The

Paper thus made of it proved coarſe, and apt to tear, but endured both Ink and Fire very well; the Ink only turning Red with the Violence of the Fire.

M. *Paulus Venetus* gives us the Manufacture of the *Linum* found in the Province of *Chinchinthelas* in *Tartary*, from one *Curſicar* a *Turk*, Superintendant of the Mines of that Country, as follows: The lanuginous Mineral, or Amianthus, being firſt dried in the Sun, is then pounded in a Braſs Mortar, and the earthy part ſeparated from the woolly, which is afterwards well waſhed from Filth; being thus purged, it is ſpun into Thread like other Wool, and after, wove into Cloth, which, if foul or ſpotted, they cleanſe, he ſays, by throwing it into the Fire for an hour's time, whence it comes out unhurt, as white as Snow: Which very Method, according to the Account given us by *Strabo*, ſeems to have been uſed in ordering the *Cretan* Amianthus; with this Addition, that after it was pounded, and the earthy Part ſeparated from the woolly, he ſays it was combed; and ſo does *Agricola*.

Signior *Campani*, after deſcribing four ſorts of the *Linum*, whereof he had Specimens in his *Muſæum*; the firſt ſent him from *Corfu*, the ſecond from *Seſtri di Ponente*, the third coarſer and darker than the reſt, and the fourth from the *Pyreneans*; and after obſerving, tho' he kept it three Weeks in a Glaſs-houſe Fire, yet found it unaltered, tho it would not preſerve a Stick wrapp'd in it from the Fire: he proceeds to ſhew the manner of ſpinning it, and making it into Cloth, which he effected thus: He firſt laid the Stone in Water, if warm the better, for ſome time to ſoak; then opened and divided it with his Hands, that the earthy parts might fall out of it, which are whitiſh like Chalk, and ſerve to bind the thready Part together. This makes the Water thick and milky. That Operation he repeated ſix or ſeven times with freſh Water, opening and ſqueezing it again and again, till all the heterogeneous Parts were waſhed out, and then the Flax-like Parts were collected and laid in a Sieve to dry. As to the ſpinning, he firſt ſhews a Method diſcovered to him, which is thus: Lay the Amianthus, cleanſed as before, between two Cards, ſuch as they card Wooll withall, where let it be gently carded, and then clapp'd in between the Cards, ſo that ſome of it may hang out of the ſides; then lay the Cards faſt on a Table or Bench; take a ſmall Reel made with a little Hook at the end, and a Part to turn it by, ſo that it may be eaſily turned round. This Reel muſt be wound over with fine Thread: then having a ſmall Veſſel of Oil ready, with which the Forefinger and Thumb are conſtantly to be kept wet, both to preſerve the Skin from the corroſive Quality of the Stone, and to render the Filaments thereof more ſoft and pliant; by continuing to twiſt about the Thread on the Reel in the Arbeſtos hanging out of the Caſes, ſome of the latter will be worked up together with it; and by little and little the Thread may, with Care, be woven into a coarſe ſort of Cloth; and by putting it into the Fire, the Thread and Oil will be burnt away, and the incombuſtible Cloth remain. But finding this way of uniting the Stone with the Thread very tedious, inſtead of the Thread he put ſome Flax on a Diſtaff, and by taking three or four Filaments of the Aſbeſtos, and mixing them with the Flax, he found they might be eaſily twiſted together, and the Thread thus made much more durable and ſtrong; ſo that there is no need of Carding, which rather breaks the Filaments than does any good: only open and ſeparate the Filaments after waſhing on a Table, and take them up with the Flax, which is ſufficient. As to the making of Paper, he ſays, in the waſhing of the Stone there will remain ſeveral ſhort Pieces in the bottom of the Water, of which Paper may be made in the common Method. He concludes with the beſt way of preſerving the Cloth, or any thing made of the Linnen, which, by reaſon of its exceſſive Dryneſs, is very apt to break and twiſt; and it conſiſts in keeping it always well oiled, which is the only Preſervative. When the Cloth is put in the Fire, the Oil burns off, and the Cloth comes out white and purified.

This kind of Linnen-Cloth was highly eſteemed by the Antients; tho' then better known and more common than among us, being held equally precious with the richeſt Pearls; nor is it now of mean Value even in the Country where 'tis moſt generally made, a *China* Cover, (*i. e.* a Piece of twenty-three Inches and three quarters long) being worth 80 Tale, *i. e.* 36 *l.* 13 *s.* 4 *d.* *Pliny* ſays, he himſelf had ſeen Napkins thereof, which being taken foul from the Board, after a Feaſt, were thrown into the Fire, and by that means were better ſcowered than if they had been waſhed in Water, &c. But its principal Uſe, according to *Pliny*, was for the making of Shrowds for Royal Funerals; to wrap up the Corps, ſo as the Aſhes might be preſerved diſtinct from that of the Wood, &c. which made the Funeral Pile; and the Princes of *Tartary*, according to the Accounts in the *Philoſophical Tranſactions*, ſtill uſe it at this day in burning their Dead. Some of the Antients are ſaid to have made themſelves Clothes of it, particularly the Brachmans among the *Indians*. The Wicks for their perpetual Lamps, according to Dr. *Liſter*, were made of it; and we are told that *Septalla* Canon of *Milan* had Thread, Ropes, Nets, and Paper of it. A Handkerchief or Pattern of this Linnen was preſented to the Royal Society, a foot long, and half a foot broad. This gave two Proofs of its reſiſting Fire; tho' in both Experiments it loſt above three Drams in its Weight. When taken out red-hot, it did not burn a Piece of white Paper, on which it was laid. Mr. *Villette* pretends, that his large burning Concave uſually vitrifies the Aſbeſtos.

LIONCELES, in Heraldry, a Term for Lions, when there are more than two of them born in any Coat of Arms, and no Ordinary between them.

LIPOTHYMIA, or LIPOPSYCHIA, in Medicine, is a ſudden Diminution or Failure of animal and vital Actions, otherwiſe called a Swooning or Deliquium. In the *Lipothymia* the Pulſe is very faint, the Senſes both internal and external, and the animal Motions, both voluntary and natural, extremely weakened, and the Reſpiration ſcarce viſible. The ordinary Cauſes of the *Lipothymia* are great Loſſes of Blood, exceſſive Evacuations, immoderate Exerciſe, groſs hot Air, ſuch as that in the midſt of Crowds of People. The word *Lipothymia* comes from the *Greek* λειπω, *deficio*, and θύμος, *Animus*; and *Lypopſychia* from λειπω, and ψυχὴ, *the Soul*.

LIPPITUDO is a Diſorder of the Eyes, otherwiſe call'd *Blear-Eyedneſs*; conſiſting in the Oozing out of a thick viſcous Humour, which hardening, binds the Eye-lids together. Some, after *Celſus*, give the Name *Lippitudo* to the *Opthalmia*; which ſee.

LIPS, *Labia*, the Edge or exterior Part of the Mouth, or that muſculous Extremity which ſhuts and covers the Mouth both above and below. The *Lips*, beſides the common Integuments, conſiſt of two Parts, the exterior, hard, and muſculous; the interior, ſoft, ſpungy, and glandulous, covered with a fine Membrane, the fore and protuberant Parts of which are red, and called *Prolabia*. Authors generally content themſelves with calling the Subſtance of this Part ſpungy, but in reality 'tis glandulous, as appears by the ſcrophulous and cancrous Humours to which it is ſubject. The Muſcles of which the outer Parts of the *Lips* conſiſt, are either common to them with other Parts, or proper; the common are the third Pair of the Noſe, the Subcutaneus, and the Buccinator.

The *Lips* have ſix Pair of Muſcles belonging to them, and an odd one; of theſe, three are peculiar to the upper and under *Lip*, the other three and the ſingle one are common to both *Lips*: The peculiar are the *Attollens Labiorum Superius*, *Deprimens Labiorum Inferius*, *Attollens Labiorum Inferius*; the three common Pair are, the *Zygomaticus*, the *Depreſſor Labiorum*, the *Attollens Labiorum*; the odd one, *Orbicularis*, which ſee.

All theſe Parts are ſerved with Blood by ſome Branches of the Carotids, which the Veins carry back to the external Jugulars. Their Nerves come from the 5th, 6th, and 8th Pair of the Head, and ſome from the *Par Acceſſorium*. The *Lips* have a great ſhare in the Action of Speech, and are of good Uſe in taking in the Food, &c.

Lips are alſo uſed to ſignify the two Edges of a Wound, and the exterior Parts of a Woman's Privities.

LIQUEFACTION, an Operation, by which a ſolid Body is reduced into a Liquid; or the Action of Fire or Heat on fat fuſible Bodies, which puts their Parts into Motion. The *Liquefaction* of Wax, &c. is performed by a moderate Heat, that of *Sal Tartari* by the mere Moiſture of the Air. All Salts liquify. Sand, mix'd with Alkalies, are liquified in the Fire of the Reverberatory to make Glaſs. In ſpeaking of Metals, inſtead of *Liquefaction*, we ordinarily uſe the word *Fuſion*, which ſee.

LIQUID, a Body that has the Property of Fluidity; and beſides that, a peculiar Quality of wetting other Bodies immerged in it, ariſing from ſome Configurations of Particles, which diſpoſes them to adhere to the Surfaces of Bodies contiguous to them. See *Fluid*.

Liquid, among Grammarians, is a Name applied to certain Conſonants oppoſed to Mutes; L, M, N, and R are *Liquids*.

Liquid is ſometimes alſo uſed by the Civilians; thus Goods or Effects, that are clear and out of diſpute, are ſaid to be *liquid*.

LIQUIDATION, a Reduction and Aſcertainment either of ſome dubious diſputable Sum, or of the reſpective Pretenſions which two Perſons may have to the ſame liquid or clear Sum. *Liquidation* is alſo uſed for the Order and Method a Dealer endeavours to eſtabliſh in his

Affairs. *Liquid* Debts and Effects are ſuch as are not only really exiſting, but ſuch as there can be no Diſpute about.

LIQUORICE. See *Glycyrrhiza*.

LIST, or LISTEL, in Architecture, called alſo a *Cincture*, *Fillet*, and *Reglet*; a little ſquare Moulding, diſpos'd in certain Parts of Columns, ſerving to crown or accompany larger Mouldings, and to ſeparate the Flutings of Columns.

Liſt is alſo uſed to ſignify the incloſed Field, or Ground wherein the antient Knights held their Jouſts and Combats. It was ſo called, as being hemm'd round with Pales, Barriers, or Stakes: ſome of theſe were double, one for each Cavalier; which kept them apart, ſo that they cou'd not come nearer each other than a Spear's length. *Du Cange* derives the Word from *Liciæ*, which in the Age of corrupt Latin, was uſed for the Incloſures of Fields and Cities, as being antiently made with Cords inter-laced; or from *Liſtæ, quia Campum claudebant inſtar Liſtarum panni*.

Liſt, the Border of a Stuff, or that which bounds its Width on each Side. All Stuffs of Silk, Wool, or Cotton have *Liſts*. *Liſts* contribute to the Goodneſs of the Stuff, and further ſerve to ſhew their Quality; which has given occaſion to ſeveral Regulations relating to their Matter, Colour, Work, &c.

LISTENING, according to *Rohault*, conſiſts in the Extenſion or Bracing of the Tympanum of the Ear, and putting it into ſuch a Condition, as that it ſhall be the more affected by any tremulous Motion of the external Air. See *Tympanum*.

LITANY, an old Church-Term, ſignifying the Proceſſions, Prayers, and Supplications, uſed to appeaſe the Wrath of God, to avert his Judgments, or to procure his Mercies. Eccleſiaſtic Authors, and the *Roman* Order, by the Word *Litany* mean the People who compoſe the Proceſſion, and who aſſiſt at it. And *Du Cange* adds, that the Word antiently ſignified Proceſſion. *Simeon* of *Theſſalonica*, mentions, that in the antient *Litanies*, the People went out of the Church, to denote the Fall of *Adam*, and return'd into it again, to ſhew the Return of a pious Soul to God by Repentance. On occaſion of a Plague that ravaged *Rome* in the Year 590, Pope *Gregory* appointed a *Litany*, or Proceſſion, conſiſting of ſeven Bands, or Companies, who marching from the ſeveral Churches of the City, met at St. *Mary Major*. The firſt Company conſiſted of the Clergy; the ſecond of Abbots, with their Monks; the third of Abbeſſes, with their Nuns; the fourth, of Children; the fifth, of Laymen; the ſixth, of Widows; and the ſeventh, of married Women. And from this general Proceſſion, that of St. *Mark*, called the *Grand Litany*, is judged to have taken its Riſe.

Litany, among us, is a Form of Prayer ſung or ſaid in Churches, conſiſting of ſeveral Periods, or Articles; at the End of each whereof, is an Invocation in the ſame Terms. The Word comes from the *Greek* λιτανεία, *Supplication*. *Pezron* would go further, and derive the λίττω, or λίσσω of the *Greeks*, from the *Celtic Lit*, Feaſt, Solemnity.

LITHARGE; there are two Kinds of *Litharge*, the one natural, the other artificial. Natural *Litharge* is a Mineral ſometimes found in Lead Mines, reddiſh, ſcaly, brittle, and ſomewhat reſembling white Lead. This *Litharge* is ſo exceeding rare, that the Shops ſell none but the artificial.

Artificial Litharge is of two Kinds, *viz.* that of Gold, and that of Silver; or rather 'tis the ſame, with this difference, that the one having undergone a greater Degree of Fire than the other, has occaſioned different Colours, and thence different Names. Indeed Naturaliſts are not over-well agreed what the *Artificial Litharge* is: Some ſay 'tis a Metallic Scum rais'd on the Surface of Lead, when melted; after having ſerv'd to purify Gold, Silver, or Copper. Others ſay 'tis a Metallic Smoak ariſing from thoſe Metals mix'd with the Lead, uſed in purifying them; which ſticking to the Top of the Chimneys of Furnaces, is there form'd in a kind of Scales. Laſtly, others ſay 'tis the Lead itſelf uſed in the refining of thoſe Metals, and eſpecially Copper; which laſt Opinion appears the moſt credible; and the rather, on account of the great Quantities of theſe *Litharges* brought from *Poland*, *Sweden*, and *Denmark*; where Copper-Mines are much more frequent than thoſe of Gold and Silver.

Litharges are deſiccative, deterſive, and cooling; they make the Conſiſtence of ſeveral Plaiſters. The Potters uſe them to give a beautiful Gloſs to their Ware; and they are alſo uſed by Painters, Dyers, Skinners, and Glaziers. When mix'd with Wine, they give it a bright ſprightly Colour, but render it extreamly unwholeſome. The Word is compoſed of the *Greek* λίθος and ἀργυρος *Silver*.

LITHIASIS, in Phyſic, ſignifies the Formation of the Stone, or the Manner in which it grows in the Body. See *Stone*.

LITHOCOLLA, a Cement uſed by the Lapidaries to faſten their precious Stones, in order for cutting them. It is compoſed of Roſin and Brick-Duſt. For Diamonds they uſe melted Lead, putting them into it before it be quite cold. For other *Cements* they mix Marble-Duſt with ſtrong Glue; and to faſten their Sparks, add the White of an Egg and Pitch. The Word comes from the *Greek* λίθος, *Stone*, and κολλα, *Glue*.

LITHONTHRIPTICS, are Medicines proper to diſſolve the Stone in the Bladder and Kidneys; of which Kind are the Lithoſpermum, Saxifrage, &c. The Word comes from the *Greek* λίθος, *Stone*, and τείβειν, to break or wear.

LITHOTOMY, an Operation in Chirurgery, performed upon a human Body in order to extract the Stone out of the Bladder. This is performed three ſeveral Ways, *viz.* by the ſmall *Apparatus*, the great *Apparatus*, and the high *Apparatus*. The firſt is by cutting thro' the *Perinæum* near the Suture, on the left Side, after the Stone, by the Fingers of the Operator, has been brought to that Part. This is called cutting upon the Gripe; but 'tis almoſt diſuſed, by reaſon it ſubjects the Patient to great Hazard and Inconveniences.

In the great *Apparatus*, which is that ordinarily practiſed, after the Patient is conveniently placed and bound, the Operator introduces a proper Inſtrument thro' the urinary Paſſage into the Bladder, in order to ſearch for the Stone; which being found, that Inſtrument is withdrawn, and another grooved one introduced the ſame way; which bulging in the *Perinæum*, ſerves to direct the Knife to the Neck of the Bladder. After the Inciſion, a third Inſtrument is thruſt into the Aperture, till it join the former, that was laſt introduced thro' the urinary Paſſage, at which time that is withdrawn, whilſt this remains to guide the Forceps directly into the Bladder, to bring away the Stone. This way is called cutting upon the Staff.

The third Method, called alſo the High Operation, has been long ſince deſcribed, and ſtrenuouſly pleaded for by a Chirurgical Writer, *Roſſet*; but the Practice is of a late Date among us, and was firſt attempted by Mr. *Douglas*. Whether, upon the whole, this Method is preferable to the larger *Apparatus*, remains a Queſtion. Tho' the great Succeſs which Mr. *Cheſelden* has found in it, gives Encouragement to hope others may hereafter prove as happy, and at length render the Practice univerſally advantageous.

The Manner of proceeding herein, is this: After the Bladder is injected with a ſufficient Quantity of warm Water, and the Patient conveniently placed, the Operator ſlowly makes an Inciſion above the *Os Pubis*, along the *Linea Alba*, till he gets ſight of the Bladder, into which he directly plunges his Knife, and afterwards draws out the Stone. The Advantages attending this Method, are, That 'tis perform'd in a very ſhort Time; That the Wound eaſily heals; That the *Dilaceration* of Parts, frequent in the other Ways, is prevented; and That there is no danger of the *Incontinentia Urinæ*. On the other hand, 'tis thought to be chiefly practicable upon young Perſons, and ſuch as are lean; the Wound in old and fat Perſons being apt to mortify: moreover, if the Operator be not very cautious, he may eaſily let out the Inteſtines.

LITTER, a kind of Coach, or Vehicle born upon Shafts, antiently eſteemed the moſt eaſy and genteel Way of Carriage. *Pliny* calls it the Travellers Chamber. It was much in uſe among the *Romans*, among whom it was born by Slaves, kept for that purpoſe; as it ſtill continue to be in the Eaſt. The *Roman Litter* made to be born by four Men, was called *Tetraphorum*; that born by ſix, *Hexaphorum*; and that born by eight, *Octaphorum*. The Invention of *Litters*, according to *Cicero*, was owing to the Kings of *Bithynia*. In the time of *Tiberius* they were grown very frequent at *Rome*; as appears from *Seneca*; and even Slaves themſelves were born in them, tho' never by more than two Perſons, whereas Men of Quality had ſix or eight. *Du Cange* derives the Word from *Lecteria*, or *Literia*, q. d. a Bed for Beaſts. Others will rather have it come from *Lectus*, Bed, there being ordinarily a Quilt and a Pillow to a *Litter*; in the ſame manner as to a Bed.

LITTORAL SHELLS are, with the Writers of Natural Hiſtory, ſuch Sea-Shells as are always found near the Shores, and never far off in the Deep: ſuch as are found in the bottom of the Sea, remote from the Shore, they call 'εμβύθιοι, and *Pelagiæ*.

LITURGY, a Term ſignifying all the Ceremonies belonging in general to the Divine Office and Service. In a more reſtrained Signification, it is uſed among the *Romaniſts* to ſignify the Maſs, and among us the Common-

Prayer. All who have written on *Liturgies* agree, that in the Primitive Days, Divine Service was exceedingly ſimple, only clogged with a very few Ceremonies, and conſiſting of but a ſmall Number of Prayers; but by degrees they increaſed the Number of external Ceremonies, and added new Prayers, to make the Office look more aweful and venerable to the People. At length things were carried to ſuch a pitch, that a Regulation became neceſſary; and it was found proper to put the Service, and the Manner of performing it, into Writing, and this was what they call'd a *Liturgy*. The *Liturgies* have been different at different Times, and in different Countries. We have the *Liturgy* of St. *Chryſoſtom*, that of St. *Peter*, of St. *James*, the *Liturgy* of St. *Baſil*, the *Armenian Liturgy*, the *Liturgy* of the *Maronites*, of the *Cophtæ*, the *Roman Liturgy*, the *Gallican Liturgy*, the *Engliſh Liturgy*, the *Ambroſian Liturgy*, the *Spaniſh* and *African Liturgies*. The word comes from the *Greek* λειτουργία, *Service*, *Public Miniſtery*.

LITUS is the ſame as *Linimentum*, which ſee.

LITUUS, among Medaliſts, is a Staff uſed by the Augurs, made in form of a Crozier. We frequently ſee it in Medals, along with other Pontifical Inſtruments. *Aulus Gellius* ſays, it was bigger in the place where it was crooked than elſewhere. Some derive the Word from the *Greek* λίτος, ſomething that makes a ſhrill acute Sound, which was a Property of this Inſtrument.

LIVER, a large glandulous Viſcus, of a red ſanguine Colour, ſituated immediately under the Diaphragm, in the right Hypochondrium, which it almoſt fills; and thence ſtretching itſelf over the right Side of the Stomach towards the left Hypochondrium, reaches behind the *Cartilago Enſiformis*, growing gradually thinner and narrower. Its Uſe is to purify the Maſs of Blood, by making a Secretion of the bilious Humours it contains. Its upper Part is convex, and perfectly ſmooth or poliſhed, the under concave, and ſomewhat more uneven, having four large Fiſſures; one thro' which the Umbilical Ligament paſſes; a ſecond on the left Side, receiving the *Pylorus* and the beginning of the *Duodenum*; a third on the right Side near the Margin, in which the Gall-Bladder is lodged; and the laſt in the upper Part, affording a Paſſage to the *Vena Cava*. Its Figure is ſomewhat approaching to round, with thin Edges not altogether even, but notched in ſome Places. Its Magnitude is various in different Subjects, according to the Proportion of the Body, tho' in a Fœtus, or very young Animal, it is always larger, in proportion, than in Adults. In Dogs and other Animals of the Quadruped Kind, it is divided into ſeveral diſtinct Lobes, but in Men it is generally continued; having one ſmall Protuberance, which ſome account a little Lobe. It is ſometimes, however, obſerved in Men to have been divided into two or three Lobes.

The *Liver* is connected to ſeveral Parts, but eſpecially to the Diaphragm, to which it is faſtened by a broad, thin, but ſtrong ſemicircular Ligament, call'd *the ſuſpenſory Ligament*, and derived from the common *Capſula* of the *Porta* and Gall Ducts. The Continuity of this Ligament being interrupted by the Perforation of the *Vena Cava*, has given occaſion to ſome Anatomiſts to divide it into two. Is is likewiſe by another ſtrong Ligament, which has its Origin from the external Coat of the *Liver*, or which is all one, from the *Peritonæum*, tied to the *Cartilago Xyphoides*; and by a third, which is formed out of the Umbilical Veſſels, which in Adults dry up and become a Ligament, it is connected to the Tendons of the abdominal Muſcles in the *Linea alba* at the Navel. Theſe ſeveral Ligaments ſerve to keep it in its due ſituation: beſides which it has ſome other Connections by the Blood-Veſſels.

The *Liver* has a Motion, though not proper to itſelf, but depending on that of the Diaphragm, to which being very firmly connected, it muſt needs obey its Motion, and in Expiration be drawn up, and in Inſpiration let down again. It is covered with a thin ſmooth Membrane, derived from the *Peritonæum*, which may be ſeparated from the Subſtance of the *Liver*, tho' not without ſome danger of Laceration. The Subſtance of the *Liver* is vaſcular and glandulous; which latter Part is very ſoft and friable, and pretty eaſily ſcraped off from the Veſſels, to which the Glands every way adhere, as it were in Bunches; which has made the Anatomiſts call the conſiderable ones, *The Internal Lobes of the Liver*.

The Glands adhering thus to the Veſſels, and conſtituting thoſe Lobes, are wrapped up together in proper Membranes; whence this Appearance of diſtinct Lobes. Every one of theſe Glands, according to *Malpighi*, is compoſed of ſix unequal Sides or Faces. They are all cloth'd with their proper Membranes, and have each an excretory Duct, ſeveral of which joining together, form little Trunks, which run all along with the Branches of the *Porta*; and theſe again uniting, form longer Trunks, which are always found full of Bile, and conſtitute the *Porus Bilarius*; which being diſtributed all over the *Liver*, receives, in the foregoing manner, the Bile; which is ſeparated by theſe Glands, and terminating in the *Meatus Hepaticus*, and that in the *Ductus Communis*, at length diſcharges the Bile into the *Duodenum*.

Beſides this Diſcharge by the *Porus Bilarius*, which is ſuppoſed to be the great one, the *Liver* alſo delivers Part of its Bile into the Gall-Bladder, by a Duct, call'd the *Cyſt Hepatic Duct*, firſt diſcovered by Dr. *Gliſſon*; by means whereof there is an immediate Communication between the *Porus Bilarius* and the Gall-Bladder; a particular Deſcription of which two laſt Parts, ſee under the words *Gall* and *Bile*.

Beſides theſe Gall-Veſſels, which are peculiar to the *Liver*, it abounds with Blood-Veſſels, eſpecially Veins; whereof the *Porta* and *Cava* are diſſeminated thro' the whole Subſtance of it. And here it is particularly remarkable of the *Porta*, that after the manner of Arteries it ſhoots itſelf from a Trunk into Branches, and being at laſt loſt in Capillaries, delivers the Blood into the *Cava*, by which it is immediately reconveyed to the Heart.

The *Porta* is formed out of the Concurrence of divers Veins, which, meeting together, make one of the moſt conſiderable venous Trunks of the Body, as to its Bulk; tho', contrary to the Courſe of other Veins, it runs not far in a Trunk, but is ſoon diſtributed again by Ramifications into the *Liver*. See *Vena Porta*.

The Blood conveyed into the *Liver* by the Porta, after the manner of the Arteries, is received again, after having been purged of its Bile in the Glands of the *Liver* into innumerable Veins, which empty themſelves into the *Cava*, and are vulgarly, tho' improperly, call'd *Branches of the Cava*; but ought to be eſteemed the proper Blood-Veſſels of the *Liver*, as the Emulgents are of the Kidneys; and which, as all the reſt do, except the Pulmonary Vein, empty themſelves into the *Cava*; the common Channel by which the Blood returns to the Heart.

The Arteries, which are call'd the *Hepatic*, come from the right Branch of the *Cœliac*. Dr. *Gliſſon* thinks the *Porta* does ſo much the Office of an Artery, that no more Arteries are neceſſary than thoſe which furniſh Nouriſhment to the Membranes and Capſula; but Dr. *Drake* thinks they ſerve for the Nouriſhment of the whole Part. Theſe Arteries are much bigger in Men than in other Animals. Mr. *Cowper* had ſeveral Preparations, wherein the Stem of each Hepatic Artery was as large as a Gooſe-Quill, and the Branches in the *Liver* every where equal in Magnitude to thoſe of the *Porus Bilarius*, which they accompany. Dr. *Drake* conjectures, that in this Viſcus in a human Body, a larger Stream and directer Impetus of arterious Blood is required to drive on the Venous, becauſe of the erect Poſture, than in Animals of an horizontal Poſition of Body. For which reaſon Horſes, &c. though of much larger Size, and having much bigger *Livers*, have theſe Arteries much ſmaller than Men; and not only ſo, but curled like the Tendrils of a Vine, to break the Impetus, which in that Poſture is not ſo neceſſary as in the Erect. See *Bile*.

The *Liver* has its Nerves from the Hepatic Plexus, found on the right Hypochondrium by the Branches of the Intercoſtal, which wrapping themſelves about the Arteries, make a ſort of Net-work; and after ſpreading themſelves on the Membrane and Surface, diſappear. The Lymphæducts are numerous, tho' not eaſily diſcernible in human Subjects, for want of live Diſſections; but in other Animals, that may be diſſected alive, become very conſpicuous, by applying a Ligature to the *Porta* and the bilary Duct. *For the Uſe of the* Liver *in the Secretion of Bile, ſee* Bile.

Plato, and others of the Antients, fix the Principle of Love in the *Liver*; whence the *Latin* Proverb, *Cogit amare Jecur*: And in this ſenſe *Horace* frequently uſes the word, as when he ſays, *Si torrere Jecur quæris Idoneum*. The *Greeks*, from its concave Figure, call'd it ἧπαρ, *vaulted*, *ſuſpended*; the *Latins* call'd it *Jecur*, *q. d. juxta Cor*, as being near the Heart. The *French* call it *Foye* from *Foyer*, *Focus*, or Fire-place; agreeable to the Doctrine of the Antients, who believed the Blood to be boiled and prepared in it. *Eraſiſtratus* at firſt call'd it *Parenchyma*, i. e. Effuſion, or Maſs of Blood; and *Hippocrates*, by way of Eminence, frequently calls it the *Hypochondrium*.

LIVERY, properly ſignifies a Colour, to which a Perſon has ſome particular Fancy, and by which he chuſes to diſtinguiſh himſelf from others. *Liveries* are uſually taken out of Fancy, or continued in Families by Succeſſion. The antient Cavaliers, at their Tournaments, diſtinguiſhed themſelves by wearing the *Liveries* of their Miſtreſſes. Thus People of Quality make their Domeſtics wear their *Livery*. Father *Meneſtrier*, in his Treatiſe of *Carouſals*, has given a very ample Account of the Mixtures of Colours in *Liveries*. *Dion* tells us, that *Onomaus* was the firſt who invented green and blue Colours for the Troops which in the Circus were to repreſent Land and Sea-Fights. The *Romiſh* Church has alſo her ſeveral Colours and *Liveries*, white for Confeſſors and Virgins, and in times of rejoicing; black for the Dead; red for Apoſtles and Martyrs, blue or violet for Penitents, and green in times of Hope.

Formerly Great Men gave *Liveries* to ſeveral who were not of their Family or Servants, to engage them in their Quarrels for that Year; but this was prohibited by the Statute 1 *Hen.* 4. and no Man, of whatever Condition, was allow'd to give any *Livery* but to his Domeſtic Officers and Council learned in either Law.

LIVERY, in Law, is the Delivery of Poſſeſſion to thoſe Tenants which held of the King *in Capite*, or Knights Service. In another Signification, *Livery* is the Writ which lies for the Heir to obtain the Poſſeſſion or Seizin of his Lands at the King's hands.

Livery of Seizin is a Delivery of Poſſeſſion of Lands or Tenements, or Things Corporeal (for of Things Incorporeal there can be no *Livery of Seizin*) to him who hath Right, or Probability of Right to them. This is a Ceremony uſed in the Common Law, in Conveyance of Lands, Tenements, &c. where an Eſtate in Fee-ſimple, Fee-tail, or Freehold ſhall paſs; and is a Teſtimonial of the willing departing of him who makes the *Livery*, from the Thing whereof *Livery* is made, as well as of a willing Acceptance by the other Party of all that whereof the firſt has diveſted himſelf. The common Manner of the Delivery of *Seizin* is thus: If it be in the open Field where is no Houſe nor Building, and if the Eſtate paſs by Deed, one openly reads it, or declares the Effect of it; and after that is ſealed, the Vendor takes it in his hand with a Clod of Earth on a Twig or Bough, which he delivers to the Vendee in the name of Poſſeſſion or Seizin, according to the Effect of the Deed. If there be a Houſe or Building on the Land, this is to be done at the Door of it, none being then left within; and the Ring of the Door is delivered to the Vendee, who enters alone, ſhuts the Door, and preſently opens it again. If it be a Houſe without Land or Ground, the *Livery* is made and Poſſeſſion given by Delivery of the Ring of the Door and Deed only; and where it is without Deed either of Lands or Tenements, there the Party declares by Word of Mouth before Witneſſes the Eſtate he parts with, and then delivers Seizin or Poſſeſſion as aforeſaid, in which Caſe the Land paſſes as well as by Deed, by virtue of the *Livery of Seizin*. Antiently, there were a Pair of Gloves, a Ring, Knife, Ear of Wheat, &c. delivered in ſign of *Livery* and *Seizin*. See *Inveſtiture*.

LIVRE, an Imaginary *French* Coin, conſiſting of twenty Sols, each Sol again containing twelve Deniers: which way of computing the Coin has been in uſe in that Country ever ſince the Time of *Charlemagne*; before whom they uſed the *Roman Libra*. The *Livre* is of two kinds, the *Livre Tournois* and *Pariſis*. The *Livre Tournois*, as above, contains 20 Sols *Tournois*, and each Sol 12 Deniers *Tournois*. The *Livre Pariſis* is 20 Sols *Pariſis*, each Sol *Pariſis* worth 12 Deniers *Pariſis*, and each Sol *Pariſis* worth 15 Deniers *Tournois*. So that a *Livre Pariſis* is equivalent to 25 Sols *Tournois*: the word *Pariſis* being uſed in oppoſition to *Tournois*, by reaſon of the Rate of Money, which was $\frac{1}{4}$ more at *Paris* than at *Tours*. One Penny Sterling is equal to 13$\frac{1}{2}$ Deniers *Tournois*: ſo that the *Engliſh* Pound *Sterling* is equal to 13 Livres, 6 Sols, 8 Deniers of *French* Money, ſuppoſing the Exchange to be on the foot of 54 Pence *Sterling* to a *French* Crown of 60 Sols *Tournois*; which is the preſent *Par* between *England* and *France*.

The Origin of the Word is fetch'd hence, that antiently the *Roman Libra* or Pound was the Standard by which their Money was regulated; twenty Sols being made equal to the *Libra*. By degrees the *Libra* became a Term of Account, ſo that any Coin juſt worth 20 Sols was a *Livre* or *Libra*; and ſince the Time of *Charlemagne* all Contracts have been made on the foot of this Imaginary Coin: Tho the Sols have frequently chang'd their Weight and Alloy. Since, there have been Pieces of Gold ſtruck of 20 Sols, and under *Henry* III. in 1575, Species of Silver of like Value: Both the one and the other were call'd *Francs*, and thus the Imaginary Coin became Real.

It appears that the *Romans* had a kind of Money which they call'd *Libra* or *Libella*; which was the 10th part of their *Denarius*; ſo call'd becauſe equivalent to an *As*; which, at firſt, weigh'd a *Libra* or Pound of Copper. *Scaliger* adds, that they uſed *Libra* as a Term of Account, not as a Coin: *Libra erat Collectio Nummorum, non Nummus.* See *Pound*.

LIXIVIOUS, in Chymiſtry, is underſtood of Salts extracted by a Lixivium or Lotion. *Lixivious Salts* are the fix'd Salts of Plants, &c. extracted by calcining the Plants or reducing them to Aſhes; and afterwards making a Lixivium of thoſe Aſhes with Water; whence that Name is derived. Mr. *Boyle* obſerves, that the difference between *Lixivious* and Urinous Salts conſiſts in this, That the former change the Diſſolution of Sublimate in common Water into a yellow Colour.

LIXIVIUM, a Liquor made by the Infuſion of Wood-Aſhes, or any burnt Subſtances; which is more or leſs pungent and penetrating, as it is more or leſs impregnated with Salts, and fiery Particles abounding therein. What is left after the Evaporation of ſuch a Liquor, is called a *Lixivial* or *Lixiviate Salt*; ſuch as all thoſe are, which are made by Incineration. *Lixiviums* are of notable uſe not only in Medicine, but alſo in Bleaching, Sugar-Works, &c. which ſee.

LOADSTONE, ſee *Magnet*.

LOAM, Clay uſed in Grafting; a kind of Mortar made of Clay and Straw; alſo a ſort of Clay or Plaiſter uſed by Chymiſts to ſtop up their Veſſels with.

LOBBY, ſee *Antichamber*.

LOBE, among Anatomiſts, is uſed for each of the two Parts whereof the Lungs conſiſt. This Separation into *Lobes* is of uſe in dilating the Lungs, in cauſing them to receive more Air, and in preventing their being too much ſqueez'd, when the Back is bent. For this reaſon it is, that Beaſts, which are always inclining towards the Earth, have more Lobes in their Lungs than Men: Even their Liver is divided into *Lobes*, whereas that of Man is continued.

Lobe is alſo uſed for the Tip of the Ear; which is more fat and fleſhy than any other part. *Du Laurent* ſays, that the word *Lobe* in this laſt ſenſe comes from the *Greek* λώβειν, *to be aſhamed*: this part of the Ear being ſaid to bluſh, when the Perſon is aſhamed.

Lobe is uſed, likewiſe, in ſpeaking of Fruits and Grains. Thus the Bean conſiſts of two equal parts, call'd *Lobes*, which compoſe the Body thereof, and are encompaſs'd with the outer Skin. And all other Grains, even the ſmalleſt, are divided, like the Bean into two *Lobes*, or equal Parts; as Dr. *Grew* has ſhewn in his *Anatomy of Plants*.

LOBULE, in Anatomy, a little Lobe. Each Lobe of the Lungs is divided into ſeveral other Lobes or *Lobules*, which are faſten'd on each ſide to the largeſt Branches of the Trachea. Each *Lobule* conſiſts of a great number of little round Veſicles, which have, all, a Communication with one another. 'Tis into theſe Veſicles that the Air enters by the Trachea in Inſpiration; ſtill quitting them again in Expiration. The word *Lobule* is derived from *Lobe*, whereof it is a Diminutive.

LOCAL, ſomething ſuppoſed to be tied or annexed to any particular place. Thus, in Law, a thing is ſaid to be *Local*, *i. e.* annexed to the Freehold. An Action of Treſpaſs for Battery, &c. is Tranſitory, not *Local*; that is, it is not neceſſary, that the Place where Battery was committed, ſhould be ſet down as material in the Declaration; or if it be ſet down, the Defendant cannot traverſe it, by ſaying, he did not commit the Battery in the Place mention'd in the Declaration, and ſo avoid the Action.

Local Cuſtoms are thoſe peculiar to ſome Lordſhip, or other Diſtrict, and not agreeable to the General Cuſtoms of the Country.

Local Problem, in Mathematicks, is ſuch an one, as is capable of an infinite number of different Solutions: as where the Point, that is to ſolve the Problem, may be indifferently taken within a certain Extent; *v. g.* any where, in ſuch a Line, within ſuch a Plane Figure, &c. which is called a Geometrical *Locus*, and the Problem is ſaid to be a *Local* or indeterminate one. This *Local Problem* may be either Simple, as when the Point ſought is in a right Line; Plane, when the Point ſought is in the Circumference of a Circle; Solid, when the Point required is in the Circumference of a Conick Section; or Surſolid, when the Point is in the Perimeter of a Line of the ſecond Gender, as the Geometers call it. See *Locus*.

Local, or *Artificial Memory*; ſee *Memory*.

Local Colours, in Painting, are ſuch as are natural and proper for each particular Object in a Picture: and are ſo called, to diſtinguiſh them from the Clair, obſcure, which conſiſts wholly of Black and White.

Local Motion, ſee *Motion*.

LOCATION, in the Civil Law, an Action by which any thing is lett out, on Rent. The ſecond Title of the 19th Book of the *Digeſt*, is on the Subject of *Location* and Conduction *Location* and Conduction are relative Terms, and are uſed as well for the Action of him that letts, as for that of him who takes on that letting. *Tacit Location* is when the Perſon who takes, continues on the Premiſes beyond the Term of his Leaſe; which by the Civil Law he is allow'd to do, at leaſt for the ſpace of a Year; on the ſame Terms.

LOCH, or *Lohoch*, in Pharmacy, is a Compoſition, of a Conſiſtence between that of a Syrup and that of a ſoft Electuary, deſtined for Diſeaſes of the Lungs. The Word is originally *Arabic*; but continues ſtill in uſe among the Apothecaries. The *Latins* call it *Linctus*, and the *Greeks* ἐκλειγμα, by reaſon the manner of taking it is by licking. There are various kinds of *Loches*. See *Eclegma*.

LOCHIA, or *Loches*, the Evacuations conſequent on the Delivery of a Woman in Child-bed. As ſoon as the *Uterus* is eaſed of its Load, its Fibres, as alſo thoſe of the Peritonæum, Muſcles of the Abdomen, *&c.* which had been extremely diſtended during the laſt Period of Geſtation, begin to contract themſelves and their Veſſels; particularly the *Uterus*, which by this means expels the Blood amaſs'd in it. At firſt, pure Blood is evacuated, and in conſiderable quantities; afterwards it is diluted, and comes out more ſparingly; at length it becomes viſcid, pale, *&c.* Theſe are called the *Loches*.

LOCK, a little Inſtrument uſed for the ſhutting of Doors, Cheſts, *&c.* The *Lock* is reckon'd the Maſterpiece in Smithery; a great deal of Art and Delicacy being required in contriving and varying the Wards, Springs, Bolts, *&c.* and adjuſting them to the Places where they are to be uſed, and the various Occaſions of uſing them.

From the various Structure of *Locks*, accommodated to their different Intentions, they acquire various Names. Thoſe placed on outer Doors are called *Stock-Locks*; thoſe on Chamber-Doors, *Spring-Locks*; thoſe on Trunks, *Trunk-Locks*, *Pad-Locks*, &c. Of theſe, the *Spring-Lock* is the moſt conſiderable, both for its Frequency and the Curioſity of its Structure. Its principal Parts are, the Main-Plate, the Cover-Plate, and the Pin-hole: To the Main-Plate belong the Key-hole, Top-hook, Croſs-wards, Bolt, Bolt-toe or Bolt-nab, Drawback Spring, Tumbler, Pin of the Tumbler, and the Staples; to the Cover-Plate belong the Pin, Main-ward, Croſs-ward, Step-ward or Dap-ward; to the Pin-hole belong the Hook-ward, Main Croſs-ward, Shank, the Pot, or Bread, Bow-ward, and Bit. See *Smithery*.

LOCULAMENTA, ſtrictly ſignifies little Pockets; and thence the Term is made uſe of in Botany, to expreſs thoſe little diſtinct Cells, or Partitions, within the common *Capſula Seminalis* of any Plant: as thoſe within the Seeds of Poppies, *&c.*

LOCUS, or the Place of any Body, is rightly diſtinguiſhed into Abſolute and Relative; and ſo ought Space to be accounted. The *Locus Abſolutus*, or *Primarius*, of any Body, is that part of the abſolute and immovable Space, or extended Capacity to receive all Bodies, which this individual one takes up. *Locus Relativus*, or *Secundarius*, is that apparent and ſenſible Place, in which a Body is determined to be placed by ourſelves, and with relation to other adjoining or contiguous Bodies. The *Locus Apparens* is a Term in Optics: ſee *Apparent Place of any Object*. It is alſo, in Aſtronomy that Place, in which any Planet or Star appears, when view'd from an Eye at the ſenſible Horizon.

LOCUS GEOMETRICUS, a Line by which an Indeterminate Problem is ſolved. This, if a right Line ſuffice for the Conſtruction of the Equation, is called *Locus ad Rectum*; if a Circle, *Locus ad Circulum*; if a Parabola, *Locus ad Parabolam*; if an Ellipſis, *Locus ad Ellipſin*; and ſo of the reſt of the Conic Sections.

The *Loci* of ſuch Equations as are Right Lines or Circles, the Antients call'd *Plain Loci*; and of thoſe that are Parabolas, Hyperbolas, *&c. Solid Loci*. *Wolfius*, and others of the Moderns, divide the *Loci* more commodiouſly into Orders; according to the Number of Dimenſions to which the Indeterminate Quantities riſe. Thus it will be a *Locus* of the firſt Order if the Equation $x = ay : c$. A *Locus* of the ſecond or quadrate Order, if $y^2 = ax$, or $y = a^2 - x$, &c. A *Locus* of the third or cubic Order, if $y^3 = a^2x$, or $y^3 = ax^2 - x^3$, *&c.*

The better to conceive the Nature of the *Locus*, ſuppoſe two unknown and variable right Lines A P, P M, (*Fig.* 3, 4. *Plate Analyſis*) making any given Angle APM with each other; the one whereof, as AP, we call x, having a fixed Origin in the Point A, and extending itſelf indefinitely along a right Line given in Poſition; the other P M, which we call y, continually changing its Poſition, but always parallel to itſelf. An Equation only containing theſe two unknown Quantities x and y, mix'd with known ones, which expreſſes the Relation of every variable Quantity A P (x) to its correſpondent variable Quantity P M (y): the Line paſſing thro' the Extremities of all the Values of y, i. e. thro' all the Points M, is called a *Geometrical Locus*, in general, and the *Locus* of that Equation in particular.

All Equations whoſe *Loci* are of the firſt Order, may be reduced to ſome one of the four following Formula's: 1. $y = \frac{bx}{a}$. 2. $y = \frac{bx}{a} + c$. 3. $y = \frac{bx}{a} - c$. 4. $y = c - \frac{bx}{a}$. Where the unknown Quantity y is ſuppoſed always to be freed from Fractions, and the Fraction that multiplies the other unknown Quantity x, to be reduced to this Expreſſion $\frac{b}{a}$, and all the known Terms to this c.

The *Locus* of the firſt Formula being already determined: To find that of the ſecond, $y = \frac{bx}{a} + c$; in the Line A P, (*Fig.* 5.) take $AB = a$, and draw $BE = b$, $AD = c$, parallel to P M. On the ſame ſide A P draw the Line A E of an indefinite length towards E, and the indefinite ſtrait Line D M parallel to A E. I ſay, the Line D M is the *Locus* of the aforeſaid Equation or Formula; for if the Line M P be drawn from any Point M thereof parallel to A Q, the Triangles A B E, A P F, will be ſimilar: and therefore $AB(a) : BE(b) :: AP(z) : PF = \frac{bx}{a}$; and conſequently $PM(y) = PF\left(\frac{bx}{a}\right) + FM(c)$.

To find the *Locus* of the third Form $y = \frac{bx}{a} - c$ proceed thus. Aſſume $AB = a$, (*Fig.* 6.) and draw the right Lines $BE = b$, $AD = c$, parallel to PM, the one one ſide A P, and the other on the other ſide; and th on the Points A, E, draw the right Line A E of an indefioro' length towards E, and thro' the Point D the Line Dite parallel to A E: I ſay, the indefinite right Line G M ſhall be the *Locus* ſought; for we ſhall have always $PM(y) = PF\left(\frac{bx}{a}\right) - FM(c)$.

Laſtly, To find the *Locus* of the fourth Formula $y = c - \frac{bx}{a}$; in A P (*Fig.* 7.) take $AB = a$, and draw $BE = b$, $AD = c$, parallel to P M, the one on one ſide A P, and the other on the other; and thro' the Points A, E, draw the Line A E indefinitely towards E, and thro' the Point D draw the Line D M parallel to A E. I ſay, D G ſhall be the *Locus* ſought; for if the Line M P be drawn from any Point M thereof parallel to A Q, then we ſhall have always $PM(y) = FM(c) - PF\left(\frac{bx}{a}.\right)$

Hence it appears, that all the *Loci* of the firſt Degree are ſtrait Lines, which may be eaſily found, becauſe all their Equations may be reduced to ſome one of the foregoing Formula's.

All Loci *of the ſecond Degree* are Conic Sections, *viz.* either the Parabola, the Circle, Ellipſis, or Hyperbola; if an Equation therefore be given, whoſe *Locus* is of the ſecond Degree, and it be required to draw the Conic Section, which is the *Locus* thereof; firſt draw a Parabola, Ellipſis, and Hyperbola; ſo, as that the Equations expreſſing the Natures thereof, may be as compound as poſſible: In order to get general Equations or Formula's, by examining the peculiar Properties whereof, we may know which of theſe Formula's the given Equation ought to have regard to; that is, which of the Conic Sections will be the *Locus* of the propoſed Equation. This known, compare all the Terms of the propoſed Equation with the Terms of the general Formula of that Conic Section which you have found will be the *Locus* of the given Equation; by which means you will find how to draw the Section which is the *Locus* of the Equation given.

For example, let A P (x), P M (y), be unknown and variable ſtrait Lines, (*Fig.* 8.) and let m, n, p, r, s, be given right Lines: In the Line A P take $AB = m$, and draw $BE = n$, $AD = r$, parallel to PM, and thro' the Point A draw $AE = e$, and thro' the Point D the indefinite right Line D G parallel to A E. In D G take $DC = s$, and with C G as a Diameter, having its Ordinates parallel to P M, and the Line $CH = p$, as the Parameter, deſcribe a Parabola C M: then the Portion thereof included in the Angle P A D will be the *Locus* of the following general Formula.

$$yy - \frac{2n}{m}xy + \frac{nn}{mm}xx - 2ry + \frac{2nr}{m}x + rr = 0.$$
$$-\frac{ep}{m}x + ps.$$

For if from any Point M of that Portion there be drawn the right Line M P, making any Angle A P M with M P; the Triangles A B E, A P F, ſhall be ſimilar, therefore $AB(m) : AE(e) :: AP(x) : AF$ or $DG = \frac{ex}{m}$. And

AB(m) : BE (n) : : AP(x) : PF $= \frac{nx}{m}$. And conſequently GM or PM — PF — FG $= y - \frac{nx}{m} - r$, and CG or DG — DC $= \frac{ex}{m} - s$. But from the Nature of the Parabola $\overline{GM}^2 = CG \times CH$, which Equation will become that of the general Formula, by putting the Literal Values of thoſe Lines.

Again; if thro' the fixed Point A you draw the indefinite right Line AQ (*Fig.* 9.) parallel to PM, and you take AB $= m$, and draw BE $= n$ parallel to AP, and thro' the determinate Points A, E, the Line AE $= e$; and if in AP you take AD $= r$, and draw the indefinite ſtrait Line DG parallel to AE, and take DC $= s$: this being done, if with the Diameter CG, whoſe Ordinates are parallel to AP, and Parameter the Line CH $= p$, you deſcribe a Parabola CM; the Portion of this Parabola contain'd in the Angle BAP, ſhall be the *Locus* of this ſecond Equation or Formula,

$$xx - \frac{2n}{m}yx + \frac{nn}{mm}yy - 2rx + \frac{2nr}{m}y + rr = 0.$$
$$- \frac{ep}{m}y + ps.$$

For if the Line MQ be drawn from any Point M, therein, parallel to AP; then will AB(m) : AE(e) : : AQ or PM(y) : AF or DG $= \frac{ey}{m}$. And AB(m) : BE (n) : : AQ(y) : QF $= \frac{ny}{m}$. And therefore GM or QM — QF — FG $= x - \frac{ny}{m} - r$; and CG or DG — DC $= \frac{ey}{m} - s$. And ſo by the common Property of the Parabola, you will have the aforegoing ſecond Equation or Formula.

So likewiſe may be found general Equations or Formula's to the other Conic Sections.

Now if it be required to draw the Parabola, which we find to be the *Locus* of this propoſed Equation $yy - 2ay - bx + cc = 0$; compare every Term of the firſt Formula with the Terms of the Equation, becauſe yy in both is without Fractions; and then will $\frac{2n}{m} = 0$, becauſe the Rectangle xy not being in the propoſed Equation, the ſaid Rectangle may be eſteem'd as multiplied by 0; whence $n = 0$, and $m = e$; becauſe the Line AE falling in AB, that is, in AP in the Conſtruction of the Formula, the Points B, E, do coincide. Therefore deſtroying all the Terms adfected with $\frac{n}{m}$ in the Formula, and ſubſtituting m for e, we ſhall get $yy - 2ry - px + rr + ps = 0$. Again, by comparing the correſpondent Terms $-2ry$ and $-2ay$, as alſo $-px$ and $-bx$, we have $r = a$, and $p = b$; and comparing the Terms wherein are neither of the unknown Quantities x, y, we get $rr + ps = cc$, and ſubſtituting a and b for r and p, then will $s = \frac{cc - aa}{b}$, which is a negative Expreſſion when a is greater than c, as is here ſuppoſed. There is no need of comparing the firſt Terms yy and yy, becauſe they are the very ſame. Now the Values of n, r, p, s, being thus found, the ſought *Locus* may be conſtructed by means of the Conſtruction of the Formula, after the following manner.

Becauſe BE$(n) = 0$, (*Fig.* 10.) the Points B, E, do coincide, and the Line AE falls in AP; therefore thro' the fixed Point A draw the Line AD$(r) = a$ parallel to PM, and draw DG parallel to AP, in which take DC $= \frac{aa - cc}{b} - s$; then with CG, as a Diameter, whoſe Ordinates are right Lines parallel to PM, and Parameter the Line CH$(p) = b$, deſcribe a Parabola: I ſay the two Portions OMM, RMS, thereof, contain'd in the Angle PAO, form'd by the Line AP, and the Line AO drawn parallel to PM, will be the *Locus* of the given Equation, as is eaſily proved. If in a given Equation, whoſe *Locus* is a Parabola, xx is without a Fraction, then the Terms of the ſecond Formula muſt be compared with thoſe of the given Equation.

Thus much for the Method of Conſtructing the *Loci* of Equations, which are Conic Sections. If, now, an Equation whoſe *Locus* is a Conic Section be given; and the particular Section whereof it is the *Locus*, be required:

All the Terms of the given Equation being brought over to one ſide, ſo that the other be equal to 0, there will be two Caſes.

Caſe 1. When the Rectangle xy is not in the given Equation. 1. If either yy or xx be in the ſame Equation, the *Locus* will be a Parabola. 2. If both xx and yy are in the Equation with the ſame Signs, the *Locus* will be an Ellipſis or a Circle. 3. If xx and yy have different Signs, the *Locus* will be an Hyperbola: or the oppoſite Sections; regarding their Diameters.

Caſe 2. When the Rectangle xy is in the given Equation. 1. If neither of the Squares xx or yy, or only one of them, be in the ſame, the *Locus* of it will be an Hyperbola between the Aſymtotes. 2. If yy and xx be therein, having different Signs, the *Locus* will be an Hyperbola, regarding its Diameters. 3. If both the Squares xx and yy are in the Equation, having the ſame Signs, you muſt free the Square yy from Fractions, and then the *Locus* will be a Parabola, when the Square of $\frac{1}{2}$ the Fraction multiplying xy, is equal to the Fraction multiplying xx; an Ellipſis or Circle, when the ſame is leſs; and an Hyperbola, or the oppoſite Sections, regarding their Diameters, when greater.

LOCUSTÆ, the Beards and pendulous Seeds of Oats, and of the *Gramina Paniculata*; to which the Botaniſts gave this Name, from their Figure, which ſomething reſembles that of a Locuſt.

LODESMAN, or *Locman*, a Pilot eſtabliſh'd for conducting Veſſels in and out of Harbours, up and down navigable Rivers. See *Pilot*.

LODGMENT, in Military Affairs, is ſometimes an Incampment made by an Army; but oftener, a Retrenchment dug for a Cover or Shelter, when the Counterſcarp, or ſome other Poſt is gain'd. It is alſo taken for the Place where the Soldiers quarter among the Burghers, in Huts, Barracks, or Tents. *Lodgment* of an Attack, is a Work caſt up by the Beſiegers, during their Approaches in a dangerous Poſt, where it is abſolutely neceſſary to ſecure themſelves againſt the Enemies Fire; as in a Covert-Way, in a Breach, in the Bottom of the Moat, &c. This *Lodgment* conſiſts of all the Materials that are capable to make reſiſtance, *viz.* Barrels, and Gabions of Earth, Palliſadoes, Wool-packs, Mantelets, Faggots, &c.

LOG, a Sea-Term ſignifying a piece of Board or Timber 7 or 8 Inches long, and of a triangular figure, on board a Ship; into one end whereof, a convenient quantity of Lead is caſt, to make it ſwim upright in the Water.

Log-Line is a little Cord or Line faſten'd to one end of the *Log*, and wound round a Reel fix'd for that purpoſe in the Gallery of the Ship. This Line, from the diſtance of about ten Fathom off the *Log*, has certain Knots or Diviſions, which ought to be at leaſt 50 foot from each other: tho 'tis the common practice at Sea, not to have them above 42 feet aſunder. The Uſe of the *Log* and *Line* is to keep account, and make an eſtimate of the Ship's Way: which is done by obſerving the Length of Line unwound in half a Minute's time, told by a Half-Minute Glaſs; for, ſo many Knots as run out in that time, ſo many Miles the Ship ſails in an Hour. Thus if there be four Knots veer'd out in half a Minute, the Ship is computed to run four Miles an hour. To heave the *Log*, as they call it, they let it down into the Water, letting it run till it comes without the Eddy of the Ship's Wake; when one holding the Half-Minute Glaſs, turns it up juſt as the firſt Knot turns off the Reel (tho ſome turn the Glaſs as ſoon as the *Log* touches the Water) as ſoon as the Glaſs is out, the Reel is ſtopt, and the Knots run off are told, and their Parts eſtimated.

The *Log* is a very precarious Way of computing, and muſt always be corrected by Experience and Good Senſe, there being a great deal of Incertainty both in the Heaving of it, in the Courſe of the Currents, and in the Strength of the Wind, which ſeldom keeps the ſame Tenor for two Hours together, which is the Interval between the Times of uſing the *Log* in ſhort Voyages, tho in longer ones they heave it every hour. Yet is this a much more exact Way of Computing than any other in uſe; much preferable certainly to that of the *Spaniards* and *Portugueſe*, who gueſs at the Ship's Way by the running of the Froth or Water by the Ship's ſide; or to that of the *Dutch*, who uſe to heave a Chip over-board, and to number the Paces they walk on the Deck while the Chip ſwims between any two Marks or Bolt-heads on the ſide.

Log-Board is a Table divided into four or five Columns, whereon are mark'd the Reckonings of every Day, from whence they are enter'd into the *Log-Book*, or Traverſe-Book, ruled and column'd juſt as the *Log-Board* is: Whence it may be tranſcribed into the Journals, and how much the Ship gains in her Courſe eſtimated daily. In the firſt Column of the *Log-Board* are ſhewn the Hours of the Day from 1 to 1. In the ſecond is ſhewn the Rhumb, or the Direction of the Veſſel with regard to the Points of the Compaſs. In the third, the Number of Knots run off the Reel each time of heaving the *Log*. In the fourth, the Wind that blows: and in the fifth, Obſervations made of the Variation of the Compaſs, *&c.*

LOGARITHMIC, or LOGISTIC CURVE, a Curve generated by the equable Motion of the Radius of a Circle, thro' equal Arcs of the Circumference; while at the ſame time a Point in that Radius is ſuppoſed to move from the Arc towards the Centre, with a Retardation of Motion in a Geometrick Proportion. As ſuppoſe there be a Quadrant of a Circle, B C A, (*Plate Analyſis, Fig.* 11.) and any equal Diviſions in the Arc, as A F = F *f* = *f f*, *&c.* with five correſponding Radii, as ſuppoſe C A, C F, C *f*, &c. whoſe Parts or Portions C 1, C *a*, C *a*, &c. are geometrically Proportional; then if a Line, as 1, *a*, *a*, *b*, *d*, C, be drawn thro' thoſe Points, it will be the *Logarithmic* or *Logiſtic Spiral.*

LOGARITHMS (from λόγος *ratio*, and ἀριθμος *numerus*) are uſually defined *Numerorum Proportionalium equidifferentes Comites*; but this Definition Dr. *Halley* and *Stifelius* think deficient, and more accurately define them, *The Indices or Exponents of the Ratio's of Numbers*; Ratio being conſider'd as a Quantity *ſui generis*, beginning from the Ratio of Equality, or 1 to 1 = 0; and being affirmative when the Ratio is increaſing, and negative when it is decreaſing. The Nature and Genius of *Logarithms* will be eaſily conceiv'd from what follows.

A Series of Quantities increaſing or decreaſing according to the ſame Ratio, is call'd a Geometrical Progreſſion; *e.g.* 1. 2. 4. 8. 16. 32. &c. A Series of Quantities increaſing or decreaſing according to the ſame Difference, is called an Arithmetical Progreſſion; *e.g.* 3. 6. 9. 12. 15. 18. 24. Now if underneath the Numbers proceeding in a Geometrical Ratio, be added as many of thoſe proceeding in the Arithmetical one; theſe laſt are call'd the *Logarithms* of the firſt.

Suppoſe *v. g.* two Progreſſions:

Geomet.	1.	2.	4.	8.	16.	32.	64.	128.	256.	512
Arithmet.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9
										Logarithms.

0 will be the *Logarithm* of the firſt Term, *viz.* 1; 5 of the 6th, 32; 7 the *Logarithm* of the 8th, 128, &c.

Theor. I. *If the Logarithm of Unity be* 0, *the Logarithm of the Factum or Product will be equal to the Sum of the Logarithms of the Factors.*

Dem. For as Unity is to one of the Factors, ſo is the other Factor to the Product. So that the *Logarithm* of the Product is a fourth equidifferent Term to the *Logarithm* of Unity and thoſe of the Factors: but the *Logarithm* of Unity being 0, the Sum of the *Logarithms* of the Factors muſt be the *Logarithm* of the Factum or Product. *q. e. d.*

Corol. 1. Since the Factors of a Square are equal to each other, *i. e.* a Square is the Factum or Product of its Root multiplied into itſelf; the *Logarithm* of the Square will be double the *Logarithm* of the Root.

Corol. 2. In the ſame manner it appears that the *Logarithm* of the Cube is triple, of the Biquadrate, quadruple; of the fifth Power, quintuple; of the ſixth, ſextuple, *&c.* of the *Logarithm* of the Root.

Corol. 3. Unity, therefore, is to the Exponent of the Power, as the *Logarithm* of the Root to the *Logarithm* of the Power.

Corol. 4. So that the *Logarithm* of the Power is had, if the *Logarithm* of the Root be multiplied by its Exponent; and the *Logarithm* of the Root is had, if the *Logarithm* of the Power be divided by its Exponent.

Schol. *Hence we derive one of the great Uſes of* Logarithms, *which is to expedite and facilitate the Buſineſs of Multiplication and Extraction of Roots; the former of which is here perform'd by mere Addition, and the latter by Multiplication.* Thus 3, the Sum of the *Logarithms* 1 and 2, is the *Logarithm* of 8, the Product of 2 and 4. In like manner 7, the Sum of the *Logarithms* 2 and 5, is the *Logarithm* of 128, the Product of 4 and 32. Again, 3, the *Logarithm* of the Square Root 8, is half the *Logarithm* of 6, the Square Root of 64; and 2, the *Logarithm* of the Cube Root 4, is ſubtriple the *Logarithm* 6 of the Cube 64.

Theor. II. *If the Logarithm of Unity be* 0, *the Logarithm of the Quotient will be equal to the Difference of the Logarithms of the Diviſor and Dividend.*

Dem. For as the Diviſor is to the Dividend, ſo is Unity to the Quotient; therefore the *Logarithm* of the Quotient is a fourth equidifferent Number to the *Logarithms* of the Diviſor, the Dividend, and the *Logarithm* of Unity. The *Logarithm* of Unity therefore being 0, the Difference of the *Logarithm* of the Diviſor and that of the Dividend, is the *Logarithm* of the Quotient. *q. e. d.*

Schol. *Hence appears another great Advantage of* Logarithms, *viz. their expediting the buſineſs of Diviſion, and performing it by a bare Subſtraction. E.g.* 2 the Difference between 7 and 5, is the *Logarithm* of the Quotient 4 out of 128 by 32. In like manner, 5 the Difference between 8 and 3, is the *Logarithm* of the Quotient 32, out of 256 by 8.

An Example or two will render the Uſe of *Logarithms* in Multiplication, Diviſion, *&c.* obvious.

	Num.	*Log.*		*Num.*	*Log.*	
Multiply	68	1.83250	Divide	816	2.91168	9
by	12 +	1.07918	by	12	1.07918	9
	816	2.91168		68	1.83250	*Sq.*81
9	0.95424			9	0.95424	
9	0.95424			9	0.95424	
				9	0.95424	
*Sq.*81	2)1.90848(0.95424 *Sq.R.*			*Cube* 729	3)2.86272(0.95424 *Cube R.*	

The Properties of the *Logarithms* hitherto mention'd, and their various Uſes, are taken notice of by *Stifelius*: but come all far ſhort of the Uſe of *Logarithms* in Trigonometry, firſt diſcover'd by the Lord *Neper.*

To find the Logarithm of any Number, and to conſtruct a Canon of Logarithms for Natural Numbers.

1. Becauſe 1. 10. 100. 1000. 10000. *&c.* conſtitute a Geometrical Progreſſion, their *Logarithms* may be taken at pleaſure: To be able, then, to expreſs the *Logarithms* of the intermediate Numbers by Decimal Fractions, take 0.00000000, 1.00000000, 2.00000000, 3.00000000, 4.00000000, *&c.*

2. 'Tis manifeſt that for thoſe Numbers which are not contained in the Scale of Geometrical Progreſſion, the juſt *Logarithms* cannot be had: yet may they be had ſo near the Truth, that as to Matters of Uſe they ſhall be altogether as good as if ſtrictly juſt. To make this appear, Suppoſe the *Logarithm* of the Number 9 were required: between 1.0000000 and 10.0000000 find a Mean Proportional, and between their *Logarithms* 0.00000000 and 1.00000000 an Equidifferent Mean, which will be the *Logarithm* thereof, that is, of a Number exceeding Three by $\frac{1622777}{10000000}$, and therefore far remote from Nine. Between 3 and 10 therefore find another Mean Proportional, which may come ſomewhat nearer Nine; and between 10 and this Mean, another ſtill; and ſo on between the Numbers next above and next underneath Nine, till at laſt you arrive at 9.00000000, that is, $9\frac{0000000}{1000000000}$, which not being one Millionth Part from Nine, its *Logarithm* may, without any ſenſible Error, be taken for that of Nine itſelf. Seeking then in each Caſe for the *Logarithms* of the Mean Proportionals, and you will at laſt have 0.954251, which is exceedingly near the true *Logarithm* of Nine.

3. If in like manner you find Mean Proportionals between 1.0000000 and 3.1622777, and aſſign convenient *Logarithms* to each, you will at length have the *Logarithm* of the Number 2, and ſo of the reſt.

	Mean Proportional Numbers.	Logarithms.		Mean Proportional Numbers.	Logarithms.
A	1.0000000	0.0000000	O	9.0021388	0.95434570
C	3.1622777	0.5000000	Q	9.0008737	0.95428467
B	10.0000000	1.0000000	P	8.9996088	0.95422363
B	10.0000000	1.0000000	Q	9.0008737	0.95434570
D	5.6234132	0.7500000	R	9.0002412	0.95428467
C	3.1622777	0.50000000	P	8.9996088	0.95422363
B	10.0000000	1.0000000	R	9.0002412	0.95428467
E	7.4989421	0.87500000	S	8.9999250	0.95425415
D	5.6234132	0.75000000	P	8-9996088	0.95422363
B	10.0000000	1.0000000	R	9.0002412	0.95425415
F	8.6596432	0.93750000	T	9.0000831	0.95421889
E	7.4989421	0.8750000	S	8.9999250	0.95423889
B	10.0000000	1.00000000	T	9.00002412	0.95424652
G	9.3057204	0.96875000	V	9.0000831	0.95424271
F	8.6596432	0.93750000	S	8.9999250	0.95423889
G	9.3057204	0.96875000	V	9.0000041	0.95424271
H	8.9768713	0.95312500	X	8.9999650	0.95424080
F	8.6596432	0.93750000	S	8.9999250	0.95423889
G	9.3057204	0.96875000	V	9.0000041	0.95424271
I	9.1398170	0.96093750	Y	8.999845	0.95424217
H	8.9768713	0.95312500	X	8.9999650	0.95424080
I	9.1398170	0.96093750	V	9.0000041	0.95424271
K	9.0579777	0.95703125	Z	8.9999943	0.95424223
H	8.9768713	0.95312500	Y	8.9999845	0.95424217
K	9.0579777	0.95703125	V	9.0000041	0.954271
L	9.0173333	0.95507812	a	8.9999992	0.95424247
H	8.9768713	0.95312500	Z	8.9999943	0.95424223
L	9.0173333	0.95507812	V	9.0000041	0.95424271
M	8.9970796	0.95410156	b	9.0000016	0.95424259
H	8.9768713	0.95312500	a	8.9999992	0.95424247
L	9.0173333	0.95507812	b	9.0000016	0.95424259
N	9.0072008	0.95458914	c	9.0000004	0.95424253
M	8.9970795	0.95410156	a	8.9999992	0.95424247
N	9.0072008	0.95453984	c	9.0000004	0.95424295
O	9.0021388	0.95434570	d	8.9999998	0.95424250
M	8.9970796	0.95410156	a	8.9999992	0.95424247
O	9.0021388	0.95434570	c	9.0000004	0.95424253
P	8.9996088	0.95422363	e	9.0000000	0.95424251
M	8.9970796	0.95410156	d	8.9999998	0.95424250

4. There needs not, however, be ſo much Pains taken in inveſtigating the *Logarithms* of all Numbers; ſince thoſe that conſiſt of aliquot Parts being divided, and others mutually multiplying each other, their *Logarithms* are eaſily found. Thus if the *Logarithm* of the Number 9 be biſſected, we ſhall have the *Logarithm* 0.47712125 of the Number 3.

Schol. The Indices or Characteriſtics of *Logarithms* correſpond to the denominative Part of the natural Numbers, as the other Member of the *Logarithm* does to the denominative Part of the Number: *i. e.* the Index ſhews the Denomination or Place of the laſt (or left Hand) Figure of the Number, and conſequently of all the reſt. Thus 0, affixed to a *Logarithm*, denotes the laſt Figure of the Number to which the *Logarithm* anſwers to be nothing diſtant (*i. e.* is in) the Place of Units. The Index 1 ſhews the laſt Figure of its Number to be diſtant 1 Place from the Place of Units, *i. e.* to be in the Place of Tens, and conſequently the Number itſelf to be either 10, or ſome Number between that and 100, and ſo of the other Indices. Hence all Numbers, which have the ſame denominative, but not the ſame numerative Parts, as all Numbers from 1 to 10, from 10 to 100, &c. will have *Logarithms* whoſe Indices are the ſame, but the other Members different. Again, all Numbers which have the ſame numerative, but not denominative Part, will have different Indices; but the reſt of the *Logarithms* the ſame. If a Number be purely decimal, to its *Logarithm* is affixed a negative Index, ſhewing the Diſtance of its firſt ſignificative Figure from the Place of Units. Thus the *Logarithm* of the Decimal ,256 is $\bar{1}$.40824, of the Decimal ,0256 is $\bar{2}$.40824, &c.

Schol. The firſt Canon of *Logarithms* for natural Numbers, from 1 to 20000, and from 90000 to 100000, was conſtructed by *Hen. Briggs*, with the Approbation of the Inventor the Lord *Neper*, and the Manner of conſtructing them ſhewn. The Chaſm between 20000 and 90000 was filled up by *Adrian Ulack*. In the common Tables we have only a Canon from 1 to 10000. There are various other Methods of conſtructing *Logarithms* by Dr. *Halley*, Mr. *Cotes*, Dr. *Brook*, *Taylor*, &c. which the Reader, who has a Curioſity that way, will find in the *Philoſophical Tranſactions.*

To find the Logarithm *for a Number greater than any in the Common Canon, but leſs than* 10000000. Cut off four Figures on the left of the given Number, and ſeek the *Logarithm* in the Table; add as many Units to the Index as there are Figures remaining on the right; ſubſtract the *Logarithm* found from that next following it in the Table: then as the Difference of Numbers in the Canon is to the Tabular Diſtance of the *Logarithms* anſwering to them, ſo are the remaining Figures of the given Number to the Logarithmic Difference; which if it be added to the *Logarithm* before found, the Sum will be the *Logarithm* required; *v. g.* the *Logarithm* of the Number 92375 is required. Cut off the four Figures 9237, and to the Characteriſtic of the *Logarithm* correſponding to them, add an Unit; then

From the *Logarith.* of the Numb. 9238=3.9655780
Subſtract. *Logarith.* Numb.———9237=3.9655309

Remains Tabular Difference 471
10—471—5

2) 235 1
Now to the *Logarithm*——————4.9655309
Add the Difference found——————235
The Sum is the *Logarithm* required—4.9655544

To find the Logarithm *of a Fraction*: Subſtract the *Logarithm* of the Numerator from that of the Denominator, and to the Remainder prefix the Sign of Subſtraction— Thus ſuppoſe it is required to find the *Logarithm* of the Fraction $\frac{3}{7}$,

Logarithm of 7=0.8450980
Logarithm of 3=0.4771213

Logarithm of $\frac{3}{7}$=0.3679767

The Reaſon of the Rule is, That a Fraction being the Quotient of the Denominator, divided by the Numerator;

tor, its *Logarithm* muſt be the Difference of the *Logarithms* of thoſe two; ſo that the Numerator being ſubitracted from the Denominator, the Difference becomes negative. *Stifelius* obſerved, that the *Logarithms* of a proper Fraction muſt always be negative, if that of Unity be 0; which is evident, a Fraction being leſs than one.

For an improper Fraction, *v.g.* $\frac{9}{5}$, its Numerator being greater than its Denominator, its *Logarithm* is had, by ſubſtracting the *Logarithm* of the latter from that of the former.

$$\begin{array}{r} \text{The } Logarithm \text{ of } 9 = 0.9542425 \\ Logarithm \text{ of } 5 = 0.6989700 \\ \hline Logarithm\ \tfrac{9}{5} = 0.2553725 \end{array}$$

In the ſame manner may a *Logarithm* of a mixed Number, as $3\frac{2}{7}$ be found, it being firſt reduced into an improper Fraction o $\frac{23}{7}$.

To find the Number correſponding to a Logarithm, *greater than any in the Table*: Firſt from the given *Logarithm*, ſubſtract the *Logarithm* of 10, or 100, or 1000, or 10000, till you have a *Logarithm* that will come within the Compaſs of the Table; find the Number correſponding to this, and multiply it by 10, or 100, or 1000, or 10000, the Product is the Number required.

Suppoſe, for Inſtance, the Number correſponding to the *Logarithm* 7.7589982 be required; ſubſtract the *Logarithm* of the Number 10000, which is 4.0000000 from 7.7589982, the Remainder is 3.7589982, the Number correſponding to which is $5741\frac{11}{100}$, this multiplied by 10000, the Product is 57411100, the Number required.

To find the Number correſponding to a negative Logarithm. To the given negative *Logarithm*, add the laſt *Logarithm* of the Table, or that of the Number 10000; *i.e.* ſubſtract the firſt from the ſecond, and find the Number correſponding to the Remainder; this will be the Numerator of the Fraction, whoſe Denominator will be 10000; *v. g.* ſuppoſe it be required to find the Fraction correſponding to the negative *Logarithm* 0.3579767, ſubſtract this from 4.1000000

The Remainder is—3.6320233, the Number correſponding to which is $4285\frac{71}{100}$, the Fraction ſought therefore is $\frac{428571}{10000000}$. The Reaſon of the Rule is, that as a Fraction is the Quotient ariſing on the Diviſion of the Numerator by the Denominator, Unity will be to the Fraction as the Denominator to the Numerator; but as Unity is to the Fraction correſponding to the given negative *Logarithm*, ſo is 10000 to the Number correſponding to the Remainder; therefore if 10000 be taken for the Denominator, the Number will be the Numerator of the Fraction required.

To find a fourth Proportional to three given Numbers. Add the *Logarithm* of the ſecond to that of the third, and from the Sum ſubſtract the *Logarithm* of the firſt, the Remainder is the *Logarithm* of the fourth required. *E. g.* let the given Number be 4. 68. and 3.

$$\begin{array}{r} Logarithm\ 68 = 1.8325089 \\ Logarithm\ 3 = 0.4771213 \\ \hline \text{Sum} = 2.3096302 \\ Logarithm\ 4 = 0.6020600 \\ \hline Logarithm \text{ required } 1.7075702 \end{array}$$

The Number in the Tables correſponding to which is 51. This Problem is of the utmoſt Uſe in Trigonometry. See *Trigonometry.*

LOGIC is the Art of Thinking juſtly; or of making a right Uſe of our rational Faculties in defining, dividing, and reaſoning. The word is derived from λόγος, *Sermo, Diſcourſe*; Thinking being no more than an inward, mental Diſcourſe, wherein the Mind converſes with itſelf. *Logic* is ſometimes alſo call'd *Dialectics*, from διαλεγεσθαι, *to reaſon*; and ſometimes the *Canonical Art*, as being a Canon or Rule for directing us in our Reaſonings. As, in order to think aright, 'tis neceſſary that we apprehend, judge, diſcourſe, and diſpoſe or methodize rightly: hence Apprehenſion, Judgment, Diſcourſe, and Method become the four fundamental Articles of this Art; and 'tis from our Reflections on thoſe Operations of the Mind, that *Logic* is, or ought to be wholly drawn. My Lord *Bacon* divides *Logic* into four Branches, according to the Ends propoſed in each: for a Man reaſons either to find what he ſeeks, or to judge of what he finds, or to retain what he judges, or to teach what he retains; whence ariſe ſo many Arts of Reaſoning, *viz.* the Art of Inquiſition or Invention, the Art of Examining or Judgment, the Art of Preſerving or of Memory, and the Art of Elocution or Delivering, which ſee. *Logic* having been extremely abuſed, is now in a general Diſrepute. The Schools have ſo clogged it with barbarous Terms and Phraſes, and have run it out ſo much into dry uſeleſs Subtilties, that it ſeems rather intended to exerciſe the Mind in Wrangling and Diſputation, than to aſſiſt it in thinking juſtly. 'Tis true, in its Original, it was rather intended as the Art of Cavilling than of Reaſoning; the *Greeks*, among whom it had its Riſe, being a People who piqued themſelves mightily upon their being able to talk *ex tempore*, and to argue by Turns on either Side the Queſtion. Hence their Dialectici, to be always furniſhed with Arms for ſuch Rencounters, invented a Set of Words and Terms, rather than Rules and Reaſons, fitted for the Uſes of Contention and Diſpute. *Logic*, then, was only an Art of Words, which frequently had no Meaning, but ſerved well to hide Ignorance, inſtead of improving Knowledge, to baffle Reaſon inſtead of aſſiſting it, and to confound the Truth inſtead of clearing it. All that Heap of Words, which we have borrowed from the old *Logic*, is of little Uſe in Life, and is ſo far out of the common Uſage; that the Mind does not attend to them without Trouble, and finding nothing in them to reward its Attention, ſoon diſcharges itſelf, and loſes all Ideas it had conceived of them: But *Logic* diſengaged from the Jargon of the Schools, and reduced into a clear and intelligible Method, is the Art of conducting the Reaſon in the Knowledge of Things, and the Diſcovery of Truth. From its proper Uſe we gain ſeveral very conſiderable Advantages; for, (1.) The Conſideration of Rules incites the Mind to a cloſer Attention and Application in Thinking, ſo that we hereby become aſſured that we make the beſt Uſe of our Faculties. (2.) We hereby more eaſily and accurately diſcover and point out the Errors and Defects in our Reaſonings; for the common Light of Nature, unaſſiſted by *Logic*, frequently obſerves an Argumentation faulty, without being able to determine wherein the preciſe Failure conſiſts. (3.) By theſe Reflections on the Order and Manner of the Operations of the Mind, we are brought to a more juſt and compleat Knowledge of the Nature of our own Underſtanding.

LOGISTA, the Title of a Magiſtrate at *Athens*, whoſe Buſineſs was to receive and paſs the Accounts of Officers upon their laying down their Poſts. The *Logiſtæ* were in Number ten.

LOGISTIC, or *Logarithmic Line*, a Curve ſo called, from its Properties and Uſes in conſtructing and explaining the Nature of Logarithms. If the right Line A X, (*Tab. Analyſis, Fig.* 12.) be divided into any Number of equal Parts, and to the Points of thoſe Diviſions A P p, &c. be drawn Lines continually proportional, the Points N M m, &c. form the *Logiſtic Curve.*

Cor. 1. The Abſciſſes A P, A p, &c. are the Logarithms of the Semiordinates P M, $p\,m$, &c.

Hence if $AP = x$, $Ap = v$, $PM = y$, $pm = z$, and their Logarithms y and $z = l\,y$ and $l\,z$, x will be $= l\,y$, and $v = l\,z$, conſequently $x : v = l\,y : l\,z$, that is the Denominators of the Ratio's A N, P M, and A N $p\,m$, are to one another as the Abſciſſes A P and A p.

Cor. 2. Hence it follows, that there may be infinite other Logiſtic Lines invented, provided $x\,m : v\,m :: l\,y : l\,z$, that any of the Roots or Powers may be the Logarithms of the Semiordinates.

Cor. 3. The Logiſtic will never concur with the Axis except at an infinite Diſtance, ſo that A X is its Aſymptote.

LOGISTIC, or *Logarithmic Spiral*, a Line, whoſe Conſtruction is as follows: Divide the Quadrant of a Circle into any Number of equal Parts in the Points P, p p, &c. (*Tab. Analyſis, Fig.* 11.) and from the Radii C P, C p, C p, &c. cutting off C M, C m, C m, &c. continually proportional, the Points M m, m, &c. form the *Logiſtic Spiral.*

Cor. The Arches therefore A P, A p, &c. are the Logarithms of the Ordinates C M, C m, &c. whence alſo it follows, that there may be infinite *Logiſtic* Spirals.

LOGISTICAL ARITHMETIC, was formerly the Arithmetic of Sexageſimal Fractions, uſed by Aſtronomers in their Calculations. It was ſo called from a *Greek* Treatiſe of one *Barlaamus Monætias*, who wrote about Sexageſimal Multiplication very accurately, and entituled his Book Λογιστική. This Author, *Voſſius* places about the Year 1350, but miſtakes the Work for a Treatiſe of Algebra. Thus alſo *Shakerly*, in *Tabulæ Britannicæ*, hath a Table of Logarithms adapted to Sexageſimal Fractions, which therefore he calls *Logiſtical Logarithms*; and the expeditious Arithmetic of them, which is by this means obtained, and by which all the Trouble of Multiplication and Diviſion is ſaved, he calls *Logiſtical Arithmetic*, though ſome by Logiſtics will underſtand the firſt general Rules in Algebra, of Addition, Subſtraction, *&c.*

LOGOGRIPHE, a kind of Symbol or Riddle, propoſed to Students for their Solution in order to exerciſe and improve the Mind. It uſually conſiſts in ſome equivocal Alluſion or Mutilation of Words, which, literally taken, ſignify ſomething different from the thing intended by it; ſo that it is a kind of Medium between a Rebus and proper Ænigma. According to *Kircher*, *Logogriphes* are a kind of ſpeaking Arms. Thus a Perſon called *Leonard*, who bore in his Arms a Lion, and Nard or Spikenard, according to that Father, made a *Logogriphe*; *Oedip. Egypt.* In another Place however he defines a *Logogriphe* to be an Ænigma, which under one Name or Word will bear various Meanings, by adding or retrenching ſome Part of it. Theſe kind of Ænigma's are well known to the *Arabs*, among whom are Authors who treat expreſly of them. The Word comes from the *Greek* λόγος, *Diſcourſe*, and γρῖφος, *Net.*

LOHOCH. See *Loch.*

LOINS, in Anatomy, are the lower Part of the Spine of the Back, compoſed of five Vertebræ, larger than thoſe of the Back, and ſerving them as a Baſe, having their Articulations pretty looſe, that the Motion of the *Loins* may be more free.

LOLLARDS, the Name of a Sect that roſe in *Germany* about the beginning of the 14th Century. It took its Name from its Author *Lollard Walter*, who began to dogmatize in 1315. Beſides exploding many of the *Romiſh* Doctrines, he is likewiſe ſaid to have ſet aſide Baptiſm as a thing of no effect, and Repentance as not abſolutely neceſſary, *&c.* *Lollard* was burnt alive at *Cologne* in 1322. In *England* the Followers of *Wickliff* were called, by way of Reproach, *Lollards*, from ſome Affinity there was between ſome of their Tenets; others, however, are of Opinion, that the *Engliſh Lollards* came from *Germany.* They were ſolemnly condemned by the Archbiſhop of *Canterbury* and the Council of *Oxford.* The Monk of *Canterbury* derives the Uſe of the Word *Lollard* among us from *Lolium*, *a Tare*, as if the *Lollards* were the Tares ſown in Chriſt's Vineyard. *Abelly* ſays, that the Word *Lollard* ſignifies *praiſing God*, from the *German loben*, *to praiſe*, and *Herr*, *Lord*, becauſe the *Lollards* imploy'd themſelves in travelling about from Place to Place, ſinging Pſalms and Hymns.

LONGUS, *Long*, an Epithet given by the Anatomiſts to a great Number of Muſcles. The ſecond Extenſor of the *Carpus* is called the *Longus*, in compariſon of the third Extenſor, which is called *brevis*, *ſhort.* The *Longus* has its Origin in the bottom of the *Humerus*, and lying along the *Radius*, paſſes underneath the *Ligamentum Annulare*, and is inſerted into the *Carpus.*

The ſecond Muſcle of the Flexors of the Neck is alſo called the *Longus*, and ſometimes the *Rectus.* It has its Origin in the lateral Part of the Body of the four upper *Vertebræ* of the Back, and is inſerted into the Body of the four *Vertebræ* of the Neck, and ſometimes into the *Occiput*; this, in conjunction with the *Scalenum*, bends the Neck.

The third of the ſix Muſcles of the Elbow or Arm, which is the firſt of its Extenſors, is alſo called the *Longus*, as being the longeſt of the Extenſors. It has its Origin on the upper Side of the *Omoplate*, near the Neck, and deſcending by the hind Part of the Arm, is inſerted into the *Olecranum* by a ſtrong *Aponeuroſis*, which is common to it and the ſecond and third Extenſor of the Arm.

The ſecond Muſcle of the Thumb, which is the firſt of its Extenſors, is alſo called *Longus*, as being longer than another Extenſor of the ſame Thumb, called *Brevis.* The *Longus* proceeds from the upper and external Part of the Bone of the Elbow, and riſing over the *Radius*, is inſerted by a forked Tendon into the ſecond Bone of the Thumb, which it extends.

One of the four Muſcles of the *Radius* is alſo called the *Longus.* This is the firſt of the two Supinators, and has its Origin three or four Fingers breadth above the outer *Apophyſis* of the *Humerus*, whence running along the *Radius*, it is inſerted into the inner Part of its lower *Apophyſis.* It is called *Longus* with regard to the other Supinator, which is called *Brevis.* Theſe two Muſcles ſerve to turn the *Radius*, ſo as the Palm of the Hand looks upwards; which makes the Supination.

Laſtly, the firſt of the Abductors of the Leg is called the *Longus*, and bears this Title more juſtly than any of the others, as being the longeſt Muſcle in the whole Body. It is alſo called *Sartorius*, becauſe it ſerves to bend the Leg inwards, as the Taylors uſe to have it when at work. See *Sartorius.*

LONG ACCENT, in Grammar, *&c.* ſhews that the Voice is to ſtop upon the Vowel, that hath that Mark, and it is expreſſed thus (-).

LONG MEASURE. See *Meaſure.*

LONGÆVITY, *Length of Life.* From the different *Longævities* of Men in the beginning of the World, after the Flood, and in theſe Ages, Mr. *Derham* draws a good Argument for the Interpoſition of a Divine Providence. Immediately after the Creation, when the World was to be peopled by one Man and one Woman, the ordinary Age was 900 and upwards. Immediately after the Flood, when there were three Perſons to ſtock the World, their Age was cut ſhorter, and none of thoſe Patriarchs but *Shem* arrived at 500. In the ſecond Century we find none that reach'd 240, in the third none but *Terah* that came to 200 Years: The World, at leaſt a part of it, by that time being ſo well peopled, that they had built Cities, and were canton'd out into diſtant Nations. By degrees, as the Number of People increas'd, their *Longævity* dwindled; till it came down at length to 70 or 80 Years: and there it ſtood, and has continued to ſtand ever ſince the Time of *Moſes.* This is found a good Medium, and by means hereof the World is neither overſtock'd, nor kept too thin; but Life and Death keep a pretty equal pace. See *Mortality.*

That the common Age of Man has been the ſame in all Ages ſince the World was peopled, is plain both from Sacred and Profane Hiſtory. To paſs by others, *Plato* lived to 81, and was accounted an Old Man; and the Inſtances of *Longævity* produced by *Pliny*, *l.* 7. c. 48. as very extraordinary, may moſt of 'em be match'd in modern Hiſtories; particularly in Dr. *Plott*'s *Nat. Hiſt. of* Oxf. *and* Staff. Among others, he tells of twelve Tenants to the ſame Perſon, who made up 1000 Years; to ſay nothing of Old *Parre*, who lived 152 Years 9 Months; or of *H. Jenkins* of *Yorkſhire*, who lived 169 Years; or of the Counteſs of *Deſmond*, or Mr. *Eckleſton*, both of *Ireland*, who each exceeded 140 Years. See *Life.*

LONG-BOAT is the largeſt and ſtrongeſt Boat belonging to a Ship, that can be hoiſted a-board of her. Its Uſe is to bring any Goods, Proviſion, *&c.* to or from the Ship, or, on Occaſion, to land Men any where; and particularly to weigh the Anchor.

LONGIMETRY, the Art of meaſuring Lengths; both acceſſible, as Roads, *&c.* and inacceſſible, as Arms of the Sea, *&c.* *Longimetry* is a Part of Trigonometry, and a Dependant on Geometry, in the ſame manner as Altimetry, Planimetry, Stereometry, *&c.* The Art of *Longimetry* ſee under the Names of the Inſtruments uſed in it, particularly *Theodolite*, *Chain*, &c.

LONGISSIMUS DORSI is a Muſcle of the Back, that at its beginning is not to be diſtinguiſhed from the *Sacro-lumbaris*, ariſing with it from the hinder Part of the *Os Ilium*, and *Os Sacrum*, and the firſt *Vertebra* of the Loins; it runs upwards along the whole Tract of the Back, and is connected by Tendons to each tranſverſe Proceſs in its way, and ends ſometimes in the firſt *Vertebra* of the Back, and ſometimes in the firſt of the Neck; and, as ſome Authors ſay, reaches now and then to the *Proceſſus Mamillaris* of the *Os Petroſum.* In conjunction with ſome others, this helps to keep the Body erect.

LONGISSIMUS OCULI, the Name of a Muſcle. See *Obliquus Superior.*

LONGITUDE of a Place, in Geography, is its Diſtance from ſome firſt Meridian; or an Arc of the Equator intercepted between the Meridian of the Place, and the firſt Meridian; or the Difference Eaſt and Weſt between the Meridians of any two Places, counted on the Equator. To diſcover an exact Method of finding the *Longitude*, eſpecially at Sea, is a Problem, that has extremely perplex'd the Mathematicians of theſe two laſt Ages; and for the Solution whereof, great Rewards have been publickly offer'd by the *Engliſh*, *French*, *Dutch*, and other Nations: this being the only thing wanting to render Navigation perfect. Various are the Attempts that Authors have made for this purpoſe, and various the Methods they have propoſed, but ſtill without Succeſs; all their Schemes being found either falſe, precarious, impracticable, or in ſome way or other defective: ſo that the Palm is ſtill unaſcertain'd. What they moſt of 'em aim at, is a Method of determining the Difference of Time between any two Points on the Earth; for every 15 Degrees of the Equator anſwering to an Hour, *i. e.* one Degree to 4 Minutes of Time, and one Minute of a Degree to 15 Seconds of Time; the Difference of Time being known and turn'd into Degrees, will give the *Longitude*, and *vice verſa.* This ſome have pretended to effect by Clocks, Watches, and other *Automata*; but always in vain; no Time-keeper, excepting a Pendulum (which cannot be applied at Sea) being ſufficiently ſure and exact for the purpoſe.

Others, with more probability, and to better purpoſe, ſearch for it in the Heavens; for if the exact Times of any Celeſtial Appearance be known for two Places, the

Difference of thoſe Times gives that of the *Longitude* of thoſe Places. Now in the *Ephemerides*, we have the Motions of the Planets, and the Times of all the Celeſtial *Phænomena*, as the Beginning and Ending of Eclipſes, Conjunctions of the Moon with other Planets, its Entrance into the Ecliptic, *&c.* accurately calculated for ſome one Place. Therefore if the Hour and Minute be known wherein any of the ſame *Phænomena* are obſerv'd in an unknown Place, the Difference between the Hour and Minute between that Place and that other, to which the Tables are calculated, and conſequently the Difference of their Meridians, and their *Longitude* from each other, are known alſo. Now the Difficulty, here, does not conſiſt in the exact finding of the Time, which is eaſily had from the Sun's Altitude or Azimuth; but the Defect lies in the Paucity of proper Appearances capable of being thus obſerv'd: For all ſlow Motions (*v.g.* that of *Saturn*) are at once excluded; as ſhewing but little Difference in a conſiderable Space of Time; and it being here required that the *Phænomenon* be ſenſibly varied in two Minutes Time, an Error of two Minutes in Time producing another of 30 Miles in the *Longitude.* Now there are no *Phænomena* in the Heavens that have theſe Requiſites, excepting the ſeveral Stages of an Eclipſe of the Moon; her *Longitude*, or Place in the Zodiac; her Diſtance from the fix'd Stars, or Appulſe to them; her Ingreſs into the Ecliptic, or the Points of her Orbit where that cuts the Ecliptic; and the Conjunction, Diſtance and Eclipſes of *Jupiter*'s Satellites. Of each of theſe in their Order.

1. The firſt Method, by the Eclipſes of the Moon, is very eaſy and ſufficiently accurate, were there but Eclipſes every Night. At the moment wherein we ſee the beginning or middle of a lunar Eclipſe by a Teleſcope, we have nothing to do but take the Altitude or Azimuth of ſome fixed Star, from which the Hour and Minute are eaſily found; or without the Altitude, if the Star be in the Meridian. This Hour and Minute therefore, thus found, and compared with that expreſs'd in the Tables, give the *Longitude*.

2. The Moon's Place in the Zodiac is a *Phænomenon* more frequent than that of her Eclipſes, but then the Obſervation thereof is difficult, the *Calculus* intricate and perplex'd, by reaſon of two Parallaxes; ſo that it's ſcarce practicable to any tolerable degree of Accuracy. Indeed by waiting till the Moon comes into the Meridian of the Place, and then taking the Altitude of ſome remarkable Star (the Latitude being ſuppoſed to be firſt known) from this Altitude and the Latitude, we ſhall be able to find the Time pretty accurately, tho 'twill be better to do it by ſome Star in the Meridian. Now the Time being found, 'twill be eaſy to find what Point of the Ecliptic is then in the Meridian or Mid-haven. Thus we ſhall have the Moon's Place in the Zodiac correſponding to the Time of our Place. Then in the *Ephemeris* we find what Hour it is in the Meridian of the *Ephemeris*, when the Moon is in that part of the Zodiac: Thus we ſhall have the Hour and Minute of the two Places for the ſame Time; the Difference of which will give the Difference of *Longitude*.

3. In regard there are many times when the Moon cannot be obſerv'd in the Meridian, there is therefore another ſtill more frequent *Phænomenon* from which the *Longitude* is ſought; *viz.* the Moon's Appulſe and Receſs from the fixed Stars: for from thence the Moon's true Place may be inveſtigated for the given Time of Obſervation. But this Method, by reaſon of the Parallaxes, and the Solution of oblique ſpherical Triangles, and the various Caſes, is ſo very difficult and perplex'd, that the Mariners are not able to make uſe of it; nor is it neceſſary to trouble the Reader with the Praxis thereof. Thoſe however who are diſpoſed to uſe it, will find very conſiderable Help from a ſtarry Zodiac, publiſh'd under the Direction of Dr. *Halley*, containing all the Stars to which the Moon's Appulſe can be obſerv'd.

4. To find the *Longitude* by the Moon's Ingreſs into the Ecliptic; obſerve the Moment of that Ingreſs: Then in the *Ephemeris*, ſee what Hour it is in the Meridian of the *Ephemeris*, when that Ingreſs happens. The Difference between theſe Times, gives the Difference of *Longitude*.

5. The *Phænomena* of *Jupiter*'s Satellites are generally preferred to thoſe of the Moon, for finding the *Longitude*; by reaſon the former are leſs liable to Parallaxes, and do, further, afford a very commodious Obſervation in every Situation of that Planet above the Horizon. Their Motion is very ſwift, and muſt be calculated for every Hour, and for that reaſon are not found in the common *Ephemerides*, but are had elſewhere. Now to find the *Longitude* by means of theſe Satellites, with a good Teleſcope obſerve a Conjunction of two of them or of one of them with *Jupiter*, or any other the like Appearance, and at the ſame time find the Hour and Minute from the Meridian Altitude of ſome Star; then conſulting Tables of the Satellites, obſerve the Hour and Minute wherein ſuch Appearance happens in the Meridian of the Place to which the Tables are calculated. The Difference of Time, as before, will give the *Longitude*.

6. All Methods that depend on the *Phænomena* of the Heavens having this one Defect, that they are not to be obſerved at all times; and being, beſides, very difficult of Application at Sea, by reaſon of the Motion of the Ship; there are ſome, who, leaving the Moon and the Satellites, have recourſe to Clocks and other *Automata*: which, could they be made perfectly juſt and regular, ſo as to move with the Sun without either gaining or loſing, and without being affected with the Change of Air and of Climates; the *Longitude* would be had with all the Eaſe and Accuracy imaginable, nothing more being required but to ſet the Machine by the Sun at the time of Departure; and when the *Longitude* of any Place is deſired, to find the Hour and Minute from the Heavens, (which is done at Night by the Stars, and in the Day by the Sun) for the Difference between the Time, thus obſerved, and that of the Machine, gives the *Longitude*: But no ſuch Machine has been yet diſcover'd. Wherefore Recourſe has been ſtill further had to other Methods.

7. Mr. *Whiſton* and Mr. *Ditton* have propoſed a Method of determining the *Longitude* by the Flaſh and Report of great Guns. Sounds, 'tis known, move pretty equably in all their Stages, whatever the ſonorous Body be that occaſions it, or whatever the Medium that conveys it. If then a Mortar or great Gun be exploded at a Place, whoſe *Longitude* is known, the Difference between the Time wherein the Flaſh (which moves, as it were, inſtantaneouſly) is ſeen, and the Sound, which moves at the rate of four Seconds in a Mile, is heard, will give the Diſtance of thoſe Places from each other; whence, if their Latitudes be known, the Difference of *Longitude* will be likewiſe known. Again, if the Hour and Minute of the Exploſion be known, (for the Place where it is made) by obſerving the Hour and Minute from the Sun or Stars, at the Place whoſe *Longitude* is required; the Difference between thoſe Times will give the Difference of *Longitude*. Again, if the ſaid Mortar be loaden with an Iron Shell full of combuſtible Matter, and poſited perpendicularly, it will carry the ſame a Mile high, which will be ſeen near a hundred Miles; if therefore neither the Sound ſhould be heard, nor the Flaſh ſeen, the Diſtance of any remote Place from the Place of the Mortar may be determin'd from the Altitude of the Shell above the Horizon of the Place unknown: and the Diſtance and Latitudes known, the *Longitude* is eaſily found. According to this Scheme 'twas propoſed to have ſuch Mortars fix'd at proper Diſtances, and at known Stations, on all the frequented Coaſts, Iſlands, Capes, *&c.* and to be exploded at certain Hours for the Obſervation of Mariners. This Method, tho good in the Theory, yet is found uſeleſs in the Practice; as being extremely troubleſome, and yet precarious. It ſuppoſes that Sounds may be heard 40, 50, or 60 Miles; of which, 'tis true, we have Inſtances, but they are very rare; and ordinarily the Report of a Cannon is not heard above half ſo far; and ſometimes much leſs. It ſuppoſes, again, Sound to move always with equal Velocity; whereas, in fact, its Velocity is increaſed or diminiſhed as it moves with or againſt the Wind. It ſuppoſes, again, the Strength of Powder uniform; and that the ſame Quantity carries the ſame Range; the contrary whereof is known to every Gunner. We ſay nothing of thick cloudy Nights, when no Lights can be ſeen; nor of ſtormy Nights, when no Sound can be heard; even at inconſiderable Diſtances.

8. We have another Method of finding the *Longitude*, propoſed by the ſame ingenious Gentleman Mr. *Whiſton*, *viz.* by the Inclinatory or Dipping-Needle. See *Dipping-Needle.*

Longitude of the Earth, is its Extent from Weſt to Eaſt, according to the Situation of the Æquator; as the Latitude of the Earth is its Extent in Surface from one Pole to the other.

Longitude in the Heavens, is an Arc of the Ecliptic, counted from the beginning of *Aries*, to the Place where a Star's Circle of *Longitude* croſſes the Ecliptic: ſo that it is much the ſame as the Star's Place in the Ecliptic, reckoned from the beginning of *Aries*; which to find, ſee *Place of the Sun or Star*. *Longitude* of the Sun or Star from the next equinoctial Point, is the Number of Degrees and Minutes they are from the beginning of *Aries* or *Libra*, either before or after them; which can never be more than 180 Degrees. *Longitude*, in Navigation, is alſo the Diſtance of a Ship or Place, Eaſt or Weſt, from another.

To find the *Longitude* or Latitude of any Star by the Globe: Bring the Solſtitial Colure to the Braſs Meridian, and there fix the Globe; then will the Pole of the Ecliptic be juſt under 23 deg. 30 min. accounted from the Pole above the Horizon, and on the ſame Meridian: There ſcrew the Quadrant of Altitude, bring its graduated Edge to the Star, and there ſtay it; thus the Quadrant will cut the Ecliptic in the Star's *Longitude*, as alſo its Latitude reckoned on the Quadrant, from the Ecliptic. See *Globe*.

Longitude of Motion, is a Term uſed by Dr. *Wallis* in his Mechanics, for the Meaſure of Motion eſtimated according to the Line of Direction; ſo that it is the Diſtance, or Length, which the Center of any moving Body runs thro, as it moves on in a Right Line. And he calls the Meaſure of any Motion, eſtimated according to a Right Line or Line of Direction of the *Vis Motrix*, the Altitude of it.

Bellini alſo uſeth this Term of *Longitude* and Altitude in the ſame Senſe in many Places of his Writings, and which an ordinary Reader finds hard to underſtand for want of this Interpretation. By Altitude alſo, in his 19th Propoſition *de Febribus*, he means the Thickneſs of the viſcid Matter in the Blood-Veſſels; or the greateſt Length a viſcid Particle is extended into from the ſide of the Canal to its Axis.

LONGITUDINAL, according to the Etymology of the Word, ſignifies ſomething extended length-wiſe. Thus in Anatomy it is uſed to ſignify ſome Part or Member running in length, or poſited length-wiſe. The Membranes that compoſe the Veſſels are woven out of two kinds of Fibres, the one *Longitudinal*, and the other Circular, cutting the *Longitudinal* at Right Angles. The *Longitudinal* are tendinous and elaſtic; the Circular, muſculous and motrices, like Sphincters.

LONGUS COLLI, a Muſcle which ariſes chiefly fleſhy, tho partly tendinous, from the fore-part of the five upper Vertebræ of the Back, and is inſerted into the fore-part of every Vertebra of the Neck. Its Uſe is to bend the Neck forward.

LONGUS CUBITI, a Muſcle, that, in conjunction with others, extends the *Cubitus*: It ariſeth from the inferior Coſta of the Scapula, nigh its Neck, and paſſeth betwixt the two round Muſcles. It deſcends on the backſide of the Humerus, where it joins with the *Brevis* and *Brachiæus externus*.

LONGUS FEMORIS, in Anatomy. See *Sartorius*.

LOOF, or, as they uſually pronounce it, *Luff*, is a Term uſed in Conding of a Ship: Thus, *Loof up*, is to bid the Steerſ-man keep nearer to the Wind: To *loof into an Harbour*, is to ſail into it cloſe by the Wind: To *ſpring the Luff*, is when a Ship, that before was going large before the Wind, is brought cloſe by the Wind. When a Ship ſails on a Wind, that is, on a Quarter-Wind, they ſay to the Steerſ-man, *Keep your Luff! Veer no more! Keep her to! Touch the Wind! Have a care of the Lee-Latch!* All which Words ſignify much the ſame thing, and bid the Man at Helm to keep the Ship near the Wind.

Loof of a Ship, is that part of her aloft, which lies juſt before the Cheſs-Trees; and hence the Guns, which lie here, are called her *Loof-Pieces*.

LOOKING-GLASS, a plain Glaſs, Speculum, or Mirror, which being impervious to the Light, reflects its Rays, and ſo exhibits the Images of Objects placed before it.

The Theory of *Looking-Glaſſes*, and the Laws whereby they give the Appearances of Bodies, ſee under *Mirror*.

The Manner of grinding and preparing the Looking-Glaſſes is as follows: A Plate of Glaſs is fixed to a horizontal Table, and to another leſs Table is fixed another Plate, over the hind Part of which is added a Box loaded with Stones and other Weights. Over the firſt Plate is ſprinkled fine Sand and Water in a ſufficient Quantity for the Grinding, and the ſecond or leſs Plate is laid on it, and thus worked this and that way, till each has planed the others Surface. As they begin to grow ſmoother, finer Sand is uſed, and at laſt Powder of Smelt. Being thus fit for poliſhing, a wooden Parallelopiped, lined with *Tripoli* Earth, or burnt Tin, tempered with Water, is laid on the Plate, and worked to and again, till the Glaſs have got a perfect Politure.

'Tis found extremely difficult to bring the Glaſs to a perfect Plainneſs. *Hevelius* judges more Art required to bring a Glaſs to an exact Plane than to a Sphere. For poliſhing large Plates of Glaſs, they have a Machine for the purpoſe.

The Plates being thus poliſhed, a thin blotting Paper is ſpread on a Table, and ſprinkled with fine Chalk; and this done, over the Paper is laid a thin Lamina, or Leaf of Tin, on which is poured Mercury, which is to be equally diſtributed over the Leaf, with a Hare's Foot or Cotton. Over the Leaf is laid a clean Paper, and over that the Glaſs-Plate. With the left Hand the Glaſs-Plate is preſſed down, and with the right the Paper is gently drawn out; which done, the Plate is covered with a thicker Paper, and loaden with a greater Weight, that the ſuperfluous Mercury may be driven out, and the Tin adhere more cloſely to the Glaſs. When it is dried, the Weight is removed, and the *Looking-Glaſs* is compleat.

Some add an Ounce of Mercury to half an Ounce of Marchaſite, melted by the Fire; and leſt the Mercury evaporate in Smoke, pour it into cold Water, and, when cold, ſqueeze it thro' a Cloth or Leather. Some alſo add a Quarter of an Ounce of Lead and Tin to the Marchaſite, that the Glaſs may dry the ſooner.

LOOM, the Weaver's Frame; a Machine whereby ſeveral diſtinct Threads are wove into one Piece. *Looms* are of various Structures, accommodated to the various Kinds of Materials to be wove, and the various Manners of weaving them; *viz.* for Woollens, Silks, Linnens, Cottons, Cloths of Gold; and other Works, as Tapeſtry, Ribbands, Stockings, *&c.* Moſt of which will be found under their proper Heads.

LOOP-HOLES, in the Sea-Language, are *Holes* made in the Comings of the Hatches of Ships, and in their Bulk-heads to fire Muskets thro in a cloſe Fight. And the ſame are they in the Covert Defences of all Fortifications.

LORD, (from a *Saxon* Original, ſignifying a Bread-Giver, Bountiful or Hoſpitable) is a Title of Honour variouſly applied amongſt us; being ſometimes attributed to thoſe who are noble by Birth or Creation, otherwiſe call'd *Lords of Parliament*, and Peers of the Realm; ſometimes to thoſe ſo call'd by the Courteſy of *England*, as all Sons of a Duke and Marquiſs, and the eldeſt Son of an Earl: ſometimes to Perſons honourable by Office, as *Lord Chief Juſtice*, &c. And ſometimes to an inferior Perſon that has Fee, and conſequently the Homage of Tenants within his Mannor; for by his Tenants he is call'd *Lord*, and in ſome Places, for diſtinction ſake, *Land-lord*. 'Tis in this laſt Signification that the word *Lord* is principally uſed in our Law-Books; where it is divided into *Lord Paramount* and *Lord Meſn*: *Lord Meſn* is he that is Owner of a Mannor, and by virtue thereof hath Tenants holding of him in Fee, and by Copy of Court-Roll; and yet holds, himſelf, of a ſuperior *Lord*, call'd *Lord Paramount*, or above him. We alſo read of *Very Lord* and *Very Tenant*: *Very Lord* is he who is immediate *Lord* to his Tenant; and *Very Tenant*, he who holds immediately of that *Lord*: ſo that where there is *Lord Paramount*, *Lord Meſn*, and Tenant; the *Lord Paramount* is not *Very Lord* to the Tenant. He is alſo call'd *Lord in Groſs*.

Lord-High-Admiral of England, is one of the great Officers of the Crown, whoſe Truſt and Honour is ſo great, that it has ſeldom been given, excepting to ſome of the King's younger Sons or near Kinſmen. To him is, by the King, intruſted the Management of all maritime Affairs, as well in reſpect of Juriſdiction as Protection. He is that high Officer or Magiſtrate, to whom is committed the Government of the *Britiſh* Navy, with Power to decide all Controverſies, and Cauſes Maritime, as well Civil as Criminal, for which there is a peculiar Court; ſuch as happen either on our own Coaſts, or beyond Sea, amongſt his Majeſty's Subjects: and of ſuch Wrecks and Prizes, as are called *Lagon*, *Jetſon*, and *Flotſon*; that is, Goods lying in the Sea floating, or caſt on ſhore, excepting in ſuch Royalties as are granted to other Lords of the Mannor, *&c.* All great Fiſhes, call'd *Royal Fiſh*, except Whales and Sturgeon: A Share of Prizes in time of War, and the Goods of Pirates and Felons condemned. The *Lord-High-Admiral* hath under him many Officers of high and low Condition; ſome at Sea, others at Land; ſome of a Military, others of a Civil Capacity: ſome Judicial, others Miniſterial. And in his Court all Proceſſes iſſue in his Name, not the King's, as it does in all other Courts; ſo that the Dominion and Juriſdiction of the Sea may juſtly be ſtiled another Commonwealth, or Kingdom apart, and the *Lord-High-Admiral*, Viceroy of the Maritime Kingdom. He hath under him a Lieutenant, who is Judge of the Admiralty, commonly a Doctor of the Civil Law; the Proceedings in this Court in all Civil Matters, being according to the Civil Law: but in Criminal Matters, they proceed by a Special Commiſſion from the Secretary, according to the Laws of *England*.

Lord-Privy-Seal, hath his Office by Patent: before the 30th of *Henry* VIII. they were generally Eccleſiaſticks; ſince which, the Office hath been uſually confer'd on Temporal Peers, above the Degree of Barons. Under the *Privy-Seal* paſſeth all Charters and Grants of the Crown, and Pardons ſign'd by the Sovereign before they have the Great-Seal; as alſo ſeveral other Matters of leſs Concern, as the Payment of Money, *&c.* which have no recourſe to the Great-Seal. The *Lord-Privy-Seal* receiving his Warrant from the Signet-Office, iſſues the *Privy-Seal*, which is an Authority to the Lord Chancellor to paſs the Great-Seal, where the nature of the Grant requires the Great-Seal. But *Privy-Seals* for Money begin in the Treaſury, from whence the firſt Warrant iſſues, counterſign'd by the Lord-Treaſurer. On the *Lord-Privy-Seal* are attendant four Clerks, who have two Deputies, to act for them. The Clerks of the *Privy-Seal* and Signet have no Salaries, but Board-Wages 30*l. per Annum*, and pay Taxes; but they have conſiderable Fees upon Warrants, for Gift of any Office, Penſion, Annuity, Special Livery, Conge d'Elires, Preſentations, Pardons, Licences, *&c.*

Lord-Steward of the King's Houſhold, is the principal Officer for the Civil Government of the King's Servants below Stairs; over the Officers of which, he has Juriſdiction. He is conſtituted by the Delivery of the White Staff, which is eſteemed his Commiſſion. By virtue of his Office, without any other Commiſſion, he judges of all Offences committed within the Court, or the Verge thereof, and gives Judgment according to their ſeveral Deſerts. To him it belongs at the beginning of the Parliament to attend the King, and to adminiſter the Oaths of Allegiance and Supremacy to all the Members of the Houſe of Commons, and at the end of Parliament to adjuſt Parliamentary Expences. At the Death of the Sovereign he breaks his Staff over the Hearſe, in which the Royal Corps are depoſited, and thereby diſchargeth all the Officers under his Power.

Lord-Lieutenants of Counties, are Officers of great Diſtinction, appointed by the King for managing the ſtanding Militia of the Country, and all Military Matters: They are generally of the principal Nobility, and of the beſt Intereſt in the County: They are to form the Militia in caſe of a Rebellion, *&c.* and march at the Head of them, as the King ſhall direct. They have the Power of commiſſioning Colonels, Majors, Captains, and Subaltern Officers; alſo to preſent the King with the Names of the Deputy-Lieutenants; who are to be ſelected from the beſt Gentry in the County, and act in the Abſence of the *Lords-Lieutenants.* No Subject is to be charged with an Horſeman, unleſs he has 500*l. per Annum*, or 6000*l.* Perſonal Eſtate; nor with a Foot-Soldier, unleſs he hath 50*l.* yearly, or 600*l.* Perſonal Eſtate. Subſervient to the *Lords-Lieutenants*, and Deputy-Lieutenants, are the Juſtices of Peace, who, according to the Order they receive from them, are to iſſue out Warrants to the High and Petty-Conſtables, *&c.* for Military Service, *&c.*

LOT. See *Scot.*

LOTION, in Pharmacy, a Preparation of Medicines, by waſhing them in ſome Liquid, either made very light, ſo as to take away only the Dregs; or made to penetrate them, in order to clear them of ſome ſalt or corroſive Spirit; as the *Lotion* of Antimony, Precipitates, Magiſteries, *&c.* Or elſe intended to take away ſome ill Quality, or to communicate ſome good one.

Lotion is alſo the Name of a Remedy, holding a Medium between a Fomentation and a Bath. There are refreſhing and ſomniferous *Lotions* for feveriſh Perſons, made of Leaves, Flowers and Roots boil'd, wherewith the Feet and Hands of the Patient are waſh'd, and after waſhing, wrapp'd up in Linnen ſteep'd in the ſame Decoction till dry. There are *Lotions* alſo for the Head and Hair, made of the Aſhes of Vine-Twigs.

Lotion of the Philoſophers, in Chymiſtry, is a Cohobation which Nature makes of what is rais'd up, and afterwards falls back to the bottom of the Veſſel.

Lotion, Waſh, a Form of Medicine made up of liquid Matters, uſed for beautifying the Skin, and cleanſing it from thoſe Deformities which a diſtemper'd Blood ſometimes throws on it; or rather, which are occaſion'd by a preternatural Secretion; for, generally ſpeaking, thoſe Diſtempers of the Skin, which are accounted Signs of a foul Blood, proceed from the natural Salts thrown off by the cutaneous Glands, which ought to be waſh'd away thro the Kidneys: ſo that inſtead of Sweetners, which are uſually preſcribed on theſe Occaſions, Dr. *Quincy* thinks the Urinary Diſcharge ſhould be promoted, or that of the Skin rectified by proper *Lotions*, or Ointments and Frictions.

LOTTERY, a kind of Game at Hazard, wherein ſeveral Lots of Merchandize, or Sums of Money, are depoſited for the Benefit of the Fortunate. The Deſign of *Lotteries*, and the Manner of drawing them, are too well known among us to need a Deſcription here. They are very frequent in *England* and *Holland*, where they cannot be ſet on foot without the Permiſſion of the Magiſtrate. In *France* too they have had ſeveral in favour of their Hoſpitals. M. *le Clerc* has compoſed a Treatiſe of *Lotteries*, wherein is ſhewn what is laudable, and what blameable in 'em. *Gregorio Leti* alſo publiſh'd a Book on the Subject of *Lotteries.* And Father *Meneſtrier* has done the ſame in a Treatiſe publiſh'd in 1700. He there ſhews their Origin, and their Uſe among the *Romans.* He diſtinguiſhes ſeveral kinds of *Lotteries*, and takes occaſion to ſpeak of Chances, and reſolves ſeveral Caſes of Conſcience relating thereto.

LOVE and *Hatred.* See *Pleaſure* and *Pain.*

LOUIS, or LOUIS D'OR, a *French* Coin, firſt ſtruck in 1640. under the Reign of *Louis* XIII. and which has now a conſiderable Courſe. *Louis d'Ors* at firſt were valued at 10 Livres, afterwards at 11, and at length at 12 and 14. In the latter end of *Louis* XIV. they were riſen to 20, and in the beginning of that of *Louis* XV. to 30 and 36, nay 40 and upwards; with this Difference however, that in the laſt Coinings, the Weight was augmented in ſome proportion to the Price, which in the former Reign was never regarded. On one ſide of the Coin is the King's Head ſeen, with his Name; and on the other, a Croſs compoſed of 8 L's cantoned with Crowns. The Legend is, *Chriſtus regnat, vincit, imperat.* The Reverſe has been frequently changed; at preſent it bears a Hand of Juſtice croſs'd in a Saltier, with a Scepter.

There are alſo white *Louis's*, or *Louis d'Argent*; ſome of 60, of 30, 15, 5, and 4 Sols a-piece, called alſo *Ecus*, and among us *French Crowns*, *Half-Crowns*, &c. See *Crown.* On the one ſide whereof is the King's Head, and on the other the *French* Arms, with this Legend, *Sit nomen Domini benedictum.*

ST. LOUIS, the Name of a Military Order inſtituted by *Louis* XIV. in 1693. Their Collar is of a Flame-colour, and paſſes from Left to Right. The King is their Grand Maſter. There are in it 8 Grands-Croix, and 24 Commanders. The Number of Knights is not limited. At the time of their Inſtitution, the King charged his Revenue with a Fund of 300000 Livres, for the Penſions of the Commanders and Knights.

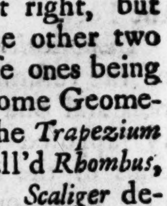
LOW-BELLERS, in our Statute-Books, are Perſons who go with Light and a Bell; whereby Birds ſitting on the Ground become ſtupefied, and ſo are cover'd with a Net and taken.

LOXODROMY, *Rhumb*, the Courſe of a Ship, or the Line it deſcribes in ſailing from any Point towards another, excepting a Cardinal Point; making equal Angles with every Meridian. The word *Loxodromy* is derived from the *Greek* λοξὸς, *oblique*, and δρόμος, *Courſe*; becauſe it cuts the Circles of the Sphere obliquely. See *Rhumb.*

LOXODROMIQUES, the Art or Method of oblique Sailing, by the *Loxodromy* or Rhumb. Hence *Loxodromic Triangle*, &c. See *Rhumb.*

LOZENGE or LOZANGE, a kind of Parallelogram or quadrilateral Figure, conſiſting of four equal and parallel Lines or Sides, whoſe Angles are not right, but whereof two oppoſite ones are acute, and the other two obtuſe; the Diſtance between the two obtuſe ones being always equal to the Length of one Side. Some Geometricians call the *Lozenge Hebmuaym*, and the *Trapezium Hebmuarepte.* In Geometry it is ordinarily call'd *Rhombus*, and when the Sides are unequal, *Rhomboides. Scaliger* derives the word *Lozenge* from *Laurengia*, this Figure reſembling in ſome Reſpects that of a Laurel-Leaf.

Lozenge is alſo a Term in Heraldry; and 'tis in this Figure that all unmarried Gentlewomen and Widows bear their Coats of Arms; becauſe, as ſome ſay, it was the Figure of the *Amazonian* Shield, or, as others, becauſe it is the antient Figure of the Spindle. The *Lozenge* differs from the Fuſil, in that the latter is narrower in the Middle, and not ſo ſharp at the Ends.



Lozenges, a Form of Medicine, made into ſmall Pieces, to be held or chewed in the Mouth, till they are melted or waſted.

LUCARIA, the Name of a Feaſt in uſe among the *Romans. Sextus Pompeius* obſerves, that the *Lucaria* were celebrated in the Wood, where the *Romans*, defeated and purſued by the *Gauls*, retired and concealed themſelves. It was held in the Month of *July*, in memory of the Aſylum they found in that Wood, which was between the *Tyber* and the Road call'd *Via Salaria.*

The Word, according to *Feſtus* and *Sex. Pompeius*, comes from *Lucus*, a Grove or Wood. *Varro* derives it from *Luce*, the Ablative of the word *Lux*, Light and Liberty. But former Etymology ſeems the more natural.

LUCIANIST, or LUCANIST: The Name of a Sect ſo called from *Lucianus* or *Lucanus*, a Heretic of the ſecond Century. He was a Diſciple of *Marcion*, whoſe Errors he follow'd, and added new ones to 'em. *Epiphanius* ſays, he abandon'd *Marcion*, teaching that People ought not to marry for fear of enriching the Creator: And yet other Authors mention, that he held this Error in common with *Marcion* and the other *Gnoſtics*. He denied the Immortality of the Soul; aſſerting it to be material.

There was another Sect of *Lucianiſts*, who appear'd ſome time after the *Arians*. They taught, that the Father had been a Father always, and that he had the Name even before he had begotten the Son; as having in him the Power or Faculty of Generation: And in this manner accounted for the Eternity of the Son.

LUCID INTERVALS, the Fits or Paroxiſms of *Maniacs*, wherein the Phrenzy leaves them in poſſeſſion of their Reaſon. 'Tis ſaid they are capable of making a Will in their *Lucid Intervals*.

LUCIDA CORONA, a fix'd Star of the ſecond Magnitude in the Northern Garland. See *Star*.

LUCIDA LYRA, a bright Star of the firſt Magnitude in the Conſtellation *Lyra*. See *Star*.

LUCIFERIAN, the Name of a Sect, who adhered to the Schiſm of *Lucifer de Cagliari*, in the fourth Century. St. *Auguſtin* ſeems to intimate, that they believed the Soul tranſmitted to the Children by their Fathers. *Theodoret* ſays, that *Lucifer* was the Author of a new Error. The *Luciferians* increaſed mightily in *Gaul*, *Spain*, *Egypt*, &c. The Occaſion of this Schiſm was, that *Lucifer* would not allow any Acts he had done to be aboliſhed. There were but few *Luciferian* Biſhops, but a great Number of Prieſts and Deacons. The *Luciferians* bore a very ſtrong Averſion to the *Arians*.

LUES properly ſignifies a Plague or Contagion, tho' according to the modern Uſe of the Word, eſpecially when joined with *Gallica*, or *Venerea*, it is reſtrained only to the *French* Pox. See *Venereal Diſeaſe*.

LUFF, a Sea-Term, the ſame with *Loof*, which ſee.

LUMBAGO, Pains very troubleſome about the Loins and the Small of the Back, ſuch as precede Ague-Fits and Fevers. They ariſe commonly from Fullneſs and Acrimony; in common with a Diſpoſition to Yawnings, Shuddering, and erratick Pains in other Parts; and go off with Evacuation, generally by Sweat, and other critical Diſcharges of Fevers.

LUMBARES, an Epithet given to thoſe Branches of the *Arteria Aorta*, which carry the Blood to the Muſcles of the Loins. The Term is alſo applied to certain Veins, which bring back the Blood from the *Loins* into the Trunk of the *Vena Cava*. There is alſo a Muſcle of the Thigh that bears this Name. See *Pſoas*.

Lumbares Glandulæ. See *Lacteal Veins*.

Lumbares Venæ & Arteriæ, ſeveral ſo called, while in their Paſſage thro' the Loins; from *Lumbus*, *Loins*.

LUMBRICAL, an Epithet which the Phyſicians give to four Muſcles, that ſerve to move the Fingers. They are call'd *Lumbricales*, or *Vermiformes*, from the Reſemblance they bear to Worms. There is a like Number in the Feet.

Lumbricales Muſculi, (called alſo *Vermiculares*, in regard of the reſemblance they bear to Worms by their Smallneſs and Shape) are Muſcles of the Hands, commonly ſuppoſed to be nothing but Branches of the Tendons of the *Perforans*, which go to the Inſide of the firſt Bone on each Finger, and are ſuppoſed to contribute to the Variety of Motions with the Fingers, by giving a Diverſion to the direct Actions of the other Muſcles; but ſimply, they only ſerve to draw the Fingers towards the Thumb. Mr. *Cowper* indeed obſerves, that ſome of them have diſtinct Origins; and ſuſpects that the reſt may have ſo too, and therefore makes them diſtinct Muſcles.

There are alſo *Lumbricales* of the Foot, which ariſe as in the Hand, one from each Tendon of the *Perforans* or *Profundus*, and go to the Inſide of each of the leſſer Toes.

LUNA, in the Jargon of the Chymiſts, ſignifies Silver; from the ſuppoſed Influence of that Planet (the Moon) thereupon. The Medicinal Virtues of this Metal, Dr. *Quincy* ſays, are none at all, until it hath undergone very elaborate Preparations. See *Silver*.

LUNAR, ſomething belonging to the Moon. *Lunar Periodical Months* conſiſt of 27 Days and a few Hours; *Lunar Synodical Months* of 29 Days, 12 Hours, and three quarters of an Hour. See *Month*. *Lunar Years* conſiſt of 354 Days, or 12 Synodical Months. In the firſt Ages the Year accounted by all Nations was *Lunar*; the Variety in Courſe being more frequent in this Planet, and of conſequence more conſpicuous, and better known to Men than thoſe of any others. The *Romans* regulated their Year, in part, by the Moon till the time of *Cæſar*. See *Year*. The *Jews* too had their *Lunar* Months. Some Rabbins pretend that the *Lunar* Month did not commence till the moment the Moon began to appear, and that there was a Law, which obliged the Perſon who diſcovered it, firſt, to go and inform the Senate thereof. Upon which, the Preſident ſolemnly pronounced the Month began, and Notice was given of it to the People by Fires lighted on the Tops of Mountains. But this looks ſomewhat chimerical.

LUNATIC, ſomething affected or governed by the Moon. Hence mad People are called *Lunatics*, it having antiently been an Opinion, that ſuch Perſons were much influenced by that Planet. A much ſounder Philoſophy hath taught us, that there is ſomething in it; but not in the manner the Antients imagined; nor otherwiſe than what it has in common with other heavenly Bodies, occaſioning various Alterations in the Gravity of our Atmoſphere, and thereby affecting human Bodies. See *Comet*, *Planet*, &c. See alſo *Tides*.

LUNATION, a Revolution of the Moon, or the Time between one New Moon and another; which is called a *Synodical Month*, conſiſting of 29 Days, 12 Hours, and three quarters of an Hour. At the end of 19 Years the ſame *Lunations* always return, on the ſame Day, but not at the ſame preciſe Time of the Day; there being a Difference of one Hour, 27 Minutes, and 33 Seconds. Herein the Antients were miſtaken, taking the Uſe of the Golden Number to be more ſure and infallible than it is. It has been found ſince, that in 312 Years and an half the *Lunations* gained a Day on the beginning of the Month; ſo that when they came to reform the Calendar, the *Lunations* happened in the Heavens four or five Days ſooner than was ſhewn by the Golden Number. To remedy which, we now make uſe of the perpetual Cycle of Epacts. We take 19 Epacts, which anſwer to a Cycle of 19 Years; and when at the end of 300 Years the Moon has gain'd a Day, we take 19 other Epacts: which is alſo done, when by the Omiſſion of an Intercalary Day, which happens three times in 400 Years, the Calendar is adjuſted to the Sun. Care is taken that the Index of the Epacts muſt never be changed, excepting at the Concluſion of a Century, when there is occaſion for it, on account of the Metemptoſis or Proemptoſis; that is, of the Lunar or Solar Equation. When the Biſſextile or Intercalary Day is ſuppreſs'd without a Lunar Equation, the next following or lower Index is taken, as was done in 1700. When there is a Lunar Equation without ſuppreſſing the Biſſextile, the next preceding or higher Index is taken; as will be done in 2400. When there is both an Equation and a Suppreſſion, as in 1800; or neither the one nor the other, as in 2000; the ſame Index is retain'd. See *Month*, *Moon*, &c.

LUNE, or *Lunula*, in Geometry, a Plane, in figure of a Creſcent or Half-Moon, terminated by the Circumference of two Circles that interſect each other within.

Tho the Quadrature of the intire Circle was never yet effected, yet the Geometricians have found out the Squares of many of its Parts. The firſt partial Quadrature was that of the *Lunula*, given by *Hippocrates* of *Scio*, who of a ſhipwrecked Merchant commenced Geometrician. Let AEB (*Tab. Geometry*, *Fig.* 8.) be a Semicircle, and $GC = GB$; with the Radius BC deſcribe a Quadrant AFB; then will AEBFA be *Hippocrates*'s *Lune*. And ſince $BC^2 = 2\,GB^2$, the Quadrant AGBC will be equal to the Semicircle AEB; taking away therefore from each the common Segment AFGA; $AEBFA =$ to the Triangle $ACB = GB^2$.

LUNETTES, in Fortification, are Enveloppes, Counterguards, or Mounts of Earth caſt up before the Curtain, about five Fathom in breadth. They are uſually made in Ditches full of Water, and ſerve to the ſame purpoſe as Falſe Braies. Theſe *Lunettes* are compoſed of two Faces, which form a re-entering Angle; and their Platform being only twelve foot wide, is a little raiſed above the Level of the Water; and hath a Parapet three Fathom thick.

LUNGS, a Part in the Human Body, conſiſting of Veſſels and membranous Veſicles; and ſerving for Reſpiration. The *Lungs* are connected, above, to the Fauces, by means of the *Trachea*; and below, to the *Vertebræ* of the *Thorax*; and to the *Sternum* and *Diaphragma* by means of the *Pleura*. They are divided into two great Lobes by the *Mediaſtinum*, and thoſe again into others leſſer; the right ſometimes into three or four, by means of ſome Fiſſures running from the fore to the back Edge. The great Lobes, when inflated, reſemble each of them a Horſe's Hoof in Figure, but together they are liker an Ox's inverted.

The Subſtance of the *Lungs* is membranous, conſiſting chiefly of innumerable Cells or Veſicles; which ſeem to be nothing but Expanſions of the Membranes of the *Bronchia*, to which they hang like Grapes in Cluſters; ſo that by blowing into one of the Branches of the *Bronchia*, thoſe Cells or Veſicles belonging to it are blown up; the reſt, which do not, remaining ſtill flaccid and unaltered.

Theſe Cluſters of Veſicles or Cells are called the *Internal Lobules*, by which Name they are diſtinguiſhed from the leſſer Lobes ſpoken of. They are ſeparated from one another by Interſtices, which receive the Veſſels; and are filled up with Membranes propagated from the Lobules, and lying, ſome parallel, ſome angular. Theſe Lobules diſcover and diſplay themſelves very exactly, if the larger Trunks of the *Bronchia* be laid open, and the leſſer blown into; by which means every Lobule belonging to that Branch will be inflated, and riſe very diſtinctly, and ſhew its Extent.

The whole Subſtance of the *Lungs* is covered with a common Membrane, which is diviſible into two Coats; the outer thin, ſmooth, and nervous; the inner ſomewhat thicker and rougher, conſiſting moſtly of the Extremities of Veſſels and Veſicles, through the Impreſſion of which it is pitted, and reſembles in ſome meaſure a Honey-Comb. Some affirm that in this Coat are abundance of Perforations or Pores, ſo diſpoſed that they readily imbibe any Humidity from the Cavity of the *Thorax*, but ſuffer nothing to eſcape into it: but this ſeems little more than Fancy.

The Veſſels of the *Lungs* are the *Bronchia*, the Pulmonary and Bronchial Arteries and Veins, Nerves and Lymphatics. Of theſe Veſſels ſome are proper and ſome common, in reſpect of the Service they are of to the reſt of the Body. The common are the *Bronchia*, the Pulmonary Artery and Vein, the Nerves and Lymphatics; the proper are the Bronchial Artery and Vein. See each in its place.

The *Trachea*, juſt before it enters the *Lungs*, divides itſelf into two Branches, ſending to each Lobe one; which are again ſubdivided into innumerable Ramifications, call'd *Bronchia*. The *Bronchia* and their Branches conſiſt of Cartilages like the *Trachea*, only here the Cartilages are perfectly circular, without any membranous hinder Part; of which, having left the *Oeſophagus*, they have no need. Theſe circular Cartilages are joined together by the Membranes that inveſt them, and are capable of being ſhot out into Length upon Inſpiration, and of ſhrinking up and running into one another in Expiration, when the Cavity of the *Thorax* is leſſened. They ſend their little Ramifications to all the little Veſicles of the *Lungs*. Along with theſe Air-Veſſels run the Branches of the Pulmonary Artery and Vein; ſending their Ramifications exactly along with the other; the Artery bringing the Blood from the right Ventricle, and the Vein carrying it back to the left Ventricle of the Heart. Whether the Blood returns by the Vein impregnated with Air in the *Lungs*, is ſtill a Queſtion.

The Bronchial Artery ariſes from the hind Part of the *Aorta*, a little above the Baſis of the Heart, whence, turning off to the right, it embraces the *Trachea*; and after ſending off a Branch or two to the *Oeſophagus*, purſues the Courſe of the *Bronchia*, accompanying all their Branches through their whole Progreſs. This Artery is ſometimes ſingle, but oftener there are two of them, and ſometimes three, ariſing at near a Finger's breadth from each other. With theſe Arteries is a Vein, whoſe Branches ariſe from the Ramifications of the capillary Arteries: whether the Blood returns by one or more Trunks, does not appear. Theſe Veſſels bring Blood for the Nutriment of the *Bronchia* and Veſicles of the *Lungs*, and carry it back again.

Thro' the *Lungs* are diſtributed a great Number of Lymphatics, attending generally the Blood-Veſſels; and being at length collected, diſcharge themſelves into the Thoracic Duct.

Dr. *Willis*, contrary to the common Opinion, aſcribes to the *Lungs* a great Number of Nerves, which come from the Trunk of the *Par Vagum*; and which being diſtributed thro' the Subſtance of the *Lungs*, embrace the aërious and ſanguiferous Veſſels. He alſo aſſerts, that the *Veſiculæ* have muſculous Fibres, to enable them to exert a greater contractive Force in Expiration; tho' others deny any ſuch Fibres. *Diemerbroeck* obſerves, that the Veſicles admit not only of Air, but alſo of other groſſer Matters; and inſtances two Aſthmatic Perſons which he opened, the one a Stone-Cutter, the *Veſiculæ* of whoſe *Lungs* were ſo ſtuffed with Duſt, that, in cutting, his Knife went as if thro' a Heap of Sand; the other a Feather-Driver, in whom the Veſicles were full of the fine Duſt or Down of Feathers. For the Uſe and Action of the *Lungs*, ſee *Reſpiration*, *Voice*, &c.

LUNISOLAR, in Aſtronomy and Chronology, is underſtood of ſomething compoſed of the Revolution of the Sun, and of that of the Moon. Thus we ſay the *Luniſolar* Year; which is a Period of Years made by multiplying the Cycle of the Moon, which is 19, by that of the Sun, which is 28, the Product of which is 532; in which Space of Time thoſe two Luminaries return to the ſame Points.

LUPERCALIA, Feaſts inſtituted in antient *Rome* in Honour of the God *Pan*. The *Lupercalia* were celebrated on the 15th of the Calends of *March*, that is, on the 15th of *February*, or, as *Ovid* obſerves, on the third Day after the Ides. They are ſuppoſed to have been eſtabliſhed by *Evander*. On the Morning of this Feaſt the *Luperci*, or Prieſts of *Pan*, run naked thro' the Streets of *Rome*, ſtroaking the Women they met on the Hands and Belly with the Skin of a Goat, and promiſing them Fecundity and happy Deliveries. The Reaſon of this indecent Cuſtom in celebrating the *Lupercalia*, took its Riſe from *Romulus* and *Remus*; for while they were aſſiſting at this Feaſt a Body of Robbers, taking hold of the Occaſion, plundered them of their Flocks. Upon this the two Brothers, and all the Youth that was with them, throwing off their Clothes, to be the more expedite, purſued the Thieves, and recovered their Prey. This ſucceeded ſo well, that thenceforward this Ceremony became a part of the *Lupercalia*. This Feaſt was aboliſhed in the time of *Auguſtus*, but afterwards reſtored, and continued to the Time of the Emperor *Anaſtaſius*. *Baronius* ſays, it was aboliſhed by the Pope in 496. *Natalis Comes* calls likewiſe *Lupercalia* the Feaſts celebrated in antient *Greece*, under the Name of *Lycæa*, which ſee. The Word comes from *Lupercal*, the Name of a Place under the *Palatine* Mountain, where the Sacrifices were performed.

LUPERCI, the Name given to the Prieſts of the God *Pan*. The *Luperci* were the moſt antient Order of Prieſts in *Rome*; they were divided into two Colleges or Companies, the one called *Fabius*, and the other *Quintilius*. To theſe *Cæſar* added a third, which he call'd *Julius*. *Suetonius* mentions the Inſtitution of this new College of *Luperci*, as a thing that render'd *Cæſar* more odious than he was; however, it appears from the ſame Paſſage of *Suetonius*, that this new Company was not inſtituted by *Cæſar*, nor in Honour of *Pan*, but by ſome Friends of *Cæſar*, and in Honour of himſelf.

LUPUS, the Wolf, a *Southern* Conſtellation, conſiſting of 19 Stars. See *Star*.

LUSTRAL, an Epithet applied by the Antients to the Water uſed in their Ceremonies to ſprinkle and purify the People. From them the *Romaniſts* have borrowed the Holy Water uſed in their Churches. The Antients call'd *Dies Luſtricus*, or *Luſtral Day*, that whereon the Luſtrations were performed for a Child, and its Name given; which was the ninth Day from the Birth of a Boy, and the eighth from that of a Girl. Others performed the Ceremony on the laſt Day of that Week wherein the Child was born, and others on the fifth Day from its Birth. Over this Feaſt-Day the Goddeſs *Nundina* was ſuppoſed to preſide. The Midwives, Nurſes, and Domeſtics handed the Child backwards and forwards around a Fire burning on the Altars of the Gods, after which they ſprinkled it with Water. The old Women mixed *Saliva* and Duſt with the Water. The whole ended with a ſumptuous Entertainment.

LUSTRATION; Expiation, Sacrifices, or Ceremonies, by which the *Romans* purified their Cities, Fields, Armies, or People defiled by any Crime or Impurity. Some of their *Luſtrations* were publick, others private. They had a kind of *Luſtration*, without Victims, for Children, on the eighth Day for Girls, and on the ninth for Boys. *Luſtration* was the ſame thing with Purification. There were three different Species of it, or it was performed in three different Manners, by Fire and Sulphur, by Water, and by Air; which laſt was performed by fanning and agitating the Air round the thing to be purified.

LUSTRE, the Brillant appearing on any thing, particularly Manufactures of Silk, Wooll, and Stuff. *Luſtre* is alſo uſed for the Compoſition or Manner of giving that Brillant. The *Luſtre* of Silks, which is their chief Quality, is given them by waſhing in Soap, then clear Water, and laying them in a cold Alumn Bath. The *Luſtre* of black Taffeta is given by double-brewed Beer, boiled with Orange or Lemon Juice; that of coloured Taffeta's with Water of Gourds, diſtilled in an Alembic. Curriers give their *Luſtre* ſeveral ways, according to the Colour to be illuſtrated: For Blacks, the firſt *Luſtre* is with Juice of Barberries; the ſecond with Gum Arabic, Ale, Vinegar, and *Flanders* Glue boiled together: For colour'd Leathers, they uſe the White of an Egg beaten in Water; *Morocco*'s have their *Luſtre* from Juice of Barberries, and Lemon or Orange: For Hats, the *Luſtre* is frequently given with ſimple Water, ſometimes a little black Teint is added. The ſame *Luſtre* ſerves the Skinners, except that in white Furs they never uſe any black Dye. For very black Furs they ſometimes prepare a *Luſtre* of Galls, Copperas, *Roman* Alumn, Ox's Marrow, and other Ingredients. The *Luſtre* is given to Cloths and Mohairs by preſſing them under the Calendar.

LUSTRUM, a Term uſed by the *Romans* to ſignify a Space of five Years. *Varro* derives the Word from *luo*, *to pay*, becauſe at the beginning of each five Years they paid the Tribute that had been impoſed by the Cenſors; whoſe Authority, at their firſt Inſtitution, was continued them for five Years; tho' afterwards it was abridged to one

one. This Cuſtom was eſtabliſhed by *Servius Tullius* in the Year of *Rome* 180. Others rather derive the Word from *luſtrare, to make a Review*, becauſe once in five Years the Cenſors reviewed the Army.

Luſtrum was alſo a Ceremony or Sacrifice uſed by the *Romans* after numbering their People once in five Years.

LUTE, in Chymiſtry, any ſort of Cement or Plaiſter; us'd either in the Conſtruction of Furnaces, or in fitting to them Veſſels of Glaſs or Earth; that are to reſiſt a very violent Fire. It is frequently made of Potter's Earth, River Sand, Horſes Dung, Powder of broken Pots, *Caput Mortuum* of Vitriol, Droſs of Iron, beaten Glaſs, Flocks of Wool mix'd with ſalt Water or Bullock's Blood.

The *Lute* us'd by *Lemery*, was only two Parts of Sand and one of Clay, tempered together in Water; which does very well for joining the Noſes of Retorts and their Receivers in diſtilling of volatile Spirits, *&c.* In diſtilling by the Alembic, or Veſica, or Copper Body, with its Head or Serpentine, a wet Bladder ſerves very well to *lute* the Junctures of the Veſſels: But for the Diſtillation of corroſive Spirits, as alſo to ſtop the Cracks of Glaſſes, *&c.* the following Compoſition is recommended, *viz.* Starch boiled, or Fiſh-Glue diſſolved in Spirit of Wine, with Flower of Sulphur, Maſtic, and Lime ſlacked in Milk. *Lutum Sapientiæ* is the Hermetical Seal, which is made by melting the End of a Glaſs Mattraſs by a Lamp, and twiſting it up with the Pliers. See *Hermetical Sealing*. The Word comes from the *Latin Lutum, Clay.*

LUTE, a Muſical Inſtrument with Strings. It had antiently but five Rows of Strings; but in courſe of time four, five, or ſix more have been added. The *Lute* conſiſts of four principal Parts, the Table, the Body or Belly, which has nine or ten Sides, the Neck, which has nine or ten Stops or Diviſions mark'd with Strings, and the Head or Croſs, wherein are Screws for raiſing or lowering the Strings to the proper Tone. In the middle of the Table is a Roſe or Paſſage for the Sound. There is alſo a Bridge that the Strings are faſtened to, and a Piece of Ivory between the Head and the Neck, to which the other Extremity of the Strings are fitted. In playing, the Strings are ſtruck with the right Hand, and with the left the Stops are preſſed. We call Temperament of the *Lute* the proper Alteration that is to be made in the Intervals, both with regard to Conſonances and Diſſonances, in order to render them more juſt on the Inſtrument. Some derive the word from the *German Laute*, which ſignifies the ſame thing, or from *lauten, ſonare. Scaliger* and *Bochart* derive it from the *Arabic, Allaud.* The *Lutes* of *Boulogne* are eſteem'd the beſt, on account of the Wood, which is ſaid to have an uncommon Diſpoſition for producing a ſweet Sound.

LUTHERANISM, the Sentiments of Dr. *Martin Luther*, with regard to Religion. *Lutheraniſm* had its Riſe in the 16th Century. Its Author was born at *Eiſleben* in *Thuringia* in 1483. After his Studies he enter'd himſelf among the *Auguſtines*. In 1512, took the Cap of a Doctor in Theology in the Univerſity of *Wittemburg*. In 1516, he attack'd the School-Divinity in ſeveral Theſes. In 1517, *Leo* X. having order'd Indulgences to be diſpens'd to thoſe who ſhould contribute towards the building of St. *Peter's* at *Rome*, he gave a Commiſſion thereof to the *Dominicans*. The *Auguſtines* thinking they had a Title to it before any body elſe, *John Staupitz*, their Commiſſary-General, appointed *Luther* to preach againſt thoſe Diſpenſers of Indulgences. *Luther* acquitted himſelf in a manner that perhaps the Commiſſary had not imagin'd. From the Preachers of Indulgences he proceeded to Indulgences themſelves, and declaim'd very warmly both againſt the one and the other. At firſt he only advanc'd ambiguous Propoſitions, but being engag'd in diſpute about them, he maintain'd them openly and without Reſerve, inſomuch that in 1520 he was ſolemnly condemn'd and excommunicated by the Pope. But neither the Pope's Thunder, nor the Condemnation of ſeveral Univerſities, could make any Impreſſion of Terror upon him; but he continued preaching, writing and diſputing, not againſt Indulgences only, but ſeveral other Corruptions that then prevail'd in the Church. The Character of the Man, the Strength of his Arguments, and the Weakneſs of his Adverſaries Cauſe, ſoon procur'd him a Number of Followers. And thus it was that *Lutheraniſm* was form'd; the Adherents whereto were call'd *Lutherans*, from *Luther*, a Name that has a *Greek* Turn, and which he aſſum'd in lieu of his Family-Name, *Lotter* or *Lauther*; it being the Cuſtom of thoſe Days for Men of Learning to give themſelves *Greek* Names: witneſs *Eraſmus, Melancthon, Bucer*, &c. In 1523, *Luther* quitted the Habit of a Religious, and in 1524, married; after having been a happy Inſtrument of reforming a great part of *Germany*, under the Protection of *George* Duke of *Saxony*. He died at his native Place in 1546.

Lutheraniſm has undergone ſome Alterations ſince the time of its Founder. *Luther* rejected the Epiſtle of St. *James*, as inconſiſtent with the Doctrine of St. *Paul* in relation to Juſtification; he alſo ſet aſide the *Apocalypſe*: both which are now receiv'd as Canonical in the *Lutheran* Church. *Luther* firſt reduc'd the Number of Sacraments to two, *viz.* Baptiſm and the Euchariſt; but believ'd the Impanation or Conſubſtantiation: that is, that the Matter of the Bread and Wine remain with the Body and Blood of Chriſt; and 'tis in this Article that the main Difference between the *Lutheran* and *Engliſh* Churches conſiſts. *Luther* maintain'd the Maſs to be no Sacrifice; exploded the Adoration of the Hoſt, Auricular Confeſſion, Satisfactory Works, Indulgences, Purgatory, the Worſhip of Images, *&c.* which had been introduc'd in the corrupt Times of the *Romiſh* Church. He alſo oppos'd the Doctrine of Free Will, maintain'd Predeſtination, aſſerted that we are neceſſitated in all we do, that all our Actions done in a State of Sin, and even the Virtues themſelves, of Heathens, are Crimes; that we are only juſtify'd by the Imputation of the Merits and Satisfaction of Chriſt. He alſo oppos'd the Faſtings in the *Romiſh* Church, Monaſtical Vows, the Celibate of the Clergy, *&c.*

Some Authors reckon thirty-nine different Sects among the *Lutherans*: *viz.* the *Confeſſioniſts*, call'd alſo *Miricains*; *Antinomians, Samoſatenſes, Inferains, Antidiaphoriſts, Antiſwenfeldians, Antoſandrins, Anticalviniſts, Layers on of Hands, Biſſacramentals, Triſſacramentals, Majonites, Adiaphoriſts, Quadriſacramentals, Luthero-Calviniſts, Amnetiſtes, Medioſandrins, Confeſſioniſts firm and wavering, Sufeldians, Onandrins, Stanoanrians, Antiſancarians, Zuinglians ſimple, Zuinglians ſignificative, Carloſtatians, Evargic Tropiſts, Arrabonarii ſpiritual, Sucefeldians, Servetians, Daviticks* or *Davidi-Georgians, Memnonites*, &c. *Jovet* T. 1. p. 475.

LUTHERN, or *Dormer*, a kind of Window over the Cornice, in the Roof of a Building; ſtanding perpendicularly over the Naked of the Wall; and ſerving to illumine the Upper-Story. The *French* Architects diſtinguiſh theſe into various kinds, according to their various Forms; as Square, Semicircular, Bulls Eyes, flat Arches, *Flemiſh Lutherns*, &c. The Word comes from the *Latin Lucerna*, Light or Lanthorn.

LUXATION, in Chirurgery, a Relaxation of the Tendons or Ligaments, occaſioning the Bones to ſlip out of their Junctures, or at leaſt to remain very looſely in their natural Situation. The proper *Luxation* is when the Bone is entirely out of the Cavity it ſhould move in; which may be done various ways, and there are as many ways of reducing it; according to the particular Formation and Articulation of the Joint: for which, ſee the Books of Practical Surgery.

LYCANTHROPY, a kind of Phrenzy or Diſeaſe, that urges People to run thro the Streets and Fields in the Night; ariſing from the Bite of a mad Wolf. The Symptoms, *&c.* are in moſt reſpects the ſame with that of the *Hydrophobia*; which ſee. The Word comes from the *Greek* λύκος, *Lupus*, and ἄνθρωπος, *Homo*; as who ſhould ſay, *Man-Wolf*.

LYCEUM, the Name of a celebrated School at *Athens*, where *Ariſtotle* explain'd his Philoſophy. The Place was compos'd of Portico's, and Trees planted in the Figure of an V. Hence the Philoſophy of the *Lyceum* is us'd to ſignify the Philoſophy of *Ariſtotle*, or the *Peripatetic* Philoſophy.

Suidas obſerves, that the Place took its Name from its having been originally a Temple of *Apollo*, or rather a Portico or Gallery built by *Lycus*, Son of *Apollo*; but others mention it to have been built by *Piſiſtratus* or *Pericles*.

LYGMOS. See *Hiccup*.

LYMPH or LYMPHA, in Anatomy, a thin tranſparent Humour, ſomething like Water; ſecreted from the Serum of the Blood in all Parts of the Body, and return'd to the Blood again by proper Ducts of its own; ſuppoſed by ſome to be the immediate Matter of Nutrition. If the *Lymph* be chymically examin'd, it will be found to contain a great deal of volatile, but no fix'd Salt, ſome Phlegm, ſome Sulphur, and a little Earth.

The Uſe of the *Lymph* may be gather'd from the Conſideration of the Parts into which it diſchargeth itſelf. That which comes from the Head, Neck, and Arms, is thrown into the Jugular and Subclavian Veins. All the *Lymphatics*, which the Parts in the Cavity in the Thorax ſend out, empty themſelves into the Thoracic Duct; and the *Lympha*, from all the reſt of the Body, flows to the common Receptacle; ſo that there can be no doubt, but that its chief Uſe is to dilute and perfect the Chyle before it mixes with the Blood.

LYMPHATICS, or LYMPHÆDUCTS; very ſmall, fine, hollow Veſſels, generally ariſing from the Glands, and conveying back to the Blood a tranſparent Liquor, call'd *Lymph* or *Lympha*. Theſe, tho not ſo viſible as the other Veſſels, becauſe of their Minuteneſs and Tranſparency, are however exiſtent in all Parts of the Body; but the Difficulty of finding them, has prevented their being deſcribed in many Parts. The *Lymphatics* are contracted at ſmall and unequal Diſtances, by two oppoſite ſemi-lunar Valves, which permit the *Lymph* to paſs through them towards the Heart, but ſhut, like Flood-Gates, upon its returning. They ariſe in all Parts of the Body, but after what manner, needs no great Diſpute; for, without doubt, all the Liquors in the Body, excepting the Chyle, are ſeparated from the Blood in the fine Capillary Veſſels, by a different Pipe from the common Channel in which the reſt of the Blood moves: but whether this Pipe be long or ſhort, whether it be viſible or inviſible, it is ſtill a Gland, whilſt it ſuffers ſome part of the Blood to paſs thro it; denying a Paſſage to the reſt. Now the Glands which ſeparate the *Lymph* muſt be of the ſmalleſt kinds, for they are inviſible to the fineſt Microſcope; but their excretory Ducts, the *Lymphatic* Veſſels, unite with one another, and grow larger, as they approach the Heart: yet they do not open into one common Channel, as the Veins do; for ſometimes we find two, or three, or more *Lymphatics*, running by one another; which only communicate by ſhort intermediate Ducts, and which unite, and immediately divide again. In their Progreſs, they always touch at one or two conglobate or veſicular Glands, into which they diſcharge themſelves of their *Lympha*. Sometimes the whole *Lymphatic* opens at ſeveral Places into the Gland, and ſometimes it ſends in only two or three Branches, whilſt the main Trunk paſſes over, and joins the *Lymphatics* which ariſe from the oppoſite ſides of the Glands, exporting again their *Lympha* to their common Receptacles. Now the Glands of the Abdomen, which receive the *Lymphatics* from all its Parts, as likewiſe from the lower Extremities, are the *Glandulæ Inguinales*, *Sacræ*, *Iliacæ*, *Lumbares*, *Meſentericæ*, and *Hepaticæ*; all which ſend out new *Lymphatics*, which pour their Contents into the *Receptaculum Chili*, as thoſe of the Cheſt, Head and Arms, do into the *Ductus Thoracicus*, Jugular, and Subclavian Veins. Theſe Glands are round and ſmooth Bodies, about the Bigneſs of a Hazle Nut, bigger or leſſer, according to the number of *Lymphatics* they receive. Their Subſtance is membranous, and their whole Bulk divided into little Cells, which receive the *Lymph* from the *Lymphatics*; and are therefore improperly call'd *Glands*, becauſe they ſeparate no Liquor from the Blood: It is true, that their exporting *Lymphatics*, communicating with their Arteries, do receive a *Lymph* from them; but this is done without the help of conglobate Glands; as the lacteal Veins do with the capillary Arteries of the Guts: the chief Uſe of their veſicular Bodies ſeems to be, that the ſlow-moving *Lympha* may receive a greater Velocity from the elaſtic Contraction of their membranous Cells, as well as from the new *Lymph* immediately derived from the Arteries. See *Gland*.

LYRA, or LYRE, the ſame with *Citbara*, a Harp; a ſtringed Inſtrument much uſed among the Antients; ſaid to have been invented by *Mercury*, on occaſion of his finding a dead Shell-Fiſh, call'd by the *Greeks Chelone*, and the *Latins Teſtudo*, left, on an Inundation of the *Nile*; of the Shell whereof he form'd his *Lyre*, mounting it with ſeven Strings, according to *Lucian*, and adding a kind of *Jugum* to it, to ſtretch or looſen the Strings. *Boethius* relates the Opinion of ſome, who ſay that *Mercury*'s *Lyre* had but four Strings, in imitation of the Mundane Muſic of the four Elements. *Diodorus Siculus* ſays it had but three Strings, in imitation of the three Seaſons of the Year; which were all the *Greeks* counted, *viz.* Spring, Summer and Winter. *Nicomachus*, *Horace*, *Lucian*, and others, make it have ſeven Strings, in imitation of the ſeven Planets. This three, four, or ſeven-ſtringed Inſtrument *Mercury* gave to *Orpheus*; who being torn to pieces by the *Bacchanals*, the *Lyre* was hung up by the *Leſbians* in *Apollo*'s Temple. Others ſay, *Pythagoras* found it in ſome Temple in *Egypt*, and added an eighth String. *Nicomachus* ſays, that when *Orpheus* was kill'd, his *Lyre* was caſt into the Sea, and thrown up at *Antiſſa* a City of *Leſbos*; where the Fiſhers finding it, gave it to *Terpander*; who carried it into *Egypt*, and call'd himſelf the Inventor. The ſeven Strings were diatonically diſpoſed. by Tones and Semi-Tones, and *Pythagoras*'s eighth String made up the Octave.

From the *Lyra*, which all agree to be the firſt Inſtrument of the ſtringed kind in *Greece*, aroſe an infinite Number of others, differing in Shape and Number of Strings; as the *Pſalterium*, *Trigon*, *Sambuca*, *Pectis*, *Magadis*, *Barbiton*, *Teſtudo*, (the two laſt uſed promiſcuouſly by *Horace* with the *Lyra* and *Citbara*) *Epigonium*, *Simmicium* and *Pandura*; which were all ſtruck with the Hand or a *Plectrum*.

The *Lyra* among Painters, Statuaries, &c. is an Attribute of *Apollo* and the Muſes.

Lyra is alſo a Conſtellation in the Northern Hemiſphere, conſiſting of thirteen Stars. See *Star*.

LYRIC; ſomething ſung, or play'd on the Lyre or Harp. The Word is particularly applied to the antient Odes and Stanza's; which anſwer to our Airs or Tunes, and may be play'd on Inſtruments. The Antients were great Admirers of *Lyric* Verſes, which Name they gave to ſuch Verſes as do not come under either of the two ordinary Kinds of Verſe, *viz.* Hexameters and Iambics. Theſe were principally uſed in Odes, and in the Chorus's of Tragedies. The Characteriſtic of *Lyric* Poetry, and that which diſtinguiſhes it from all others, is Sweetneſs. As Gravity rules in Heroic Verſe, Simplicity in Paſtoral, Tenderneſs and Softneſs in Elegy, Sharpneſs and Poignancy in Satire, Mirth in Comedy, the Pathetic in Tragedy, and the Point in Epigram; ſo in the *Lyric*, the Poet applies himſelf wholly to ſooth the Minds of Men by the Sweetneſs and Variety of the Verſe, and the Delicacy of the Words and Thoughts, the Agreeableneſs of the Numbers, and the Deſcription of Things moſt pleaſing in their own Nature. See *Ode*, *Song*, &c.

LYSIARCHA, the Name of an antient Magiſtrate or Pontiff of *Lycia*. *Strabo* obſerves, that the *Lyſiarcha* was created in a Council, conſiſting of the Deputies of twenty-three Cities, that is, of all the Cities in the Province; ſome of which Cities had three Voices, others two, and others but one. Cardinal *Noris* ſays, that the *Lyſiarcha* preſided in Matters of Religion; in effect, the *Lyſiarcha* was nearly the ſame with the *Aſiarcha* and *Syriarcha*; who, tho they were all the Heads of the Councils or States of thoſe Provinces, yet were they eſtabliſh'd principally to take care of the Games and Feaſts celebrated in honour of the Gods, whoſe Prieſts they were inaugurated at the ſame time that they were created *Lyſiarcha*, *Syriarcha*, or *Aſiarcha*.

M, A Conſonant, and the Twelfth Letter in the *Engliſh* Alphabet. It is pronounced by ſtriking the upper Lip againſt the lower; in which the Pronunciation of this Letter agrees with that of *b*: the only Difference between the two conſiſting in a little Motion made in the Noſe in the Pronunciation of *M*, and not in *b*: whence it happens that thoſe who have taken Cold, for *M* ordinarily pronounce *B*; the Noſe in that caſe being diſabled from making the neceſſary Motion. See *B*.

Quintilian obſerves, that the *M* ſometimes ends *Latin* Words, but never *Greek*; the *Greeks* always changing it in that Caſe into *N*, for the ſake of the better Sound.

M is alſo a Numeral Letter, and among the Antients was uſed for a Thouſand; according to the Verſe,

> M *Caput eſt Numeri quem ſcimus Mille tenere.*

When a Daſh is added a top of it, it ſignifies a thouſand times a thouſand; $\bar{M}$.

The Letter *M* in Aſtronomical Tables, and other things of that kind, is uſed for Meridional or Southern.

M, in Medicinal Preſcription, is frequently uſed to ſignify a Manipule, or Handful; and is ſometimes alſo put at the end of a *Recipe*, for *Miſce*, mingle; or *Mixtura*, a Mixture.

M, in Law, was the Brand or Stigma of a Perſon convicted of Murder, and admitted to the Benefit of his Clergy. It was burnt on the Brawn of his left Thumb.

MACARONIC, or MACARONIAN; a kind of Burleſque Poetry; conſiſting of a Jumble of Words of different Languages, with Words of the vulgar Tongue latiniz'd, and *Latin* Words moderniz'd. For Inſtance, a bold Fellow, in the *Macaronic* Stile, ſays;

> *Enfilavi omnes Scadrones & Regimandos*, &c.

Another Example:

> *Archeros Piſtoliferos furiamque Manantum,*
> *Et grandem eſmentam quæ inopinum facta Ruellæ eſt:*
> *Toxinumque alto troublantem Corda Clochero*, &c.

Macarone, among the *Italians*, as has been obſerved by *Cælius Rhodiginus*, ſignifies a coarſe clowniſh Man; and becauſe this kind of Poetry, being patch'd out of ſeveral Languages, and full of extravagant Words, is not ſo polite and ſmooth as thoſe of *Virgil*, &c. the *Italians*, among whom it had its Riſe, gave it the Name of *Macaronian* and *Macaronic* Poetry. Others rather chuſe to derive it *à Macaronibus*, from *Makarons*; a kind of little Cakes made of Meal not boulted, with Eggs and Cheeſe; accounted a great Dainty among the Country People in *Italy*; which, from their being compoſed of various Ingredients, occaſion'd this kind of Poetry, which conſiſts of *Latin*, *Italian*, *Spaniſh*, *French*, *Engliſh*, &c. to be called by their Name.

Theoph. Folingius, a *Benedictin* Monk of *Mantua*, was the firſt who invented, or at leaſt cultivated, this kind of Verſe: For tho we have a *Macaronea Ariminenſis* in a very old Letter, beginning, *Eſt Author Tiphis Leonicus atque Paranſus*; yet it ſeems to have been the Work of *Guarinus Capellus Sarſinas*, who in the Year 1526 printed ſix Books of *Macaronic* Poetry, *in Cabrinum Gagamogæ Regem*: but as both theſe came out after the firſt Edition of *Folingius*, which was publiſh'd under the Name of *Merlin Coccaye*, in 1520; ſo were they likewiſe much inferior to him both in the Stile, Invention and Epiſodes wherewith he has enrich'd the Hiſtory of *Baldus*; which makes the Subject of his Poem. The famous D. *Rabelais* tranſlated the *Macaronic* Stile out of the *Italian* Verſe into *French* Proſe, and on the Model thereof form'd ſome of the beſt things in his *Pantagruel*. *Merlin Coccaye* met with ſo much Succeſs in his new Way, that he compoſed another Book partly in *Macaronic* Stile, call'd *Il Chars del tri per uno*; but with very different Succeſs. After this, appear'd in *Italy*, *Macaronica de Syndicatu, & Condemnatione Doctoris Samſonis Lembi*, a low Performance; and *Macaronis Forza*, an excellent one, by *Stefonio* a Jeſuit. In 1620, *Bajani* publiſhed a *Carnavale Tabula Macaronea*. The laſt *Italian* who wrote in this way, was *Cæſar Urſinius*, to whom we owe *Capricia Macaronica Magiſtri Stopini Poetæ Pouzanenſis*, printed in 1636. The firſt who ſucceeded in the *Macaronic* Stile among the *French* was *Antonius de Arena Provenſalis de Bragardiſſima Villa de Soleriis*, in two Poems, which he has left us; *de Arte Danſandi, & de Guerra Neapolitana Romana & Genuenſi*. He was follow'd by another Lawyer, who wrote *Hiſtoria Braviſſima Caroli V. Imperat. a Provincialibus Payſanis triumphanter fugati*. Some time after *Remi Belleau*, among his other *French* Poeſies, printed *Dictamen Metrificum de Bello Hugonotico, & Ruſticorum Pigliamine ad Sodales*; a Piece much valued. This was ſucceeded by *Cacaſanga Reiſtro Suiſſo Lanſquenetorum per M. J. B. Lichiardum Spalſpercinum Poetam*; to which *Stephen Tabouret* return'd an Anſwer in the ſame Strain. Laſtly, *John Edward du Menin* enter'd the Liſts, and left us *inter teriſmata ſua Carmen Arenaicum de quorundam Nugigerulorum Piaſſa inſupportabili.* The *Recitus Veritabilis ſuper terribili eſmeuta Paiſanorum de Ruellio*, is one of the beſt Pieces of this kind.

We have but little in *Engliſh* in the *Macaronian* Way; nothing ſcarce, but ſome little looſe Pieces collected in *Cambden*'s Remains: which is no Diſcredit to our Authors: for one may ſay of ſuch Pieces in general,

> *Turpe eſt Difficiles habere Nugas,*
> *Et Stultus Labor eſt Ineptiarum.*

The *Germans* and *Netherlanders* have had their *Macaronic* Poets; witneſs the *Certamen Catholicum cum Calviniſtis*, of one *Martinius Hamcenius Friſius*, which contains above twelve hundred Verſes, all the Words whereof begin with the Letter C.

MACE, a Medicinal Bark, the outermoſt of the three which covers the Nutmeg. It is of an aſtringent and drying Nature, and is uſed as a Corrector in Cardiac and Cathartic Compoſitions. See *Nutmeg*.

MACERATION, in Pharmacy and Chymiſtry, is underſtood of a certain Preparation of Medicines, otherwiſe expreſs'd by the Word *Digeſtion*. Others however reſtrain the Word to that particular kind of Digeſtion, which is performed in a thick Matter; as when, for inſtance, having mix'd Roſes with Fat to make *Unguent. Roſatum*, the Mixture is expoſed for ſome Days to the Sun, that the Virtue of the Roſes may be the better communicated to the Fat. See *Digeſtion*.

MACHINE, in the general, ſignifies any thing that ſerves to augment or regulate moving Powers; or *Machine* may be defined any Body deſtined to produce Motion, ſo as to ſave either Time or Force. There are ſix principal *Machines*, to which all the others may be reduced; *viz.* the Balance, Lever, Wheel, Pulley, Wedge, and Screw. Theſe are call'd *Simple Machines*; and of theſe all other compound ones conſiſt. For the Doctrine of theſe, ſee *Balance*, *Lever*, &c. See alſo *Mechanic Powers*.

The Number of compound *Machines* is now almoſt infinite; and yet the Antients ſeem to have out-done the Moderns in this reſpect. Their *Machines* of War, Architecture, *&c.* being deſcribed as vaſtly ſuperior to ours.

Machine for Building, is an Aſſemblage of Pieces of Wood ſo diſpoſed, as that by means of Ropes and Pulleys, a ſmall Number of Men may raiſe vaſt Loads, and lay 'em in their Places; as Cranes, *&c.* 'Tis hard to conceive what *Machines* the Antients muſt have uſed to raiſe thoſe immenſe Stones found in ſome of the antique Buildings.

Hydraulic, or *Water Machine*, is either uſed to ſignify a ſimple *Machine*, ſerving to conduct or raiſe Water; as a Sluice, Pump, *&c.* or ſeveral of theſe acting together, to produce ſome extraordinary Effect; as the *Machine* of *Marly*; the *Primum Mobile* whereof is an Arm of the River *Seine*, which by its Stream turns ſeveral large Wheels, which work the Handles, and theſe with Piſtons raiſe the Water up into the Pumps, and with other Piſtons force it up in Pipes againſt the Aſcent of a Hill to a Reſervoir in a Stone Tower, 62 Fathom higher than the River; ſufficient to ſupply *Verſailles* with a conſtant Stream 200 Inches in Diameter.

Machines of War: Theſe among the Antients were of three kinds; the firſt ſerving to launch Arrows, as the Scorpion; Javelins, as the Catapulta; Stones, as the Baliſta; or fiery Darts, as the Pyraboli; the ſecond ſerving to beat down Walls, as the battering Ram and Terebra; and the third to ſhelter thoſe who approach'd the Enemies Wall; as the Tortoiſe or Teſtudo, and the Towers of Wood. The *Machines of War* now in uſe, conſiſt in Artillery, Bombs, Petards, *&c.* Tho it muſt be obſerved, that in ſtrictneſs, a *Machine* is ſomething that conſiſts more in Art and Invention, than in the Strength and Solidity of the Materials; and for this reaſon it is that the Inventors of *Machines* are call'd *Ingenieurs* or *Ingeneers*. See *Engine*. The Word comes from the *Greek*, μηχανὴ, *Machine*, *Invention*, *Art*.

Machine, in Dramatic Poetry, a Term uſed, when the Poet brings ſome Divinity or ſupernatural Being upon the Stage; to perform ſome Exploit, or ſolve ſome Difficulty out of the reach of Human Power. The *Machines* of the Drama are Gods, Angels, Ghoſts, *&c.* which are ſo called from the *Machines* or Contrivances by which they are preſented upon the Stage, and afterwards removed again. Hence the Uſe of the Word has alſo paſſed into the Epic Poem; tho' the Reaſon of its Name be there wanting: The Word, however, is us'd in the ſame Senſe in both, *viz.* for the Intervention or Miniſtry of ſome Divinity; but the Occaſion of *Machines*, in the one and the other, being ſomewhat different, the Rules and Laws of managing them are different likewiſe. The antient Dramatic Poets never brought any *Machine* on the Stage, but where there was an abſolute Neceſſity for the Preſence of a God; and were generally laughed at for ſuffering themſelves to be reduced to ſuch a Neceſſity. Accordingly *Ariſtotle* lays it down as an expreſs Law, that the unravelling of the Piece ſhould ariſe from the Fable itſelf; and not from any foreign *Machine*, as in the *Medea*. *Horace* is ſomething leſs ſevere; and contents himſelf with ſaying, that the Gods ſhould never appear, unleſs the *Nodus*, or Knot, were worthy of their Preſence; *Nec Deus interſit, niſi dignus Vindice Nodus,—inciderit.* But 'tis quite otherwiſe in the *Epopea*; there muſt be *Machines* every where, and in every Part. *Homer* and *Virgil* do nothing without them. *Petronius*, with his uſual Fire, maintains, that the Poets ſhould deal more with the Gods than with Men; that he ſhould every where leave Marks of his prophetic Raptures, and of the Divine Fury that poſſeſſes him; that his Thoughts be all full of Fables, that is, of Allegories and Figures: In fine, he will have a Poem diſtinguiſhed from an Hiſtory in all its Parts; not ſo much by the Verſes, as by that Poetical Fury which expreſſes itſelf wholly by Allegories; and does nothing but by Machines, or the Miniſtry of the Gods. A Poet therefore muſt leave it to the Hiſtorians to ſay, that a Fleet was diſperſed by a Storm, and driven to foreign Shores; and muſt himſelf ſay with *Virgil*, that *Juno* went to ſeek *Eolus*, and that this God, at her Requeſt, turned the Winds looſe againſt the *Trojans*. He muſt leave the Hiſtorian to write, that a young Prince behaved himſelf with a great deal of Prudence and Diſcretion on all Occaſions; and muſt ſay with *Homer*, that *Minerva* led him as it were by the hand in all his Enterprizes. Let an Hiſtorian ſay, that *Agamemnon*, quarrelling with *Achilles*, has a mind to ſhew him, tho' miſtakingly, that he can take *Troy* without his Aſſiſtance. The Poet muſt ſay that *Thetis*, piqued at the Affront her Son had received, flies up to Heaven to demand Vengeance of *Jupiter*; and that this God, to ſatisfy her, ſends the God *Somnus*, or *Sleep*, to *Agamemnon*, to deceive him, and make him believe that he ſhall take *Troy* that day. 'Tis thus that the Epic Poets uſed *Machines* in all Parts of their Works; In the *Iliad*, *Odyſſee*, and *Æneid*, the Propoſition mentions them; the Invocation is addreſſed to them; and the Narration is full of them: they are the Cauſes of Actions; they make the Knots, and at laſt they unravel them. This laſt Circumſtance is what *Ariſtotle* forbids in the Drama; but 'tis what *Homer* and *Virgil* have both practiſed in the *Epopea*. Thus *Minerva* fights for *Ulyſſes* againſt *Penelope*'s Lovers, helps him to deſtroy them; and the next Day herſelf, makes the Peace between *Ulyſſes* and the *Ithacans*, which cloſes the *Odyſſee*.

Further, the Uſe of *Machines*, in the Epic Poem, is, on ſome Accounts, entirely oppoſite to what *Horace* preſcribes for the Theatre. In Tragedy that Critic will never have them us'd without an abſolute Neceſſity; whereas in the *Epopea* they ſhould never be uſed but where they may be well let alone; and where the Action appears as if it did not neceſſarily require them. How many Gods and *Machines* does *Virgil* implore to raiſe the Storm that drives *Æneas* into *Carthage*? which yet might eaſily have happened in the ordinary Courſe of Nature. *Machines*, in the Epic Poem, therefore are not Contrivances of the Poet, to recover himſelf after he has made a falſe Step; nor to ſolve any Difficulty proper to ſome Parts of the Poem: but 'tis the Preſence of a Divinity, and ſome ſupernatural and extraordinary Action which the Poet inſerts in moſt of the Incidents of his Work, to render it more majeſtick and admirable; and to train his Readers to Piety and Virtue. This Mixture ſhould be ſo managed, as that the *Machines* may be retrenched, without retrenching any thing from the Action.

As to the Manner in which the *Machines* are to act; it may be obſerved, that in the old Mythology there are Gods both good, bad, and indifferent; and that our Paſſions may be converted into ſo many allegorical Divinities: ſo that every thing, both good and bad in a Poem, may be attributed to theſe *Machines*, and may be tranſacted by them. They don't however always act in the ſame manner; ſometimes they act without appearing, and by ſimple Inſpirations, which have nothing in them extraordinary or miraculous; as when we ſay the Devil ſuggeſted ſuch a Thought, *&c.* The ſecond Manner of their acting is entirely miraculous; as when a Divinity preſents itſelf viſibly before Men, ſo as to be known by them; or when they diſguiſe themſelves under ſome human Form without diſcovering themſelves. The third Manner partakes of each of the two, and conſiſts in Oracles, Dreams, and extraordinary Inſpirations; which *Boſſu* calls *Demi-Machines*. All theſe Manners ought to be ſo managed, as to carry a Veriſimilitude; and tho' Veriſimilitude be of a vaſt Extent in *Machines*, as being founded on the Divine Power; yet has it Bounds. *Horace* propoſes three kinds of *Machines* for the Stage; the firſt is a God viſibly preſent among the Actors, which, he ſays, ſhould never be introduc'd but on a great Occaſion. The ſecond contains more incredible and extraordinary *Machines*; as the Metamorphoſis of *Progne* into a Swallow, of *Cadmus* into a Serpent: and even theſe *Machines* he does not abſolutely condemn or exclude wholly out of the Poem, but only out of the Scene and the Sight of the Spectators: they are not to be repreſented, but may be recited. The third kind of *Machines* is abſolutely abſurd; and he rejects it entirely: the Inſtance he gives, is that of a Child taken alive out of the Belly of a Monſter that had devoured it. The other two Manners are allow'd indifferently in the *Epopea*; and without that Diſtinction of *Horace*, which only ſuits the Stage; it being in the Drama alone, that a Difference may be made between what paſſes in the Scene, or the Sight of the Spectators, and what behind the Curtain. See *Boſſu*.

MACROCEPHALUS, from μακρὴ *magnus*, *great*, and κεφαλὴ, *Caput*, *the Head*, is ſometimes uſed to ſignify an Head larger than of a natural Size.

MACROCOSM, a Term ſeldom uſed but in oppoſition to Microcoſm. By *Macrocoſm* we mean the World; and by Microcoſm, which ſignifies little World, we mean Man. The Word *Macrocoſm* is form'd from the *Greek* μάκρος, *Great*, and κοσμος, *World*.

MACULÆ, in Aſtronomy, dark Spots, of an irregular changeable Figure; obſerved in the face of the Sun: firſt taken notice of by *Scheiner* in 1611, and afterwards accurately obſerved by *Gallileus*, *Hevelius*, Mr. *Flamſtead*, *Caſſini*, *Kirch*, &c. Many of theſe *Maculæ* appear to conſiſt of heterogeneous Parts; whereof the darker and more denſe are call'd by *Hevelius*, *Nuclei*, and are incompaſſed, as it were, with Atmoſpheres ſomewhat rarer and leſs obſcure; but the Figure both of the *Nuclei* and entire *Maculæ* are variable. In 1644, *Hevelius* obſerv'd a ſmall thin Macula, which in two Days time grew to ten times its Bulk; appearing withal much darker, and with a larger *Nucleus*; and ſuch ſudden Mutations are frequent. The *Nucleus*, he obſerv'd, began to fail ſenſibly e'er the Spot diſappeared, and that, e'er it quite vaniſhed, broke into four, which in two Days reunited. Some *Maculæ* have laſted 2, 3, 10, 15, 20, 30, ſeldom 40 Days, tho' *Kirchius* obſerv'd one in 1681, from *April* 26 to the 17th of *July*. The Spots move over the Sun's Disk, with a Motion ſomewhat ſmaller near the Limb than near the Centre; that obſerv'd by *Kirch* was twelve Days viſible in the Sun's Disk; for fifteen Days more it lay hid behind it; it being their Rule to return to the Limb whence they departed in 27, ſometimes in 28 Days. Laſtly, it muſt be obſerved, that the *Maculæ* contract themſelves near the Limb, and in the middle of the Disk appear much larger; thoſe often running into one in the Disk, which in the Limb were ſeparate; that many of them ariſe in the middle of the Disk, and many diſappear in the ſame; and that none of them are obſerved to deviate from their Path near the Horizon: Whereas *Hevelius* obſerving *Mercury* in the Sun, near the Horizon, found him too low; being thruſt 27 Seconds beneath his former Path. From theſe Phænomena we collect,

(1.) That ſince *Mercury*'s Depreſſion below his Path ariſes from his Parallax, the *Maculæ* having no Parallax from the Sun, are nearer him than the Planet; but ſince they are hid behind the Sun three Days longer than they are in the Hemiſphere viſible to us, it follows alſo, that they don't adhere to the Surface of the Sun, but are at ſome diſtance from it.

(2.) That ſince they ariſe and diſappear in the middle of the Sun's Disk, and undergo various Alterations with regard both to Bulk, Figure, and Denſity, they muſt be formed *de novo*, and again diſſolved about the Sun; and are therefore, in all probability, a kind of Solar Clouds formed out of its Exhalations.

(3.) Since then the Solar Exhalations riſe over his Body; and are ſuſpended at a certain Height from it; it appears, from the Laws of Hydroſtatics, that the Sun muſt be incompaſſed with ſome Fluid to drive thoſe Exhalations upwards; which Fluid muſt be denſer, as it is lower; and rarer, as higher, like our Atmoſphere: And ſince the *Maculæ* diſſolve and diſappear in the very middle of the Sun's Disk, the Matter thereof, *i. e.* the Solar Exhalations muſt fall back again to the Sun; whence there muſt ariſe Changes in the Sun's Atmoſphere, and conſequently in the Sun itſelf.

(4.) Since the Revolution of the *Maculæ* round the Sun is very regular; and ſince their Diſtance from the Sun is very ſmall, 'tis not properly the *Maculæ* that move round the Sun: But 'tis himſelf, together with his Atmoſphere, wherein the *Maculæ* ſwim, that in the ſpace of 27 Days moves round its own Axis; and hence it is that the *Maculæ*, being viewed obliquely near the Limb, appear narrow and oblong.

And, Laſtly, ſince the Sun appears with a circular Disk in every Situation; his Figure, as to Senſe, muſt be ſpherical. Some Authors likewiſe take notice of *Faculæ*, or bright Spots, in the Disk of the Sun, much more lucid than the reſt, much larger than the *Maculæ*, and very different from them both, as to Figure, Duration, &c. *Hevelius* mentions his ſeeing a *Facula* in 1634, which took up a third part of the Sun's Diameter; and adds, that the *Maculæ* frequently change into *Faculæ*; but the *Faculæ* ſeldom or never into *Maculæ*. But *Huygens*, and other great Aſtronomers, reject the Notion of the *Faculæ*; having never ſeen any thing like them (tho furniſh'd with the beſt Teleſcopes) excepting little bright Specks in the dim Clouds which frequently incompaſs the *Maculæ*; and which may be owing to the Refraction of the Sun's Rays in the rarer Parts of his Atmoſphere. And as to that little Inequality obſerved in the Circumference of the Sun's Disk, which is uſually aſcribed to the Wavings and Eructations of the Flames; it ſeems better accounted for from the tremulous Agitation of the Vapours in our own Atmoſphere.

MADDER, the Root of a Plant, much uſed by Dyers, to make the moſt ſolid and rich red Colour; it has its Uſes too in Medicine, being found of Service in Obſtructions of the Viſcera and Cachectic Conſtitutions; and is generally made up in forms of Decoctions, Diet-Drinks, and medicated Ales.

MADNESS, or MANIA, in Medicine, a kind of Delirium without a Fever, attended with Rage, and a total Deprivation of Reaſon. *Madneſs* conſiſting much in a Delirium, to explain the Nature of the former, Dr. *Quincy* premiſes that of the latter thus: As often as the Species of Things, wherewith we have been acquainted, are hurried together, we may be ſaid to dream, and thence in Sleep they are added with other things, and variouſly compounded, from the manifold Repercuſſions of the Animal Spirits, which ariſe from the Cauſe producing Sleep, and preſſing the Nerves, ſo as to revert the Fluctuations of their Juice. A Delirium is therefore the Dreams of waking Perſons, wherein Ideas are excited without Order or Coherence, and the Animal Spirits are drove into irregular Fluctuations. If therefore the Cauſe inducing a Delirium be of that nature, that it can excite Ideas or Motions of a conſiderable Impetus, without any manner of Certainty or Order, ſuch a Delirium will be attended with Boldneſs or Rage, and violent Motions of the Body; that is, a Madneſs will be produced. Now it is plain, that all the known Cauſes of this Diſtemper give a greater Diſpoſition to the Blood for Motion, and render it fluxile, but not conſiſtent, and uniformly thick enough; and therefore that they diſpoſe Perſons likewiſe to continued Fevers, ſince they occaſion the Blood to be thrown out of the Heart with an increaſed Force, unleſs ſome other Cauſe intervenes, whereby the Efficacies of theſe are interrupted in diſpoſing the Blood into Febrile Motions; and the Blood is ſo diſpoſed, as often as it can be rarefied into its minuteſt Parts; that is, ſo uniformly rarefied, that it can eaſily, with any Force by the Motion received from the Heart, go into Parts diviſible at the Occurſions of thoſe Orifices, into which it ought to be diſtributed: for then the Coheſion of the Parts, which can be but very ſmall, will not be any Obſtruction to the Increaſe and Propagation of the Blood's Velocity. But if it happens that the efficient Cauſe, or the Heart, throws the Blood with a greater Force, or that the Blood can the more eaſily be propelled in any given Time, it will occaſion, at the ſame time, that ſome Parts of the Blood be more nearly united, ſo as to form *Moleculæ*, conſiſting of cohering Particles; which *Moleculæ* will cohere to one another, and not ſo eaſily obey the Direction of the Heart's propelling Force. The Blood hereupon cannot be uniformly rarefied, nor enter ſo eaſily into the ſmall Orifices of the Veſſels, and ſo ſoon travel thro' them, and therefore there will no Fever ariſe; but a Delirium without a Fever, wherein the Heat of the Blood will be greater, and the Preſſure in the Brain uncertain: whence uncertain Recurſions of the Spirits, inordinate Undulations, confuſed Vibrations of the Nerves, and a remarkable Energy of Imagination; whence will proceed Audacity and Paſſion beyond meaſure. Some Authors ſay, that the Brain of a Cat eaten, produces *Madneſs*. 'Tis a Diſeaſe very hard to cure, and is generally found to baffle the Phyſician.

MADRIER, in the Military Art, a thick Plank armed with Iron Plates, having a Concavity ſufficient to receive the Mouth of the Petard when charged, with which it is applied againſt a Gate, or other Body deſigned to be broke down. *Madrier* is alſo the Name of a flat Beam fixed at the bottom of a Moat to ſupport a Wall. Beſides which, there are alſo *Madriers* lined with Tin, and covered with Earth, ſerving as a Defence againſt artificial Fires.

MADRIGAL, a Term in the modern *Italian*, *Spaniſh*, and *French* Poetry, ſignifying a little amorous Piece, containing a certain Number of looſe unequal Verſes, not tied either to the ſcrupulous Regularity of a Sonnet, or the Subtlety of an Epigram; but conſiſting of ſome tender, delicate, yet ſimple Thought, ſuitably expreſſed. The *Madrigal*, according to Mr. *le Brun*, is an Epigram without any thing very brisk and ſprightly in its Fall or Cloſe: ſomething very tender and gallant is uſually the Subject of it; and a certain beautiful, noble, yet chaſte, Simplicity, makes its Character.

The *Madrigal* is uſually looked on as the ſhorteſt of all the little kinds of Poems, and may conſiſt of fewer Verſes than either the Sonnet or Rondelay. There is no other Rule regarded in mingling the Rhimes and Verſes of different kinds, but the Choice and Convenience of the Author. This Poem, however, really allows of leſs Licence than any other; whether we regard the Rhyme, the Meaſures, or the Purity of Expreſſion.

Menage derives the Word from *Mandra*, which, in *Latin* and *Greek*, ſignifies a Company of Cattel; imagining it to have been originally a kind of Paſtoral or Shepherd's Song; whence the *Italians* formed their *Madrigale*, and we *Madrigal*. Others rather chuſe to derive the Word from *Madrugar*, which, in the *Spaniſh* ſignifies to riſe in the Morning: the *Madrigals* being formerly ſung early in the Morning, by thoſe who had a mind to ſerenade their Miſtreſſes.

MAGAS, or MAGADE, the Name of a muſical Inſtrument in Uſe among the Antients. There were two kinds of *Magades*; the one a ſtring Inſtrument, the Invention whereof is aſcribed by ſome to *Sappho*, and by others to the *Lydians*, and by others to *Timotheus* of *Miletum*. The other *Magade* was a kind of Flute, which at the ſame time yielded very high and very low Notes; the former kind was much improved by *Timotheus* of *Miletum*, who is ſaid to have been impeached of a Crime; for that by increaſing the Number of Chords, he ſpoiled and diſcredited the antient Muſic.

MAGAZINE, or Arſenal, is the Place in fortified Towns where all ſorts of Stores are kept, and where Carpenters, Wheelwrights, Smiths, &c. are employed in making all things needful to furniſh out the Train of Artillery.

S. MAGDALEN. There are ſeveral kinds of Nuns, or Religious, who bear this Name; conſiſting generally of penitent Courtezans: ſometimes alſo call'd *Magdalanettes*; as thoſe at *Metz* eſtabliſhed in 1452, thoſe at *Paris* in 1492; thoſe at *Naples*, firſt eſtabliſhed in 1324, and endowed by Queen *Sancha*, to ſerve as a Retreat to public Courtezans, who ſhould quit the Trade, and betake themſelves to Repentance; and thoſe of *Rouen* and *Bourdeaux*, which had their Original among thoſe of *Paris*. In each of theſe Monaſteries there are three kinds of Perſons and Congregations, *viz.* the firſt is of thoſe who are admitted to make Vows, and theſe bear the Name of St. *Magdalen*; the Congregation of St. *Martha* is the ſecond, and is compoſed of thoſe whom 'tis not judged proper to admit to Vows; the Congregation of St. *Lazarus* is compoſed of ſuch as are detained there by force. The Religious of St. *Magdalen* at *Rome* were eſtabliſhed by Pope *Leo* X. *Clement* VIII. ſettled a Revenue on them, and further appointed, that the Effects of all public Proſtitutes, dying without Teſtaments, ſhould fall to them; and that the Teſtaments of the reſt ſhould be invalid; unleſs they bequeathed a Portion of their Effects, which was to be at leaſt a fifth Part, to them.

MAGI, the Title the *Eaſtern* Nations, both antiently and at preſent, give to their Wiſe-men or Philoſophers. The antient *Magi*, according to *Ariſtotle* and *Laertius*, were the Authors and Conſervators of the *Perſian* Philoſophy; and the Philoſophy principally cultivated among them was Theology and Politics: they being always eſteem'd as the Interpreters of all Laws both Divine and Human; on which account they were wonderfully revered by the People. Hence *Cicero* obſerves, that none were admitted to the Crown of *Perſia*, but ſuch as were well inſtructed in the Diſcipline of the *Magi*; who taught the τὰ βασιλικὰ; and ſhew'd Princes how to govern. *Plato*, *Apuleius*, *Laertius*, and others, agree, that the Philoſophy of the *Magi* related principally to the Worſhip of the Gods; they were the Perſons who were to offer Prayers, Supplications, and Sacrifices, as if the Gods would be heard by them alone. According to *Lucian*, *Suidas*, &c. the Theology or Worſhip of the Gods, about which the *Magi* were employ'd, was little more than the Diabolical Art of Divination. Hence μαγεία, ſtrictly taken, ſignifies Divination. *Porphyry* defines the *Magi* well, *Circa Divina Sapientes & in iiſdem miniſtrantes*; adding, that the word *Magus* implied as much in the *Perſian* Tongue. Theſe People, ſays he, are held in ſuch Veneration among the *Perſians*, that *Darius*, the Son of *Hyſtaſpes*, among other things, had this engraven on his Monument, that he was the Maſter of the *Magi*. Their Deſcendants, the modern *Magi*, are divided into three Claſſes; whereof the firſt and moſt learned neither eat nor kill Animals, but adhere to the old Inſtitution of abſtaining from living Creatures. The *Magi* of the ſecond Claſs refrain only from tame Animals; nor do the laſt kill all indifferently; it being the firm and diſtinguiſhing Dogma of them all, τὴν μετεμψύχωσιν εἶναι, *that there is a Tranſmigration of Souls*. To intimate the Similitude between Animals and Men; they uſe to call the latter by the Name of the former; thus their Fellow-Prieſts they call'd *Lions*, the Prieſteſſes *Lioneſſes*, the Servants *Crows*, &c. *Philo Judæus* deſcribes the *Magi* to be diligent Inquirers into Nature, out of the Love they bear to Truth; and who ſetting themſelves apart for theſe things, contemplate the Divine Virtues the more clearly, and initiate others in the ſame Myſteries.

The Origin of Magic and the *Magi* is aſcribed to *Zoroaſter*. *Salmaſius* derives the very Name from *Zoroaſter*, who, he ſays, was ſurnam'd *Mog*, whence *Magus*. Others, inſtead of making him the Author of the *Perſian* Philoſophy, make him only the Reſtorer and Improver thereof; alledging that many of the *Perſian* Rites, in Uſe among the *Magi*, were borrowed from the *Zabii* of the *Chaldeans*, who agreed in many things with the *Magi* of the *Perſians*; whence ſome make the Name *Magus* common both to the *Chaldeans* and *Perſians*. Thus *Plutarch* mentions, that *Zoroaſter* inſtituted *Magi* among the *Chaldeans*; in imitation whereof the *Perſians* had theirs too.

The Learned are in great perplexity about the Origin of the Word. *Plato*, *Xenophon*, *Herodotus*, *Strabo*, &c. fetch its Origin from the *Perſian* Language; in which it ſignified a *Prieſt*, or Perſon to officiate in Holy Things, as *Druid* among the *Gauls*, *Gymnoſophiſt* among the *Indians*, and *Levite* among the *Hebrews*. Others derive it from the *Greek* μέγας, *great*, which being borrowed of the *Greeks* by the *Perſians*, was returned in the form of μαγος; but *Voſſius*, with more probability, brings it from the *Hebrew* הגה, *haga*, *to meditate*; whence is formed מהגים, *Maaghim*, in *Latin Meditabundi*, q. d. *People addicted to Meditation*.

MAGIC, a Science that teaches to perform wonderful and ſurprizing Effects. The Word *Magic* originally carried with it a very innocent, nay laudable, Meaning; being uſed purely to ſignify the Study of Wiſdom; but in regard the antient *Magi*, or Magicians, engaged themſelves in Aſtrology, Divination, Sorcery, *&c.* the Term *Magic* in time became odious, and was only uſed to ſignify a Science ſcandalous and unlawful. If any wonder how ſo vain and deceitful a Science ſhould gain ſo much Credit and Authority over Mens Minds, *Pliny* gives the Reaſon of it; 'Tis, *ſays he*, becauſe it has poſſeſſed itſelf of three Sciences of the moſt Eſteem among Men; taking from each, all that is great and marvellous in it. Nobody doubts but it had its firſt Origin in Medicine, and that it inſinuated itſelf into the Minds of the People under pretence of giving extraordinary Remedies. To theſe fine Promiſes it added every thing in Religion that is pompous and ſplendid, and that appears calculated to blind and captivate Mankind. Laſtly, it mingled judiciary Aſtrology with the reſt; perſuading People, curious of Futurity, that it ſaw every thing to come in the Heavens.

Agrippa divides *Magic* into three kinds; *Natural Magic*, *Celeſtial Magic*, and *Ceremonial* or *Superſtitious Magic*. *Natural Magic* is no more than the Application of natural active Cauſes to paſſive Cauſes; by means whereof many ſurprizing, but yet natural, Effects are produced.

Celeſtial Magic borders very nearly on Judiciary Aſtrology. It attributes to Spirits a kind of Rule or Dominion over the Planets; and to the Planets a Dominion over Men; and on theſe Principles builds a ridiculous kind of Syſtem.

Superſtitious Magic conſiſts in the Invocation of Devils; its Effects are uſually evil and wicked; tho' very ſtrange, and ſurpaſſing the Powers of Nature; produced, by virtue of ſome Compact, either tacit or expreſs, with evil Spirits: but the truth is, theſe have not all the Power that is uſually imagined, nor do they produce half thoſe Effects ordinarily aſcribed to them.

Baptiſta Porta has written of natural *Magic*, or of Secrets for performing very extraordinary things by natural Cauſes. The natural *Magic* of the *Chaldeans* was nothing but the Knowledge of the Powers of Simples and Minerals. The *Magic*, which they called *Theurgia*, conſiſted wholly in the Knowledge of the Ceremonies, to be obſerved in the Worſhip of the Gods, in order to be acceptable. By virtue of theſe Ceremonies they believed they could converſe with ſpiritual Beings, and cure Diſeaſes. *Naude* has publiſhed an Apology for all the Great Men ſuſpected of *Magic*. *Agrippa* ſays, that the Words uſed by thoſe in compact with the Devil, to invoke him, and to ſucceed in what they undertake, are *Dies mies jeſquet bendoefet dou foima enitemaus*. There are an hundred other ſuperſtitious Formula's of Words compoſed at pleaſure, or gathered from ſeveral different Languages, or patch'd from the *Hebrew*, or formed in imitation of it.

MAGIC LANTHORN, an Optic Machine, by means whereof little painted Images are repreſented on an oppoſite Wall of a dark Room, magnified to any Bigneſs at pleaſure.

Conſtruction of the Magic Lanthorn. A B C D (*Tab. Opticks, Fig.* 10.) is a common Tin Lanthorn, to which is added a Tube to draw out, F G. In H is fixed a metallic concave Speculum of a Foot diameter at moſt, or four Inches at leaſt; or, in lieu thereof, near the Extremity of the Tube is placed a convex Lens, conſiſting of a Segment of a ſmall Sphere, its Diameter not exceeding a few Inches. In the Focus of the concave Speculum, or Lens, is placed a Lamp L; within the Tube, where it is ſoldered to the Side of the Lanthorn, is placed a ſmall Lens, convex on both Sides, being a Portion of a ſmall Sphere, having its Focus about the Diſtance of three Inches. The extreme Part of the Tube F M is ſquare, and has an Aperture quite thro'; ſo as to receive an oblong Frame N O, paſſed thro' it; in this Frame are round Holes an Inch or two in Diameter. According to the Bigneſs of thoſe Holes are drawn Circles on a plain thin Glaſs; and in theſe Circles are painted any Figures or Images at pleaſure, with tranſparent Water Colours. Theſe Images fitted into the Frame, and placed invertedly, at a little diſtance from the Focus of the Lens I; will be projected on an oppoſite white Wall of a dark Room, prodigiouſly magnified in all their Colours, and an erect Situation.

Theory of the Magic Lanthorn. The Lamp being placed in the Focus of the concave Speculum, or any Convex Glaſs, the Rays will be propagated parallel to each other, and the Image will be ſtrongly illumined, and will therefore emit a great Number of Rays into the Lens I. But being ſuppoſed to be placed near the Lens I, the inverted Image of the Picture inverted muſt be form'd on the oppoſite Wall, exceedingly magnified after its Refraction thro' the Lens; and it will be ſtill the more magnified as the Lens is a Segment of a leſs Sphere, and as the Picture is placed nearer the Focus of the Lens; in a dark Place therefore the Picture will be repreſented prodigiouſly large and extremely vivid. See *Lens*.

Another Magic Lanthorn. Every thing being managed as in the former, into the ſliding Tube F G, inſert another Convex Lens K, the Segment of a Sphere ſomewhat larger than I; now if the Picture be brought nearer I than to the Diſtance of the Focus, the diverging Rays will be propagated as if they proceeded from P: wherefore if the Lens K be ſo placed, as that P is very near its Focus, the Image will be exhibited on the Wall exceedingly magnified.

Schol. 1. To heighten the Light, Specula are preferred to Lens's; the Focus of a Speculum being nearer than that of the Lens.

2. *De Chales* orders the Diameter of the Lens I to be two, four, or five Digits, and in a ſubduple Proportion to the other K; *i. e.* if I be five Digits, K muſt be 10's; and the Diameter of the Speculum, according to the ſame, is to be two Digits. *Zahnius* chuſes to have the Diameter of I $\frac{2}{10}$ of a Foot, and that of K one Foot and $\frac{1}{5}$, *&c.*

3. Little Animals being included in the *Magic Lanthorn*, in the manner obſerved in ſpeaking of the Microſcope; or any little tranſparent Objects faſtened to a Slice of Talk or Glaſs, and ſubſtituted inſtead of Images; the *Magic Lanthorn* will become a Microſcope.

MAGIC SQUARES, the ſeveral Numbers that compoſe any ſquare Number; (for Inſtance, 1, 2, 3, 4, 5, *&c.* to 25 incluſive, which compoſe the ſquare Number 25) being diſpoſed after each other in a ſquare Figure of 25 Cells, each in its Cell: if then you change the Order of theſe Numbers, and diſpoſe them in the Cells, in ſuch manner, as that the five Numbers, which fill any Horizontal Rank of Cells, being added together, ſhall make the ſame Sum, with the five Numbers, in any other Rank of Cells, whether horizontal or vertical; and even the ſame Number with the five in each of the two

Diagonal Ranks, this Diſpoſition of Numbers is called a *Magic Square*, in oppoſition to the former Diſpoſition, which is called a *Natural Square*. See the Figures adjoining.

Natural Square.

1	2	3	4	5
6	7	8	9	10
11	12	13	14	15
16	17	18	19	20
21	22	23	24	25

Magic Square.

16	14	8	2	25
3	22	20	11	9
15	16	4	23	17
24	18	12	10	1
7	5	21	19	13

One would imagine that *Magic Squares* had that Name given them, in regard this Property of all their Ranks, which, taken any way, make always the ſame Sum, appeared extremely ſurprizing, eſpecially in certain ignorant Ages, when Mathematics paſſed for *Magic*: But there is a great deal of Reaſon to ſuſpect, that theſe Squares merited their Name ſtill further by the ſuperſtitious Operations they were imployed in, as the Conſtruction of *Taliſmans*, &c. for according to the childiſh Philoſophy of thoſe Days, which attributed Virtues to Numbers, what Virtues might not be expected from Numbers ſo wonderful?

However, what was at firſt the vain Practice of Makers of Taliſmans, and Conjurers, has ſince become the Subject of a ſerious Reſearch among the Mathematicians; not that they imagine it will lead them to any thing of ſolid Uſe or Advantage. *Magic Squares* ſavour too much of their Original to be of any Uſe. But only, as 'tis a kind of Play, where the Difficulty makes the Merit; and as it may chance to produce ſome new Views of Numbers which Mathematicians will not loſe the Occaſion of.

Eman. Moſchopulus, a *Greek* Author of no great Antiquity, is the firſt that appears to have ſpoke of *Magic Squares*; and by the Age wherein he lived, there is Reaſon to imagine he did not look on them merely as a Mathematician. However, he has left us ſome Rules for their Conſtruction. In the Treatiſe of *Cor. Agrippa*, ſo much accuſed of *Magic*, we find the Squares of ſeven Numbers, *viz.* from three to nine incluſive, diſpoſed magically; and it muſt not be ſuppoſed that thoſe ſeven Numbers were preferred to all the others without a very good Reaſon. In effect, 'tis becauſe their Squares, according to the Syſtem of *Agrippa* and his Followers, are planetary. The Square of 3, for Inſtance, belongs to *Saturn*, that of 4 to *Jupiter*, that of 5 to *Mars*, that of 6 to the *Sun*, that of 7 to *Venus*, that of 8 to *Mercury*, and that of 9 to the *Moon*. M. *Bachet* applied himſelf to the Study of *Magic Squares*, on the Hint he had taken from the Planetary Squares of *Agrippa*; as being unacquainted with the Work of *Moſchopulus*, which is only in Manuſcript in the *French* King's Library; and, without the Aſſiſtance of any other Author, found out a new Method for thoſe Squares whoſe Root is uneven, for inſtance 25, 49, &c. but could not make any thing of thoſe whoſe Root is even.

After him came Mr. *Frenicle*, who took the ſame Subject in hand. A great Algebraiſt was of opinion, that whereas the ſixteen Numbers, which compoſe the Square, might be diſpoſed 20922789888000 different Ways in a natural Square (as from the Rules of Combination 'tis certain they may) could not be diſpoſed in a *Magic Square* above ſixteen different Ways. But M. *Frenicle* ſhewed, that they might be diſpoſed 878 different Ways; whence it appears how much his Method exceeds the former, which only yielded the 55th Part of *Magic Squares* of that of Mr. *Frenicle*. To this Enquiry he thought fit to add a Difficulty, that had not yet been conſidered: The *Magic Square* of 7, for inſtance, being conſtructed, and its 49 Cells filled, if the two Horizontal Ranks of Cells, and at the ſame time the two Vertical ones, the moſt remote from the middle, be retrenched, that is, if the whole Border or Circumference of the Square be taken away; there will remain a Square, whoſe Root will be 5, and which will only conſiſt of 25 Cells. Now 'tis not at all ſurprizing that the Square ſhould be no longer *Magic*, in regard the Ranks of the large one were not intended to make the ſame Sum, excepting when taken entire with all the 7 Numbers that fill their ſeven Cells; ſo that being mutilated each of two Cells, and having loſt two of their Numbers, it may be well expected that their Remainders will not any longer make the ſame Sum. But Mr. *Frenicle* would not be ſatisfied, unleſs when the Circumference or Border of the *Magic Square* was taken away, and even any Circumference at pleaſure, or in fine ſeveral Circumferences at once, the remaining Square were ſtill *Magic*: which laſt Condition, no doubt, made theſe Squares vaſtly more magical than ever.

Again, he inverted that Condition, and required that any Circumference taken at pleaſure, or even ſeveral Circumferences ſhould be inſeparable from the Square; that is, it ſhould ceaſe to be *Magic* when they were removed, and yet continue *Magic* after the Removal of any of the reſt. Mr. *Frenicle*, however, gives no general Demonſtration of his Methods, and frequently ſeems to have no other Guide but his groping. 'Tis true, his Book was not publiſhed by himſelf, nor did it appear till after his Death, *viz.* in 1693.

In 1703, Mr. *Poignard*, Canon of *Bruſſels*, publiſhed a Treatiſe of *Sublime Magic Squares*. Before him there had been no *Magic Squares* made but for Series's of natural Numbers that formed a Square; but M. *Poignard* made two very conſiderable Improvements: (1.) Inſtead of taking all the Numbers that fill a Square, for Inſtance, the 36 ſucceſſive Numbers, which would fill all the Cells of a natural Square, whoſe Side is 6, he only takes as many ſucceſſive Numbers as there are Units in the Side of the Square, which in this Caſe are 6; and theſe ſix Numbers alone he diſpoſes in ſuch manner, in the 36 Cells, that none of them are repeated twice in the ſame Rank, whether it be horizontal, vertical, or diagonal: whence it follows, that all the Ranks, taken all the Ways poſſible, muſt always make the ſame Sum, which Mr. *Poignard* calls repeated Progreſſion. (2.) Inſtead of being confined to take theſe Numbers according to the Series and Succeſſion of the natural Numbers, that is, in an Arithmetical Progreſſion, he takes them likewiſe in a Geometrical Progreſſion, and even an Harmonical Progreſſion. But with theſe two laſt Progreſſions the *Magic* muſt neceſſarily be different from what it was. In the Squares, filled with Numbers in Geometrical Progreſſion, it conſiſts in this, that the Products of all the Ranks are equal, and in the Harmonical Progreſſion, the Numbers of all the Ranks continually follow that Progreſſion: he makes Squares of each of theſe three Progreſſions repeated.

This Book of M. *Poignard* gave occaſion to M. *de la Hire* to turn his Thoughts the ſame way, which he did with good Succeſs, inſomuch that he ſeems to have well-nigh compleated the Theory of *Magic Squares*. He firſt conſiders uneven *Squares*: all his Predeceſſors on the Subject having found the Conſtruction of even ones by much the moſt difficult; for which Reaſon M. *de la Hire* reſerves thoſe for the laſt. This Exceſs of Difficulty may ariſe partly from hence, that the Numbers are taken in an Arithmetical Progreſſion. Now in that Progreſſion, if the Number of Terms be uneven, that in the middle has ſome Properties, which may be of Service; for inſtance, being multiplied by the Number of Terms in the Progreſſion, the Product is equal to the Sum of all the Terms.

M. *de la Hire* propoſes a general Method for uneven Squares, which has ſome Similitude with the Theory of compound Motions, ſo uſeful and fertile in *Mechanics*. As that conſiſts in decompounding Motions, and reſolving them into others more ſimple, ſo does M. *de la Hire*'s Method conſiſt in reſolving the Square, that is to be conſtructed, into two ſimple and primitive Squares. It muſt be owned, however, 'tis not quite ſo eaſy to conceive thoſe two ſimple and *primitive* Squares in the compound or *perfect* Square, as in an oblique Motion to imagine a Parallel and a Perpendicular one.

Suppoſe a Square of Cells, whoſe Root is uneven; for Inſtance 7, and that its 49 Cells are to be filled magically with Numbers, for inſtance, the firſt 7. M. *de la Hire*, on the one ſide, takes the firſt ſeven Numbers, beginning with Unity, and ending with the Root 7, and on the other 7, and all its Multiples to 49 excluſively; and as theſe only make ſix Numbers, he adds 0, which makes this an Aritmetical Progreſſion of ſeven Terms as well as the other. 0. 7. 14. 21. 28. 35. 42.

This done, with the firſt Progreſſion repeated, he fills the Square of the Root 7 magically. In order to this, he writes in the firſt ſeven Cells of the firſt Horizontal Rank the ſeven Numbers propoſed, in what Order he pleaſes, for that is abſolutely indifferent; and 'tis proper to obſerve here, that thoſe ſeven Numbers may be ranged in 5040 different Manners in the ſame Rank. The Order in which they are placed in the firſt Horizontal Rank, be it what it will, is that which determines their Order in all the reſt. For the ſecond Horizontal Rank, he places in its firſt Cell, either the third, the fourth, the fifth, or the ſixth Number from the firſt Number of the firſt Rank, and after that writes the ſix others in the Order as they follow. For the third Horizontal Rank, he obſerves the ſame Method with regard to the ſecond, that he obſerved in the ſecond with regard to the firſt, and ſo of the reſt. For inſtance, ſuppoſe the firſt Horizontal Rank filled with the ſeven Numbers in their natural Order, 1. 2. 3. 4. 5. 6. 7. the ſecond Horizontal Rank may either commence with 3, with 4, with 5, or with 6; but in this Inſtance it commences

with

1	2	3	4	5	6	7
3	4	5	6	7	1	2
5	6	7	1	2	3	4
7	1	2	3	4	5	6
2	3	4	5	6	7	1
4	5	6	7	1	2	3
6	7	1	2	3	4	5

with 3, the third Rank therefore muſt commence with 5, the fourth with 7, the fifth with 2, the ſixth with 4, and the ſeventh with 5. The Commencement of the Ranks which follow the firſt being thus determined, the other Numbers, as we have already obſerved, muſt be written down in the Order wherein they ſtand in the firſt, going on to 5, 6, and 7, and returning to 1, 2, &c. till every Number in the firſt Rank be found in every Rank underneath, according to the Order arbitrarily pitched upon at firſt. By this means, 'tis evident, no Number whatever can be repeated twice in the ſame Rank, and by conſequence that the ſeven Numbers 1. 2. 3. 4. 5. 6. 7. being in each Rank, they muſt of Neceſſity make the ſame Sum.

It appears, from this Example, that the Arrangement of the Numbers in the firſt Rank being choſen at pleaſure, the other Ranks may be continued in four different Manners; and ſince the firſt Rank may have 5040 different Arrangements, there are no leſs than 20160 different Manners of conſtructing the *Magic Square* of ſeven Numbers repeated.

1	2	3	4	5	6	7
2	3	4	5	6	7	1
3	4	5	6	7	1	2
4	5	6	7	1	2	3
5	6	7	1	2	3	4
6	7	1	2	3	4	5
7	1	2	3	4	5	6

1	2	3	4	5	6	7
7	1	2	3	4	5	6
6	7	1	2	3	4	5
5	6	7	1	2	3	4
4	5	6	7	1	2	3
3	4	5	6	7	1	2
2	3	4	5	6	7	1

The Order of the Numbers in the firſt Rank being determined; if in beginning with the ſecond Rank, the ſecond Number 2, or the laſt Number 7 ſhould be pitched upon; in one of thoſe Caſes one of the Diagonal Ranks would have the ſame Number conſtantly repeated; and, in the other Caſe, the other Diagonal would have it repeated; of conſequence therefore, either the one or the other Diagonal would be falſe, unleſs the Number repeated ſeven times ſhould happen to be 4, for four times ſeven is equal to the Sum of 1. 2. 3. 4. 5. 6. 7. and, in general, in every Square conſiſting of an uneven Number of Terms, in Arithmetical Progreſſion, one of the Diagonals would be falſe according to thoſe two Conſtructions, unleſs the Term, always repeated in that Diagonal, were the middle Term of the Progreſſion.

'Tis not however at all neceſſary to take the Terms in an Arithmetical Progreſſion; for, according to this Method, one may conſtruct a *Magic Square* of any Numbers at pleaſure, whether they be according to any certain Progreſſion or not. If they be in an Arithmetical Progreſſion, 'twill be proper, out of the general Method, to except thoſe two Conſtructions, which produce a continual Repetition of the ſame Term in one of the two Diagonals; and only take in the Caſe, wherein that Repetition would prevent the Diagonal from being juſt. Which Caſe being abſolutely diſregarded, when we computed that the Square of 7 might have 20160 different Conſtructions; 'tis evident, that by taking that Caſe in, it muſt have vaſtly more.

To begin the ſecond Rank with any other Number beſides the ſecond and the laſt, muſt not however be looked on as an univerſal Rule. It holds good for the Square of 7, but if the Square of 9, for inſtance, were to be conſtructed, and the fourth Figure of the firſt Horizontal Rank were pitched on for the firſt of the ſecond, the Conſequence would be, that the fifth and eighth Horizontal Ranks would likewiſe commence with the ſame Number, which would therefore be repeated three times in the ſame vertical Rank, and occaſion other Repetitions in all the reſt. The general Rule therefore muſt be conceived thus: Let the Number in the firſt Rank pitched on, for the Commencement of the ſecond, have ſuch an Exponent of its Quota, that is, let the Order of its Place be ſuch, as that if an Unit be taken from it, the Remainder will not be any juſt Quota Part of the Root of the Square; that is, cannot divide it equally. If, for Example, in the Square of 7, the third Number of the firſt Horizontal Rank be pitched on for the firſt of the ſecond, ſuch Conſtruction will be juſt; becauſe the Exponent of the Place of that Number, *viz.* 3, ſubſtracting 1, that is 2, cannot divide 7. Thus alſo might the fourth Number of the ſame firſt Rank be choſen, becauſe 4 — 1, *viz.* 3. cannot divide 7, and for the ſame Reaſon the fifth or ſixth Number might be taken: But in the Square of 9, the fourth Number of the firſt Rank muſt not be taken, becauſe 4 — 1, *viz.* 3, does divide 9. The Reaſon of this Rule will appear very evidently, by conſidering in what manner the Returns of the ſame Numbers do or do not happen, taking them always in the ſame manner in any given Series. And hence it follows, that the fewer Diviſions the Root of any Square to be conſtructed has, the more different Manners of conſtructing it there are, and that the prime Numbers, that is, thoſe which have no Diviſions, as 5. 7. 11. 13. &c. are thoſe whoſe Squares will admit of the moſt Variations in proportion to their Quantities.

The Squares conſtructed, according to this Method, have ſome particular Property not required in the Problem: For the Numbers that compoſe any Rank parallel to one of the two Diagonals, are ranged in the ſame Order with the Numbers that compoſe the Diagonal, to which they are parallel. And as any Rank parallel to a Diagonal muſt neceſſarily be ſhorter, and have fewer Cells than the Diagonal itſelf, by adding to it the correſponding Parallel which has the Number of Cells, the other falls ſhort of the Diagonal; the Numbers of thoſe two Parallels, placed, as it were, end to end, ſtill follow the ſame Order with thoſe of the Diagonal; beſides that, their Sums are likewiſe equal; ſo that they are magical on another account.

First Primitive.

1	2	3	4	5	6	7
3	4	5	6	7	1	2
5	6	7	1	2	3	4
7	1	2	3	4	5	6
2	3	4	5	6	7	1
4	5	6	7	1	2	3
6	7	1	2	3	4	5

Inſtead of the Squares, which we have hitherto form'd by Horizontal Ranks, one might alſo form them by Vertical Ones; the Caſe is the ſame in both.

Second Primitive.

0	7	14	21	28	35	42
21	28	35	42	0	7	14
42	0	7	14	21	28	35
14	21	28	35	42	0	7
35	42	0	7	14	21	28
7	14	21	28	35	42	0
28	35	42	0	7	14	21

All we have hitherto ſaid regards only the firſt Primitive Square, whoſe Numbers, in the propoſed Example, were 1. 2. 3. 4. 5. 6. 7; there ſtill remains the ſecond Primitive, whoſe Numbers are 0. 7. 14. 21. 28. 35. 42. M. *de la Hire* proceeds in the ſame manner here as in the former; and this may likewiſe be conſtructed in 20160 different Manners, as containing the ſame Number of Terms with the firſt. Its Conſtruction being made, and of conſequence all its Ranks making the ſame Sum, 'tis evident, that if we bring the two into one, by adding together the Numbers of the two correſponding Cells of the two Squares, that is, the two Numbers of the firſt of each, the two Numbers of the ſecond, of the third, &c. and diſpoſe them in the 49 correſponding Cells of a third Square; it will likewiſe be *Magic*, in regard its Ranks, formed by the Addition of equal Sums to equal Sums muſt of neceſſity be equal among themſelves. All that remains in doubt is, whether or no, by the Addition of the correſponding Cells of the two firſt Squares, all the Cells of the third will be filled in ſuch manner, as that each not only contain one of the Numbers of the Progreſſion from 1 to 49, but alſo that this Number be different from that of any of the reſt, which is the End and Deſign of the whole Operation.

As to this, it muſt be obſerv'd, that if in the Conſtruction of the ſecond *Primitive Square*, care has been taken in the Commencement of the ſecond Horizontal Rank, to obſerve an Order with regard to the firſt, different from what was obſerv'd in the Conſtruction of the firſt Square; for inſtance, if the ſecond Rank of the firſt Square begun with the third Term of the firſt Rank, and the ſecond Rank of the ſecond Square commence with the fourth of the firſt Rank, as in the Example it actually does; each Number of the firſt Square may be combined once, and only once, by Addition with all the Numbers of the ſecond. And as the Numbers of the firſt are here 1. 2. 3. 4. 5. 6. 7. and thoſe of the ſecond 0. 7. 14. 21. 28. 35. 42. by combining them in this manner, we have all the Numbers in the Progreſſion from 1 to 49, without having any of 'em repeated; which is the *Perfect Magic Square* propoſed.

Perfect Square.

1	9	17	25	33	41	49
24	32	40	48	7	8	16
47	6	14	15	23	31	39
21	22	31	38	46	5	13
37	47	4	12	20	28	29
11	19	27	35	36	46	3
34	42	42	2	10	18	26

The Neceſſity of conſtructing the two *Primitive Squares* in a different manner, does not at all hinder but that each of the 20160 Conſtructions of the one may be combined with all the 20160 Conſtructions of the other: of conſequence therefore 20160 multiplied by itſelf, which makes 406425600, is the Number of different Conſtructions that may be made of the *Perfect Square*, which here conſiſts of the 49 firſt Numbers of the Natural Progreſſion. But as we have already obſerved, that a *Primitive Square* of 7 Numbers repeated may have above 20160 ſeveral Conſtructions, the Number 406425600 muſt come vaſtly ſhort of expreſſing all the poſſible Conſtructions of a perfect *Magic Square* of the 49 firſt Numbers.

As to the *Even Squares*, he conſtructs them like the *Uneven* ones, by two *Primitive Squares*; but the Conſtruction of *Primitives* is different in the general, and may be ſo a great number of ways: and thoſe general Differences admit of a great number of particular Variations, which give as many different Conſtructions for the ſame even Square. It ſcarce ſeems poſſible to determine exactly, either how many general Differences there may be between the Conſtruction of the primitive Squares of an even Square and an uneven one; nor how many particular Variations each general Difference may admit of; and of conſequence we are ſtill far from being able to determine the Number of different Conſtructions of all thoſe that may be made by the Primitive Squares.

MAGISTER, *Maſter*, a Title frequently found in old Writings. It noted, the Perſon who bore it had attained ſome Degree of Eminency *in Scientia aliqua præſertim Literaria*; and in old Times thoſe we now call *Doctors*, were called *Magiſtri*.

MAGISTERY, a Term in Chymiſtry ſignifying a Precipitate of ſome Diſſolution; made by a Salt, or ſome other Body, which breaks the Force of the Diſſolvent. Thus we ſay, *Magiſtery of Biſmuth*, which is a very fine Powder made by diſſolving the Biſmuth in Spirit of Nitre, and pouring on it Salt Water, which precipitates the *Magiſtery* to the bottom. See *Biſmuth*. *Magiſtery of Lead* is a fine Powder, made by diſſolving *Saccharum Saturni* in diſtill'd Vinegar, and then precipitating it with Oil of Tartar *per Deliquium*. The word *Magiſtery* is alſo uſed in ſpeaking of Reſins, Reſinous Extracts of Scammony, Jalap, Turpeth, *&c.* which are made by diſſolving the Matter in Spirit of Wine, and precipitating it with Water. Mr. *Boyle* takes the proper Notion of a *Magiſtery* to conſiſt in a Preparation of a Body, whereby it is wholly, or at leaſt in great meaſure, by means of ſome extraneous Additament converted into a Body of a different kind; as when Iron or Copper is turned into Chryſtals of *Mars* and *Venus*.

MAGMA, among Chymiſts, *&c.* the Dregs or Reſiduum after Infuſion or Diſtillation.

MAGNA ARTERIA, the ſame with the *Aorta*, which ſee.

MAGNA CHARTA, the *Great Charter*, granted the ninth Year of *Henry* the Third, and confirmed by *Edward* the Firſt. The Reaſon why it is ſo term'd, is either becauſe of the Excellency of the Laws and Liberties therein contained, or elſe becauſe there was another Charter, call'd *Charta de Foreſta*, eſtabliſh'd with it, which was the leſs of the two; or becauſe it contained more than any other Charters; or more than that of K. *Henry* the Firſt; or in regard of the Wars and Troubles in the obtaining of it; or of the great and remarkable Solemnity in the denouncing Excommunications againſt the Infringers of it. *Holinſhed* indeed tells us, that King *John*, to appeaſe the Barons, yielded to Laws or Articles of Government much like to this great Charter; but we have now no antienter Law written than this; which was thought to be ſo beneficial to the Subject, and a Law of ſo great Equity, in compariſon of thoſe which were formerly in uſe, that King *Henry*, for the granting it, had the fifteenth Penny of all the moveable Goods, both of Temporality and Spirituality. Sir *Edw. Coke* ſays, it has been above thirty times confirmed. It is recorded, that when *Henry* III. confirm'd it, he ſwore on the word and Faith of a King, a Chriſtian, and a Knight, to obſerve it. See *Charta Magna*.

MAGNES ARSENICAL, in Chymiſtry, a Mixture of equal Parts of Arſenic, Sulphur, and Antimony melted together over the Fire, and condenſed in manner of a Stone. It is a very gentle Cauſtic, and was firſt invented by *Angelus Sala*. It has its Name *Magnet*, becauſe being wore during Malignant Diſeaſes, it is ſuppoſed to preſerve the Wearer from Infection by a Magnetical Power.

MAGNET, or *Loadſtone*, a Mineral Stone, or rather a Metal, or an imperfect Iron; in Weight and Colour reſembling Iron Ore, tho ſomewhat harder and more heavy. It is uſually found in Iron Mines, and ſometimes in very large pieces, half *Magnet*, half Iron. Its Colour is different, according to the different Countries it is brought from. *Norman* obſerves, that the beſt are thoſe brought from *China* and *Bengal*, which are of an Iron or Sanguine Colour; thoſe of *Arabia* are reddiſh, thoſe of *Macedonia* blackiſh; and thoſe of *Hungary*, *Germany*, *England*, &c. the Colour of unwrought Iron. Neither its Figure nor Bulk are determined, but it is found of all Forms and Sizes.

The Antients reckon'd five kinds of *Magnets*, different in Colour and Virtue: the *Ethiopic*, *Magneſian*, *Bœotic*, *Alexandrian*, and *Natolian*. They alſo took it to be Male and Female: but the chief Uſe they made of it was in Medicine; eſpecially for the Cure of Burns, and Defluxions on the Eyes: the Moderns, more happy, take it to conduct 'em in their Voyages.

The moſt diſtinguiſhing Properties of this wonderful Body, are, That it attracts Iron, and that it points to the Poles of the World; and in other Circumſtances alſo dips or inclines to a Point beneath the Horizon, directly under the Pole; and that it communicates theſe Properties by Touch, to Iron. On which Foundation are built the Mariners Needles; both Horizontal, and Inclinatory, or Dipping Needles. See *Needle*.

The Attractive Power of the Magnet was known to the Antients, and is mention'd even by *Plato* and *Euripides*; who call it the *Herculean Stone*; becauſe it commands Iron, which ſubdues every thing elſe: But the Knowledge of its Directive Power, whereby it diſpoſes its Poles along the Meridian of every Place, and occaſions Needles, Pieces of Iron, *&c.* touch'd with it, to point nearly North and South, is of a much later date; tho the exact Time of its Diſcovery, and the Diſcoverer himſelf, are yet in the dark. The firſt tidings we hear of it, is in 1260, when *Paulus Venetus* is ſaid by ſome to have firſt introduced the Mariners Compaſs; tho not as an Invention of his own, but as derived from the *Chineſe*, who are ſaid to have had the Uſe of it long before: but others, and with good reaſon, think that the *Chineſe* rather borrow'd it from the *Europeans*. *John de Goia*, a *Neapolitan*, who lived in the 13th Century, is the Perſon uſually ſuppoſed to have the beſt Title to the Diſcovery: And yet Sir *G. Wheeler* mentions, that he had ſeen a Book of Aſtronomy much older, which ſuppoſed the Uſe of the Needle; tho not as applied to the Uſes of Navigation, but of Aſtronomy. And in *Guyot de Provins*, an old *French* Poet, who wrote about the Year 1180, there is expreſs mention made of the Loadſtone and the Compaſs; and their Uſe in Navigation obliquely hinted at. See *Compaſs*.

The Variation of the Needle, or its Declination from the Pole, was firſt diſcovered by *Seb. Cabot*, a *Venetian*, in 1500; and the Variation of that Variation by Mr. *Gellibrand*, an *Engliſhman*, about the Year 1625. Laſtly, The Dip or Inclination of the Needle, when at liberty to play vertically, to a Point beneath the Horizon, was firſt diſcover'd by another of our Countrymen, Mr. *R. Norman*, about the Year 1576. See *Needle*.

Some of the Phænomena of the Magnet are as follow. (1.) In every *Magnet* there are two Poles, the one whereof points Northward, the other Southward; and if the *Magnet* be divided into ever ſo many pieces, the two Poles will be found in each piece. (2.) Theſe Poles in different parts of the Globe, are differently inclined towards a Point under the Horizon. (3.) Theſe Poles, tho contrary to one another, do help mutually towards the *Magnet's* Attraction and Suſpenſion of Iron. (4.) If two *Magnets* are Spherical, one will turn or conform itſelf to the other, ſo as either of them would do to the Earth; and after they have ſo conformed or turned themſelves, they endeavour to approach or join each other; but if placed in a contrary Poſition, they avoid each other. (5.) If a *Magnet* be cut thro the Axis, the Parts or Segments of the Stone, which before were joined, will now avoid and fly each other. (6.) If the *Magnet* be cut by a Section perpendicular to its Axis, the two Points, which before were conjoined, will become contrary Poles; one in one, the other in the other Segment. (7.) Iron receives Virtue from the *Magnet* by application to it, or barely from an approach near it, tho it doth not touch it; and the Iron receives this Virtue variouſly, according to the Parts of the Stone it is made to touch, or made approach to. (8.) If an oblong Piece of Iron be any how applied to the Stone, it receives Virtue from it, only as to its length. (9.) The *Magnet* loſeth none of its own Virtue by communicating any to the Iron; and this Virtue it can communicate to the Iron very ſpeedily; tho the longer the Iron touches or joins the Stone, the longer will its communicated Virtue hold; and a better *Magnet* will communicate more of it, and ſooner, than one not ſo good. (10.) Steel receives Virtue from the *Magnet*, better than Iron. (11.) A Needle touch'd by a *Magnet* will turn its Ends the ſame way towards the Poles of the World, as the *Magnet* will do it. (12.) Neither Loadſtone nor Needles touch'd by it do conform their Poles exactly to thoſe of the World, but have uſually ſome Variation from them: And this Variation is different in divers places, and at divers times in the ſame place. (13.) A Loadſtone will take up much more Iron when arm'd or capp'd than it can alone: And tho an Iron Ring or Key be ſuſpended by the Loadſtone, yet the Magnetical Particles do not hinder that Ring or Key from turning round any way, either to the right or left. (14.) The Force of a Loadſtone may be variouſly increas'd or leſſen'd, by the various Application of Iron, or another Loadſtone to it. (15.) A ſtrong *Magnet* at the leaſt diſtance from a leſſer or a weaker, cannot draw to it a piece of Iron adhering actually to ſuch leſſer or weaker Stone; but if it come to touch it, it can draw it from the other: But a weaker *Magnet*, or even a little piece of Iron, can draw away or ſeparate a piece of Iron contiguous to a greater or ſtronger Loadſtone. (16.) In theſe Northern Parts of the World, the South Pole of a Loadſtone will raiſe up more Iron than the North Pole. (17.) A Plate of Iron only, but no other Body interpoſed, can impede the Operation of the Loadſtone, either as to its Attractive or Directive Quality. Mr *Boyle* found it true in Glaſſes ſealed hermetically; and Glaſs is a Body, as impervious as moſt are, to any Effluvia. (18.) The Power or Virtue of a Loadſtone may be impaired by lying long in a wrong Poſition, as alſo by Ruſt, Wet, *&c.* and may be quite deſtroy'd by Fire. (19.) A piece of Iron Wire well touch'd, will, upon being bent round in a Ring, or coyl'd round on a Stick, *&c.* generally, quite loſe its Directive Vertue; but always have it much diminiſh'd: and yet if the whole length of the Wire were not entirely bent, ſo that the Ends of it, tho but for the length of one tenth of an Inch, were left ſtrait, the Virtue will not be deſtroy'd in thoſe parts; tho it will in all the reſt. This was firſt obſerv'd by *Grimaldi* and *de la Hire*; and is confirm'd by the Experiments of Mr. *Derham*; who adds further, that tho coyling or bending the Wire as above, would always deſtroy its Virtue by Day, yet it would not do it in the Evening. (20.) The Sphere of the Activity of *Magnets* is greater and leſs at different times: in particular, that preſerv'd in the Repoſitory of the *Royal Society* will keep a Key or other Body ſuſpended to another, ſometimes, at the height of 8 or 10 feet; and at others, not above 4 feet. To which we may add, that the Variation of the Magnetical Needle from the Meridian, varies at various Times of the Day; as appears from ſome new Experiments of Mr. *Graham*. See *Variation*. (21.) By twiſting a piece of Wire touch'd with a *Magnet*, its Virtue is exceedingly diminiſh'd, and ſometimes ſo diſorder'd and confus'd, that in ſome parts it will attract, and at others repel; and even in ſome places one ſide of the Wire ſeems to be attracted, and the other ſide repell'd by one and the ſame Pole of the Stone. (22.) A piece of Wire that has been touch'd, being ſplit or cleft into two; the Poles are ſometimes chang'd; as in a cleft *Magnet*; the North becoming the South, and the South the North: And yet ſometimes one half of the Wire will retain its former Poles, and the other half have 'em changed. To which it may be added, that laying one or other ſide of the half uppermoſt, cauſes a great Alteration in its Tendency or Averſion to the Poles of the *Magnet*. (23.) A Wire being touch'd from End to End with the ſame Pole of the *Magnet*, the End whereat you begin will always turn contrary to the Pole which touch'd it: If it be again touch'd the ſame way with the other Pole of the *Magnet*, it will then be turn'd the contrary way. (24.) If a piece of Wire be touch'd in the middle with only one Pole of the *Magnet*, without moving it backwards or forwards, in that place will be the Pole of the Wire; and the two Ends will be the other Pole. (25.) If a *Magnet* be heated red hot; and again cool'd either with its South Pole towards the North in a horizontal Poſition, or with its South Pole downwards in a perpendicular Poſition; its Poles will be changed. (26.) Mr. *Boyle* (to whom we are indebted for the following Magnetical Phænomena) found he could preſently change the Poles of a ſmall Fragment of a Loadſtone, by applying them to the oppoſite vigorous ones of a large *Magnet*. (27.) Hard Iron Tools well temper'd, when heated by a briſk Attrition, as filing, turning, *&c.* will, while warm, attract thin Filings or Chips of Iron, Steel, *&c.* but not when cold; tho there are not wanting ſome Inſtances of their retaining the Virtue when quite cold. (28.) The Iron Bars of Windows, *&c.* which have a long time ſtood in an erect Poſition, grow permanently Magnetical; the lower Ends of ſuch Bars being the North Pole, and the upper the Southern. (29.) A Bar of Iron that has not ſtood long in an erect poſture, if it be only held perpendicularly, will become Magnetical; and its lower End the North Pole; as appears from its attracting the South Pole of a Needle: but then this Virtue is tranſient, and by inverting the Bar, the Poles will ſhift their places. In order therefore to render the Quality permanent in an Iron Bar, it muſt continue a long time in a proper Poſition. But the Fire will produce the Effect in a ſhort time: for as it will immediately deprive a Loadſtone of its Attractive Virtue; ſo, it ſoon gives a Verticity to a Bar of Iron, if being heated red hot, it be cool'd in an erect poſture, or directly North and South. Nay, Tongs and Fire-forks, by being often heated and ſet to cool again in a poſture nearly erect, have gain'd this Magnetical Property. (30.) Mr. *Boyle* found, that by heating a piece of *Engliſh* Oker red hot, and placing it to cool in a proper poſture, it manifeſtly acquired a Magnetic Virtue. And an excellent *Magnet* of the ſame Ingenious Gentleman's having lain near a Year in an inconvenient poſture, had its Virtue ſurprizingly impair'd; as if it had been by Fire. (31.) A Needle well touch'd, 'tis known, will point North and South: if it have one contrary Touch of the ſame Stone, it will be deprived of its Faculty; and by another ſuch Touch will have its Poles quite changed. (32.) A Bar of Iron that has gain'd a Verticity by being heated red-hot and cool'd again, North and South, and then hammer'd at the two Ends; its Virtue will be deſtroy'd by two or three ſmart Blows on the middle. (33.) By drawing the Back of a Knife, or long piece of Steel, Wire, *&c.* leiſurely over the Pole of a Loadſtone; carrying the Motion from the middle of the Stone to the Pole; the Knife or Wire does accordingly attract one End of a Needle: but if the Knife or Wire be paſs'd from the ſaid Pole to the middle of the Stone, it will repel that End of the Needle, which in the other Caſe it attracts. (34.) Either a *Magnet* or a piece of Iron being laid on a piece of Cork, ſo as to ſwim freely in Water; it will be found, that which ſoever of the two is held in the hand, the other will be drawn to it: ſo that Iron attracts the *Magnet* as much as it is attracted by it; Action and Reaction being always equal. In this Experiment, if the *Magnet* be ſet afloat, it will direct its two Poles to the Poles of the World. (35.) A Knife, *&c.* touch'd with a *Magnet*, acquires a greater or leſs degree of Virtue, according to the part it is touch'd on. It receives the ſtrongeſt Touch, when it is drawn leiſurely from the Handle towards the Point over one of the Poles: And if the ſame Knife thus touch'd, and thus in poſſeſſion of a ſtrong attractive Power, be retouch'd in a contrary Direction, *viz.* by drawing it from the Point towards the Handle over the ſame Pole, it immediately loſes all its Virtue. Laſtly, A *Magnet* acts with equal force *in Vacuo*, and in the open Air.

The Doctrine of the Magnet, *or the Laws of* Magnetiſm, Mr. *Whiſton* lays down in the following Propoſitions.

I. The Loadſtone has both an attractive and a directive Power united together; whereas Iron touch'd by it has only the former: *i. e.* the Loadſtone not only attracts Needles or Filings of Steel, but directs them to certain different Angles, with reſpect to its own Surface and Axis: whereas Iron touch'd with it, does little or nothing more than attract them; ſtill ſuffering them to lie along or ſtand perpendicular to its Surface and Edges in all places; without any ſuch ſpecial Direction.

II. Neither the ſtrongeſt nor the largeſt Loadſtones give a better directive Touch to Needles, than thoſe of a leſs Size or Virtue: to which it may be added, that whereas there are two Qualities in all *Magnets*, an Attractive and a Directive one; neither of 'em depend on, or are any Argument of the Strength of the other.

III. The Attractive Power of Loadſtones and of Iron, will greatly increaſe or diminiſh the Weight of Needles on the Ballance; nay, will overcome that Weight, and ſuſtain other additional Weights too: while the directive Power has much ſmaller effect. *Gaſſendus* indeed, as well as *Merſennus* and Dr. *Gilbert*, maintain it has none at all; but by a Miſtake; for Mr. *Whiſton* found from repeated Trials on large Needles, that after the Touch they weigh'd leſs than before. One of 4584 $\frac{1}{8}$ Grains loſt 2 $\frac{5}{8}$ Grains by the Touch; and another of 65726 Grains weight, no leſs than 14 Grains.

IV. 'Tis probable that Iron conſiſts almoſt wholly of the Attractive Particles; and the Loadſtone of the Attractive and Directive together; mix'd probably with other heterogeneous Matter; as having never been purg'd by the Fire, which Iron has: And hence may ariſe the reaſon why Iron, after it has been touch'd, will lift up much greater Weights than the Loadſtone that touch'd it.

V. The Quantity and Direction of *Magnetic* Powers, communicated to Needles, is not properly, after ſuch Communication, owing to the *Magnet* which gave the Touch; but to the Goodneſs of the Steel that receives it, and to the Strength and Poſition of the Terreſtrial Loadſtone, whoſe Influence alone thoſe Needles are afterwards ſubject to, and directed by: ſo that all ſuch Needles, if good, move with the ſame Strength and Point to the ſame Angle; what Loadſtone ſoever (provided it be good) they were excited by. Nor does the Touch ſeem to do much more in *Magnetical*, than Attrition in Electrical Caſes; *i. e.* it ſerves to rub off ſome obſtructing Particles that adhere to the Surface of the Steel, and open the Pores of the Bodies touched, and ſo make way for the Entrance and Exit of ſuch Effluvia as occaſion or aſſiſt the Powers we are ſpeaking of. Hence

He takes occaſion to obſerve, that the directive Power of the Loadſtone ſeems to be mechanical; and to be derived from magnetic Effluvia, circulating continually round it.

VI. The abſolute attractive Power of different armed Loadſtones, is, *cæteris paribus*, according to the Quantity, not of their Diameters or Solidities, but of the Surfaces of the Loadſtones; or in a Duplicate Proportion of their Diameters.

VII. The Power of good *Magnets* unarmed, not ſenſibly different in Strength, ſimilar in Figure and Poſition, but unequal in Magnitude, is ſometimes a little greater, ſometimes a little leſs than in the Proportion of their ſimilar Diameters.

VIII. The Loadſtone attracts Needles that have been touched, and others that have not been touched with equal Force, at Diſtances unequal, *viz.* where the Diſtances are to one another as 5 to 2.

IX. Both Poles of a Loadſtone equally attract Needles, till they be, tho' roughly, touched; then it is, and then only, that that one Pole begins to attract one End, and repel the other: tho' the repelling Pole will ſtill attract upon Contact, nay at very ſmall Diſtances notwithſtanding.

X. The attractive Power of Loadſtones, in their ſimilar Poſition to, but different Diſtances from Magnetic Needles, is in the Seſquiduplicate Proportion of the Diſtances of their Surfaces from thoſe Needles reciprocally; or as the mean Proportionals between the Squares and the Cubes of thoſe Diſtances reciprocally; or as the Square Roots of the fifth Powers of thoſe Diſtances reciprocally. Thus the Magnetic Power of Attraction, at twice the Diſtance from the Surface of the Loadſtone, is between a fifth and ſixth Part of that Power at the firſt Diſtance. At thrice the Diſtance the Power is between the 15th and 16th Part, at four times the Diſtance the Power is 32 times as ſmall, and at ſix times the Diſtance 88 times as ſmall. Where it is to be noted, that the Diſtances are not taken, as in the Law of Gravity, from the Center; but the Surface: all Experience aſſuring us, that the Magnetic Power reſides chiefly, if not wholly, in the Surfaces of Loadſtones and Iron; without any particular Relation to any Center at all. The Proportion here laid down was determined by Mr. *Whiſton*, from a great Number of Experiments of Mr. *Hauksbee*, Dr. *Brook Taylor*, and himſelf. The Force they meaſured by the Chords of thoſe Arcs, by which the *Magnet*, at ſeveral Diſtances, draws the Needle out of its natural Direction, to which Chords (as he has demonſtrated) it is ever proportional. The Numbers in ſome of their moſt accurate Trials he gives us in the following Table, ſetting down half the Chords, or the Sines of half thoſe Arches of Declination, as the true Meaſures of the Power of Magnetiſm.

Diſtance in Inches.	*Degrees of Inclination.*	*Sines of $\frac{1}{2}$ Arcs.*	*Rat. Seſquidupl.*
20	2	175	466
$14\frac{8}{9}$	4	349	216
$13\frac{5}{8}$	6	523	170
$12\frac{3}{8}$	8	697	138
$11\frac{1}{8}$	10	871	105
$10\frac{1}{4}$	12	1045	87
$9\frac{1}{4}$	14	1219	70

XI. An Inclinatory, or Dipping-Needle, of ſix Inches Radius, and of a Priſmatic or Cylindric Figure, when it oſcillates along the Magnetic Meridian, performs, here, every mean Vibration in about $6''$ or $360'''$; and every ſmall Oſcillation in about $5''\frac{1}{2}$, or $330'''$; and the ſame kind of Needle, four Foot long, makes every mean Oſcillation in about $24''$, and every ſmall one in about $22''$.

XII. The entire Power of Magnetiſm in this Country, as it affects Needles a Foot long, is to that of Gravity nearly as 1 to 300; and as it affects Needles four Foot long, as 1 to 600.

XIII. The Quantity of Magnetic Power accelerating the ſame Dipping-Needle, as it oſcillates in different vertical Planes, is ever as the Co-ſines of the Angles made by thoſe Planes, and the Magnetic Meridian taken on the Horizon.

Coroll. Thus if we would eſtimate the Quantity of Forces in the horizontal and vertical Situations of Needles at *London*; we ſhall find that the latter, in Needles a Foot long, is, to the entire Force along the Magnetic Meridian, as 96 to 100; and in Needles four Foot long, as 9667 to 10000: whereas in the former, the entire Force in Needles a Foot long, is as 28 to 100; and in thoſe four Foot long, as 2560 to 10000. Whence it follows, that the Power by which horizontal Needles are governed in theſe Parts of the World, is but one quarter of the Power by which the Dipping-Needle is moved.

Hence alſo, ſince the horizontal Needle is moved only by a Part of the Power which moves the Dipping-Needle; and that it only points to a certain Place in the Horizon, becauſe that Place is the neareſt its original Tendency, of any, its Situation will allow it to tend to: Whenever the Dipping-Needle ſtands exactly perpendicular to the Horizon, the horizontal Needle will not reſpect one Point of the Compaſs more than another, but will wheel about every way uncertainly.

XIV. The Times of Oſcillation and Vibration, both in dipping and horizontal Needles equally good, is as that of their Lengths directly; and the actual Velocity of their Points along their Arcs always equal.

Hence Magnetic Needles are, *cæteris paribus*, ſtill better the longer they are; and that in the ſame Proportion with their Lengths. See *Needle*.

XV. The Earth, on which we live, includes within it a vaſt Spherical *Magnet*, concentrical thereto, with its own Poles, Meridians, Equator, and Parallels; and all much of the ſame general Nature with thoſe of ſmall *Terrellæ*, or Spherical Loadſtones, in the poſſeſſion of the Curious among us.

XVI. The Power of a good *Terrella*, or Spherical Loadſtone, as it affects a Needle a Foot long, is equal to the Magnetic Power of that internal Loadſtone about two and an half, or three Diameters off ſuch Loadſtone. From which Conſideration the Quantity of Magnetic Attraction, at all Diſtances from the internal Loadſtone, for Needles a Foot long, may be determined; and from the ſame Conſideration it appears, that the Diameter of this internal Loadſtone is about 1150 Miles. To which we may add, that, in regard Sir *Iſaac Newton* has demonſtrated, that the Power of Gravity diminiſhes within the Earth, and is leſſer there than at its Surface nearly, in the proportion of its greater Nearneſs to the Center; the Magnetic Power at 2900 Miles diſtance from us, and nearly 1060 from the Earth's Center, which is $\frac{10}{24}$ of the Power of Gravity here, will be ſomewhat greater than the Power of Gravity there: Which Limit is worth our Attention, Gravity being ſtronger than Magnetiſm on the one Side of it, and weaker on the other; we mean as it affects Needles of one foot Diameter. At that Limit, therefore, at leaſt near the Magnetic Poles, Iron, a Foot long, will be twice as heavy, and fall twice as faſt as any other natural Body, *viz.* by the Union of thoſe two equal Powers, Gravity and Magnetiſm; and of conſequence, above that Limit, ſuch an Iron will be leſs than twice as heavy; below it, more than twice as heavy as any other natural Body.

XVII. The Earth's internal Loadſtone is not fixed to our upper Parts, but is moveable with reſpect thereto, and actually revolves on the Earth's Axis from *Eaſt* to *Weſt* in a certain long Period of Time; as appears, beyond Contradiction, from the conſtant Variation of the horizontal Needle Weſtward; as well as the regular Increaſe of Inclination of the Dipping-Needle.

The only way to render this Motion, *i. e.* the Variation, poſſible and intelligible (to uſe Dr. *Halley*'s Words) is to ſuppoſe it to turn about the Center of the Globe, having its Center of Gravity fixed and immoveable in the ſame common Center of the Earth. This moveable internal Surface muſt likewiſe be looſe, and detached from the external Parts of the Globe; which may be reckoned the Shell, and the other the *Nucleus*, or inner Globe, included within it, with a fluid Medium between. Now from the Variations moving Weſtwards, 'tis plain, that the foreſaid *Nucleus* has not preciſely attained the ſame Degree of Velocity with the exterior Parts in their diurnal Revolution; but ſo nearly equals it, that in 365 Revolves the Difference is ſcarce ſenſible; and muſt probably have ariſen from hence, that the Impulſe, whereby the diurnal Motion was impreſſed on the Earth, was given to the external Parts, and thence communicated to the internal.

XVIII. This internal *Magnet* has one central Pole Northwards, in the nature of the Poles of our common Loadſtones; but its Southern Pole appears not to be central, but rather circular; and that at a great Diſtance from the Southern Pole of the Earth.

XIX. The Northern Magnetic Pole is now ſituate about the Latitude of 76 Deg. $\frac{1}{2}$, *i. e.* 13 Deg. $\frac{1}{2}$ from the North Pole of the Earth, and about 30 Deg. Eaſtward from the Meridian of *London*.

XX. The Southern Magnetic circular Pole has its Center, or central Pole, nearly in the Parallel of 60 Degrees; and in a Meridian paſſing along the Eaſt Coaſt of *Borneo*, about 117 Degrees Eaſtward of *London*: its Radius is alſo an Arc of a great Circle of about 44 Degrees.

XXI. The reſpective Motion of the internal *Magnet*, or the Velocity, *v. g.* of its North-Pole, appears to be 27 Deg. 0 Min. in 144 Degrees, *i. e.* one Degree in five Years; ſo that it makes an entire Revolution in 1920 Years.

Hence as the Number of Degrees in the upper Earth's diurnal Revolution, is to the Number of Days in the Revolution of the internal *Magnet*, *i. e.* as 1 is to 700000, ſo is the reſpective Motion of this *Magnet* from Eaſt to Weſt to the real Motion of the upper Earth from Weſt to Eaſt; or to ſpeak ſtrictly, ſo is the Difference of their Motions from Weſt to Eaſt, to the entire Motion of the upper Earth the ſame way. This external fixed Earth has therefore communicated almoſt all its Motion already to the internal *Magnet*, and can communicate no more than this Difference of their Motion, and that only in an infinite Term of Years; or, in other Words, this real internal Motion can never be the 700000th Part ſwifter than it is at preſent. This internal Motion therefore began with the Commencement of the diurnal Motion of the upper Earth; and has gone on ſtill faſter and faſter by the Communication of that Motion thro' the intermediate Fluid. Since therefore Action and Reaction are equal, and tend to contrary Parts, this internal Loadſtone, thus accelerated by the upper Part, muſt have all along retarded that upper Earth, and made the diurnal Rotation ſtill ſlower and ſlower. This Acceleration on one Side, and Retardation on the other, muſt have been very great at the firſt beginning of the diurnal Motion, when the Difference of their Motion was equal to the entire Motion itſelf, and muſt have been diminiſhing ever ſince. To which Cauſe is probably owing that Acceleration of the Moon's Motion with reſpect to that of the Earth, ſince the time of the old Aſtronomers, firſt taken notice of by Dr. *Halley*, and embraced by Sir *I. Newton*. And the ſame Conſideration ſeems to ſuggeſt a Method for determining the Age of the World; for were the Proportions of the Quantity of Matter in the upper Earth to the internal *Magnet*, with the Tenacity of the intermediate Fluid, &c. known, one might go back from the known Difference of their Velocity now, and find thoſe Differences and Quantities of Motion themſelves, *à priori*, in all paſt Ages; or were the Velocity of the firſt diurnal Rotation of the upper Earth known, we might geometrically determine, *à priori*, how long ago that Rotation began, or how antient our Earth is.

XXII. The Variation of Magnetic Needles from the Azimuth of the Meridians of the internal *Magnet*; is derived from the Difference of the Strength of the ſeveral Parts of the internal *Magnet*'s Surface; which as it is only to be known by Experience, that Variation cannot be determined beforehand, unleſs where there are good Accounts how much it had formerly been; it being probable that it returns round, and will be the ſame in any Year of the next Revolution of the internal *Magnet*, that it has been in the like Year of any former Revolution, or will itſelf have a Revolution in about 1920 Years.

XXIII. The two fixed Magnetic Poles, in our upper Earth, firſt introduced by Dr. *Halley*, as neceſſary to ſolve the Irregularity of the Variation of the Horizontal Needle from the Meridians of the moveable internal *Magnet*, ſeem not to have any juſt Foundation in Nature; the like Irregularities being found in the common *Terrellæ* or Spherical Loadſtones; and being beſt accounted for from the Compoſition of the *Magnets*, which are found to have Parts of different Degrees of Purity, Strength, and Perfection; ſo that where the Parts are weaker than ordinary, the ſtronger neighbouring Parts prevail, and draw the Needle that way: not but Dr. *Gilbert*'s Notion of prominent and depreſſed Parts on *Magnets* may have ſome room, and be allowed to contribute ſomewhat to ſuch Variations. See *Needle*.

As to the Cauſes of Magnetiſm, or the Manner in which theſe Phænomena of the *Magnet* are produced, we have yet no Hypotheſis that will ſatisfactorily account for them. *Plutarch* tells us, the *Magnet* attracts Iron, by emitting ſome ſpiritual Effluvia, whereby the contiguous Air being opened and driven on either Side, does again drive that contiguous to it; and thus the Action being communicated round, the Iron is thereby protruded: but this is contradicted by the equally vigorous Action of the Loadſtone *in Vacuo*, and in the open Air. Others of the Antients aſcribe the Action of the *Magnet* to a Soul that animates it; and others to I know not what Sympathy between the Effluvia of the Iron and thoſe of the *Magnet*. The Opinion that principally prevails among the Moderns is that of *Des Cartes*, maintained by *Malebranch*, *Rohault*, *Regis*, &c. and even admitted of and confirmed by Mr. *Boyle*, &c. In this 'tis ſuppoſed there is continually flowing, from the Poles of the World, a ſubtle, impalpable, and inviſible Matter, channel'd or ſtriated; which Matter circulating round the Earth, in the Plains of the Meridians, re-enters at the Pole oppoſite to that from which it iſſued, and paſſes again thro' the Poles parallel to its Axis: That the *Magnet* has two Poles anſwerable to thoſe of the Earth, and that out of theſe there iſſues a Matter like that juſt mentioned: That this Matter, entering in at one of the Poles, gives the Impulſe whereby Iron tends to the *Magnet*, and produces what we call Attraction. Now beſides the Magnetical Matter re-entering the Poles of the *Magnet*, there is always a certain Quantity thereof circulating round the *Magnet*; compoſing a kind of Vortex about it. The Space wherein this Matter moves, is the Sphere of Activity of the *Magnet*, within which its attractive Faculty is confined. As to its directive Faculty, or the Inclination of a Needle touched with it to the Poles of the World, and its Dip to a Point beneath the Horizon, it follows from the ſame Principle; ſince were the *Magnet* or Needle to have any other Situation, the Magnetic Matter would ſtrike on its Surface in vain; and not being able to get Admiſſion, would, by degrees, change its Situation, till ſuch time as its Pores correſponded to the Courſe of the Magnetical Matter; which Situation having once acquired, it would ceaſe to move; the Magnetical Matter then ceaſing to diſturb it. The Form of a *Magnet* therefore is ſuppoſed to conſiſt in its being perforated by an infinite Number of parallel Pores; ſome whereof are diſpoſed to admit the ſtriated Matter from the North Pole of the World, others that of the South; hence the North and South Poles of the *Magnet*.

As to the directive Power of the *Magnet*, Mr. *Whiſton*, from the 1ſt, 2d, 3d, &c. Laws of Magnetiſm, inclines to think it mechanical; and aſcribes it to magnetic Effluvia circulating continually round the Loadſtone; of which Circulation, he thinks, there are evident Indications in magnetic Experiments; as Mr. *Boyle* thinks there are of the Magnetiſm or magnetic Effluvia of the Earth; tho' thoſe Effluvia were never yet rendered ſenſible as Electric Effluvia begin to be; but the attractive Power Mr. *Whiſton* thinks entirely immechanical, as the Power of Gravity is; not being able to deviſe any ſuch Motion of a ſubtle Fluid belonging to the Loadſtone, as will account for the attractive Power in the ſeſquiduplicate Proportion of the Diſtances reciprocally; tho' if he could, yet would that be no more than to remove the immediate Power of the Supreme Being one Step further; the laſt Reſort of all mechanical Principles whatever being into the immechanical Power and Efficiency of the Deity.

M. *Hartſoeker* maintains, that the *Magnet* is no more than a common Stone; full of an infinite Number of hollow Priſms, which, by the diurnal Motion of the Earth, are ranged parallel to each other, and nearly parallel to the Axis of the Earth. Theſe Priſms have their Cavities filled with an extremely ſubtle Matter; which, by the diurnal Motion of the Earth, is paſſed from Priſm to Priſm: thus making a Circulation, and returning into the Priſms where it firſt began: From theſe Principles he deduces all the Phænomena of the *Magnet*; and M. *Andry* does the ſame, from the Doctrine of Alkali and Acid.

There are *Magnets* found in moſt of the Provinces of *China*, but the principal Uſe the *Chineſe* make of them is in Medicine. *Le Compte* deſcribes their manner of cutting them by a Machine, which, he ſays, is vaſtly more expeditious than any uſed among us.

The *Magnet* is alſo called *Lapis Heracleus*, from *Heraclea*, a City of *Magneſia*, a Port of the antient *Lydia*, where it is ſuppoſed to have been firſt found. Others derive the word *Magnet* from a Shepherd of that Name, who firſt diſcovered it with the Iron of his Crook on Mount *Ida*. It is alſo called *Lapis Nauticus*, by reaſon of its Uſe in Navigation; and *Siderites*, from its attracting Iron, which the *Greeks* call σίδηρος.

MAGNETICAL AMPLITUDE, an Arch of the Horizon, contained between the Sun, at his Riſing or Setting, and the Eaſt and Weſt Point of the Compaſs: found by obſerving the Sun at his Riſing and Setting by an Amplitude Compaſs. See *Amplitude*.

MAGNETICAL AZIMUTH. See *Azimuth*.

MAGNETISM, a Term uſed by ſome Chymiſts, to ſignify a certain Virtue, whereby one thing becomes affected at the ſame time with another, either in the ſame or a different manner. This is what they otherwiſe call *Sympathy*.

MAGNIFY, a Term chiefly uſed in reference to Microſcopes, which are ſaid to magnify Objects, or to make them appear bigger than they really are; but, in reality, Microſcopes do not, nor cannot, magnify any Object, but only ſhew it nearer and more of its Parts than before were taken notice of. See *Microſcope*.

MAGNIFYING-GLASS, in Optics, a little Sphere, convex Lens, *&c.* which, in tranſmitting the Rays of Light, inflects them ſo, as that the parallel ones become converging, and thoſe which were diverging become parallel; by means whereof, Objects view'd thro 'em appear larger than when view'd by the naked Eye. See *Lens*, *Microſcope*, &c.

MAGNITUDE, any thing that has Parts external to Parts, connected together by ſome common Term; *i. e.* any thing locally extended or continued; or that has ſeveral Dimenſions. The Origin of all *Magnitude* is a Point, which tho void of Parts itſelf, yet its Flux forms a Line, the Flux of that a Surface, and of that a Body.

M. *Preſtet* gives the Name *Literal Magnitude* to a *Magnitude* expreſs'd by Letters; and a *Numerical Magnitude* he calls ſuch a one as is expreſs'd by Numbers; a *Broken Magnitude* is a Fraction; a *Complex Magnitude* is that form'd by Multiplication; an *Incommenſurable Magnitude* is a *Magnitude* that has no proportion to Unity.

Among the Writers of Optics, the *Apparent Magnitude* of a Body is that meaſured by the Optic or Viſual Angle, intercepted between Rays drawn from its Extremes into the Centre of the Pupil of each. And 'tis one of their fundamental Maxims, whatever things are ſeen under the ſame or equal Angles, appear equal, and on the contrary.

The *Apparent Magnitudes* of an Object at different Diſtances, are in a Ratio leſs than that of their Diſtances reciprocally.

MAGOPHONIA, the Name of a Feaſt among the antient *Perſians*. The Magus *Smerdis* having uſurped the Throne of the *Perſians* upon the death of *Cambyſes*, 521 Years before J. C. ſeven of the principal Lords of the Court conſpired to drive him out of it. Their Deſign was executed with good ſucceſs; *Smerdis* and his Brother, another Magus, call'd *Pitizithez*, they kill'd. Upon which, the People alſo roſe, and put all the Magi to the ſword; inſomuch that there would not one have eſcaped, had not the Night come upon 'em. *Darius*, Son of *Hyſtaſpes*, was then elected King. In memory of this Maſſacre of the Magi, a Feaſt was inſtituted, ſays *Herodotus*, call'd *Magophonia*; from Μάγος, Magus, and φόνος, Murther.

MAHIM, or *Mayhim*, in Law, a Corporal Hurt, whereby a Man loſeth the Uſe of any Member, that is or may be of any defence to him in Battle; as the Eye, Hand, Foot, Scalp of the Head, Fore-tooth, or, as ſome ſay, any Finger or Toe. *Glanv. Bract. &c.* If any one ſhall of Malice forethought cut out or diſable any Limb or Member of any, with Intention in ſo doing to maim or disfigure him, it is Felony without Benefit of the Clergy; and when the Caſe is difficult to judge, whether it be a *Mahim* or not, the Judges commonly behold the Party wounded, and ſometimes take the Opinion of Chirurgeons. The word comes from the *French Mehaigner*, to mutilate. The Canoniſts call it *Membri Mutilationem*; and all agree, it conſiſts in the Loſs of a Member, or the Uſe thereof.

MAHOMETANISM, the Syſtem of Religion broach'd by *Mahomet*, and ſtill adhered to by his Followers. *Mahometaniſm* is embraced by the *Turks*, *Perſians*, and ſeveral Nations among the *Africans*, and many among the *Eaſt-Indians*. The firſt and chief Article of the *Mahometan* Creed, is, that *there is no other God but God*; which they have from the Alcoran, where theſe Words are repeated inceſſantly: *There is no other God but him. Your God is the only God. I am God, and there is no other God but me.* This grand Axiom of their Theology ſeems to have been taken from the *Jews*, who were continually rehearſing thoſe Words of *Deuteronomy*, *Hear*, Iſrael, *the Lord our God is One.* For this reaſon, the *Mahometans* account all ſuch as own any thing of Number in the Divinity, to be Idolaters: And accordingly, one of the firſt Leſſons they teach their Children, is, That God is neither Male nor Female, and conſequently can have no Children.

The ſecond Fundamental Article of *Mahometaniſm* conſiſts in this, *That* Mahomet *was ſent from God.* By which they exclude all other Religions; under pretence that their Prophet was the laſt and greateſt of all the Prophets that God would ever ſend; and that as the *Jewiſh* Religion ceaſed with the Coming of the *Meſſiah*, ſo likewiſe the Chriſtian Religion was to be abrogated with the Coming of *Mahomet*. Not but that they own *Moſes* and *Jeſus Chriſt* to have been great Prophets; but *Mahomet* they hold to be *The Prophet*, by way of Excellence; and the Paraclete or Comforter ſpoken of in Scripture.

Theſe are the two Fundamentals of *Mahometaniſm*; ſo that when any is to make profeſſion of that Faith, they content themſelves with his ſpeaking theſe words, *There is no other God but God, and* Mahomet *is his Envoy or Prophet.*

To theſe Articles the *Mahometans* have added that of Bathing or Purification, in imitation of the *Jews*. And ſuch an Opinion have they of theſe Purifications, that 'tis purely on that account they ſeem to have retain'd the Practice of Circumciſion. For they pretend, with the *Jews*, that if the leaſt part of the Body remain unwaſh'd, the Bathing is of no effect. Hence they find themſelves under a neceſſity of being circumcis'd; that the Part cover'd by the Prepuce may alſo have its ſhare of the Lotion.

Prayer is alſo one of the Things to which the *Mahometans* are obliged; and they perform it five times a day, to diſtinguiſh themſelves from the *Jews*, who only do it thrice. Some of their Returns of Prayer they hold to be neceſſary and of Divine Obligation; others they eſteem convenient and prudential. That at Nine a-clock in the Morning they don't eſteem neceſſary; but thoſe at Noon and in the Afternoon are held to be *Jure Divino*. They are obliged to obſerve an infinity of things to be heard: If they ſpeak or ſmile in Praying, their Prayers are vain: and 'tis the ſame thing if they weep, unleſs it be with the Thought of Paradiſe or Hell. In many of their Prayers they uſe Beads. They believe with the *Chriſtians* and *Jews* a Reſurrection of the Dead. They hold, that e'er that time an *Anti-Mahomet* will come; and that J. C. will deſcend from Heaven to kill him, and eſtabliſh *Mahometaniſm*. To which they add a great many more Chimæras, relating to *Gog* and *Magog*; and the Beaſt that is to come out of *Mocca*. The Mountains are to fly in the Air like Birds, and at laſt the Heavens will melt and run upon the Earth. They add however, that ſome time after, God will renew and re-eſtabliſh the Earth; that then the Dead will be rais'd, *&c.* See *Alcoran*.

MAIDEN, an edg'd Inſtrument uſed in ſome Countries, particularly in *Scotland*, for the beheading of Criminals. The *Maiden* is a broad Piece of Iron, a foot ſquare, ſharp on the lower part, and loaded above with Lead, ſo as ſcarce to be lifted. At the time of Execution, it is pull'd up to the top of a narrow wooden Frame ten foot high, with a Groove on each ſide for the *Maiden* to ſlide in. The Priſoner's Neck being faſten'd to a Bar underneath, on a Sign given, the *Maiden* is let looſe, and the Head in an inſtant ſeparated from the Body.

MAJESTY, a Title given to Kings, and which frequently ſerves as a Name to diſtinguiſh them by. The Emperor is call'd, *His Cæſarian* or *Imperial Majeſty*; the King of *Spain*, *His Catholic Majeſty*; the King of *France*, *His moſt Chriſtian Majeſty*; the King of *Great Britain*, *His Britannic Majeſty*, &c. Some have alſo extended this Title to the Popes. *Paſquier* has obſerved, that our Forefathers uſed this Quality exceeding ſparingly; and that the frequent Uſe of the Word which now obtains, had not its beginning before the Reign of their *Henry* II. He inſtances ſeveral Letters of S. *Gregory*, who writing to King *Theodebert* and *Theodoric*, only compliments them with *Excellence*. Till the Time of *Charles* V. the King of *Spain* had no Title but that of *Highneſs*: And before our King *Henry* VIII. the Kings of *England* were only addreſs'd under the Titles of *Grace* and *Highneſs*. At the Peace of *Munſter*, there was a great Conteſt between the Miniſters of the Emperor and thoſe of *France*: The firſt would not allow the Title of *Serenity* to the King of *France*, and the latter would not give that of *Majeſty* to the Emperor. At laſt 'twas agreed, that whenever the *French* King ſhould write with his own Hand to the Emperor, he ſhould give him the Title of *Imperial Majeſty*; and reciprocally when the Emperor ſhould write to the King, he ſhould give him that of *Royal Majeſty*.

Under the *Roman* Republic, the Title of *Majeſty* belonged to the whole Body of the People and to the Principal Magiſtrates; ſo that to diminiſh or wound the *Majeſty* of the Commonwealth, was to be wanting in Reſpect to the State, or its Miniſters. But the Power paſſing into the hands of a ſingle Perſon, the Appellation of *Majeſty* was transfer'd to the Emperor and the Imperial Family. *Pliny* complements *Trajan* on his being contented with the Title of *Greatneſs*; and ſpeaks very invidiouſly on thoſe who affected that of *Majeſty*. And yet *Majeſty* ſeems to be the modeſteſt and juſteſt Title that can be attributed to Sovereigns, ſince it ſignifies no more, at bottom, than the Royalty or Sovereign Power.

The Word ſeems compoſed of the two *Latin* words, *Major*, greater, and *Status*, State.

MAIL, a Coat of *Mail*, ſo call'd from the *French Maille*, a ſquare Figure, or the ſquare Hole of a Net. *Maille* with a double *ll* ſignifies a round Ring of Iron, whence the Play of *Pall-Mall*, from *Palla*, a Ball, and *Maille*, the round Ring thro which it is to paſs.

MAILED implies ſomething ſpeckled, or full of Specks; as the Feathers of Hawks, Partridges, *&c.* or as the Furs of ſome wild Beaſts are.

MAIN MORTE, a Term in ſome antient Cuſtoms ſtill holding in *Burgundy* and other Countries, ſignifying a

Right which the Lord has, on the Death of the Chief of a Family *Mainmortable* (*i. e.* ſubject to this Right) of taking the beſt Moveable in the Houſe; or in default of that, they offer'd him the Right Hand of the Deceaſed, in token that he could ſerve him no longer. This Right was not uniform; ſome People were *Main-mortable* in all their Effects Moveable and Hereditary; others in one only.

MAINOUR, *Manour*, or *Meinour*, in Law, ſignifies the thing that a Thief takes away or ſteals. Thus, to be taken with the *Manour*, is to be taken with the Thing ſtolen about him. If the Defendant were taken with the *Manour*, and ſo carried to Court, in antient Times they would arraign him on the *Mainour*, without any Appeal or Indictment. The word comes from the *French Mainier* or *Mainaver*, to hold in the hand.

MAINPRISE, in Law, the taking or receiving a Man into friendly Cuſtody, that otherwiſe is or might be committed to Priſon; upon Security given for his forth-coming at a Day aſſigned. They who thus undertake for any, are call'd *Mainpernors*, becauſe they receive him into their hands; whence alſo comes the word *Mainpernable*, denoting the Perſon who may be thus bailed. See *Bail*.

Manwood makes a great deal of difference between *Bail* and *Mainpriſe*: for he that is *mainpriſed* is already ſaid to be at large after the Day he is ſet to *Mainpriſe* till the Day of his Appearance; but 'tis otherwiſe where a Man is let to *Bail* to four or two Men, by the Lord Juſtice in Eyre of the Foreſt, or any other Judge, until a certain Day; for there he is always accounted by the Law to be in their Ward and Cuſtody for the Time; and they may, if they pleaſe, keep him in Priſon all that time. So that he who is ſo bail'd, ſhall not be ſaid to be at large, or at his own liberty.

Mainpriſe is alſo an Undertaking in a Sum certain: *Bail* anſwers the Condemnation in Civil Cauſes, and in Criminals, Body for Body.

The Author of the *Mirror of Juſtice* ſays, that Pledges are thoſe which bail or redeem any thing but the Body of a Man, and Main-pernors thoſe that free the Body: Pledges therefore belong properly to real and mix'd Actions, and Main-pernors to perſonal. The word *Mainpriſe* is compounded of the *French Main*, Hand, and *prins*, taken.

MAINTENANCE, in Law, is the maintaining or upholding a Cauſe or Suit between others, either by Word, Writing, Countenance or Deed: Metaphorically taken from the ſuccouring a young Child, that learns to go by one's hand; and uſed in the evil part in ſome of our Statutes. When a Man's Act in this kind is eſteem'd *Maintenance*, and when not, ſee *Brooks* and *Kitchin*. There lies a Writ againſt a Maintainer, call'd a *Writ of Maintenance*.

MAJOR, in the Art of War, a Name given to ſeveral Officers of different Qualities and Functions.

Major-General is he who receives the General's Orders, and delivers them out to the Majors of the Brigades, with whom he concerts what Troops are to mount the Guard, what to go on Parties, what to form Detachments, or to be ſent on Convoys, *&c.* It is his buſineſs alſo to view the Ground to incamp on, and he is next ſubordinate to the General and Lieutenant-General. See *General*.

Major of a Brigade, either of Horſe or Foot, is he who receives Orders, and the Word, from the Major-General, and gives them to the particular Majors of each Regiment. See *Brigade*.

Major of a Regiment of Horſe, is the firſt Captain of the Regiment, and commands in the abſence of the *Maitre de Camp*.

Major of a Regiment, is an Officer, whoſe buſineſs it is, to convey all Orders to the Regiment, to draw it up, and exerciſe it; to ſee it march in good Order, to look to its Quarters, and to rally it, if it happen to be broke in an Engagement, *&c.* He is the only Officer of a Regiment of Foot, who is allowed to be on horſeback in time of Service; but he rides, that he might ſpeedily get from place to place, as occaſion ſerves. See *Regiment*.

There is alſo in a Gariſon an Officer next to the Deputy-Governour, which is call'd the *Town-Major*: He ought to underſtand Fortification, and hath charge of the Guards, Round, Patrols, and Centinels.

There are alſo *Aids-Major*, *Drums-Major*, and other Officers; ſo call'd by reaſon of ſome Seniority or Prerogative that they have over the reſt.

MAJOR, in Law, is a Perſon who is of Age to manage his own Affairs. By the Civil Law, a Man is not a *Major* till the Age of 25 Years; in *England* he is *Major* at 21, and in *Normandy* at 20.

MAJOR, in Logic, is underſtood of the firſt Propoſition of a regular Syllogiſm. 'Tis call'd *Major*, becauſe it has a more extenſive Senſe than the *Minor* Propoſition, as containing the principal Term. See *Syllogiſm*.

MAJOR and MINOR, in Muſic, are ſpoken of the Concords which differ from each other by a Semi-tone. There are *Major* and *Minor* Thirds, *&c.* The *Major* Tone is the Difference between the 5th and 4th, and the *Major* Semitone is the Difference between the *Major* 4th and the 3d. The *Major* Tone ſurpaſſes the *Minor* by a Comma. See *Concord*.

MAJOR-DOMO, an *Italian* Term, frequently uſed to ſignify a Steward.

The Title of *Major-Domo* was formerly given in the Courts of Princes to three different kinds of Officers. 1*ſt*, To the Officer who took care of what related to the Prince's Table or Eating, otherwiſe call'd *Eleater*, *Præfectus Menſæ*, *Archítriclinus*, *Dapifer*, and *Princeps Coquorum*. 2*dly*, *Major-Domo* was alſo applied to the Steward of the Houſhold. 3*dly*, The Title of *Major-Domo* was alſo given to the Chief Miniſter, to whom the Prince deputed the Adminiſtration of all his Affairs, foreign and domeſtick, relating to War as well as Peace. Inſtances of *Major-Domo's* in the two firſt Senſes are frequent, both in the *Engliſh*, *French*, and *Norman* Affairs.

MAKE, in Law, ſignifies to perform and execute. Thus, *to make his Law*, is to perform that Law to which he had formerly bound himſelf; *i. e.* to clear himſelf of an Action commenc'd againſt him, by his own Oath and the Oath of his Neighbours. To *make Services*, or *Cuſtom*, is nothing elſe but to perform.

MALACIA, a Diſeaſe conſiſting in a depraved Appetite, wherein the Patient covets and longs for ſome particular kind of Food with extraordinary Earneſtneſs, and eats it to Exceſs. As when a Woman with Child is vehemently deſirous of Herrings, or any other uſual Diſh. Many Authors confound this Affection with another call'd *Pica*, conſiſting in a Depravation of Appetite, which leads the Patient to covet things unnatural and abſurd, as Lime, Coals, *&c.* The *Malacia* ſeems to ariſe from an ill Diſpoſition of the Menſtruum in the Stomach; or from ſome Defect in the Imagination, which determines it to ſome one thing rather than another. The word ſeems derived from the *Greek* μαλακὸς, ſoft: too lax a Tone of the Stomach being generally the Occaſion of Indigeſtion and unuſual Cravings.

MALANDERS, a Diſeaſe in Horſes ſo called from the *Italian Malandare*, to *go ill*. It conſiſts in certain Chops, or Chinks, appearing on the inſide of the Fore-Legs, juſt againſt the bending of the Knee, which void a red, ſharp, and biting Water.

MALE, the Sex which has the Parts of Generation without-wards, and which has ordinarily the Preheminence over the other.

MALEBRANCHISM, the Doctrine or Sentiments of Father *Malebranch*, a Prieſt of the *Oratory* of *France*. *Malebranchiſm* is in a great meaſure the ſame with *Carteſianiſm*. It muſt be own'd however, that tho F. *Malebranch* thought the ſame with *Des Cartes*, yet he does not ſeem to have follow'd him, but to have met with him. *Malebranchiſm* is contain'd in the *Recherche de la Verité*; and to give a general Notion of it, we need only repeat what M. *Fontenelle* ſays of that Work. The *Enquiry after Truth*, ſays he, is full of God. God is the only Agent, and that too, in the ſtricteſt ſenſe. All Power of Acting, all Actions belong immediately to him. Second Cauſes are no Cauſes. They are only Occaſions that determine the Action of God; Occaſional Cauſes. See *Cauſe*. F. *Malebranch*, however, does not here lay down his Syſtem entire with regard to Religion, or rather the Manner in which he would reconcile Religion to his Syſtem of Philoſophy. That he reſerv'd for his *Chriſtian Converſations*, printed in 1677. where he proves the Exiſtence of a God, the Corruption of Human Nature by Original Sin, the Neceſſity of a Mediator and of Grace. *Malebranchiſm*, notwithſtanding, appears to many Perſons not only ill grounded, but even dangerous and deſtructive to Religion: and has accordingly been vigorouſly oppoſed by many zealous *French* Authors. The firſt was M. *Foucher*. After him came M. *Arnaud*; and in 1715, (the Year F. *Malebranch* died) F. *du Tertre*, a Jeſuit, publiſh'd an ample Confutation (as he imagines) of his whole Syſtem. That part which relates to our ſeeing all things in God, has been anſwer'd by Mr. *Locke*.

MALEDICTION, in Law, a Curſe uſually annex'd to Donations of Lands, *&c.* to Churches and Religious Houſes; imprecating the moſt direful Puniſhments to thoſe who ſhould infringe them.

MALIGNANT, in Medicine, a Diſeaſe greatly aggravated: The word is generally applied to ſuch Fevers as are Epidemical, or Infectious, and are attended with Spots and Eruptions of various kinds. See *Fever*.

MALLEABLE, ſomething hard and ductile, and that may be beaten, forg'd and extended under the Hammer without breaking. All Metals are *Malleable*, excepting Quickſilver; but Gold in the greateſt degree of all. The Chymiſts have long ſought the Fixation of *Mercury*, to render it *malleable*. 'Tis a popular Error, that ever the Art of making Glaſs *malleable*, was known; its Nature is incapable of it. For if it were ductile, its Pores would not be oppoſite to each other, and of conſequence it would not be tranſparent; ſo that its principal Quality would be loſt. See *Tranſparency*. This Error is founded on the Credit of antient Hiſtorians.

MALLEOLUS, a Proceſs in the lower part of the Leg juſt above the Foot. There is one internal, and another external. The internal is an Eminence of the *Tibia*, the external of the *Fibula*: the two together form the Ancle.

MALLET, a kind of large Hammer, made of Wood, much uſed by Artificers who work with the Chiſſel, as Sculptors, Maſons and Stone-cutters, whoſe Mallet is ordinarily round; Carpenters, Joiners, *&c.* who uſe it ſquare.

MALLEUS, in Anatomy, is underſtood of one of the Bones of the Ear, from its Reſemblance to a Hammer or Mallet; firſt diſcovered by *Jac. Carpenſis*. See *Ear*.

MALMSEY, or *Malvaſy*, a kind of Wine brought from *Greece* or *Candia*; ſo call'd from *Malvaſia*, a City in *Peloponneſus*, which is the antient *Epidaurus*, whence this celebrated Liquor was firſt brought. That brought from *Candia* is eſteem'd the beſt. See *Wine*.

Malmſey is alſo the Name of a kind of Muſcadine Wine brought from *Provence*.

MALT, a Preparation of Barley, whoſe Uſe is well known. The Proceſs or Manner of making it, Sir *R. Murray* deſcribes as follows. Take good Barley newly threſhed, *&c.* put about ſix *Engliſh* Quarters in a Stone Trough full of Water, where let it ſteep till the Water be of a bright reddiſh colour; which will be in about three days, more or leſs, according to the Moiſtneſs or Dryneſs, Smallneſs or Bigneſs of the Grain, the Seaſon of the Year, or the Temperature of the Weather. In Summer, *Malt* never makes well; in Winter it requires longer ſteeping than in Spring or Autumn. It may be known when it is ſteep'd enough, by other Marks beſides the Colour of the Water; as by the exceſſive Swelling of the Grain if it be over-ſteep'd, and by too much Softneſs: being, when 'tis in a right Temper, like the Barley prepared to make Broth of. When it is ſufficiently ſteep'd, take it out of the Trough, and lay it on heaps, to let the Water drain from it; then after two or three hours turn it over with a Scoop, and lay it in a new heap, about 20 or 24 Inches deep.

This Heap is call'd the *Coming Heap*, and in the right Management of this lies the principal Skill. In this Heap it may lie 40 hours, more or leſs, according to the forementon'd Qualities of the Grain, *&c.* before it come to the right Temper of *Malt*; which that it may do equally, is mainly deſired. While it lies in this Heap, it muſt be carefully look'd to, after the firſt 15 or 16 Hours; for about that time the Grain begins to put forth the Root: which when they have equally and fully done, the *Malt* muſt within an hour after be turn'd over with a Scoop; otherwiſe the Grains will begin to put forth the Blade or Spire alſo, which muſt by all means be prevented. If all the *Malt* don't come equally, but that which lies in the middle, being warmeſt, come the ſooneſt; turn it, ſo as the outmoſt may lie inmoſt, and thus manage it till 'tis all alike. As ſoon as the *Malt* is ſufficiently come, turn it over, and ſpread it to a depth not exceeding five or ſix Inches; and by that time it is all ſpread out, begin and turn it over and over again three or four times. Afterwards turn it over in like manner once in four or five hours, making the Heap deeper by degrees: and continue ſo to do for the ſpace of 48 hours at leaſt. This frequent turning it over, cools, dries, and deadens the Grain, whereby it becomes mellow, melts eaſily in Brewing, and ſeparates entirely from the Huſk. Then throw up the *Malt* into a Heap, as high as you can; where let it lie till it grow as hot as your Hand can endure it, which uſually comes to paſs in about 30 hours ſpace. This perfects the Sweetneſs and Mellowneſs of the *Malt*. After it is ſufficiently heated, throw it abroad to cool, and turn it over again about 6 or 8 hours after, and then lay it on the Kiln with Hair-Cloth or Wire ſpread under it; where after one Fire, which muſt laſt for 24 hours, give it another more ſlow, and afterwards, if need be, a third: for if the *Malt* be not thoroughly dried, it cannot be well ground, neither will it diſſolve well in the Brewing; but the Ale it makes will be red, bitter, and will not keep. The beſt Fewel is Peat or Turf; the next, Charcoal. If there be not enough of one kind, burn the beſt firſt, for that gives the ſtrongeſt Impreſſion. Indeed the beſt and moſt natural Method of drying it, is in the Sun in the Months of *April* and *May*. This yields the paleſt, the moſt wholeſome, and the fineſt Liquor. However this be, take care the *Malt* be not ſmoak'd in the drying. As to the Complexion or Colour of *Malt*, White is accounted the beſt, becauſe the moſt natural.

The Manner of preparing Liquors, of *Malt*; ſee under the word *Brewing*.

Malt Liquors have different Names, as well as different Virtues, Properties and Uſes, both from the different Manners of preparing the *Malt*, (whence they are diſtinguiſh'd into *Pale* and *Brown*;) and from the different Manners of preparing or brewing the Liquors themſelves; whence they are divided into *Beer* and *Ale*, *Strong* and *Small*, *New* and *Old*.

As to the firſt Diviſion, *Malt Drinks* are either *Pale* or *Brown*, as the *Malt* is more or leſs dried on the Kiln; that which is the ſlendereſt dried tinging the Liquor leaſt in brewing, and therefore call'd *Pale*; whereas that higher dried, and as it were roaſted, makes it of a higher colour: a Mixture of both theſe makes an Amber Colour, whence ſeveral of theſe Liquors take their Name. Now 'tis certain the *Pale Malt* has moſt of the natural Grain in it, and is therefore the moſt nouriſhing; but for the ſame reaſon, requires a ſtronger Conſtitution to digeſt it. Thoſe who drink much of it, are uſually fat and ſleek in their Bloom; but are uſually cut off with ſudden Fevers; or if they avoid this, fall early into a diſtemper'd Old Age. The *Brown* makes a Drink much leſs viſcid, and fitter to paſs the ſeveral Strainers of the Body; but if very ſtrong, may lead on to the ſame Inconveniences with the *Pale*; tho a ſingle Debauch wears off much more eaſily in the *Brown*. Dr. *Quincey* obſerves, that the beſt *Pale Liquors* are thoſe brew'd with hard Waters, as thoſe of Springs and Wells: in regard the Mineral Particles wherewith theſe Waters are impregnated, help to prevent the Coheſions of thoſe drawn from the Grain, and enable them to paſs the proper Secretions the better; as the viſcid Particles of the Grain do likewiſe defend theſe from doing the miſchief they might otherwiſe occaſion. But ſofter Waters, as Rain and River Waters, ſeem beſt ſuited to draw out the Subſtance of high-dry'd *Malts*, which retain many fiery Particles in their Contexture, and are therefore beſt loſt in a ſmooth Vehicle.

As to the Difference in Preparation, it conſiſts chiefly in the Uſe of Hops, as in Beer; or in their Omiſſion, as in Ale. Now the Difference made by Hops, is beſt diſcovered from the Nature and Qualities of the Hops themſelves. Theſe are known to be a ſubtile grateful Bitter; in their Compoſition therefore with this Liquor, they add ſomewhat of an Alkaline Nature, *i. e.* Particles that are ſubtile, active and rigid. By which means the ropy, viſcid Parts of the *Malt* are more divided and ſubtiliz'd, and are therefore not only render'd more eaſy of Digeſtion and Secretion in the Body; but alſo, while in the Liquor, prevent it from running into ſuch Coheſions as would make it ropy, vapid and ſour. Now for want of this, in unhopp'd Drinks, that clammy Sweetneſs which they retain after working, ſoon turns them Acid, and unfit for Uſe; which happens ſooner or later, in proportion to the Strength they receive from the *Malt*, and the Comminution it has undergone by Fermentation. 'Tis a common Opinion, that Ale is more Diuretic than Beer, that is, unhopp'd Liquors more than that with Hops in it. Which may hold in ſome particular Conſtitutions, in regard Ale being more ſmooth, ſoftning, and relaxing, where Urine is to be promoted by enlarging the Paſſage, as in thin dry Conſtitutions, this is the moſt likely to effect it. But where the promoting of Urine is to be done by attenuating and breaking the Juices, and rendering them more fluid, 'tis certainly beſt anſwer'd by thoſe Drinks which are well hopp'd. As to the Diſpute, whether or no Hops tend to breed the Stone, 'tis too long to enter upon here. Dr. *Quincey* is of opinion, there is but little reaſon for the Affirmative ſide of the Queſtion; and in the general makes no ſcruple to ſay, that for one Conſtitution damaged by Beer, there are Numbers ſpoil'd by Ale. For this laſt manifeſtly fouls the Glands, ſtuffs the Veſſels with Slime and Viſcidity, makes the Body unwieldy and corpulent, and paves the way for Cachexies, Jaundice, Aſthma's, and at laſt incurable Dropſies. The Urinary Paſſages, alſo, which it is ſuppoſed to clear, it will in time fill with Slough and Matter of as ill conſequence as Gravel.

Again, the different Strengths of theſe Liquors makes their Effects different. The ſtronger they are, the more viſcid Parts they carry into the Blood; and though the Spirituous Parts make theſe imperceptible at firſt, yet when theſe are evaporated, which will be in a few hours, the other will be ſenſibly felt by Pains in the Head, Nauſeouſneſs at the Stomach, and Laſſitude or Liſtleſſneſs to Motion. This, thoſe are the moſt ſenſible of, who have experienced the Extremes of drinking theſe Liquors and Wines; for a Debauch of Wine they find much ſooner wore off, and they are much more lively and briſk afterwards, than after fuddling *Malt Liquors*, whoſe viſcid Remains will be long e'er they are ſhook off. Theſe Liquors therefore are more wholeſome for being ſmall; *i. e.* of ſuch a Strength as is able to carry a ſmall degree of Warmth into the Stomach, but not ſo great as to prevent

vent their being proper Diluters of the neceſſary Food. Indeed in robuſt People, or thoſe who labour hard, the Viſcidities of the Drink may be broke into convenient Nouriſhment; but in Perſons of another Habit and Way of Living, they ſerve rather to promote Obſtructions and ill Humours.

The Age of theſe Liquors is the laſt thing by which they are render'd more or leſs wholeſome. Age ſeems to do nearly the ſame thing as Hops; for thoſe Liquors which are longeſt kept, are certainly leaſt viſcid: Age breaking the viſcid Parts, and by degrees rendering them ſmaller and fitter for Secretion. But this is always determined according to their Strength; in proportion to which they will ſooner or later come to their full Perfection as well as Decay. For when Ale or Beer is kept till its Particles are broke and comminuted as far as they are capable, then 'tis they are the beſt; and beyond this they will be continually on the Decay, till the finer Spirits are entirely eſcaped, and the Remainder becomes vapid and ſour.

We ſhall only add, that thoſe who mix Wine with their common Drink, are leſs ſubject to Coughs, with other Diſtempers of the Breaſt, and to Dropſies; yet are they more affected with Gravel and Pains of the Gout. See *Wine*.

MALTA, Knights of: An Order of Military Religious, who have bore various Names; as, *Hoſpitallers of* S. John *of* Jeruſalem, *Knights of S.* John, *Knights of* Rhodes, *Order of* Malta, *Religion of* Malta, *&c.* About the Year 1048, ſome *Neapolitan* Merchants founded a Church after the *Latin* Rite at *Jeruſalem*, giving it the Name of *Sta Maria della Latina.* They alſo founded a Monaſtery of Religious after the Order of S. *Bennet*, for the Reception of Pilgrims; and afterwards an Hoſpital near the Monaſtery, to take care of the Diſeaſed, under the direction of a Maſter or Rector, to be nominated by the Abbot of *Sta Maria della Latina.* Beſides which, they alſo built a Chappel in honour of S. *John Baptiſt.* In 1099, *Godfrey* of *Bullen* having taken *Jeruſalem*, endow'd this Hoſpital with ſome Demeſnes he had in *France*; and others imitating his Liberality, the Revenues of the Hoſpitals became conſiderably augmented. Upon this, *Gerrard Torn* their Rector, in concert with the Hoſpitallers, reſolved to ſeparate from the Abbot and Religious of *Sta Maria*, and to form a diſtinct Congregation, under the Name and Protection of S. *John Baptiſt:* And hence it was, that they had the Name of *Hoſpitallers*, or *Brothers of S.* John *of* Jeruſalem. Pope *Paſchal* II. by a Bull in the Year 1113, confirmed the Donations made to this Hoſpital, which he ſettled under the protection of the Holy See; ordering that the Rectors, after *Gerard*'s death, ſhould be choſen by the *Hoſpitallers.* *Raymond de Puy*, *Gerard*'s Succeſſor, took the Title of *Maſter*: He gave a Rule to the *Hoſpitallers*, which was approved by *Calixtus* II. in 1120.

Such was the firſt Riſe of the *Order of* Malta. Now their firſt Grand Maſter finding the Revenues of the Hoſpital vaſtly exceeded what was neceſſary for the Entertainment of poor Pilgrims and diſeaſed Perſons, reſolved to employ the Surplus againſt the Infidels; and with this View offer'd himſelf to the King of *Jeruſalem.* He divided his *Hoſpitallers* into three Claſſes. The firſt conſiſted of Nobles, whom he deſtined to the Profeſſion of Arms, for the Defence of the Faith, and the Protection of Pilgrims; the ſecond conſiſted of Prieſts or Chaplains, who were to perform the Office; and the third of Servitors, who were not Noble, but were alſo appointed for the War. He alſo regulated the Manner of admitting Knights Brothers; and had the whole confirmed by Pope *Innocent*; who gave them for Arms, a White Croſs in a Field Argent, which continue ſtill the Standard of this Order.

After the Loſs of *Jeruſalem*, they retired firſt to *Margat*, then to *Acre*, which they defended very vigorouſly in 1290. After the entire Loſs of the *Holy Land*, they withdrew to *Cyprus*, where K. *Henry* of *Luſignan*, whom they had follow'd thither, gave 'em the City of *Limiſſon.* Here they continued 18 Years; when taking the Iſland of *Rhodes* from the *Sarazens* in 1308, they ſettled there. And now it was that they firſt took the Name of *Knights*, viz. *Knights of* Rhodes. *Andronicus*, Emperor of *Conſtantinople*, granted to their Grand Maſter *Foulque de Villaret*, the Inveſtiture of this Order; and the Donation was confirm'd by Pope *Clement.* The Year following, with the aſſiſtance of *Amadeus* IV. Duke of *Savoy*, they defended themſelves and their Iſland againſt an Army of *Sarazens.* In 1480, their Grand Maſter *d'Aubuſſon* made a vigorous Defence againſt *Mahomet* II. and preſerved the Iſland, in ſpight of a formidable Army which beſieged it for the ſpace of three Months. But in 1522, it was attack'd by *Soliman* with an Army of three hundred thouſand Men, and taken by him, after having been in the poſſeſſion of the Knights 213 Years. After this Loſs, the Grand Maſter and Knights retired firſt into the Iſle of *Candia.* Some time after Pope *Clement* VII. gave them *Viterbo.* Laſtly, *Charles* V. in 1530, gave them the Iſland of *Malta*, which they ſtill hold; and hence they come by the Appellation of Knights of *Malta*; tho' their proper Name is that of Knights of the Order of St. *John* of *Jeruſalem*; and their Grand Maſter, among his other Titles, ſtill retains that of Maſter of the Hoſpital of St. *John*, and Guardian of the Poor of our Saviour Jeſus Chriſt.

The Order of *Malta* have no other Dominions beſides that of their Iſland, and ſome other little Places in the Neighbourhood, the chief whereof are *Goza* and *Comino.* The Government is both Monarchical and Ariſtocratical, the Grand Maſter being the Sovereign, and the Chapter the Senate. It is Monarchical with regard to the Inhabitants of *Malta*, and the Iſles adjacent, and even with regard to the Knights in every thing relating to the Statutes and Rule of their Order; and Ariſtocratical, with regard to the Deciſion of any important Affairs, which are not to be diſpatched but by the Grand Maſter and the Chapter. There are two Councils, the one ordinary, compoſed of the Grand Maſter, as Chief, and the *Grands Croix*; the other compleat, conſiſting of the Grand Maſter, the *Grands-Croix*, and the two Senior Knights of each Language.

The Languages of *Malta* are the ſeveral Nations whereof the Order is compoſed. Of theſe there are eight, *viz. Provence*, *Auvergne*, *France*, *Italy*, *Arragon*, *Germany*, *Caſtile*, and *England.* The Pillar (as he is called) of the Language of *Provence* is the Grand Commander, he of *Auvergne* the Grand Marſhal, he of *France* the Grand Hoſpitaller, he of *Italy* Grand Admiral, he of *Arragon* Grand Conſervator, or Draper, as he was antiently called; the Pillar of the Language of *Germany* is Grand Bailiff, and he of *Caſtile* Grand Chancellor; the Language of *England*, which has been extinct ſince the Time of the Reformation under King *Henry* VIII. had for its Pillar, or Chief, the Turopolier, or General of the Infantry. The Language of *Provence* is the firſt, on account of *Raimond de Puy*, their firſt Grand Maſter, who was a *Provencial.*

In each Language there are ſeveral Grand Priories and capital Bailiages. To each Language belongs a Hall, where the Knights eat, and hold their ordinary Aſſemblies. Each Grand Prior has a Number of Commandries. The Commandries are either magiſtral, by Right, or by Favour; the magiſtral are thoſe annexed to the Grand Maſterſhip, whereof there is one in each grand Priory. Commandries by Right are thoſe which come by Right of Seniority; their Seniority is computed from the Time of their Admiſſion, but they muſt firſt have lived five Years at *Malta*, and have made four Caravannes, or cruizing Voyages on the *Turks* and *Corſairs.* Commandries by Favour, are thoſe which the Grand Maſter, or the Grand Priors have a Right of conferring; one of theſe they confer every five Years on whom they pleaſe.

The Noble Knights are called Knights by Right; excepting whom, none can be Bailiffs, Grand Priors, or Grand Maſters. The Knights by Favour are thoſe who, not being noble of themſelves, are raiſed, on account of ſome great Exploit, or notable Service, into the Rank of Nobles. The Servitors, or Serving-Brothers, are of two kinds; (1.) The Servitors of War, whoſe Functions are the ſame with thoſe of the Knights. (2.) Servitors of Religion, whoſe whole Buſineſs is to ſing the Praiſes of God in the Conventual Church, and to officiate each in his Turn as Almoners on board the Veſſels and Gallies of the Order. The Brothers of Obedience are Prieſts, who, without being obliged to go to *Malta*, take the Habit of the Order, make the Vows, and attach themſelves to the Service of ſome of the Churches of the Order, under the Authority of a Grand Prior, or Commander, to whom they pay Obedience. The Knights of Majority are thoſe who, according to the Statutes, are admitted at ſixteen Years of Age. The Knights of Minority are thoſe who are admitted from the Time of their Birth; which, however, can't be done without a Diſpenſation from the Pope. The Chaplains can only be admitted regularly from ten to fifteen Years of Age; after fifteen they muſt have a Brief from the Pope; till fifteen the Grand Maſter's Letter is ſufficient. Theſe are called *Diaco's*, and muſt give Proof of their being born of creditable Families.

For the Proofs of Nobility to be made, e'er the Admiſſion of Knights, in the Language of *Germany*, they go back ſix Generations; in the reſt 'tis ſufficient to go back to the Great Grandfather on the Father's or Mother's ſide. All the Knights, after their Profeſſion, are obliged to wear a white Croſs or Star, with eight Points over the Cloak or Coat on the left Side, which is the proper Habit of the Order, the Golden Croſs being only an Ornament.

There are alſo Female Hoſpitallers of the Order of St. *John* of *Jeruſalem*, ſometimes alſo called *Chevalieteſſes*, or *She-Knights*, of equal Antiquity with the Knights themſelves; whoſe Buſineſs was to take care of the Women-Pilgrims, in an Hoſpital a-part from that of the Men.

MALTHA, a kind of Cement, formerly in great Uſe, compoſed of Pitch, Wax, Plaiſter, and Greaſe. Beſides this, there was another kind of *Maltha* wherewith the *Romans* plaiſtered and whitened the Inſides of their Aqueducts; this was a very fine Cement, conſiſting of Lime ſlaked in Wine, incorporated with melted Pitch and freſh Figs. The natural *Maltha* is a kind of Bitumen, wherewith the *Aſiaticks* plaiſter their Walls. When this *Maltha* is once ſet on fire, Water won't extinguiſh it, but ſerves rather to make it burn more fiercely. The firſt *Maltha* was antiently uſed in the Dedication of Churches.

MAMMÆ. See *Breaſts*.

MAMMELUKE, the Name of a Dynaſty which reigned a conſiderable Time in *Egypt*. They were originally *Turkiſh* and *Circaſſian* Slaves, bought of the *Tartars* by *Melicſaleh*, to the Number of a thouſand, whom he bred up to Arms, and raiſed ſome to the principal Offices of the Empire. They killed Sultan *Moadam* in 1250, being affronted at his concluding a Treaty with his Priſoner St. *Louis* without their Privity. This *Moadam* was the laſt Sultan of the *Majoubites*; to whom ſucceeded the *Mammelukes*, the firſt of whom was Sultan *Azeddin*, or *Mouz Ibec*, the *Turcoman*.

Others ſay, that the *Mammelukes* were ordinarily choſen from among the Chriſtian Slaves, and that they were the ſame thing, in great meaſure, with the Janizaries among the *Turks*. They never married. The firſt are ſaid to have been brought from *Circaſſia*, and ſome add, that they firſt began to be talked of about the Year 869.

The Word comes from מלך, *regere*, *imperare*, the *Arabic* Participle Paſſive whereof is מְמלוך, *Mamluc*, which ſignifies *Subject*, or one under the Dominion of another. *Scaliger* holds, that the Word is *Arabic*, but that it properly ſignifies ſomething bought with Money; but others will have it ſignify any thing acquired, either as Prize or Purchaſe.

MAMMIFORMIS, in Anatomy, a Name given to two Apophyſes of the Bone in the back Part of the Skull, ſo called from their reſembling a Breaſt. See *Maſtoides*.

MAMMILLARIS, in Anatomy, an Epithet given to two little Protuberances, ſomewhat reſembling the Nipples of the Breaſt, found under the Fore-Ventricles of the Brain, and ſuppoſed to be the Organs of Smelling. They are called *Apophyſes Mammillares*. There is alſo a Muſcle called *Mammillaris*, or *Maſtoides*, ſerving to ſtoop the Head.

MANAGE, or *Manege*, a Riding Academy, or Place for riding the Great Horſe, and for breaking Horſes to the proper Motions and Actions. In a *Manage* is a Place deſtined for vaulting round a Pillar, a Courſe or Carrier for running the Ring, and on the Side are Pillars, between which are placed the Horſes deſtined for high Airs. *Manage* is alſo uſed for the Exerciſe itſelf, either of the Horſe or the Rider. The Word is borrowed from the *French Menage*, and that from the *Italian Maneggio*, or, as ſome will have it, *à Manu agendo*.

MANCIPLE, a Caterer; there was antiently an Officer in the *Temple* called by this Name, now called the Steward; and the Name and Office is retained ſtill in our Colleges in both the Univerſities.

MANDAMUS, a Writ that lieth after the Year and Day, whereas, in the mean time, the Writ called *Diem clauſit extremum* hath not been ſent out to the Eſcheator, for the ſame purpoſe to which it ſhould have been ſent. *Mandamus* is alſo a Charge to the Sheriff, to take into the King's hands all the Lands and Tenements of the King's Widow, that, againſt her Oath formerly given, marrieth without the King's Conſent.

MANDARIN, a Name given by the *Portugueſe* to the Nobility of the *Eaſtern* Countries, whom the *Chineſe* call *Quoan*, or rather *Coben*, *q. d. to ſerve, to be a Miniſter of a Prince*. There are in *China* nine Orders of *Mandarins*; or nine Degrees of Nobility; which have as many different Animals for their Characteriſticks. The firſt is diſtinguiſhed by a Crane, the ſecond by a Lion, the third by an Eagle, the fourth by a Peacock, *&c.* There are in all thirty-two or thirty-three Thouſand *Mandarins* in *China*. There are *Mandarins* of Letters, and *Mandarins* of Arms; both the one and the other of which paſs ſeveral Examinations. Since the Time that the *Tartars* have rendered themſelves Maſters of *China*, moſt of the Tribunals, or Courts of Juſtice, *&c.* inſtead of one *Mandarin* for a Preſident, have two; the one a *Tartar*, the other a *Chineſe*. The *Mandarinat* is not hereditary, nor are any raiſed to it but Men of Letters.

Mandarin is alſo the Name which the *Chineſe* give to the learned Language of the Country; for beſides the proper and peculiar Language of each Nation and Province, they have one common to all the learned Men in the Empire; and which is that in *China* which the *Latin* is in *Europe*. This Language they call the *Mandarin*, or the Language of the Court. Their public Officers, as Notaries, Lawyers, Judges, and chief Magiſtrates, write and ſpeak the *Mandarin*.

MANDATE, in the Canon Law, is a Reſcript or Edict of the Pope, by which he commands ſome Ordinary, Collator, or Preſenter, to put the Perſon there nominated in poſſeſſion of the firſt Benefice vacant in his Collation. An Apoſtolical *Mandate* for the Proviſion of Benefices, is a monitorial and comminatory Letter from the Pope to a Biſhop, by which he is enjoined to provide a Subſiſtence for thoſe who have been ordained by him, or his Predeceſſors, from the Tonſure to Sacred Orders incluſively; and to allow them this Subſiſtence till they be provided of a Benefice; which Practice was occaſioned by the Biſhop's laying Hands on great Numbers, and afterwards abandoning them to Miſery and Want. At firſt the Popes only gave monitory *Mandates*, which were no more than ſimple Prayers and Requeſts, that did not bind the Ordinary; afterwards they gave preceptory *Mandates*, which did not annul the Proviſions of the Ordinary; at laſt they ſet up executory *Mandates*, by which the Proviſions made by the Ordinary, in prejudice of the *Mandate*, were declared null, and the Executor of the *Mandate*, in default of the Ordinary, conferred the Benefice on the Mandatory: but the Pope's Power in iſſuing theſe *Mandates* is now very much regulated and reſtrained.

MANDERIL, a kind of wooden Pulley, making a Member of the Turner's Leath. Of theſe there are ſeveral kinds, as *Flat Manderils*, which have three or more little Pegs or Points near the Verge, and are uſed for turning flat Boards on. *Pin Manderils*, which have a long wooden Shank to fit into a round Hole made in the Work to be turned. *Hollow Manderils*, which are hollow of themſelves, and uſed for turning hollow Work. *Screw-Manderils*, for turning Screws, *&c.* See *Turnery*. See alſo *Leath*.

MANDIBULA, the Jaw. See *Maxilla*. Hence *Mandibulares Muſculi*, and *Manducatorii Muſculi*. See *Maſſeters*.

MANDIL, the Name of a Cap or Turban wore by the *Perſians*. The *Mandil* is formed, by firſt wrapping round the Head a Piece of fine white Linen five or ſix Ells long; over this they wrap, in the ſame manner, a Piece of Silk of the ſame Length, and oftentimes of great Value. To make the *Mandil* genteel, Care muſt be taken, that in wrapping the Silk, it be ſo managed, as that the ſeveral Colours, found in the ſeveral Folds, make a kind of Waves, ſomewhat like what we ſee in marbled Paper. This Dreſs is extremely majeſtic, but at the ſame time very heavy. It ſerves either as a Shelter to the Head from Cold, or as a Skreen from the exceſſive Heat of the Sun; 'tis ſaid the Cutlaſs won't penetrate it. In rainy Weather they cover it up with a kind of Caſe or Hood, made of red Cloth. The Mode of the *Mandil* has been altered of late; during the Time of *Cha Abbas* II. it was round at Top: in the time of *Cha-Soliman*, they brought one End of the Silk out of the middle of the *Mandil* over the Head; and, laſtly, in the Reign of *Cha-Uſſein*, the end of the Silk, in lieu of its being gathered as before, was plaited in manner of a Roſe; and this the *Perſians* find extremely graceful, and uſe it to this day.

MANDRAGORA, *Mandrake*, a Medicinal Plant, which makes a principal Ingredient in the Unguent, called *Populeum*. There are two kinds of Mandrake, Male and Female, each bearing a kind of Apples; thoſe of the Male, as well as the Leaves, Roots, *&c.* being twice as large as thoſe of the Female; but the Juice of each is a Poiſon, equally violent. Naturaliſts tell ſtrange Stories of this Plant, but ſetting aſide its ſoporiferous Virtue, the modern Botaniſts will ſcarce warrant any of them, not even that human Figure ordinarily aſcribed to its Roots, eſpecially ſince the Diſcovery of the Artifice of Charletan's in preparing it, to ſurprize the Credulity of the People. *Chineſe Mandragora* is the Plant *Ginſeng*, which ſee.

MANDUCATION, the Action of chewing, a Term ſeldom uſed but in ſpeaking of the Euchariſt. The Catholics maintain a real *Manducation* of the Body of Chriſt; the Reformed, on the contrary, take this *Manducation* to be only figurative and by Faith. St. *Auguſtine* calls it a *Spiritual Manducation*.

MANEQUIN, in Painting, is underſtood of a little Statue, or Model, ordinarily made of Wax, and ſometimes of Wood; the Junctures whereof are ſo contrived, as that it may be put into any Attitude one pleaſes, and its Draperies and their Folds be diſpoſed at Diſcretion.

The word *Manequin* is a Diminutive of Man, and properly ſignifies a little Man.

MANES; a Poetical Term, ſignifying the Shades or Souls of the Deceaſed. The Heathens uſed a world of Ceremonies and Sacrifices to appeaſe the *Manes* of thoſe who died without Burial.

The *Dii Manes* were the Infernal Gods who tormented Men; and to theſe the Heathens offer'd Sacrifices to aſſuage their Indignation. The Heathen Theology is a lit- obſcure with regard to theſe Gods *Manes*. Some hold that they were the Souls of the Dead, others that they were the *Genii* of Men; which laſt Opinion ſuits beſt with the Etymology of the Word. The Heathens, 'tis pretty evident, applied all theſe Ideas to the *Manes*; ſo that the Word ſometimes ſignified the Ghoſts of the Departed, and ſometimes the infernal or ſubterraneous Deities, and in general all Divinities that preſided over Tombs. The Invocation of the *Manes* of the Dead, ſeems to have been a thing very frequent among the *Theſſalians*, but was expreſly prohibited by the *Romans*.

MANGANUM, an Engine of War. See *Balliſta*.

MANIA, in Medicine, a Diſeaſe popularly call'd Madneſs: See *Madneſs*. The Word is *Greek*, *μανία*, *Fury*, *Rage*.

MANICHEES; a Set of antient Heretics, ſo call'd from their Author *Manes* or *Manichees*, a *Perſian* by Nation. This Hereſy had its firſt Riſe about the Year 277, and ſpread itſelf principally in *Arabia*, *Egypt*, and *Africa*. St. *Epiphanius*, who treats of it at length, obſerves, that the true Name of this Hereſiarch was *Cubrieus*; and that he chang'd it for *Manes*, which in the *Perſian* or *Babyloniſh* Language ſignifies *Veſſel*. A rich Widow, whoſe Servant he had been, dying without Iſſue, left him good ſtore of Wealth; after which, he aſſumed the Title of Apoſtle or Envoy of Jeſus Chriſt. He eſtabliſh'd two Principles, *viz.* a good one and an evil one. The firſt, which he called *Light*, did nothing but good; and the ſecond, which he call'd *Darkneſs*, nothing but evil. This Philoſophy is very antient, and *Plutarch* treats of it at large in his *Iſis* and *Oſiris*. Our Souls, according to *Manes*, were made by the good Principle, and our Bodies by the evil one; thoſe two Principles being co-eternal and independent of each other. He borrow'd many things from the antient *Gnoſtics*; on which account many Authors conſider the *Manicheans* as a Branch of the *Gnoſtics*. In truth, their Doctrine was a Syſtem of Philoſophy, rather than of Religion. They made uſe of Amulets, in imitation of the *Baſilidians*; and are ſaid to have made profeſſion of Aſtronomy and Aſtrology. They denied that Jeſus Chriſt aſſumed a true human Body, and maintain'd it was only imaginary. They pretended that the Law of *Moſes* did not come from God, or the good Principle, but from the evil one; and that for this reaſon it was abrogated. They abſtain'd entirely from eating the Fleſh of any Animal; following herein the Doctrine of the antient *Pythagoreans*. The reſt of their Errors may be ſeen in St. *Epiphanius* and St. *Auguſtine*; which laſt, having been of their Sect, may be preſumed to have been thoroughly acquainted with them.

Tho the *Manichees* profeſs'd to receive the Books of the New Teſtament; yet, in effect, they only took ſo much of them as ſuited with their Opinions: throwing all upon Reaſon, and quite ſetting aſide all Authority. They formed to themſelves a certain Idea of Chriſtianiſm; and to this adjuſted the Writings of the Apoſtles; pretending that whatever was inconſiſtent with this Idea, had been foiſted into the New Teſtament by later Writers, who were half *Jews*. On the other hand, they made Fables and Apochryphal Books paſs for Apoſtolical Writings; and even are ſuſpected to have forged ſeveral others, the better to maintain their Errors. St. *Epiphanius* gives a Catalogue of ſeveral publiſh'd by *Manes*, and adds Extracts of ſome of them. He was not contented with the Quality of Apoſtle of Jeſus Chriſt, but alſo aſſumed that of the Paraclete, whom he had promiſed to ſend. He left ſeveral Diſciples, and among others, *Addas*, *Thomas*, and *Hermeas*. Theſe he ſent, in his lifetime, into ſeveral Provinces to preach his Doctrine. *Manes* having undertaken to cure the King of *Perſia*'s Son, and not ſucceeding, was clapt into Priſon upon the young Prince's Death; whence he made his eſcape, but was apprehended ſoon after, and burnt alive.

Towards the middle of the twelfth Century, the Sect of *Manichees* took a new face, on occaſion of one *Conſtantine*, an *Arminian* and Adherer to it; who took upon him to ſuppreſs the reading of all other Books beſides the Evangeliſts and the Epiſtles of St. *Paul*, which he explain'd in ſuch manner, as to make them contain a new Syſtem of *Manichæiſm*. He entirely diſcarded all the Writings of his Predeceſſors, rejected the Chimera's of the *Valentinians* and their thirty *Eons*; the Fable of *Manes*, with regard to the Origin of Rain, which he made to be the Sweat of a young Man in hot Purſuit after a Maid; and other Dreams, but ſtill retain'd the Impurities of *Baſilides*. In this manner he reformed *Manichæiſm*; inſomuch that his Followers made no ſcruple of anathematizing *Scythian*, *Bouddas*, and even *Manes* himſelf; *Conſtantine* being now their great Apoſtle. After he had ſeduced an infinite number of People, he was at laſt ſtoned by order of the Emperor.

The word *Manichee* comes from the *Latin Manichæus*, which antient Authors maintain to have been formed of the two *Greek* Words, *μάννα*; *Manna*, and *χέω*, *I ſpread*; intimating that the Doctrine of their Maſter was a kind of *Manna*, which he ſpread every where.

MANICORDION, a Muſical Inſtrument, in form of a Spinett: See *Spinett*. Its Strings are cover'd with pieces of Scarlet Cloth, to deaden, as well as ſoften, the Sound; whence it is alſo call'd the *Dumb Spinett*, and is much uſed in Nunneries for the Religious to learn to play on; ſo as not to diſturb the Silence of the Dormitory. *Scaliger* makes the *Manicord* more antient than the Spinett and Harpſichord. *Du Cange* derives the word from *Monochord*, from a ſuppoſition this Inſtrument has but one Cord; but he is miſtaken, it has fifty, or more.

MANIFESTO, an Apology, or public Declaration, in Writing, made by a Prince, ſhewing his Intentions in any Enterprize, the Motives that induced him to it, and the Reaſons on which his Right and Pretenſions are founded.

MANILLE, or *Menille*, in Commerce, one of the principal Commodities carried by the *Europeans* to the Coaſts of *Africa*, to traffic with the *Negroes* in exchange for Slaves; conſiſting of a large Braſs Ring, in form of a Bracelet, either flat or round, plain or engraven; which the Natives uſe to deck themſelves withal, putting them on the Small of the Leg, and the Thick of the Arm above the Elbow. The better ſort among 'em wear Silver and Gold *Manilles*; but theſe are of their own manufacture; moſt of the Money they receive for their other Merchandizes being melted into *Manilles*.

MANIPULATION, a Term uſed in the Mines, to ſignify the manner of digging the Silver, &c. out of the Earth. See *Silver*.

MANIPULE, *Manipulus*, among the *Romans*, was a little Body of Infantry, which, in the Time of *Romulus*, conſiſted of an hundred Men; and, in the Times of the Conſuls and firſt *Cæſars*, of two hundred. Each *Manipule* had two Centurions, or Captains, call'd *Manipularii*, to command it; one whereof was Lieutenant to the other. Each Cohort was divided into three *Manipules*, and each *Manipule* into two Centuries.

'Tis true, *Aulus Gellius* quotes an old Author, one *Cinecius*, who lived in the Time of *Hannibal*, (whoſe Priſoner he was) and who, writing on the Art of War, obſerves, that, then, each Legion conſiſted of ſixty Centuries, of thirty *Manipules*, and of thirty Cohorts. And again, *Varro* and *Vegetius* mention it as the leaſt Diviſion in the Army, only conſiſting of the tenth part of a Century; and *Spartian* adds, that it contain'd no more than ten Men, which ſhews that the *Manipule* was not always the ſame thing.

The *Romans* call'd this Company by the Name *Manipule*, or *Manipulus*, as ſignifying the Handful of Hay which they bore at the End of a Pole, to diſtinguiſh themſelves by, e'er the Cuſtom was introduced of bearing an Eagle for their Enſign; and hence came the Phraſe, *an Handful of Men*. *Vegetius*, *Modeſtus*, and *Varro*, give other Etymologies of the Word. The laſt derives it from *Manus*, a little Body of Men following the ſame Standard. According to the former, they were ſo call'd, becauſe they fought hand in hand, or all together. *Contubernium autem Manipulus vocabatur ab eo quod conjunctis Manibus pariter dimicabant*, are their Words.

Manipule is alſo an Eccleſiaſtical Ornament, wore by the Prieſts, Deacons and Subdeacons in the *Romiſh* Church. It conſiſts of a little Fillet in form of a Stole, three or four Inches broad, and made of the ſame Stuff with the Chaſuble; ſignifying and repreſenting an Handkerchief, which the Prieſts in the Primitive Church wore on the Arm, to wipe off the Tears they were continually ſhedding for the Sins of the People. There ſtill remains a Mark of this Uſage in a Prayer ſpoken by thoſe who wear it, *Merear, Domine, portare Manipulum Fletus & Doloris.* The *Greeks* and *Maronites* wear two *Manipules*, one on each Arm.

MANIPULUS, in Phyſic, is uſed for a Meaſure of Herbs, *viz.* an Handful; which is a quantity often uſed in Preſcription amongſt Phyſicians, and is generally marked with *M.*

MANNA, in Pharmacy, a medicinal Drug of great uſe in the modern Practice. *Manna* is a white Juice, or Liquor, very ſweet, Oozing either of it ſelf, or by Inciſion, from the Branches and Leaves of the Aſhe, both wild and ordinary, during the Time of the Dog-days. Others will have it to be a Honey of the Air; or a kind of Dew proceeding from a Vapour rais'd from the Earth, and prepared in the Air, condens'd by the Cold, and gathered in the hot Countries, before Sun-riſe, both on Plants and Trees, and even on Rocks, and the Earth itſelf. But this muſt be a Miſtake; and 'tis much more rational to rank it amongſt the Number of Gums, which exuding from the Juice of the Tree, and mixing with it ſome ſaline Particles of the Air, is condens'd into thoſe Flakes in which we ſee it.

The *Italians* gather three kinds of *Manna*. The firſt *Manna di Corpo*, which oozes ſpontaneouſly from the Branches of the Tree in the Month of *July*. The ſecond *Manna Forzata*, or *Forzatella*, which is not gather'd 'till *Auguſt*, after an Inciſion of the Tree, when the Flux of the firſt has ceas'd. The third, *Manna di Fronda*, which iſſues of itſelf, in little Drops, like a kind of Sweat from the nervous part of the Leaves of the Aſh, and gathers into Grains about the bigneſs of thoſe of Wheat, which are harden'd by the Sun in *Auguſt*. The Leaves are frequently found ſo loaden with theſe Grains, that they ſeem cover'd with Snow. *Manna* is a gentle and ſafe Purge; and is alſo uſed in Broths. *Altomarus*, a Phyſician of *Naples*, has written a Treatiſe expreſly upon it; and *Donzellus* has ſeconded it. *Manna*, tho' accounted a kind of Honey, purges the Bile; whereas common Honey increaſes it. Formerly the *Syrian* was in the moſt Repute, but now it gives way to the *Calabrian*. *Fuchſius* obſerves, that the Peaſants of Mount *Libanus* eat *Manna* ordinarily as others do Honey. At *Mexico* they are ſaid to have a *Manna* which they eat as we do Cheeſe.

Manna is brought from ſeveral Countries, and in ſeveral Forms. Thus we have *Manna* of *Calabria*, and of *Sicily*; *Manna* in Grains, in Tares, *&c.* The moſt eſteem'd, is that in Tares; which many take to be factitious, and the Work of the *Jews* of *Leghorn*, but 'tis certainly natural: And what gives it this Figure, is, that they put Straws and Slips of Wood in the Inciſions; along which the *Manna* gliding, is condenſed as it comes out, and aſſumes this Form.

MANNA, a Term in Scripture, ſignifying a miraculous kind of Food falling from Heaven, wherewith the *Iſraelites* were ſupported in their Paſſage thro' the Wilderneſs. This *Manna* was in form of *Coriander-Seeds*; its Colour was like that of *Bdellium*, and its Taſte like Honey. They call'd it *Manna*, either from the *Hebrew* Word *Manah*, a Gift, to intimate its being a Gift from Heaven; or from *Minnah*, which ſignifies to prepare, becauſe the *Manna* came to them ready for eating, and needed no Preparation but gathering; or from the *Egyptian* word, *Man, what is it?* This laſt Etymology ſeems the more probable, in regard the Scripture takes notice of the Surprize they were under, when they firſt ſaw this new Food deſcend. *Salmaſius*, however, does not allow of this Derivation. He ſays, that the *Arabs* and *Chaldeans* uſed the word *Man* to ſignify a kind of Dew or Honey that fell on the Trees, and was gathered in great abundance on Mount *Libanus*. So that the *Iſraelites* did not uſe the Term *Mannah* out of Surprize, but becauſe they found this Food fall with the Dew, in the ſame manner as the Honey, ſo well known to them under the Name of *Man*. *Salmaſius* adds, that the *Manna* of the *Iſraelites* was in reality no other than that Honey or Dew condens'd; and that the one and the other were the ſame with the wild Honey wherewith St. *John* was fed in the Wilderneſs. So that the Miracle did not conſiſt in the Formation of any new Subſtance in favour of the *Iſraelites*; but in the punctual Manner in which it was diſpens'd by Providence; ſo that ſo vaſt a Multitude ſhould have wherewithal to ſatisfy themſelves.

MANNER, in Painting, *&c.* is uſed to expreſs that particular Character obſervable in the Works of Painters, Poets, and other Men of Art, by which their Pencil, Hand, or Style, are diſtinguiſh'd. Thus the Curious in Paintings know the *Manners* of the Painters; and diſtinguiſh readily between the *Manners* of *Rubens*, *Titian*, or *Da Vinci*; between the antient and the new *Manner* of the ſame Painter; the *Flemiſh* and the *Italian Manner*. The *Manner* is uſed with reſpect both to the Invention, the Deſign, and the Colouring. The *Manner* of *Michael Angelo*, or *Raphael*, may alſo be known in their Scholars. Thus we ſay, ſuch a Piece is of *Raphael*'s School, *&c.*

MANNERS, in Poetry, a Term particularly uſed in Tragedy, Comedy, and the Epopeia; ſignifying the Inclinations, Genius, and Humour, which the Poet gives to his Perſons, or that which diſtinguiſhes his Characters. *Ariſtotle* defines the *Manners* to be that which diſcovers the Inclination of him who ſpeaks, and ſhews what he will reſolve upon, or what reject, before he has actually determin'd: Whence he concludes, that *Manners* are not always, and in all kinds of Diſcourſes: *Non quælibet Oratio eſt Morata*. One Inſtance will make this Definition clear. In the firſt Book of *Virgil*, *Æneas* is repreſented extremely pious, and determined to execute the Will of the Gods at all adventures. In the fourth Book, he has a difficult Choice propoſed; being engaged, on the one hand, out of a Principle of Love, Gratitude, and Honour, not to quit *Dido*; and having, on the other hand, an expreſs Order from the Gods to depart for *Italy*. Now, before it appears on which ſide he has determin'd, what he has before ſaid ſhould ſhew his Will and Inclinations, and which Party he will take. Now thoſe preceding Diſcourſes, which diſcover his future Reſolution, make what we call the *Poetical Manners*. Thoſe make it paſt doubt he will abandon *Dido*, to obey the Gods: This he does in effect; the *Manners* therefore are good, and well conducted. Had he diſobey'd the Orders of *Jupiter*, to ſtay with *Dido*, the *Manners* had been ill; in regard they would have foretold a Reſolution contrary to what he was really to take. But had there been nothing to make us foreſee any Reſolution of *Æneas* at all, neither that which he actually took, nor the contrary, in that Caſe there had been no *Manners* at all.

'Tis the *Manners*, as we have before obſerved, which diſtinguiſh the Characters: And, unleſs the *Manners* be well expreſs'd, we ſhall never be acquainted with the Perſons at all; nor, conſequently, ſhall we be either terrified with foreſeeing their Dangers, nor melted into Pity by ſeeing their Sufferings. See *Character*.

The *Manners* then ſhould have four Qualities; they ſhould be *Good*, *Like*, *Suitable*, and *Equal*. *Good* is when they are well mark'd or expreſs'd; that is, when the Diſcourſe of the Perſons makes us clearly and diſtinctly ſee their Inclinations, and what good or evil Reſolutions they will take. *Like* only relates to known and public Perſons, whoſe Characters are in Hiſtory, with which the poetic Characters muſt agree; that is, the Poet muſt not give a Perſon any Quality contrary to any of thoſe which Hiſtory has given him. And here it may be obſerved, that the evil Qualities given to Princes and great Men, ought to be omitted by the Poets, if they be contrary to the Character of a Prince, *&c.* but the Virtues oppoſite to thoſe known Vices ought not to be impoſed, by making him generous and liberal in the Poem, who was avaricious in the Hiſtory. The *Manners* muſt likewiſe be *ſuitable*; that is, they muſt be agreeable to the Age, Sex, Rank, Climate and Condition of the Perſon that has them. *Horace* obſerves, *Intererit multum Davuſne loquatur an Heros*. Again, the *Manners* muſt be *equal*; that is, they muſt be conſtant, or conſiſtent through the whole Character; or the Variety or Inequality of the *Manners*, as in Nature, ſo in the *Drama*, muſt be equal. The Fearful muſt never be brave, nor the Brave timorous; the Avaritious muſt never be liberal, nor *vice verſa*. In this part, *Shakeſpear*'s *Manners* are admirable. Beſides theſe four Qualities above-mentioned, there is a fifth eſſential to their Beauty; which is, that they be neceſſary; that is, that no vicious Quality or Inclination be given to any poetic Perſon, unleſs it appear to be abſolutely neceſſary, or requiſite to the carrying on of the Action.

MANOMETER, or *Manoſcope*, an Inſtrument to ſhew or meaſure the Alterations in the Rarity or Denſity of the Air; from the *Greek* μανὸς, *rarus*, and μέτρον, *menſura*, &c. The *Manometer* differs from the *Barometer*, in that the former only meaſures the Weight of the Atmoſphere, or of the Column of the Air over it; but the latter the Denſity of the Air in which 'tis found: which Denſity depends not only on the Weight of the Atmoſphere, but on the Action of Heat and Cold, *&c.* Authors, however, generally confound the two together; and Mr *Boyle* himſelf gives us a very good *Manometer* of his Contrivance, under the Title of a *Statical Barometer*; the Structure whereof ſee under the Word *Barometer*.

MANOR, is derived *à manendo*; becauſe the Lord did uſually reſide there. For its Original: there was antiently a certain Compaſs of Ground, granted by the King to ſome Man of Worth, for him and his Heirs to dwell upon, and to exerciſe ſome Juriſdiction more or leſs within that Circuit, as he thought good to grant; but performing, withal, ſuch Services, and paying ſuch yearly Rent, as by this Grant was required. Now, the Lord afterwards, parcelling the ſame to other meaner Men, received Rent and Services from them, and by that means, as he became Tenant to the King, the Inferiors became Tenants to him. Indeed the Word is now taken for Juriſdiction, and Royalty incorporeal, rather than for the Land and Suit: For a Man may have a *Manor* in Groſs, *i. e.* the Right and Intereſt of a Court Baron, with the Perquiſites, and another enjoy every Foot of Land belonging to it. A *Manor* may be compounded of divers things, as of an Houſe, Arable Land, Paſture, Meadow, Wood, Rent, Advowſon, Court-Baron, *&c.* And this ought to be, by long Continuance of Time, beyond Man's Memory. 'Tis held by ſome, that a *Manor* cannot now be made, ſince a Court-Baron cannot be made; and without a Court-Baron, and at leaſt two Suitors, there can be no *Manor*.

MANSE, is a Parſonage or Vicaridge-Houſe, for the Incumbent to live in; this was originally, and is now, an eſſential Part of the Endowment of a Pariſh-Church, together

ther with the Glebe and Tythes. It is ſometimes called the *Presbyterium*. See *Presbytery.*

MANSION, from *manendo*, a Dwelling-Houſe, or Country Habitation; commonly uſed for the Lord's Chief Dwelling-Houſe within his Fee, otherwiſe called the *Capital Meſſuage*, or chief *Manor* Place. *Manſio*, or *Manſus*, were ſometimes uſed in the ſame Senſe with *Hide*; that is, as much Land as one Plow could till in a Year.

MAN-SLAUGHTER, *Homicide*, or the unlawful killing a Man, without prepenſed Malice: As when two, who formerly meant no harm to one another, on ſome ſudden Occaſion falling out, the one kills the other. It differs from Murder, as not being done with fore-going Malice; and from Chance-Medley, becauſe it hath a preſent Intent to kill: It is eſteem'd Felony, but admitted to the Benefit of the Clergy, for the firſt time. By a Law of King *Canutus*, if a Man is kill'd openly and premeditatedly, the Murderer ſhall be committed to the Relations of the Deceaſed: But if, on his Tryal, the Fact is proved, but not wilful, the Biſhop is to judge him.

MANSORII MUSCULI. See *Maſſeters.*

MANTELETS, in War, are a kind of moveable Penthouſes, or Parapets made of Pieces of Timber, ſaw'd into Planks, about three Inches thick, and nailed one over another to the height of almoſt ſix Foot. They are generally caſed with Tin, and ſet upon little Wheels; ſo that in a Siege, they may be driven before the Pioneers, and ſerve as Blinds to ſhelter them from the Enemies ſmall Shot. There are alſo other ſorts of *Mantelets*, covered on the top, whereof the Miners make uſe, to approach the Walls of a Town or Caſtle. It appears from *Vegetius*, that theſe were in uſe among the Antients, but they were built ſlighter, and yet larger than ours, being eight or nine Foot high, as many broad, and ſixteen long: They were defended by a double Covering, the one of Boards, the other of Faggots, with the Ribs of Oſiers, and caſed without with Skins ſteep'd in Water, to prevent Fire.

MANTLE, or *Mantle-Tree*, in Architecture, is the lower-part of a Chimney, or that part laid a-croſs the Jaumbs, and which ſuſtains the Compartiment of the Chimney-piece. See *Jaumb.*

MANTLE, in Heraldry, is that Appearance of the Folding of Cloth, Flouriſhing or Drapery, that is in any Atchievement, drawn about the Coat of Arms: It is ſuppoſed formerly to have been the Repreſentation of a *Mantle* of State in Blazon; it is always ſaid to be doubled, that is, lined throughout with one of the Furs, as Ermin, Pean, Verry, &c. See *Coat.*

Mantle is likewiſe a Term uſed in Falconry; as they ſay, the Hawk *mantles*, that is, ſpreads her Wings after her Legs.

MANUCAPTIO, in Law, a Writ that lies for a Man, who, being taken on Suſpicion of Felony, and offering ſufficient Bail for his Appearance, is refuſ'd to be admitted thereto by the Sheriff, or other having Power to let to Mainpriſe.

MANUDUCTOR, a Name given to an antient Officer in the Church, who, from the middle of the Choir where he was placed, gave the Signal to the Choriſters to ſing, mark'd the Meaſure, beat Time, and regulated the Muſic. The *Greeks* call'd him *Meſacoros*, becauſe ſeated in the middle of the Choir. But in the *Latin* Church, he was call'd *Manuductor*, from *Manus*, and *duco*, *I lead*; becauſe he led and guided the Choir by the Motions and Geſture of the Hand.

MANUFACTURE, a Place where ſeveral Artiſts and Workmen are employ'd in the ſame kind of Work; or make a Commodity of the ſame kind. The Word is alſo popularly uſed for the Work itſelf; and by Extenſion for the like Work, carried on independently in different parts of a Country. In this ſenſe, we ſay the Woollen *Manufacture*, Silk *Manufacture*, Velvet *Manufacture*, Tapeſtry *Manufacture*, Muſlin *Manufacture*, &c. *Manufacture* of Hats, Stockings, &c. See *Wool*, *Silk*, *Velvet*, *Tapiſtry*, *Muſlin*, &c. The Word comes from the *Latin*, *Manufactus.*

MANUMISSION, an Action by which a Slave is ſet at liberty. Some Authors define Manumiſſion to be an Act by which a Lord enfranchiſes his Tenants, who till that time had been his Vaſſals, and in a State of Slavery, inconſiſtent with the Holineſs of our Faith.

The *Romans* had ſeveral Ceremonies in uſe in the *Manumiſſion* of their Slaves. Their *Manumiſſion* was perform'd three ſeveral Ways. Firſt, When, with his Maſter's Conſent, a Slave had his Name enter'd in the *Cenſus*, or Public Regiſter of the Citizens. Secondly, When the Slave was led before the *Prætor*, and that Magiſtrate laid his Wand on his Head. Thirdly, When the Maſter gave the Slave his Freedom by his Teſtament. *Servius Tullius* is ſaid to have firſt ſet on foot the firſt Manner, and *P. Valerius Publicola* the ſecond. A particular Account is given of the third in the Inſtitutes of *Juſtinian*. It was not neceſſary, that the *Prætor* ſhould be on his Tribunal to perform the Ceremony of *Manumiſſion*. He did it any where indifferently, in his Houſe, in the Street, going to bath, &c. He laid the Rod, call'd *Vindicta*, on the Slave's Head, pronouncing theſe Words, *Dico eum liberum eſſe more Quiritum*; *I declare him a Freeman after the manner of the Romans.* This done, he gave the Rod to the Lictor, who ſtruck the Slave with it on the Head, and afterwards with his Fiſt on his Face and Back. And the Notary, or Scribe, enter'd the Name of the new-free'd Man in the Regiſter, with the Reaſons of his *Manumiſſion*. The Slave had likewiſe his Head ſhaved, and a Cup given him by his Maſter, as a Token of Freedom. *Tertullian* adds, that he had then a third Name given him. If this were ſo, three Names were not a Token of Nobility, but of Freedom. The Emperor *Conſtantine* order'd the *Manumiſſions* at *Rome* to be perform'd in the Churches. The Word comes from the *Latin Manumiſſio*, *quia Servus mittebatur extra Manum*, *ſeu poteſtatem Domini ſui.*

Of *Manumiſſion* there have been various Forms in *England*. In the time of the Conqueror, Servants were *manumitted*, by the Maſter's delivering them by the Right Hand to the Vicount in full Court, ſhewing them the Door, giving them a Launce and a Sword, and proclaiming them free. Some were alſo *manumitted* by Charter. There was alſo an implicit *Manumiſſion*; as when the Lord made an Obligation for Payment of Money to the Bondman at a certain Day; or ſued him, where he might enter without Suit; and the like.

MANURING of Ground, conſiſts in the Application of a Matter proper for meliorating the Soil, and rendring it more fertile. The Matters uſed for *Manure*, are various in various Countries. The moſt ordinary are Lime and Marl, *which ſee under their proper Articles*. In ſome parts of *Ireland*, they uſe Sea-Shells, as thoſe of Cockles, Periwinkles, &c. which are found to agree very well with boggy, heathy, clayey, wet or ſtiff Land. They ſeem to give it a kind of Ferment, as Barm does to Bread, opening and looſening the Clods, and by that means making way for the Roots to penetrate, and the Moiſture to enter into the Fibres of the Roots: This kind of *Manure* continues a long time e'er its Effects are exhauſted, whereas Lime, &c. ſpend themſelves at once. The Shells being hard, melt away very ſlowly, ſo that the Operation needs not be repeated for 20 or 30 Years. In the Weſt of *England*, they *manure* their Land with a brackiſh Sea-Sand; which Dr. *Bury* obſerves, quickens Dead-Land: So that what would otherwiſe be the barreneſt part of that Country, is now the richeſt. The Sea-Salt, he obſerves, is too luſty and active of itſelf, and that it does beſt when mingled with Lime. *Glauber* orders the Mixture to be made up and burnt like Bricks, and then apply'd. In ſome Countries they burn the Surface of their heathy Ground, inſtead of *manuring* it; which is but ill Husbandry, inaſmuch as it impoveriſhes it; and by deſtroying the Sap of the Earth, and Roots of the Graſs, and other Vegetables, it renders it uſeleſs for ſeveral Years after the third, when it is plow'd. Dr. *Jackſon* obſerves, that all the Ground about *Nantwich*, where Salt or Brine is ſpilt, is, when dug up, an excellent *Manure* for grazing Ground; and even Bricks, thoroughly tinged with it, diſſolve and fertilize the Land very conſiderably. Dr. *Beal* ſays, 'tis a common Obſervation of Gardeners and ſkilful Husbandmen, that Froſt and Snow improve and fertilize the Land both more ſpeedily and more effectually than the Influence and Warmth of the Sun. Dr. *Liſter* tells us, that in ſome parts of the *North-Riding* of *Yorkſhire*, the Soil is ſandy, and the People *manure* it with Clay. The Soil, with any other *Manure*, bears nothing but Rye; but with Clay, bears Oats, Barley, &c. This Clay *Manuring*, will, by certain Experience, laſt 45 Years in the Ground e'er it need be repeated. The Bogs in *Ireland* are beſt improv'd by ſandy, or other gravelly *Manures*.

MANUSCRIPT, a Book, or Paper, written with the Hand; in oppoſition to a printed Book, or Paper. A *Manuſcript* is uſually deſign'd by the two Letters MS, and in the *Plural* by MSS, or MMSS. What makes public Libraries valuable, is the Number of antient MSS repoſited in them.

MANWORTH, in old Law-Books, is the Price or Value of a Man's Head: every Man, according to his degree, being rated at a certain Price; according to which, Satisfaction, in old time, was made to his Lord, if any one kill'd him.

MANZEL. See *Caravanſerail.*

MAP, a plain Figure, repreſenting the ſeveral Parts of the Surface of the Earth, according to the Laws of Perſpective: or a Projection of the Surface of the Globe, or a part thereof, *in plano*. See *Projection.*

Maps are either univerſal, or particular. *Univerſal Maps* are thoſe which exhibit the whole Surface of the Earth, or the two Hemiſpheres. *Particular Maps* are thoſe which exhibit ſome particular Region, or part thereof. Each kind are frequently call'd Geographical or *Land-Maps*, in contra-diſtinction to Hydrographical or *Sea-Maps*, repreſenting only the Seas and Sea-Coaſts, properly call'd *Charts*. See *Chart*.

There are three Qualifications required in a *Map*. Firſt, That all Places have their juſt Situation with regard to the chief Circles of the Earth, as the *Equator*, *Parallel*, *Meridians*, &c. becauſe on theſe depend many Properties of Regions, as well as Celeſtial *Phænomena*. Secondly, That the Magnitudes of the ſeveral Countries have the ſame Proportion as on the Surface of the Earth. And, Thirdly, That the ſeveral Places have the ſame Diſtance and Situation with regard to each other, as on the Earth itſelf.

For the Foundation of *Maps*, and the Laws of *Projection*, ſee *Perſpective* and *Projection of the Sphere*: The Application thereof, in the Conſtruction of *Maps*, is as follows.

Projection of a Map, the Eye being plac'd in the Axis. Suppoſe, *v.g.* the Northern Hemiſphere to be repreſented with the Eye in a Point of the Axis, *v.g.* the South-Pole; for the Plane, whereon the Repreſentation is to be made, we take the Plane of the Equator, and from all the Points of the Surface of the Northern Hemiſphere, conceive Lines paſſing thro the Plane to the Eye; which Points connected together, conſtitute the *Map* required. Here the Equator will be the Limit of the Projecture; the Pole, the Centre. The Meridians will be Right Lines paſſing from the Pole to the Equator; the Parallels of Latitude, *&c.* Circles concentric with the Equator; and all the other Circles, and Arches of Circles, as the Horizon, Vertical Circles, *&c.* Ecliptic, *&c.* conceived in that Hemiſphere, will be Ellipſes, or Arches of Ellipſes. The better to apprehend the Projecture of the Circles on the Plane, conceive a radiant Cone, whoſe Vertex is the Eye, its Baſe the Circle to be repreſented, and its Sides the Rays paſſing between the Circle and the Eye. Suppoſe this Cone cut by the Plane. 'Tis obvious, that, according to the various Poſition of the Cone, there will be a different Section, and conſequently a different Line or Repreſentation.

For the Application of this Doctrine in Practice. In a Plane, *v.g.* a Paper, take the middle Point *P.* (Plate *Geography*, Fig. 2.) for the Pole, and from this, as a Centre, deſcribe a Circle, of the intended Bigneſs of your *Map*, to repreſent the Equator. Theſe two may be pitch'd on at pleaſure, and from theſe all the other Points and Circles are to be determined. Divide the Equator into 360°, and drawing Right Lines from the Centre to the beginning of each Degree, theſe will be Meridians; whereof that drawn to the beginning of the firſt Degree, we ſuppoſe the firſt Meridian.

Now for the Parallels. There are four Quadrants of the Equator; the firſt, 0,90; the ſecond, 90,180; the third, 180,270; the fourth, 270,0; which, for the better diſtinction, we will note with the Letters AB, BC, CD, DE. Taking one of theſe, *v. g.* BC, from the ſeveral Degrees thereof, as alſo from 23°, 30′, and 66″, 30′. thereof draw occult Right Lines to the Point *D*, marking where theſe Lines cut the Semidiameter *BPC*; and from *P*, as a Centre, deſcribe Arches paſſing thro' the ſeveral Points in *PC*. Theſe Arches will be Parallels of Latitude. The Parallel at 23° 30′, will be the Tropic of *Cancer*, and that at 66° 30′, the *Arctic* Circle. The Meridians and Parallels thus deſcribed, from a Table of Longitudes and Latitudes, lay down the Places; reckoning the Longitude of each Place on the Equator, commencing at the firſt Meridian, and proceeding to the Meridian of the Place; and for the Latitude of the Place, chuſing a Parallel of the ſame Latitude: the Point where this Meridian and Parallel interſect, repreſents the Place: And in the ſame manner all the other Places may be determined 'till the *Map* be compleat.

For the Ecliptic, half of which comes in this Hemiſphere; we have obſerved, that it makes an Ellipſis; ſo that the Points thro' which it paſſes are to be found. The firſt Point, or that wherein the Ecliptic cuts the Equator, is the ſame with that wherein the firſt Meridian cuts the Equator, which is therefore diſtinguiſh'd by the Sign of *Aries*; the laſt Point of this half Ellipſis, or the other Interſection of the Equator and Ecliptic, *viz.* the End of *Virgo*, will be in the oppoſite Point of the Equator, *viz.* at 180°. The middle Point of the Ellipſis is that wherein the Meridian 90 cuts the Tropic of *Cancer*. Thus we have three Points of the Ecliptic determined; for the reſt, *viz.* for 1°, and 15° of *Taurus*, 1° and 15° of *Gemini*, 1° of *Leo*, 1° of *Virgo*, the Declinations of thoſe Points from the Equator muſt be taken from a Table, and ſet off in the *Map*. See *Declination*, &c.

Thus where the Meridian of 13°. cuts the Parallel of 5°, that Point will be 15°. of *Aries*. Where the Meridian 27°. cuts the Parallel, 11 ½ will be the firſt Degree of *Taurus*, and ſo of the reſt. Theſe Points being all join'd by a Curve Line, will be a Portion of an Ellipſis repreſenting the Ecliptic.

Maps of this Projection have the firſt Qualification required; but are defective in the ſecond: the Surface being ſtretch'd further, as it approaches nearer the Equator. For the third, they are ſtill further out. By this Method may almoſt the whole Earth be repreſented in one *Map*, placing the Eye, *v. g.* in the Antarctic Pole, and aſſuming for the Plane of Projection that of ſome Circle near it, *v.g.* the Antarctic Circle. Nothing is here required beſides the former Projection; but to continue the Meridian, draw Parallels on the other ſide of the Equator, and compleat the Ecliptick; but this diſtorts too much for Practice.

This Projection is of all others the eaſieſt; but that, where the Eye is placed in the Plane of the Equator, is preferr'd for uſe. 'Tis, in effect, of the latter kind that *Maps* are ordinarily made. The former are added to 'em, in ſmall, by way of Supplement, to repreſent the intermediate Spaces left between the two Hemiſpheres. Further, as the Situation of the Ecliptic, with regard to the Earth, is continually changing, ſtrictly ſpeaking, it has no Place in the Earth's Surface, but is uſed to be repreſented according to its Situation ſome certain Moment; *viz.* ſo as the beginning of *Aries* and *Libra* may be in the Interſections of the firſt Meridian and Equator.

The Projection of Maps, with the Eye in the Plane of the Equator. This Method of Projection, tho' more difficult, is yet much juſter, more natural and commodious, than the former. To conceive it, we ſuppoſe the Surface of the Earth cut in two Hemiſpheres by the entire Periphery of the firſt Meridian, each of which Hemiſpheres we repreſent in a diſtinct *Map*. The Eye is placed in the Point of the Equator 90° diſtant from the firſt Meridian; and for the tranſparent Plane, wherein the Repreſentation is to be, we take the Plane of the firſt Meridian. In this Projection, the Equator is a Right Line, and the Meridian 90° diſtant from the firſt, is alſo a right Line; but the other Meridians, and all the Parallels of the Equator, are Arches of Circles, and the Ecliptic an Ellipſis.

The Method is thus. From a Point *E*, as a Centre, (Fig. 3.) deſcribe a Circle according to the intended Bigneſs of the *Map*. This repreſents the firſt Meridian, and its oppoſite; for, drawing the Diameter *BD*, there ariſe two Semicircles, the one whereof *BAD* is the firſt Meridian, the other *BCD* its oppoſite, or the Meridian of 180°. This Diameter *BD* repreſents the Meridian of 90 Degrees, whereof the Point *B* is the Arctic Pole, and the Point *D* the Antarctic. The Diameter *AC*, perpendicular to that *BD*, is the Equator. Divide the Quadrants *AB*, *BC*, *CD*, *DA*, each into 90 Degrees; and to find the Arches of the Meridians and Parallels, proceed thus. Divide the Equator into its Degrees, *viz.* 180. (as being indeed only half the Equator;) thro' theſe ſeveral Diviſions, and the two Poles, deſcribe Arches of Circles, repreſenting Meridians, as *B* 1 *D*, *B* 2 *D*, &c. How to find Centres for deſcribing thoſe Arches, ſee under the Word *Circle*. Indeed, the Operation will be both more eaſy and accurate, if performed by a Canon of Tangents. To deſcribe the Parallels, the Meridian *DB* muſt be in like manner divided into 180 Degrees; then thro' each of theſe Diviſions, and the correſponding Diviſions of the Quadrants *AB*, *CB*, deſcribe Arches of Circles. Thus ſhall we have Parallels of all Degrees, with Tropics, Polars and Meridians. As for the Ecliptic, it may be deſign'd two ways. For its Situation over the Earth may either be ſuch, as that its Interſection with the Equator may be over the Place *A*; in which Caſe, the Projection of its Semi-Circles, from the firſt Degree of *Cancer*, to the firſt of *Capricorn*, will be a ſtraight Line, to be determined by numbering 23° 30′ from *A* towards *B*, and from the Extreme of that Numeration, drawing a Diameter thro' *E*; this Line will be half the Ecliptic in this Situation, and may be divided, as before, into Degrees, to which the Numbers, Signs, *&c.* are to be affix'd. But if the Ecliptic be ſo placed, as that its Interſection with the Equator is over the Place *A*, in the firſt Meridian, its Projection in that Caſe will be a Segment of an Ellipſis; whereof two of the Points are *AC*; a third that wherein the Meridian 90 cuts the Tropic of *Cancer*. The other Points muſt be determin'd in the manner laid down above, *viz.* by taking the Declinations and right Aſcenſions of 15° of *Aries*, 1° of *Taurus*, 15° of *Gemini*, &c. For where the Parallels, according to their ſeveral Degrees of Declination, cut the Meridians, taken according to the ſeveral right Aſcenſions, thoſe Points of Interſection are the Points of the 15° of *Aries*, &c. A curve Line therefore being drawn, theſe will give the Projection of the Ecliptic.

Nothing now remains to compleat the *Map*, but to take the Longitudes and Latitudes of Places from a Table; and to ſet them off on the *Map*, as was directed under the former Method. In this Projection the whole Surface of the Earth may be repreſented in one *Map*; if inſtead of the Plane of the firſt Meridian, ſome other Plane parallel to it, but very near the Eye, be taken; for by this means the entire Parallels and Meridians will be deſcribed. But as this diſtorts the Face of the Earth too much, it is ſeldom uſed; and we rather make the two Hemiſpheres in two diſtinct Tables. One great Advantage in this Projection, is, that it repreſents the Longitudes and Latitudes of Places, their Diſtance from the Pole and from the Equator, almoſt the ſame as they are on the Earth. Its Inconveniences are, that it makes the Degrees of the Equator unequal, being the greater as they are nearer the firſt Meridian D A B, or its oppoſite B C D; and for this Reaſon equal Tracts of the Earth are repreſented unequal; which Defect may be in ſome meaſure remedy'd by removing the Eye far from the Earth. Laſtly, the Diſtances of Places, and Situation with regard to each other, cannot be well determined in *Maps* of this Projection.

Projection of Maps on the Plane of the Horizon, or wherein any given Place ſhall be the Centre, or Middle. Suppoſe, for inſtance, 'tis deſired to have *London* the Centre of the *Map*. Its Latitude we'll ſuppoſe to be 51°. 32 Min. The Eye is placed in the Nadir. The tranſparent Table is the Plane of the Horizon, or ſome other Plane, if 'tis deſired to repreſent more than an Hemiſphere. Take then the Point E (*Fig.* 4.) for *London*, and from this, as a Centre, deſcribe the Circle A B C D to repreſent the Horizon, which you are then to divide into four Quadrants, and each of theſe into 90 Degrees. Let the Diameter B D be the Meridian, B the Northern Quarter, D the Southern; the Line of Equinoctial Eaſt and Weſt, ſhews the firſt Vertical, A the Weſt, C the Eaſt, or a Place 90 deg. from the Zenith in the firſt Vertical. All the Verticals are repreſented by right Lines drawn from the Centre E to the ſeveral Degrees of the Horizon. Divide B D into 180 deg. as in the former Methods; the Point in E B repreſenting 51 deg. 32 min. of the Arch B C, will be the Projection of the North Pole, which note with the Letter P. The Point in E D repreſenting 51 deg. 30 min. of the Arch D C, (reckoning from C towards D) will be the Projection of the Interſection of the Equator and Meridian of *London*, which note with the Letter Q, and from this, towards P, write the Numbers of the Degrees, 1, 2, 3, *&c.* As alſo from Q towards D, and from B towards P, *viz.* 51, 52, 53, *&c.*

Then taking the correſponding Points of equal Degrees, *viz.* 99 and 99, 88 and 88, *&c.* about thoſe, as Diameters, deſcribe Circles, which will repreſent Parallels, or Circles of Latitude, with the Equator, Tropics, and Polar Circles. For the Meridians, firſt deſcribe a Circle thro the three Points A, P, C. This will repreſent the Meridian 90 deg. from *London*. Let its Centre be M in B D (continued to the Point N, which repreſents the South Pole) P N being the Diameter, thro M draw a Parallel to A C, *viz.* F H, continued each Way to K and L. Divide the Circle P H N F into 360 deg. and from the Point P draw right Lines to the ſeveral Degrees, cutting K F H L thro the ſeveral Points of Interſection, and the two Poles P, N, as thro three given Points, deſcribe Circles repreſenting all the Meridians. The Centres for deſcribing the Arches will be in the ſame K L, as being the ſame, that are found by the former Interſection; but are to be taken with this Caution, that for the Meridian next B D N towards A, the moſt remote Centre towards L be taken for the 2d, the 2d from this, *&c.* The Circles of Longitude and Latitude thus drawn, inſert the Places from a Table as before directed.

Projection of Maps on the Plane of the Meridian. This Projection is taught by *Ptolemy*, and recommended by him as proper for that part of the Earth then known. In the Equator and Parallels are Arches of Circles, and in the Meridians, Arches of Ellipſes; the Eye hanging over the Plane of that Meridian which paſſes over the middle of the inhabited World. But in regard the Deſcription of theſe Ellipſes is ſomewhat perplexing, and becauſe this Method ſeems only calculated for a part of the Earth; 'tis not now uſed.

There is a ſecond Method ſomething a-kin to it, which repreſents the Circles of Latitude by right Lines, and the Meridians by Arches of Ellipſes; as muſt be the Caſe, if Lines be conceived to fall from the ſeveral Points of each Hemiſphere, perpendicularly on the Plane of the firſt Meridian, and the Eye be ſuppoſed at an infinite diſtance from the Earth; ſo that all the Rays emitted from the Places of the Earth to it, may be accounted Parallels as well as Perpendiculars to the Plane of the firſt Meridian.

Rectilinear Maps, thoſe wherein both the Meridians and Parallels are repreſented by right Lines, which by the Laws of Perſpective is impoſſible; in regard there can no ſuch Poſition be aſſign'd the Eye and the Plane, as that the Circles both of Longitude and Latitude ſhall be right Lines. In the firſt Method laid down, the Meridians are right Lines, but the Parallels are Circles. In the fifth, the Parallels are right Lines, and the Meridians Ellipſes. In all other perſpective Methods, both Kinds of Circles are Curve; one Method indeed muſt be excepted, wherein the Meridians are right Lines, and the Parallels Hyperbola's; as when the Eye is placed in the Centre of the Earth, and the Plane, thro which it is view'd, is parallel to the firſt Meridian: but this Method is rather pretty than uſeful. *Rectilinear Maps* are chiefly uſed in Navigation, to facilitate the Eſtimation of the Ship's Way. See CHART.

Construction of particular or ſpecial Maps.

Particular Maps of large Tracts, as *Europe*, *Aſia*, *Africa*, and *America*, are projected after the ſame Manner as General ones; only let it be obſerved, that for different Parts, different Methods be choſen. *Africa* and *America*, for inſtance, in regard the Equator paſſes thro them, cannot be conveniently projected by the firſt Method, but much better by the ſecond. *Europe* and *Aſia* are moſt conveniently repreſented by the third; and the polar Parts, or the frigid Zones, by the firſt.

To begin then, draw a right Line on your Plane or Paper, for the Meridian of the Place over which the Eye is conceiv'd to hang, and divide it into Degrees, as before, which will be Degrees of Latitude. Then from the Tables take the Latitude of the two Parallels, which terminate each Extreme. The Degrees of theſe Latitudes are to be noted in the Meridian; and thro them draw Perpendiculars, bounding the *Map* towards North and South. This done, Meridians and Parallels are to be drawn to the ſeveral Degrees, and the Places to be inſerted, till the *Map* is compleat.

Particular Maps of leſs Extent. In *Maps* of ſmaller Portions of the Earth, the Geographers take another Method. Firſt, a tranſverſe Line is drawn at the bottom of the Plane, to repreſent the Latitude, wherein the Southermoſt part of the County to be exhibited, terminates. In this Line, ſo many equal Parts are taken, as that Country is extended in Longitude. On the middle of this ſame Line erect a Perpendicular, having ſo many Parts as there are Degrees of Latitude between the Northern and Southern Limits of the Country. How big theſe Parts are to be, may be determin'd by the Proportion of a Degree of a great Circle to a Degree of the Parallel repreſented by the tranſverſe Line at bottom. See DEGREE. Thro' the other Extreme of this Perpendicular, draw another Perpendicular, or a Parallel to the Line at bottom, in which are to be as many Degrees of Longitude, as in the lower Line, and theſe, too, equal to thoſe other, unleſs the Latitudes happen to be remote from each other, or from the Equator. But if the loweſt Parallel be at a conſiderable diſtance from the Equinoctial, or if the Latitude of the Northern Limit go much beyond that of the Southern; the Parts or Degrees of the upper Line muſt not be equal to thoſe of the lower, but leſs, according to the Proportion which a Degree of the more Northern Parallel, has to a Degree of the more Southern: Which ſee, as before, under the word DEGREE.

After Parts have been thus determin'd, both on the upper and lower Line, for the Degrees of Longitude; right Lines muſt be drawn thro' the beginning and end of the ſame Number, which Lines repreſent Meridians: then, thro the ſeveral Degrees of the Perpendicular erected on the middle of the firſt tranſverſe Line, draw Lines parallel to that tranſverſe Line. Theſe will repreſent Parallels of Latitude. Laſtly, at the Points wherein the Meridians of Longitude and the Parallels of Latitude concur, inſert the Places from a Table, as before directed.

For *Maps of Provinces*, or ſmall Tracts, as Pariſhes, Mannors, *&c.* we uſe another Method, more ſure and accurate than any of the former. In this, the Angles of Poſition, or the Bearings of the ſeveral Places, with regard to one another, are determin'd by proper Inſtruments, and tranferr'd to Paper. This conſtitutes an Art a-part, call'd *Surveying*. See SURVEYING.

The Uſe of Maps is very obvious from their Conſtruction. The Degrees of the Meridians and Parallels ſhew the Longitudes and Latitudes of Places, and the Scale of Miles annex'd, their Diſtance; the Situation of Places, with regard to each other, as well as to the Cardinal Points, appears by Inſpection, the top of the *Map* being always the North, the bottom the South, the right-hand the Eaſt, and the left the Weſt; unleſs the Compaſs uſually annex'd, ſhew the contrary. See MERCATOR'S CHART, where theſe Caſes are exemplify'd.

MAPPARIUS, an Officer among the *Romans*, who, in the public Games, as thoſe of the Circus and the Gladiators, gave the Signal for their beginning, by throwing an Handkerchief (*Mappa*) which he had before received from the Emperor, Conſul, or other ſupreme Officer then preſent.

MARASMUS, in Medicine; an extreme Macies or Conſumption of the whole Body. A Hectic Fever uſually produces a *Maraſmus*. The word is *Greek*, being derived from the Verb *μαραίνειν*, *to waſte*. See CONSUMPTION.

MARAVEDIS, a little *Spaniſh* Copper Coin, worth ſomewhat more than a *French* Denier. The *Spaniards* always count by *Maravedis*, both in Commerce, their Finances, *&c.* tho the Coin itſelf has but little Courſe among them. 63 *Maravedis* are equivalent to a Real of Silver: ſo that the Piaſter, or Piece of Eight Real, contains 504, and 4 Piſtoles of 4 Pieces of Eight, 2016 *Maravedis*. See COIN and MONEY. This Smallneſs of the Coin produces vaſt Numbers in the *Spaniſh* Accounts and Calculations; inſomuch that a Stranger or Correſpondent would think himſelf indebted ſeveral Millions for a Commodity, that coſts but a few Pounds. In the Laws of *Spain*, we meet with ſeveral Kinds of *Maravedis*; *Alphonſine Maravedis*, *White Maravedis*, *Maravedis of Good Money*, *Maravedis Combrennos*, *Black Maravedis*, *Old Maravedis*. When we find *Maravedis* alone, and without any Addition, it is to be underſtood of thoſe mentioned above. The reſt were different in Value, Fineneſs of Metal, Time, *&c.* *Mariana* aſſerts, that this Coin is older than the *Moors*, that it came from the *Goths*, and was worth ten *Denarii* in the time of the *Romans*.

The Word is *Arabic*, and took its Riſe from the *Almoravides Moors*, who paſſing out of *Africa* into *Spain*, impoſed their own Name on this Coin, which by Corruption was afterwards changed into *Maravedis*. Mention is made of it in the Decretals, as well as other *Latin* Writers, under the Name of *Marabitini*.

MARBLE, a Kind of Stone, extremely hard, firm and ſolid, dug out of Pits or Quarries: It takes a beautiful Poliſh, cuts very hardly, and is much uſed in Ornaments of fine Buildings, as Columns, Altars, Statues, *&c.* There are an infinite Number of different Kinds of *Marble*, uſually denominated either from their Colour, their Country, or their Defects; ſome are of one ſimple Colour, as white or black, others ſtreak'd or variegated with Stains, Clouds, Waves, Veins, *&c.* All *Marbles* are opake, excepting the white, which, when cut into thin Slices, becomes tranſparent. They are alſo different in Weight and Hardneſs, and are to be conſider'd with regard to their Colour, their Country, their Grain, and their Defects.

Under the Genus of *Marble* are comprehended *Porphyry*, which is the hardeſt, and which was antiently brought from *Numidia* in *Africa*; the moſt beautiful is that, whoſe Red is the moſt vivid, and the Stains the whiteſt and the ſmalleſt. See PORPHYRY. The *Serpentine*, which is a greeniſh brown, ſo call'd, becauſe figur'd with little Stains. It is form'd of a great Number of Grains of Sand condens'd; it is of various Kinds, *viz.* *Egyptian*, *Italian*, *Violet*, and *Green*. See GRANATE and SERPENTINE. *Jaſper*, of which there are various Kinds, the Antient, the Florid, the Black, White, *&c.* See JASPER. *Alabaſter*, of which there are various Kinds, both White and Variegated. They are all ſoft when taken out of the Quarry, but harden in the Air. *Marbles* again may be conſider'd either as Antient or Modern. By Antient we mean thoſe, whoſe Quarries are loſt or inacceſſible to us, and whereof we have only ſome Pieces remaining. The Modern are thoſe, whoſe Quarries are ſtill open, and out of which Blocks continue to be dug.

Marbles denominated from their Countries.

African Marble is either of a reddiſh Brown, ſtreak'd with Veins of White, or of a Carnation, with Veins of Green. *Engliſh White Marble* is vein'd with Red. *Marble* of *Auvergne* in *France*, is of a pale Red, mingled with Violet, Green, and Yellow. *Marble* of *Brabançon* in *Hainault*, is Black, vein'd with White. *Marble* of *Breſſe* in *Italy*, is Yellow with Spots of White. *Marble Brocatelle*, is mingled with little Shades of *Iſabella*, Yellow, Pale and Gray. It comes from *Tortoſa* in *Spain*, where it is dug out of an antient Quarry: There is alſo another Kind of antient *Brocatelle* dug near *Adrianople*. *Marble* of *Carrara*, on the Coaſts of *Genoa*, is very white, and the fitteſt of all others for Works of Sculpture. *Marble* of *Champagne*, reſembles the *Brocatelle*, being mix'd with blue in round Stains like Partridges Eyes. *Cipollino*, or *Cipollin Marble*, is of a Sea-green Colour, mix'd with large Waves or Clouds of white or pale green. *Scamozzi* takes this to be the ſame with that which the Antients call'd *Auguſtum & Tiberium Marmor*; becauſe diſcover'd in *Egypt* in the Times of the Emperors *Auguſtus* and *Tiberius*. *Marble* of *Dinan*, near *Liege*, is of a pure black, very beautiful, and very common. *Marble* of *Guachenet*, near *Dinan*, is of a reddiſh Brown, with white Spots and Veins. *Marble* of *Languedoc*, is of a vivid red, with large white Veins or Stains, and is very common; there is ſome, whoſe White borders pretty much on the Blue, but this is of leſs Value. *Lumachello Marble*, *Marble* ſo call'd, becauſe mingled with Spots, gray, black, and white, wreath'd ſomewhat like Periwinkle-Shells. This is antient, and its Quarry is loſt. *Marble* of *Margoſſe*, in the *Milaneze*, has a white Ground with browniſh Veins, reſembling the Colour of Iron-Ruſt. This is very common, and extremely hard. *Marble* of *Lavee*, in *Maine*, has a black Ground, with little narrow Veins of white; there is another Kind of it red, with Veins of a dirty white. *Marble* of *Namur* is black, like that of *Dinan*, but leſs beautiful, as inclining a little to the blue, and travers'd with little Streaks of grey. This is very common, and is frequently uſed in Paving. *Parian Marble* is Antique, and much celebrated in Authors; it is of a beautiful White: The greateſt part of the *Grecian* Statues were made of it. *Varro* calls it *Lychnites*, becauſe the Workmen dug it out of the Quarry by Lamp-Light. *Marble* of *Porta Santa*, at *Rome* call'd *Serna*, is mingled with large Clouds and Veins of red, yellow, and grey. *Marble Portor* has a black Ground, with Clouds and Veins of yellow. It is dug out of the foot of the *Alps* towards *Carrara*. *Marble* of *Ratrice*, in *Hainault*, is of a dirty red, mix'd with blue and white Clouds and Veins: this is pretty common, but is different in Beauty. *Marble* of *Savoy*, is a deep red mix'd with other Colours; each Piece whereof ſeems cemented on to the reſt. *Marble* of *Sicily* is a browniſh red, ſtain'd with oblong Squares of White and *Iſabella*, like ſtriped Taffeta's. The Antient has very vivid Colours, and the Modern comes pretty near it. *Marble* of *Signan*, in the *Pyreneans*, is ordinarily of a greeniſh brown, with red Stains; tho this is ſomewhat various in its Colours. *Marble* of *Theu*, near *Namur* in *Liege*, is a pure black, ſoft and eaſy to work, and receives a more beautiful Poliſh than thoſe of *Namur* and *Dinan*.

Marble Bigio Nero, or black-grey, is antique. White-vein'd *Marble* has large Veins, with grey and blue Stains on a white Ground. It comes from *Carrara*. *White Marble*; that dug out of the *Pyreneans* on the ſide of *Bayonne*, is inferior to that of *Carrara*, its Grains being larger, and ſhining, like a kind of Salt. It is ſomething like the antient white *Greek Marble*, whereof their Statues were made, but is not ſo hard or beautiful. *Antient black and white Marble* is now very rare, its Quarries being entirely loſt; it is divided between a pure white and a bright black in Plates. *Blue Turquin Marble*, is mix'd with a dirty kind of white, and comes from the Coaſt of *Genoa*. *Marble Fior di Perſica*, comes from *Italy*, conſiſts of red and white Stains, ſomewhat yellowiſh. *Yellow Marble*, is a kind of yellow *Iſabella* without Veins; it is antique, and now very rare. *Black Attic Marble*, is of a pure black, without Stains, and ſofter than the modern black. There was ſome of it brought from *Greece*, call'd *Marmor Luculleum*; but this was not ſo much prized as that which the *Egyptians* brought from *Æthiopia*, approaching to an Iron Colour, and call'd *Baſaltes*, or Touch-ſtone, becauſe it ſerved them for the Tryal of Metals. *White and black Marble* has a pure black Ground, with ſome very white Veins. *Marble Occhio di Pavone*, or Peacocks Eye, is mingled with red, white and blueiſh Clouds, ſomewhat reſembling the Eyes at the end of a Peacock's Tail. *Green Marble antique*, is a Mixture of Graſs-green and Black, in Clouds of unequal Forms and Bigneſſes, and is very rare, the Quarries being loſt. The *modern Green*, improperly called *Egyptian*, is brought from *Carrara*, on the Coaſt of *Genoa*; it is a deep Green ſpotted with Grey.

Marble denominated from its Defects.

Rigid Marble, that which, being too hard, works with difficulty, and is liable to ſplinter, as the Black of *Namur*. *Thready Marble*, is that full of Threads or Filaments. *Brittle Marble*, is that which crumbles under the Inſtrument, as the white *Greek Marble*, that of the *Pyreneans*, &c. *Terras Marble*, that with ſoft Places in it, which muſt be filled up with Cement, as that of *Languedoc*.

There are two Defects frequent in *Marbles*, which augment the Difficulty of cutting and poliſhing them. The one, what they ſometimes call Nails, anſwering to the Knots in Wood; the other, call'd Emeril, is a Mixture of Copper or other Metals, making black Stains in the *Marble*. The Knots are common to all *Marbles*, the Emeril only in the white.

The Stuck whereof they make Statues, Buſts, Baſſo-Relievos, and other Ornaments of Architecture, is only *Marble* pulveriz'd, mix'd in a certain Proportion with Plaiſter; the whole well ſifted, work'd up with Water, and uſed like common Plaiſter. There is alſo a kind of artificial *Marble*, made of *Gypſum*, or a tranſparent Stone, reſembling Marle; which becomes very hard, receives a tolerable Poliſh, and may deceive the Eye. There is alſo a kind of artificial *Marble* form'd by corroſive Tinctures, which penetrating into white *Marble*, to the depth of a Line, imitates the various Colours of other *Marbles*. Poliſh'd *Marble* is that which, being well rubb'd with Free-ſtone, and afterwards with Pumice-ſtone, is at laſt poliſh'd with Emery, if the *Marble* be of ſeveral Colours, and with Tin, if it be white. In *Italy* they poliſh with a Piece of Lead and Emery.

There are various Ways of poliſhing *Marble.* Some lay three or four Blocks in a Row, and with another, fix'd to a broad Beetle, and a Handle fix'd at oblique Angles, with Sand and Water between, work the upper Stone backwards and forwards on the lower ones, till the Strokes of the Ax are wore off; after which, they poliſh them with Emery and Putty. Father *Kircher* ſhews the Manner of applying Colours on *Marble*, ſo as to make them penetrate its whole Subſtance; inſomuch that if the *Marble* be ſlit into ſeveral parallel Tables or Planks, the ſame Image will be found on each, that was painted on the firſt. Spots of Oil penetrate white *Marble*, ſo as they cannot be taken out. The word *Marble* comes from the *Latin Marmor*, and that from the *Greek* μαρμαίρειν, *to ſhine.*

To *marble*, is to paint, or diſpoſe Colours in ſuch a manner, as that they may repreſent *Marble.* Thus we *marble* Paper, Wood, *&c.*

MARBLED, ſomething reſembling Marble: Thus *marbled* Paper, *v. g.* is a Paper ſtain'd with various Clouds and Shades, reſembling, in ſome meaſure, the various Veins of Marble; the Method whereof, ſee under PAPER.

MARBLING OF BOOKS, among Binders, the ſprinkling over the Cover of a Book with Black, by means of a black Pencil ſtruck gently againſt the Finger, or on a Stick held for the purpoſe. *Marbling* is not uſed, except for Books bound in Calf; after it is finiſh'd, the Cover is glazed over with beaten Whites of Eggs, then ſmooth'd with a poliſhing Iron. They alſo marble Books on the Edges, but in this *Marbling* there is no Black uſed; in lieu thereof, red, blue, *&c.* See BOOK-BINDING.

MARC, or MARK; a Weight uſed in ſeveral States of *Europe*, and for ſeveral Commodities, eſpecially Gold and Silver in *France.* The *Marc* is divided into 8 Ounces, or 64 Drachms, or 192 Deniers or Penny-weights, or 160 Eſterlins, or 300 Mailles, or 640 Felins, or 4608 Grains. In *Holland*, the *Marc* Weight is alſo call'd Troy-Weight, and is equal to that of *France.* When Gold and Silver are ſold by the *Marc*, it is divided into 24 Caracts, the Caract into 8 Penny-weights, the Penny-weight into 24 Grains, and the Grain into 24 Primes. See CARACT.

MARK is alſo uſed among us for a Money of Account; and in ſome other Countries for a Coin: The *Engliſh Mark* is two Thirds of a Pound Sterling, or 13 *s.* 4 *d.* and *Matthew Paris* obſerves, it was of the ſame Value in 1194. The antient *Saxons* call'd the *Mark*, *Mancos*, *Mancuſe*, and *Mearc*; among them it was equivalent to thirty Pence, *i. e.* to ſix Shillings. The *Mark-Lubs*, uſed at *Hambourg*, is alſo a Money of Account, equal to one Third of the Rixdollar, or to the *French Livre Tournois.* Each *Mark* is divided into ſixteen *Sols-Lubs. Mark Lubs*, or *Danſch*, is alſo a *Daniſh* Coin, equal to ſixteen *Sols Lubs*, or twenty *French Sols.* See SOL. Laſtly, *Mark* is a Copper-Coin in *Sweden*, equal to two Pence Farthing Sterling; it is divided into eight *Rouſtiqs*, and each *Rouſtiq* into two *Alleveures.* The *Swediſh Silver Mark* is a Money of Account, equal to three *Copper Marks*, tho ſome make it a real Coin.

MARCASSITE; a Metallic Mineral, making, as it were, the Seed or firſt Matter of Metals. On this Principle, there ſhould be as many different *Marcaſſites* as Metals, which is true in effect; the Name being apply'd to every Mineral Body that has Metallic Particles in its Compoſition. There are only three Kinds in the Shops, *viz. Marcaſſite* of Gold, of Silver, and of Copper; tho ſome make the Loadſtone *Marcaſſite* of Iron, Tin of Glaſs, *Marcaſſite* of Tin, and Zink or Spelter, that of Lead: but this we leave to the Chymiſts. *Marcaſſite* of Gold is in little Balls about the bigneſs of Nuts, nearly round, heavy, of a brown Colour without. *Marcaſſite* of Silver is like that of Gold, only leſs colour'd: within, the Colour differs much, the one having a Gold Colour, and the other a Colour of Silver, both ſhining and brillant. The *Marcaſſite* of Copper is about the bigneſs of a ſmall Apple, round or oblong, brown without, yellow and cryſtalline within, brillant and ſhining. *Marcaſſites* are found in Mines of Metal; they contain a great deal of Vitriolic Salt, eſpecially that of Copper. Some only uſe the word *Marcaſſite* for *Biſmuth.* The Word is originally *Arabic.*

MARCELLIANISM, the Doctrine and Opinions of the *Marcellians*, a Sect of antient Heretics; ſo call'd from *Marcellus* of *Ancyra*, their Leader, who was accuſed of reviving the Errors of *Sabellius.* Some, however, are of opinion, he was Orthodox, and that it was his Enemies the *Arians*, who father'd their Errors upon him. St. *Epiphanius* obſerves, that there was a great deal of Diſpute with regard to the real Tenets of *Marcellus*; but that as to his Followers, 'tis evident they did not own the three Hypoſtaſes: ſo that *Marcellianiſm* is no imaginary Hereſy.

MARCGRAVE, a kind of Dignity in *Germany*, anſwering to our Marquiſs. The Word is derived from the *German Marche* or *Mark*, which ſignifies a Frontier; the *Marcgraves* being originally Governors of Cities lying on the Frontiers of any State.

MARCH, the third Month of the Year, according to the common way of computing. Among the *Romans* it was the firſt, and in ſome Eccleſiaſtical Computations, that Order is ſtill preſerved; as particularly in reckoning the Number of Years from the Incarnation of our Saviour, that is, from the 25th of *March.* In *England* however, properly ſpeaking, *March* is the firſt Month in Order; the new Year commencing from the 25th, tho, in complaiſance to the Cuſtoms of our Neighbours, we uſually rank it as the third: but in this reſpect, we ſpeak one way, and write another. Till the Year 1564, the *French* reckon'd the beginning of their Year from *Eaſter*; ſo that there were two Months of *March* in one Year, one of which they call'd *March* before *Eaſter*, and the other *March* after *Eaſter.* When *Eaſter* fell within the Month of *March*, the beginning of the Month was in one Year, and the end in another.

It was *Romulus* who divided the Year into twelve Months; to the firſt of which he gave the Name of his ſuppoſed Father *Mars. Ovid*, however, obſerves, that the People of *Italy* had the Month of *March* before *Romulus's* Time; but that they placed it very differently, ſome making it the 3d, ſome the 4th, ſome the 5th, and others the 10th Month in the Year. In this Month it was that the *Romans* ſacrificed to *Anna Perenna*, that they begun their *Comitia*, that they adjudg'd their public Farms and Leaſes; that the Women ſerved the Slaves and Servants at Table, as the Men did in the *Saturnalia*; and that the Veſtals renewed the Sacred Fire. The Month of *March* was under the Protection of *Minerva*, and always conſiſted of 31 Days. The Antients held it an unhappy Month for Marriage, as well as the Month of *May.*

MARCHET; a pecuniary Fine anciently paid by the Tenant to his Lord, for the Marriage of one of the Tenant's Daughters. This Cuſtom obtain'd, with ſome difference, throughout all *England* and *Wales*, as alſo in *Scotland*, and ſtill continues to obtain in ſome places. According to the Cuſtom of the Mannor of *Dinover* in *Carmarthenſhire*, every Tenant, at the Marriage of his Daughter, pays ten Shillings to the Lord; which, in the *Britiſh* Language, is call'd *Gwabr-Merched*, i. e. *Maid's-Fee.*

In *Scotland*, and the North Parts of *England*, the common Cuſtom was, for the Lord to lie the firſt Night with the Bride of his Tenant: But this Cuſtom was abrogated by King *Malcolm* III. at the Inſtance of his Queen; and inſtead thereof, a Mark was paid by the Bridegroom to the Lord. Whence 'tis call'd *Marcheta Mulieris.*

MARCIONITES, the Name of a very antient and popular Sect in the Church. In the Time of St. *Epiphanius*, they were ſpread over *Italy*, *Egypt*, *Paleſtine*, *Syria*, *Arabia*, *Perſia*, and other Countries. *Marcion*, their Author, was of *Pontus*, the Son of a Biſhop, and at firſt made profeſſion of the Monaſtical Life; but having had a criminal Affair with a Maid, was excommunicated by his own Father, who would never admit him again into the Communion of the Church, not even on his Repentance. On this he abandon'd his own Country, and retired to *Rome*, where he began to broach his Doctrines. He laid down two Principles, the one Good, the other Evil. He deny'd the real Birth, Incarnation and Paſſion of Jeſus Chriſt, and held them to be all apparent only. He taught two Chriſts: One, who had been ſent by an unknown God for the Salvation of all the World; Another, whom the Creator would one day ſend to re-eſtabliſh the *Jews.* He deny'd the Reſurrection of the Body, and allow'd none to be baptized, but thoſe who preſerved their Continence; but theſe he granted might be baptized three times. In many things he follow'd the Sentiments of the Heretic *Cerdon*, and rejected the Law and the Prophets. He pretended the Goſpel had been corrupted by falſe Prophets, and allow'd none of the Evangeliſts but St. *Luke*, whom he altered in many places, as well as the Epiſtles of St. *Paul*; a great many things in which he threw out. In his own Copy of St. *Luke*, he threw out the two firſt Chapters entire.

MARCITES, a Sect of Heretics in the ſecond Century, who alſo call'd themſelves the *Perfecti*, and made profeſſion of doing every thing with a great deal of Liberty, and without any Fear. This Doctrine they borrow'd from *Simon Magus*, who, however, was not their Chief; for they they were call'd *Marcites* from one *Marcus*, who conferred the Prieſthood, and the Adminiſtration of the Sacraments, on Women.

MARCOSSIANS, the Name of an antient Sect in Religion, making a Branch of the *Gnoſtics.* St. *Irenæus* ſpeaks at large of the Leader of this Sect, *Marcus*, who, it ſeems, was reputed a great Magician. He relates ſeveral things touching the Prayers and Invocation of the antient *Gnoſtics*, the antient *Jewiſh Cabala* on the Letters of the Alphabet, and their Properties, as well as on the Myſteries of Numbers, which the *Jews* and *Gnoſtics* had borrow'd from the Philoſophy of *Plato* and *Pythagoras*. *Marcus* was an *Egyptian*, and there it was he became acquainted with Magic. To impoſe more eaſily on his Followers, he made uſe of certain *Hebrew*, or rather *Chaldee* Words, much uſed by the Enchanters of thoſe Times. The *Marcoſſians* had a great number of Apocryphal Books, which they held for Canonical, and of the ſame Authority with ours. Out of theſe they pick'd ſeveral idle Fables, touching the Infancy of Jeſus Chriſt, which they put off for true Hiſtories. Many of theſe Fables are ſtill in uſe and credit among the *Greek* Monks.

MARGARITÆ. See PEARLS.

MARK, in Matters of Commerce and Manufacture; a certain Character ſtruck or impreſs'd on various Kinds of Commodities, either to ſhew the Place where they were made, and the Perſons who made 'em; or to ſhew they have been view'd and examin'd by the Officers or Magiſtrates charged with the Inſpection of that Manufacture; or laſtly, to ſhew the Duties impoſed thereon have been regularly acquitted. Thus are Cloths, Leathers, Cutlery-Ware, Paper, Plate, Weights, Meaſures, *&c. mark'd*.

MARK is alſo a particular Sign or Character, known only to the Trader who pitches on it; whereby, being fix'd to any Commodity, he recollects the Price it coſt him. Theſe *Marks*, otherwiſe call'd Numero's, are taken according to the Fancy of thoſe who uſe them; but, ordinarily, are choſen from among the Letters of the Alphabet, each having a relation to ſome particular Number of Figures. They are of ſo much uſe in Trade, that the Reader will not take it amiſs, if we inſert a little Table, to ſerve as a Model for their Conſtruction.

A	B	C	D	E	F	G	H	I	K	L	M
0	1	2	3	4	5	6	7	8	9	10	20

One Example will give the whole Uſe of this Table. Suppoſe, *v. g.* I would put on a Piece of Stuff, that it coſt 37 *s.* 6 *d. per* Ell. I put an M for 20 *s.* an L for 10 *s.* an H for 7*s.* and a G for 6*d.* So that the ſeveral Letters wrote after each other (obſerving always to ſeparate Shillings from Pounds and from Pence by Points, will make this *Mark* M.L.H.G equal to 37*s.* 6*d.* Note, the *Mark* may be diverſified infinitely, by adding other Figures to the Letters in lieu of theſe.

ST. MARK, a Congregation of Regular Canons, founded at *Mantua* by one *Albert Spinola*, a Prieſt, towards the end of the 12th Century. *Spinola* made a Rule for them, which was approved, corrected and confirmed by ſeveral ſucceeding Popes. About the Year 1450, they were reformed, and followed only the Rule of St. *Auguſtin*. This Congregation, which at firſt conſiſted of 18 or 20 Houſes of Men, and of ſome for Women, ſituate in *Lombardy* and the State of *Venice*; having flouriſhed for the ſpace of 400 Years, declined by little and little, and was at length reduced to two Convents; and in 1584, that of *St. Mark* at *Mantua*, which was the chief, was given with the Conſent of Pope *Gregory* XIII. to the *Camaldules*, and ſo the Congregation became extinct.

Order of ST. MARK; an Order of Knighthood in the Republic of *Venice*, under the Protection of *St. Mark* the Evangeliſt. The Arms of this Order are, a Lion winged Gules, with this Device, *Pax tibi, Marka Evangeliſta*. This Order is never conferred but on thoſe who have done ſignal Services to the Commonwealth.

MARKET, from the *French Marché*, i. e. *Emporium* or *Forum Nundinarium*; and ſignifies the ſame thing with us, as alſo the Liberty or Privileges whereby a Town is enabled to keep a *Market*. *Bracton* obſerves, that one *Market* ought to be diſtant from all others at leaſt ſix Miles and a half, and a Third of a half. In former times it was cuſtomary to have moſt Fairs and *Markets* kept on Sundays, and in the Church-yard; ſo that Matters of Buſineſs and Devotion were tranſacted under one. Which Cuſtom, tho prohibited by ſeveral Kings, was yet held up till the Reign of King *Henry* the Sixth, when it was effectually ſuppreſs'd. In many Places they are ſtill kept in the Church-yard.

MARLE, or *Marne*; a kind of fat, ſoft, foſſile Earth, caſt on Land to make it more fruitful: There are ſeveral Sorts, of ſeveral Colours and Qualities. Too much *Marle* thrown on the Earth, is found to burn it. *Marle* is alſo of uſe in making of Lime, and is burnt like other Stone. The Word comes from the antient *Celtic Marga*, mention'd by *Pliny*. It was afterwards call'd *Margita* and *Marguretta*. *Paliſſi* teaches the Uſe of it.

MARMALADE; a Confection made of the Juice or Pulp of ſeveral Fruits, as Plumbs, Apricocks, Quinces, *&c.* boiled with Sugar into a Conſiſtence: that made of Quinces is ſub-aſtringent, and grateful to the Stomach.

MARMORA ARUNDELLIANA, or the *Oxford Marbles*, are antient Stones, whereon appear a Chronicle of the City of *Athens*, engraven in Capital Letters in the Iſland of *Paros*, one of the *Cyclades*, 263 Years before Jeſus Chriſt. They took their Name from *Thomas* Earl of *Arundel*, who procured them out of the Eaſt, or from *Henry* his Grandſon, who preſented them to the Univerſity of *Oxford*. An Account of all their Inſcriptions were publiſh'd in 1676, by Dr. *Prideaux*.

MARONITES, a Body of Chriſtians who follow the *Syrian* Rites, and are ſubject to the Pope; their principal Habitation being on Mount *Libanus*. The Learned are divided about their original Father. *Morin* and Cardinal *Bona* take *Maronite* for the Name of a Sect, as well as *Neſtorian* and *Jacobite*. The *Maronites* themſelves pretend, that they are deſcended from one *Maron*, who lived in the beginning of the fifth Century, and whoſe Life is written by *Theodoret*. The Jeſuit *Sacchini* is of the ſame Opinion; he thinks, that they never ſeparated from the Catholic Church; and adds, that what has given occaſion to their being judg'd in a Schiſm, is their Re-union with the *Romiſh* Church, which ſome take for a Return to the Catholic Faith. The former Opinion is founded on the Teſtimonies of *Eutychius*, *James de Vitri*, and ſeveral others, who expreſly aſſert the *Maronites* to have been formerly a part of the *Monothelite Jacobites*: According to their Account, *Maron*, whom the *Maronites* qualify for a Saint, was in truth a Heretic. Towards the Year 1182, *Aimers*, third *Latin* Patriarch of *Conſtantinople*, united the *Maronites* to that Church. From that time they have uſed the Mitre, Ring, Croſier, and other of the *Latin Epiſcopalia*; but their Service is ſtill performed in the *Chaldee* Language.

M. *Fauſtus* has publiſh'd an Apology for *Maron* and the reſt of his Nation. His Opinion is, that they really took their Name from the *Maron* who lived in the 4th Century, and whereof mention is made in *Chryſoſtom*, *Theodoret*, and the Menology of the *Greeks*. He adds, that the Diſciples of this *Maron* ſpread themſelves throughout all *Syria*, that they built ſeveral Monaſteries, and among others, one that bore the Name of their Leader; That all the *Syrians* who were not tainted with Hereſy, took Refuge among 'em; and that for this reaſon, the Hereticks of thoſe Times call'd 'em *Maronites*.

The *Maronites* have a Patriarch who reſides in the Monaſtery of *Cannubia* on Mount *Libanus*, and aſſumes the Title of Patriarch of *Antioch*. He is elected by the Clergy and the People, according to the antient Cuſtom; but ſince their Re-union with the Church of *Rome*, he is obliged to have a Bull of Confirmation from the Pope. He keeps a perpetual Celibate, as well as the reſt of the Biſhops his Suffragans. For the reſt of the Eccleſiaſtics, they are allow'd to marry before Ordination; and yet the Monaſtic Life is in great eſteem among 'em. Their Monks are of the Order of St. *Anthony*, and live in the moſt obſcure Places in Mountains, far from the Commerce of the World.

As to their Faith, they agree in the main with the reſt of the Eaſtern Church. Their Prieſts don't ſay Maſs alone, but all ſay it together, ſtanding round the Altar. They conſecrate Bread without Leaven; and the Laity have hitherto communicated in both Kinds, tho the Practice of communicating in one is introduced by little and little. In *Lent* they eat nothing, unleſs it be two or three hours before Sun-riſing: Their other Faſtings are very numerous. Their Name may either be derived from *Maron* abovemention'd, or from *μαρω*, the Name of a Monaſtery, or from *Maronea*, a City of *Syria*.

MAROTIC STILE; a Term in the *French* Poetry, ſignifying a peculiarly gay, merry, yet ſimple and natural Manner of Writing, introduced by *Marot*, and ſince imitated by their other Authors, but with moſt Succeſs by *Voiture* and *Fontaine*. The Difference between the *Marotic* and the Burleſque Stile, is thus aſſign'd: The *Marotic* makes a choice, the Burleſque admits of all. The firſt is the moſt ſimple, but its Simplicity has its Nobleneſs; and where its own Time won't furniſh natural Expreſſions, it borrows them from former Times. The latter is low and groveling, and borrows falſe and fulſome Ornaments from the Croud, which People of Taſte deſpiſe. The one reſigns itſelf to Nature, but examines firſt of all whether the Objects ſhe preſents be fit for its Paintings, and takes nothing but what carries with it ſomewhat of Delicacy and Mirth; the other runs headlong into Buffoonery, and affects every thing that is extravagant and groteſque.

MARQUE, *Letters of*, are Letters of Repriſal, granted by a King or Parliament, by which Subjects of one Country are licenſed to make Repriſals on thoſe of another; provided Application has been made for Redreſs to the Government, whereto the Aggreſſor belongs, three times without Effect. They are ſo call'd, as being *Jus* *conceſſum in alterius Principis Marchas ſeu Limites tranſeundi, ſibique Jus faciendi.* See Repriſals.

MARQUETRY, *in-laid Work*; a Work compoſed of ſeveral Pieces of hard, fine Wood of different Colours, faſten'd, in thin Slices, on a Ground, and ſometimes enrich'd with other Matters, as Tortoiſe-ſhell, Ivory, Tin, and Braſs. There is another kind of *Marquetry* made, inſtead of Wood, of Glaſſes of various Colours; and a third, where nothing but precious Stones, and the richeſt Marbles, are uſed: but theſe are more properly called *Moſaic* Work. See Moſaic.

The Art of Inlaying is very antient, and is ſuppoſed to have paſs'd from the Eaſt to the Weſt, as one of the Spoils brought by the *Romans* from *Aſia*; indeed it was then but a ſimple thing: nor did it arrive at any tolerable Perfection, till the fifteenth Century, among the *Italians*; it ſeems however to have arrived at its height in the ſeventeenth Century among the *French*. Till *John* of *Verona*, a Cotemporary with *Raphael*, the fineſt Works of this kind were only black and white, which are what we now call *Moreſco's*; but that Religious, who had a Genius for Painting, ſtain'd his Woods with Dyes or boiled Oils, which penetrated them. But he went no further, than the repreſenting Buildings and Perſpectives, which require no great Variety of Colours. Thoſe who ſucceeded him, not only improved on the Invention of dying the Woods, by a Secret which they found of burning them without conſuming, which ſerved exceedingly well for the Shadows; but had alſo the Advantage of a number of fine new Woods of naturally bright Colours, by the Diſcovery of *America*. With theſe Aſſiſtances the Art is now capable of imitating any thing; whence ſome call it the *Art of Painting in Wood*.

The Ground whereon the Pieces are to be arranged and glued, is ordinarily of Oak or Fir well dried; and to prevent warping, is compoſed of ſeveral Pieces glued together. The Wood to be uſed being reduced into Leaves, of the Thickneſs of a Line, is either ſtain'd with ſome Colour, or made black for Shadow; which ſome effect, by putting it in Sand extremely heated over the fire, others by ſteeping it in Lime-Water and Sublimate, and others in Oil of Sulphur. Thus colour'd, the Contours of the Pieces are form'd, according to the Parts of the Deſign they are to repreſent. This laſt is the moſt difficult part of *Marquetry*, and that wherein moſt Patience and Attention are required. The two chief Inſtruments uſed herein, are the Saw and the Vice; the one, to hold the Matters to be form'd; the other, to take off from the Extremes, according to occaſion. The Vice is of Wood, having one of its Chaps fix'd, the other moveable, and is open'd and ſhut by the Foot, by means of a Cord faſten'd to a Treadle. Its Structure is very ingenious, yet ſimple enough, and will be eaſily conceived from the Figure (*Tab. Miſcellany, fig.* 1.) The Leaves to be form'd (for there are frequently three or four of the ſame Kind form'd together) are put within the Chaps of the Vice, after being glued on the outermoſt part of the Deſign, whoſe Profile they are to follow; then the Workman preſſing the Treadle, and thus holding faſt the Piece, with his Saw runs over all the Out-lines of the Deſign. By thus joining and forming three or four Pieces together, they not only gain time, but the Matter is likewiſe the better enabled to ſuſtain the Effort of the Saw; which, how delicate ſoever it may be, and how lightly ſoever the Workman may conduct it, without ſuch a Precaution, would be apt to raiſe Splinters, to ruin the Beauty of the Work.

When the *Marquetry* is to conſiſt of one ſingle kind of Wood, or of Tortoiſe-ſhell, on a Copper or Tin Ground, or *vice verſa*; they only form two Leaves on one another, *i. e.* a Leaf of Metal, and a Leaf of Wood or Shell: this they call ſawing in Counter-parts; for by filling the Vacuities of one of the Leaves by the Pieces coming out of the other, the Metal may ſerve as a Ground to the Wood, and the Wood to the Metal.

All the Pieces thus formed with the Saw, and marked, to know 'em again, and the Shadow given in the manner already mention'd, they vaneer or faſten each in its Place on the common Ground; uſing for that purpoſe the beſt *Engliſh* Glue. The whole is put in a Preſs to dry, planed over, and poliſh'd with the Skin of the Sea-Dog, Wax, and Shave-Graſs, as in ſimple Vaneering, which ſee. With this Difference, however, that in *Marquetry* the fine Branches, and ſeveral of the more delicate Parts of the Figures, are touch'd up and finiſh'd with a Graver. 'Tis the Cabinet-Makers, Joiners, and Toy-Men, among us, who work in *Marquetry*; 'tis the Enamellers and Stone-Cutters, who deal in *Moſaic* Work: the Inſtruments uſed in the former are moſtly the ſame with thoſe uſed by the Eboniſts. See Ebony. See alſo Moſaic.

MARQUETTE; a Right or Due which the Women formerly paid to the King or Lord, to ranſom themſelves from an infamous Cuſtom, which obliged them to paſs the firſt Night of their Nuptials with their Lords. This Eſtabliſhment is attributed to King *Malcolm* or *Malcolumbe*; and was ſuppreſs'd by *Malcolm* III. Some derive the Word *Marquette* from Marc, becauſe the Fee of *Marquette* was half a Silver Marc.

MARQUISS, properly ſignifies a Title given to a Perſon in poſſeſſion of a conſiderable Demeſne, erected into a *Marquiſate* by Letters Patents; holding a middle Place between the Dignity of a Duke, and that of an Earl or Count. *Marquiſſes* were antiently Governours of Frontier Cities or Provinces, called *Marches*. See Nobility, Peer, *&c.*

According to ſome Authors, the Word *Marquiſs* comes from the *Marcomans*, an antient People who inhabited the Marche of *Brandenbourg*. Others derive it from the *German Marck*, Limit; and others from *Marciſia*, which in the *Celtic* Language, ſignify'd a Wing of Cavalry. *Nicod* derives it from the corrupt *Greek* νομάρχια, Province. *Alciat* and *Fauchet* bring it from *Mark*, Horſe, taking a *Marquiſs* to be properly an Officer of Horſe. *Menage* derives it from *Marca*, Frontiere; and *Selden*, *Krantzius* and *Hottoman* do the ſame. Laſtly, *Paſquier* fetches the Etymology of *Marquiſs* from the old *French Marche*, Limit, or from *Marchier*, to confine; the Guard of the Frontiers being committed to them.

The word *Marquiſs* is *French*; the *Romans* were unacquainted with it. In the *Notitia Imperii* they are called *Comites Limitanei*. *Alciat* has ſtarted a Queſtion, whether a *Marquiſs* or Count ſhould have the Precedence. To decide it, he goes back to the antient Function of Counts, and obſerves, that Counts, who are Governours of Provinces, are above *Marquiſſes*, who are only Governours of Frontiers; and that *Marquiſſes*, who are Governours of Frontier-Cities, are above Counts, who are Governours of ſmall Towns. He adds, that in conſequence of this Diſtinction, the Book of Fiefs ſometimes places *Marquiſſes* above Counts, and ſometimes Counts above *Marquiſſes*. *Froiſſart* obſerves, that the *Marquiſat* of *Juliers* was erected into a County. But now-a-days, neither *Marquiſſes* nor Counts are any longer Governours; and as they are mere Titles of Honour, the Counts make no ſcruple of reſigning the Precedency. King *Richard* the Second was the firſt who introduced *Marquiſſes* in *England*; till that time, the Frontiers had been governed by Lords Marches. See Count, Duke, *&c.*

MARRIAGE, a Civil and Religious Contract, by which a Man is join'd and united to a Woman. The Eſſence of *Marriage* conſiſts in the mutual Conſent of the Parties. *Marriage* is part of the Law of Nations, and is in uſe among all People. The *Romaniſts* account it a Sacrament. The Woman, with all her moveable Goods, immediately upon *Marriage*, paſſes wholly *in Poteſtatem Viri*, into the Power and Diſpoſal of the Husband. See Wife, Affinity, Degree, *&c.* *Sanchez*, *Bonacina*, and *Bower*, have wrote on the Subject of *Marriage*.

In *Germany* they have a kind of *Marriage* call'd *Marganatic*, wherein, a Man of Quality contracting with a Woman of inferior Rank, he gives her the left Hand in lieu of the right, and ſtipulates in the Contract, that the Wife ſhall continue in her former Rank or Condition, and that the Children born of them, be of the ſame; ſo that they become Baſtards as to Matters of Inheritance, tho legitimate in effect: They cannot bear the Name or Arms of the Family. None but Princes, and great Lords of *Germany*, are allow'd this kind of *Marriage*. The Univerſities of *Leipſic* and *Jena* have declared againſt the Validity of ſuch Contracts, maintaining that they cannot prejudice the Children, eſpecially when the Emperor's Conſent intervenes in the *Marriage*.

kind

The *Turks* have three Kinds of *Marriages*, and three Sorts of Wives; *Legitimate*, *Wives in Kebim*, and *Slaves*. They marry the firſt, hire the ſecond, and buy the third.

Duty of Marriage; a Term uſed in ſome antient Cuſtoms, ſignifying an Obligation to *Marriage*. To underſtand this, it muſt be obſerved, that old Maids, and Widows above ſixty, who held Fees in Body, or were charged with any Perſonal or Military Services, were antiently obliged to marry, to render thoſe Services to the Lord by their Husbands, or to indemnify the Lord, which they could not do in Perſon. And this was call'd, *Duty* or *Service of Marriage*.

The *Roman* Laws ſpeak of ſecond *Marriages* in very hard and odious Terms. *Matre jam ſecundis Nuptiis funeſtata*, *L.* 3. *C. de ſec. Nuptiis.* By theſe Laws it was enacted, that the Effects of the Husband or Wife deceaſed ſhould paſs over to the Children, if the Survivor ſhould marry a ſecond time. By the Law *Hac Edictali Cod. de ſec. Nup.* the Survivor, upon *Marrying* a ſecond time, could not give the Perſon they married, a Portion more than equal to that of each of the Children. In the Primitive Church, the Reſpect to Chaſtity was carry'd ſo high, that a ſecond

Marriage was accounted no more than a lawful Debauch, or a Species of Bigamy. There are ſome antient Canons which forbid the Eccleſiaſtics from being preſent at ſecond *Marriages*.

MARRIAGE, in Law, ſignifies not only the lawful joining of Man and Wife, but alſo the Right of beſtowing a Ward or a Widow in *Marriage*, and the Land given in *Marriage*.

For the Proportions which *Marriages* bear to Births, and Births to Burials in ſeveral Parts of *Europe*, Mr. *Derham* gives us the following Table.

Names of Places.	*Marriages to Births, as*	*Births to Burials, as*
England in General	1 to 4.63	1.12 to 1
London	1 to 4.	1 to 1.1
Hantſhire, from 1569 to 1658	1 to 4.	1.2 to 1
Tiverton in *Devon.* from 1656 to 1664	1 to 3.7.	1.26. to 1
Cranbrook in *Kent*, 1560 to 1649	1 to 3.9.	1.6 to 1
Aynho in *Northamp.* for 118 Years	1 to 6	1.6 to 1
Upminſter in *Eſſex*, for 100 Years	1 to 4.6	1.8 to 1
Frankfort on the *Main* in 1695	1 to 3.7	1.2 to 1
Old, *Middle*, and *Lower Marck*, in 1698	1 to 3.7	1.9 to 1
Dominions of Elect. of *Branden.* 1698	1 to 3.7	1.5 to 1
Breſlaw in *Sileſia*, from 1687 to 91		1.6 to 1
Paris in 1670, 1671, 1672	1 to 4.7	1.6 to 1

From which Table it appears, that *Marriages*, one with another, do each produce about four Births, both in *England* and other Parts of *Europe*. And by Mr. *King*'s Computation, about 1 in 104 Perſons marry; the Number of People in *England* being eſtimated at five Millions and a half, whereof about 41000 annually marry.

Major *Graunt* and Mr. *King* diſagree in the Proportions between Males and Females, the latter making 10 Males to 13 Females in *London*; in other Cities and Towns, and in the Villages and Hamlets, 100 Males to 99 Females. But Major *Graunt*, both from the *London* and Country Bills, computes that there are in *England* 14 Males to 13 Females; whence he juſtly infers, that the Chriſtian Religion, prohibiting Polygamy, is more agreeable to the Law of Nature than *Mahumetiſm*, and others that allow it. This Proportion of Males to Females Mr. *Derham* thinks pretty juſt, being agreeable to what he had obſerved himſelf. In the 100 Years, for inſtance, of his own Pariſh Regiſter of *Upminſter*, tho the Burials of Males and Females were nearly equal, being 633 Males, and 623 Females in all that time; yet there were baptized 709, and but 675 Females, which is 13 Females to 13.7 Males. From which Inequality it appears, that one Man ought to have but one Wife, and yet that every Woman, without Polygamy, may have a Husband; this Surpluſage of Males above Females being ſpent in the Supplies of War, the Seas, &c. from which the Women are exempt. That this is a Work of Providence, and not of Chance, is well made out by the very Laws of Chance, by Dr. *Arbuthnot*: Who ſuppoſes *Thomas* to lay againſt *John*, that for eighty-two Years running, more Males ſhall be born than Females; and giving all Allowances in the Computation to *Thomas*'s Side, he makes the Odds againſt *Thomas*, that it does not ſo happen to be near five Millions of Millions of Millions of Millions to one; but for Ages of Ages, according to this World's Age, to be near an infinute Number to one. See BIRTHS and BURIALS.

MARROQUIN, vulgarly MOROCCO, the Skin of a Goat, or ſome other Animal reſembling it, and call'd *Menon*, frequent in the *Levant*; dreſs'd in Sumac or Galls, and colour'd of any Colour at pleaſure, much uſed in Tapiſtry, Book-Binding, &c. The Name is ordinarily derived from the Kingdom of *Morocco*, whence 'tis ſuppoſed the Manner of preparing them was firſt borrow'd. We have *Morocco* Skins brought from the *Levant*, *Barbary*, *Spain*, *Flanders*, and *France*; red, black, yellow, blue, &c. The various Manners of preparing *Morocco's*, both Black and in Colours, are ſo curious and uſeful, and withal ſo little known among us, that the Publick will not be diſpleaſed to find them here.

Manner of preparing black Morocco. The Skins having been dried in the Hair, are ſteep'd in clear Water three Days and Nights, ſtretch'd on a wooden Horſe or Leg, like that uſed by Tanners, beaten with a large Knife for the purpoſe, and ſteep'd a-freſh in Water, chang'd daily till they be well come again. In this State they are thrown into a large Vat in the Ground, full of Water, wherein Quick-Lime has been ſlaked, where they lie 15 Days; whence, however, they are taken, and again return'd every Night and Morning: They are then thrown into a freſh Vat of Lime and Water, and ſhifted Night and Morning, as before, for 15 Days longer; then rinſed in clear Water, and the Hair taken off, on the Leg, with the Knife; return'd into a third Fat, and ſhifted as before for about 18 Days; ſteep'd 12 Hours in a River, taken out, rinſed, put in Pails, where they are pounded with wooden Peſtles, changing the Water twice: then laid on the Horſe, and the Fleſh taken off, return'd into Pails of new Water, taken out, and the Hair-ſide ſcraped; return'd into freſh Pails, taken out, and thrown into a Pail of a particular Form, having Holes at bottom: here they are beaten the ſpace of an hour, and freſh Water pour'd on from time to time; ſtretch'd on the Leg, and ſcraped on either Side, return'd into Pails of freſh Water; taken out, ſtretch'd up all around in manner of Bags, leaving out the hind Legs, which ſerve as a Mouth for the Conveyance of a Mixture mention'd hereafter. The Skins thus ſew'd, are put in luke-warm Water, where Dogs Excrement has been diſſolved. Here they are ſtirred with long Poles half an hour, left at reſt a dozen, taken out, rinſed in freſh Water, and fill'd by a Tunnel with a Preparation of Water and Sumac, mix'd and heated over the Fire till ready to boil; and as they are fill'd, the hind Legs are ſewed up, to ſtop the Paſſage. In this State they are let down into the Veſſel of Water and Sumac, and kept ſtirring four hours ſucceſſively, taken out, and heap'd on one another; after a little time, their Sides changed: and thus they continue an hour and half, till drain'd. This done, they are looſen'd, and fill'd a ſecond time with the ſame Preparation, ſew'd up again, and kept ſtirring two hours, piled up and drain'd as before. This is again repeated a third time, with this Difference, that they are now only ſtirred a quarter of an hour; after which, they are left till the morrow morning, when they are taken out, drain'd on a Rack, unſewed, the Sumac taken out, folded in two from Head to Tail, the Hair-ſide outwards, laid over each other on the Leg, to perfect their Draining, ſtretch'd out, and dried; then trampled under foot by two and two, ſtretch'd on a wooden Table, what Fleſh and Sumac remains ſcraped off, and the Hair-ſide rubbed over with Oil, and that again with Water. Having thus received their Oil and Water, they are twiſted in the Hands, then ſtretch'd and preſs'd tight on the Table with an Iron Inſtrument like that of the Curriers, the Fleſh-ſide uppermoſt; then turn'd, and the Hair-ſide rubb'd ſtrongly over with a handful of Ruſhes, to ſqueeze out as much of the Oil remaining within as poſſible. The firſt Courſe of Black is now laid on the Hair-Side, by means of a Lock of Hair twiſted and ſteep'd in a kind of black Dye, prepared of ſour Beer, wherein Pieces of old ruſty Iron have been thrown. When half dry by hanging in the Air, they are ſtretch'd on a Table, and rubb'd over every way with a Paumelle, or wooden Inſtrument, with Teeth to raiſe the Grain, over which is paſs'd a light Couche of Water, then ſleek'd, by rubbing them with Ruſhes prepared for the purpoſe. Thus ſleek'd, they have a ſecond Couch of Black, then dried, laid on the Table, rubb'd over with a Paumelle of Cork, to raiſe the Grain again; and after a light Couche of Water, ſleek'd over anew, and to raiſe the Grain a third time, a Paumelle of Wood uſed. After the Hair-ſide has thus received all its Preparations, the Fleſh-ſide is pared with a ſharp Knife for the purpoſe; the Hair-ſide rubb'd ſtrongly over with a woollen Cap, having firſt given it a Luſtre with Barberries, Citron, or Orange. The whole is finiſh'd, by raiſing the Grain lightly for the laſt time with the Paumelle of Cork, which leaves them in a Condition for Sale and Uſe.

Manner of preparing red Morocco. The Skins are ſteep'd twenty-four hours in a River, taken out, ſtretch'd on the Leg, beat with the Knife, return'd into the Water for twenty-four hours, re-beaten on the Leg, re-ſteep'd; thrown into a Fat, and for three Weeks, taken out and return'd every Morning, to diſpoſe them to peel. Being taken out for the laſt time, they are ſcraped with the Knife, and when the Hair is quite off, thrown in Pails of freſh Water, where they are rinſed; then the Fleſh-ſide ſcraped, thrown into the Pails, and thus alternately from the Leg to the Pails, till they leave the Water quite clean: then they are put in lukewarm Water, with the Experiment as before, and after twelve hours, rinſed in clear Water, and ſcraped on the Leg on both Sides, pounded in Pails, and the Water changed three times; then wrung and ſtretch'd on the Leg, and paſs'd after each other into Water, with Alum diſſolved in it. Thus alum'd, they are left to drain till the Morning, then wrung out, pull'd on the Leg, and folded from Head to Tail, the Fleſh inwards. In this State they receive their firſt Dye, by paſſing them after one another into a red Liquor, prepared with *Lacca*, and ſome other Ingredients, kept ſecret among the *Maroquineers*. This they repeat again and again, till the Skins have got their firſt Colour. They are then rinſed in clear Water, ſtretch'd on the Leg, and left to drain twelve Hours; thrown into Water, into which white Galls pulveriz'd have been paſs'd thro a Sieve, and ſtirred inceſſantly for a day with long Poles, taken out, hung on a Bar a-croſs the Water all night, White againſt Red, and Red againſt White, and in the Morning the Water ſtirred up, and the Skins return'd into it for twenty-four Hours.

MARROW, a delicate Subſtance contain'd in the Cavities of the Bones. All the Bones of the Body, which have any conſiderable Thickneſs, have either a large Cavity, or are ſpongeous, and full of little Cells; in both the one, and the other, is an oleaginous Subſtance, call'd *Marrow*, contain'd in proper Veſicles or Membranes, which open into one another. In the larger Bones, this fine Oil, by the gentle Heat of the Body, is exhaled thro the Pores of its ſmall Bladders, and enters ſome narrow Paſſages, which lead to ſome fine Canals, excavated in the Subſtance of the Bone, according to its Length; and from theſe, other croſs Paſſages (not directly oppoſite to the former, leſt they ſhould weaken the Bone too much in one Place) carry the Marrow ſtill farther into more longitudinal Canals, placed nearer the Surface of the Bone: All this Contrivance is, that the *Marrow* may ſupple the Fibres of the Bones, and render them leſs apt to break. The Antients imagin'd, that *Marrow* ſerv'd for Nouriſhment to the Bones. But later Obſervations have found Blood-Veſſels in the Bones; ſo that it appears the Bones are nouriſh'd in the ſame manner as the other Parts of the Body. Beſides, we find many Bones which grow, and yet have no *Marrow* in them; witneſs the Horns of Deer, Lobſters Claws, *&c.* See MEDULLA.

MARS, among Chymiſts, ſignifies Iron, becauſe imagin'd under the Influence of that Planet. See IRON. Phyſical Writers prove Iron preferable for all Medicinal Purpoſes to Steel, which is only a more harden'd, compact Iron, made ſo by Art; whereby it is rendred more unfit to yield thoſe Principles or Parts in Preparation, which the Phyſician requires to be drawn out. For the Operation of its Medicinal Properties, ſee CHALYBEAT.

MARS, in Aſtronomy, one of the five Planets, and of the three ſuperior ones; its Place being between the *Sun* and *Jupiter*: See PLANET, and SYSTEM. Its Character is ♂. Its mean Diſtance from the Sun is 1524 of thoſe Parts, whereof the Diſtance of the Sun from the Earth is 1000. Its Excentricity 141. The Inclination of its Orbit, that is, the Angle form'd by the Plane of its Orbit with the Plane of the Ecliptic, 1 Deg. 52 Min. The periodical Time, in which it makes its Revolution round the Sun, *686* Days 23 Hours. Its Revolution about its own Axis is perform'd in 24 Hours 40 Minutes. For the Diameter of *Mars*, ſee DIAMETER, and SEMIDIAMETER. For its Denſity, ſee DENSITY. For the Force of Gravity on its Surface, ſee GRAVITY. Its Parallax, according to Dr. *Hook* and Mr. *Flamſtead*, is ſcarce 30 Seconds.

In the Achronical Riſing of this Planet, that is, when it is in oppoſition to the Sun, it is found twice as near the Earth as the Sun; which is a Phænomenon that has extremely diſcredited the *Ptolemaic* Hypotheſis. Dr. *Hook*, in 1665, obſerv'd ſeveral Spots in *Mars*, which having a Motion, he concluded the Planet to turn round its Centre. In 1666, M. *Caſſini* obſerv'd ſeveral Spots in the two Faces or Hemiſpheres of *Mars*, which, by continuing his different Obſervations very diligently, he found to move by little from Eaſt to Weſt, and to return in the ſpace of 24 Hours 40 Minutes to their former Situation. Whence both the Motion and Period, or natural Day of that Planet, was determin'd. *Mars* always appears with a ruddy, troubled Light; whence we conclude it is encompaſs'd with a thick, cloudy Atmoſphere, which, by diſturbing the Rays of Light in their Paſſage and Re-paſſage thro it, occaſion that Appearance. *Mars* having his Light from the Sun, and revolving round it, has an Increaſe and Decreaſe like the Moon. It may alſo be obſerved almoſt biſſected, when in its Quadratures with the Sun, or in his Perigæon, but never corniculated or falcated, as the inferior Planets. See PHASES.

This Planet's Diſtance from the Sun, is to the Diſtance of the Earth and Sun, as 1½ to 1. So that a Man placed in *Mars*, would ſee the Sun's Diameter leſs by one third than it appears to us, and conſequently the Degree of Light and Heat, which *Mars* receives from the Sun, is leſs by one third than that received by the Earth: This Proportion, however, will admit of a ſenſible Variation, on account of the great Excentricity of this Planet.

Tho the Period or Year of this Planet, as has been already obſerved, is nearly twice as long as ours, and his natural Day, or the Time in which the Sun appears above his Horizon (ſetting aſide the Conſideration of Twilight) is almoſt every where equal to his Night; yet it appears, that in one and the ſame Place on his Surface, there will be but very little Variety of Seaſons, ſcarce any Difference of Summer and Winter. And the reaſon is, that the Axis of his Diurnal Rotation is nearly at right Angles with the Plane of his Orbit. It will be found, notwithſtanding, that Places ſituate in different Latitudes, that is, at different Diſtances from his Equator, will have very different Degrees of Heat, on account of the different Inclination of the Sun's Rays to the Horizon; as 'tis with us, when the Sun is in the Equinoxes. From this Conſideration, Dr. *Gregory* endeavours to account for the Appearance of the *Faſciæ* in *Mars*; which are certain Swathes or Fillets ſeen in this Planet, and poſited parallel to his Equator. For, as among us, the ſame Climate has at different Seaſons very unequal Degrees of Heat; but in *Mars* it is otherwiſe, the ſame Parallel having always a pretty equable Degree of Heat: It follows, that theſe Spots may probably be form'd in *Mars*, or his Atmoſphere, as Snow and Clouds are in ours, *viz.* by the conſtant different Intenſions of Heat and Cold in the different Parallels; and ſo come to be extended in Circles or Belts parallel to his Equator, or the Circle of his Diurnal Revolution. And this ſame Principle may, perhaps, ſolve the Phænomenon of *Jupiter*'s Belts; that Planet, like *Mars*, having a perpetual Equinox. See JUPITER.

Beſides the ruddy Colour of *Mars*, we have another Argument of his being incompaſs'd with an Atmoſphere; and it is this, That when any of the fix'd Stars are ſeen near his Body, they appear extremely obſcured, and almoſt extinct. If this be the Caſe, an Eye placed in *Mars* would ſcarce ever ſee *Mercury*, unleſs perhaps in the Sun at the time of Conjunction, when *Mercury* paſſes over his Disk, as he ſometimes appears to us in form of a Spot. A Spectator in *Mars* will ſee *Venus* about the ſame Diſtance from the Sun that *Mercury* appears to us; and the Earth about the ſame Diſtance from the Sun, that to us *Venus* appears. And when the Earth is found in Conjunction with, and very near the Sun, he will ſee in *Mars* what *Caſſini* ſaw on Earth, *viz.* the Earth appear horned or falcated, and its Attendant the Moon of the ſame Figure, and at its utmoſt Diſtance from the Earth, not above 15 Minutes of a Degree.

MARS, among the Aſtrologers, is held a Malific Planet. They call it the *little Unfortunate*; it is maſculine, nocturnal, hot and dry.

Games of MARS, were Combats inſtituted at *Rome* in honour of the God *Mars*. They were held twice in the Year; once in the *Circus*, on the 4th of the Ides of *May*; and a ſecond time on the 1ſt of *Auguſt*. Theſe were eſtabliſh'd, ſome time after the firſt, in memory of the Dedication of the Temple of *Mars* on that Day.

Theſe Games conſiſted in the Courſes of Horſes, and Combats with wild Beaſts. *Germanicus* is ſaid to have kill'd two hundred Lions in the *Circus* on theſe Occaſions.

CROCUS MARTIS, is the Ruſt of Iron; or Iron in an impalpable Powder. The Alchymiſts ſometimes call their Mercury by the Name of *Mars*.

MARSHAL: With us there are ſeveral Officers of this Name, the Chief whereof is the *Earl-Marſhal* of *England*, who is one of the Great Officers of the Crown. He takes Cognizance of all Matters of War and Arms, determines Contracts touching Deeds of Arms out of the Realm upon Land, and Matters concerning War within the Realm, which cannot be determin'd by Common Law, in which he uſually proceeds according to the Civil Law. This Office is Hereditary, having been for many Ages in the Houſe of *Norfolk*.

The *Earl-Marſhal* had antiently ſeveral Courts under him, but hath now only the *Marſhalſea*, where he may ſit in Judgment againſt Criminals offending within the Verge of the Court.

There are other inferior Officers of this Name; as *Marſhal* of the Juſtices in Eyre; *Marſhal* of the King's-Bench, who has Cuſtody of the Priſon, call'd the *King's-Bench*, in *Southwark*. *Knight-Marſhal*, an Officer in the *Marſhalſea*, under whom are the *Marſhal*'s Men, who are properly the King's Bayliffs, and arreſt in the Verge of the Court, when a Warrant is back'd by the Board of Green-Cloth. The Court where Cauſes of this kind, between Man and Man, are tried, is call'd the *Marſhalſea*, and is under the *Knight-Marſhal*. In *Fleta* mention is made of a *Marſhal* of the King's Hall; a *Marſhal* of the Exchequer, to whom the Court commits the Cuſtody of the King's Debtors, *&c.*

MARSHAL, or Marechal, of *France*; the Name of an Officer of the Crown, who commands the Armies. The Dignity of *Marſhal* is now for Life, tho at its firſt Inſtitution it was otherwiſe. They were then only the King's firſt Ecuyers under the Conſtable, but in Time they became the Conſtables Lieutenants in the Command of the Army, the Conſtable himſelf being then become Captain-General. At firſt they were but two in number, and their Allowance was but 500 Livres *per Annum* in Time of War, and nothing in Time of Peace. In the Reign of *Francis* the Firſt, their Number was increaſed to five; ſince him it has been various: the late King increaſed it at pleaſure; and it is now eleven. Their Office at firſt was to *marſhal* the Army under the Conſtable, and to command in his Abſence. They did then what the *Marſhals de Camp* do now; to which laſt they have given their Title, and the leaſt conſiderable Part of their Authority. The firſt *Marſhal* does the Office of Conſtable in an Aſſembly of the *Marſhals*.

Nicod derives the Word *Marſhal* from *Polemarchus*, Maſter of the Camp: *Matthew Paris* from *Martis Seneſcallus*. In the old *Gauliſh* Language, *March* ſignify'd Horſe, whence *Marechal* might ſignify him who commanded the Cavalry. *Menage* derives it from *Mareſchalus*, which is compoſed of *Marok* or *Marak*, Horſe, and *Schalk*, powerful; or, according to *Cluverius*, Servant: Which makes ſome imagine, the Title was firſt given to Farriers, or thoſe who ſhoe'd and bled Horſes; and that in Succeſſion of Time, it paſſed to thoſe who commanded them. *Paſquier* makes four ſeveral Derivations for the four ſeveral Kinds of *Marſhals*, viz. *Marſhals* of *France*, *Marſhals de Camp*, *Marſhals de Logis*, or Quarter-Maſters, and Farriers, who are call'd by the Name of *Marſhals*. The third he derives from *Marche* or *Marchir*, to mark, limit; and the laſt from *Maire*, Maſter, and *Chal*, Horſe.

MARSHALLING *a Coat of Arms*, in Heraldry, ſignifies the due and proper joining of ſeveral Coats of Arms in one and the ſame Shield or Eſcutcheon, together with their Ornaments, Parts, and Appurtenances. See Arms.

MARTIAL, is ſometimes uſed to expreſs Preparations of Iron, or ſuch as are impregnated therewith; as the *Martial* Regulus of Antimony, *&c.* See Antimony.

MARTIAL LAW, is the Law of War, depending upon the King's pleaſure, or his Lieutenant in Times of War: For the King, in Time of Peace, never makes any Laws, but by common Conſent in Parliament; yet in War he uſeth abſolute Power: But even this Power hath been inveſted of late Years in the King, or his Generals of the Army, by Act of Parliament, and under particular Reſtrictions too. See Law.

MARTINGALE; a Thong of Leather faſten'd at one end to the Girths under the Belly of a Horſe, and at the other end to the Muſſroll, to hinder him from rearing.

MARTLET; a Term in Heraldry for a Pigeon, with its Feet eraſed, or torn off: It is uſed for the Difference or Mark of Diſtinction in an Eſcutcheon for the fourth Brother, or Family.

MARTYR, a Perſon who ſuffers Torments, and even Death, in Defence of the Truth of the Goſpel. St. *Stephen* is call'd the *Proto-Martyr*, or firſt *Martyr*. 19700 Perſons are computed to have ſuffer'd *Martyrdom* with St. *Irenæus* at *Lions*, under the Empire of *Severus*. *6666* Soldiers of the *Theban* Legion are ſaid to have been *martyr'd* in *Gaul*. Father *Papebroch* reckons 16000 *Abyſſinian Martyrs*, and 150000 others under *Diocleſian* alone. Antiently thoſe who were baniſh'd for the Faith, were call'd *Martyrs*, as well as thoſe who periſh'd in the Holy Wars. In the Time of St. *Auguſtin*, the Title of *Martyrs* was given to Confeſſors, or thoſe who were tortured for the Faith without loſing their Lives. 'Tis *Tertullian*'s Thought, in his Apologetic; *Plures efficimur, quoties metimur; Semen eſt Sanguis Chriſtianus.*

The Word *Martyr* is *Greek*, μάρτυς, and properly ſignifies a Witneſs. Thus it is apply'd, by way of Eminence, to thoſe who ſuffer in witneſs of the Truth of the Goſpel. In the antient Church, the Acts, Sufferings, and Deaths of the *Martyrs* were preſerved with a world of Care; and yet, maugre all this Diligence, we have but very little left of them. *Euſebius* indeed compoſed a Martyrology, but it never reach'd down to us; and thoſe ſince compiled, are extremely ſuſpected. See Martyrology. Mr. *Dodwell* endeavours to prove, in a Diſſertation expreſly for that purpoſe, That the Number of *Martyrs* who ſuffer'd under the *Roman* Emperors, was very moderate; alledging, That thoſe we have Accounts of in the Fathers, come in a very ſmall Compaſs; and that, excepting *Nero* and *Domitian*, the reſt of the Emperors made ſcarce any. *T. Ruinard*, on the contrary, endeavours to prove, That the Catalogue of *Martyrs* is not at all ſwelled; That the Carnage was immenſe under the firſt Emperors, and eſpecially in that of *Diocleſian*. F. *Papebroch*, in his *Acta Sanctorum*, makes the Number of *Martyrs* infinite. Scarce any Faith or Religion, but pretends to its *Martyrs*. *Mahometans*, Heathens, Idolaters, *&c.* See Saints.

The Æra of Martyrs is an Æra follow'd in *Egypt* and *Abyſſinia*; and which even the *Mahometans*, ſince their becoming Maſters of *Ægypt*, frequently obſerve. It is fix'd to the beginning of the Perſecution of *Diocleſian*, *A. D.* 302 or 303. The Æra of *Martyrs* is alſo call'd the Æra of *Diocleſian*. See Epocha.

MARTYROLOGY, a Catalogue or Liſt of Martyrs. A *Martyrology*, properly ſpeaking, ſhould contain no more than the Name, Place, and Day of Martyrdom of each Saint; but the Term is frequently apply'd to the Hiſtories of Martyrs. The Cuſtom of collecting *Martyrologies*, is borrow'd from the Heathens, who inſerted the Names of their Heroes into their *Faſti*, to preſerve to Poſterity the Memory and Example of their noble Actions. *Baronius* gives Pope *Clement* the Credit of being the firſt who introduced the Cuſtom of collecting the Acts of the Martyrs. The *Martyrology* of *Euſebius* of *Cæſarea* was the moſt celebrated in the antient Church. It was tranſlated into *Latin* by St. *Jerom*; but the Learned agree, that it is not now extant. That attributed to *Beda* in the 8th Century, is of very doubtful Authority; the Names of ſeveral Saints being there found, who did not live till after the Time of *Beda*. The 9th Century was very fertile in *Martyrologies*. Then appear'd that of *Florus*, Sub-Deacon of the Church at *Lions*, who, however, only fill'd up the Chaſms in *Beda*. This was publiſh'd about the Year 830. That of *Wandelbertus*, Monk of the Dioceſe of *Treves*, written in Verſe about the Year 848. That of *Uſuard*, a *French* Monk, who wrote by Command of *Charles the Bald*, in 875; which laſt is the *Martyrology* now ordinarily uſed in the *Romiſh* Church. That of *Raban*, which is an Improvement on *Beda* and *Florus*, written about the Year 845. That of *Natker*, Monk of St. *Gal*, written about the Year 894. That of *Adon*, Monk of *Ferrieres*, in the Dioceſe of *Treves*, afterwards Archbiſhop of *Vienna*, is a Deſcendant of the *Roman*, if we may ſo call it; for *Du Sollier* gives its Genealogy thus: The *Martyrology* of St. *Jerom* is the great *Roman*, from this was made the little *Roman*, printed by *Roſweyd*. Of this little *Roman*, with that of *Beda* augmented by *Florus*, *Adon* compiled his in the Year 858. The *Martyrology* of *Nevelon*, Monk of *Corbie*, written about the Year 1089, is little more than an Abridgment of that of *Adon*. Father *Kircher* makes mention of a *Coptic Martyrology*, preſerved by the *Maronites* at *Rome*. We have alſo ſeveral Proteſtant *Martyrologies*, containing the Sufferings of the Reformed under the Papiſts, *viz.* an *Engliſh Martyrology*, by *J. Fox*; with others by *Clark*, *Bray*, &c. The Word comes from the *Greek* μάρτυρ, Witneſs, and λέγω, *dico*, I ſpeak, or λεγω, *colligo*, I gather.

Martyrology, is alſo uſed in the *Romiſh* Church for a Roll or Regiſter kept in the Veſtry, containing the Names of all the Saints and Martyrs, both of the Univerſal Church, and of the Particular Ones of that City or Monaſtery. The Word is alſo apply'd to the painted or written Catalogues in Churches, containing the Foundations, Obits, Prayers, and Maſſes, to be ſaid each Day.

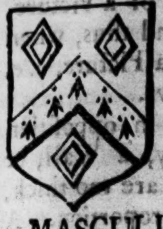
St. MARY; a Name by which ſeveral Orders of Knighthood, ſeveral Orders of Religious, and ſeveral Feaſts, are diſtinguiſh'd. As *St. Mary of the* Thistle, a Military Order. See Thistle. *St. Mary of the Conception*, a Military Order. See Conception. *St. Mary of the Elephant*, a Military Order. See Elephant. *St. Mary and Jeſus*, a Military Order. See Jesus. *St. Mary of Loretto*, a Military Order. See Loretto. *St. Mary of Mount Carmel*, a Military Order. See Carmel. *St. Mary of the Teutonics.* See Teutonic, *&c.*

MASBOTHEAN, or Masbuthean: The Name of a Sect, or rather of two Sects; for *Euſebius*, or rather *Hegeſippus*, whom he cites, makes mention of two different Sects of *Maſbotheans*. The firſt are one of the ſeven Sects that aroſe out of *Judaiſm*, and proved very troubleſome to the Church. They were ſo call'd from *Maſbotheas*, their Author. The others were one of the ſeven *Jewiſh* Sects before the Coming of Jeſus Chriſt. For

Valeſiu

Valeſius won't allow the two to be confounded together: the laſt being a Sect of *Jews* before, or at leaſt cotemporary with Chriſt; and the former a Sect of Heretics deſcended from them. *Rufinus* diſtinguiſhes them by their Names: The *Jewiſh* Sect he calls *Masbutheans*; and the Heretics *Masbuthanians*. The *Masbutheans* were a Branch of the *Simoneans*.

The Word is derived from the *Hebrew* שבת *Schabet*, to *reſt* or *repoſe*, and ſignifies idle, eaſy, indolent People. *Euſebius* ſpeaks of them, as if they had been ſo call'd from *Masbotheus*, their Chief; but 'tis much more probable that their Name is *Hebrew*, or at leaſt *Chaldaic*, ſignifying the ſame thing with a *Sabbatarian* in our Language, that is, one who makes profeſſion of keeping Sabbath.



MASCLE, is a Term in Heraldry for a Bearing of this Figure: Gules a Chevron Ermin between three *Maſcles* Argent, by the Name of *Bellgrave*. *Guillim* ſaith, that *Maſcle* repreſents the Maſh of a Net, and is an honourable Bearing. A *Maſcle* differs from a Lozenge, only by being voided.

MASCULINE, ſomething belonging to the Male, or the ſtronger of the two Sexes. See Male.

MASCULINE, is more ordinarily uſed in Grammar to ſignify the firſt and nobleſt of the Genders of Nouns. The *Maſculine* Gender is that which belongs to the Male Kind, or ſomething analogous to it, and which Cuſtom has affix'd to a Word. For Men conſidering themſelves, and obſerving the Difference between the two Sexes, have thought fit to vary the ſame Adjective Names, by giving them different Terminations, as they are differently apply'd to Men or Women. Thus in *Latin* we ſay *bonus Equus*, a good Horſe, in the *Maſculine*; but ſpeaking of a Mare, we change the Termination, not of the Adjective only, but alſo of the Subſtantive, and ſay, *bona Equa*. In *Engliſh*, however, we are more ſtrict; for we generally expreſs the Difference of Sex by different Words, not by the varying the Termination of the ſame, or by varying the Adjective: As *Boar* in the *Maſculine*, *Sow* in the Feminine; *Boy*, *Girl*; *Brother*, *Siſter*; *Buck*, *Doe*; *Bull*, *Cow*, *&c.* Indeed we have about twenty Feminines diſtinguiſh'd from their *Maſculines*, by the Variation of the Termination of the Male into *eſs*; for inſtance, *Abbot*, *Abbeſs*; *Actor*, *Actreſs*; *Count*, *Counteſs*; *Heir*, *Heireſs*; *Maſter*, *Miſtreſs*, *&c.* And this is all that our Language knows of any thing like the Genders, which are only a different way of expreſſing the Male and the Female. But the old Languages, and even ſome of the Moderns, have gone further; for as ſome Adjectives may have Relations to other Things, beſides Men and Women, it has been thought neceſſary to appropriate to them one or other of the Terminations invented for Men and Women. Hence moſt other Subſtantives have been ranged under the Heads of *Maſculine* or Feminine. This, in ſome Caſes, is done with a ſhew of Reaſon, but in others is merely arbitrary; and for that reaſon is found to vary according to the Languages, and even according to the Words introduced from one Language into another. Thus the Names of Trees are generally Feminine in *Latin*, and *Maſculine* in the *French*: Farther, the Genders of the ſame Word are ſometimes varied in the ſame Language. Thus *Alvus*, according to *Priſcian*, was antiently *Maſculine*, but is now become Feminine. And *Navire*, a Ship, in *French*, was antiently Feminine, but is now *Maſculine*. The modern Tongues have no more than two Genders, *viz.* the *Maſculine* and the Feminine; at leaſt, whatever is not Feminine, is accounted *Maſculine*. See Gender.

The *French*, in their Poetry, have a kind of Rhimes which they call *Maſculine*, to diſtinguiſh them from others, which they call Feminine. The *Maſculine* Rhime is that made with a Word which has a ſtrong, open, and accented Pronunciation; as all Words have, excepting thoſe which have an *e* Feminine in their laſt Syllable: for inſtance, *Amour* and *Jour*, *Mort* and *Sort*, are *Maſculine* Rhimes; and *Pere* and *Mere*, *Gloire* and *Memoire*, are Feminine. Hence Verſes ending with a *Maſuline* Rhime, are call'd *Maſculine* Verſes: and thoſe ending with a Feminine Rhime, Feminine Verſes. 'Tis now a Rule eſtabliſh'd among the *French* Poets, never to uſe above two *Maſculine*, or two Feminine Verſes ſucceſſively, except in the looſer Kinds of Poetry. *Marot* was the firſt who introduced this Mixture of *Maſculine* and Feminine Verſes, and *Ronſard* was the firſt who practiſed it with Succeſs. The *Maſculine* Verſes ſhould always have a Syllable leſs than the Feminine ones. See Rhime.

The Aſtrologers maintain, that the Signs and Planets are really diſtinguiſh'd into *Maſculine* and Feminine; not on account of any Difference of Sex, in their Bodies, or in their Names: but by reaſon of their Qualities, which are either active, hot, or cold, accounted *Maſculine*; or paſſive, dry, and moiſt, which are Feminine. On this Principle they call the *Sun*, *Jupiter*, *Saturn*, and *Mars*, *Maſculine*; and the *Moon* and *Venus*, Feminine. *Mercury*, they ſuppoſe, partakes of the two. Among the Signs, *Aries*, *Libra*, *Gemini*, *Leo*, *Sagittarius*, *Aquarius*, are *Maſculine*; *Cancer*, *Capricornus*, *Taurus*, *Virgo*, *Scorpio*, and *Piſces*, are Feminine.

Plants are likewiſe diſtinguiſh'd into *Maſculine* and Feminine. The *Maſculine* are thoſe which have a greater ſhare of Heat and Virtue.

MASON, a Perſon employ'd under the Direction of an Architect, in the raiſing of a Stone-Building. The chief Buſineſs of a *Maſon*, is to make the Mortar, raiſe the Walls from the Foundation to the Top, with the neceſſary Retreats and Perpendiculars, form the Vaults, and employ the Stones as deliver'd to him. When the Stones are large, the Buſineſs of hewing or cutting them belongs to the Stone-Cutters; tho theſe are frequently confounded with the *Maſons*. The Ornaments of Sculpture are perform'd by Carvers in Stone, or Sculptors. For the Materials whereon *Maſons* work, ſee Stone, Marble, *&c.* For the Manner of Working, ſee Masonry, Building, *&c.* For their Works themſelves, ſee Wall, *&c.* The Tools or Implements principally uſed by them, are, the Square, Level, Plumb-Line, Bevel, Compaſs, Hammer, Chiſſel, Mallet, Saw, Trowel, *&c.* which ſee. Beſides the common Inſtruments uſed in the Hand, they have likewiſe Machines for the raiſing of great Burdens, the conducting of large Stones, *&c.* The principal of theſe are the Lever, Wheel, Pully, *&c.* which ſee. *Maſonry* is ſometimes uſed in a more general and unlimited Senſe; ſo as, beſides proper *Maſonry*, to include the hewing or ſawing of larger Stones, to fit them for Building, properly call'd *Stone-Cutting*; and the carving of the Ornaments, on the Members and Mouldings, properly call'd *Sculpture*: which ſee. *Iſidore* derives the Word from *Machio*, a Machiniſt, as being obliged to uſe Machines in Building. Some derive it from *Machino*. *Du Cange* from *Maceria*, becauſe the long Fence-Walls that incloſe Vineyards, *&c.* in which *Maſons* are ſuppoſed to have been firſt employ'd, were call'd *Maceriæ*. *Maſon eſt Maceriarum Conſtructor.* M. *Huet* derives it from *Mas*, an old Word, ſignifying Houſe; hence *Maſon* is a Perſon who makes *Mas's*, that is, Houſes. In the corrupt *Latin*, a *Maſon* was call'd *Magiſter Comacinus*, which *Lindenbroek* derives from *Comacina*, an Iſland in *Romania*, where, in the Time of the *Lombards*, the beſt Architects were found.

MASONRY, a Branch of Architecture, conſiſting, as ſome define it, in the Art of hewing or ſquaring Stones, and cutting them level and perpendicular, for the Uſes of Building: Tho in the more limited Senſe of the Word, *Maſonry* is the Art of aſſembling and joining Stones together with Mortar. Whence there ariſe as many different Kinds of *Maſonry*, as there are different Forms and Manners of laying or joining the Stones. *Vitruvius* makes mention of ſeven Kinds of *Maſonry* among the Antients; three of hew'd Stone, *viz.* that in form of a *Net*, that in *Binding*, and that call'd the *Greek Maſonry*: And three of unhewed Stones, *viz.* that of an *equal* Courſe, that of an *unequal* Courſe, and that fill'd up in the middle. The ſeventh was a Compoſition of all the reſt.

Net Maſonry, call'd *Reticulation*, from its Reſemblance of the Maſhes of a *Net*, conſiſts of Stones ſquared in their Courſes, and ſo diſpoſed, as that their Joints go obliquely, and the Diagonals are, the one perpendicular, and the other level. This is the moſt agreeable *Maſonry* to the Eye, but it is apt to crack. See *Plate* Architecture, *Fig.* 1.

Bound Maſonry, is that wherein the Stones were placed one over another, like Tiles; the Joints of the Beds being level, and the Mounters perpendicular. So that the Joint that mounts and ſeparates two Stones, falls directly over the middle of the Stone below. This is leſs beautiful than the Net-Work, but more ſolid and durable. See *Plate* Arch. *Fig.* 2.

Greek Maſonry, according to *Vitruvius*, is that where, after we have laid two Stones, each of which makes a Courſe, another is laid at the end, which makes two Courſes; and the ſame Order obſerved throughout the Building. This may be call'd *Double Building*, in regard the Binding is not only of Stones of the ſame Courſe with one another, but likewiſe of one Courſe with another Courſe. See *Plate* Arch. *Fig.* 3.

Maſonry by Equal Courſes, by the Antients call'd *Iſodomum*, differs in nothing from the *bound Maſonry*, but only in this, that its Stones are not hewn. See *Plate* Arch. *Fig.* 5.

Maſonry by Unequal Courſes, call'd *Pſeudiſodomum*, is alſo made of unhew'd Stones, and laid in *bound Work*: But then they are not of the ſame Thickneſs, nor is there any Equality obſerved, excepting in the ſeveral Courſes; the Courſes themſelves being unequal to each other. See *Plate* Arch. *Fig.* 4.

Maſonry fill'd up in the Middle, call'd by the Antients *Emplecton*, is likewiſe made of unhew'd Stone, and by

Courſes; but the Stones are only ſet in order as to the Courſes, the Middle being fill'd up with Stones thrown in at random among the Mortar. See *Plate* ARCH. *Fig.* 5.

Compound Maſonry, is of *Vitruvius*'s propoſing; ſo call'd, as being form'd of all the reſt. In this, the Courſes are of hew'd Stone, and the middle Place left void, fill'd up with Mortar and Pebbles thrown in together. After this the Stones of one Courſe are bound to thoſe of another Courſe, with Cramp-Irons faſten'd with melted Lead. See *Plate* ARCH. *Fig.* 6.

All the Kinds of *Maſonry* now in uſe may be reduced to theſe five, *viz. Bound Maſonry*; that of *Brick-Work*, where the Bodies and Projectures of the Stones incloſe ſquare Spaces or Pannels, *&c.* ſet with Bricks: That *de Moilon*, or ſmall Work, where the Courſes are equal, well ſquared, and their Edges or Beds ruſticated: That where the Courſes are unequal; and that fill'd up in the middle with little Stones and Mortar.

FREE, or ACCEPTED MASONS, a very antient Society, or Body of Men, ſo call'd either from ſome extraordinary Knowledge of Maſonry or Building, which they are ſuppoſed to be Maſters of, or becauſe the firſt Founders of the Society were Perſons of that Profeſſion. They are now very conſiderable both for Numbers and Character; being found in every Country in *Europe*, and conſiſting principally of Perſons of Merit and Conſideration. As to Antiquity, they lay claim to a Standing of ſome thouſand Years; and, 'tis ſaid, can trace up their Origin as early as the Building of *Solomon*'s Temple. What the End of their Inſtitution is, ſeems ſtill, in ſome meaſure, a Secret; tho ſo much of it as is known, appears truly good and laudable, as it tends to promote Friendſhip, Society, mutual Aſſiſtance, and Good-Fellowſhip. The Brothers of this Family are ſaid to be poſſeſs'd of a great Number of Secrets, which have been religiouſly obſerv'd from Age to Age: Be their other Virtues therefore what they will, 'tis plain they are Maſters of one in a very great degree, *viz.* Secrecy.

MASQUE, or MASK, a Cover for the Face, contrived with Apertures for the Eyes and Mouth; wore chiefly by Women of Condition, either to preſerve their Complection from the Weather, or out of Modeſty, to prevent their being known. *Poppea*, Wife of *Nero*, is ſaid to be the firſt Inventer of the *Maſque*; which ſhe did to guard her Complection from the Sun and Weather, as being the moſt delicate Woman, with regard to her Perſon, that has been known. *Brantome* obſerves, that the ordinary Uſe of *Maſques* was not introduced till towards the end of the 16th Century. The Word *Maſque* is alſo uſed to ſignify any thing uſed to cover the Eyes, and prevent a Perſon's being known. Thus the Penitents of *Lyons* and *Avignon* hide their Faces with large white Veils, which ſerve 'em for *Maſques*.

MASQUE, in Architecture, is underſtood of certain Pieces of Sculpture, repreſenting ſome hideous Form, Groteſque, or Satyrs Faces, *&c.* uſed to fill up and adorn ſome vacant Places, as in Freezes, the Pannels of Doors, Keys of Arches, *&c.* but particularly in Grotto's.

MASQUERADE, or MASCARADE; an Aſſembly of Perſons mask'd or diſguis'd, meeting to dance and divert themſelves. This is a very common Practice abroad, eſpecially in Carnaval Time. The Word comes from the *Italian Maſcarata*, and that from the *Arabic Maſcâra*, which ſignifies Raillery, Buffoonery.

MASS, in Mechanics, is defined to be the Matter of any Body cohering with it, *i. e.* moving and gravitating along with it; and is diſtinguiſh'd from its Bulk, or Volumn, which is its Expanſion in Length, Breadth, and Thickneſs. The *Maſs* of any Body is rightly eſtimated by its Weight. And the *Maſſes* of two Bodies of the ſame Weight are in a reciprocal Ratio of their Volumes. See MOTION, WEIGHT, MOMENT, *&c.*

MASSALIANS, certain Sectaries, ſo call'd from a *Hebrew* Word ſignifying *Prayer*; it being their diſtinguiſhing Tenet, that a Man is to be continually in Prayer. The *Greeks* call'd them *Euchites*, ευχῖται, which in their Language ſignified the ſame thing. St. *Epiphanius* diſtinguiſhes two Kinds of *Maſſalians*, the Antient and the New. The firſt, according to him, are neither *Jews*, *Chriſtians*, nor *Samaritans*, but pure *Gentiles*; who owning ſeveral Gods, yet adore only one, whom they call Almighty. They had Oratories like our Churches, where they uſed to meet, to pray and ſing Hymns in honour of God; their Oratories being finely illumined with Lamps and Flambeaux. This Deſcription of St. *Epiphanius* comes ſo near the Practice of the *Eſſeni*, that *Scaliger* thinks the two Sects ought not by any means to be diſtinguiſh'd. The *Maſſalians* have gone by the Names of *Enthuſiaſts*, *Euchites*, *Saccophori*, and ſome of them *Martyrians*.

As to the other *Maſſalians*, who were by Profeſſion Chriſtians, their Riſe was not till about the Time of St. *Epiphanius*. Their Doctrine was, that Prayer alone was ſufficient to Salvation. Many Monks, who loved a Life of Lazineſs, and were averſe to Labour, join'd the *Maſſalians*. See EUCHITES.

MASSATER, from *μασσάομαι*, *manduco*, to chew; the Name of a Muſcle, that helps to pull the Jaw upwards in eating: It is thick and ſhort, ariſing from the *Zygoma*, and from the firſt Bone of the upper Jaw, and is inſerted into the lower Edge of the lower Jaw, from its external Angle to its middle. Its Fibres run in three Directions; thoſe from the *Zygoma* obliquely to the middle of the Jaw, and thoſe from the firſt Bone of the upper Jaw croſs the former, and run to the Angle of the lower Jaw; and the Fibres that are in its middle, run perpendicularly from their Origin to their Inſertion.

MASSES, in Painting, are the large Parts of a Picture, containing the great Lights and Shadows; and thus, when it is almoſt dark, we ſee only the *Maſſes* of a Picture, *i. e.* the Places of the greateſt Lights and Shadows.

MASSIVE, ſomething groſs and ſolid, in oppoſition to Tenderneſs and Delicacy. Thus we ſay, a Wall, or a Building, is too *maſſive*, that is, its Walls are too thick, or the Lights and Openings too little in proportion. A *maſſive* Column is that, which is too ſhort for the Order, whoſe Capital it bears.

MASSORA, a Term in the *Jewiſh* Theology, ſignifying a Performance on the Bible by ſeveral learned Rabbins, to ſecure it from any Alterations that might otherwiſe happen; and to ſerve, according to their Expreſſion, as a *Hedge to the Law*. *Buxtorf* defines it a Critique on the *Hebrew* Text, contrived by the antient *Jewiſh* Doctors, in which they have number'd the Verſes, Words, and Letters of the Text, and mark'd all the Variations of it. For the Text of the Sacred Books was originally written without any Breaks, or Diviſions into Chapters, or Verſes, or even into Words. So that a whole Book, in the antient Manner, was but one continued Word; of which kind we have ſtill ſeveral antient Manuſcripts, both *Greek* and *Latin*. In regard the Sacred Writings had undergone an infinite Number of Alterations, whence various Readings had ariſen, and the Original was become mangled and diſguis'd; the *Jews* had recourſe to a Rule, which they judg'd infallible, to fix and aſcertain the Reading of the *Hebrew* Text: and this Rule they call'd *Maſſora*, Tradition; as if this Critique were nothing but a Tradition, which they had receiv'd from their Fore-Fathers. According to *Elias Levita*, it was the *Jews* of a famous School at *Tiberias* who compoſed, or at leaſt begun the *Maſſora*, whence they are call'd *Maſſoretes*. *Aben Eſra* makes them the Authors of the Points and Accents in the *Hebrew* Text, as we now find it, and which ſerve for Vowels. The *Arabs* have done the ſame thing to their *Alcoran*, that the *Maſſoretes* have done to the Bible: Nor do the *Jews* deny their having borrow'd this Expedient from the *Arabs*, who firſt put it in practice in the 7th Century. There is a great and a little *Maſſora*, printed at *Venice*, and at *Baſil*, with the *Hebrew* Text in a different Character. *Buxtorf* has written a *Maſſoretic* Comment, which he calls *Tiberias*.

MASSORETES, *Jewiſh* Doctors, Authors of the *Maſſora*. See MASSORA.

MAST *of a Foreſt*, the Fruit of a Species of Trees, call'd *Glandiferous*, or Maſt-Bearing; as Beech, Oak, Cheſnut, *&c.*

MAST, a large Tree, or Pole, rais'd in Veſſels, for the Cordage and Sails to be faſten'd to, in order to their receiving the Wind neceſſary for Navigation. In large Veſſels, the Number of *Maſts* is four: Their Names are, the *Main-Maſt*, the *Fore-Maſt*, the *Mizen-Maſt*, and the *Boltſprit*. To which ſome add a fifth, *viz.* a *Counter-Mizen*. The *Main-Maſt*, or Maſter-Maſt, is the chief Maſt in the Ship; its Place is in the middle of the Veſſel, and it bears the ſtrongeſt Cordage, and the largeſt Sails. The *Fore-Maſt* is between the *Main-Maſt* and the Head. The *Mizen-Maſt* is between the *Main-Maſt* and the Stern. The *Boltſprit* lies upon the Beak, in the Prow or Head of the Ship. The *Counter-Mizen*, in large Veſſels and Galleons, is in the Stern.

We alſo uſe the Word *Maſt* to ſignify thoſe Diviſions, or additional Pieces in the *Maſts*, placed over one another. The *Main-Maſt*, and *Main-Top-Maſt*, have each of them two, *viz.* the *Main-Maſt*, *Main-Top-Maſt*, *Main-Gallant-Maſt*; the *Fore-Maſt*, *Fore-Top-Maſt*, *Fore-Top-Gallant-Maſt*. The *Mizen-Maſt* has one, *viz.* the *Mizen-Top-Maſt*. The Word *Maſt* ſignifies the ſame thing in *French*, *High Dutch*, *Flemiſh*, and *Engliſh*. The *Italians* ſay *Maſtr*, and the *Spaniards Maſtel*.

For the Proportion of *Maſts*, Sir *H. Manwaring* gives theſe Rules: Whatever the Breadth of a Ship be in Feet, multiply $\frac{4}{5}$ of that Breadth by 30, the Product is the Length of her Main-Maſt in Yards. Thus if a Ship be 30 Foot at the Midſhip-Beam, $\frac{4}{5}$ of 30 is 24; therefore that Ship's Main-Maſt muſt be 24 Yards, or 72 Feet in Length. Then for its Bigneſs, he allows an Inch to every Yard in Length, and therefore this Maſt muſt be 24 Inches thro, or thick. The Fore-Maſt of a Ship muſt be $\frac{4}{5}$ of the Length of the Main-Maſt, that is, in this Caſe, 19 Yards $\frac{1}{5}$ thick, or thro it muſt be near 20 Inches. The Boltſprit is always the ſame Length and Bigneſs with the Fore-Maſt; and the Mizen-Maſt muſt be juſt half the Length of the Main-Maſt, and half as thick.

MASTER; a Title given to ſeveral Officers, and Perſons of Authority and Command, and particularly to the Chiefs of the Orders of Knighthood, *&c.* Thus we ſay, the Grand *Maſter* of *Maltha*, of St. *Lazarus*, of the *Golden Fleece*, of the *Free Maſons*, &c.

The Title *Maſter*, *Magiſter*, was frequent among the *Romans*: They had their *Maſter* of the People, *Magiſter Populi*, who was the Dictator; *Maſter* of the Cavalry, *Magiſter Equitum*, who held the ſecond Poſt in an Army after the Dictator. Under the later Emperors there were alſo *Maſters* of the Infantry, *Magiſtri Peditum*. A *Maſter* of the *Cenſus*, *Magiſter Cenſi*, who had nothing of the Charge of a Cenſor or Sub-Cenſor, as the Name ſeems to intimate; but was the ſame with the Commiſſioner of the Frumentaries, *Præpoſitus Frumentariorum*. *Maſter* of the Militia, *Magiſter Militiæ*, an Officer in the lower Empire, created, as 'tis urged, by *Diocleſian*, who had the Inſpection and Government of all the Forces, with power to puniſh, *&c.* ſomewhat like a Conſtable of *France*. At firſt there were two of theſe Officers inſtituted, the one for the Infantry, and the other for the Cavalry. But the two were united into one under *Conſtantine*. But as their Power was increaſed, ſo was their Number too; and there was one appointed for the Court, another for *Thrace*, another for the *Eaſt*, and another for *Illyria*. They were afterwards call'd *Comites*, Counts, and *Clariſſimi*. Their Power was only a Branch of that of the *Præfectus Prætorii*, who by that means became a Civil Officer. *Maſter* of Arms, *Magiſter Armorum*, was an Officer or Comptroller under the *Maſter* of the Militia. *Maſter* of the Offices, *Magiſter Officiorum*, had the Superintendance of all the Officers of the Court. He was alſo call'd *Magiſter Officii*, Palatine, ſimply *Magiſter*, and his Poſt *Magiſteria*. This Officer was the ſame in the Weſtern Empire with the *Curopalatii* in the Eaſtern. In fine, *Maſter*, in the *Roman* Hiſtory and Laws, is uſed for every Officer, who is the firſt of his kind, and who has others of the ſame Species, or that have the ſame Functions, under him. In *Latin*, *Magiſter*, and oftentimes *Proximus*.

Master *of the Ceremonies*, is an Officer inſtituted by King *James* the Firſt, for the more ſolemn and honourable Reception of Ambaſſadors and Strangers of Quality, whom he introduces into the Preſence. The Badge of his Office is a Gold Chain and Medal, having on one ſide an Emblem of Peace, with King *James*'s Motto, and on the Reverſe the Emblem of War, with *Dieu & mon droit*: He is always ſuppoſed to be a Perſon of good Addreſs, and Maſter of Languages: He is conſtantly attending at Court, and hath under him an Aſſiſtant *Maſter*, or Deputy, who holds his Place during the King's pleaſure. There is alſo a third Officer, call'd *Marſhal of the Ceremonies*, whoſe Buſineſs it is to receive and diſtribute the *Maſter*'s Orders, or the Deputies, for the Service; but without their Order he can do nothing. This is in the King's Gift.

Master *of the Houſhold*, is an Officer under the Lord-Steward of the Houſhold, and in the King's Gift: His Buſineſs is to ſurvey the Accounts of the Houſhold. Antiently the Lord-Steward himſelf was call'd *Grand Maſter of the Houſhold*. See Houshold.

Master *of the Horſe*, a great Officer of the Crown, to whom is committed the Charge of ordering and diſpoſing all Matters relating to the King's Stables, Races, and Breed of Horſes, as he had antiently, of all the Poſts in *England*. He hath a Power of commanding the Equerries, and all the other Officers and Tradeſmen employ'd in the King's Stables; to all which he gives, by his Warrant to the Avener, the Oath of Allegiance, *&c.* for the true and faithful Diſcharge of their Duty. He has the peculiar Privilege of making uſe of any Horſes, Pages, or Footmen, belonging to the King's Stables; ſo that his Coaches, Horſes, and Attendants, are the King's, and have the King's Arms and Liveries.

Master *of the Mint*: This, in the ſecond Year of *Henry* the Sixth, was the Title of him, who is now call'd *Warden of the Mint*; whoſe Office it is to receive the Silver and Bullion, which comes to the Mint to be coined, and to take care thereof. See Mint.

Master *of the Court of Wards and Liveries*, was the chief Officer, and Judge of that Court, who kept the Seal of it, and was named and aſſigned by the King. But this Court, and all its Officers, Members, Power, and Appurtenances, is taken away by a Statute made the 12 *Car.* 2. *c.* 24.

Master *of the Jewel-Houſe*, mention'd in 39 *Eliz. c.* 7 is an Officer of the King's Houſhold of great Credit, being allowed Diet for himſelf, and the Clerks of the Office; and a Lodging in the Court. He hath Charge of all the Gold and Silver Plate uſed at the King's Table, or belonging to any Officer of account attending the Court; and of all Plate remaining in the Tower of *London*, as alſo of Chains and looſe Jewels, not fixed to any Garment.

Master *of the Ordnance*, a great Officer, to whoſe Care all the King's Ordnance and Artillery is committed. See Ordnance.

Master *of the Faculties*, an Officer under the Archbiſhop of *Canterbury*, who grants Licences and Diſpenſations; he is mention'd in the Statute of laying Impoſitions at Law, of 22,23 *Car.* 2. See Faculty.

Master *of the Revels*, an Officer, whoſe Office it is to order all things relating to the Performance of Tragedies, Comedies, Masks, Balls, *&c.* at Court: He hath likewiſe a Juriſdiction of granting Licences to all who travel to act Plays, Puppet-Shews, or other ſuch like Diverſions; which is very beneficial to him, and increaſeth the Smallneſs of the Salary, which is but 10 *l. per Annum*, to a very conſiderable Income. Neither can any new Play be acted at either of the two Houſes, till it has paſs'd his Peruſal and Licence firſt; and he hath the liberty to caſtrate any thing, which ſhall be offenſive to Religion or Virtue, and for the latter has his Fee.

Master *of the Armory*, he that has the Care and Overſight of his Majeſty's Arms and Armory.

Master *of the Temple*. The Founder of the Order of the Templars, and all his Succeſſors, were call'd *Magni Templi Magiſtri*; and ever ſince the Diſſolution of the Order, the Spiritual Guide and Director of the Houſe is call'd by that Name. See Temple.

Master *of the Ward-Robe*, an Office in the Lord Chamberlain's Diſtrict, who has the Power of managing all the Royal Robes; as thoſe of the Coronation, St. *George*'s Feaſt, the Parliament-Robes: as alſo of the wearing Apparel, Collar of SS's, *George* and Garter, *&c.* He has the Charge and Cuſtody of all former Kings and Queens Robes, remaining in the *Tower*; all Hangings, Bedding, *&c.* for the King's Houſe; the Charge and Delivery of Velvet and Scarlet allow'd for Liveries. He has under him a Clerk of the Robes, and Wardrobe-Keeper, a Yeoman, *&c.* See Wardrobe.

Master *of Arts*, the firſt Degree taken up in foreign Univerſities, but the ſecond in ours; Candidates not being admitted to it till they have ſtudied in the Univerſity ſeven Years. See Degree.

Master *of a Ship*; an Officer, to whom is committed the Direction of a Merchant-Veſſel, who commands it in chief, and is charged with the Merchandizes aboard. In the *Mediterranean*, the *Maſter* is frequently called *Patron*, and in long Voyages *Captain*. 'Tis the Proprietor of the Veſſel that appoints the *Maſter*; and 'tis the *Maſter* provides the Equipage, hires the Pilots, Sailors, *&c.* The *Maſter* is obliged to keep a Regiſter of the Seamen and Officers, the Terms of their Contract, the Receipts and Payments, and in general, every thing relating to his Commiſſion. See Ship.

Master *of the Rolls*, has his Office by Patent, which is for Life. In the Abſence of the Lord-Chancellor or Keeper, he ſits as Judge in the Court of Chancery, and is, by Sir *Edward Coke*, call'd his *Aſſiſtant*. At other times he hears Cauſes in the Rolls Chappel; he is alſo the firſt of the Maſters in Chancery, and hath their Aſſiſtance at the Rolls: but all Hearings before him are appealable to the Lord Chancellor. He hath alſo his Writ of Summons to Parliament, and ſits next to the Lord Chief Juſtice of *England*, on the ſecond Woolpack. He hath the keeping of the Parliament Rolls, and all the Rolls Houſe for his Habitation; as alſo the Cuſtody of all Charters, Patents, Commiſſions, Deeds, Recognizances, which being made of Rolls of Parchment, gave riſe to the Name. In his Gift are the ſix Clerks in Chancery, the Examiners, three Clerks of the Petty-bag, and the ſix Clerks of the Rolls Chappel, where the Rolls are kept. See Rolls.

Masters *in Chancery*, are uſually choſen out of the Barriſters of the Common Law, and ſit in Chancery, or at the Rolls, as Aſſiſtants to the Lord Chancellor, and *Maſter* of the Rolls, during Term-Time: To them is alſo committed Interlocutory Reports, ſtating of Accounts, taxing Coſts, *&c.* And ſometimes, by way of Reference, they are empower'd to make a final Determination of Cauſes. They have, time out of mind, had the Honour to ſit in the Lords Houſe, tho they have neither Writs, nor Patent to empower them; but as Aſſiſtants to the Lord Chancellor, and Maſter of the Rolls. They had antiently the Care of inſpecting all Writs of Summons, which is now performed by the Clerk of the Petty-bag. When any Meſſage is ſent from the Lords to the Commons, it is carry'd by the *Maſters in Chancery.* Before them, Affidavits are made, and Deeds and Recognizances acknowledged. See CHANCERY.

MASTER-PIECE, an exquiſite, or extraordinary Work or Performance, in any Art or Science.

MASTER-PIECE, or *Chef d'Oeuvre*, is particularly uſed among the *French*, for a particular Work, which thoſe who aſpire to be admitted Maſter in any Art or Trade, are to perform in preſence of the Maſters or Jurands of that Company, by way of Specimen of their Capacity. The *Maſter-Piece* of a Maſon is a Deſcent biaſs'd either in the Head or in Talut, corrected by a full Arch. That of a Carpenter, a Rampant Curve of a Stair-Caſe, the Spiral well adjuſted with the Deſcent. That of a Joiner, a Flat-bottom Cheſt, or a Door-Caſe, or a Mantle-Tree. That of a Tiler, a Luthern well conducted in the *Fourchette*, with a Ridge. That of a Plumber, a little Ciſtern *a Cul de Lampe*. That of a Glazier, a Pair of Compartiments of Glaſſes of ſeveral Colours, hollow'd, incaſtrated, and join'd with Lead of *Chef d'Oeuvre.* That of Paviors, a Roſe in a Free-Stone or Flint-Pavement. That of a Cordwainer, a Turn-up Shoe, &c.

MASTIC, a clear and ſweet reſinous Gum, iſſuing from the Trunk and large Branches of the *Maſtic* or *Lentiſk* Tree, either without, or with an Inciſion. It is temperate in Heat, and of a dry, binding Quality; ſo that it ſtrengthens the Stomach, ſtays Vomiting, ſtops Iſſues of Blood, and tickling Coughs and Catarrhs. It ſtrengthens the Reins, and is a good Cleanſer, and is for that reaſon preſcribed in Seminal Weakneſſes. The Goldſmiths mix it with Turpentine and black Ivory, and lay it under their Diamonds, to give them a Luſtre. The *Maſtic* is the Product of *Scio.* The Trees that produce it are cultivated with as much Care as the Vines. It brings in a Revenue of 80000 Ducats *per Annum* to the Grand Signior. There is alſo a kind of black *Maſtic* brought from *Egypt*, which ſerves to ſophiſticate Camphor. The beſt *Maſtic* is brought from the Iſle of *Chio*; it is in larger Tears, and thoſe more balſamic, than that of the *Levant.* The *Maſtic* produced in *Chio* belongs to the Grand Signior, who takes it of this People in lieu of the Tribute he exacts of the other *Grecian* Iſlands. It has its Name *Maſtic*, from its being continually chew'd by the *Turks*, eſpecially the Women.

MASTICATION, in Medicine, the Action of *chewing*, or of agitating the ſolid Parts of our Food between the Teeth, by means of the Motion of the Jaws, the Tongue, and the Lips; whereby it is broke into ſmall Pieces, impregnated with Saliva, and ſo fitted for Deglutition, and a more eaſy Digeſtion in the Stomach. See DIGESTION, CHYLIFICATION, DEGLUTITION, &c.

The Mixture of Saliva with the Food, is of abſolute neceſſity; for the Saliva imbibed within the Parts, diſſolves the Salts hid in them; and by ſo doing, prepares the Food for Fermentation in the Stomach: The Food therefore has the Beginning of its Digeſtion from the Saliva, and its Concluſion from the Ferment in the Stomach. See SALIVA.

MASTICATORIES, in Medicine, are ſuch Remedies as are taken in at the Mouth, and chew'd, in order to promote the Evacuation of the ſalival Humour; as Tobacco, Ginger, Pepper, Sage, Roſemary, Thyme, Maſtic, &c.

MASTOIDES, in Anatomy, the ſame with *Mammillares.* The Word is uſually apply'd to ſuch Proceſſes in the Body, as have the Appearance of Breaſts or Dugs; ariſing from a broad Baſis, and terminating in an obtuſe Top. The Word is ſometimes alſo apply'd to thoſe Muſcles which ſtoop the Head, proceeding from the Neck-Bone, and Breaſt-Bone, and terminating in the Proceſs *Mammiformis.* The Word comes from the *Greek* μαστὸς, Nipple, Dug, and εἶδος, *Imago*, Figure.

MATCH, a kind of Cord ſlightly twiſted, and prepared to receive and preſerve Fire, for the Uſes of Artillery, Mines, Fire-Works, &c. It is made of hempen Tow, ſpun on the Wheel like Cord, but very ſlack, and is compoſed of three Twines or Threads, which are afterwards again cover'd with Tow; ſo that the Twines don't appear: laſtly, it is boil'd in Lees of old Wines; whence its Colour. Since Fuſees have been introduced in lieu of Muſkets, the Conſumption of *Match* has been much leſs conſiderable than before.

MATER TENUIS, or PIA MATER. See MENINGES.

MATER DURA. See alſo MENINGES.

MATERIAL, denotes ſomething compoſed of Matter. The *Epicureans*, *Spinoziſts*, &c. own none other but *Material* Subſtances; ſee SUBSTANCE. Among Cauſes, ſome are *material*, others formal: See CAUSE. *Material* Cauſes having no Underſtanding or Liberty, muſt always act in the ſame Manner, when under the ſame Circumſtances. The Philoſophers and Divines diſpute, whether or no there be any *material* Forms really diſtinct from Matter. See FORM. The *Valentinians* formerly apply'd the Term *Material* to all People, but thoſe of their own Sect; aſſerting, that their Souls periſhed with their Bodies. Thus alſo the *Stoics* maintain'd, that none but the Soul of their Wiſe-Men ſurvived the Body. See STOICKS.

MATERIALISTS, the Name of a Sect in the antient Church, compoſed of Perſons, who, being prepoſſeſs'd with that Maxim in the antient Philoſophy (*ex Nihilo Nihil fit, out of Nothing Nothing can be made)* had recourſe to an Eternal Matter, on which they ſuppoſed God wrought in the Creation; inſtead of admitting God alone as the ſole Cauſe of the Exiſtence of all Things. *Tertullian* vigorouſly oppoſes the Doctrine of the *Materialiſts*, in his Treatiſe againſt *Hermogenes*, one of their Number. See MATTER.

MATERIA SUBTILIS, a fine ſubtile Matter, which the *Carteſians* ſuppoſe to pervade and penetrate, freely, the Parts of all Bodies, and to fill up all their Pores, ſo as not to leave the leaſt Vacuity or Interſtice between them. This Machine they have recourſe to, to ſupport the Doctrine of an abſolute *Plenum*, and to make it conſiſtent with the Phænomena of Motion, &c. and accordingly make it act and move juſt at pleaſure, but in vain; for were there any ſuch Matter, in order for it to be able to fill up the Vacuities of other Bodies, it muſt, itſelf, be entirely void of any, *i. e.* be perfectly ſolid; ſee SOLIDITY: vaſtly more ſolid than Gold, and therefore more ponderous, and reſiſt vaſtly more. See RESISTANCE. Which is inconſiſtent with *Phænomena.* See VACUUM and PLENUM.

Sir *Iſ. Newton*, indeed, allows of the Exiſtence of a *ſubtile Matter*, or Medium, vaſtly finer than Air, penetrating the cloſeſt Bodies, and contributing to the Production of many of the Phænomena of Nature. The Exiſtence of ſuch a Matter he argues from the Experiment of two Thermometers, which being incloſed in Glaſs Veſſels, 'one of them exhauſted of its Air, and both carried from a cold to a warm Place, the Thermometer *in vacuo* grows warm, and riſes, almoſt as ſoon as that in the Air; and if return'd into the cold Place, both cool and fall about the ſame. Hence, *ſays he*, is not the Heat of the warm Room convey'd thro the Vacuum by the Vibrations of a much ſubtiler Medium than Air, which remain'd *in vacuo*, after the Exhauſtion of the Air? And is not this Medium the ſame with that whereby Light is refracted and reflected, and by whoſe Vibration, Light communicates Heat to Bodies, and is put into Fits of eaſy Reflection, and eaſy Tranſmiſſion? And do not the Vibrations of that Medium in hot Bodies, contribute to the Intenſeneſs and Duration of their Heat? And do not hot Bodies communicate their Heat to contiguous cold ones, by the Vibration of this Medium propagated from them into the cold ones? And is not this Medium more ſubtile, more elaſtic and active than Air? Does it not readily pervade all Bodies? And is it not, by its elaſtic Force, expanded thro all the Heavens?' See HEAT, COLD, &c. Again, 'Does not the Refraction of Light proceed from the different Denſity of this Matter in different Places; the Light always receding from the denſer Parts of the Medium?' See REFRACTION.——Again, 'Is not this Matter much rarer within the denſe Bodies of the Sun, Stars, Planets, &c. than in the empty, celeſtial Spaces between them? And in paſſing from them to great Diſtances, does it not grow denſer and denſer, and thereby occaſion the Gravitation of thoſe Bodies towards one another, and of the Parts to the Bodies; every Body endeavouring to recede from the denſer Parts towards the rarer?' See GRAVITATION.—'Again, Is not Viſion performed chiefly by the Vibrations of this Matter, excited in the bottom of the Eye by the Rays of Light, and propagated thro the ſolid, pellucid, and uniform Capillaments of the Optic Nerves into the Senſory?'——Again, 'Is not animal Motion perform'd by the Vibbrations of this Medium, excited in the Brain by the Power of the Will, and propagated thence thro the ſolid Capillaments of the Nerves into the Muſcles, to contract and dilate them?' See MEDIUM. *Newt. Optic. lib.* 3. *in calce.*

MATHEMATICS, the Science of Quantity; or a Science that conſiders Things as computable, or meaſurable. The Word in its Original, μάθησις, ſignifies *Diſcipline* or *Learning* in the general, and ſeems to have been apply'd to the Doctrine of Quantity, either by way of Eminence, or by reaſon this having the Start of all other Sciences, the reſt took their common Name therefrom. See SCIENCE.

For the Origin of MATHEMATICS, *Joſephus* dates it before the Flood, and makes the Sons of *Seth* Obſervers of the Courſe and Order of the Heavenly Bodies; he adds, that to perpetuate their Diſcoveries, and ſecure 'em from the Injuries either of a Deluge or a Conflagration, they had them engraven on two Pillars, the one of Stone, the other of Brick; the former of which, he ſays, was ſtanding in *Syria* in his days.

The firſt who cultivated MATHEMATICS after the Flood, were the *Aſſyrians* and *Chaldeans*; from whom, the ſame *Joſephus* adds, they were carried by *Abraham* to the *Egyptians*; who proved ſuch notable Proficients, that *Ariſtotle* makes no ſcruple to fix the firſt Riſe of *Mathematics* among them. From *Egypt*, 584 Years before Chriſt, they paſs'd into *Greece* thro the hands of *Thales*, who having learnt Geometry of the *Egyptian* Prieſts, taught it in his own Country. After *Thales*, comes *Pythagoras*; who, among other Mathematical Arts, paid a peculiar regard to Arithmetic; fetching the greateſt part of his Philoſophy from Numbers: He was the firſt, as *Laertius* tells us, who abſtracted Geometry from Matter; and to him we owe the Doctrine of *incommenſurable* Magnitudes, and the five *regular* Bodies, beſides the firſt Principles of *Muſic* and *Aſtronomy*. *Pythagoras* was ſucceeded by *Anaxagoras*, *Oenopides*, *Briſo*, *Antypho*, and *Hippocrates* of *Scio*; who all applied themſelves particularly to the *Quadrature* of the Circle, the *Duplicature* of the Cube, *&c.* but the laſt with moſt Succeſs: This laſt is alſo mention'd by *Proclus* as the firſt who compiled *Elements* of *Mathematics*.

Democritus excelled in *Mathematics* as well as Phyſics; tho none of his Works in either kind are extant: the Deſtruction of which, ſome Authors lay at *Ariſtotle*'s door. The next in order is *Plato*, who not only improved Geometry, but introduced it into Phyſics, and ſo laid the Foundation of a ſolid Philoſophy. Out of his School proceeded a Croud of Mathematicians. *Proclus* mentions thirteen of Note; among whom was *Leodamus*, who improved the *Analyſis* firſt invented by *Plato*; *Thæotetus*, who wrote *Elements*; and *Archytas*, who has the Credit of being the firſt who applied *Mathematics* to Uſe in Life. Theſe were ſucceeded by *Neoclidis* and *Theon*, the laſt of whom contributed to the Elements. *Eudoxus* excelled in *Arithmetic* and *Geometry*, and was the firſt Founder of a Syſtem of *Aſtronomy*. *Menechmus* invented the *Conic* Sections, and *Theodoſius* and *Hermotimus* improved the Elements.

For *Ariſtotle*, his Works are ſo ſtored with *Mathematics*, that *Blancanus* compiled a whole Book of them: Out of his School came *Eudemus* and *Theophraſtus*; the firſt of which wrote of *Numbers*, *Geometry*, and *indiviſible* Lines; the latter a Mathematical *Hiſtory*. To *Ariſteus*, *Iſidorus*, and *Hypſicles*, we owe the Books of *Solids*; which, with the other Books of *Elements*, were improved, collected and methodized by *Euclid*, who died 284 Years before Chriſt. An hundred Years after *Euclid*, came *Eratoſthenes* and *Archimedes*. Cotemporary with the latter was *Conon*, a Geometrician and Aſtronomer. Soon after came *Apollonius Pergæus*; whoſe *Conics* are ſtill extant. To him are likewiſe aſcribed the 14th and 15th Books of *Euclid*, which are ſaid to have been contracted by *Hypſicles*. *Hipparchus* and *Menelaus* wrote on the *Subtenſes* in a Circle, the latter alſo on *Spherical Triangles*; on which Subject, we have a Work of *Theodoſius*: And theſe all, *Menelaus* excepted, lived before Chriſt. *A.D.* 70, *Ptolemy* of *Alexandria* was born; the Prince of Aſtronomers, and no mean Geometrician: He was ſucceeded by the Philoſopher *Plutarch*, of whom we have ſtill extant ſome Mathematical *Problems*. After him came *Eutocius*, who commented on *Archimedes*, and occaſionally mentions the Inventions of *Philo*, *Diocles*, *Nicomedes*, *Sporus*, and *Heron*, on the *Duplicature* of the Cube. To *Cteſebius* of *Alexandria*, we owe our *Pumps*; and *Geminus*, who came ſoon after, is preferred by *Proclus* to *Euclid* himſelf.

Diophantus of *Alexandria* was a great Maſter of Numbers, and the firſt Inventer of *Algebra*: For others of the Antients, *Nicomachus* is celebrated for his Arithmetical, Geometrical, and Muſical Works; *Serenus* for his Books on the *Section* of the Cylinder; *Proclus*, for his Comments on *Euclid*; and *Theon* has the Credit among ſome, of being Author of the Books of *Elements* aſcribed to *Euclid* himſelf. The laſt to be named among the Antients, is *Pappus* of *Alexandria*, who flouriſh'd *A.D.* 400, and is celebrated for his Books of Mathematical *Collections* ſtill extant.

See the Progreſs of each Branch of *Mathematics*, with the Authors who have wrote on it, under the reſpective Heads; as GEOMETRY, MECHANICS, ALGEBRA, ASTRONOMY, *&c.*

MATHEMATICS are diſtinguiſh'd with regard to their End, into *Speculative*, which reſt in the bare Contemplation of the Properties of Things; and *Practical*, which apply the Knowledge of thoſe Properties to ſome Uſes in Life.

With regard to their Object, *Mathematics* are divided into *pure* or *abſtract*; and *mix'd*. Pure *Mathematics* conſider Quantity, abſtractedly; and without any relation to Matter: Mix'd *Mathematics* conſider Quantity as ſubſiſting in material Beings, and as continually interwove.

Pure MATHEMATICS again, either conſider Quantity as *diſcrete*, and ſo compatible, as *Arithmetic*; or as *concrete*, or *continued*, and ſo meaſurable, as *Geometry* and *Trigonometry*. See ARITHMETIC, GEOMETRY, *&c.*

Mix'd MATHEMATICS are very extenſive, and are diſtinguiſh'd by various Names, as the Subjects they conſider, and the Views wherein they take them, vary: it being ſufficient to determine an Art to be a Branch of *mix'd Mathematics*, that pure *Mathematics* are applicable thereto, *i. e.* that it may be explain'd and demonſtrated from the Principles of *Arithmetic* and *Geometry*. Such are,

Mechanics, which conſider Motion, or the Laws of moving Bodies. See MOTION.

Hydroſtatics, conſider the Laws of Fluids, or of Bodies gravitating in Fluids. See FLUID.

Pneumatics, the Air, with regard to the Laws and Menſuration thereof. See AIR.

Hydraulics, the Motion of Fluids. See FLUIDS.

Optics, direct Light or Viſion. See VISION.

Catoptrics, reflected Viſion. See REFLECTION.

Dioptrics, refracted Viſion. See REFRACTION.

Perſpective, the Images of Objects, in order to delineate or repreſent them. See PERSPECTIVE.

Aſtronomy, the Univerſe, and the *Phænomena* of the Heavens. See HEAVENLY BODIES.

Geography, the Earth, both as in itſelf, and in its Affections. See EARTH.

Hydrography, the Sea, principally as navigable. See NAVIGATION.

Chronology, Time, with regard to the meaſuring and diſtinguiſhing thereof. See TIME, YEAR, EPOCHA, *&c.*

Gnomonics, or *Dialling*; Shadows, in order for determining the Hour of the Day. See DIAL and SHADOW.

Pyrotechny, Artificial Fires, with regard both to Diverſion, and to the Uſes of War. See FIRES, ROCKETS, *&c.*

Military Architecture, the Strength of Places, with regard to their Defence againſt an Enemy. See FORTIFICATION.

Civil Architecture (now become a Branch of *Mathematics*) Buildings. See BUILDING.

Muſic, Sounds, and their Effects on the Ear. See SOUND, TUNE, *&c.*

For the Elements of each, ſee the reſpective Heads. For an accurate Syſtem of all the Parts above-mention'd (*Muſic* alone excepted) orderly digeſted, and clearly demonſtrated, ſee the excellent *Wolfius*'s *Elementa Matheſeos Univerſæ*.

MATHURINE, ſee TRINITARIAN.

MATINS, the firſt part of the daily Service in the *Romiſh* Church. *Matins* is ſometimes held early in the Morning, ſometimes at Midnight, and ſometimes the Even before. And infirm People, even in Monaſteries, are diſpenſed from attending *Matins*. The Word comes from the *French Matin*, Morning.

MATRASS, or BOLT HEAD, a Veſſel of Glaſs uſed by the Chymiſts in Diſtillation, and other Operations. It is made in form of a Bottle, with a very long narrow Neck. The *Matraſs* is luted with Earth, when it is to be placed on a very hot Fire. When 'tis required it ſhould be ſtopped very cloſe, they ſeal it hermetically. The Word comes originally from the Language of the antient *Gauls*. See BOLT-HEAD.

MATRICE, ſee MATRIX.

MATRICE, *in Dying*, is applied to the five ſimple Colours, whence all the reſt are derived or compoſed. Theſe are the Black, White, Blue, Red, and Fallow or Root Colour. See COLOURS.

MATRICES, uſed by the Letter-Founders, are thoſe little Pieces of Copper or Braſs, at one end whereof are engraven, *dent-wiſe*, or *en creux*, the ſeveral Characters uſed in the Compoſing of Books. Each Character, *Virgula*, and even Point, in a Diſcourſe, has its ſeveral *Matrice*, and of conſequence its ſeveral Puncheon to ſtrike it. 'Tis the Engravers on Metal that cut or grave the *Matrices*: See ENGRAVING. When any Types are to be caſt, the *Matrice* is faſten'd to the End of a Mould, ſo diſpoſed, as that when the Metal is thrown on it, it may fall into the *Creux* or Cavity of the *Matrice*, and take the Figure and Impreſſion thereof. See LETTER-FOUNDERY. See alſo TYPE, and PRINTING.

The MATRICES *uſed in Coining*, are Pieces of Steel in form of Dyes; whereon are engraven the ſeveral Figures, Arms, Characters, Legends, *&c.* wherewith the Species are to be ſtamp'd. The Engraving is perform'd with ſeveral Puncheons, which being form'd *in relievo*, or prominent; when ſtruck on the Metal, make an indented Impreſſion, which the *French* call *en creux*; and for which, I don't know we have any preciſe Name at all. See the Manner hereof under ENGRAVING *on Steel*. See alſo COINING.

MATRICULA, a Regiſter kept of the Admiſſion of Officers, and Perſons enter'd into any Body or Society, whereof a Liſt is made. Among Eccleſiaſtical Authors, we find mention made of two Kinds of *Matricula*'s; the one containing a Liſt of the Eccleſiaſtics; the other of the Poor ſubſiſted at the Expence of the Church. The Word *Matricula* was alſo applied to a kind of Alms-houſe, where the Poor were provided for. It had certain Revenues appropriated to it, and was uſually built near the Church; whence the Name was alſo frequently given to the Church itſelf.

MATRIX, or MATRICE, any thing ſerving for the place of Generation of a Body: whether Organical, as the *Matrix* or Womb of Female Animals, for the Production of the Species; or Inorganical, as thoſe of Vegetables, Metals, and Minerals.

MATRIX, *in Anatomy*, the *Uterus*, or Womb; or that part of the Female of any Kind, wherein the *Fœtus* is conceived and nouriſhed till the Time of its Delivery. In Women, it is ſituated in the *Pelvis*, or Capacity of the *Hypogaſtrium*, between the Urinary Bladder and the *Inteſtinum Rectum*, and reaches as far as the Flanks. It is ſurrounded and defended by mighty Bones; before, by the *Os Pubis*; behind, by the *Sacrum*; on each ſide, by the *Ilium* and *Iſchium*. It is in figure ſomewhat like a flat Flaſk, or dried Pear. In Women with Child, it expands and receives different Forms, according to the different Times and Circumſtances of Geſtation. It has ſeveral Coats, Arteries, Veins, Nerves, and Ligaments, and is interwoven with ſeveral different Kinds of Fibres. Anatomiſts divide it into the *Fundus* and *Cervix*; a broad Part, and a Neck. It is in Extent, from the Extremity of the one to that of the other, about three Inches in Length; its Breadth at the *Fundus* is about two and a half, and its Thickneſs two. It has but one Cavity, unleſs we diſtinguiſh between the Cavity of the *Uterus*, and that of its Neck. That of the *Cervix* is very ſmall, ſcarce ſufficient to contain a Garden-Bean. At the Bottom or Neck, towards the *Fundus*, it grows very narrow in Virgins; the Extremity of it is call'd the *Oſculum Internum*: In pregnant Women it opens, more eſpecially towards the Time of Delivery. The other and lower Orifice of the Neck, towards the *Vagina*, called *Oſculum Externum*, is a little prominent, reſembling, in ſome meaſure, the Glands of the Virile Organ. The Subſtance of the *Matrix* is membranous and carnous. It conſiſts of three Tunics; or, according to ſome, who deny that Name to the middle Subſtance, of two only. The external Tunic, call'd alſo the *Communis*, is derived from the *Peritonæum*, and conſiſts of two *Lamellæ*; the exterior of which is pretty ſmooth, the interior rugged and uneven: This Membrane inveſts the whole *Matrix*, and connects it to the right Inteſtine, Bladder, *&c.* The middle Tunic is very thick, and compoſed of ſtrong Fibres variouſly diſpoſed. Some think it contributes to the excluſion of the *Fœtus*; tho' others imagine, it ſerves only to recover the Tone, after any violent Diſtenſion. The inner Tunic is nervous. The *Matrix* is connected by its Neck to the *Vagina*; behind, by its outward common Membrane, and before by the ſame to the Bladder. Its Sides are tied to other Parts; but the *Fundus* is left looſe, that it may expand and dilate more freely. Its Ligaments are four, two of which are called *broad*, and two *round*, from their Figure. The broad Ligaments are membranous, looſe, and ſoft; whence they have been compared by ſome to the Wings of Bats, and called *Alæ Veſpertilionum*. The round Ligaments are of a firmer Texture, and conſiſt of a double Membrane, wrapped up in its Arteries, Veins, Nerves, and Lymphæducts. The Blood-Veſſels, both in theſe and the round Ligaments, make a great part of what is called their Subſtance: Theſe, as well as the others, ſerve to keep the Womb in its right Poſition; and are very liable to be injured by unſkilful Midwives. On each Side of the *Fundus* of the Womb, ariſes a Duct, which opens into the Womb with a ſmall Orifice, but in its Progreſs enlarges, and towards the End is contracted again: At the End next the *Ovaria*, which is at liberty, it expands again into a kind of Foliage fringed round; which Expanſion *Fallopius*, the firſt Diſcoverer, imagined like the End of a Trumpet; whence he called the whole Duct, *Tuba*. It conſiſts of a double Membrane. Both Veins and Arteries are very numerous here, eſpecially the latter, which, by various Ramifications and Contorſions, make the main Subſtance of them. Dr. *Wharton* gives them Valves, but the other Anatomiſts diſallow it. See FALLOPIAN TUBE, VESPERTILIONUM ALÆ, *&c.* *&c.*

The antient *Greeks* call'd the *Matrix* μήτρα, from μήτηρ, *Mother*: Whence, Diſorders of the Womb are frequently call'd *Fits of the Mother*. They alſo call'd it ὑστέρα, as being the laſt of the Entrails, by its Situation. They alſo call'd it φυσις, or *Natura*; and *Vulva*, from *volvo*, *to fold* or *envelop*, or *Valva*, a *Door*. *Plato* and *Pythagoras* took it for a diſtinct Animal within another. *P. Ægineta* obſerves, that the *Matrix* may be taken away from a Woman, without her Death; and there have been Inſtances of People, who have lived a long time after the Loſs of the *Matrix*. *Rhaſis* and *Paræus* obſerve, that ſome Perſons have been cured of Diſeaſes, by having the *Matrix* extirpated. In 1669, a Child was produced at the *French* Academy, which had been conceived out of the *Matrix*, and which nevertheleſs had grown to the Length of ſix Inches. See EMBRYO, FOETUS, *&c.*

MATRIX's are alſo uſed to ſignify Places proper for the Generation of Vegetables, Minerals, and Metals. Thus the Earth is the *Matrix* wherein Seeds ſprout; Marcaſſites are the *Matrix's* of Metals. See FOSSIL, MINERAL, *&c.*

MATRIX is alſo uſed, tho' figuratively, for ſeveral Things, wherein there ſeems to be effected a kind of Generation; and where certain Things ſeems to acquire a new Being, or at leaſt a new Manner of Being: of this kind are the Moulds wherein the Printers Types or Letters are caſt, and thoſe uſed in ſtriking Money and Medals, call'd alſo *Coins*. See MATRICE.

MATRON, among the *Romans*, ſignify'd a married Woman, and the Mother of a Family. There was, however, ſome difference between *Matrona* and *Mater-familias*. *Servius* ſays, that ſome imagined the Difference to lie in this, That *Matrona* was a Woman who had one Child, and *Mater-familias* ſhe that had ſeveral. But others, particularly *Aulus Gellius*, take the Name *Matrona* to belong to a married Woman, whether ſhe had any Children or no; the Hope and Expectation of having them, being enough to warrant the Title of Mother, *Matrona*: and for which reaſon it is, that Marriage is called *Matrimony*. This Opinion is ſupported by *Aulus Gellius* and *Nonius*.

MATRONALIA, Feaſts of the *Roman* Ladies, or rather *Matrons*, celebrated on the Calends of *March*, in honour of the God *Mars*. No Men living in Celibate, were allow'd to aſſiſt at the Feaſt. The Word comes from the *Latin Matrona*.

MATROSSES, are Soldiers in the Train of Artillery, next below the Gunners; their Duty is to aſſiſt the Gunners in traverſing, ſpunging, loading, and firing of Guns, *&c.* They carry Fire-Locks, and march along with the Store-Waggons.

MATTADORE, ſee OMBRE.

MATTER, or BODY, an extended, ſolid, diviſible, moveable and paſſive Subſtance, the firſt Principle of all natural Things, from the various Arrangements and Combinations whereof, all natural Things are formed. *Ariſtotle* makes three Principles, *Matter*, *Form*, and *Privation*: Which laſt the *Carteſians* throw out of the number; and others, the two laſt. See PRINCIPLE.

The Properties of *Matter* we are pretty well acquainted with, and can reaſon about its Diviſibility, Solidity, *&c.* ſee DIVISIBILITY, *&c.* But the Eſſence thereof, or the Subject wherein theſe Properties reſide, or their *Subſtratum*, is ſtill a Myſtery. *Ariſtotle* ſpeaks very darkly on the Subject, defining *Matter* to be *nec quid, nec quantum, nec quale*, nor any certain or determinate Thing at all; which many of his Followers interpret ſo, as to believe, that *Matter* does not at all exiſt. See BODY.

The *Carteſians* make the Eſſence of *Matter* to conſiſt in its Extenſion; arguing, that ſince the Properties above-mention'd are all that are eſſential to *Matter*, ſome of them muſt conſtitute its Eſſence: and ſince Extenſion is conceived prior to all the reſt, and is that, without which none of the reſt can be conceived, Extenſion is that which conſtitutes the Eſſence of *Matter*. But the Concluſion, here, is unjuſt; for on this Principle, the Exiſtence of *Matter*, according to Dr. *Clark*, would have the faireſt Title to conſtitute its Eſſence, the τὸ *exiſtere* being conceived prior to all Properties, and even to Extenſion. Since then the Word *Extenſion* appears to go further, and to be more general than *Matter*; that impenetrable Solidity, which is eſſential to all *Matter*, and to *Matter* alone, and from which all its Properties manifeſtly flow, may, with more Propriety, be call'd the *Eſſence of Matter*. See ESSENCE.

Again, if Extenſion were the Eſſence of *Matter*, and ſo *Matter* and Space the ſame thing; it would follow, that *Matter* is infinite and eternal, that it is a neceſſary Being, and could neither be created nor annihilated; which is abſurd. Beſides that, it appears both from the Nature of Gravity, the Motions of Comets, the Vibrations of Pendulums, *&c.* that Space is not *Matter*: and therefore 'tis not Extenſion; but ſolid, impenetrable Extenſion which has a Power of reſiſting, that conſtitutes *Matter*. See VACUUM and EXTENSION.

Many among the old Philoſophers maintain'd the Eternity of *Matter*, out of which they ſuppoſed all things to be formed by the hands of Nature; as being unable to conceive how any thing ſhould be formed out of nothing. *Plato* maintain'd, that *Matter* had exiſted eternally, and concurred with God in the Production of all things, as a paſſive Principle, or a kind of collateral Cauſe. See ETERNITY.

Matter and Form, the two ſimple and original Principles of all things, according to the Antients, compoſed ſome ſimple Natures, which they called *Elements*; out of the various Combinations whereof, all natural Things were compoſed. See ELEMENT.

Dr. *Woodward* is of an Opinion, not very unlike it; *viz.* That *Matter* is originally and really very different, being at its firſt Creation divided into ſeveral Ranks, Sets, or Kinds of Corpuſcles, differing in Subſtance, Gravity, Hardneſs, Flexibility, Figure, Size, &c. from the various Compoſures and Combinations of which, ariſes all the Varieties in Bodies, as to Colour, Hardneſs, Gravity, Taſtes, &c. But Sir *Iſ. Newton* takes all thoſe Differences to reſult from the various Arrangements of the ſame *Matter*; which he takes to be homogeneous and uniform in all Bodies. See CORPUSCLE.

Beſides the Properties of *Matter* hitherto known, Sir *Iſ. Newton* has diſcover'd a new one, *viz.* 'That of Attraction, or that every Particle of *Matter* has an attractive Power, or a Tendency towards every other Particle: which Power is ſtrongeſt in the Point of Contact, and ſuddenly decreaſes, inſomuch that it acts no more at the leaſt ſenſible Diſtance, and at a greater Diſtance is converted into a repellent Force, whereby the Parts fly from each other. On this Principle of Attraction, he accounts for the Coheſion of the Particles of Bodies, otherwiſe inexplicable.' See COHESION.

For he takes occaſion to obſerve, 'That all Bodies ſeem to be compounded of hard Particles. Even Light itſelf, and all other the moſt volatile of Fluids; inſomuch as Hardneſs may be eſteem'd a Property of all incompounded *Matter:* at leaſt the Hardneſs of *Matter* ſtands on as good a foot as that of its Impenetrability; all the Bodies we know of, being either hard themſelves, or being capable of being harden'd. Now if Compound Bodies be ſo hard, as we find ſome of them, and yet are very porous, and conſiſt of Parts which are only laid together; the ſimple Particles, which are void of Pores, and were never yet divided, muſt be much harder. Now ſuch hard Particles being heaped together, can ſcarce touch one another in more than a few Points, and therefore muſt be ſeparable with much leſs Force than is requiſite to break a ſolid Particle, whoſe Parts touch in all the Space, without any Pores or Interſtices to weaken their Coheſion: How then ſhould ſuch very hard Particles, only laid together, and touching only in a few Points, ſtick together, and that ſo firmly as they do, without the Aſſiſtance of ſomething that cauſes them to be attracted or preſs'd towards each other?'

The ſame great Author obſerves further, 'That the ſmalleſt Particles may cohere by the ſtrongeſt Attractions, and compoſe bigger Particles of weaker Virtue; and many of theſe may cohere, and compoſe bigger Particles, whoſe Virtue is ſtill weaker, and ſo on for divers Succeſſions, until the Progreſſion end in the biggeſt Particles; on which the Operations in Chymiſtry, and the Colours of natural Bodies, depend; and which, by cohering, compoſe Bodies of a ſenſible Magnitude. If the Body is compact, and bends or yields inward to Preſſion; without any ſliding of its Parts; it is *hard*, and *elaſtic:* returning to its Figure with a Force ariſing from the mutual Attraction of its Parts. If the Parts ſlide upon one another, the Body is *malleable* or *ſoft*. If they ſlip eaſily, and are of a fit Size to be agitated by Heat, and the Heat is big enough to keep them in Agitation, the Body is *fluid*; and if it be apt to ſtick to things, it is *humid*. And the Drops of every Fluid affect a round Figure by the mutual Attraction of their Parts, as the Globe of the Earth and Sea affects a round Figure, by the mutual Attraction of its Parts of Gravity.' See ATTRACTION.

Again, 'Since Metals diſſolved in Acids, attract but a ſmall Quantity of the Acid, their attractive Force reaches but to a ſmall diſtance. Now, as in Algebra, where affirmative Quantities ceaſe, there negative ones begin; ſo in Mechanics, where Attraction ceaſes, there a *repulſive* Virtue muſt ſucceed. That there really is ſuch a Virtue, ſeems to follow, from the Reflections and Inflections of the Rays of Light; the Rays being repelled by Bodies in both theſe Caſes, without the immediate Contact of the reflecting or inflecting Body. The ſame thing ſeems alſo to follow from the Emiſſion of Light; a Ray, as ſoon as ſhaken off from a ſhining Body by the vibrating Motion of the Parts of the Body, and got beyond the reach of Attraction, being driven away with exceeding great Velocity: for that Force, which is ſufficient to turn it back in Reflection, may be ſufficient to emit it. It ſeems alſo to follow from the Production of Air and Vapour. The Particles, when they are ſhaken off from the Body by Heat or Fermentation, ſo ſoon as they are beyond the reach of the Attraction of the Body, receding from it, and alſo from one another, with great Strength, and keeping at a diſtance, ſo as ſometimes to take up above a Million of Times more Space, than they did before in the Form of a denſe Body. Which vaſt Contraction and Expanſion ſeems unintelligible, by ſeigning the Particles of Air to be ſpringy, and ramous, or rolled up like Hoops, or by any other means than a repulſive Power. The Particles of Fluids, which do not cohere too ſtrongly, and are of ſuch a Smallneſs, as renders them moſt ſuſceptible of thoſe Agitations, which keep Liquors in a Fluor, are moſt eaſily ſeparated and rarefied into Vapour, and in the Language of the Chymiſts, they are *volatile*; rarefying with an eaſy Heat, and condenſing with Cold. But thoſe which are groſſer, and ſo leſs ſuſceptible of Agitation, or cohere by a ſtronger Attraction, are not ſeparated without a ſtronger Heat, or perhaps not without Fermentation. And theſe laſt are the Bodies, which Chymiſts call *fixed*, and being rarefied by Fermentation, become true permanent Air; thoſe Particles receding from one another with the greateſt Force, and being moſt difficultly brought together, which upon Contact cohere moſt ſtrongly. And becauſe the Particles of permanent Air are groſſer, and ariſe from denſer Subſtances, than thoſe of Vapours; thence it is that true Air is more ponderous than Vapour; and that a moiſt Atmoſphere is lighter than a dry one, quantity for quantity. From the ſame repelling Power it ſeems to be, that Flies walk upon the Water without wetting their Feet; and that the Object-Glaſſes of long Teleſcopes lie upon one another without touching; and that dry Powders are difficultly made to touch one another ſo as to ſtick together, unleſs by melting them, or wetting them with Water, which by exhaling may bring them together; and that two poliſh'd Marbles, which by immediate Contact ſtick together, are difficultly brought ſo cloſe together, as to ſtick.' See REPELLING POWER.

He further obſerves, 'That all things conſider'd, it ſeems probable God, in the Beginning, formed *Matter* in ſolid, maſſy, hard, impenetrable, moveable Particles, of ſuch Sizes, Figures, and with ſuch other Properties, and in ſuch proportion to Space, as moſt conduced to the End, for which he formed them; and that theſe primitive Particles being Solid, are incomparably harder than any porous Bodies compounded of them; even ſo very hard, as never to wear, and break in pieces: no ordinary Power being able to divide, what God himſelf made one in the firſt Creation. While the Particles continue entire, they may compoſe Bodies of one and the ſame Nature and Texture in all Ages; but ſhould they wear away, or break in pieces, the Nature of Things depending on them, would be changed. Water and Earth, compoſed of old worn Particles and Fragments of Particles, would not be of the ſame Nature and Texture now, with Water and Earth compoſed of entire Particles in the Beginning. And therefore that Nature may be laſting, the Changes of Corporeal Things are to be placed only in the various Separations, and new Aſſociations and Motions of theſe permanent Particles; compound Bodies being apt to break, not in the midſt of ſolid Particles, but where thoſe Particles are laid together, and only touch in a few Points.'

It ſeems farther, 'That theſe Particles have not only a *Vis Inertiæ*, accompany'd with ſuch paſſive Laws of Motion, as naturally reſult from that Force, but alſo that they are moved by certain active Principles, ſuch as is that of Gravity, and that which cauſeth Fermentation, and the Coheſion of Bodies. Theſe Principles are to be conſider'd not as occult Qualities, ſuppoſed to reſult from the ſpecific Forms of Things, but as general Laws of Nature, by which the Things themſelves are form'd; their Truth appearing to us by Phænomena, tho' their Cauſes are not yet diſcover'd.' See PARTICLE; ſee alſo FERMENTATION, FIRMNESS, GRAVITATION, ELASTICITY, HARDNESS, FLUIDITY, SALT, ACID, &c.

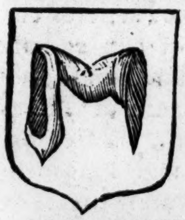
Hobbes, *Spinoſa*, &c. maintain all the Beings in the Univerſe to be *material*, and their Differences to ariſe from their different Modifications, Motions, &c. Thus *Matter* extremely ſubtile, and in a briſk Motion, they conceive, may *think*; and ſo exclude all Spirits out of the World. See SPIRIT.

Mr. *Berkeley*, on the contrary, argues againſt the Exiſtence of *Matter*; and endeavours to prove, that it is a mere *Ens Rationis*; and has no Exiſtence out of the Mind: 'Thus, ſays he, that neither our Thoughts, Paſſions, nor Ideas, form'd by the Imagination, exiſt without the Mind, is evident; nor is it leſs evident, that the various Senſations or Ideas imprinted on the Senſe, however blended or combined together (that is, whatever Objects they compoſe) cannot exiſt otherwiſe, than as in a Mind perceiving them. This no Man can doubt of, that attends to what is meant by the Term *exiſt*, when applied to ſenſible Things. Thus I ſay, the Table I write on exiſts, *i.e.* I ſee and feel it, and if I were out of my Study, I ſhould ſay it exiſted; meaning thereby, that if I were in my former Situation, I ſhould ſee and feel it as before. Again, I ſay there was Odour, *i. e.* I ſmelt it; a Sound, *i. e.* it was heard; a Colour or Touch, *i. e.* it was perceived by Sight or Touch. This is the utmoſt than can be meant by ſuch Expreſſions; for as to the abſolute Exiſtence of any unthinking Being, diſtinct from its being perceived, 'tis a Chimera. Their *Eſſe* is *percipi*; nor is it poſſible they ſhould have any Exiſtence out of the Minds that perceive them. Again, what are Hills and Trees, *&c.* but Things perceived by Senſe; and what do we perceive, but our own Ideas or Senſations: and can any one of theſe, or any Combination of them exiſt unperceived? 'What are Light and Colours, Heat and Cold, Extenſion and Figure, but ſo many Senſations, Ideas, or Impreſſions on the Senſe? And is it poſſible, even in Thought, to ſeparate therefrom Perception? 'Tis next to ſelf-evident, therefore that all the Choir of Heaven, and Furniture of the Earth; in a word, all the Bodies that compoſe the Syſtem of the World, have not any Subſiſtence out of a Mind; their *Eſſe* is nothing more than their being perceived: and therefore as long as they don't exiſt in me, *i. e.* are not perceived by me, nor any other created Spirit; they have no ſhadow of Exiſtence at all, unleſs perhaps in the Mind of ſome Eternal Spirit. It appears therefore, with the Light of an Axiom, that there is not any other Subſtance but Spirit, *&c.*' See *Inquiry into Principles of Human Knowledge.* See EXTERNAL WORLD.

MATTER *in Deed*, and *Matter of Record*, in Law, are thus diſtinguiſh'd: *Matter in Deed* ſignifies nothing elſe but a Truth to be proved, tho not by any Record; and *Matter of Record*, is that which may be proved by ſome Record: For example, If a Man be ſued to an Exigent, during the time he was in the King's Wars, this is *Matter in Deed*, and not *Matter of Record*. And therefore he that will alledge this for himſelf, muſt come before the *Scire Facias*, before Execution be awarded againſt him; for after that, nothing will ſerve but *Matter of Record*; that is, ſome Error in the Proceſs appearing upon Record.

MATURANTIA, in Medicine, *&c.* Ripeners, or ſuch Things as promote Maturation. See RIPENERS.

MATURATION, in Pharmacy, a Preparation of Fruits, or other Remedies, gather'd before their *Maturity*; to fit them to be eaten, or taken.



MAUNCH, is the Figure of an antient Sleeve of a Coat, ſo called by the Heralds; and is borne in many Gentlemen's Eſcutcheons: as in the Earl of *Huntingdon*'s, in thoſe of *Coniers*, &c.

MAUNDAY THURSDAY, the *Thurſday* before *Eaſter*, ſo called from the *French Mande*, i.e. *Sportula*; it being a Cuſtom on that Day to give larger Bounty to certain poor Men, whoſe Feet the King waſh'd.

MAUSOLEUM, a magnificent Tomb, or funeral Monument, conſiſting of Architecture, and Sculpture, with an Epitaph; erected in honour of ſome Prince, or other illuſtrious Perſon: as the *Mauſoleum* of *Auguſtus* at *Rome*. The Word is alſo uſed to ſignify the Decoration of a Tomb, or *Catafalcha*, in a funeral Pomp. The Word comes from *Mauſolus* King of *Caria*, to whom *Artemiſia*, his Widow, erected a moſt ſtately Monument, that has ſince been number'd among the Wonders of the World, calling it from his Name, *Mauſoleum.*

MAXILLÆ, in Anatomy, the *Jaws*, or thoſe Parts of an Animal, wherein the Teeth are ſet, and which ſerve for maſticating of the Food: See TEETH. The *Maxillæ* are two in number, denominated from their Situation, *Superior*, and *Inferior*.

The MAXILLA *Superior*, or Upper Jaw, is immoveable in Man, and all other Animals; excepting Parrots and Crocodiles. It conſiſts of eleven Bones, join'd to each other *per Harmoniam*; five diſpoſed on each ſide, and one in the middle. Their Names are the *Zygoma*, *Os Maxillare*, *Os Unguis*, *Os Naſi*, *Os Palati*, and *Vomer*: See ZYGOMA, *&c.* In this Jaw are Alveoli or Sockets for 16 Teeth.

The MAXILLA *Inferior*, or Lower Jaw, only conſiſts of two Bones, which unite in the middle of the Chin, by the Intervention of a Cartilage, which hardens as the Child grows; and at length, about the Age of ſeven Years, becoming bony, joins the two Bones into a continued one, reſembling the *Greek* υ. It conſiſts of two Tables, betwixt which is a ſpongy Subſtance, in Children medullous. The fore-part is ſhallow, juſt ſufficient to afford Sockets for 16 Teeth. It has two Proceſſes, the *Corone* and *Condyloides*, which ſee; four Holes or *Foramina* for the Paſſage of Veſſels, and five Pair of proper Muſcles, *viz.* the *Crotaphytes* or Temporal, the *Maſſeter*, *Biventer* or *Digaſtricus*, *Pterygoideus Internus*, and *Pterygoideus Externus*. See each in its Place. CROTAPHYTES, MASSETER, *&c.*

MAXILLARIS *Glandula*, a conſiderable Gland of the conglomerate Kind, ſituate on the Inſide, under the lower Jaw-Bone, near the *Muſculus Digaſtricus*. It diſcharges itſelf by ſeveral Branches of Ducts, which form one Trunk that paſſes under the *Mylohyoideus*, and meets with that of the other Side within the fore Teeth of the lower Jaw, having diſtinct Orifices, with a *Papilla* on each Side the *Frænum Linguæ*. See GLAND.

MAXIMIS ET MINIMIS, a Method ſo called, in uſe among the Mathematicians, whereby they arrive at the greateſt or leaſt poſſible Quantity attainable in any Caſe: Or thus, If the Semi-ordinates of any Curve continually increaſe or decreaſe to ſome certain Term, which once paſs'd, they begin again to increaſe or decreaſe, the Method whereby their *Maxima & Minima*, i.e. their greateſt and leaſt State is determined, is called the Method *de Maximis & Minimis*; which, 'tis true, may be uſed to determine other Quantities that increaſe or decreaſe to any certain degree: but then they muſt always be repreſented by the Semi-ordinates of Curves.

The Method *de Maximis & Minimis*, is beſt managed by the *Calculus Differentialis*, or Fluxions. The Rule is: Having put the Equation into Fluxions, let the Fluxion of that Quantity (whoſe extreme Value is ſought) be ſuppoſed $= 0$; by this means all thoſe Members of the Equation, in which it is found, will vaniſh, and the remaining ones will give the Determination of the *Maximum* or *Minimum* deſired. Now the reaſon of the Rule is, that every *Maximum* or *Minimum* is in its own nature a ſtable Quantity: To determine therefore any flowing Quantity to a *Maximum* or *Minimum*, is to make it (inſtead of a flowing) a permanent one; but the Fluxion of a permanent Quantity is equal to nothing. This we ſhall illuſtrate by an Example or two.

Prob. 1. *To determine the greateſt or leaſt Applicate in an Algebraic Curve.* Since in Curves that have a *Maximum* and a *Minimum*, the Tangent TM (*Tab.* ANALYSIS *fig.* 4.) degenerates at length into DE, and becomes parallel to the Axis, and ſo the Perpendicular MH coincides with the greateſt or leaſt Applicate CG; in the Caſe of the *Maximum* and *Minimum*, the Sub-tangent TP becomes infinite, and the Sub-perpendicular equal to nothing, but $PH = ydy : dx$. If then $ydy : dx = 0$; we ſhall find $dy = 0$, and becauſe of $PT = ydx : dy = \infty$ (the Note of Infinity) $dx = \infty$. 'Tis poſſible for the Tangent HG (*fig.* 5.) to lie directly againſt the Semi-ordinate GC; in which Caſe the Sub-tangent PT is equal to nothing, and the Sub-perpendicular infinite. But $PT = ydx : dy = 0$; therefore if $ydx : dy = 0$, we ſhall have $dx = 0$; or becauſe of $PH = ydy : dx = \infty$, we find $dy = \infty$. Both dx and y being, in reſpect of dy, Infiniteſimals. From the Equation of the Curve therefore we are to find the Value of dy, which is to be made equal either to nothing, or to an Infinite, that we may have the Value of the Abſciſſe, to which the greateſt Applicate is co-ordinate.

2. *To cut a right Line* AB (*fig.* 6.) *in ſuch a manner in* D, *that the Rectangle* AD *and* DB *ſhall be greateſt that can poſſibly be thus conſtructed.* Let $AB = a$, $AD = x$, then will $DB = a - x$; conſequently $AD . DB = ax - xx$ any *Maximum*, and hence its Differential will be equal to nothing, as being conceived at a Circle, to which

$$ax - xx = yy$$

Wherefore $adx - 2xdx = 2ydy = 0$

$$a - 2x = 0$$

$$\tfrac{1}{2}a = x.$$

The Line AB therefore is to be cut into two equal Parts; and the Square is the greateſt of all Rectangles, whoſe Altitudes and Baſes, taken together, are equal to each other. See FLUXIONS.

MAXIMS, a kind of Propoſitions, which, under the Name of *Maxims* and Axioms, have paſſed for Principles of Science; and which being ſelf-evident, have been ſuppoſed innate. See AXIOM.

For the Reaſon of the Evidence of Maxims: It may be obſerved, That Knowledge being only the Perception of the Agreement or Diſagreement of Ideas; where that Agreement or Diſagreement is perceived immediately by itſelf, without the Intervention or Help of any other Ideas, there our Knowledge is ſelf-evident: which being ſo, not only *Maxims*, but an infinite number of other Propoſitions, partake equally with them in this Self-Evidence. Thus, that a Circle is a Circle, Blue is not Red, are as ſelf-evident Propoſitions, as thoſe general ones, What is, is; and, It is impoſſible for the ſame thing to be, and not to be. Nor can the Conſideration of theſe Axioms add any thing to the Evidence or Certainty of our Knowledge of them.

As to the Agreement or Diſagreement of Co-exiſtence, the Mind has an immediate Perception of this but in very few. And therefore in this Sort we have very little intuitive Knowledge; tho in ſome few Propoſitions we have. Two Bodies cannot be in the ſame Place, is a ſelf-evident Propoſition: the Idea of fitting a Place equal to the Contents of its Superficies, being annexed to our Idea of Body. As to the Relations of Modes, Mathematicians have framed many Axioms concerning that one Relation of Equality; as that Equals being taken from Equals, the Remainder will be equal, *&c.* which however received for Axioms, yet have not a clearer Self-evidence than theſe, That One and One are equal to Two; that if from the five Fingers of one Hand you take two, and from the five Fingers of the other Hand two, the remaining Numbers will be equal. As to real Exiſtence, ſince that has no Connection with any other of our Ideas, but that of ourſelves, and of a firſt Being; we have not ſo much as a demonſtrative, much leſs a ſelf-evident Knowledge concerning the real Exiſtence of other Beings. See EXISTENCE.

For the Influence of MAXIMS *on the other Parts of our Knowledge*: The Rules eſtabliſhed in the Schools, That all Reaſonings are *ex præcognitis & præconceſſis*, ſeem to lay the Foundation of all other Knowledge in theſe *Maxims*, and to ſuppoſe them to be *præcognita*; which implies two Things: *viz.* That theſe Axioms are thoſe Truths firſt known to the Mind; and, That on them the other Parts of our Knowledge depend. But, firſt, That theſe Axioms are not the Truths firſt known to the Mind, is evident from Experience: For who knows not that a Child perceives that a Stranger is not its Mother, long before he knows it impoſſible for the ſame Thing to be, and not to be? And how many Truths are there about Numbers, which the Mind is perfectly acquainted with, and fully convinced of, before it ever thought on theſe general *Maxims*? Hence it follows, That theſe magnified *Maxims* are not the Principles and Foundations of all our other Knowledge; for if there are a great many other Truths, as ſelf-evident as they, and a great many that we know before them, it is impoſſible that they ſhould be the Principles, from which we deduce all other Truths. Thus, That One and Two are equal to Three, is as evident, and eaſier known, than that the Whole is equal to all its Parts. Nor, after the Knowledge of this *Maxim*, do we know that One and Two are equal to Three, better, or more certainly, than we did before. For if there be any odds in theſe Ideas, the Ideas of Whole and Parts are more obſcure, or at leaſt more difficult to be ſettled in the Mind, than thoſe of One, Two, and Three. Either, therefore, all Knowledge does not depend on *Præcognita*, or general *Maxims*, called Principles; or elſe ſuch as theſe (That One and One are Two, that Two and Two are Four, *&c.*) and a great part of Numeration, are *Maxims*. To theſe, if we add all the ſelf-evident Propoſitions that may be made about all our diſtinct Ideas, Principles will be almoſt infinite; and a great many innate Principles, many Men never come to know all their Lives.

General MAXIMS then may be of uſe in Diſputes, to ſtop the Mouths of Wranglers; but are of little in the Diſcovery of unknown Truths. Several general *Maxims* are no more than bare verbal Propoſitions, and teach us nothing but the Reſpect and Import of Names one to another; as, The Whole is equal to all its Parts: What real Truth doth this teach us more, than what the Signification of the word *Totum*, or Whole, does of itſelf import? If rightly conſider'd, we may ſay, that where our Ideas are clear and diſtinct, there is little or no uſe at all of *Maxims*, to prove the Agreement or Diſagreement of any of them. He that needs any Proof to make him certain, and give his Aſſent to this Propoſition, That Two are equal to Two, or that White is not Black; will alſo have need of a Proof to make him admit, That what is, is; or, That it is impoſſible for the ſame Thing to be, and not to be. But as *Maxims* are of little uſe, where we have clear and diſtinct Ideas; ſo they are of dangerous uſe, where our Ideas are confuſed, and where we uſe Words, that are not annexed to clear and diſtinct Ideas. LOCKE.

MAY, the fifth Month in the Year, reckoning from the firſt of *January*; and the third, in counting the Year to begin with *March*, as they antiently did. In this Month the Sun enters *Gemini*, and the Plants of the Earth begin to flower. It was called *Maius* by *Romulus*, in reſpect to the Senators and Nobles of his City, which were named *Majores*; as the following Month was called *Junius*, in honour of the Youth of *Rome*, *in honorem Juniorum*, who ſerved him in the War: Others will have it to have been called thus from *Maia*, the Mother of *Mercury*, to whom they offer'd Sacrifice on that day; *Papias* derives it from *Madius*, *Eo quod tunc terra madeat*. This Month was under the Protection of *Apollo*, and therein alſo they kept the Feſtival of *Bona Dea*, that of *Goblins*, call'd *Lemuria*; and the Ceremony of *Regifugium*, or the Expulſion of the Kings. The Vulgar have a great opinion of *May*-Dew and Butter. See DEW. The Month of *May* has ever been eſteem'd very favourable to Love; and yet the Antients, as well as many of the Moderns, look on it as an unhappy Month for Marriage: The Reaſon may perhaps be refer'd to the Feaſt of the *Lemures*, which was held in it. *Ovid* alludes to this in the 5th of his *Faſti*, when he ſays,

> *Nec Viduæ tædis eadem, nec Virginis apta*
> *Tempora; quæ nupſit, non diuturna fuit:*
> *Hac quoque de Cauſâ, ſi te proverbia tangunt,*
> *Menſe malus Maio Nubere vulgus erit.*

MAYL, in Falconry, is to pinion the Wings of a Hawk.

MAYOR, the Chief Magiſtrate or Governour in the Cities and moſt Corporation-Towns of *England*; choſen annually by his Peers out of the number of the Aldermen. The *Mayor* of the Place is the King's Lieutenant, and with the Aldermen and Common Council, can make Laws, called *By-Laws*, for the Government of the Place. He has the Authority of a kind of Judge, to determine Matters, and to mitigate the Rigour of the Law. The Word comes from the antient *Britiſh Mires*, *cuſtodire*, *to keep*. King *Richard* I. *A. D.* 1189. firſt changed the Bayliffs of *London* into *Mayors*; by whoſe Example others were afterwards appointed. See PORTREVE and ALDERMAN.

MAYOR'S *Court*. To the Lord Mayor and City of *London* belong ſeveral Courts of Judicature. The higheſt and moſt antient is that call'd *The Huſtings*, from the *Daniſh Hus-ding*, i. e. *Domus Judicii*; deſtined to ſecure the Laws, Rights, Franchiſes, and Cuſtoms of the City.

The ſecond is a *Court of Requeſt*, or *of Conſcience*; ſo call'd, as meddling with nothing above 40 *s.* Value; or rather, becauſe here the Oath of the Creditor himſelf is accepted.

The third is the *Court of the Lord Mayor and Aldermen*, where alſo the Sheriffs ſit; two *Courts of Sheriffs*; and the *Court of the City-Orphans*, whereof the Lord Mayor and Aldermen have the Cuſtody.

The *Court of Common-Council*, conſiſting of two Houſes; the one for the Lord Mayor and Aldermen, and the other for the Commoners: In which Court are made all By-Laws, which bind the Citizens.

Under him is alſo the *Chamberlain's Court*, where every thing relating to the Rents and Revenues of the City, as alſo the Affairs of Servants, *&c.* are tranſacted. Laſtly, To him belongs the *Courts of Coroner*, and of *Eſcheator*; another Court for the *Conſervation of the River of* Thames; another of *Goal-Delivery*, held uſually eight Times a year, at the *Old-Bayley*, for the Tryal of Criminals, whereof the Lord Mayor is himſelf the chief Judge. There are other Courts call'd *Wardmotes*, or Meetings of the Wards; and *Courts of Helmote*, or Aſſemblies of the ſeveral Guilds and Fraternities.

MEAD, a wholeſome, agreeable Liquor, prepared of Honey and Water. One of the beſt Preparations, is as follows: Into twelve Gallons of Water, ſlip the Whites of ſix Eggs; mixing theſe well together, and to the Mixture adding twenty Pounds of Honey. Let the Liquor boil an hour, and when boiled, add Cinnamon, Ginger, Cloves, Mace, and a little Roſemary. As ſoon as 'tis cold, put a Spoonful of Yeaſt to it, and turn it up, keeping the Veſſel fill'd as it works; when it has done working, ſtop it up cloſe, and when fine, bottle it off for Uſe.

MEAN, the *Middle* between two Extremes. See MIDDLE and EXTREME.

Thus, we ſay, *Mean Motion* of a Planet; its *mean Diſtance*, *&c.* meaning a Motion or Diſtance, which as far exceeds the leaſt Diſtance, or Motion, as it is exceeded by the greateſt. See MOTION, DISTANCE, *&c.*

MEAN, in Logic. See MEDIUM.

MEAN *Proportion*. See EXTREME PROPORTION.

MEAN *Proportional*. See PROPORTIONAL.

MEAN *Time*. See TIME.

MEAN *Axis*, in Optics. See AXIS.

MEAN *Diameter* in Gauging. See DIAMETER.

MEAN, in Law, refers either to Time or Dignity. Thus, in the firſt ſenſe, we ſay, his Action was *mean* betwixt the Diſſeiſin made to him and his Recovery, *i. e.* in the Interim: In the ſecond we ſay, there is Lord *Mean*, i. e. *Meſne*, or Lord of a Mannor, who has Tenants that hold of him, yet himſelf holds of the King.

MEASLES, or MORBILLI, in Medicine, a cutaneous Diſeaſe, conſiſting in a general Appearance of Eruptions, not tending to Suppuration; with a Fever. This Diſtemper ſeems to bear a great Affinity to the Small-Pox, the Symptoms being in many reſpects the ſame, the Cauſe nearly the ſame, and the Regimen and Cure not much different. The Eruptions uſually appear about the fourth

Day, like Flea-Bites, over the whole Body; but thicker and redder, and with greater Inflammation, than thoſe of the Small-Pox, and vaniſh in four or ſix Days after appearance: being, when at the height, not larger than Pins Heads. The *Meaſles* is more ſickly than dangerous; tho it often inclines to Conſumptions, by a Cough which it leaves behind. See VARIOLÆ.

MEASURE, in Geometry, any certain Quantity aſſumed as one, or Unity, to which the Ratio of other homogeneous, or ſimilar Quantities is expreſs'd. This Definition is ſomewhat more agreeable to Practice than that of *Euclid*, who defines *Meaſure* by a Quantity, which being repeated any number of Times, becomes equal to another: This only anſwers to the Idea of an Arithmetical *Meaſure*, or Quota Part. See QUOTA PART.

MEASURE *of a Number*, in Arithmetic, is ſuch a Number as divides another, without leaving any Fraction; thus 9 is a *Meaſure of* 27. See NUMBER.

MEASURE *of a Line*, is any right Line taken at pleaſure: The modern Geometricians uſe a *Decempeda*, or Perch, divided into 10 equal Parts, call'd Feet. The Feet they ſubdivide into 10 Digits, the Digit into 10 Lines, *&c.* See MEASURES.

This Decimal Diviſion of the *Meaſure* was firſt introduced by *Stevinus*, probably from the Example of *Regiomontanus*: The *Index* or Character of *Decempedæ* he made 0, that of Feet 1, of Digits 2, of Lines 3, *&c.* which, in regard the *Meaſure* was ſubdivided in a decuple Ratio, were the Logarithms of the Diviſion. *Bayer*, in lieu of theſe, expreſs'd the Logarithms by the *Roman* Characters; *v. g.* 5 Perches, 4 Feet, 3 Digits, and 2 Lines, he expreſs'd thus; $5^{\circ}, 4^{\prime}, 3^{\prime\prime}, 2^{\prime\prime\prime}$. 'Tis, frequently, moſt commodious to ſeparate the Integers, or Perches, from the Fractions by a Point; thus inſtead of $5^{\circ}, 4^{\prime}, 3^{\prime\prime}, 2^{\prime\prime\prime}$; to write 5.432. F. *Noel* obſerves, that among the *Chineſe*, the Decimal Diviſion obtains in their common *Meaſures*, and even in their Weights. See DECIMAL, DEGREE, *&c.*

MEASURE *of a Figure*, or Plane-Surface, is a Square, whoſe Side is of any determinate Length; among Geometricians 'tis uſually a Perch, call'd a *Square Perch*, divided into ten ſquare Feet, and the ſquare Feet into ſquare Digits: Hence ſquare *Meaſures*. See SQUARE.

MEASURE *of a Solid*, is a Cube, whoſe Sides are of any Length at pleaſure. Among Geometricians, a Perch, call'd a Cubic Perch, divided into Cubic Feet, Digits, *&c.* Hence *Cubic Meaſures*, or Meaſures of Capacity. See CUBE.

MEASURE *of an Angle*, is an Arch, deſcribed from the *Vertex*, *a* (*Tab.* Geometry, *fig.* 10.) in any Place between its Legs; as at *df*. Hence, Angles are diſtinguiſh'd by the Ratio of the Arches, deſcribed from the Vertex, between the Legs; to the Peripheries. Angles then are diſtinguiſh'd by thoſe Arches; and the Arches are only diſtinguiſh'd by their Ratio to the Periphery. Thus the Angle *l a a* is ſaid to be of ſo many Degrees, as is the Arch *f d*. See ANGLE.

MEASURE *of Velocity*, in Mechanics, is the Space paſs'd over by the moving Body in any given Time. To meaſure a Velocity, therefore, the Space muſt be divided into as many equal Parts, as the Time is conceived to be divided into. The Quantity of Space anſwering to ſuch an Article of Time, is the Meaſure of the Velocity. See VELOCITY.

MEASURE *of the Maſs*, or Quantity of Matter in Mechanics, is its Weight; it being apparent, that all the Matter which coheres and moves with a Body, gravitates with it: and it being found by Experiment, that the Gravities of homogeneal Bodies, are in proportion to their Bulks; hence, while the Maſs continues the ſame, the Weight will be the ſame, whatever Figure it put on: its abſolute Weight, we mean; for as to its ſpecific Weight, it varies as the Quantity of Surface varies. See VELOCITY, WEIGHT, GRAVITY, *&c.*

MEASURES, therefore, are various, according to the various Kinds and Dimenſions of the Things meaſured. Hence ariſe *Lineal* or *Longitudinal Meaſures* for Lines or Lengths; *Square Meaſures* for Area's or Superficies; and *Solid* or *Cubic Meaſures* for Bodies, and their Capacities: All theſe are very different in different Countries, and in different Ages, and even many of 'em for different Commodities. Whence ariſe other Diviſions of *Domeſtic* and *Foreign Meaſures*, *Antient* and *Modern* ones; *Dry* and *Liquid Meaſures*, &c.

The Buſineſs of *Meaſures* has been ſo confuſedly, and withal ſo imperfectly deliver'd by our *Engliſh* Writers, that the Reader will not be diſpleaſed with the pains we have here taken to diſembroil, and ſupply it. Under this Head he will find enumerated the various, general, ſtanding *Meaſures*, *Long*, *Square* and *Cubic*, now or heretofore in uſe, with their Proportions and Reductions: for Particulars, he muſt be contented to be refer'd to the particular Heads; as FOOT, DIGIT, ELL, TUN, GALLON, BUSHEL, PERCH, LEAGUE, FURLONG, *&c.*

LONG MEASURES, *or* Meaſures of Application.

The Engliſh Standard LONG MEASURE for Commerce, or that whereby the Quantities of Things are ordinarily eſtimated in the way of Trade, is the *Yard*; containing three *Engliſh* Feet: equal to three *Paris* Feet, 1 Inch, $\frac{1}{12}$ of an Inch; or $\frac{7}{9}$ of a *Paris* Ell. Its Diviſions are the *Foot*, *Span*, *Palm*, *Inch*, and *Barley-Corn*, which ſee under their reſpective Heads: FOOT, INCH, *&c.* Its Multiples are the *Pace*, *Fathom*, *Pole*, *Furlong*, and *Mile*. See MILE, FURLONG, POLE, *&c.* The Proportions theſe ſeverally bear to each other, will be expreſs'd in a Table for the purpoſe.

The French Standard Meaſure for Commerce is the *Aune* or *Ell*, containing 3 *Paris* Feet, 7 Inches, 8 Lines; or 1 Yard, $\frac{2}{7}$ *Engliſh*; the *Paris* Foot Royal exceeding the *Engliſh* by $\frac{68}{1000}$ Parts, as in one of the following Tables. This Ell is divided two ways; *viz.* into *Halves*, *Thirds*, *Sixths*, and *Twelfths*; and into *Quarters*, *Half-Quarters*, and *Sixteenths*.

This Ell holds throughout the greateſt part of *France*; excepting at *Troyes* in *Campagne*; at *Arc* in the *Barrois*; in ſome parts of *Picardy* and *Burgundy*, where it only contains two Foot, five Inches, one Line; in *Bretagne*, where it contains four Foot, two Inches, eleven Lines; and at *St. Genoux* in *Berry*, where it exceeds the *Paris* Ell by eight Lines. See ELL.

But in *Languedoc*, particularly at *Marſeilles*, *Montpellier*, *Toulouſe*, in *Provence*, *Guienne*, they meaſure by the *Canna*, which at *Toulouſe* and in *Guienne* contains five *Paris* Feet, five Inches, and ſix Lines; or one *Paris* Ell and a half. At *Montpellier*, and throughout the *Lower Languedoc*, as alſo in *Provence* and *Avignon*, and even *Dauphine*, the *Canna* is ſix Foot and nine Lines; or one *Paris* Ell, two Thirds. See CANNA.

Standard Meaſure in Holland, *Flanders*, *Sweden*, a good part of *Germany*, many of the *Hans-Towns*, as *Dantzic* and *Hambourg*; and at *Geneva*, *Francfort*, &c. is likewiſe the Ell: But the Ell in all theſe Places differs from the *Paris* Ell. In *Holland*, it contains one *Paris* Foot, eleven Lines, or four Sevenths of the *Paris* Ell. The *Flanders* Ell contains two Foot, one Inch, five Lines, and half a Line, or ſeven Twelfths of the *Paris* Ell. The Ell of *Germany*, *Brabant*, *&c.* is equal to that of *Flanders*. See ELL.

The Italian Meaſure is the *Braccio*, Brace, or Fathom; which obtains in the States of *Modena*, *Venice*, *Florence*, *Lucca*, *Milan*, *Mantua*, *Bologna*, &c. but of different Lengths. At *Venice* it contains one *Paris* Foot, eleven Inches, three Lines, or eight Fifteenths of the *Paris* Ell. At *Bologna*, *Modena*, and *Mantua*, the *Brace* is the ſame as at *Venice*; At *Lucca* it contains one *Paris* Foot, nine Inches, ten Lines, or half a *Paris* Ell. At *Florence* it contains one Foot, nine Inches, four Lines; or forty-nine Hundredths of a *Paris* Ell. At *Milan*, the *Brace* for meaſuring of Silks is one *Paris* Foot, ſeven Inches, four Lines, or four Ninths of a *Paris* Ell: That for Woollen Cloths is the ſame with the Ell of *Holland*. Laſtly, at *Bergama* the *Brace* is one Foot, ſeven Inches, ſix Lines, or five Ninths of a *Paris* Ell. See BRACE. The *Meaſure* at *Naples*, however, is the *Canna*, containing ſix Foot, ten Inches, and two Lines, or one *Paris* Ell, and fifteen Seventeenths.

The Spaniſh Meaſure, is the *Virga*, or *Yard*, in ſome Places call'd the *Barra*; containing ſeventeen Twenty-fourths of the *Paris* Ell.——But the *Meaſure* in *Caſtille* and *Valentia* is the *Pan*, *Empan*, or *Palm*; which is uſed, together with the *Canna*, at *Genoa*.——In *Arragon*, the *Varra* is equal to a *Paris* Ell and a half, or five Foot, five Inches, ſix Lines.——The *Portugueſe Meaſure* is the *Cavedos*, containing two Foot, eleven Lines, or four Sevenths of the *Paris* Ell; and the *Veras*, 106 whereof make 100 *Paris* Ells.——The *Piedmonteſe Meaſure* is the *Ras*, containing one *Paris* Foot, nine Inches, ten Lines, or half a *Paris* Ell.——In *Sicily*, their *Meaſure* is the *Canna*; the ſame with that of *Naples*.

Laſtly, the *Muſcovite Meaſures* are the *Cubit*, equal to one *Paris* Foot, four Inches, two Lines; and the *Arcin*, two whereof are equal to three *Cubits*.——The *Turkiſh*, and *Levant Meaſure*, the *Picq*, containing two Foot, two Inches, and two Lines; or three Fifths of the *Paris* Ell.——The *Chineſe Meaſure*, the *Cobre*; ten whereof are equal to three *Paris* Ells.——In *Perſia*, and ſome part of the *Indies*, the *Gueze*; whereof there are two Kinds; the *Royal Gueze*, call'd alſo *Gueze Monkelſer*, containing two *Paris* Foot, ten Inches, eleven Lines, or four Fifths of the *Paris* Ell; and the *Shorter Guege*, call'd ſimply *Gueze*, only two Thirds of the former——At *Goa* and *Ormus*, the *Meaſure* is the *Varra*, the ſame with that of the *Portugueſe*, having been introduced by them.——In *Pegu*, and ſome other Parts of the *Indies*, the *Cando* or *Candi*, equal to the Ell of *Venice*.——At *Goa* and other Parts, they uſe a larger *Cando*, equal to ſeventeen *Dutch* Ells; exceeding that of *Babel* and *Belſora* by $\frac{7}{8}$ *per Cent.* and the *Varra* by 6 and $\frac{1}{2}$.——In *Siam*, they uſe the *Ken*, ſhort of three *Paris* Feet by one Inch.

The *Ken* contains two *Soks*, the *Sok* two *Keubs*, the *Keub* twelve *Nious*, or Inches; the *Niou* to be equal to eight Grains of Rice, *i. e.* to about nine Lines.——At *Camboia*, the *Coiang*; in *Japan*, the *Ikiens*; and the *Pan* on ſome of the Coaſts of *Guinea*.

Engliſh *Meaſures of Length, or Application.*

	Inch	Palm	Span	Foot	Cubit	Yard	Pace	Fathom	Pole	Furlong
Inch										
Palm	3									
Span	9	3								
Foot	12	4	$1\frac{1}{3}$							
Cubit	18	6	2	$1\frac{1}{2}$						
Yard	36	12	4	3	2					
Pace	60	20	$6\frac{2}{3}$	5	$3\frac{1}{3}$	$1\frac{2}{3}$				
Fathom	72	24	8	6	4	2	$1\frac{1}{5}$			
Pole	198	66	22	$16\frac{1}{2}$	11	$5\frac{1}{2}$	$3\frac{3}{10}$	$2\frac{3}{4}$		
Furlong	7920	2640	880	660	440	220	132	110	40	
Mile	63360	21120	7040	5280	3520	1760	1056	880	320	8

Scripture *Meaſures of Length.*

	Digit	Palm	Span	Cubit	Fathom	Ezekiel's Reed	Arabian Pole	Engl. Feet.	Inch. Dec.
Digit								0	0,912
Palm	4							0	3,648
Span	12	3						0	10,944
Cubit	24	6	2					1	9,888
Fathom	96	24	8	4				7	3,552
Ezekiel's Reed	144	36	12	6	$1\frac{1}{2}$			1	11,328
Arabian Pole	192	48	16	8	2	$1\frac{1}{3}$		1	7,104
Schœnus, Meaſuring-Line	1920	480	160	80	20	$13\frac{1}{3}$	10	145	11,04

Grecian *Meaſures of Length reduced to* Engliſh.

	Dactylus, *Digit*	Doron, Dochme	Lichas	Orthodoron	Spithame	Pes, *Foot*	Pygme, *Cubit*	Pygon	Pechus, *Cubit larger*	Orgya, *Pace*	Stadius, Aulus	Engl. Paces.	Feet.	Inch. Dec.
Dactylus, *Digit*												0	0	$0,7554\frac{11}{16}$
Doron, Dochme	4											0	0	$3,0318\frac{3}{4}$
Lichas	10	$2\frac{1}{2}$										0	0	$7,5546\frac{7}{8}$
Orthodoron	11	$2\frac{3}{4}$	$1\frac{1}{10}$									0	0	$8,3101\frac{9}{16}$
Spithame	12	3	$1\frac{1}{5}$	$1\frac{1}{11}$								0	0	$9,0656\frac{1}{4}$
Pes, *Foot*	16	4	$1\frac{6}{10}$	$1\frac{5}{11}$	$1\frac{1}{3}$							0	1	0,0875
Pygme, *Cubit*	18	$4\frac{1}{2}$	$1\frac{4}{5}$	$1\frac{7}{11}$	$1\frac{1}{2}$	$1\frac{1}{8}$						0	1	1,5284
Pygon	20	5	2	$1\frac{9}{11}$	$1\frac{2}{3}$	$1\frac{1}{4}$	$1\frac{1}{9}$					0	1	3,109
Pechus, *Cubit larger*	24	6	$2\frac{2}{5}$	$2\frac{}{11}$	2	$1\frac{1}{2}$	$1\frac{1}{3}$	$1\frac{1}{5}$				0	1	6,1312
Orgya, *Pace*	96	24	$9\frac{3}{5}$	$8\frac{8}{11}$	8	6	$5\frac{1}{3}$	$4\frac{4}{5}$	4			0	6	0,525
Stadius, Aulus, *Furlong*	9600	2400	960	$872\frac{8}{11}$	800	600	$533\frac{1}{3}$	480	400	100		120	4	4,5
Milion, *Mile*	76800	19200	7680	$6981\frac{9}{11}$	6400	4800	$4266\frac{2}{3}$	3840	3200	800	8	968	0	0

Longer Jewiſh *Meaſures of Length.*

	Cubit	Stadium	Sab. Day's Journey	Eaſtern Mile	Paraſang	Eng. Miles.	Paces.	Feet. Dec.
Cubit						0	0	1,824
Stadium	400					0	145	4,6
Sab. Day's Journey	2000	5				0	729	3,0
Eaſtern Mile	4000	10	2			1	403	1,0
Paraſang	12000	30	6	3		4	153	3,0
a Day's Journey	96000	240	48	24	8	33	172	4,0

Roman *Meaſures of Length reduced to* Engliſh.

	Digitus tranſverſus	Uncia	Palmus minor	Pes	Palmipes	Cubitus	Gradus	Paſſus	Stadium	Engl. Paces.	Feet.	Inch. Dec.
Digitus tranſverſus										0	0	$0,725\frac{1}{4}$
Uncia	$1\frac{1}{3}$									0	0	0,967
Palmus minor	4	3								0	0	2,901
Pes	16	12	4							0	0	11,604
Palmipes	20	15	5	$1\frac{1}{4}$						0	1	2,505
Cubitus	24	18	6	$1\frac{1}{2}$	$1\frac{1}{5}$					0	1	5,406
Gradus	40	30	10	$2\frac{1}{2}$	2	$1\frac{2}{3}$				0	2	5,01
Paſſus	80	60	20	5	4	$3\frac{1}{3}$	2			0	4	10,02
Stadium	10000	7500	2500	625	500	$416\frac{2}{3}$	250	125		120	4	4,5
Milliare	80000	60000	20000	5000	4000	$3333\frac{1}{3}$	2000	1000	8	967	0	0

The Proportions of the Long Meaſures *of ſeveral Nations to the* Engliſh *Foot, by Mr.* Greaves.

The *Engliſh* Standard Foot being divided into 1000 equal Parts, the other Meaſures will have the Proportions to it, which follow.

The *Engliſh* Foot, *from the Standard in* Guildhall	1000
The *Paris* Royal Foot, *in the* Châtelet	1068
The *Rhinland* Foot, of *Snellius.*	1033
The *Greek* Foot	$1007\frac{29}{100}$
The *Roman* Foot, *on the Monument of* Coſſutius	967
The *Roman* Foot, *on the Monument of* Statilius	972
The *Roman* Foot, of *Villalpandus, taken from the* Congius *of* Veſpaſian	986
The *Venetian* Foot	1162
The Ell of *Antwerp*	2283
The Ell of *Amſterdam*	2268
The Ell of *Leyden*	2260
The Canna of *Naples*	687
The Varra or Vare of *Almeria*, and *Gibraltar* in *Spain*	2760
The Braccio of *Florence*	1913
The Palm of *Genoa*	815
The Common Braccio of *Sienna*	1242
The Braccio of *Sienna, for Linnen*	1974
The Palm of the Architects at *Rome*, whereof X make the Canna of the ſame Architects	732
The Palm of the Braccio of the Merchants and Weavers at *Rome*; *from a Marble in the Capitol, with this Inſcription,* CVRANTE LV POETO	$695\frac{1}{10}$
The Large Pique of the *Turks* at *Conſtantinople*	2200
The Small Pique of the *Turks* at *Conſtantinople*, is to the Larger, as 31 to 32.	
The Ariſh of *Perſia*	3197
The Derah or Cubit of the *Egyptians*	1824

The Proportions of ſeveral Long Meaſures *to each other, by M.* Picard.

The *Rhinland* or *Leyden* Foot (12 *whereof make the* Rhinland *Perch*) *ſuppoſed*	696
The *Engliſh* Foot	$675\frac{1}{10}$
The *Paris* Foot	720
The *Amſterdam* Foot, from that of *Leyden*, by *Snellius*	629
The *Daniſh* Foot (*two whereof make the* Daniſh *Ell*)	$701\frac{8}{10}$
The *Swediſh* Foot.	$658\frac{3}{4}$
The *Bruſſels* Foot	$609\frac{3}{5}$
The *Dantzic* Foot, *from* Hevelius's Selenographia	636
The *Lyons* Foot, by M. *Auzout*	$757\frac{2}{3}$
The *Bologna* Foot, by the ſame.	843
The Braccio of *Florence*, by the ſame, and Father *Merſenne*	1290
The Palm of the Architects at *Rome*, according to the Obſervation of Meſſ. *Picard* and *Auzout*	$494\frac{1}{4}$
The *Roman* Foot in the Capitol, *examin'd by Meſſieurs* Picard *and* Auzout	653 or $653\frac{1}{10}$
The ſame, *from the* Greek *Foot*	652
From the Vineyard Mattei	657
From the Palm	658
From the Pavement of the Pantheon, *ſuppoſed to contain* 10 Roman *Feet*	653
From a Slip of Marble in the ſame Pavement, ſuppoſed to contain 3 Roman *Feet*	650
From the Pyramid of Ceſtius, *ſuppoſed to contain* 3 Roman *Feet*	$650\frac{1}{2}$
From the Diameters of the Columns in the Arch of Septimius Severus.	$653\frac{1}{2}$
From a Slip of Porphiry in the Pavement of the Pantheon	$653\frac{1}{8}$

SQUARE *or* SUPERFICIAL MEASURES.

Engliſh SQUARE *or* SUPERFICIAL MEASURES, are raiſed from the Yard of 36 Inches, multiplied into itſelf; and this producing 1296 ſquare Inches in the ſquare Yard, the Diviſions of this are Square Feet and Inches; and the Multiples, Poles, Roods, and Acres; as in the Table.

French Square Meaſures, are regulated by 12 ſquare Lines in the Inch ſquare; 12 Inches in the Foot, 22 Feet in the Perch, and 100 Perches in the *Arpent*, or Acre.

Engliſh *Square Meaſures.*

Inches						
144	Feet					
1296	9	Yards				
3600	25	$2\frac{7}{9}$	Paces			
39204	$272\frac{1}{4}$	$30\frac{1}{4}$	10,89	Poles		
1568160	10890	1210	435,6	40	Rood	
6272640	43560	4840	1743,6	160	4	Acre

Grecian Square Meaſures, were the *Plethron*, *Jugerum* or *Acre*; by ſome ſaid to contain 1444, by others 10000 Cubits: and *Aroura*, the Half of the *Plethron*. The *Aroura* of the *Egyptians* was the Square of 100 Cubits.

Roman *Square Meaſures reduced to* Engliſh.

The Integer *was a* Jugerum *or Acre, which they divided like the* Libra *or* As: *Thus,*

	Jugerum contain'd Square Feet.	Scruples.	Engl. Roods.	Sq. Poles.	Sq. Feet.
As	28800	288	2	19	00
Deunx	26400	264	2	10	204
Dextans	24000	240	2	2	136
Dodrans	21600	216	1	34	68
Bes	19200	192	1	26	00
Septunx	16800	168	1	17	204
Semis	14400	144	1	09	136
Quincunx	12000	120	1	01	68
Triens	9600	96	0	33	00
Quadrans	7200	72	0	24	204
Sextans	4800	48	0	16	136
Uncia	2400	24	0	08	68

Cubic Meaſures, or Meaſures of Capacity for Things Liquid.

Engliſh Liquid Meaſures, were originally raiſed from Troy-Weight; it being enacted by ſeveral Statutes, That eight Pound Troy of Wheat, gather'd from the middle of the Ear, and well dried, ſhould weigh a Gallon, of *Wine-Meaſure*; the Diviſions and Multiples whereof were to form the other Meaſures: At the ſame time it was order'd, That there ſhould be but one *Liquid Meaſure* in the Kingdom: yet Cuſtom has prevailed, and there having been introduced a new Weight, *viz.* the Avoirdupois, we have now a ſecond Standard Gallon adjuſted thereto, and therefore exceeding the former, in the proportion of the Avoirdupois Weight to Troy Weight. From this latter Standard are raiſed two ſeveral *Meaſures*, the one for Ale, the other for Beer. The ſealed Gallon at *Guildhall*, which is the Standard for Wines, Spirits, Oils, *&c.* is ſuppoſed to contain 231 Cubic Inches; on which Suppoſition, the other *Meaſures* raiſed therefrom, will contain as in the following Tables; yet, by actual Experiment made in 1688, before the Lord Mayor and the Commiſſioners of Exciſe, it was only found to contain 224 Cubic Inches: It was however agreed to continue the common ſuppoſed Contents of 231 Cubic Inches; ſo that all Computations ſtand on their old footing. Hence, as 12 is to 231, ſo is 14$\frac{12}{20}$ to 281$\frac{1}{8}$, the Cubic Inches in the Ale Gallon: but in effect the Ale Quart contains 70$\frac{1}{2}$ Cubic Inches; on which Principle, the Ale and Beer Gallon will be 282 Cubic Inches. The ſeveral Diviſions and Multiples of theſe *Meaſures*, and their Proportions, are exhibited in the Tables underneath.

French Meaſures. At *Paris*, and in a great part of the Kingdom, the *Meaſures*, to begin with the ſmalleſt, are, the Poſſon, which contains ſix Cubic Inches; two Poſſons make the Demi-ſeptier; two Demi-ſeptiers, the Septier or Chopine; two Chopines, a Pint; two Pints, the Quart or Pot; four Quarts, the Gallon, or Septier of Eſtimation; and thirty-ſix Septiers, the Muid, which is ſub-divided into two Demi-Muids, four Quarter-Muids, and eight Half-Quarter-Muids. See MUID, SEPTIER, QUART, CHOPINE, *&c.* From the Quart are likewiſe raiſed the *Meaſures* uſed in other Parts, as the Queue uſed in *Orleans*, *Blois*, *&c.* containing a *Paris* Muid and a half, or 420 Pints; the Tun uſed at *Bayonne* and *Bourdeaux*, conſiſting of four Bariques, and equal to three *Paris* Muids; at *Orleans*, to two: ſo that the firſt Tun contains 864 Pints, and the ſecond 576. See TUN. The Demi-Queue, uſed in *Champagne*, 96 Quarts; the Pipe, uſed in *Anjou* and *Poictou*, containing two Buſſards, equal to two Demi-Queues of *Orleans*, *&c.* or a Muid and a half of *Paris*, or 432 Pints. See PIPE. The Millerolle uſed in *Provence*, containing 66 *Paris* Pints; and the Poincon uſed at *Nantes*, in *Touraine* and the *Bleſſois*, equal to half the *Orleans* Tun. The Poincon uſed at *Paris*, is the ſame with the Demi-Queue. See QUEUE.

Dutch Liquid Meaſures. At *Amſterdam*, their *Meaſures*, to begin with the Diminutions, are, Mingles, Mingeebles, or Bottles, equal to *French* Quarts, and containing two Pounds, four Ounces, Marc, of an ordinary Liquor. The Mingle is divided into two Pints, four half Pints, eight Muſſies, ſixteen half Muſſies, *&c.* Seven hundred and ſeventy Mingles make their Tun. The Viertel, or Verge, conſiſts of five Mingles, and one Sixth of a Mingle. The Wine Viertel is juſt ſix Mingles. The Stekan, or Stekamen, contains ſixteen Mingles. The Anker contains two Stekans; and four Ankers, the Aem. For Oils they uſe the Tun, which contains ſix Aems, or Ams; equal to 1600 *Paris* Pints. See TUN.

Spaniſh Liquid Meaſures, are the Botte, containing between thirty-ſix and thirty-ſeven *Dutch* Steekans, holding about a thouſand Weight. The Botte conſiſts of thirty Robes, each weighing twenty-eight Pounds. Each Robe is again divided into eight Sommes, and the Somme into four Quarts. The Pipe conſiſts of eighteen Robes.

Portugueſe Liquid Meaſures, are Bottes, Almudes, Cavadas, Quatas; and for Oil, Alguiers or Cantars. The *Portugueſe* Botte, is ſomewhat ſmaller than the *Spaniſh*; the latter being equal to thirty-ſix or thirty-ſeven Steekans, and the former only to twenty-five or twenty-ſix. The Quatas is one Fourth of the Cavadas. The Cavadas, or Cavado, is the ſame with the *Dutch* Mingle. Six Cavavadas make an Alquier, and two Alquiers one Almude, or Almoud; twenty-ſix Almouds, a Botte.

Italian Liquid Meaſures. At *Rome* are the Boccale, or Bottle, containing a little more than a *Paris* Pint. Seven Boccales and a half make the Rubbia, and thirteen Rubbia and a half, the Brante; ſo that the Brante contains ninety-ſix Boccales.——At *Florence*, the Staro or Staio, containing three Barrils, and the Barril twenty Fiaſco's or Flasks, nearly equal to *Paris* Pints.——At *Verona*, they uſe the Baſſee, fixteen whereof make a Brente; the Brente contains ninety-ſix Boccales, or thirteen Rubbias and a half.——At *Venice*, the Amphora, containing two Bottes; the Botte, four Bigots; the Bigot, or Bigour, four Quarts; the Quart, four Tiſchaufferas. The *Venetian* Botte is again divided into Muſtaches, ſeventy-ſix whereof make the Amphora.——At *Ferrara*, the Maſtilly, containing eight Sechys.——In *Iſtria*, Sechys; ſix whereof make the Urna.——In *Calabria*, and the *Pouille*, Pignatoli's, equal to *French* Pints; thirty-two Pignatoli's make the Staro, or Staio; and ten Staro's, the Salma.

German Liquid Meaſures. The Feoder is uſed almoſt throughout all *Germany*, but with ſome difference in its Length, as well as its Sub-diviſions. The Feoder is ſuppoſed the Load of a Waggon with two Horſes. Two Feoders and a half make the Reoder; ſix Ames, the Feoder; twenty Fertels, the Ame; and four Maſſems, or Maſſes, the Fertel: ſo that the Roder contains 1200 Maſſes, the Feoder 480, the Ame 80, and the Fertel 41.——At *Nuremberg*, the Diviſion of the Feoder, is into twelve Heemers, and the Heemer into ſixty-four Maſſes.——At *Vienna*, they divide the Feoder into thirty-two Heemers, the Heemer into thirty-two Achtelings, and the Achteling into four Seiltins. The Ame, there, is eighty Maſſes; the Fertel, call'd alſo Schreve, four Maſſes; and the Driolinck twenty-four Heemers.——At *Ausbourg*, the Feoder is divided into eight Jez; the Je into two Muids, or twelve Beſons; the Beſon into eight Maſſes, which makes 768 Maſſes in the Feoder, as in that of *Nuremberg*.——At *Heidelberg*, the Feoder is divided into ten Ames; the Ame into twelve Vertels; and the Vertel into four Maſſes.——In *Wirtemberg*, the Feoder is divided into ſix Ames; the Ame into ſixteen Yunes; the Yune into ten Maſſes.

Liquid Meaſures on the Coaſts of Barbary. At *Tripoli*, *&c.* they uſe the Rotolo, or Rotoli; thirty-two whereof make the Matuli.——At *Tunis*, forty-two of the Rotoli of *Tripoli*, make a Matara, or Mataro; and the other Places on the ſame Coaſt uſe nearly the ſame Meaſures.——It may be here obſerved, that moſt, if not all the *Eaſtern* Nations, with whom the *Europeans* traffic, have not any ſuch thing as *Meaſures of Capacity*, whether for Things liquid or dry; but that they ſell every thing, even Liquors, by the Weight. We may, however, rank among the Number of *Liquid Meaſures*, the Cocoa and Canan of *Siam*. The firſt are the Cocoa-ſhells cleared of their Kernel. And ſince theſe are not all of the ſame Capacity, they meaſure them with *Cauris*, or little Shells found in the *Maldives*; which alſo ſerve for Money in ſome States of the *Indies*. Some Cocoa's hold a thouſand *Cauris*, and ſome only five hundred. Above the Cocoa's is the Canan, a little Meaſure uſed in the ſame Country, and called by the *Portugueſe*, *Choup*; holding about a *Paris* Quart.

English *Meaſures of Capacity for Liquids.*

Wine Meaſure.

Solid Inches									
$28\frac{7}{8}$	Pint								
231	8	Gallon							
4158	144	18	Rundlet						
$7276\frac{1}{2}$	252	$31\frac{1}{2}$	$1\frac{3}{4}$	Barrel					
9702	336	42	$2\frac{1}{3}$	$1\frac{1}{3}$	Tierce				
14553	504	63	$3\frac{1}{2}$	2	$1\frac{1}{2}$	Hogſhead			
19279	672	84	$4\frac{2}{3}$	$2\frac{2}{3}$	2	$1\frac{1}{3}$	Punchion		
29106	1008	126	7	4	3	2	$1\frac{1}{2}$	Butt	
58212	2016	252	14	8	6	4	3	2	Tun

Ale Meaſure.

Pints					
8	Gall.				
64	8	Firk.			
128	15	2	Kild.		
256	32	4	2	Barrel	
512	64	8	4	2	Hogſh.

Beer Meaſure.

Pints					
8	Gall.				
72	9	Firk.			
144	18	2	Kild.		
288	36	4	2	Barrel	
576	72	8	4	2	Hogſh.

Attick *Meaſures of Capacity for Liquids, reduced to* Engliſh *Wine Meaſure.*

										Gall.	Pints.	Sol.Inch.Dec.
Cochliarion										0	$\frac{1}{120}$	0,047
2	Cheme									0	$\frac{1}{60}$	0,904
$2\frac{1}{2}$	$1\frac{1}{4}$	Myſtron								0	$\frac{1}{48}$	$0,117\frac{1}{4}$
5	$2\frac{1}{2}$	2	Concha							0	$\frac{1}{24}$	$0,234\frac{1}{2}$
10	5	4	2	Cyathus						0	$\frac{1}{12}$	0,469
15	$7\frac{1}{2}$	6	3	$1\frac{1}{2}$	Oxubaphon					0	$\frac{1}{8}$	$0,704\frac{1}{2}$
60	30	24	12	6	4	Cotyle				0	$\frac{1}{2}$	2,818
120	60	48	24	12	8	2	Xeſtes, *Sextary*			0	1	5,636
720	360	288	144	72	48	12	6	Chos, *Congius*		0	7	4,942
8640	4320	3456	1728	864	576	144	72	12	Metretes, *Amphora*	10	6	1,554

Roman *Meaſures of Capacity for Liquids, reduced to* Engliſh *Wine Meaſure.*

										Gall.	Pints.	Sol.Inch.Dec.
Ligula										0	$0\frac{1}{48}$	$0,117\frac{5}{12}$
4	Cyathus									0	$0\frac{1}{12}$	$0,469\frac{2}{3}$
6	$1\frac{1}{2}$	Acetabulum								0	$0\frac{1}{8}$	$0,704\frac{1}{2}$
12	3	2	Quartarius							0	$0\frac{1}{4}$	1,409
24	6	4	2	Hemina						0	$0\frac{1}{2}$	2,818
48	12	8	4	2	Sextarius					0	1	5,636
288	72	48	24	12	6	Congius				0	7	4,942
1152	288	192	96	48	24	4	Urna			3	$4\frac{1}{2}$	5,33
2304	576	384	192	96	48	8	2	Amphora		7	1	10,66
46080	11520	7680	3840	1920	960	160	40	20	Culeus	143	3	11,075

Jewiſh *Meaſures of Capacity for Liquids, reduced to* Engliſh *Wine Meaſure.*

							Gall.	Pints.	Sol.Inch.
Caph							0	$0\frac{5}{8}$	0,15
$1\frac{1}{3}$	Log						0	$0\frac{3}{4}$	$2\frac{1}{2}$
$5\frac{1}{3}$	4	Cab					0	3	10
16	12	3	Hin				1	2	$2\frac{1}{2}$
32	24	6	2	Seah			2	4	5
96	72	18	6	3	Bath, Epha		7	4	15
960	720	180	60	30	10	Coron, Chomer	75	5	7

Cubic Meaſures of Capacity for Things Dry.

Engliſh Dry or Common Meaſures, are raiſed from the *Wincheſter* Gallon; which contains 272$\frac{1}{4}$ Solid Inches, to hold of pure Running or Rain-Water, nine Pound, thirteen Ounces. This ſeems to ſtand on the foot of the Old Wine Gallon, of 224 Cubic Inches; 12 being to 14$\frac{12}{28}$, as 224 to 272$\frac{1}{2}$. Yet by an Act of Parliament, made 1697, it is decreed, That a round Buſhel, eighteen Inches and a half wide, and eight deep, is a legal *Wincheſter* Buſhel. But ſuch a Veſſel will only hold 250.42 Cubic Inches; conſequently the Gallon will only contain 268$\frac{4}{5}$ Cubic Inches. The Diviſions and Multiples are as in the Table following.

French Dry Meaſures, are the Litron, Buſhel, Minot, Mine, Septier, Muid, and Tun. The Litron is divided into two Demi-litrons, and four Quarter-litrons, and contains 36 Cubic Inches of *Paris.* By Ordonnance, the Litron is to be three Inches and a half high; and three Inches, ten Lines broad. The Litron for Salt is larger, and is divided into two Halves, four Quarters, eight Demi-quarters, and ſixteen Meſurettes.——The Buſhel is different in different Juriſdictions. At *Paris,* it is divided into Demi-buſhels; each Demi-buſhel into two Quarts; the Quart into two Half-quarts; and the Half-quart into two Litrons: ſo that the Buſhel contains ſixteen Litrons. By Ordonnance, the *Paris* Buſhel is to be eight Inches, two Lines and a half high; and ten Inches broad, or in Diameter, within-ſide. The Minot conſiſts of three Buſhels; the Mine of two Minots, or ſix Buſhels; the Septier of two Mines, or twelve Buſhels; and the Muid of twelve Septiers, or a hundred forty-four Buſhels. *The Buſhel for Oats* is eſtimated double that of any other Grain; ſo that there go twenty-four Buſhels to make the Septier, and two hundred eighty-eight to make the Muid. It is divided into four Picotins; the Picotin containing two Quarts, or four Litrons. *The Buſhel for Salt* is divided into two Half-Buſhels, four Quarters, eight Half-Quarters, and ſixteen Litrons; four Buſhels make a Minot, ſixteen a Septier, and a hundred ninety-two a Muid. The *Buſhel for Wood* is divided into Halves, Quarters, and Half-Quarters. Eight Buſhels make the Minot, ſixteen a Mine; twenty Mines, or three hundred and twenty Buſhels, the Muid. For Plaiſter, twelve Buſhels make a Sac, and thirty-ſix Sacs a Muid. For Lime, three Buſhels make a Minot, and forty-eight Minots a Muid. See Bushel.——The Minot is, by Ordonnance, to be eleven Inches, nine Lines high; and fourteen Inches eight Lines in diameter. The Minot is compoſed of three Buſhels, or ſixteen Litrons; four Minots make a Septier, and forty-eight a Muid.——The Mine is no real Veſſel, but an Eſtimation of ſeveral others. At *Paris,* the Mine contains ſix Buſhels, and twenty-four make the Muid. At *Rouen,* the Mine is four Buſhels; and at *Dieppe,* eighteen Mines make a *Paris* Muid. See Muid.——The Septier differs in different Places: At *Paris,* it contains two Mines, or eight Buſhels; and twelve Septiers the Muid. At *Rouen,* the Septier contains two Mines, or twelve Buſhels. Twelve Septiers make a Muid at *Rouen,* as well as *Paris*; but twelve of the latter are equal to fourteen of the former. At *Toulon,* the Septier contains a Mine and half; three of which Mines make the Septier of *Paris.* See Septier.——The Muid, or Muy, of *Paris,* conſiſts of twelve Septiers; and is divided into Mines, Minots, Buſhels, &c. That for Oats is double that for other Grain; *i.e.* contains twice the Number of Buſhels. At *Orleans,* the Muid is divided into Mines; but thoſe Mines only contain two *Paris* Septiers and a half. See Muid. In ſome Places they uſe the Tun in lieu of the Muid; particularly at *Nantes,* where it contains ten Septiers of ſixteen Buſhels each, and weighs about three thouſand three hundred Pounds. Three of theſe Tuns make twenty-eight *Paris* Septiers. At *Rochel,* &c. the Tun contains forty-two Buſhels, and weighs two *per Cent.* leſs than that of *Nantes.* At *Breſt,* it contains twenty Buſhels, is equal to ten *Paris* Septiers, and weighs about two thouſand two hundred and forty Pounds. See Tun.

Dutch, Swediſh, Poliſh, Pruſſian, and *Muſcovite Dry Meaſures.* In theſe Places they eſtimate their Dry Things on the foot of the *Laſt, Leſt, Leth,* or *Lecht*; ſo called, according to the various Pronunciations of the People who uſe it.——In *Holland,* the Laſt is equal to nineteen *Paris* Septiers, or thirty-eight *Bourdeaux* Buſhels, and weighs about 4560 Pounds; the Laſt they divide into twenty-ſeven Mudes, and the Mude into four Schepels.——In *Poland,* the Laſt is forty *Bourdeaux* Buſhels, and weighs about 4800 *Paris* Pounds.——In *Pruſſia,* the Laſt is 133 *Paris* Septiers.——In *Sweden* and *Muſcovy,* they meaſure by the Great and Little Laſt; the firſt containing twelve Barrils, and the ſecond half as many. See Last.——In *Muſcovy,* they likewiſe uſe the Cheſford, which is different in various Places: That of *Archangel* is equal to three *Rouen* Buſhels.

Italian Dry Meaſures. At *Venice, Leghorn,* and *Lucca,* they eſtimate their dry Things on the foot of the Staro or Staio; the Staro of *Leghorn* weighs 54 Pounds: 112 Staro's, and ſeven Eighths, are equal to the *Amſterdam* Laſt.——At *Lucca,* 119 Staro's make the Laſt of *Amſterdam.*——The *Venetian* Staro weighs 128 *Paris* Pounds; the Staro is divided into four Quarters. 35 Staro's and $\frac{1}{4}$, or 140 Quarters $\frac{3}{4}$, make the Laſt of *Amſterdam.*——At *Naples,* and other Parts, they uſe the Tomole, or Tomalo, equal to one Third of the *Paris* Septier. 36 Tomols and a half, make the Carro; and a Carro and a half, or 54 Tomols, make the Laſt of *Amſterdam.*——At *Palermo,* 16 Tomoli make the Salma; and four Mondili, the Tomolo. Ten Salma's $\frac{1}{3}$, or 171 Tomoli $\frac{1}{3}$, make the Laſt of *Amſterdam.*

Flemiſh Dry Meaſures. At *Antwerp,* &c. they meaſure by the Vertel; thirty-two and a half whereof, make nineteen *Paris* Septiers.——At *Hambourg,* the Schepel; ninety whereof make nineteen *Paris* Septiers.

Spaniſh and Portugueſe Dry Meaſures. At *Cadiz, Bilboa,* and *St. Sebaſtian,* they uſe the Fanequa; twenty-three whereof make the *Nantes,* or *Rochel* Tun; or nine *Paris* Septiers and a half: tho the *Bilboa* Fanequa is ſomewhat larger; inſomuch that twenty one Fanequas make a *Nantes* Tun.——At *Seville,* &c. they uſe the Anagros, containing a little more than the *Paris* Mine; thirty-ſix Anagros make nineteen *Paris* Septiers.——At *Bayonne,* &c. the Conqua; thirty whereof are equal to nine *Paris* Septiers and a half.——At *Liſbon,* the Alquier, a very ſmall Meaſure; 240 whereof make 19 *Paris* Septiers; 60 the *Liſbon* Muid.

Engliſh *Dry or Corn Meaſures.*

	Solid Inches	Pint	Gallon	Peck	Buſhel	Strike	Carnock *or* Coom	Seem *or* Quarte	Way
Pint	34$\frac{1}{32}$								
Gallon	272$\frac{1}{4}$	8							
Peck	544$\frac{1}{2}$	16	2						
Buſhel	2178	64	8	4					
Strike	17424	128	16	8	2				
Carnock *or* Coom		256	32	16	4	2			
Seem *or* Quarte		512	64	32	8	4	2		
Way		3072	384	102	48	24	12	6	
Laſt		5120	640	320	80	40	20	10	12

Jewiſh *Dry Meaſures reduced to* Engliſh.

	Gachal	Cab	Gomor	Seah	Epha	Leteech	Pecks.	Gall.	Pints.	Sol.Inc.Dec.
Gachal							0	0	17	0,0033
Cab	20						0	0	2$\frac{5}{6}$	0,120
Gomor	36	1$\frac{4}{5}$					0	0	5$\frac{1}{10}$	1,811
Seah	120	6	3$\frac{1}{3}$				1	0	1	4,03
Epha	360	18	10	3			3	0	3	12,11
Leteech	1800	90	50	15	5		16	0	0	26,52
Chomer, Coron	3600	180	100	30	10	2	32	0	1	19,04

Attick *Dry Meaſures reduced to* Engliſh.

							Pecks.	Gall.	Pints.	Sol. Inch.
Cochliarion							0	0	$\frac{1}{120}$	0,004
10	Cyathus						0	0	$\frac{1}{12}$	0,04
15	1½	Oxubaphon					0	0	$\frac{1}{8}$	0,06
16	6	4	Cotyle				0	0	$\frac{1}{2}$	0,24
120	12	8	2	Xeſtes, *Sextary*			0	0	1	0,48
180	18	12	3	1½	Choinix		0	0	1½	0,72
8640	864	576	144	72	48	Medimnus	4	1	1	0,53

Roman *Dry Meaſures reduced to* Engliſh.

							Pecks.	Gall.	Pints.	Sol. Inc. Dec.
Ligula							0	0	0$\frac{1}{48}$	0,01
4	Cyathus						0	0	0$\frac{1}{12}$	0,04
6	1½	Acetabulum					0	0	0$\frac{1}{8}$	0,06
24	6	4	Hemina				0	0	0$\frac{1}{2}$	0,24
48	12	8	2	Sextarius			0	0	1	0,48
384	96	64	16	8	Semimod.		0	1	0	3,48
768	192	128	32	16	2	Modius	1	0	0	7,68

Note. The uſual MEASURE *of Wood for Firing*, is the Cord; four Foot high, as many broad, and eight long; divided into two half Cords, call'd Ways, and by the *French*, *Membrures*, from the Pieces, ſtuck upright, to bound them; or Voyes, as being ſuppoſed half a Waggon Load. See CORD.

The MEASURE *for Horſes*, is the Hand or Handful; which, by the Statute, contains four Inches. See HAND, &c.

MEASURE is alſo uſed to ſignify the Cadence, and Time obſerved in Poetry, Dancing, and Muſic, to render them regular, and agreeable. The different *Meaſures* in Poetry, are the different Manners of ordering and combining the Quantities, or the long and ſhort Syllables. Thus Hexameter, Pentameter, Iambic, Sapphic Verſes, &c. conſiſt of different *Meaſures*. See QUANTITY, VERSE, &c.

In *Engliſh* Verſes, the *Meaſures* are extremely various and arbitrary, every Poet being at liberty to introduce any new Form he pleaſes. The moſt uſed are, the Heroic, generally conſiſting of five long, and five ſhort Syllables; Verſes of four Feet; and of three Feet, and a Ceſure or ſingle Syllable. The Antients, by variouſly combining and tranſpoſing their Quantities, made a vaſt Variety of different *Meaſures*. Of Words, or rather Feet of two Syllables, they form'd a *Spondee*, conſiſting of two long Syllables; a *Pirrhic*, of two ſhort Syllables; a *Trochee*, of a long and a ſhort Syllable; an *Iambic*, of a long and a ſhort Syllable. Of their Feet of three Syllables, they form'd a *Moloſs*, conſiſting of three long Syllables; a *Tribrach*, of three ſhort Syllables; a *Dactyl*, of one long, and two ſhort Syllables; an *Anapeſt*, of two ſhort and two long Syllables. The *Greek* Poets contrived 124 different Combinations or *Meaſures*, under as many different Names, from Feet of two Syllables to thoſe of ſix. See SPONDEE, DACTYL, RHIME, FOOT, &c.

MEASURE, in Muſic, is the Interval, or Space of Time, which the Perſon, who regulates the Muſic, takes between the raiſing and letting fall of his Hand, in order to conduct the Movement ſometimes quicker, and ſometimes ſlower, according to the Kind of Muſic, or the Subject that is ſung or play'd. See TIME. The ordinary or common *Meaſure*, is one Second, or ſixtieth part of a Minute, which is nearly the Space between the Beats of the Pulſe or Heart; the Syſtole, or Contraction of the Heart, anſwering to the Elevation of the Hand, and its Diaſtole, or Dilatation, to the letting it fall. The *Meaſure* uſually takes up the Space that a Pendulum, of two Foot and a half long, employs in making a Swing or Vibration. See VIBRATION.

The *Meaſure* is regulated according to the different Quality or Value of the Notes in the Piece; by which the Time that each Note is to take up, is expreſs'd. The Semi-Breve, for inſtance, holds one Riſe, and one Fall; and this is call'd the whole *Meaſure*: the Minim, one Riſe, or one Fall; and the Crochet, half a Riſe, or half a Fall, there being four Crochets in a full *Meaſure*. See NOTE.

Binary, or *Double* MEASURE, is that wherein the Riſe and Fall of the Hand are equal.

Ternary, or *Triple* MEASURE, is that wherein the Fall is double to the Riſe; or where two Minims are play'd during a Fall, and but one in a Riſe: To this purpoſe, the Number 3 is placed at the beginning of the Lines, when the *Meaſure* is intended to be triple; and a C, when the *Meaſure* is to be common or double.

This riſing and falling of the Hands, was call'd by the *Greeks* ἄρσις and θέσις. St. *Auguſtin* calls it *Plauſus*, and the *Spaniards*, *Compaſs*. See BEATING *of Time*.

MEASURING. To define *Meaſuring* Geometrically, it is the aſſuming any certain Quantity, and expreſſing the Proportion of other ſimilar Quantities to the ſame: To define it popularly, *Meaſuring* is the uſing a certain known Meaſure, and determining, thereby, the preciſe Extent, Quantity or Capacity of any thing. See MEASURE.

MEASURING, in the general, makes the practical Part of Geometry; ſee GEOMETRY: From the various Subjects whereon it is employ'd, it acquires various Names, and conſtitutes various Arts. Thus

MEASURING *of Lines*, or Quantities of one Dimenſion, we call *Longimetry*; ſee LONGIMETRY: And when thoſe Lines are not extended parallel to the Horizon, *Altimetry*: ſee ALTIMETRY. When the different Altitudes of the two Extremes of the Line are alone regarded, *Levelling*; ſee LEVELLING.

MEASURING *of Superficies*, or Quantities of two Dimenſions, is variouſly denominated, according to its Subjects; when converſant about Lands, 'tis called *Geodæſia*, or *Surveying*: in other Caſes, ſimply *Meaſuring*. The Inſtruments uſed are the Ten-Foot Rod, Chain, Compaſs, Circumferentor, &c. See SUPERFICIES; ſee alſo SURVEYING, &c

MEASURING *of Solids*, or Quantities of three Dimenſions, we call *Stereometry*; ſee STEREOMETRY: where 'tis converſant about the Capacities of Veſſels, or the Liquors they contain particularly, *Gauging*. See GAUGING. The Inſtruments are the Gauging-Rod, Sliding-Rule, &c. See SOLID; ſee alſo GAUGING-ROD, SLIDING-RULE, &c.

From the Definition of *Meaſuring*, where the Meaſure is expreſs'd to be ſimilar or homogeneous, *i. e.* of the ſame kind with the Thing meaſured; 'tis evident that in the firſt Caſe, or in Quantities of one Dimenſion, the Meaſure muſt be a Line; in the ſecond, a Superficies; and in the third, a Solid. For a Line, *v. g.* cannot meaſure a Surface; to meaſure, being no more than to apply the known Quantity to the unknown, till the two become equal. Now a Surface has Breadth, and a Line has none; but if one Line hath no Breadth, two or a hundred have none: A Line, therefore, can never be applied ſo often to a Surface, as to be equal to it, *i. e.* to meaſure it. And from the like Reaſoning it is evident, a Superficies, which has no Depth, cannot be equal to, *i. e.* cannot meaſure a Solid, which has. While a Line continues ſuch, it may be meaſured by any part of itſelf: but when the Line begins to flow, and to generate a new Dimenſion, the Meaſure muſt keep pace, and flow too; *i. e.* as the one commences Superficies, the other muſt do ſo too: Thus we come to have *Square Meaſures*, and *Cubic Meaſures*. See SQUARE and CUBE. Hence we ſee why the *Meaſure of a Circle* is an Arch, or part of the Circle; for a right Line can only touch a Circle in one Point, but the Periphery of a Circle conſiſts of infinite Points: The right Line therefore to meaſure the Circle, muſt be applied infinite Times, which is impoſſible. Again, the right Line only touches the Circle,

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TAB: MECHANICKS.

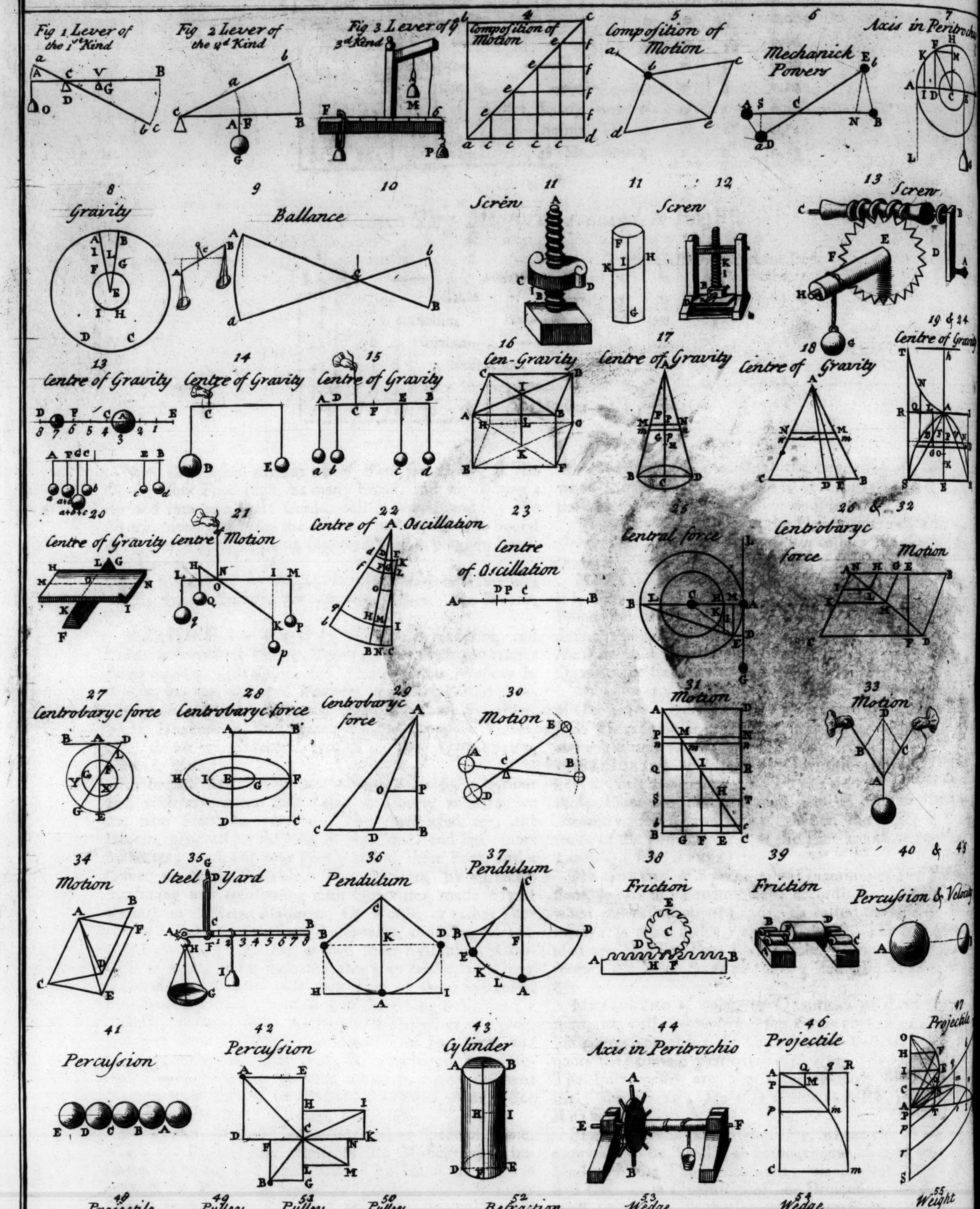

Fig 1. Lever of the 1st Kind
Fig 2 Lever of the 2d Kind
Fig 3 Lever of ye 3d Kind
4 Composition of Motion
5 Composition of Motion
6 Mechanick Powers
7 Axis in Peritroch
8 Gravity
9 Ballance
10
11 Screw
11
12 Screw
13 Screw
13 Centre of Gravity
14 Centre of Gravity
15 Centre of Gravity
16 Cen-Gravity
17 Centre of Gravity
18 Centre of Gravity
19 & 24 Centre of Gravity
20
Centre of Gravity
21 Centre of Motion
22 Centre of Oscillation
23 Centre of Oscillation
25 Central force
26 & 32 Centrobaryc force Motion
27 Centrobaryc force
28 Centrobaryc force
29 Centrobaryc force
30 Motion
31 Motion
33 Motion
34 Motion
35 Steel Yard
36 Pendulum
37 Pendulum
38 Friction
39 Friction
40 & 43 Percussion & Velocity
41 Percussion
42 Percussion
43 Cylinder
44 Axis in Peritrochio
46 Projectile
47 Projectile
48 Projectile
49 Pulley
51 Pulley
50 Pulley
52 Refraction
53 Wedge
54 Wedge
55 Weight
56 Weight
57 Solid of least Resistance
58 Inclined Plane
59 Inclined Plane
60 Inclined Plane
61 Wheel
62 Acceleration
63 Acceleration
61 60 Inclined Plane
Nº II

H Fletcher Sculp

Circle in a Mathematical Point; which has no Parts or Dimenſions, conſequently no Magnitude: but a Thing that has no Magnitude or Dimenſions, bears no proportion to another that has; and cannot therefore meaſure it. Hence we ſee the Reaſon of the Diviſion of Circles into 360 Parts or Arches, called *Degrees*. See DEGREE.

MEASURING *of Triangles*, or from three given Sides or Angles, to determine all the reſt, is call'd *Trigonometry*. See TRIGONOMETRY.

MEASURING *of the Air*; its Preſſure, Spring, &c. is called *Aerometry* or *Pneumatics*: See AEROMETRY, &c.

MEATUS *Cyſticus*, a Bilary Duct, about the Bigneſs of a Gooſe-Quill, which at about two Inches diſtance from the Gall-Bladder, is join'd to the *Meatus Hepaticus*; and theſe together form the *Ductus Communis*. See BILE.

MEATUS *Urinarius*, or *Urinary Paſſage*, in Women, is very ſhort, lined internally with a very thin Membrane; next to which is a Coat of a white Subſtance. Thro this Coat, from ſome *Lacunæ* in it, paſs ſeveral Ducts, which convey a limpid glutinous Matter, ſerving to anoint the Extremity of the *Urethra*. See URINARY.

MEATUS *Auditorius*, the Entrance of the Ear; a cartilaginous Subſtance, irregularly divided with fleſhy membranous Interpoſitions in ſeveral Parts of it, not unlike the *Bronchia* in the Lungs, only its fleſhy Fibres are here thicker. The inner Part, or that next the Brain, is bony. It is lined throughout with a thin Membrane, derived from the Skin, which is continued on the *Membrana Tympani*, where it becomes thinner. See EAR.

From the beginning of the *Meatus*, almoſt half-way, ariſe a great number of ſmall Hairs, at whoſe Roots iſſue the Ear-Wax, which is intangled in thoſe Hairs, the better to break the *Impetus* of the external Air, and prevent its too ſuddenly ruſhing in on the *Membrana Tympani*. See CERUMEN.

MECHANICS, from *μηχανὴ*, *Engine*, is a mix'd Mathematical Science, which conſiders *Motion*, its Nature and Laws, with the Effects thereof, in Machines, &c. See MOTION.

That part of *Mechanics* which conſiders the Motion of Bodies ariſing from Gravity, is by ſome call'd *Statics*. See GRAVITY, STATICS, RESISTENCE, &c. In diſtinction from that part which conſiders the *Mechanic* Powers, and their Application, properly call'd *Mechanics*. See MECHANIC POWERS, MACHINE, ENGINE, FRICTION, EQUILIBRIUM, &c.

MECHANIC *Powers*, are the five ſimple *Machines*; to which all others, how complex ſoever, are reducible, and of the Aſſemblage whereof they are all compounded. See POWER and MACHINE.

Theſe *Mechanic Powers* (as they are call'd) are ſix, *viz.* the *Ballance*, *Lever*, *Wheel*, *Pully*, *Wedge*, and *Screw*; which ſee under their proper Heads: BALLANCE, LEVER, &c.

They may, however, be all reduced to one, *viz.* the *Lever*. The Principle whereon they depend, is the ſame in all, and may be conceived from what follows.

The *Momentum*, *Impetus*, or Quantity of Motion of any Body, is the *Factum* of its Velocity, (or the Space it moves in a given Time, ſee MOTION) multiplied into its Maſs. Hence it follows, that two unequal Bodies will have equal Moments, if the Lines they deſcribe be in a reciprocal Ratio of their Maſſes. Thus, if two Bodies, faſten'd to the Extremities of a Ballance or Lever, be in a reciprocal Ratio of their Diſtances from the fixed Point; when they move, the Lines they deſcribe will be in a reciprocal Ratio of their Maſſes. *V. g.* If the Body A (*Tab.* MECHANICS, *fig.* 6.) be triple the Body B, and each of them be ſo fix'd to the Extremities of a Lever AB, whoſe *Fulcrum*, or fix'd Point, is C, as that the Diſtance of BC be triple the Diſtance CA; the Lever cannot be inclined on either ſide: but that the Space BE, paſs'd over by the leſs Body, will be triple the Space AD, paſs'd over by the great one. So that their Motions or Moments will be equal, and the two Bodies in Equilibrio. See MOTION. Hence that noble Challenge of *Archimedes*, *datis Viribus, datum Pondus movere*; for as the Diſtance CB may be increaſed infinitely, the Power or Moment of A may be increaſed infinitely. So that the whole of *Mechanics* is reduced to the following Problem.

Any Body, as A, *with its Velocity* C, *and alſo any other Body, as* B, *being given; to find the Velocity neceſſary to make the Moment, or Quantity of Motion in* B, *equal to the Moment of* A, *the given Body.* Since now the Moment of any Body is equal to the Rectangle under the Velocity, and the Quantity of Matter; as B : A : : C : to a fourth Term, which will be *c*, the Celerity proper to B, to make its Moment equal to that of A. Wherefore in any Machine or Engine, if the Velocity of the Power be made to the Velocity of the Weight : : reciprocally as the Weight is to the Power; then ſhall the Power always ſuſtain, or if the Power be a little increas'd, move the Weight.

Let, for inſtance, A B be a Lever, whoſe *Fulcrum* is at *c*, and let it be moved into the Poſition *a c b*. Here the Velocity of any Point in the Lever, is as the Diſtance from the Centre. For let the Point A deſcribe the Arch A *a*, and the Point B the Arch B *b*; then theſe Arches will be the Spaces deſcribed by the two Motions: but ſince the Motions are both made in the ſame time, the Spaces will be as the Velocities. But it is plain, the Arches A *a* and B *b* will be to one another, as their Radii A C and A B, becauſe the Sectors A C *a*, and B *c b*, are ſimilar: wherefore the Velocities of the Points A and B, are as their Diſtances from the Centre C. Now if any Powers are applied to the Ends of the Lever A and B, in order to raiſe its Arms up and down; their Force will be expounded by the Perpendiculars S *a*, and *b* N; which being as the right Sines of the former Arches, *b* B and *a* A, will be to one another alſo as the Radii A *c*, and *c* B; wherefore the Velocities of the Powers, are alſo as their Diſtances from the Centre. And ſince the Moment of any Body is as its Weight, or gravitating Force, and its Velocity conjunctly; if different Powers or Weights are applied to the Lever, their Moments will always be as the Weights and their Diſtances from the Centre conjunctly. Wherefore if to the ſame Lever, there be two Powers or Weights apply'd reciprocally, proportional to their Diſtances from the Centre, their Moments will be equal; and if they act contrarily, as in the Caſe of a Stilliard, the Lever will remain in an horizontal Poſition, or the Ballance will be in Equilibrio. And thus it is eaſy to conceive how the Weight of one Pound may be made to equi-ballance a thouſand, &c. Hence alſo it is plain, that the Force of the Power is not at all increaſed by Engines; only the Velocity of the Weight in either lifting or drawing, is ſo diminiſh'd by the Application of the Inſtrument, as that the Moment of the Weight is not greater than the Force of the Power. Thus, for inſtance; if any Force can elevate a Pound Weight, with a given Velocity, it is impoſſible by any Engine to effect, that the ſame Power ſhall raiſe two Pound Weight, with the ſame Velocity: But by an Engine it may be made to raiſe two Pound Weight, with half the Velocity; or 10000 times the Weight with $\frac{1}{10000}$ of the former Velocity. See PERPETUAL MOTION.

MECHANICAL *Curve*, a Term uſed by *Des Cartes* for thoſe Curves, which cannot be defined by any Equation; in oppoſition to Algebraic, which they call Geometric Curves. Theſe Curves, Sir *Iſ. Newton*, M. *Leibnitz*, &c. call tranſcendent Curves; and diſſent from *Cartes*, in excluding them out of Geometry. *Leibnitz* has even found a new kind of tranſcendent Equations, whereby theſe Curves are defined: They are of an indefinite nature; that is, don't continue conſtantly the ſame in all Points of the Curve; in oppoſition to Algebraic Equations, which do. See CURVE.

MECHANICAL *Affections*, are ſuch Properties in Matter, as reſult from their Figure, Bulk, and Motion: MECHANICAL *Cauſes* are thoſe founded on ſuch Affections; and MECHANICAL *Solutions* are Accounts of Things on the ſame Principles.

MECHANICAL *Philoſophy*, is the ſame with the Corpuſcular Philoſophy; *viz.* that which explains the Effects of Nature, and the Operations of Corporeal Things, on the Principles of *Mechanics*; the Figure, Arrangement, Diſpoſition, Motion, Greatneſs or Smallneſs of the Parts which compoſe natural Bodies. See CORPUSCULAR.

The Term MECHANICAL is alſo applied to a kind of *Reaſoning*, which of late has got a great deal of ground both in Phyſics and Medicine; ſo call'd, as being conformable to what is uſed in the Contrivance, and accounting for the Properties and Operations of Machines. This ſeems to have been the Reſult of rightly ſtudying the Powers of a human Mind, and the Ways by which it is only fitted to get acquaintance with material Beings: For conſidering an Animal Body as a Compoſition out of the ſame Matter, from which all other material Beings are formed, and to have all thoſe Properties, which concern a Phyſician's Regard only, by virtue of its peculiar Make and Conſtructure; it naturally leads a Perſon, who truſts to proper Evidences, to conſider the ſeveral Parts, according to their Figures, Contexture, and Uſe; either as Wheels, Pullies, Wedges, Levers, Skrews, Chords, Canals, Ciſterns, Strainers, and the like; and throughout the whole of ſuch Enquiries, to keep the Mind cloſe in view of the Figures, Magnitudes, and mechanical Powers of every Part or Movement; juſt in the ſame manner, as is uſed, to enquire into the Motions and Properties of any other Machine. For which purpoſe it is frequently found helpful to decypher, or picture out in Diagrams, whatſoever is under conſideration, as it is cuſtomary in common Geometrical Demonſtrations; and the Knowledge obtained by this Procedure, is called *Mechanical Knowledge*.

The Term MECHANICAL is alſo uſed in Mathematics, to ſignify a Conſtruction or Proof of ſome Problem, not done in an accurate Geometrical Manner, but coarſely and unartfully, or by the aſſiſtance of Inſtruments, as are moſt Problems relating to the Duplicature of the Cube, and the Quadrature of the Circle.

MECHOACAN, MACADOSSIN, or WHITE JALAP; called alſo *White Rhubarb*, and *American Scammony*; a medicinal Root, taking its Name from a Province of *New Spain*, from whence it is brought. *Mechoacan* was known and uſed as a Purgative before Jalap, tho the latter is now in more general Uſe, as being found more efficacious. Yet *Mechoacan* is the ſweeter and more gentle of the two, and on that account preferable. The Seat of its Action is chiefly in the extreme Parts, for which reaſon it is accounted good in arthritic Pains. It has the advantage of needing no Preparation or Corrective; and purging in its own proper Subſtance, ſuch as it grows. M. *Boulduc* found by analyſing it, that it contains twelve times as much Salt as Reſin; but neither the ſaline nor reſinous Extract purge ſo freely as the Subſtance, even tho taken in larger Doſes; nor do they yet purge ſo gently. In the Choice of *Mechoacan*, prefer thoſe Pieces which are the browneſt within; and whoſe Subſtance is the cloſeſt, and moſt compact.

MECONIUM, in Pharmacy, is the Juice of the Poppy, drawn by Expreſſion, and dried; differing from Opium, in that this laſt ouzes out, after an Inciſion made in the Heads of the Poppies. The Word comes from the *Greek* μηκων, *Poppy*. See OPIUM.

MECONIUM is alſo a black thick Excrement, gather'd in the Inteſtines of a Child during the time of Geſtation. In Colour and Conſiſtence, it reſembles Pulp of *Caſſia*. It is alſo found to reſemble *Meconium*, or Juice of Poppy, whence it takes its Name.

MEDAL, a ſmall Figure, or Piece of Metal, in form of a Coin, deſtined to preſerve to Poſterity the Portrait of ſome great Man, or the Memory of ſome illuſtrious Action.

For the Manner of ſtriking MEDALS, ſee COINING.

Some Authors imagine, that the antient MEDALS were uſed for Money. M. *Patin* has a Chapter expreſs to prove, that they had all a fix'd regular Price in Payments; not excepting even *Medallions*. F. *Joubert* is of the ſame Opinion. Others, on the contrary, maintain, that we have no real Money of the Antients; and that the *Medals* we now have, never had any Courſe as Coins. Between theſe two Extremes, there is a Medium, which appears by much more reaſonable than either of them. See MONEY.

MEDALS are divided into Antient and Modern: The *Antient* are ſuch as were ſtruck between the third and the ſeventh Centuries: The *Modern* are thoſe ſtruck within theſe 300 Years. Among the Anitent, ſome are *Greek*, others *Roman*. The *Greek* are the moſt antient. That People ſtrook *Medals* in all the three Metals with ſuch exquiſite Art, as the *Romans* could never come up to. The *Greek Medals* have a Deſign, Accuracy, Force, and a Delicacy that expreſſes even the Muſcles and Veins, and it muſt be own'd, goes infinitely beyond any thing of the *Romans*. There are alſo *Hebrew Medals*; *Punic*, *Gothic*, and *Arabic Medals*; which make new Claſſes in the antient and modern ones. The Conſular *Medals* are certainly the moſt antient *Medals* of the *Romans*: And yet thoſe of Copper and Silver don't go beyond the 484th Year of *Rome*; nor thoſe of Gold beyond the Year 546. If any are produced of an older Date, they are ſpurious.

Conſular MEDALS are ſo call'd, to diſtinguiſh them from the Imperial; not that they were ſtrook by order of the Conſuls, but becauſe in thoſe Times the Republic was governed by Conſuls. Of theſe, Father *Joubert* reckons about fifty or ſixty of Gold; two hundred and fifty of Copper; and near a thouſand of Silver. *Goltzius* has deſcribed them in a Chronological Order, according to the *Faſti Conſulares*. *Urſinus* has diſpoſed them Genealogically, according to the Order of the *Roman* Families. M. *Patin* has collected an entire Series of them, in the ſame Order with *Urſinus*; and only computes 1037 Conſulars, which relate to 178 *Roman* Families. M. *Vaillant*, and M. *Morel*, each promiſed a new Edition of the *Conſular Medals*; M. *Vaillant* kept his word, and his Book was printed e'er he died, in 3 Vol. *Folio*.

Among the *Imperial* MEDALS, we diſtinguiſh between the Upper and the Lower Empire: The *Upper* Empire commenced under *Julius Cæſar*, and ended about the Year of Jeſus Chriſt 260: The *Lower* Empire comprehends near 1200 Years, *viz.* till the taking of *Conſtantinople*. 'Tis the Cuſtom, however, to account all the *Imperial Medals*, till the Time of the *Paleologi*, among the Antique; and yet we have no *Imperial Medals*, of any conſiderable Beauty, later than the Time of *Heraclius*, who died in 641. After the Time of *Phocas* and *Heraclius*, *Italy* became a Prey to the *Barbarians*; ſo that the Monuments we have remaining of thoſe two Emperors, finiſh the Set or Series of *Imperial Medals*. To theſe are added the *Medals* of the Lower Empire, and the *Greek* Emperors; whereof a Series may be made as low as our time, taking in the Modern ones. M. *Patin* has made an ample Collection of the *Imperial Medals* till the Time of *Heraclius*. The *Gothic Medals* make part of the Imperial ones. They are ſo call'd, as having been ſtruck in the Times of the *Goths*, and in the Declenſion of the Empire; and ſavouring of the Ignorance and Barbarity of the Age.

As to the Modern, they are ſuch as have been ſtruck in *Europe*, ſince the Uſurpation of the *Goths* has been extinct; and Sculpture and Engraving have begun to reflouriſh. The firſt was that of the famous Reformer *John Hus* in 1415; if any pretend to be more antient, they are ſpurious. In *France*, there were none ſtruck with the Prince's Effigy before the Reign of *Charles* VII. The Study of modern *Medals* is ſo much more uſeful, as they afford more light than the antient, and mark the Times and Circumſtances of Events preciſely; whereas the Inſcriptions of the antient *Medals* are very ſhort and ſimple, and generally without any Date. Add to this, that the antient *Medals* are extremely liable to be counterfeited, by reaſon of the exceſſive Price they bear. But in the modern, there is not near that Danger of being impoſed upon.

For the reſt, *Medals* have been ſtruck in three Kinds of Metals, which make three ſeveral Sets or Series in the Cabinets of the Curious. That of Gold is the leaſt numerous, as not conſiſting of above 1000, or 1200 of the Imperial; that of Silver may contain about 3000 Imperial; and that of Copper, of the three ſeveral Sizes, *viz.* the great, the middle, and the ſmall Copper, conſiſts of 6 or 7000, all Imperial. See SERIES.

There are no true *Hebrew Medals*; thoſe which we ſee of the Heads of *Moſes*, and *Jeſus Chriſt*, are ſpurious and modern. We have a few Shekels of Copper and Silver, with *Hebrew* or *Samaritan* Legends; but none of Gold; tho there is mention made of one in the King of *Denmark's* Cabinet. F. *Souciet* has a Diſſertation on the *Hebrew Medals*, commonly call'd *Samaritan Medals*; where he diſtinguiſhes accurately between the Genuine and Spurious; and ſhews, that they are true *Hebrew* Coins ſtruck by the *Jews*, but on the Model of the Antients; and that they were current before the *Babyloniſh* Captivity. See SAMARITAN.

The Parts of a *Medal*, are the two Sides; one whereof is call'd the *Head*, the other the *Reverſe*. On each Side is the Area or Field, which makes the middle of the *Medal*; the Rim or Border; and the *Exergue*, which is beneath the Ground, whereon the Figures repreſented are placed. On the two Sides are diſtinguiſh'd the Type, and the Inſcription or Legend. The Types are the Figures repreſented; the Legend is the Writing, eſpecially that around the *Medal*; tho in the *Greek Medals*, the Inſcription is frequently in the Area. What we find in the *Exergue*, is frequently no more than ſome Initial Letters, whoſe Meaning we are unacquainted withal; tho, ſometimes too, they contain Epochas, or Words that may be accounted an Inſcription. See EXERGUE and LEGEND.

'Tis not either the Metal, or the Size, which makes a *Medal* valuable; but the Scarcity of the Head, or of the Reverſe, or the Legend. Some *Medals* are common in Gold, which yet are very rare in Copper; and others very rare in Silver, which in Copper and Gold are very common. The Reverſe is ſometimes common, where the Head is ſingular; and ſome Heads are common, whoſe Reverſes are very ſcarce. There are *Medals* very ſcarce in ſome Sets, and yet very common in others. For inſtance, there is no *Antonia* in the Sets of large Copper, and the middle Copper is forced to ſupply its place. The *Otho* is very rare in all the Copper Sets, and yet common in the Silver ones. *Otho's*, of the large Copper, are held at an immenſe Price; and thoſe of the middle Copper, at 40 or 50 Piſtoles. And the *Gordians* are rated full as high. Singular *Medals* are invaluable. Singular *Medals*, in the popular ſenſe, are ſuch as are not found in the Cabinets of the Curious, and are only met with by chance; but in the ſtricter ſenſe are ſuch, whereof there is not above one of a Kind extant. The *Otho* in large Copper is a ſingular *Medal*. When a *Medal* exceeds the Value of ten or twelve Piſtoles, they are worth what the Owner pleaſes. The *Peſcennius Niger*, and *Pertinax*, are very rare in all Metals. The *Didius Julianus* is hardly found any where, but in large Copper. *Carteren*, a *Dutchman*, and ſome others, have made Mills expreſs to ſtrike *Medals* that never were, as thoſe of *Cicero*, *Virgil*, *Priam*, &c. M. *Vaillant* has collected all the *Medals* ſtruck by the *Roman* Colonies; F. *Hardouin* thoſe of the *Greek* and *Latin* Cities. F. *Noris* thoſe of *Syria*. M. *Morel* has undertaken an Univerſal Hiſtory of *Medals*, and promiſes Cuts of twenty-five thouſand. He has ranged them under four Claſſes. The firſt contains the *Medals* of Kings, Cities, and People; which have neither the Name nor Image of the *Roman* Emperors. The ſecond contains the *Conſular Medals*; the third the *Imperial Medals*; and the fourth, the *Hebrew*, *Punic*, *Parthic*, *French*, *Spaniſh*, *Gothic*, and *Arabic*. He begins with the *Imperial*, and brings them down as low as *Heraclius*. He places the *Latin*, in order, before the *Greek*. *Ad. Occo*, a *German* Phyſician, and Count *Mezzabarba*, have endeavoured to range them in a Chronological Order, but that is impracticable. For in moſt of the *Imperial Medals*, there is no Mark either of the Conſulate, or of the Year of the Reign; and ſince *Gallio*, there is none of them that bear the leaſt Footſteps of Chronology. *Greek Medals* are ſuch as have either the Heads of *Greek* Emperors, or *Greek* Inſcriptions.

There are falſe or *ſpurious Medals*, which are thoſe counterfeited, and put off for Antique, when they are not: *Mutilated Medals*, which are thoſe that are not entire, or are defaced: *Redintegrated Medals*, which are thoſe wherein we find the Letters *Reſt.* which ſhew that they have been reſtored by the Emperors: *Dipt Medals*, which are ſtruck of pure Copper, and afterwards ſilver'd. This is a Contrivance that the Curious have frequent recourſe to, in order to compleat their Silver Sets. *Cover'd* or *Plaited Medals*, which have only a thin Silver Leaf over the Copper, but which are ſtruck ſo artfully, that the Cheat does not appear, without cutting them: Theſe are the leaſt ſuſpected. *Grain'd* or *Indented Medals* are thoſe, whoſe Edges are cut like Teeth, which is a ſign of Goodneſs and Antiquity. They are common among the *Conſulars*, but we have none later than *Auguſtus*. There are ſeveral of them, however, among thoſe of the Kings of *Syria*. *Medals countermark'd*, are thoſe that are cut either on the Side of the Head, or of the Reverſe: Theſe Countermarks ſerve to denote the Change of their Value; and this Kind is much enquir'd for by the Curious. There are alſo *Caſt Medals*, which are not ſtruck, but caſt in a Mould; and *Medals* that have no Reverſe.

Scaliger derives the Word from the *Arabic Methalia*, a Coin wherein is impreſs'd the Figure of a human Head. *Menage* and *Voſſius* rather derive it from *Metallum*. *Du Cange* obſerves, that the antient *Oboli* were call'd *Medalia*, *quaſi Medietas Nummi*.

The moſt noted *Medaliſts*, or Authors on *Medals*, are, *Antonius Auguſtinus*, *Wolffius*, *Lazius*, *Ful. Urſinus*, a learned Antiquary, *Æneas Vicus*, *Hubertus*, *Goltzius*, *Oiſelius Seguin*, *Occo*, *Triſtan*, *Sirmond*, *Vaillant*, *Patin*, *Noris*, *Spanheim*, *Hardouin*, *Morel*, *Joubert*, *Mezzabarba*, *Begher*, &c.

MEDALLION, a *Medal* of an extraordinary Bigneſs. It was ordinarily a kind of Medal, which Princes uſed to preſent, as a Token of their Eſteem; for which reaſon the *Romans* call'd them *Miſſilia*. The *Medallions* were never any current Coin, as the Medals were: They were ſtruck purely to ſerve as publick Monuments, or to make Preſents of. There cannot be any Set made of them, even tho' the Metals and Sizes ſhould be join'd promiſcuouſly. The beſt Cabinets do not contain above four or five hundred; tho' M. *Morel* promiſes us Figures of above a thouſand. Authors vary about the Time when they firſt began to be ſtruck. Some Antiquaries will have it under the Empire of *Theodoſius*: but this muſt be a Miſtake; for there were ſome ſtruck even in the Upper Empire: witneſs a *Nero*, a *Trajan*, and an *Alexander Severus*, ſtill extant. *Medallions* of Gold are very rare, as alſo thoſe of large Copper. *Medallions* are diſtinguiſh'd from Medals by the Volume; that is, by the Thickneſs and Compaſs; and the Largeneſs and Relievo of the Head. *Medallions*, in many antient *Latin* Titles, are call'd *Mettalliones*. The *Italians* call them *Medaglioni*.

MEDIANA, the Name of a Vein, or little Veſſel, made by the Union of the Cephalic and Baſilic, in the Bend of the Elbow. 'Tis not a particular Vein, or a third Vein of the Arm, as ſome Authors imagine; but merely a Branch of the Baſilic; which running into the inner Part of the Elbow, unites with the Cephalic, and forms a common Vein, call'd *Mediana*; and by the *Arabs*, the *Black Vein*. *Columnæ Medianæ*, in *Vitruvius*, are the two Columns in the middle of a Porch, whoſe inner Column is larger than thoſe of the reſt.

MEDIANA *Linea*, a Line or Seam running down the middle of the Tongue, and dividing it into two equal Parts; tho not ſo effectually, but that the Blood-Veſſels of the one Side communicate with thoſe of the other. See TONGUE.

MEDIASTINE, or MEDIASTINA, the Name of a Vein of the *Mediaſtinum*. See VEIN and MEDIASTINUM.

MEDIASTINUM, in Anatomy, a double Membrane, form'd by a Duplicature of the *Pleura*; ſerving to divide the Thorax, longitudinally. It proceeds from the Sternum, and paſſing ſtrait down thro the middle of the Thorax to the Vertebræ, divides its Cavity into two. It contains, in its Doublings, the Heart, Vena Cava, the Oeſophagus, and the Stomachic Nerves. The Membranes of the *Mediaſtinum* are finer and thinner than the Pleura, and have a little Fat. It receives Branches of Veins and Arteries from the Mammillary, and Diaphragmatic, particularly, one call'd *Mediaſtina*; its Nerves come from the Stomachic: it has alſo ſome Lymphatics, which open into the Thoracic Duct. The *Mediaſtinum* divides the Thorax into two Parts; to the end that one Lobe of the Lungs may officiate, if the other be hinder'd by a Wound on the other Side. Sometimes there is a Matter contain'd betwixt its Membranes, immediately under the Sternum, which may occaſion the trepanning of this Place. The *Mediaſtinum* ſerves to ſuſtain the Viſcera, and prevent their falling from one ſide to the other. See PLEURA, THORAX, &c.

MEDIASTINUM *Cerebri*, is the ſame as *Septum Tranſverſum*. See SEPTUM TRANSVERSUM, &c.

MEDIATE, or INTERMEDIATE, a Term of Relation to two Extremes, applied to a third, which is in the middle; as, to a ſecond Cauſe, which is acted upon by ſome ſuperior or firſt Cauſe, to produce any Effect. Subſtance is a Genus with regard to Man, but between the two there are other *mediate* Genus's, as Body and Animal. *Mediate* is uſed in oppoſition to *immediate*. Thus when we ſay, that God and Man concur to the Production of Man; God is the *mediate* Cauſe, Man the *immediate*. 'Tis a popular Queſtion in Theology, *viz.* Whether the Holy Ghoſt converts a Sinner *mediately* or *immediately*.

MEDICINE, an Art, ordinarily call'd *Phyſic*; defined, by *Boerhave*, to conſiſt in the Knowledge of thoſe Things, by whoſe Application, Life is either preſerv'd ſound and healthy, or when diſorder'd, again reſtor'd to its priſtine Healthineſs. See HEALTH and DISEASE.

Galen defines *Medicine*, the Art of preſerving preſent Health, or of retrieving it when paſt: *Hippocrates*, the Addition of what is wanting, and the Retrenchment of what is redundant: And laſtly, *Hierophilus*, the Knowledge of Things good, indifferent, and ill, with regard to Health.

Phyſic muſt have been nearly coeval with the World. The Injuries and Viciſſitudes of the Air, the Nature and Qualities of Foods, the Violence of external Bodies, the Actions of Life, and laſtly, the Fabric of the Human Compages; muſt have render'd Diſeaſes almoſt as old as Mankind: And the Preſence of a Diſeaſe, as it brings with it a painful Senſation, the Loſs of the Uſe of a Limb, &c. we find, does, by a neceſſary mechanical Impulſe, both in Brutes and Men, compel the Diſeaſed to ſeek for Help, and to apply Remedies, either by mere Experiment, or by Inſtinct, and ſpontaneous Appetite. Hence aroſe the Art of *Medicine*; which, in this ſenſe, has been always, every where, among Mankind. Antient Hiſtories and Fables tell us, that in a little time, from the Flood, it was ſo well cultivated by the *Aſſyrians*, *Babylonians*, *Chaldeans*, and *Magi*, that they were able to remove preſent Diſeaſes, and prevent future ones. Hence it paſs'd into *Egypt*, *Lybia Cyrenaica*, and *Crotone*; and thence into *Greece*, where it flouriſh'd, principally in the Iſlands of *Cnidus*, *Rhodes*, *Cos*, and in *Epidaurus*.

The firſt Foundations of the Art were laid by Chance, natural Inſtinct, and Events unforeſeen: Theſe were improved by the Memory of the Succeſs of former Experiments; by writing down the Diſeaſes, their Remedies, and their Event, on Columns, Paintings, and the Walls of their Temples; by expoſing the Sick in the Markets and publick Ways, that thoſe who paſs'd by, might enquire into the Diſeaſe, and communicate a Remedy, if they knew any: and laſtly, by Analogy, or Reaſoning, from a Compariſon of Things already obſerv'd, with Things preſent and to come. The Art at length receiv'd a much greater degree of Perfection, by the appointing of *Phyſicians*; ſome for the Cure of particular Diſeaſes, and others for Diſeaſes in general; by an accurate Obſervation of the Diſeaſe, and its Symptoms; and by an exact Deſcription of the Remedy, and its Uſe: immediately, upon which, it got among the Prieſts, and at length was confined to particular Families; deſcending, by way of Inheritance, from Father to Son: which, again, proved a great Bar to its Progreſs.

The *Extiſpicia*, or inſpecting the Entrails of Beaſts, uſed by the Prieſts; the Cuſtom of Embalming dead Carcaſes, and even Butchery itſelf, promoted the Knowledge of the Human Fabric, and of the Cauſes both of Health, Diſeaſes, and Death. Laſtly, the diſſecting of live Animals for Philoſophical Purpoſes, diſtinct Narratives of the Cauſe, Riſe, Increaſe, Criſis, Declenſion, End, and Effect of Diſeaſes; and the Knowledge of *Medicines*, their Choice, Preparation, Application, Powers, and Events, ſeem'd to have almoſt brought the Art to its Perfection.

Hippocrates, who was Cotemporary with *Democritus*, and perfectly acquainted with every thing hitherto laid down, and beſides, furniſh'd with a great number of Obſervations of his own, collecting into one all that was valuable and uſeful; compiled a Body of *Greek Medicine*; and was the firſt who deſerv'd the Title of a true Phyſician: for being a Maſter of the εμπειρία, *Experience*, as well as of Analogy and Reaſon, and withal well verſed in a pure Philoſophy; he, firſt, made Phyſic rational; and laid the Foundation of the dogmatical *Medicine*, which has ever ſince obtain'd. See DOGMATICAL, THEORETICAL, &c.

What *Hippocrates* had done, continu'd a long time ſacred and unalter'd, and was the ſtanding Practice of many Ages; at length *Aretæus* the *Cappadocian* digeſted it into a more orderly Body: whence, in various Places, at various Times, and by various Hands, particularly the *Alexandrian* School, it was further alter'd and improv'd; till at length it came to the hands of *Claud. Galen*; who collecting the ſcatter'd Parts, digeſting thoſe that were confus'd, and explaining every thing by the rigid Doctrines of the *Peripatetics*, did both a great deal of ſervice, and a great deal of miſchief, to the noble Art; he being the firſt who introduced the Doctrine of the Elements, the Cardinal Qualities, and their Degrees, the four Humours, &c. into *Medicine*: and on theſe he made the whole Art to depend. See TEMPERAMENT, HUMOUR, QUALITY, GREE, &c.

After the ſixth Century, the Arts were not only extinguiſh'd, but almoſt all Memory of them loſt, till the ninth; from which, to the thirteenth, *Medicine* was vigorouſly cultivated by the *Arabs* in *Aſia*, *Africa*, and *Spain*: who applying themſelves particularly to the Study of the *Materia Medica*, and its Preparations, and to the Operations of Chirurgery, render'd both more juſt and more copious at the ſame time. And yet *Galen*'s Errors became now more predominant than ever.

At length, however, they were purged out and exploded by two different Means; principally indeed by the Reſtoration of the pure Diſcipline of *Hippocrates* in *France*; and then alſo by the Experiments and Diſcoveries of Chymiſts and Anatomiſts: till at length the immortal *Harvey* overturning, by his Demonſtrations, the whole Theory of the Antients, laid a new and certain Baſis of the Science. Since his Time, *Medicine* is become free from the Tyranny of any Sect, and is improv'd by the ſure Diſcoveries in Anatomy, Chymiſtry, Phyſics, Botany, Mechanics, &c.

Hence it appears, that the Art originally conſiſted ſolely in the faithful Collection of Obſervations; and that a long time after, they began to enquire, and diſpute, and form Theories: the firſt part has ever continued the ſame; but the latter always mutable. For the ſeveral Sects that have aroſe among Phyſicians, ſee EMPERIC, DOGMATIC, &c.

MEDICINE is divided into five principal Branches. The firſt conſiders the Human Body, its Parts and Fabric, its Life and Health, and the Effects following from them; and this is call'd *Phyſiology*, the *Animal Oeconomy*, or *Doctrine of the Uſe of the Parts*: and its Objects, now enumerated, are call'd *Res Naturales*, or Things according to Nature. See PHYSIOLOGY, NATURAL THINGS, &c.

The ſecond Branch conſiders the Diſeaſes of the Human Body, their Differences, Cauſes, and Effects; and is call'd *Pathology*, as it conſiders the Diſeaſes; *Ætiology*, as it enquires into their Cauſes; *Noſology*, when it examines their Differences; and laſtly, *Symptomatology*, when it explains their Effects. The Objects of this Part are call'd *Res præter Naturales*, or beyond Nature. See PATHOLOGY, &c.

The third Branch conſiders the Signs or Symptoms, and how to apply them to Uſe; ſo as to judge both in a ſound, and a diſeaſed Body, what, which, is, will be, the Degree, Order, Effect, of the Health, or the Diſeaſe: This is call'd *Semeiotica*. Its Objects are Things both *Natural*, *Non-natural*, and *Præter-natural*. See SEMEIOTICA.

The fourth Branch conſiders the Remedies, and their Uſe, whereby Life may be preſerv'd; whence 'tis call'd *Hygeine*. Its Objects are what we ſtrictly call *Non-naturals*. See HYGEINE and NON-NATURALS.

Laſtly, The fifth furniſhes the *Materia Medica*, its Preparations, and Manner of Exhibition, ſo as to reſtore Health, and remove Diſeaſes; and is call'd *Therapeutica*, comprehending the *Diætetica*, *Pharmaceutica*, *Chirurgica*, and *Jetrica*. See DIÆTETICA, PHARMACEUTICA, CHIRURGICA, and JETRICA.

MEDICINES, or *Medicaments*, Preparations of any natural Subſtances, apply'd to a human Body, in order to anſwer ſome Intention of Cure. *Medicines* are diſtinguiſh'd, with regard to the Manner of Application, into Internal and External. *Internal*, are thoſe taken in at the Mouth: *External*, or *Topical*, are thoſe apply'd to any particular Part. See TOPICAL, &c.

With regard to the different Manner of their Operation, they are diſtinguiſh'd into *Evacuants*, *Aſtringents*, and *Alterants*, or *Specifics*. See EVACUANTS, SPECIFICS, ALTERANTS.

A general Idea of the Manner wherein *Medicines* operate on a human Body, may be conceiv'd from what follows.

A few different ſorts of Particles, variouſly combined, will produce great variety of Fluids; ſome may have one ſort, ſome two, ſome three or more. If we ſuppoſe only five different ſorts of Particles in the Blood, and call them *a*, *b*, *c*, *d*, *e*; their ſeveral Combinations, without varying the Proportions in which they are mix'd, will be theſe following: but whether more or leſs, need not be determin'd.

ab : *ac* : *ad* : *ae* :
bc : *bd* : *be* : *cd* :
ce : *de* : *abc* : *adc* :
abd : *abe* : *ace* : *ade* :
bdc : *bde* : *bec* : *dec* :
abcd : *abce* : *acde* : *abde* : *bcde* : *abcde*;

No Theory of Secretion has hitherto been able to give any tolerable Account of the Operation of ſuch *Medicines*, as promote an Evacuation. For if the Humours are equally mix'd with the Blood, that is, if the Blood is in every part of the Body the ſame, and its Particles are not more apt to form certain Humours, in ſome certain Parts of the Body, than in others; or if they are not forced, by the Power of ſome *Medicine*, to form ſuch Humours: then the Quantities of Humour, ſeparated in equal Times, will always be as the Velocity of the Blood; but the Velocity of the Blood is ſeldom doubled by any *Medicine*, and never tripled by the moſt acute Fever. The Quantity of Humour, however, drawn off by evacuating *Medicines*, is often twenty times greater than the natural Quantity; and therefore, upon ſuppoſition that the Humours are every where equally mix'd with the Blood, the Operation of evacuating *Medicines* can never be accounted for.

Tho this Argument hath the Strength of a Demonſtration, yet there are ſome who explain the Operation of purgative, and other evacuating *Medicines*, by a ſtimulating Faculty; whereby the ſluggiſh Juices are not only forc'd out, but the obſtructed Canals open'd, and the Motion of the Blood quicken'd. But tho ſuch a Power be allow'd, it would remain to be explain'd, why certain *Medicines* do only ſtimulate certain Glands? For it is evident, that evacuating *Medicines* have ſome other Power, beſides the ſqueezing out ſtagnant Juices; becauſe when they are all ſqueez'd out, they ſtill evacuate as much, if they are repeated, as they did before: as is plain, by continuing a Salivation for many days. Secondly, we cannot ſuppoſe, that all Bodies have every where, and at all times, Juices ſtagnating; but theſe *Medicines* conſtantly produce their Effects, more or leſs, at all times. Thirdly, if the Veſſels be ſuppoſed to be obſtructed, an evacuating *Medicine* could but double the Quantity that was evacuated, before it was taken. Fourthly, if theſe *Medicines* operate only theſe ways, then in a healthful Body, where there were no Obſtructions, they would have no effect at all. Fifthly, if the removing Obſtructions were the Cauſe of a greater Quantity evacuated, then the Evacuation ſhould ſtill continue in a greater degree than before the Obſtruction was removed; whereas, in fact, we conſtantly find it leſs, as the *Medicine* works off. Sixthly, tho a *Medicine*, by ſtimulating a Veſſel, may quicken the Motion of the Fluid in that Veſſel; yet it can never increaſe the Quantity of Fluid running thro it, in equal Spaces of Time; becauſe it quickens the Motion of the Fluid, only by contracting the Veſſel: and therefore the faſter the Fluid is made to run thro' the Veſſel, the leſs Fluid the Orifice of the Veſſel admits; and conſequently after the Veſſel is contracted by the ſtimulating *Medicine*, the Secretion will be leſs, inſtead of being greater. That a Stimulus cauſes the part, on which it acts, to contract, is matter of fact; and that purgative *Medicines* do ſtimulate the Bowels; but it may perhaps be likewiſe ſaid, they ſtimulate the Heart and Arteries, and increaſe their Force, being they not only quicken, but raiſe the Pulſe: ſo that a greater Quantity of Blood is ſent to the Glands of the Guts. This may be granted; but not that it is the principal Action of purgative *Medicines*; becauſe that, by the ſame Force, a greater Quantity of Blood is ſent to all the other Glands of the Body, whoſe Fluids are not, however, ſenſibly increaſed; and the Glands of the Inteſtines receive a leſs Quantity, in proportion, than any others, becauſe they cannot be ſo much dilated by the greater Force of the Blood, as others, which are not ſo much ſtimulated by the *Medicine*. There are others, who will have evacuating *Medicines* endued with an attenuating Quality, by which they diſſolve all the Coheſions of the Particles of the Blood, and ſo ſet the ſeveral Humours at liberty, to paſs thro' their proper Glands: but if theſe *Medicines* have a power univerſally to diſſolve all the Coheſions of the Blood, then every evacuating *Medicine* would equally and indiſindifferently increaſe the Quantity of every Secretion. Mercury would as conſtantly purge as ſalivate, and Nitre promote Perſpiration, as well as Urine; but this is repugnant to Experience. If they have a power to diſſolve certain Coheſions, and not others; this is but ſetting certain Particles at liberty to paſs thro' their proper Glands, which were not ſo before; and is a preparing the Humours, in order to increaſe the Quantity of Secretion. Evacuating *Medicines* muſt therefore have a power to affect ſome Particles, and not others; that is, to repel ſome, and attract, retain, and alter others: and this is what may be affirm'd to be in all *Medicines*, and is what a thouſand Chymical Experiments demonſtrate. The ſeveral Humours then being form'd, by the different Coheſion of the Particles of Blood, the Quantity of Humour ſecerned by any Gland, muſt be in a Proportion compounded of the Proportion, that the Number of the Particles, cohering in ſuch a manner as is proper to conſtitute the Humour which paſſes thro' the Gland, bears to the Maſs of Blood; and of the Proportion of the Quantity of Blood, that arrives at the Gland. And hence it follows, that where there is a determinate Quantity of a certain Humour to be ſeparated, the Number of Particles, that are proper to compoſe the ſecerned Liquor, muſt be reciprocally proportional to the Quantity of the Blood that arrives at the Gland: and therefore, if the Quantity of the Secretion is to be increas'd, the Number of Particles is to be increas'd; if the Secretion is to be leſſen'd, the Number of Particles, proper for ſuch a Secretion, is to be leſſen'd in the ſame Proportion. *Medicines*, therefore, which can alter the Coheſions, and Combinations of the Particles, can either increaſe or diminiſh the Quantity of any Secretion. Thus, ſuppoſe the Humour, which paſſes thro' the Glands of the Inteſtines, to be compoſed of three or four ſeveral ſorts of Particles; that *Medicine*, which will eaſily cohere to thoſe Particles, and cohering, increaſe their mutual Attractions, ſo as they unite in greater Numbers at, or before they arrive at the Inteſtines, than they would have done, if the *Medicine* had not been given, muſt neceſſarily increaſe the Quantity of Humour, which paſſes thro' the Glands of the Inteſtines, if the Quantity of Blood which arrives at the Glands, is not diminiſh'd in the ſame Proportion, as the Number of Particles is increas'd. After the ſame manner do Diuretics, Sudorifics, and *Medicines*, which promote all other Secretions, operate.

Why increaſing the Quantity of ſome Secretions, ſhould diminiſh that of others, is not eaſy to explain on any other foot: for if the Blood be equally mix'd in every part of the Body, with all the Humours which are ſeparated from it; that is, if the Mixture of the Blood is every where alike, ſo that every Humour bears the ſame Proportion to the reſt of the Arterial Blood, in one part of the Body, that it does in another; and if every Humour has its own proper Gland, thro' which it is ſeparated: then what is ſeparated by one Gland, is not ſubſtracted from another; and conſequently doth not diminiſh the Quantity of Humour, which flows to this other, but doth indeed rather increaſe the Quantity of this other Secretion: for the more any one Humour is carry'd off, the greater Proportion any other remaining in the Blood, bears to the remaining Blood: And therefore the more any one Secretion is increaſed, the more all the reſt ſhould be increaſed likewiſe. But if all the Humours are compoſed by a Combination of a few different ſorts of Particles, then the more apt theſe Particles are to run into any one ſort of Combination, the leſs all other Combinations muſt be: and conſequently the increaſing any one Secretion, muſt neceſſarily diminiſh the Quantity of all others; but moſt eſpecially of that, which has the moſt of the ſame ſort of Particles. See SECRETION, HUMOUR, &c.

MEDICINAL *Hours*, are thoſe proper to take Medicines in: Of which there are four in the Day, *viz.* in the Morning faſting, about an Hour before Dinner, about four Hours after Dinner, and going to Bed; but in acute Caſes, the Times are to be govern'd by the Symptoms and Aggravation of the Diſtemper.

MEDICINAL *Waters.* See WATER.

MEDIETAS *Linguæ*, an Inqueſt impannel'd, whereof the one half conſiſts of Natives or Denizens, the other Strangers. It is uſed in Pleas, wherein the one Party is a Stranger, and the other a Denizen. *Solomon de Stanford*, a *Jew*, in the Time of *Edward* I. had a Cauſe tried before the Sheriff of *Norwich*, by a Jury of *ſex probos & legales Homines, & ſex legales Judæos de Civitate Norvici.* See JURY.

MEDITATION, an Action by which we conſider any thing cloſely, or wherein the Soul is employ'd in the Search of any Truth. In Religion it is uſed to ſignify a Conſideration of the Myſteries and grand Truths of Faith. The *Myſtics* make a great difference between *Meditation* and Contemplation. *Meditation* conſiſts in diſcurſive Acts of the Soul, conſidering methodically, and with attention, the Myſteries of Faith, and the Precepts of Morality: And is perform'd by Reflections and Reaſonings, which leave behind them manifeſt Impreſſions in the Brain. The pure Contemplative have no need of *Meditation*, as ſeeing all things in God at a Glance, and without any Reflection. When a Man therefore has once quitted *Meditation*, and is arrived at Contemplation, he returns no more; and, according to *Alvarez*, never reſumes the Oar of *Meditation*, except when the Wind of Contemplation is too weak to fill his Sails. See CONTEMPLATION.

MEDITERRANEAN, ſomething incloſed within Land. The Word is particularly uſed to ſignify that large Sea, which flows within the Lands of *Europe* and *Africa*, by the *Streights of Gibraltar*, and reaches into *Aſia*, as far as the *Euxine* Sea, and the *Palus Meotis.* It was antiently call'd the *Grecian Sea*, and the *Great Sea.* It is now canton'd out into ſeveral Diviſions, which bear ſeveral Names. To the Weſt of *Italy* it is call'd the *Liguſtic*, or *Tuſcan Sea*; near *Venice*, the *Adriatic*; towards *Greece*, *Ionic* and *Ægean*; between the *Helleſpont* and the *Boſphorus*, the *White Sea*, as being very ſafe; and beyond, the *Black Sea*, its Navigation being dangerous. The *Arabs* call the *Mediterranean Sea*, the *Chamber-Pot*, by reaſon, they ſay, of its Figure.

MEDITULLIUM, is that ſpongy Subſtance between the two Plates of the Cranium, and in the Interſtices of all laminated Bodies. See CRANIUM.

MEDIUM, a *Latin* Term, ſignifying *Middle* or *Mean.* See MEAN.

MEDIUM, in Logic, or MEDIUM *of a Syllogiſm*, call'd alſo the *mean* or *middle Term*, and by the *Italians*, *mezzo termino*; is an Argument, Reaſon, or Conſideration, for which we affirm, or deny any thing: Or it is that Cauſe, why the greater Extreme is attributed to, or deny'd of the leſs, in the Concluſion. Thus, in the Syllogiſm, 'Every good thing is to be deſired; but all Virtue is good; therefore all Virtue is to be deſired:' The Term *Good* is the *Medium*; *Virtue* the leſs Extreme, and to be deſir'd the greater. See SYLLOGISM, EXTREME, &c.

'Tis call'd *Medium*, as being a kind of *Mediator* between the Subject and Predicate; or, by reaſon, the Extremes are diſpoſed to affirm, or deny by *means* hereof. Some call it *Argumentum tertium*, a third Argument, and others ſimply *Argumentum*, as being the Cauſe why we aſſent to the Concluſion. See ARGUMENT.

Mediums, or *Media*, are the Things principally ſought for, in diſcourſing; ſo that the Invention of *Mediums* makes the moſt eſſential Part of Logic. But the Rules commonly given by Logicians for that purpoſe, are mere Impertinencies. In effect, no ſuch Rules can be given: Nor have we any way of coming at ſuch *Mediums* or Reaſons, but by a cloſe Attention to clear Ideas. See DISCOURSE, INVENTION, &c.

MEDIUM, in Arithmetic, or an *Arithmetical Medium or Mean*, call'd in the Schools *Medium Rei*, is that which is equally diſtant from each Extreme; or, which exceeds the leſſer Extreme, as much as it is exceeded by the greater; in reſpect of Quantity, not of Proportion. Thus, Nine is a *Medium* between Six and Twelve. See *Arithmetical* PROPORTION.

Geometrical MEDIUM or *Mean*, call'd in the Schools *Medium Perſonæ*, is that where the ſame Ratio is preſerv'd between the firſt and ſecond, and the ſecond and third Terms; or that which exceeds in the ſame Ratio, or Quota of itſelf, as it is exceeded. Thus Six is a geometrical *Medium* between Four and Nine. See *Geometrical* PROPORTION.

This is the *Medium* which Virtue is ſuppos'd to obſerve; whence ſome call it *Medium quoad nos*, as having a View to Circumſtances, Times, Places, Perſons, &c. Diſtributive Juſtice obſerves a Geometrical *Medium*; Commutative Juſtice, an Arithmetical one. See JUSTICE.

The Schoolmen diſtinguiſh divers other Kinds of MEDIUMS; as

MEDIUM *Participationis*, in the Schools, is that ſaid to be compounded of the two Extremes: Thus, Man, who is partly Body, partly Mind, is a *Medium* by *Participation*, of the two Extremes; ſo, is Warmth the *Medium* of Heat and Cold, &c.

MEDIUM *Negationis* or *Remotionis*, is that, whereof both Extremes are deriv'd; or, it is a Subject, capable of receiving both Extremes, and yet not neceſſarily poſſeſs'd of either. In which latter ſenſe, the Will is a *Mean* with reſpect to Virtue and Vice; and the Underſtanding, with reſpect to Knowledge and Ignorance.

MEDIUM *quod*, or MEDIUM *Suppoſiti*, is ſomewhat between the Agent and Patient, which receives the Action of the one, e'er it arrive at the other. In this ſenſe, Air is a *Medium* between the Fire, and the Hand heated thereby.——MEDIUM *quo*, is the Form, or Faculty, whereby an Agent produces an Effect; in which ſenſe, Heat is ſaid to be the *Medium* or *Mean*, whereby Fire acts on the Hand.———MEDIUM *ſub quo*, is that which renders the Power to act, compleat, in the general; without determining it to any particular Object: In this ſenſe, Light is the *Medium*, under which the Eye perceives any Colour.———MEDIUM *in quo*, is that, by inſpection whereof, a Power is produced in any thing, of knowing or perceiving another: Such, is a Speculum, as it ſhews an Object; an Image, as it repreſents the Reality, &c.

MEDIUM, in Mechanical Philoſophy, is that Space or Region, thro' which a Body paſſes in its Motion towards any Point. Thus *Æther* is ſuppoſed to be the *Medium*, wherein the heavenly Bodies move. See ÆTHER. *Air* the *Medium* wherewith the Earth is encompaſs'd, and Earthy Bodies move. See AIR. *Water* the *Medium* in which Fiſhes live and move. See WATER. Thus, *Glaſs* is alſo a *Medium* of Light, as it affords it a free Paſſage: And that Denſity or Conſiſtence in the Parts of the *Medium*, whereby the Motion of Bodies in it is retarded, is call'd *the Reſiſtance of the Medium*; which, together with the Force of Gravity, is the Cauſe of the Ceſſation of Motion of Projectiles. See RESISTANCE *of the Medium*.

Subtile MEDIUM. Sir *Iſ. Newton* makes it probable, That beſide the particular Aerial *Medium*, wherein we live and breath, there is another more univerſal one, which he calls an *Ætherial Medium*; vaſtly more rare, ſubtile, elaſtic, and active, than Air; and by that means freely permeating the Pores and Interſtices of all other Mediums, and diffuſing itſelf thro' the whole Creation: And by the Intervention hereof he thinks it is, that moſt of the great Phænomena of Nature are effected. This he ſeems to have recourſe to, as the firſt and moſt remote Phyſical Spring; and the Ultimate of all natural Cauſes. By the Vibrations of this *Medium*, he takes Heat to be propagated from lucid Bodies; and the Intenſeneſs of Heat increas'd and preſerv'd in hot Bodies, and from them communicated to cold ones. See HEAT. By this *Medium* he takes Light to be reflected, inflected, refracted, and put alternately in Fits of eaſy Reflection and Tranſmiſſion; which Effects he elſewhere aſcribes to the Power of Attraction: ſo that this *Medium* appears the Source and Cauſe of Attraction. See LIGHT, REFLECTION, REFRACTION, INFLECTION, and ATTRACTION.

Again, this *Medium* being much rarer within the heavenly Bodies, than in the heavenly Spaces; and growing denſer, as it recedes further from them: he propoſes as the Cauſe of the Gravitation of theſe Bodies towards each other, and of the Parts towards the Bodies. See GRAVITATION.

Again, from the Vibrations of this ſame *Medium*, excited in the bottom of the Eye by the Rays of Light, and thence propagated thro the Capillaments of the Optic Nerves into the Senſory, he takes Viſion to be perform'd; ſee VISION: And ſo Hearing, from the Vibrations of thisor ſome other *Medium*, excited in the Auditory Nerves, by the Tremors of the Air, and propagated thro the Capillaments of thoſe Nerves into the Senſory: and thus of the other Senſes. See SENSATION, HEARING, &c.

And, again, he conceives Muſcular Motion to be perform'd by the Vibrations of the ſame *Medium*, excited in the Brain at the Command of the Will, and thence propagated thro the Capillaments of the Nerves into the Muſcles; and thus contracting and dilating them. See MUSCLE.

The Elaſtic Force of this *Medium*, he ſhews, muſt be prodigious: Light moves at the rate of 70,000,000 Miles in about ſeven Minutes, yet the Vibrations and Pulſes of this *Medium*, to cauſe the Fits of eaſy Reflection and eaſy Tranſmiſſion, muſt be ſwifter than Light, which yet is 700,000 times ſwifter than Sound. The Elaſtic Force of this *Medium*, therefore, in proportion to its Denſity, muſt be above 490,000,000,000 times greater than the Elaſtic Force of the Air, in proportion to its Denſity: The Velocities and Pulſes of Elaſtic *Mediums* being in a ſub-duplicate Ratio of the Elaſticities, and the Rarities of the *Medium*, taken together. And thus may the Vibrations of this *Medium* be conceiv'd as the Cauſe of Elaſticity of Bodies. See ELASTICITY.

Further, the Particles of this *Medium* being ſuppoſed infinitely ſmall, even ſmaller than thoſe of Light; if they be likewiſe ſuppoſed, like our Air, to have a repelling Power, whereby they recede from each other, the Smallneſs of the Particles may exceedingly contribute to the Increaſe of the repelling Power, and conſequently to that of the Elaſticity and Rarity of the *Medium*; and ſo fit it for the free Tranſmiſſion of Light, and the free Motions of the heavenly Bodies. In this *Medium* may the Planets and Comets roll without any conſiderable Reſiſtance. If it be 700,000 times more elaſtic, and as many times rarer, than Air; its Reſiſtance will be above 600,000,000 times leſs than that of Water: A Reſiſtance that would make no ſenſible Alteration in the Motion of the Planets in ten thouſand Years. And is not ſuch a *Medium* better diſpoſed for the heavenly Motions, than that of the *Carteſians*, which fills all Space adequately, and without leaving Pores; is vaſtly denſer than Gold; and therefore muſt reſiſt more? See PLENUM, &c. If any ask how a *Medium* can be ſo rare, let him tell how the Air, in the upper Regions of the Atmoſphere, can be above a hundred thouſand times rarer than Gold. How an electric Body can, by Friction, emit an Exhalation ſo rare and ſubtile, yet ſo potent, as, tho its Emiſſion occaſions no ſenſible Alteration in the Weight of the Body; yet it ſhall be diffuſed thro a Sphere of two Foot in Diameter, and carry up Leaf-Copper, or Leaf-Gold, at the diſtance of a Foot from the electric Body. Or how the Effluvia of a Magnet can be ſo ſubtile, as to paſs a Plate of Glaſs without any Reſiſtance or Diminution of Force; yet ſo potent, as to turn a Magnetic Needle beyond the Glaſs. See ELECTRICITY.

That the Heavens are not fill'd with any other, but ſuch a ſubtile ethereal *Medium*, is evident from Phænomena; whence elſe thoſe laſting and regular Motions of the Planets and Comets, in all manner of Courſes and Directions. And how are ſuch Motions conſiſtent with that Reſiſtance, that muſt reſult from that denſe, fluid *Medium*, wherewith the *Carteſians* fill the Heavens. The Reſiſtance of fluid *Mediums* ariſes partly from the Coheſion of the Parts of the *Medium*, and partly from the *Vis Inertiæ*. The firſt, in a ſpherical Body, is nearly as the Diameter, or, at moſt, as the Factum of the Diameter, and the Velocity of the Body. The latter is as the Square of that Factum. Thus are the two Kinds of Reſiſtance diſtinguiſh'd in any *Medium*; and being diſtinguiſh'd, it will be found that almoſt all the Reſiſtance of Bodies, moving in ordinary Fluids, ariſes from the *Vis Inertiæ*. That Part which ariſes from the Tenacity of the *Medium*, may be diminiſh'd, by dividing the Matter into ſmaller Parts, and making thoſe more ſmooth and ſlippery: But the other will ſtill be proportional to the Denſity of the Matter, and cannot be diminiſh'd any other way, but by a Diminution of the ſame. Thus the Reſiſtance of fluid *Mediums*, is nearly proportional to their Denſities; and thus the Air we breath, being about 900 times lighter than Water, muſt reſiſt about 900 times leſs than Water: As, in effect, the ſame Author has found it does by Experiments on Pendulums. Bodies moving in Quick-Silver, Water, or Air, don't appear to meet with any other Reſiſtance, but what ariſes from the Denſity and Tenacity of thoſe Fluids; which they muſt, were their Pores fill'd with a denſe and ſubtile Fluid. See VACUUM. Heat, 'tis found, diminiſhes the Tenacity of Bodies very much; yet does it not decreaſe the Reſiſtance of Water, ſenſibly. The Reſiſtance of Water, therefore, ariſes chiefly from its *Vis Inertiæ*; conſequently, if the Heavens were as denſe as Water, or as Quick-Silver, they would not reſiſt much leſs: if abſolutely denſe, without any Vacuum, be the Particles never ſo ſubtile and fluid, they would reſiſt much more than Quick-Silver. A ſolid Globe, in ſuch a *Medium*, would loſe above half its Motion, while it moves thrice the Length of its own Diameter; and a Globe not perfectly ſolid, ſuch as the Planets, would loſe more. To make way therefore for the laſting Motions of the Planets and Comets, the Heavens muſt be empty of all Matter, except, perhaps, from ſome very fine Effluvia; from the Atmoſpheres of the Earth, Planets, and Comets; and ſome ſuch Ætherial *Medium* as we have deſcribed. A denſe Fluid can ſerve for no purpoſe, in the Heavens, but to diſturb the Celeſtial Motions, and to make the Frame of Nature languiſh; and in the Pores of Bodies, ſerves only to check the vibrating Motion of their Parts, wherein their Heat and Activity conſiſts. Such a *Medium*, therefore, unleſs we had ſome Evidence of its Exiſtence, muſt be given up; and that given up, the Hypotheſis of Light's conſiſting in a Preſſion, falls to the ground. See LIGHT, PRESSION, CARTESIANISM, &c.

MEDIUS *Venter*, in Anatomy, the Breaſt or Thorax. See THORAX; ſee alſo VENTER.

MEDULLA, in natural Hiſtory, &c. See MARROW.

MEDULLA *Cerebri* and *Cerebelli*, is the white ſoft Part of the Brain; and *Cerebellum*, cover'd on the Outſide with the Cortical Subſtance, which is of a more dark or aſhy Colour. See the Origin, Structure and Uſe thereof, under BRAIN and CEREBELLUM.

MEDULLA *Oblongata*, is the *Medullary* Part of the Brain and Cerebellum join'd in one; the fore-part of it coming from the Brain, and the hind-part from the Cerebellum. It lies on the Baſis of the Skull, and is continu'd thro' the great Perforation thereof into the Hollow of the Vertebræ of the Neck, Back, and Loins: tho' only ſo much of it retains the Name, as is included within the Skull. After its Exit thence, it is diſtinguiſh'd by the Name of the MEDULLA *Spinalis*.

The Subſtance of the *Medulla Oblongata* being only an Aggregate of thoſe of the Brain and Cerebellum, muſt, like them, be purely fibrous or nervous, and only an Aſſemblage of minute Tubes for the Conveyance of the Animal Spirits. It ariſes, as it were, from four Roots; whereof the two largeſt ſpring from the Brain, and are call'd *Crura*: the two leſſer from the Cerebellum, which Dr. *Willis* calls *Pedunculi*. See BRAIN, CEREBELLUM.

There are ſeveral Parts or Members of the *Medulla Oblongata*, particular Deſcriptions whereof will be found under their proper Heads. In the general it may be obſerv'd, that, upon inverting it, the firſt thing that appears upon its Trunk, is a Protuberance ſomewhat like a Ring, for that reaſon call'd *Protuberantia Annularis*. Then follow ten Pair of Nerves, which have their Origin here, and are hence ſent to the ſeveral Parts of the Body. See NERVE. Immediately under the firſt Pair, or Olfactories, appear two ſmall Arteries, or Branches of the *Carotides*. The ſecond Pair, or Optics, being cut off, appears the *Infundibulum*, which ends in the *Glandula Pituitaria*, and on each Side, the Carotid Arteries enter the Skull. In the Lateral Ventricles of the *Medulla* are two Prominences on each Side, the one Pair call'd *Corpora Striata*, from the appearance of Stripes, or nervous Fibres, within them; their outer Subſtance being cortical or glandulous, like the reſt of the Surface of the Brain, tho' not ſo deep. Betwixt the *Corpora Striata* is a broad thin Production of the *Medulla*, call'd *Fornix*; and underneath them lie two other Prominences, call'd *Thalami Nervorum Opticorum*. On either ſide of theſe is a *Plexus* of Blood-Veſſels, called *Plexus Coroides*. And under the *Fornix* a narrow Aperture, call'd the *Rima*, which lets into the *Infundibulum*; which is a Paſſage from the third Ventricle to the *Glandula Pituitaria*, thro the *Medulla* of the Brain; being lined with the *Pia Mater*. Under this, in the *Sinus* call'd *Sella Equina*, or *Turcica*, upon the *Os Cribroſum*, is the *Glandula Pituitaria*; which is ſurrounded with a *Plexus* of Veſſels, call'd *Rete Mirabile*, only viſible in Brutes. On the hind part of the third Ventricle is a ſmall *Foramen*, call'd *Anus*, leading to the fourth Ventricle of the *Cerebellum*: At the Orifice of this is ſeated a ſmall Gland, which, from its fancied Reſemblance to a Pine Apple, is call'd *Conarium*, or *Glandula Pinealis*; where *Des Cartes* and his Followers imagine the Seat of the Soul to be. On the backſide of the *Medulla Oblongata*, near the *Cerebellum*, are four Protuberances, whereof the upper and larger are call'd *Nates*; the under and leſſer *Teſtes*. Between theſe and the Proceſſes of the *Cerebellum*, is the fourth Ventricle, from its Figure call'd *Calamus Scriptorius*. On the *Medulla Oblongata*, near its Extremity, are four other Prominences, two on each Side; call'd *Corpora Pyramidalia* and *Olivaria*. See PYRAMIDALIA, OLIVARIA, CALAMUS, CONARIUM, RETE, &c.

MEDULLA *Spinalis*, or the *Spinal Marrow*, is a Continuation of the *Medulla Oblongata*, or *Medullary* Part of the Brain, without the Skull. It conſiſts, as the Brain does, of two Parts, a White or *Medullary*, and a Cineritious or Glandulous; the former without, and the other within. The Subſtance of the exterior Part is much the ſame with that of the *Corpus Calloſum*, only ſomewhat tougher, and more fibrous: which Difference becomes the more apparent, as it deſcends the lower; by reaſon of the Streightneſs of the Cavity, which growing gradually more narrow, preſſes the *Medullary* Fibres cloſer together, and renders them more compact, and gathers them into more diſtinct *Faſciculi*, till having deſcended the whole Tract of the *Spina*, they end in the *Cauda Equina*. It is the Origin of moſt of the Nerves of the Trunk of the Body: It ſends out thirty Pair on each Side to the Limbs, the great Cavities, and other Parts; which are nothing but *Faſciculi* of *Medullary* Fibres, cover'd with their proper Membranes. See NERVE.

The *Spinal Marrow* is generally ſaid to be cover'd with four Coats: The firſt, or external one, is a ſtrong nervous Ligament, which ties the *Vertebræ* together, to the Inſide of which it firmly adheres. The ſecond is a Production of the *Dura Mater*; it is exceedingly ſtrong, and ſerves to defend the *Spinal Marrow* from any Hurt from the Flexures of the *Vertebræ*. The third is a Production of the *Arytænoides*, and is a thin pellucid Membrane, lying between the *Dura* and *Pia Mater*, or the ſecond and fourth Membranes of the *Medulla*. This Membrane gives a Coat to the Nerves, that go out of the *Spina*, which is the inner Membrane of the Nerves, as the *Dura Mater* gives the outer. The fourth Coat is a Continuation of the *Pia Mater*, and is an extremely thin, fine, tranſparent Membrane; ſtrictly embracing the whole Subſtance of the *Medulla*, dividing it in the middle into two Tracts, and making, as it were, two Columns of it. See SPINE, VERTEBRÆ, &c.

MEDULLA *Oſſium*, or *Marrow of the Bones*, is a ſoft fatty Subſtance, placed in the Cavities or Pores of divers Bones; it is incloſed in a Membrane; and is devoid of Senſe: it is red in the greater Cavities, white in the leſs, and ſoft and ſucculent in ſpungy Bones. See BONE. From this is ſecreted the Medullary Oil. See MEDULLARY OIL.

MEDULLARY *Oil*, is no more than the finer and more ſubtile Parts of the *Medulla*, or Marrow of the Bones, ſo call'd. This, Dr. *Havers* obſerves, paſſes not into the Bones thro Ducts, but by ſmall Pores formed into the Veſſels or Glandules, which are conglomerated into diſtinct Lobules, contained in ſeveral Membranes inveſting the whole Marrow; all which Veſicles or Bags are propagated from the outward Coat of the Arteries; and by theſe it paſſes from one to another, till it arrives at the Sides, or extreme Parts of the Bone. That Part of it, which is ſupply'd to the Interſtices of the Joints, goes into them by Paſſages, penetrating thro the Bone into thoſe Cavities, and form'd for that end. The Uſe of this Oil is either common to all the Bones, whoſe Temper it preſerves, and keeps from being too brittle; or more peculiar for the Joints, where it is very ſerviceable, (1.) To lubricate the Bones at their Extremities, that they may move more eaſily and free. (2.) To keep the Ends of the articulated Bones from growing hot with Motion. (3.) To preſerve the Joints from wearing by Attrition, and rubbing one againſt another: And, (4.) To preſerve the Ligaments of the Joints from Dryneſs and Rigidity; and lubricate thoſe Parts, which ſlide upon the Bones, and keep the Cartilages, which are join'd to them, flexible.

MEETER. See METRE.

MEGALESIA, in Antiquity, a ſolemn Feaſt celebrated among the *Romans* on the 12th of *April*, in honour of the great Mother of the Gods, that is, *Cybele* or *Rhea*; wherein, were Games or Combats held before the Temple of that Goddeſs. They were call'd *Megaleſia*, from the *Greek* μεγαλὴ, *Great*; *Cybele* being accounted the great Goddeſs.

MELA, a Chirurgeon's Inſtrument, call'd alſo *Speculum*, and by the Vulgar, *Tenta*. Its Uſe is to probe Ulcers, draw a Stone out of the Yard: Its Form is various, according to the Uſes it is intended for. See SPECULUM.

MELANAGOGUES, are ſuch Medicines as are ſuppos'd particularly to purge off black Choler; from μέλας, *niger*, black; and ἄγω, *duco*, to lead: but there is no ſuch Diſtinction of Choler now regarded, and conſequently this Diſtinction is but little uſed. See PURGATIVES.

MELANCHOLY, in Medicine, the Name of a Diſeaſe, which conſiſts in a Delirium, without a Fever, and is uſually attended with Fear, Heavineſs and Sorrow, without any apparent Occaſion. The Antients attributed this Diſeaſe to black and cloudy Spirits, ariſing as Vapours from a redundant black Bile. Some of the Moderns aſcribe it to the irregular Motion of the Spirits, and their acid Conſtitution; and others, who know it better, to too heavy and viſcid a Blood, which permits not a Sufficiency of Spirits to be ſeparated in the Brain, to animate and invigorate the Nerves and Muſcles: And others to a Dryneſs of the *Meninges* of the Brain. This Diſeaſe is vary'd an infinite number of Ways, according to the Temperament and Ideas of the Perſon affected with it. It is a Species of Madneſs, and only differs from a downright *Mania* in degree. The Word comes from the *Greek* μέλας, *niger*; and χολη, *Bile*. See MADNESS, DELIRIUM, &c.

MELCHISADECHIANS, antient Sectaries, ſo call'd, becauſe they rais'd *Melchiſadech* above all Creatures, and even above Jeſus Chriſt. The Author of this Sect was one *Theodotus*; whence the *Melchiſadechians* became more commonly known by the Name of *Theodotians*; all the Difference between thoſe, and the ſtrict *Theodotians*, conſiſting in that particular Article relating to *Melchiſadech*; who, according to them, was the great and ſupreme Virtue. See THEODOTIANS.

MELCHITES, the Name of a Religious Sect in the *Levant*, who ſcarce differ from the *Greeks* in any thing relating either to Faith or Worſhip; but yet ſpeak a different Language. The Word, in the *Syriac*, ſignifies *Royaliſts*, and was formerly apply'd to the Catholics by the Heretics, who refus'd to ſubmit to the Deciſions of the Council of *Calcedon*: intimating by this Appellation, that they were of the Religion of the Emperor. Thoſe now call'd *Melchites*, are ſuch People, as, inhabiting among the the *Syrians*, *Cophtæ*, or *Egyptians*, and other *Levantine* Nations, follow the Opinions of the *Greeks*, tho no *Greeks* themſelves: And 'tis for this reaſon that *Gabriel Sionita* calls them indifferently by the Name of *Greeks* and *Melchites*. The ſame Author obſerves, that they are ſpread thro' all the *Levant*; that they deny Purgatory; and are declar'd Enemies to the Pope and his Primacy. For the reſt, they fall in with the *Greeks*, both as to Articles of Faith and Diſcipline. They have tranſlated the *Greek* Euchologue, and other Books of that kind, into *Arabic*; and have the Canons of Councils in the ſame Language. To thoſe of the Council of *Nice*, they have added new Canons, commonly call'd the *Arabic Canons*; which are likewiſe receiv'd by the *Jacobites* and *Maronites*: Tho moſt of the Learned look on them as ſpurious.

MELICERIS, is a Tumour incloſed in a *Cyſtis*, conſiſting of Matter like Honey: it gathers without Pain, and gives way upon Preſſure, but returns again: It is to be cured by warm Diſcutients.

MELITITES, a greyiſh Stone, which, when pulveriz'd, yields a milky Liquor, of a Taſte ſomewhat like Honey; whence it takes its Name. It is found in Mines of Metals, and ſeems to partake pretty much of the Nature of Lead; having a Sweetneſs ſomewhat like the *Sal Saturni*, but much fainter. It only differs from the *Galactites*, in that it is milder to the taſte. The Antients uſed it in Inflammations of the Eyes, and to dry Ulcers.

MELIUS *Inquirendo*, is a Writ that lieth for a ſecond Inquiry of what Lands and Tenements a Man died ſeized; where Partiality is ſuſpected, upon the Writ, call'd, *Diem clauſit extremum*.

MELODY, in Muſic, is the agreeable Effect of different Muſical Sounds, ranged or diſpoſed in Succeſſion. So that Melody is the Effect only of one ſingle Part, Voice, or Inſtrument; by which it is diſtinguiſh'd from *Harmony*; tho' in common Speech, theſe two are frequently confounded. Harmony is the agreeable Reſult of the Union of two or more concording muſical Sounds heard in Conſonance, *i. e.* at one and the ſame time; ſo that Harmony is the Effect of two Parts at leaſt: As therefore a continued Succeſſion of muſical Sounds produces *Melody*, ſo does a continued Combination of theſe produce Harmony. See HARMONY and CONCORD; ſee alſo *Muſic in* PARTS.

Tho' the Term *Melody* be chiefly applicable to the Treble, as the Treble is chiefly diſtinguiſh'd by its Air; yet ſo far as the Baſs may be made airy, and to ſing well, it may be alſo properly ſaid to be *Melodious*. See TREBLE and BASS.

Of the twelve harmonical Intervals of Muſical Sounds, diſtinguiſh'd by the Names of *Second leſſer*, *Second greater*; *Third leſſer*, *Third greater*; *Fourth*; *falſe Fifth*; *Fifth*; *Sixth leſſer*, *Sixth greater*; *Seventh leſſer*, *Seventh greater*; and *Octave*; all *Melody*, as well as Harmony, are compos'd: For the Octaves of each of theſe are but Replications of the ſame Sounds; and whatever is ſaid of any, or all of theſe Sounds, is to be underſtood alſo of their Octaves. See OCTAVE.

For the Rules of *Melody*, ſee COMPOSITION. The Word comes from the *Greek* μελι, *Honey*; and ᾠδὴ, *Singing*.

MEMBERS, in Anatomy, the exterior Parts, ariſing from the Trunk, or Body of an Animal, like Boughs from the Trunk of a Tree. See BODY. The Phyſicians divide the Body into three Regions or Venters (the Head, the Breaſt, and the Lower Ventricle;) and their Extremities, which are the *Members*. In *Latin* they are call'd *Artus*, of *Arctare*; becauſe they are Parts attach'd to the Trunk.

Each *Member*, and Portion of the Body, was antiently devoted to ſome Divinity. The Head to *Jupiter*, the Breaſt to *Neptune*, the Navel to *Mars*, the Ear to *Memory*, the Forehead to the *Genius*, the Right-Hand to *Faith* or *Fidelity*, the Knees to *Mercy*; the Eye-brows, again, to *Jupiter*, the Eyes to *Cupid*, or, according to others, to *Minerva*; the hind Part of the right Ear to *Nemeſis*, the Back to *Pluto*, the Reins to *Venus*, the Feet to *Mercury*, the Heels and Soal of the Foot to *Thetys*, and the Fingers to *Minerva*.

MEMBERS, in Architecture. See MOULDINGS.

MEMBER, in Grammar, is underſtood of the Parts of a Period or Sentence. See PERIOD and SENTENCE.

MEMBER'D, or MEMBRED, in Heraldry, is where the Leg or Foot of an Eagle, Griffin, or other Bird, is of a different Colour from the reſt of the Body.

MEMBRANA, in Anatomy.	See	MEMBRANE.
MEMBRANA *Communis Muſculorum*.		
MEMBRANA *propria Muſculorum*.		
MEMBRANA *Communis Vaſculorum*.		
MEMBRANA *Adipoſa*.	See	ADIPOSA.
MEMBRANA *Carnoſa*.		CARNOSA.
MEMBRANA *Nictitans*.		NICTITATING.
MEMBRANA *Tympani*.		TYMPANUM.
MEMBRANA *Urinaria*.		ALLANTOIS.

MEMBRANE, in Anatomy, a ſimilar Part of an Animal Body; being a thin, white, flexile, expanded Skin, form'd of ſeveral ſorts of Fibres interwoven together, and ſerving to cover or wrap up ſome certain Parts of the Body. See BODY and PART.

The *Membranes* of the Body are various; and variouſly demonſtrated: Such are the *Perioſtium*, *Pleura*, *Pericardium*, *Peritonæum*, &c. which ſee under their proper Articles; PERIOSTIUM, &c.

Thoſe *Membranes* which ſerve as Integuments, or Covers of Veſſels, are call'd *Coats* or *Tunics*; and thoſe which cover the Brain, are, by a peculiar Name, call'd *Meninges*: See TUNIC and MENINGES.

The Fibres of a *Membrane* give them an Elaſticity, whereby they can contract, and cloſely graſp the Parts they contain; and their nervous Fibres give them an exquiſite Senſe, which is the cauſe of their Contraction: they can therefore ſcarcely ſuffer the Sharpneſs of Medicines, and thoſe are difficultly united, when wounded. In their Texture, there is a number of ſmall Glands, which ſeparate an Humour, fit for moiſtening the Parts they contain. By reaſon of the Thickneſs and Tranſparency of the *Membranes*, the Ramifications of the Blood-Veſſels are more apparently ſeen in them, than in any other Part of the Body: here the innumerable Diviſions, Windings, and Turnings, ſerpentine Progreſſions, and frequent Inoſculations, not only of Veins and Arteries together, but alſo of Veins with Veins, and Arteries with Arteries, make a moſt agreeable Embroidery, and delicate Net-work, covering the whole *Membrane*.

The Uſe of the *Membranes* is to cover and wrap up the Parts, and ſtrengthen them; to ſave them from external Injuries; to preſerve the natural Heat; to join one Part to another; to ſuſtain ſmall Veſſels, and the Nerves which run thro' their Duplicatures; to ſtop the returning of the Humours in their Veſſels, as the Valves ſtop the returning of the Blood in the Veins and Heart; of the Chyle in the Thoracic Duct; and of the Lympha in the Lymphatic Veſſels.

Anatomiſts generally aſſert, that there is a *Membrana Communis Muſculorum*, or *Membrane* common to all the Muſcles; being led into that Miſtake by the *Aponeuroſis* of ſeveral Muſcles; whereas, upon ſtricter Obſervation, there is no ſuch thing to be found. See MUSCLE. The *Membrana propria Muſculorum*, is that which immediately covers all and every one of the Fibres of a Muſcle, and is cloſely tack'd to them. There is another common *Membrane*, call'd *Membrana Communis Vaſculorum*; which is a thin *Membrane*, accompanying almoſt all the Veſſels of the Body. All theſe *Membranes* receive Veins, Arteries, and Nerves from the Parts which are neareſt to them. The Word comes from the *Latin Membranum*, Parchment.

MEMBRANOSUS, in Anatomy, a Muſcle of the Leg, ſo call'd from its large *membranous* Expanſion incloſing all the Muſcles of the *Tibia* and the *Tarſus*; whence it is alſo call'd *Faſcia lata*. It hath a ſharp fleſhy beginning from the fore-part of the Spine of the *Os Ilium*, but ſoon becomes *membranous*, and covers almoſt all the Muſcles of the Thigh and Leg, down to the Foot, where it joins with the *Ligamentum Annulare*; and in its Action turns the Leg outwards.

MEMBRED: In Heraldry, thoſe Birds, which are either whole-footed, or which have no Talons, are blazon'd by the Term, *Membred*.

MEMOIRS, a Term now much in uſe for Hiſtories, compoſed by Perſons who had ſome Share or Concern in the Tranſactions they relate, or who were Eye-witneſſes of them; anſwering to what the *Latins* call'd *Commentarii*. The *French* are great Dealers in this way of Writing, and have an infinite number of Books of *Memoirs*, containing, for the Generality, the Lives and Actions of the Writers.

MEMOIRS are alſo uſed for a Journal of the Acts, and Proceedings of a Society; or a Collection of the Matters debated, tranſacted, &c. therein. Such are the *Memoirs* of the Royal Academy of Sciences, &c. See ACADEMY, &c.

MEMORY, a Power, or Faculty of the Mind, whereby it retains or recollects the ſimple Ideas, or the Images, and Remembrance of Things we have ſeen, imagin'd, underſtood, &c. See SOUL,; ſee alſo POWER, FACULTY, &c.

Of all the Faculties, there is none harder to account for, or that has perplex'd Philoſophers more, than the *Memory*. Some will have it a mere Organ, as the Eye, Ear, &c. Dr. *Hook*, in an *Eſſay towards a mechanical Account of Memory*, makes it to conſiſt in a ſtock of Ideas or Images, form'd occaſionally by the Mind, out of the fine Parts of the Brain, and diſpoſed, or laid by in order. *Des Cartes* and his Followers maintain, That the animal Spirits exciting a Motion in the moſt delicate Fibres of the Brain, leave a kind of Traces or Footſteps, which occaſion our *Remembrance*. Hence it happens, that by paſſing ſeveral times over the ſame things, the Spirits becoming accuſtom'd to the ſame Paſſages, leave them open, and ſo make their way without any Effort or Labour; and in this conſiſts the Eaſe wherewith we recollect ſuch Ideas. Thus Wine is found to ſharpen the *Memory*, in regard the Spirits of the Wine put the animal Spirits in Motion, and agitate the Fibres of the Brain the more briskly. See IDEA, BRAIN, TRACE, REMEMBRANCE, &c.

Father *Malbranche* expreſſes his Notion of *Memory* thus: ' It being granted, that all our different Perceptions are ' owing to Changes happening in the Fibres of the principal Part of the Brain, wherein the Soul more immediately

‘diately reſides, the Nature of the *Memory* is obvious: for as the Leaves of a Tree, that have been folded for ſome time, in a certain manner, preſerve a Facility or Diſpoſition to be folded again in the ſame manner; ſo the Fibres of the Brain, having once receiv'd certain Impreſſions by the Courſe of the animal Spirits, and by the Action of Objects, preſerve, for ſome time, a Facility to receive the ſame Diſpoſition. Now 'tis in this Facility that *Memory* conſiſts; for we think on the ſame Things, when the Brain receives the ſame Diſpoſitions. Further, as the animal Spirits act ſometimes more briskly, and ſometimes more languidly on the Subſtance of the Brain; and as ſenſible Objects make much deeper, and more laſting Impreſſions, than the Imagination alone; 'tis eaſy, on this Scheme, to conceive why we don't remember all Things alike: Why a Thing, for inſtance, ſeen twice, is repreſented more vividly to the Mind, than another ſeen but once: Why Things that have been ſeen, are uſually remembred more diſtinctly, than thoſe that have been only imagin'd, &c.' See HABITUDE.

‘Old Men are defective in *Memory*, and cannot learn any thing without much difficulty; becauſe they want animal Spirits to make new Traces, and becauſe the Fibres of the Brain are become too hard to receive, or too moiſt to retain ſuch Impreſſion. For the ſame reaſon, thoſe who learn with the greateſt Eaſe, forget the ſooneſt; in regard when the Fibres are ſoft and flexible, Objects make a ſlight Impreſſion, which the continual Courſe of animal Spirits eaſily wears off: On the contrary, the Fibres of thoſe who learn ſlowly, being leſs flexible, and leſs ſubject to be ſhaken, the Traces are more deeply engraven, and laſt the longer. From all which Obſervations it follows, that the *Memory* is abſolutely dependant on the Body; being impair'd or ſtrengthen'd, according to the Changes that befall the Body; a Fall, the Tranſports of a Fever, *&c.* being frequently found to eraſe or blot out all the Traces, to bear away all the Ideas, and to cauſe an univerſal Forgetfulneſs.'

The chief Difficulty that clogs this Doctrine of *Memory*, is to conceive how ſuch an infinite number of Things, as the Head is ſtored withal, ſhould be ranged in ſo much order in the *Memory*, as that the one ſhould not efface the other: and how in ſuch a prodigious Aſſemblage of Traces impreſs'd on the Brain, the animal Spirits ſhould awake preciſely thoſe which the Mind has occaſion for. See SPIRITS.

Seneca ſays of himſelf, that by the mere Effort of his natural *Memory*, he was able to repeat two thouſand Words upon once hearing them, each in its order; tho' they had no Dependance or Connection on each other. After which he mentions a Friend of his, *Portius Latro*, who retain'd in his *Memory* all the Declamations he had ever ſpoke, and never had his *Memory* fail him, even in a ſingle Word. He alſo mentions *Cyneas*, Ambaſſador to the *Romans* from King *Pyrrhus*, who in one day had ſo well learnt the Names of his Spectators, that the next he ſaluted the whole Senate, and all the Populace aſſembled, each by his Name. *Pliny* ſays, that *Cyrus* knew every Soldier in his Army by Name; and *L. Scipio*, all the People of *Rome*. *Charmidas*, or rather *Carneades*, when required, would repeat any Volume found in the Libraries; as readily as if he were reading. Dr. *Wallis* tells us, that without the aſſiſtance of Pen and Ink, or any thing equivalent, he was able in the dark, by mere force of *Memory*, to perform Arithmetical Operations, as Multiplication, Diviſion, Extraction of Roots, *&c.* to forty Places. Particularly, that in *February* 167$\frac{0}{1}$, at the requeſt of a Foreigner (by Night, in Bed) he propos'd to himſelf a Number of fifty-three Places, and found its ſquare Root to twenty-ſeven Places; and without ever writing down the Number, dictated 'em from his *Memory*, at his next Viſit, twenty Days afterwards.

Local or *Artificial* MEMORY, is an Art or Invention, by means whereof, the *Memory* is ſuppoſed to be aided, ſtrengthen'd, and inlarg'd. This Art ſeems to conſiſt in nothing elſe but a certain Method of coupling or aſſociating Ideas of Things to be remembred; with the Ideas of other Things, already diſpos'd orderly in the Mind, or that are before the Eyes. It is of an old ſtanding, having been practis'd by many of the antient Orators; ſome whereof are ſaid to have made uſe of Paintings, Images, and Emblems, on this occaſion: Tho' others contented themſelves with the Parts, Members, Ornaments, Furniture, and other Circumſtances of the Place where they were to ſpeak. *Muretus* tells us, that a young Man of *Corſica* pretending to do wonders this way, *Muretus* put him to the Tryal; and upon dictating to him two or three thouſand Words, ſome *Greek*, ſome *Latin*, ſome *Barbarous*; all without any relation to each other, and the greateſt part without any Meaning at all: the Artiſt immediately, and without any heſitation, or the leaſt ſtumbling or miſplacing, repeated them all, from firſt to laſt, in the ſame order wherein they had been dictated; and, this done, beginning where he ended, he repeated them all backwards, from laſt to firſt. Adding, that this was but a ſlight Eſſay of his *Memory*; and that he would undertake to repeat thirty-ſix thouſand Words in the ſame manner.

The truth is, this Art ſeems better calculated for retaining things without any Coherence or Dependance on one another, as mere Words or Sounds, *&c.* than for things where Reaſon or Judgment are any way required.

Raim. Lully took ſo much pains with it, that it now goes by his Name, being call'd *Lully's Art.*

MEMPHITES, or *Lapis* MEMPHITICUS, a ſort of Stone mentioned by *Dioſcorides*, *Pliny*, and other Natural Hiſtorians. 'Tis ſuppos'd to be found in *Egypt* not far from the City *Cairo*, the antient *Memphis*; whence its Name. The Property it is famed for, is, that being pulverized, and ſmear'd on any part of the Body to be cut off, it deadens it ſo, as that the Patient ſhall perceive no pain from the Operation.

MENANDRIANS, the moſt antient Branch of *Gnoſtics*, thus call'd from *Menander* their Chief, a Diſciple of *Simon Magus*, and himſelf a Magician. See GNOSTICS.

He taught, that no Perſon could be ſaved unleſs he were baptized in his Name: He confer'd a peculiar ſort of Baptiſm, which would render thoſe who receiv'd it immortal in the next World. St. *Irenæus* repreſents him, as pretending to be, That firſt Virtue hitherto unknown to the World, and to have been ſent by the Angels for the Salvation of all Mankind. He took upon him, ſays St. *Epiphanius*, *Hær.* 2. to be greater than his Maſter; which contradicts *Theodoret*, who makes *Menander* a ſubordinate Virtue to *Simon Magus*, the great Virtue of all. See SIMONIANS.

MENDICANTS, *q. d. Beggars*; a Term apply'd to ſeveral Orders of Religious, who live on Alms, and go a begging from Door to Door.

There are four antient Orders which paſs principally by the Name of the *Four Mendicants*: The *Carmelites*, *Jacobines*, *Cordeliers*, and *Auguſtins*. See CARMELITES, JACOBINES, *&c.* each under their proper Articles.

Among the Number of *Mendicants*, are alſo ranked the *Capuchins*, *Recollects*, *Minims*, and others. See CAPUCHINS, RECOLLECTS, *&c.*

The *Mendicants* at the time of their firſt Eſtabliſhment, could not have any Revenues. The Multitudes of *Mendicants*, are now a kind of Tax on the People.

MENINGES in Anatomy, the Coats, or Membranes wherewith the Brain is incloſed. See BRAIN.

The *Arabs* call them *Mothers*; whence we alſo uſually call them in *Latin* the *Pia* and *Dura Mater*. See PIA and DURA *Mater*.

There are two of theſe *Meninges*, the *External* and *Internal*.

The *external* one, being the groſſeſt, is call'd the *Dura*, or *Craſſa Meninx* or *Mater*. It lies immediately under the *Cranium*, and covers the whole Subſtance of the Brain, and the Spinal Marrow, and affords a Coat to the Trunks of the larger Nerves. See NERVE, *&c.* It is connected on the upper part to the *Perioſtium* by means of Fibres, and on the other ſide to the *Pia Mater* by the Branches of the Sinus's, and by the Arteries and Nerves. It conſiſts of two leſſer Coats or Membranes, which ſome have taken for two *Dura Maters*; the exterior, hard: and the inner, more ſmooth, ſoft, and moiſt. It deſcends double between the two Hemiſpheres of the Brain, which it divides as deep as the *Corpus Calloſum*, and by reaſon of its Curvature, occaſion'd by the Convexity of the Brain in that part, is called *Falx*, from its reſemblance to a Sickle. See FALX. It likewiſe inſinuates itſelf between the Brain and *Cerebellum*, and ſo prevents the Brain from lying too hard on the *Cerebellum*. In the Duplicatures thereof, are ſeveral Cavities call'd *Sinus's*, which are a ſort of venous Canals ſerving for the reconveyance of the Blood. Of theſe there are four conſiderable ones, *viz.* the *Longitudinales* and *Laterales*. See SINUS.

Under the *Dura Mater*, immediately upon the Brain, lies the *Meninx tenuis*, or *Pia Mater*, which is a fine thin Membrane adhering ſo cloſely, and inſinuating itſelf into all the Folds and anfractuous parts of the Brain, that it is ſcarce to be ſeparated from it. This Membrane covers the whole Brain, *Cerebellum*, and *Medulla Oblongata*, and ſerves, together with the other, for the Defence of the Brain, and the Support of its Veſſels.

Between the two, lies another fine tranſparent Membrane, call'd *Arachnoides*; but the beſt Anatomiſts take this for no more than the external *Lamina* of the *Pia Mater*. See ARACHNOIDES.

MENIPPEAN, or *Satyra* MENIPPEA, a kind of Satyr compoſed both in Proſe and Verſe. See SATYR.

It is thus call'd from *Menippus*, a Cynic Philoſopher, who delighted in compoſing Satyrical Letters, *&c.* In imitation of him, *Varro* firſt wrote Satyrs under the Title of *Satyræ Menippeæ*.

Among the Moderns, there is a famous Piece under this Title, firſt publiſhed in 1594, againſt the Chiefs of the League, call'd alſo the *Catholicon* of *Spain*. It is eſteem'd a Maſter-piece for the time. See CATHOLICON.

MENISCUS, in Optics, a Glaſs, or Lens, concave on one ſide, and convex on the other; ſometimes alſo call'd *Lunula*. See LENS and OPTIC *Glaſs*.

In a *Meniſcus*, if the Diameter of the Convexity be equal to that of the Concavity, a Ray falling parallel to the Axis, will continue parallel thereto after refraction.

Such a *Meniſcus* therefore, will neither collect, nor diſperſe the Rays; and is therefore of no uſe in Dioptricks. See REFRACTION.

To find the Focus of a *Meniſcus*, the Rule is, As the difference of the Semi-diameters of the Convexity and Concavity, is to the Semi-diameter of the Convexity: ſo is the Diameter of the Concavity, to the diſtance of the Focus from the *Meniſcus*. Hence,

If the Semi-diameter of the Concavity, be triple the Semi-diameter of the Convexity, the diſtance of the Focus from the *Meniſcus* will be equal to the Semi-diameter: and therefore the *Meniſcus* will be equivalent to a Lens equally convex on either ſide. See CONVEX-*Lens*.

Again; If the Semi-diameter of the Concavity be double that of the Convexity; the diſtance of the Focus will be equal to the Diameter: and therefore the *Meniſmus* will be equivalent to a Plano-Convex Lens. See PLANO-*Convex*.

If the Semi-diameter of the Concavity be quintuple that of the Convexity, the *Meniſcus* will be equivalent to a Sphere. See *Spherical* LENS.

The Semi-diameter therefore of the Convexity being given; that of the Concavity required to remove the Focus to any given diſtance from the *Meniſcus*, is eaſily found. See FOCUS.

MENNONITES, a Sect in the *United Provinces*, in moſt reſpects the ſame with thoſe in other Places called *Anabaptiſts*. See ANABAPTIST.

They had their Riſe in 1496, in a Village in *Friezland*: their Founder was one *Mennon*, who undertook to reform the Religion of the antient Anabaptiſts, and to throw out all Enthuſiaſm touching the new Kingdom of Chriſt, *&c.*

The *Mennonites* hold, that there is no original Sin; that the firſt Man was not created juſt; that in ſpeaking of the Father, Son, and Holy Ghoſt, we muſt not uſe the word *Perſon*, nor that of *Trinity*; that Jeſus Chriſt did not take his Fleſh from the Subſtance of his Mother, but from the Eſſence of the Father; or that the Word of the Father became Man; that he brought it from Heaven; or that we don't know whence he had it: And that the Union of the Divine and Human Nature was ſo effected, as that the Divine was rendered viſible, and liable to Death.

The *Mennonites* teach farther, that Chriſtians are not allow'd to ſwear; to exerciſe any Civil Magiſtrature; to uſe the Sword, not even for the Puniſhment of Criminals. They add, that Miniſters of the Word are not permitted to receive any Wages for their Work: that they muſt not baptize little Children; and that the Souls of Men after Death reſt in an unknown Place till the Day of Judgment.

The *Mennonites* are ſaid to be divided into Sects, whereof there are two Principal. The *Mennonites* of *Friezland*, and thoſe of *Flanders*.

The latter exerciſe a very ſtrict Church-Diſcipline, and Excommunicate for the ſlighteſt Offence; nor do they hold it lawful to have any Society or Communication with thoſe Excommunicated. Thoſe of *Friezland*, on the contrary, receive into their Communion ſuch as are Excommunicated by the others; whence they are call'd *Stercorarii* and *Borbariſtæ*. Their Diſcipline is very remiſs.

They recommend an univerſal Toleration of Religions very earneſtly, and receive all kind of Perſons into their Aſſemblies, provided they be of good Morals, and believe the Scripture to be the Word of God; however divided they may be as to the particular Articles of Faith.

Tho' the *Mennonites* uſually paſs for a Sect of Anabaptiſts, yet M. *Her. Schin*, who has publiſhed their Hiſtory and Apology, maintains that they are not Anabaptiſts, either in Principle, or by Origin: He owns they baptize none but Adults; but then, neither do they re-baptize any who had received it in their Childhood. They ſpeak with a great deal of Prudence and Reſerve as to the extraordinary Operations of the Holy Spirit; and are far from the Fanaticiſm of the old Anabaptiſts. No People are more ſubmiſſive to Magiſtrates, or carry Paſſive Obedience farther than they. Far from Rebellion; they condemn even the moſt juſt War, *&c.*

MENOLOGY in the *Greek* Church, is much the ſame with the *Martyrology*, or *Calendar* in the *Latin*. See MARTYROLOGY and CALENDAR.

It is divided into the ſeveral Months in the Year; and contains an Abridgment of the Lives of the Saints; with a bare Commemoration of the Names of ſuch whoſe Lives were never written. The *Greeks* have various *Menologies*. The *Romans* tax them with inſerting divers Hereticks in their *Menologies* as Saints. *Baillot* treats of them at large.

The Word comes from the *Greek* μην Month, and λογος, Diſcourſe.

MENSALIA, and MENSALES, were ſuch Parſonages, or Livings as were formerly united to the Tables of Religious Houſes; and therefore by Canoniſts call'd *Menſal* Benefices. See PARSONAGE and BENEFICE.

MENSES, *Catamenia* in Medicine, *&c.* The Monthly Evacuations of Women not with Child, nor giving ſuck; ſo call'd from *Menſis*, Month, the Period wherein they return. They are alſo called *Flowers*, *Courſes*, &c.

The *Menſes* make one of the moſt curious and difficult Phænomena in the whole human Body; for the Explanation whereof, many Hypotheſes have been framed: tho' the Matter is yet ſcarcely aſcertained.

'Tis generally agreed by all, that the Neceſſity Women are under for ſome extraordinary Supply to compenſate the Expence, and ſupport them during the time of Geſtation, was the final Reaſon why this Redundance at other times was given them. But this is all they agree in. Some not content with this Occaſion alone, will have the *Menſtruous* Blood offend in Quality more than in Quantity; which they argue from the Pain it gives many Women in the Evacuation. They add, that its Malignity is ſo great, that it excoriates the Parts of Men by mere contact; that the Breath of a *menſtruous* Woman will give a permanent Stain to Ivory, or a Looking-Glaſs; that a little of the Blood drop'd on any Vegetable, blaſts, or renders it ſteril; that if a pregnant Woman be defiled with the *Menſes* of another Woman, ſhe miſcarries; that if a Dog taſte them, he runs Mad, and grows Epileptic: All which, with many more Fables of the ſame kind, tho' related by great Authors, Dr. *Drake* rejects, as too ridiculous to need a Refutation.

Others aſcribe this Effect to an imaginary Dominion of the Moon over the Bodies of Women. This was formerly the prevailing Opinion; tho' the ſmalleſt Reflection would have ſhewn them the weakneſs of it: For had this Purgation been owing to the Influence of the Moon, all Women of the ſame Age and Temperament, would have found it at the ſame Periods and Revolutions of the Moon, *i. e.* at the ſame time; which all Experience ſhews to be falſe.

There are two other Opinions which carry with them a great deal of Probability, and are argued with a great deal of Strength and Reaſon. In both which, the Quality of the Blood is allow'd to be Innocent; but they ſtill differ about the Reaſon of its Iſſue. The former is that of Dr. *Bohn* and Dr. *Friend*, who maintain this Flux to be the reſult of a *Plethora*, or Plenitude; and to be evacuated only for Relief againſt the Quantity.

Dr. *Friend*, who has maintain'd the Cauſe of a *Plethora* with the greateſt Strength and Clearneſs, ſuppoſes that this *Plethora* ariſes from a Coacervation in the Blood-Veſſels of a ſuperfluity of Aliment, which he thinks remains over and above what is expended by the ordinary ways; and that Women have this *Plethora*, and not Men, becauſe their Bodies are more humid, and their Veſſels, eſpecially the Extremities of them, more tender, and their manner of living generally more unactive than that of Man; and that theſe things concurring, are the occaſion that Women do not perſpire ſufficiently to carry off the ſuperfluous alimentary Parts, till it be accumulated in ſuch quantity as to diſtend the Veſſels, and force its way thro' the Capillary Arteries of the *Uterus*. It is ſuppoſed to happen to Women more than the Females of other Species, which have the ſame Parts, becauſe of the erect Poſture of the former; and the *Vagina*, and other Canals, being perpendicular to the Horizon; ſo that the Preſſure of the Blood is directed towards their Orifices: Whereas in Brutes, they are parallel to the Horizon, and the Preſſure wholly on the Sides of thoſe Veſſels. The Diſcharge, he thinks, happen in this Part rather than in any other, as being more favoured by the Structure of the Veſſels; the Arteries being very numerous, and the Veins ſinuous and winding, and therefore more apt to retard the Impetus of the Blood, and conſequently, in a *Plethoric* Caſe, to occaſion the Rupture of the Extremities of the Veſſels, which may laſt, till by a ſufficient diſcharge the Veſſels are eaſed of their Over-load.

This is the Subſtance of that great Man's Theory, from whence he very Mechanically, and very Philoſophically accounts for the Symptoms.

To his Argument, why Women have *Menſes* rather than Men, we may add from *Boerhaave*, that in the former, the *Os Sacrum* is wider, and ſtands farther out, and the *Os Coccygis* farther in; the *Oſſa Innominata* wider, and farther apart, and the loweſt of them, as well as the lower Eminences of the *Os Pubis* farther outwards than in the latter. Hence in Women, the Latitude or Expanſion about theſe Bones, and the Capacity of the *Pelvis*, is vaſtly great in proportion to thoſe of Men; and yet in a Woman not pregnant, there is not much to fill this Expanſe. Again, the fore-ſide of the *Thorax* is ſmoother in Women than in Men, and the Blood-Veſſels, Lymphatics, adipoſe and nervous Veſſels, Membranes and Fibres, are much laxer in Women than in Men: whence all their Cavities, Cells, Veſſels, &c. are more eaſily repleted, and the Humours aggregated in them; beſides that, they are found to perſpire leſs than Men, and to arrive much ſooner at their Maturity, or ἀκμην of Increaſe. To which he adds the Conſideration of the ſoft pulpous Texture of the *Uterus*, and the vaſt number of Veins and Arteries it is fill'd withall.

Hence, a healthy Maid, being arrived at her Growth, begins to prepare more Nutriment than is required for the ſupport of the Body; which, as there is not to be any farther accretion, muſt of neceſſity fill the Veſſels, and eſpecially thoſe of the *Uterus*, and Breaſts, as being the leaſt compreſſed. Theſe will be dilated more than the others; whence the lateral *Vaſcules* evacuating their Humour into the Cavity of the *Uterus*, it will be fill'd, and extended: Hence, a Pain, Heat, Heavineſs, will be felt about the Loins, *Pubes*, &c. the Veſſels of the *Uterus* at the ſame time will be ſo dilated, as to emit Blood into the Cavity of the *Uterus*, its Mouth will be lubricated and looſened, and Blood iſſue out. As the Quantity of Blood is diminiſhed, the Veſſels will be leſs preſs'd, and will contract themſelves cloſer, ſo as again to retain the Blood, and let paſs the groſſer part of the *Serum*; till at length, only the uſual *Serum* paſſes. Again, there are more Humours prepar'd, which are more eaſily lodged in Veſſels once dilated; hence the *Menſes* go, and return at various Periods in various Perſons.

This Hypotheſis, however plauſible, is oppoſed by Dr. *Drake*, who maintains that there is no ſuch Repletion, or at leaſt that it is not neceſſary to *Menſtruation*. Arguing, That if the *Menſes* were owing to a *Plethora* ſo accumulated, the Symptoms would ariſe gradually, and the Heavineſs, Stiffneſs, and Inactivity, neceſſary Symptoms of a *Plethora*, would be felt long before the Period were compleated, and Women would begin to be heavy, and indiſpoſed ſoon after Evacuation, and the Symptoms increaſe daily: Which is contrary to all Experience; many Women, who have them regularly and eaſily, having no warning, nor other Rule to prevent an indecent Surprize, than the meaſure of the Time; in which, ſome that have ſlip'd, have been put to Confuſion and Shifts, no ways conſiſtent with the notice a *Plethoric* Body would give. He adds, that even in thoſe who are difficultly purged this way, the Symptoms, tho' very vexatious and tedious, do not make ſuch regular Approaches, as a gradual Accumulation neceſſarily requires. If we conſider what violent Symptoms come on in an Hour, we ſhall be extremely puzzled to find the mighty Acceſſion of Matter which ſhould in an Hour or a Day's time make ſuch great Alterations. According to the Hypotheſis, the laſt contributes no more than the firſt, and of Conſequence, the Alteration ſhould not be greater in the one than the other; ſetting aſide the bare Eruption.

This is the ſubſtance of what is argued againſt Dr. *Friend*'s Theory; which, it muſt be own'd, notwithſtanding theſe Objections, is ſtill the moſt rational and conſiſtent that has yet been advanced.

Thoſe who oppoſe it, give into the Doctrine of Fermentation, and maintain the Evacuation of Blood, on thoſe parts, to be the Effect of an Efferveſcence, or Ebullition of the Blood. This Opinion has been maintained by many, particularly Dr. *Charleton*, *Bale*, *De Graaf*, and *Drake*. The two firſt of which ſuppoſe a Ferment peculiar to the Women which produces this Flux, and affects that part only, or at leaſt principally. Dr. *Graaf*, leſs particular in his Notion, only ſuppoſes an Efferveſcence of the Blood raiſed by ſome ferment, without aſſigning how it acts, or what it is. The ſudden Turgeſcence of the Blood, occaſion'd them all to think, that it aroſe from ſomething till then extraneous to the Blood, and led them to the Parts principally affected, to ſeek for an imaginary Ferment, which no Anatomical Enquiry could ever ſhew, or find any Receptacle for, nor any Reaſoning neceſſarily infer. Again, that Heat which frequently accompanies this Turgeſcence, led them to think the Caſe more than a *Plethora*, and that there was ſome extraordinary inteſtine Motion at that time.

Dr. *Drake* improves on the Doctrine of a Ferment; and contends not only that it is neceſſary there ſhould be a Ferment, but a Receptacle alſo for this Ferment: Concluding from the Suddenneſs and Violence of the Symptoms, that a great quantity muſt be convey'd into the Blood in a ſhort time, and conſequently, that it muſt have been ready gather'd in ſome Receptacle, where, while it was lodg'd, its Action was reſtrained. But he goes farther ſtill, and pretends to aſcertain the Place, &c. both of the one and the other, making the Gall-Bladder to be the Receptacle, and the Bile the Ferment. This Liquor he thinks well adapted to raiſe a Fermentation in the Blood, when diſcharged into it in a Quantity: And as it is contain'd in a Receptacle that does not admit of a continual Iſſue, may be there reſerved, till in a certain Period of Time, the Bladder becoming turgid and full through the Compreſſion of the incumbent *Viſcera*, it emits the Gall: which, by the way of the *Lacteals*, inſinuating itſelf into the Blood, may raiſe that Efferveſcence which occaſions the Aperture of the Uterine Arteries.

To confirm this, he alledges, that Perſons of a bilious Conſtitution, have the *Menſes* either more plentifully, or more frequently than others; and that Diſtempers manifeſtly bilious, are attended with Symptoms reſembling thoſe of Women labouring under difficult *Menſtruation*. If it be objected, that on this foot, Men ſhould have *Menſes*, as well as Women; he anſwers, that Men don't abound in Bile ſo much as Women; the Pores of the former being more open, and carrying off more of the ſerous part of the Blood, which is the Vehicle of all the other Humours; and, conſequently, a greater part of each is diſcharged thro' them than in Women; wherein the Superfluity muſt either continue to circulate with the Blood, or be gathered in proper Receptacles, which is the Caſe in the Bile. The ſame Reaſon he gives why *Menſtruation* ſhould not be in Brutes; the Pores of theſe being manifeſtly more open than thoſe of Women, as appears from the Crop of Hair which they bear; for the Vegetation whereof, a large Cavity, and a wider Aperture of the Glands is neceſſary, than where no ſuch thing is produced. Yet there is ſome difference between the Males and Females even among theſe, the latter having their *Menſes*, tho' not ſo often, nor in the ſame Form and Quantity, as Women.

He adds, that the ſeveral Phenomena of the *Menſes*, whether in a natural, a regular, or diſeaſed Caſe, flow naturally and readily from this Hypotheſis; and that whatever may be accounted for from a *Plethora*, or from any particular Ferment, may, without any ſtraining, be apply'd to this.

The Root of black *Hellebore* and Steel, are the principal Remedies for Obſtructions of the *Menſes*; the former, is almoſt infallible, and in many Caſes where the latter is not only ineffectual, but improper; as in *Plethoric* Habits, for with ſuch, Steel will ſometimes raiſe *Hyſteric* Commotions, Convulſions, and a kind of Uterine *Furor*; whereas Hellebore thins the Blood, and diſpoſes it for a Diſcharge without making it more impetuous. So that tho' each provoke the *Menſes*, yet they do it by different ways; Steel by increaſing the Blood's Velocity, and giving it a greater Moment againſt the Uterine Arteries; and Hellebore by dividing it, and rendering it more fluid. See HELLEBORE and CHALYBEAT.

MENSIS	See	MONTH.
MENSIS CHYMICUS	See	MENSTRUUM.
MENSIS VETITUS	See	FENCE *Month*.

MENSTRUAL, or MENSTRUOUS, a Term in Medicine, applied to the Blood which flows from Women in their ordinary monthly Purgations. See MENSES.

The *Menſtrual* Blood is the exceſs, or redundance of the Blood in the Body. It may be defined an Excrement ſerving for the Generation, as well as Nutriture of the *Fœtus* in the Womb, and which at other times is evacuated Monthly.

Of all Animals, there is none beſides Women, and perhaps Apes, which have their *Menſtrual* Purgations. *Hippocrates* ſays, that the *Menſtrual* Blood gnaws and tears the Earth like Vinegar. *Pliny* and *Columella* add, that it burns Herbs, kills Plants, tarniſhes Looking-Glaſſes, and that Dogs which taſte it, run mad. But this is all fabulous; it being certain that this Blood is the ſame with that in the Veins and Arteries. By the *Jewiſh* Law, a Woman was unclean while the *Menſtrual* Blood flow'd: and the Man who touched her, or the Moveables ſhe had touched, were declared unclean. *Levit.* Chap. XV.

MENSTRUUM, or DISSOLVENT, in Chymiſtry, any Liquor that will diſſolve, *i. e.* ſeparate the Parts of hard Bodies. See DISSOLVENT and DISSOLUTION.

Thus *Aqua Regalis* is a *Menſtruum* for Gold: *Aqua Fortis*, and Spirit of Nitre, for moſt other Metals; Common Water for Salts, &c. See GOLD, SILVER, SALT, &c.

In Pharmacy, it is chiefly defined a Body that will extract the Virtues of Ingredients by Infuſion, Decoction or the like. See INFUSION, DECOCTION, &c.

The Term *Menſtruum* takes its riſe from this, that ſome Chymiſts pretend the compleat Diſſolution of a mix'd Body can't be effected in leſs than 40 Days, which Period they call a *Philoſophical Month*.

Menſtruum is properly defined a Body, which being applied to, or intermixed with another, does ſo diſſolve it, as that all the diſſolving Parts float among the Parts diſſolved; and ſo divides it into its minuteſt Parts, as that the Parts of the Diſſolvent are intermixed with thoſe of the Body diſſolved. Whence it appears, that every *Menſtruum* in diſſolving a Body, is likewiſe diſſolved itſelf; ſo as with the Body it diſſolves, to make up one Body. A Knife therefore divides Bread, but is not on that account a *Menſtruum*; as it does not conſtitute one Body with the Bread: but Water boil'd with the Bread is a *Menſtruum*, with regard to the Bread, as it only makes up one Body therewith. See DISSOLUTION.

The antient Chymiſts were very careful in all their Proceſſes, that neither the Degree of Fire, nor the *Menſtruum*, might deceive 'em.

All *Menſtruums*, at the time they act as ſuch, that is, at the time they are diſſolving, act as Liquids; whether ſuch *Menſtruum* be a Liquid or a Solid. Thus, *e. gr.* Silver is a *Menſtruum* with regard to Gold; for if you take an Ounce of Silver, melt it at the Fire, and add a Grain of Gold; all the Parts of the Silver will intermix themſelves with the Parts of the Gold: ſo, as that the Gold and Silver, which before were ſeparate, now make one Maſs. But Gold and Silver are only *Menſtruums* as they are diſſolved by the Fire; *i.e.* as they are fluid.

All *Menſtruums* may be divided into two Claſſes; the firſt conſiſts of ſuch as are *fluid*; the ſecond of ſuch as are *ſolid*: that is, they are either actually divided, or they muſt be ſo e'er they act.

Fluid Menſtruums are *Water*, Dew, Oils, Saline and Acid Spirits, *Alkali*, *Salts*, *&c.* and *Solid Menſtruums*, are ſuch as muſt be made fluid e'er they will diſſolve; ſuch are moſt *Salts*, *Nitre*, *Vitriol*, &c. See WATER, SALT, VITRIOL, *&c.*

As to the Action of Menſtruums; Sir *Iſaac Newton* accounts for it from the Acids wherein they are impregnated. The Particles of Acids are found to be endued with a ſtrong attractive Force, wherein their Activity conſiſts, and by virtue whereof they diſſolve Bodies. See ATTRACTION. Theſe Acids he ſuppoſes of a middle Nature between Water, and hard Bodies, and to attract both. By this Attraction they gather together about the Particles of Bodies, whether metallick, ſtony, or the like, and adhere to them very cloſe, ſo as ſcarce to be ſeparated from 'em by Diſtillation, or Sublimation. Thus ſtrongly attracted, and gather'd together on all ſides, they raiſe, disjoin, and ſhake aſunder the Particles of Bodies, *i.e.* they diſſolve them; and by the attractive Power whereby they ruſh againſt the Particles of the Bodies, they move the Fluid, and ſo excite Heat, ſhaking ſome of the Particles to that degree, as to convert 'em into Air, and ſo generating Bubbles. See ACID.

Dr. *Keil* gives us the Theory or Foundation of the Action of *Menſtruums*, in the following Propoſitions.

1°. Two Corpuſcles may be placed ſo near each other, without touching, as that the Force wherewith they attract each other, ſhall eaſily exceed that of their Gravity.

2°. If a Corpuſcle placed in a Fluid be every way equally attracted by the ambient Particles, the Corpuſcle will not be put in any Motion; but if it be attracted more by ſome of the Particles than by others, it will then tend towards that Quarter where the Attraction is the ſtrongeſt: and the Motion thus produced will be correſpondent to the Inequality of the Attraction: That is, if the Inequality be great, the Motion will be ſo; and if little, little.

3°. Corpuſcles ſwimming in a Fluid, and attracting each other more than the interpoſed Particles of the Fluid; thoſe Particles of the Fluid will be driven aſide, and the Corpuſcles approach each other with a Force equal to the Exceſs of their mutual Attraction, beyond the Attraction of the Particles of the Fluid.

4°. If a Body be placed in a Fluid whoſe Parts attract the Particles of the Fluid more ſtrongly than thoſe Particles are attracted by one another; and if in the Body there be ſeveral Pores pervious to the Particles of thoſe Fluid, the Fluid will preſently diffuſe itſelf through the Pores; and if the Connection of the Parts in that Body be not ſo ſtrong but that it may be exceeded by the Impetus of the Particles ruſhing together; the immers'd Body will undergo a Diſſolution.

Hence, for a *Menſtruum* to be fit to diſſolve a given Body, there are three things required. *1ſt*, That the Parts of the Body attract the Particles of the *Menſtruum* more ſtrongly than thoſe are attracted by each other. *2dly*, That the Body have Pores adequate and pervious to the Particles of the *Menſtruum*. *3dly*, That the Coheſion of the Parts of the Body be not ſo ſtrong but that it may be torn aſunder by the Impetus of the Particles ruſhing together. Hence alſo it follows, that the Particles which conſtitute Spirit of Wine, are more ſtrongly attracted by each other, than by thoſe of a ſaline Body immerged in it.

Hence we ſee the Reaſons of the different Effects of different *Menſtruums*; why ſome Bodies, for inſtance Metals, diſſolve in a ſaline *Menſtruum*: Others again, as Reſin, in a ſulphureous one, *&c.* particularly why Silver diſſolves in *Aqua fortis*, and Gold only in *Aqua Regalis*; all the Varieties whereof are accountable for, from the different Degrees of Coheſion, *i.e.* of Attraction in the Parts of the Body to be diſſolved, the different Diameters and Figures of its Pores, the different Degrees of Attraction in the *Menſtruum*, and the different Diameters and Figures of its Parts. See COHESION.

Suppoſe, *e.g.* the Attraction of Gold to that of Silver, to be as A to B; and of Silver to *Aqua fortis* as *b* to *d*; but that of *Aqua fortis* to *Aqua Regia*, as *d* to *e*; let *f* ſignify the Magnitude of Particles in *Aqua fortis*, and *r* thoſe in *Aqua Regia*; *e* the Coheſion of Gold, and *e* the Coheſion of Silver: If the Diameters of the Particles *f*, are greater than the Diameters of the Pores of Gold, they can never diſſolve the Gold, let their attractive Force be ever ſo ſtrong. But if $\overline{l-}exr$ be greater than g, then the Silver will yield to the *Menſtruum* whoſe Particles are *f*, and leſs than the Pores of the Silver; and if $\overline{b-}exr$ be leſs than g, the Silver will never diſſolve in the *Menſtruum*, the Particles whereof are *r*, and the attractive Force *e*. But if $\overline{a-}exr$ be greater than *c*, the *Menſtruum* made up of the Particles *r*, and whoſe attractive Force is *e*, will be able to penetrate and diſſolve the Gold.

How a *Menſtruum* may ſuſpend Bodies much heavier than itſelf, which very often happens, may be conceiv'd by conſidering, that the Parts of no Fluid can be ſo eaſily ſeparated, but they will a little reſiſt, or retard the Deſcent of any heavy Bodies through them; and that this Reſiſtance is, *cæteris paribus*, ſtill proportionable to the Surface of the deſcending Bodies: But the Surfaces of Bodies do by no means increaſe, or decreaſe, in the ſame Proportion as their Solidities do; for the Solidity increaſeth as the Cube, but the Surface only as the Square of the Diameter. Small Bodies, therefore, will have much larger Surfaces, in proportion to their ſolid Contents, than larger Bodies will; and conſequently when exceedingly diminiſhed, may eaſily be buoyed up in the Liquor. See DESCENT, RESISTANCE, *&c.*

MENSTRUUM *Peracutum*, a Name Mr. *Boyle* gives to a *Menſtruum* he extracted from Bread only, that would prey on Bodies more compact than many hard Minerals, nay even on Glaſs, and do many things that *Aqua fortis* would not do: With this he drew Tinctures not only from Crude Corals, but alſo from the *Lapis Hæmatites* and Granates, nay from Diamonds and Rubies. See DIGESTION.

MENSURATION, the Act or Art of *Meaſuring*. See MEASURING.

MENTAL, is underſtood of the Conception, or Operation of the Underſtanding: Thus a *Mental* Prayer is ſuch a one as is made merely in the Mind, without pronouncing one word of it. A *Mental* Reſervation, *&c.* See RESERVATION.

MENTUM, in Anatomy, is the lower Part of the Face, beneath the Mouth; which we otherwiſe diſtinguiſh by the Name of *Chin*.

MENUET, or MINUET, a kind of Dance, the Steps whereof are extremely quick, and ſhort: It conſiſts of a Coupee, a high Step, and a Balance; it begins with a Beat, and its Meaſure, or Motion, is Triple.

MEPHITES, and MEPHITICAL *Exhalations*, any poiſonous and noxious Steams iſſuing out of the Earth, from what Cauſe ſoever. See POISON.

The moſt remarkable Places of this kind is the *Grotta de Cani* near *Puzzoli*, about two Miles from *Naples*, in *Italy*; the Steams of which kill Dogs, or other Animals, when brought within its reach: A very curious Account of which, and the manner of its Efficacy, is given by Dr. *Mead* in his Eſſay on Poiſons. See GROTTO.

MERCERS *Company*. See COMPANY.

MERCERS-*Chapel School*. See SCHOOL.

MERCHANDISE, or, MERCANTILE *Profeſſion*, the Function of a Merchant; or the Art, Method, *&c.* of exerciſing a Whole-Sale Commerce. See COMMERCE.

The *Mercantile* Profeſſion is eſteemed Noble, and Independent. In *France*, by two Arrets of *Louis* XIV. the one of 1669. the other of 1701. the Nobility are allow'd to trade, both by Land and Sea, without derogating from their Nobility: And we have frequent Inſtances of Merchants ennobled in that Country, in regard of the Utility of their Commerce, and the Manufactures they have ſet up. In *Bretagne*, even a Retail Trade does not derogate from the Nobility. When the Nobles of the Province are diſpoſed for Commerce, they let their Nobility ſleep, that is, they don't loſe it, but only ceaſe to enjoy the Privileges of their Nobleſſe while their Commerce continues, and reaſſume it, by giving over Trade, without any Letters or Inſtrument of Re-Habilitation. In Republics it is ſtill more valued: but no where more than in *England*, where the younger Sons and Brothers of Peers are frequently bred up to Merchandize. Add to this, that many of the *Italian* Princes are the principal Merchants of their States; and think it no diſcredit to make their Palaces ſerve as Warehouſes: And that many of the Kings of *Aſia*, moſt of thoſe of the Coaſt of *Africa* and *Guinea*, traffick with the *Europeans*, ſometimes by their Miniſters, and ſometimes in Perſon.

The Qualifications requiſite for the Profeſſion of a Merchant, are, 1. To keep Books, ſingle or double, *viz.* Journals, Ledgers, and others. 2. To draw Invoices, Contracts, Charter-Parties, Policies of Aſſurance, Bills of Exchange, Letters Miſſive, *&c.* 3. To know the Relation between the Monies, Weights, and Meaſures of ſeveral Countries. 4. The Places where the ſeveral Kinds of Merchandizes are manufactured, in what manner made, what the Materials compoſed of, and whence; the Preparation the Materials require before they are wrought; and the Merchandizes afterwards. 4. The Lengths and Breadths of Stuffs, as Silks, Wools, Hairs, Linens, *&c.* the Regulations of the Place where they are manufactured, and their different Prices at different Seaſons. 5. The Dying, and the Ingredients for the Formation of the different Colours. 6. The Merchandizes that abound, or are more rare in one Country than another; their Kinds and Qualities; and the manner of Trafficking them to the beſt Advantage, whether by Land, by Sea, or Rivers. 7. The Commodities permitted or prohibited, both for the Import and Export of a State. 8. The Price of Exchange according to the Courſe of ſeveral Places, and what it is that raiſes or lowers it. 9. The Duties to be paid both at the Import and Export of Wares, according to the Uſe of the Places, the Tarifs, Regulations, *&c.* 10. The manner of Packing, Baling, and Tunning *Merchandizes*, to keep them either in Magazines, or in Voyages, *&c.* 11. On what Terms a *Merchant*-Veſſel may be Freighted, and Aſſured. 12. The Goodneſs and Value of every thing requiſite for the Conſtruction or Refitting of Veſſels, the Prices of Woods, Cordage, Maſts, Anchors, Sails, and other Equipage. 13. The Wages ordinarily given Captains, Officers, and Sailors: and the manner of contracting with them. 14. The foreign Languages, which may be reduced to three principal ones, *viz.* the *Spaniſh*, uſed almoſt through all the *Eaſt*, particularly on the Coaſt of *Africa*, from the *Canaries* to the *Cape of Good Hope*; the *Italian*, uſed throughout the Coaſts of the *Mediterranean*, and many Places of the *Levant*; and the *Teutonic* or *German*, uſed throughout moſt Countries of the *North*. Laſtly, the Conſular Juriſprudence, the Laws, Cuſtoms, Companies, Colonies, Chambers of Aſſurances, Conſulates in the ſeveral Countries; and in the general, all the Ordonnances, Regulations, and Policies, relating to Commerce.

MERCHANT, a Perſon who carries on *Merchandize*, or ſuſtains the Mercantile Profeſſion. See MERCHANDIZE.

MERCHANT-*Man*. See SHIP, VESSEL, CAPTAIN, *&c.*

MERCHANT-*Taylors Company* } See { COMPANY.
MERCHANT-*Taylors School* } { SCHOOL.

MERCHANLAGE, ſee LAW.

MERCATOR's *Chart*, or *Projection*, is a Sea-Chart, wherein the Parallels are repreſented by ſtrait Lines; and the Meridians, likewiſe, by parallel ſtrait Lines, whoſe Degrees, however, are not equal, but are continually enlarged as they approach nearer the Pole, in the ſame Proportion as the parallel Circles decreaſe towards them. See PROJECTION.

For the Conſtruction, Uſe, Advantages, *&c.* hereof, ſee *Mercator's* CHART.

MERCATOR's *Sailing*, is that performed by means of *Mercator's Charts*. See *Mercator's* SAILING.

MERCURY, ☿, in Aſtronomy, the ſmalleſt of the inferior Planets, and the neareſt the Sun. See PLANET and SYSTEM.

The mean Diſtance of this Planet from the Sun is to that of our Earth from the Sun as 387 to 1000; its Excentricity 8 Degrees: The Inclination of its Orbit, that is, the Angle formed by the Plane of its Orbit with the Plane of the Ecliptic, is 6 Degrees 52 Minutes: Its Diameter to that of the Earth as 3 to 4; and therefore the Globe of *Mercury* will be to that of the Earth as 2 to 5. See EXCENTRICITY, INCLINATION, DIAMETER, DISTANCE, *&c.*

According to Sir *Iſ. Newton*, the Heat and Light of the Sun on the Surface of *Mercury* is ſeven times as intenſe as on the Surface of our Earth in the middle of Summer: which, as he found by Experiments made for that purpoſe by a Thermometer, is ſufficient to make Water boil. Such a degree of Heat therefore muſt render *Mercury* uninhabitable to Creatures of our Conſtitution! And if Bodies on its Surface be not inflamed and ſet on fire, it muſt be becauſe their Degree of Denſity is proportionably greater than that of ſuch Bodies with us. See HEAT.

The Revolution of *Mercury* round the Sun, or his Year, is performed in 87 Days, 23 Hours; his diurnal Revolution, or the Length of his Day, is not yet determined; nor is it certain whether he has ſuch a Motion round his own Axis, or not. See PERIOD, REVOLUTION, *&c.*

What variety of Weather or Seaſons it may be liable to, we are ſtill at a loſs; as not knowing the Inclination of his Axis to the Plane of his Orbit. The Force of Gravity on the Surface of *Mercury*, is ſeven times as ſtrong as on the Surface of the Earth. Its Denſity, and, conſequently, the Gravitation of Bodies towards the Centre, cannot be accurately determined; but no doubt it muſt exceed that of our Earth, by reaſon of the Exceſs of Heat there. See GRAVITY, DENSITY, *&c.*

Mercury changes its Phaſes, like the Moon, according to its ſeveral Poſitions with regard to the Sun and Earth. See MOON.

It appears full, in its ſuperior Conjunctions with the Sun, becauſe we can ſee the whole illumined Hemiſphere: But in its lower Conjunction, we only ſee the obſcure, or unillumined Hemiſphere: In his Approach toward the Sun, his Light is falcated or horned. See PHASES.

The Situation of this Planet proves evidently, that the Hypotheſis of *Ptolemy* is falſe: For *Mercury* is ſometimes obſerved betwixt the Earth and Sun; and ſometimes beyond the Sun. But the Earth is never found between *Mercury* and the Sun; which however muſt happen, if the Spheres of all the Planets incompaſs'd the Earth, as a Centre, according to the *Ptolemaic* Scheme. See PTOLEMAIC *Syſtem*.

The Diameter of the Sun view'd from *Mercury*, would appear three times as big as it appears on our Earth; that Planet being thrice as near him as we are; and therefore the Sun's Diſk would appear ſeven times as large as it appears to us.

Its greateſt Diſtance from the Sun, with regard to us, never exceeds 28 Degrees, whence 'tis ſeldom viſible; being commonly either loſt in the Sun's Light, or, when the moſt remote from the Sun, in the Crepuſculum. The beſt Obſervations of this Planet, are thoſe made when it is ſeen on the Sun's Diſk; for in its lower Conjunction, it paſſes before the Sun like a little Spot, eclipſing a ſmall part of his Body, only obſervable with a Teleſcope. The firſt Obſervation of this kind, was that of *Gaſſendi* in 1632. See TRANSIT.

To an Inhabitant of *Mercury*, the ſolar Spots will appear to traverſe his Diſk ſometimes in a right Line from Eaſt to Weſt, and ſometimes Elliptically. As the other five Planets are above *Mercury*, their Phænomena will be nearly the ſame there, as with us. *Venus* and the Earth, when in oppoſition to the Sun, will ſhine with full Orbs, and afford a noble Light to that Planet.

MERCURY, in Natural Hiſtory, a fluid, mineral Matter, perfectly reſembling Silver in fuſion. See MINERAL.

Mercury is known under a great number of Names: The common Name among the Antients was *Hydrargyrum*, *q. d.* Water of Silver. The Moderns commonly call it *Mercury*, from ſome ſuppoſed Relation it bears to the Planet of that Name. In *Engliſh* it is popularly call'd *Quick-Silver*, from its Appearance. Many of the Chymiſts call it *Proteus*, from the variety of Forms, Colours, *&c.* it paſſes thro' in their Preparations.

Naturaliſts are divided what Claſs of Foſſils to range *Mercury* under: Some make it a *Metal*; others a *Semi-metal*; and others an imperfect *Metal*. See FOSSIL and SEMI-METAL.

Boerhaave obſerves, that it is very improperly call'd a *Metal*, inaſmuch as it has not all the Characters of ſuch a Body; nor ſcarce any thing in common with the other Metals, except Weight and Similarity of Parts: Thus, for Example, it is neither diſſolvable by Fire, malleable, nor fix'd: In effect, it ſeems to conſtitute a peculiar Claſs of Foſſils: and is rather the Mother, or Baſis of all Metals, than a Metal itſelf. See METAL.

Perfect Metals, according to M. *Homberg*, *&c.* are nothing but pure *Mercury*, whoſe little Particles are penetrated on all ſides, and fill'd with the Matter of Light, which unites and binds them together into a Maſs, ſo that the Parts of fluid *Mercury*, which are ſuppoſed to be little ſolid Globes, in their Metallification are render'd rough and uneven, being pierced on all ſides, and having their Pores or Perforations fill'd with the Matter of Light. By ſuch means they loſe their firſt Confirmation, and the Politure or Smoothneſs of their Surfaces, which is one of the principal Cauſes of the fluidity of *Mercury*.

The Chymiſts make *Mercury* one of their Hypoſtatical Principles: Not, as M. *Homberg* obſerves, that it anſwers the Character of a Principle, which is that whoſe Subſtance cannot be Analyzed, or reduced into Matters more ſimple ; but becauſe the Analyſis has not yet been diſcovered : Tho' it is poſſible it may hereafter, there being little doubt but that *Mercury* is a Compound. This is the more probable, in regard *Mercury* may be deſtroy'd, which never happens to ſimple Bodies. The manner of deſtroying *Mercury*, is, firſt, by changing it into a perfect Metal, by introducing a ſufficient quantity of Light within its Subſtance ; and then expoſing this Metal to a Burning-Glaſs, where, in a little time, it evaporates almoſt wholly into Smoke, leaving nothing behind but a light earthy Duſt.

The Properties of MERCURY.

The Characters, or Properties of *Mercury*, are, 1. That of all Bodies it is the heavieſt, after Gold ; and ſtill the purer it is, the heavier : Nay, ſome of the Philoſophers even hold that *Mercury* well purged of all its Sulphur, would be heavier than Gold itſelf. The ordinary Proportion is that of 14 to 19. If any *Mercury* be found to weigh more than according to this *Ratio*, it may be ſafely concluded to have Gold in it. See WEIGHT.

The 2d Character of *Mercury*, is to be of all Bodies the moſt fluid ; that is, its Parts ſeparate, and recede from each other by the ſmalleſt Force. Conſequently, of all Bodies it is that whoſe parts cohere the leaſt, or are the leaſt tenacious ; and therefore of all others the leaſt ductile and malleable. The parts of Water do not divide ſo readily as thoſe of Quick-Silver ; and the parts of Oil much leſs : There is a certain Tenacity even in the parts of Spirit of Wine which reſiſts ſeparation ; but there is ſcarce any Coheſion at all in the parts of *Mercury*. See FLUIDITY and FIRMNESS.

The 3d Property of *Mercury*, which, indeed, depends on the 2d, is, That of all Bodies it is diviſible into the minuteſt parts. Thus, being expoſed to the Fire, it reſolves into a Fume ſcarce perceivable to the Eye ; but in whatever manner it be divided, it ſtill retains its Nature, and is the ſame ſpecific Fluid. For the Vapours of diſtill'd, or volatilized *Mercury* received in Water, or moiſt Leather, or the like, become pure *Mercury* ; and if *Mercury* be mixed with other Bodies, in order to fix it, for it is ſcarce fixable of itſelf, it is eaſily ſeparable from them again by Fire, and reducible into pure *Mercury* as before. See DIVISIBILITY.

The 4th Character is to be extremely Volatile, being convertible into Fume, even by a Sand-heat. In effect, it does not ſuſtain the Fire long enough either to boil, or ignite. Tho' it muſt be added, if the Fire be at firſt very gentle, and increaſe by eaſy degrees, it may be retained therein a pretty long time, and be fixed ſo as at length to become ignited in the Crucible, as we learn from ſome very tedious Experiments made at *Paris*. See VOLATILITY.

The Gilders are but too well acquainted with the Vapours of *Mercury*, which frequently render 'em Epileptic, and Paralytic, and ſometimes ſalivate them ; being of ſo penetrating a Nature, as to take away ſcirrhous Tumours, tho' very apt to reach and deſtroy the nobler Parts.

The 5th Property is, that it eaſily enters, and intimately adheres to Gold, leſs eaſily to the other Metals, with difficulty to Copper, and not at all to Iron. See AMALGAMATION.

Indeed we have heard much among the Adepts about making an Amalgama with *Mercury* and Iron ; but the Experiment would never ſucceed with that Noble Chymiſt, *Her. Boerhaave*. 'Tis poſſible there may be ſome way of binding thoſe two Bodies together ; and no doubt an Amalgama might be made, if a large Quantity of Gold were added to the Iron : But then, if the Compound were beaten into a Duſt, in Water, the Iron would waſh away, and the Gold remain. On this Account it is, that ſuch as have Occaſion to handle Quick-Silver, always make choice of Iron-Inſtruments for that purpoſe. We have known Women, in a Salivation, to have their Ear-Rings grow white and ſoft with the Effluvia of the *Mercury* ; and hence the Gilders, to lay Gold on any other Body, diſſolve it in hot *Mercury*, which done, they apply the Solution on the Body to be gilt, ſuppoſe Silver ; then ſetting it over the Coals, the *Mercury* flies away, and leaves the Gold adhering like a Cruſt to the Silver. Laſtly, rubbing the Cruſt with *Lapis Hæmatites*, the Silver is gilt. See GILDING.

The 6th Character is, That of all Fluids, it is the coldeſt, and the hotteſt : ſuppoſing the Circumſtances the ſame.

Boerhaave ſhews, that Fire is equally diffuſed through all Bodies ; and that there is in reality the ſame degree thereof in *Mercury*, as in Spirit of Wine ; and yet if you try with your Finger, *Mercury* in the Cold, is much colder, and, over the ſame Fire, conſiderably hotter, than the Spirit. This property depends on the great Weight of *Mercury* : for the Heat and Cold of all Bodies is *cæteris paribus* as their Weights. Now, *Mercury* being 14 times heavier than Water ; if both of them be expoſed in a Winter's Night to the ſame Cold, the *Mercury* muſt be ſo much colder than Water, as it is heavier. So, alſo, if they be both apply'd to the ſame degree of Heat, while the Water becomes warm, the *Mercury* will be hot enough to burn the Hands. See HEAT and COLD.

The 7th Property is, that it is diſſoluble by almoſt all Acids, and unites itſelf with them ; at leaſt with all foſſil Acids. Thus it is diſſolved in Oil of Vitriol, Spirit of Sulphur *per Campanam*, Spirit of Nitre, and *Aqua regia*.

It is prepared with Oil of Vitriol, into *Turbith* Mineral ; with Spirit of Sulphur, into *Cinnabar* ; with *Aqua regia*, or Spirit of Sea-Salt or *Sal gemma*, into corroſive Sublimate. See TURBITH, CINNABAR, SUBLIMATE, *&c.*

Only Vinegar does not diſſolve it ; and hence we are furniſhed with a Method of detecting the Frauds of Druggiſts, *&c.* who make a practice of ſophiſticating Quick-Silver with Lead. Do but take a Mortar, and pound the *Mercury*, with Vinegar therein ; if the Vinegar grow ſweetiſh, it is a Proof there is a Mixture of Lead : If Copper have been mix'd with it, the *Mercury* will turn greeniſh, or bluiſh ; if there be no Adulteration, the *Mercury* and Vinegar will both remain as before.

The 8th Property is, that it is the moſt Simple of all Bodies, next after Gold : Accordingly, we find it the ſame in all its parts, ſo far as our Obſervation goes. If a ſingle Grain of *Mercury* be diſſolved in Spirit of Nitre, a proportionable part of the Grain will be diſtributed into every minute Particle thereof ; and by diluting the whole with an Ounce of *Aqua Stygia*, the whole Grain of *Mercury* will be revived. Had we the *Mercury* of the Philoſophers called alſo *Vital Mercury*, *Mercury of Metals*, &c. ſo much talked of ; it is aſſerted it would be ſtill vaſtly ſimpler than Gold : For, from Gold, we can ſometimes ſeparate *Mercury*, and ſometimes Sulphur ; but from pure *Mercury* nothing beſide itſelf can be ſeparated.

The 9th Property of *Mercury* is, not to be in any meaſure *Sharp*, for it ſhews no Acrimony in the Taſte, nor does it corrode any Body ; and if a Carcaſe were to be buried in Quick-Silver, it would there remain without being any way hurt. The extraordinary Effects, however, it produces in the Body, have given People a Notion of its being Acrid. But the Caſe is, that when received into the Blood, it acts by its Weight and Velocity ; whence it tears and deſtroys the Veſſels, and thus occaſions thoſe great Alterations, which lead the Chymiſts into their Miſtakes.

In effect, all its medicinal Operations are to be accounted for from the Properties already enumerated.

Mines of MERCURY.

The Chief Quick-Silver *Mines*, are thoſe of *Hungary*, *Spain*, *Friuli*, and *Peru*. The greateſt part of our Quick-Silver is brought us from *Friuli*, where there are abundance of *Mines* belonging to the Emperor, tho' now mortgaged to the *Dutch*. It is found under three ſeveral Forms. 1. In ruddy Glebes or Clods, call'd *Cinnabar*. 2. In hard ſtony Glebes, or a mineral Subſtance of a ſaffron, and ſometimes a blackiſh Colour. 3. It is alſo found pure : For upon opening Holes in the Beds of Stones, *&c.* there ſometimes guſhes a Vein or Stream of pure *Mercury*, call'd *Virgin-Mercury*. This laſt ſort is moſt valued : *Paracelſus* and *Baſil Valentine* prefer it far to any other ſort, for Chymical Operations. Dr. *Brown* aſſures us in his Travels, that enquiring of one of the Directors of the Quick-Silver *Mines*, wherein the Difference between this and common *Mercury* conſiſted ; he was anſwered, That *Virgin-Mercury*, mix'd, and amalgamated with Gold, render'd the Sulphur of the Gold volatile : but this has been ſeveral times try'd without ſucceſs.

Method of procuring or ſeparating MERCURY *from the Ore, or Earth.*

They firſt grind the mineral Glebe into Powder ; this done, they pour a great Quantity of Water upon it, ſtirring and working the whole briſkly about till the Water becomes exceeding thick, and turbid. This Water having ſtood till it be ſettled, they pour it off, and ſupply its place with freſh, which they ſtir, and work as before. This they repeat, and continue to do, till the Water at length comes away perfectly clear ; then, all remaining at the bottom of the Veſſel, is *Mercury*, and other metalline Matter.

To this *Mercury*, &c. they add the *Scoria* of Iron, putting the whole in large Iron Retorts, and ſo diſtilling it ; by which means all the heterogeneous, metallic and ſtony Part, is ſeparated therefrom ; and the *Mercury* left pure.

As to the *Mercury* in Cinnabar, they don't find it worth while to diſtil, and get it out ; *Cinnabar* ſelling for a better Price than *Mercury* itſelf. See CINNABAR.

The miſerable People condemn'd or hir'd to work in thoſe *Mines*, all die in a little time. They are firſt affected with Tremors, and proceed to ſalivate ; then their Teeth drop out, and they are ſeized with Pains all over; eſpecially in their Bones, which the *Mercury* penetrates, and thus die.

In *Spain*, the melting or exhalation of the Mineral is performed with more Care, and with an Engine contrived for that purpoſe. As to the earthy Matter wherewith the *Mercury* is mixed, that of *Spain* is red, and ſpeckled with black and white; and ſo hard, that 'tis not to be broken up with Gun-powder. In *Hungary* 'tis frequently a hard Stone, but ordinarily a reddiſh Earth. In *Friuli* there is a ſoft Earth where the Virgin Quick-Silver is found, and a hard Stone which yields the common *Mercury*. The Mine of *Idica*, one of thoſe belonging to *Friuli*, is ſo rich, that it yields always half Quick-Silver, ſometimes two thirds. The *Mine* of *Juan Cabelaca*, or *Guan Cabilica* in *Peru*, is ſtill more conſiderable, the Earth is of a whitiſh red, like Bricks half burnt; 'tis firſt broke, then expoſed to the Fire, by ſpreading it on a Lay of common Earth, wherewith the Grate of an Earthen-Furnace is cover'd; under which is lighted a little Fire of an Herb call'd by the *Spaniards*, *Icbo*: which is of that neceſſity in theſe Works, that the cutting it is prohibited for the ſpace of 20 Leagues round. In proportion as the Mineral heats, the *Mercury* riſes volatiliz'd into Smoke; which Smoke finding no vent thro' the Capital of the Furnace, which is exactly luted, eſcapes thro' a Hole made for the purpoſe, communicating with ſeveral Earthen Cucurbites fitted within one another. The Water at the bottom of each Cucurbite condenſing it to Smoke, the Quick-Silver precipitates, and is taken up, when the Operation is over. In this Proceſs, there are three things remarkable. The firſt, That the further the Cucurbites are from the Furnace, the more they are fill'd with Quick-Silver. The ſecond, That at laſt they all grow ſo hot, that they would break, were they not ſprinkled from time to time with Water. Thirdly, It is obſerved that the Workmen employ'd in the Preparation of *Mercury*, never hold it long, but become paralytic, and die hectic. A Precaution they uſe, is to hold a piece of Gold in the Mouth, to imbibe the Effluvia, and intercept their Paſſage into the Body. Dr. *Pope* tells us of one he ſaw in the *Mines* of *Friuli*, who in half a Year's time was ſo impregnated with the Metal, that putting a piece of Braſs in his Mouth, or even rubbing it in his Fingers, it would turn white as Silver.

The *Method of purifying* MERCURY, is, by waſhing it ſeveral times in Vinegar, wherein common Salt has been diſſolved; or by paſſing, and repaſſing it frequently over a *Chamois* Skin. *Am. Paræus* tells us, that the beſt way is to make a Dog ſwallow a Pound at a time, and afterwards to ſeparate it from the Excrements, and waſh it in Vinegar.

The *Uſes of* MERCURY are very conſiderable in Gilding, making Looking-Glaſſes, in refining Gold, *&c.* See each under its head, GILDING, REFINING, MIRROR, LOOKING-GLASS, *&c.*

But eſpecially in Medicine, and particularly for the Cure of the Venereal-Diſeaſe, raiſing Salivations, and on other Occaſions. See VENEREAL-DISEASE and SALIVATION. See alſo MERCURIALS.

The *Preparations of* MERCURY are very various; this Metal making one of the moſt conſiderable Articles in the Chymical Pharmacy. The moſt common Preparations are,

Sweet Precipitate of MERCURY, or MERCURIUS *Dulces*, is compounded of crude *Mercury* drove over from Sea-Salt in a Retort, or revived from common Cinnabar, and diſſolved in *Aqua fortis*; then a Brine prepared of Spring-Water and Sea-Salt is filtred thro' a Cap-Paper, and the Solution of *Mercury* drop'd gradually into this Brine, whence there is a white Powder precipitated, which is to be waſh'd from all its Acrimony with ſome ſimple diſtill'd Water, or warm Spring-Water, and the whole dried.

This is the common Precipitate of the Shops, uſually call'd *White Precipitate*. Its Operation is moſtly by Stool, ſometimes by Vomit, and will ſalivate, if ordered accordingly. It is frequently mix'd with Pomatums for the Itch, and other Foulneſſes of the Skin; for which purpoſe, 'tis neceſſary to keep the Body laxative, and to take ſomething inwardly to take hold of the Mercurial Principles, and prevent their raiſing a Salivation, which they may otherwiſe do. See PRECIPITATE.

Corroſive Sublimate of MERCURY, is a Compoſition of Vitriol calcined to a redneſs, common Salt, and purify'd Nitre, with crude *Mercury*, cleans'd by ſtraining thro' a Leather, all rubb'd together in a Mortar, till the Salts are reduced into Powder, and not the leaſt Globule of *Mercury* appears. The Mixture is then put into a Matraſs, and that ſet in a Furnace with a Sand-heat, under which a Fire being kept to its greateſt height for 12 or 15 Hours, the *Mercury* will be ſublimed, and ſtick to the Top of the Veſſel.

This Sublimate is a violent Eſcharotic, and eats away proud Fleſh; half a Dram of it diſſolved in a Pound of Lime-Water, turns it yellow, which is then call'd *Phagedenic* Water; it is uſed to waſh Ulcers, and tetterous Eruptions. See SUBLIMATE.

Sweet Sublimate of MERCURY, is a Compoſition of the preceding corroſive Sublimate with crude *Mercury*, ground together till no *Mercury* appear, and then put into a Bolt-head, well ſtop'd, and ſet in a Sand-heat, with a gentle Fire, for the Space of two Hours; which Heat is to be then increas'd for three Hours longer, and, laſtly, made very ſtrong, for as much more. When this is cold, the Glaſs is broke, and the Sublimate ſeparated from the light Flowers at top, and the Duſt at bottom. This is then powder'd a-freſh, and the Operation repeated in the ſame manner three times. If it be further repeated a ſixth time, it is call'd *Calomel*. See CALOMEL.

Fixing of MERCURY. See FIXATION and PHILOSOPHER'S *Stone*.

MERCURY *in Chymiſtry*, or MERCURY *of Bodies*, is the third of the Principles, or Elements of natural Bodies; call'd alſo *Spirit*. See PRINCIPLE.

In this Senſe, *Mercury* is defined the moſt ſubtle, light, volatile, penetrating, and active part of all Bodies. See SPIRIT.

MERCURY *of Metals*, or *of the Philoſophers*, is a pure, fluid Subſtance in form of common running *Mercury*, ſaid to be found in all Metals, and capable of being extracted from the ſame. See METAL.

The Notion of *Mercury* of Metals, is founded on the common Syſtem of the Chymiſts, That *Mercury*, or Quick-Silver, is the Baſis, or Matter of all Metals; and that Metals are only *Mercury* fix'd by a certain Sulphur. See SULPHUR, *&c.*

Mr. *Boyle* aſſures us, he had a way of drawing a true, running *Mercury*, or Quick-Silver from Antimony. See ANTIMONY.

MERCURY alſo ſerves as a general Title for Books, and Papers of News; ſo call'd from the Heathen Deity *Mercury*, ſuppoſed the Meſſenger of the Gods. See JOURNAL.

Thus we have *Mercuries Galant*, *Monthly Mercuries*, &c. See GALANT, *&c.*

In this Senſe, *Mercury* is alſo figuratively apply'd to Perſons who make it their Buſineſs to collect News, or to run about and diſtribute it.

MERCURY, in Heraldry, is ſometimes the Term, or Blazon for the Purple Colour in the Coats of Sovereign Princes. See PURPLE.

MERCURY is ſometimes uſed for the *Torricellian* Experiment, or Barometer. See BAROMETER.

Tho' *Mercury* is not ordinarily ſuſtain'd in a Tube above the diſtance of 28 or 29 Inches, yet M. *Huygens* has found, that *Mercury* well purged, and in a cloſe ſtill Place, will be ſuſtain'd to the height of 72 Inches; which is a Phænomenon the Philoſophers are all at a loſs to account for. See TORRICELLIAN *Experiment*.

MERCURIAL, ſomething that conſiſts of, or bears relation to *Mercury*, of one kind or another. See MERCURY.

Thus we ſay a *Mercurial Perſon*, to denote a Perſon of a brisk, volatile Complexion; ſuch Perſons being ſuppoſed by the Aſtrologers to be under the more immediate Dominion of the Planet *Mercury*.

So, alſo, we ſay *Mercurial* Fumes, *Mercurial* Spirits, &c. with reference to the Mineral *Mercury*.

MERCURIAL *Phoſphorus*, ſee PHOSPHORUS.

MERCURIAL *Unguents*, *Frictions*, &c. ſee SALIVATION.

MERCURIAL *Medicines*, ſee MERCURIALS.

MERCURIALS, Medicines compoſed, or prepared of *Mercury* or Quick-Silver. See MERCURY.

The principal of the Claſs of *Mercurials*, are *Mercurius dulcis*, or *white Precipitate of Mercury*; *ſweet and corroſive Sublimate of Mercury*; *Calomel*; *Artificial Cinnabar*; *Turbith Mineral*; *Prince's Powder*; *Æthiops Mineral*, &c. See each under its proper Article, *Sublimate of* MERCURY, *Precipitate of* MERCURY, CINNABAR, TURBITH, CALOMEL, *&c.*

The Medicinal Efficacy of *Mercury* depends on its extreme Diviſibility, and Fineneſs of its Particles, and on their Gravity or Weight: by means of the firſt, it finds a Paſſage into the inmoſt Receſſes of the Animal Structure, and, when properly guarded, does not exert itſelf till it comes in the remoteſt Scenes of Action; where moſt other Medicines either don't arrive, or at leaſt not till their Force is rebated. This Property it has in common with Camphor. See CAMPHOR. By the latter, it is enabled to make ſtill more conſiderable Alterations in the Animal Œconomy, by rendering the Fluids thinner, and breaking open the ſecretory Paſſages: But this Effect it has in common with *Chalybeats*. See CHALYBEATS. It may be here added, that the ſame Property whereby it becomes ſo powerful a Deobſtruent, indicates, that 'tis to be avoided in Hectics, and all Caſes where the Conſtitution is drawn low by too profuſe Evacuations ; in regard *Mercurials* tend to keep up or increaſe the Exceſs of Impetus in the Fluids, and that Over-Capacity in the ſecretory Orifices, wherein the Defect of ſuch a Conſtitution ſeems to conſiſt. See HECTIC.

MERIDIAN, in Aſtronomy, a great Circle of the Sphere, paſſing thro' the Zenith, Nadir, and Poles of the World ; and dividing the Sphere into two Hemiſpheres, the one Eaſtern, and the other Weſtern. See CIRCLE, and SPHERE.

Or, the *Meridian* is a Vertical Circle, as A Z B N, (Tab. *Aſtronomy.* Fig. 6.) paſſing thro' the Poles of the World, P and Q. See VERTICAL *Circle.*

It is call'd *Meridian*, from the *Latin*, *Meridies*, Noon, or Mid-day, by reaſon when the Sun is in this Circle, it is Noon in that Place.

MERIDIAN, in Geography, is a great Circle, as P A Q D, (Tab. *Geography*, Fig. 7.) paſſing thro' the Poles of the Earth P and Q ; and any given Place, as Z. So that the Plane of the Terreſtrial *Meridian*, is in the Plane of the Celeſtial one.

Hence, 1. As the *Meridian* inveſts the whole Earth, there are ſeveral Places ſituated under the ſame *Meridian*. And, 2. As it is Noon-Tide whenever the Centre of the Sun is in the *Meridian* of the Heavens ; and as the *Meridian* of the Earth in the Plane of the former : it follows, that it is Noon, at the ſame time, in all Places ſituate under the ſame *Meridian*. 3. There are ſo many *Meridians* on the Earth, as there are Points conceived in the Æquator. In effect, the *Meridians* always change, as you change the Longitude of the Place ; and may be ſaid to be infinite : Each ſeveral Place from Eaſt to Weſt having its ſeveral *Meridian*. See LONGITUDE.

Firſt MERIDIAN, is that from which the reſt are accounted, reckoning from Weſt to Eaſt. The firſt *Meridian* is the beginning of Longitude. See LONGITUDE.

The fixing of a firſt *Meridian* is a matter merely arbitrary ; and hence different Perſons, Nations, and Ages, have fix'd it differently ; whence ſome confuſion has aroſe in Geography. The Rule among the Antients was to make it paſs thro' the Place furtheſt to the Weſt that was known. But the Moderns knowing, that there is no ſuch Place in the Earth as can be eſteemed the moſt Weſterly ; the way of computing the Longitudes of Places from one fix'd Point is much laid aſide.

Ptolemy aſſumed the *Meridian* that paſſes thro' the furtheſt of the *Canary* Iſlands as his firſt *Meridian* ; that being the moſt Weſtern Place of the World then known. After him, as more Countries were diſcovered in that Quarter, the firſt *Meridian* was removed further off. Some fix'd it to the Iſland of St. *Nicholas* ; *Hondius* to the Iſle of St. *James* ; others to the Iſland *Del Corvo* one of the *Azores*. The lateſt Geographers, particularly the *Dutch*, have pitch'd on the *Pike of Teneriff* ; others to the Iſle of *Palm*, another of the *Canaries* ; and, laſtly, the *French*, by Command of their King, to the Iſland of *Fero*, another of the *Canaries*.

But, without much regard to any of theſe Rules, our Geographers, and Map-Makers, frequently aſſume the *Meridian* of the Place where they live, or the Capital of their Country for a firſt *Meridian*, and thence reckon the Longitudes of their Places.

The Aſtronomers in their Calculations uſually chuſe the *Meridians* of the Place where their Obſervations were made, for their firſt *Meridian*, as *Ptolemy* at *Alexandria* ; *Tycho Brahe* at *Uranibourg* ; *Riccioli* at *Boulogne* ; Mr. *Flamſteed* at the Royal Obſervatory at *Greenwich* ; the *French* at the Obſervatory at *Paris*.

In the *Philoſophical Tranſactions*, there is a Suggeſtion, that *Meridians* vary, in Time. This ſeems very probable from the old *Meridian-Line* in the Church of St. *Petronio* in *Bononia*, which is found to vary no leſs than 8 Degrees from the true *Meridian* of the Place at this time ; and from that of *Tycho* at *Uranibourg*, which M. *Picart* obſerves, varies 18′ from the modern *Meridian*. If there be any thing of Truth in this Hint, Dr. *Wallis* ſays, the Change muſt ariſe from a change of the Terreſtrial Poles (here on Earth, of the Earth's diurnal Motion) not of their pointing to this or that of the fixed Stars : For if the Poles of the diurnal Motion remain fixed to the ſame Place on the Earth, the *Meridians* which paſs through theſe Poles muſt remain the ſame.

But the Notion of the Changes of the *Meridian* is overthrown by an Obſervation of M. *Chazelles* of the *French* Academy of Sciences, who, when in *Egypt*, found that the four ſides of a Pyramid built 3000 Years ago, ſtill look'd very exactly to the four Cardinal Points. A Poſition which can never be look'd on as fortuitous.

MERIDIAN *of a Globe*, or *Sphere*, is the Brazen Circle, in which the Globe hangs and turns. See GLOBE.

It is divided into four 90's, or 360 Degrees, beginning at the Equinoctial : On it, each way, from the Equinoctial, on the Celeſtial Globes, is counted the South and North Declination of the Sun or Stars : And on the Terreſtrial Globe, the Latitude of Places North or South. There are two Points on this Circle, call'd the *Poles* : and a Diameter continued from thence through the Centre of either Globe, is call'd the *Axis*, of the Earth or Heavens on which they are ſuppoſed to turn round. See POLE and AXIS.

On the Terreſtrial Globes there are uſually 36 *Meridians* drawn ; one through every tenth Degree of the Equator, or through every tenth Degree of Longitude.

The Uſes of this Circle are, to ſet the Globes to any particular Latitude ; to ſhew the Sun's or a Star's Declination, Right Aſcenſion, greateſt Altitude, &c. See GLOBE.

MERIDIAN *Line*, an Arch, or part of the *Meridian* of a Place ; terminated, each way, by the Horizon : Or a *Meridian* is the Interſection of the Plane of the *Meridian* of the Place, with the Plane of the Horizon ; vulgarly call'd a *North and South Line* ; becauſe its Direction is from one Pole towards the other. See MERIDIAN.

The Uſe of *Meridian* Lines in Aſtronomy, Geography, Dialling, &c. is very great ; and on its Exactneſs all depends : Whence infinite Pains have been taken by divers Aſtronomers to have it to the laſt Preciſion. M. *Caſſini* has diſtinguiſh'd himſelf by a *Meridian* Line drawn on the Pavement in the Church of St. *Petronia* at *Boulogne*, the largeſt and moſt accurate in the World. In the Roof of the Church, 1000 Inches above the Pavement, is a little Hole through which the Sun's Image, when in the *Meridian*, falling upon the Line, marks his Progreſs all the Year. When finiſhed, M. *Caſſini*, by a public Writing, inform'd the Mathematicians of *Europe*, of a new Oracle of *Apollo* or the Sun eſtabliſhed in a Temple, which might be conſulted with entire Confidence as to all Difficulties in Aſtronomy. See SOLSTICE.

To draw a Meridian Line.

Knowing the South Quarter pretty nearly, obſerve the Altitude F E (Tab. *Aſtronomy*, Fig. 8.) of ſome Star on the Eaſtern ſide thereof not far from the *Meridian*, HZ R N. Then, keeping the Quadrant firm on its Axis, ſo as the Plummet may ſtill cut the ſame Degree, only directing it to the Weſtern-ſide of the *Meridian*, wait till you find the Star has the ſame Altitude as before, *f e*. Laſtly, Biſſect the Angle E C *e* form'd by the Interſection of the two Planes wherein the Quadrant is placed at the time of the two Obſervations, by the right Line H R. This H R is a *Meridian Line*.

Or thus ;

On a Horizontal Plane, from the ſame Centre C, (Fig. 9.) deſcribe ſeveral Arches of Circles BA, *b a*, &c. And on the ſame Centre C, erect a Style or Gnomon perpendicular to the Plane ACB, a foot, or half a foot long. About the 21ſt of *June*, between the Hours of 9 and 11 in the Morning, and between 1 and 3 after Noon, obſerve the Points B *b*, &c. A *a*, &c. wherein the Shadow of the Style terminates. Biſſect the Arches AB, *ab*, &c. in D, *d*, &c. If then the ſame right Line D E biſſect all the Arches AB, *a b*, &c. it will be the *Meridian* Line ſought. In regard the Extremity of the Shadow is ſomewhat hard to determine, 'tis beſt to have the Style flat a-top, and to drill a little Hole, noting the lucid Spot projected by it on the Arches A B and *a b*, inſtead of the Extremity of the Shadow. Otherwiſe the Circles may be made with yellow, inſtead of black, &c.

Several Authors have invented particular Inſtruments and Methods for the deſcribing of *Meridian* Lines, or rather for the determining equal Altitudes of the Sun in the Eaſtern and Weſtern Parts of the Heavens ; as Mr. *Grey*, Mr. *Derham*, &c. in the *Philoſ. Tranſ.* But as the former of the Methods above delivered, ſuffices for Aſtronomical Obſervations, and the latter for more ordinary Occaſions, we ſhall forbear to give any Deſcriptions thereof.

From what has been ſhewn, it is evident that whenever the Shadow of the Style covers the *Meridian* Line, the Centre of the Sun is in the *Meridian* ; and therefore it is then Noon. And hence the Uſe of a *Meridian* Line in adjuſting the Motion of Clocks, &c. to the Sun. Hence, alſo, if the *Meridian* Line be biſſected by a right Line O V, drawn perpendicularly through the Point C ; O V will be the Interſection of the *Meridian*, and firſt Vertical ; and, conſequently, O will ſhew the Eaſt Point, and V the Weſt, Laſtly, if a Style be erected perpendicularly in any other horizontal Plane, and a Signal be given when the Shadow of the Style covers the *Meridian* Line drawn in another Plane, noting the Apex or Extremity of the Shadow projected by the Style, a Line drawn from that Point thro' that wherein the Style is rais'd will be a *Meridian* Line. See MERIDIAN *Altitude*.

MERIDIAN Line on a Dial, is a right Line ariſing from an Interſection of the *Meridian* of the Place with the Plane of the Dial. See DIAL.

This is the Line of twelve a-clock; and from hence the Diviſion of the Hour-Lines begins.

MERIDIAN *Magnetical*, is a great Circle paſſing thro' or by the Magnetical-Poles; to which *Meridian* the Compaſs (if not otherwiſe hindred) hath reſpect. See MAGNET and COMPASS.

MERIDIAN *Altitude* of the Sun or Stars, is, their Altitude when in the *Meridian* of the Place where they are obſerved. See ALTITUDE.

The *Meridian* Altitude may be defined an Arch of a great Circle perpendicular to the Horizon, and terminated between the Horizon and the Star then in the *Meridian* of the place. See SUN, STAR, PLANET, &c.

To take the MERIDIAN *Altitude of the Stars.*

Aſtronomers make two principal kinds of Obſervations of Stars; the one when they are in the *Meridian*, and the other when in Vertical Circles. See OBSERVATION.

For *Meridian Obſervations*; there are two Inſtruments principally uſed, the *Quadrant* and *Gnomon*. See QUADRANT and GNOMON.

To take the Meridian Altitude with a Quadrant; if the Poſition of the *Meridian* be known, and the Plane of an Aſtronomical Quadrant be placed in the *Meridian* Line by means of the Plumb-Line ſuſpended at the Centre: The *Meridian* Altitudes of the Stars, which are the principal Obſervations whereon the whole Art of Aſtronomy is founded, may eaſily be determined.

The *Meridian* Altitude of a Star may likewiſe be had by means of a Pendulum-Clock, if the exact time of the Star's Paſſage by the *Meridian* be known. Now it muſt be obſerved, that Stars have the ſame Altitude for a Minute before and after their Paſſages by the *Meridian*, if they be not in or near the Zenith: But if they be, their Altitudes muſt be taken every Minute when they are near the *Meridian*; and then their greateſt or leaſt Altitudes will be the *Meridian* Altitudes ſought.

As to the manner of Obſerving, it is found very difficult to place the Vane of the Quadrant in the *Meridian* exactly enough to take the *Meridian* Altitude of a Star; for unleſs there be a convenient Place, and a Wall where the Quadrant may be firmly faſtned in the Plane of the *Meridian*, which is not eaſily had, we ſhall not have the true Poſition of the *Meridian* proper to obſerve the Stars.

'Twill be much eaſier therefore on ſeveral Accounts, to uſe the portable Quadrant, by which the Altitude of the Star may be obſerved a little before its Paſſage over the *Meridian* every Minute till its greateſt or leaſt Altitude be found. Here tho' we have not the true Poſition of the *Meridian* by this means, yet we have the apparent *Meridian* Altitude of the Star.

Tho' this Method, in the general, be very good, and free of any ſenſible Error, yet in caſe a Star paſſes by the *Meridian* near the Zenith, it proves ſomewhat defective: For in theſe kind of Obſervations, the inconvenient Situation of the Obſerver; the Variation of the Star's Azimuth ſeveral Degrees in a little time; the Alteration of the Inſtrument, and the difficulty of replacing it vertically, will prevent the Obſervations from being oftner than in every four Minutes. But in each Minute, the Altitude varies about fifteen Minutes of a Degree, ſo that there will be the difference of a Degree in the Star's Altitude between each Obſervation. In ſuch Caſes, therefore, it will be better to have the true Poſition of the *Meridian*, or the exact time wherein the Star paſſes the *Meridian*, in order either to place the Inſtrument in the *Meridian*, or to obſerve the Altitude of the Star the Moment it paſſes the *Meridian*. See ALTITUDE and QUADRANT.

To find the MERIDIAN *Altitude of the Sun*, &c. *by a Gnomon*. See GNOMON.

MERIDIONAL *Diſtance* in Navigation, is the ſame with the Departure; Eaſting or Weſting; or the Difference of Longitude between the *Meridian*, under which the Ship now is, and any other *Meridian* ſhe was under before. See DEPARTHRE.

MERIDIONAL *Parts*, *Miles*, or *Minutes*, in Navigation, are the Parts, by which the *Meridians* in *Mercator*'s Chart do increaſe, as the Parallels of Latitude decreaſe. See CHART.

The Co-ſine of the Latitude of any Place being equal to the Radius, or Semi-diameter of that Parallel, therefore in the true Sea-Chart, or Nautical Planiſphere, this Radius being the Radius of the Equinoctial, or whole Sine of 90 Degrees, the *Meridian* Parts at each Degree of Latitude muſt increaſe, as the Secants of the Ark contain'd between that Latitude and the Equinoctial do decreaſe.

The Tables therefore of Meridional Parts in Books of Navigation, are made by a continual addition of Secants, calculated in ſome Books (as in Sir *Jonas Moor*'s Tables) for every Degree and Minute of Latitude; and theſe will ſerve, either to make, or graduate a *Mercator*'s Chart, or to work the *Mercator*'s Sailing.

To uſe them, you muſt enter the Table, with the Degree of Latitude at the head, and with the Minute on the firſt Column towards the Left-hand; and in the Angle of meeting, you will have the Meridional Parts.

Having the Latitudes of two Places, to find the *Meridional Miles*, or *Minutes* between them: conſider whether the Places be, one under the Equinoctial, and the other wide thereof; or the one on the one ſide the Equinoctial, and the other on the other; or whether they both lie on the ſame ſide.

If one Place lie under the Equator, the *Meridional Minutes* next under the Degree of Latitude of the other Place, is the *Meridional* difference of Latitude, or Latitude enlarged.

If one be in North, and the other in South Latitude; the *Meridional Minutes* correſponding to the two Latitudes added together, give the *Meridional Minutes* between them.

Both Places lying towards the ſame Pole; ſubſtract the *Meridional* Parts anſwering to the leſs Latitude from thoſe of the greater; the remainder gives the *Meridional Minutes*.

MERIDIANS, or MERIDIANI, a Name which the antient *Romans* gave to a kind of Gladiators, who enter'd the *Arena* about *Noon*; after the *Beſtiarii*, who fought in the Morning againſt Beaſts, had finiſh'd. See GLADIATOR.

The *Meridiani* fought Man with Man, Sword in hand: Hence *Seneca* takes occaſion to obſerve, that the Combats of the Morning were full of Humanity, compared with thoſe which follow'd.

The *Meridians* took their Name from *Meridies*, *i. e.* Noon, the time when they exhibited their Shews.

MERIT, in Theology, is uſed to ſignify the Moral Goodneſs of the Actions of Men, and the Reward due to them.

The Romiſh Schoolmen diſtinguiſh two kinds of *Merit* towards God: The one of *Congruity*, and the other of *Condignity*.

The *Merit of Congruity*, is, when there is no juſt Proportion between the Action, and the Reward; but he who beſtows the Reward ſupplies by his Goodneſs or Liberality, what was wanting in the Action: Such is the *Merit* of a Son towards his Father; but this is only *Merit* in an improper ſenſe.

The *Merit of Condignity*, is, when there is an abſolute Equality, and a juſt Eſtimation between the Action and the Reward, as in the Wages of a Workman.

Thoſe of the Reformed Religion diſclaim all *Merit* towards God. Even their beſt Works don't *Merit* any thing at his hands. The Doctrine of *Merits* makes one of the great Articles of Controverſy between the Romiſh and Reformed Churches.

MERLON, in Fortification, that part of the Parapet which lies betwixt two Embraſures. See PARAPET and EMBRASURE.

It is from 8 to 9 Foot long on the ſide of the Cannon, and 6 on the ſide of the Field; about 6 Foot high, and 18 thick.

The Word comes from *Merula*, or *Merla*, which in the corrupt *Latin* was uſed for a Battlement.

MERMAID, or MERMAN, a Sea-Creature frequently talk'd of, as being ſuppoſed half human, and half a Fiſh. See MONSTER.

However Naturaliſts may doubt of the Reality of *Mermen*, or *Mermaids*, yet we have Teſtimony enough to eſtabliſh it beyond all contradiction. In the Year 1187, as *Larrey* informs us, ſuch a Monſter was fiſh'd up in the County of *Suffolk*, and kept by the Governour for ſix Months. It bore ſo near a Conformity with Man, that nothing ſeem'd wanting to it beſides Speech. One day it took the Opportunity of making its Eſcape, and plunging into the Sea, was never more heard of. *Hiſt. d'Angleterre*, P. I. p. 403.

In the Year 1430, after a huge Tempeſt, which broke down the Dykes in *Holland*, and made way for the Sea into the Meadows, &c. ſome Girls of the Town of *Edam* in *Weſt-Friezland*, going in a Boat to milk their Cows, perceiv'd a *Mermaid* embarraſs'd in the Mud, with a very little Water. They took it into their Boat, and brought it with them to *Edam*, dreſs'd it in Women's Apparel, and taught it to ſpin. It fed like one of them, but could never be brought to ſpeak. Some time afterwards it was brought to *Haerlem*, where it liv'd for ſome Years, tho' ſtill ſhewing an Inclination to the Water. *Parival* relates, that they had given it ſome Notion of a Deity, and that it made its Reverences very devoutly when ever it paſs'd by a Crucifix. *Delices d' Hollande*.

In the Year 1560, near the Iſland of *Manar*, on the Weſtern Coaſt of the Iſland of *Ceylon*, ſome Fiſhers brought up at one Draught of a Net, ſeven *Mer-men* and *-Maids*; of which, ſeveral *Jeſuits*, and among the reſt,

F. *Hen. Henriques*, and *Dimas Boſquez*, Phyſician to the Vice-Roy of *Goa*, were Witneſſes. The Phyſician, who examined them with a great deal of Care, and made Diſſections thereof, aſſerts, that all the Parts, both internal and external, were found perfectly conformable to thoſe of Men. See the *Hiſt. de la Compagne de Jeſus*, P. II. T. IV. N°. 276. where the Relation is given at length.

We have another Relation well atteſted of a *Merman*, near the great Rock call'd *Diamond*, on the Coaſt of *Martinico*. The Perſons who ſaw it, gave in a preciſe Deſcription of it before a Notary. They affirmed that they ſaw it wipe its Hand over its Face, and even heard it blow its Noſe.

Another Creature of the ſame Species was caught in the *Baltic* in the Year 1531, and ſent as a Preſent to *Sigiſmond* King of *Poland*, with whom it liv'd three Days, and was ſeen by all the Court. Another very young one was taken near *Rocca de Sintra*, as related by *Damian Gaes*.

The King of *Portugal* and the Grand Maſter of the Order of St. *James*, had antiently a Suit at Law to determine which Party theſe Monſters belonged to.

MESARÆUM in Anatomy, the ſame with *Meſenterium*. See Mesentery.

Mesaræum is alſo uſed in a more reſtrained Senſe for a Part, or Diviſion of the *Meſentery*; being that faſtned to the thick Guts. See Mesentery.

MESARAIC *Veſſels*, in the general Senſe, are the ſame with *Meſenteric*. See Mesenteric.

In common uſe, *Meſaraic* is more frequently applied to the Veins; and *Meſenteric* to the Arteries of the *Meſentery*.

MESENTERY, or Mesaræum, in Anatomy a fat membranous Body; thus call'd, becauſe placed in the middle of the Inteſtines, which it connects to one another. See Intestines.

The *Meſentery* is almoſt of a circular Figure, with a narrow Production, to which the end of the *Colon*, and beginning of the *Rectum*, are tied.

'Tis about four fingers and a half in Diameter: Its Circumference, being full of Plaits and Foldings, is about three Ells in length. The Inteſtines are tied like a Border on this Circumference of the *Meſentery*: There are three Inches of the Inteſtines faſtned. See Intestines.

The *Meſentery* itſelf is ſtrongly tied to the three firſt *Vertebræ* of the Loins. It is compoſed of three *Laminæ*; the inner, upon which the Glands and Fat lie, and the Veins and Arteries run, is its own proper Membrane; and the other two which cover each ſide of the proper Membrane come from the *Peritonæum*. Between the two external *Laminæ* of the *Meſentery*, run the Branches of *Arteria Meſenteriaca*, ſuperior and inferior, which bring the Blood to the Inteſtines; and the *Venæ Meſeraicæ*, which being Branches of the *Portæ*, carry the Blood back to the Liver. Here the large Branches of both Arteries and Veins communicating with one another, march directly to the Guts; where, with the Nerves from the *Plexus Meſentericus*, they divide into an infinite Number of ſmall Branches, which ſpread themſelves extremely finely upon the Coats of the Inteſtines. The *Venæ Lacteæ*, and Lymphatic Veſſels, run likewiſe upon the *Meſentery*, in which there are alſo ſeveral Veſicular Glands; the biggeſt of which in the middle of the *Meſentery*, is call'd *Pancreas Aſellii*; theſe Glands receive the Lympha and Chyle from the Lacteal Veins. See Pancreas Asellii.

The *Meſentery* has been ordinarily divided into two Parts, the *Meſaræum* and *Meſocolon*. The firſt appended to the *Inteſtina Tenuia*; and the latter to the *Craſſa*: But this is a Diviſion of no great moment.

The Uſe of the *Meſentery*, is, firſt, to gather the Inteſtines into a narrow Compaſs, that the Courſe of the Chiliferous Veſſels towards their common Receptacle may be but ſhort; to cover and protect them and the Blood-Veſſels; and to connect and diſpoſe the Inteſtines, ſo as to ſecure them from any Entanglement that might hinder their periſtaltic Motion.

The Word comes from the *Greek* μεσον, middle, and ἐντερον, Inteſtine, Gut; as being in the middle of the Inteſtines.

MESENTERIC, or Mesaraic, an Epithet given to two Arteries ariſing from the deſcending *Aorta*, and proceeding to the *Meſentery*.

There is an Upper, or *Superior Meſenteric*, which goes to the upper part of the Meſentery; and a Lower, or *Inferior Meſenteric*, which diſtributes itſelf through the lower part. See Artery.

We have alſo a *Meſenteric Vein*, compoſed of an infinity of Veins proceeding from the Meſentery; which, with the *Vena Splenica* ariſing from the Spleen, form the *Vena Porta*.

Anatomiſts alſo reckon a *Meſenteric* Nerve which ariſes from the Intercoſtal, and ſends ſeveral Branches to the Meſentery. See Nerve.

Mesenteric *Plexus*, a Plexus, or piece of Net-Work form'd by the Branches or Ramifications of the *Par Vagum*.

The *Plexus Meſentericus Magnus*, or *great Meſenteric Plexus*, is form'd out of the concurrent Branches of ſeveral other Plexus's, and ſends its nervous Fibres through the whole Meſentery along with the *Meſeraic* Veſſels, which, with various Circumligations, they accompany to the Inteſtines. See Plexus.

MESN, or MEASNE, a Term in Law ſignifying him who is Lord of a Manor, and ſo hath Tenants holding of him; yet he himſelf holds of a ſuperior Lord. See Lord.

Mesn is alſo a Writ, which lieth where there is Lord *Meſn* and Tenant; and the Tenant is diſtrained for Services due from the *Meſn* to the ſuperior Lord. The Word is properly derived from *Maiſn*, *minor natu*, becauſe his Tenure is derived from another, from whom he holds.

MESOCOLON, in Anatomy, that part of the Meſentery continued in the great Guts. See Mesentery.

The *Meſocolon* lies in the midſt of the Colon, to which it is join'd. Its lower part ſticks to a part of the *Rectum*.

MESOLABE, Mesolabium, a Mathematical Inſtrument invented by the Antients for finding two mean Proportionals Mechanically, which they could not come at Geometrically. See Proportional.

It conſiſts of three Parallelograms moving in a Groove to certain Interſections. Its Figure is deſcribed by *Eutochius* in his Commentary on *Archimedes*.

MESO-LOGARITHM, a Term uſed by *Kepler* to ſignify the Logarithms of the Co-Sines, and Co-Tangents: The former of which my Lord *Neper* calls *Anti-Logarithms*, and the latter *Differentiales*.

Theſe are alſo call'd Artificial Sines and Tangents. See Logarithm, Co-Sine, Co-Tangent, Anti-Logarithm, &c.

MESO-PLEURII in Anatomy, the Intercoſtal Muſcles. See Intercostal.

The Word is derived from μεσον *Medium*, Middle; and πλευρα *Latus*, the Side.

Meso-Pleurii is ſometimes alſo uſed for the intermediate Spaces between the *Coſtæ*, or Ribs. See Ribs.

MESSE, or Masse, or Missa, the Office, or public Prayers made in the *Romiſh* Church, at the Celebration of the Euchariſt. See Eucharist.

The *Romiſh* Divines define the *Maſs*, an Oblation made to God, wherein, by the change of a ſenſible Object by virtue of a divine Inſtitution, the ſovereign Dominion of God over all Things is acknowledged. This they eſteem the greateſt and moſt auguſt Ceremony in uſe in the Church, as being the Sacrifice of the new Law, wherein the Body and Blood of Jeſus Chriſt are offered up to God.

They are divided about the Queſtion, Whether or no it be proper or allowable for the ſame Perſon to celebrate *Maſs* ſeveral times in one day; having the Authority of Pope *Leo* in his Letter to *Dioſcurus* for the Affirmative Side of the Queſtion, and that of ſeveral of the Councils for the Negative.

Nicod, after *Baronius*, obſerves that the Word *Maſs* comes from the *Hebrew*, *Miſſach*, *Oblatum*; or from *Miſſa*, *Miſſorum*; becauſe in the former Times, the Catechumens and Excommunicated were ſent out of the Church when the Deacon ſaid *Ite, miſſa eſt*, after Sermon, and the reading of the Epiſtle and Goſpel; they not being allow'd to aſſiſt at the Conſecration. See Catechumen.

Menage derives it from *Miſſio*, diſmiſſing. Others again, derive it from the *Latin*, *Miſſa*, Envoy; becauſe in the *Maſs*, the Prayers of Men on Earth are ſent up to Heaven.

There are a vaſt Variety of *Maſſes* in the *Romiſh* Church; the thing acquiring new Titles and Appellations according to the different Rites, Intentions, and Manners in which it is performed, as well as other Circumſtances.

Thus they have an *Ambroſian Maſs*, celebrated according to the Rite of St. *Ambroſe*, particularly uſed in *Milan*.

The *Engliſh Maſs* was the Form which antiently obtain'd in *England*.

Gallican Maſs is the Rite that formerly obtain'd in the Churches of *France*.

Greek Maſs is that rehearſed according to the *Greek* Rites in the *Greek* Language, and by *Greek* Prieſts. *Latin Maſs* is that uſed in the *Latin* Church in the *Latin* Tongue, and according to the Rites of the *Latin* Church.

High Maſs, called alſo *Grand Maſs*, is that ſung by the Choriſters, and celebrated with the Aſſiſtance of a Deacon and Subdeacon.

Low-Maſs is that wherein the Prayers are all barely rehearſed without any Singing, and performed without much Ceremony, or the Aſſiſtance of any Deacon or Subdeacon.

The *Maſs of the Beatæ*, or our Lady, is that offer'd to God by the Means and thro' the Interceſſion of the Virgin.

The *Beau-Maſs* is a *Maſs* rehearſed every day, at which the Ladies and *Beau-Monde* of the Place attend. This is alſo call'd the perfumed *Maſs.*

Common Maſs, or *Maſs* of the Community in a Monaſtery, is that celebrated at certain Hours, whereat the whole Body aſſiſts.

Maſs of the Holy Ghoſt, is that celebrated at the beginning of any Solemnity or Church-Aſſembly, commencing with an Invocation of the Holy Ghoſt.

Holy-day-Maſs, is that wherein certain Prayers or Lectures are read ſuitable to the Day.

Maſs of Judgment, was that wherein a Perſon clear'd himſelf of any Calumny by ſome Proof agreed upon.

Maſs for the Death of our Enemies, was a Form of *Maſs* that obtained a long time in *Spain*, but was at length aboliſhed as inconſiſtent with Chriſtian Charity.

Maſs of the Dead, or *Requiem*, is that performed at the Requeſt of the Deceaſed: The Introit whereof begins with *Requiem*. In the 13th Century, it was the Cuſtom e'er Criminals were carried out to Execution, to make them attend at a *Maſs* of the Dead, rehearſed for the Repoſe of their Souls.

Pariſh Maſs, or *Great Maſs*, is that which the Parſon is obliged to rehearſe to his Pariſhioners on Sundays and Holydays. *Little Maſs* is that ſaid at private Altars with leſs Ceremony. The firſt *Maſs* is that ſaid at Break of Day.

Maſs of a Saint, is that wherein God is invoked by the Interceſſion of ſome Saint. Thus there are alſo *Maſſes* of Apoſtles, Martyrs, Pontiffs, Virgins, *&c.*

Maſs of Scrutiny, was formerly rehearſed at the Examination of Catechumens, when Enquiry was made as to their Diſpoſition for Baptiſm.

Dry Maſs, is that where there is no Conſecration; as thoſe, according to *Durandus*, where the Prieſt cannot conſecrate, by reaſon of his having ſaid *Maſs* before on the ſame day; or that uſed by the Candidates of the Prieſthood, in order to their becoming acquainted with the Ceremonies; as *Eckius* will have it.

Votive Maſs, is an extraordinary Maſs beſides that of the Day, rehearſed on ſome extraordinary Occaſion.

MESSENGERS, in the *Engliſh* Polity, are Officers chiefly under the Direction of the Secretaries of State; being always ready to be ſent with all manner of Diſpatches, Foreign and Domeſtic.

They are alſo employ'd, with the Secretaries Warrants, to take up Perſons for High Treaſon, or other Offences againſt the State, which do not ſo properly fall under the Cognizance of the Common Law, and, perhaps, are not proper to be divulged in the ordinary Courſe of Juſtice.

The Priſoners they apprehend are uſually kept at their own Houſes, for which they are allow'd by the Government 6 *s.* 8 *d. per* day. When they are diſpatch'd abroad, they have an Allowance for their Journey, as ſtated, *viz.* to *Paris*, 30 *l.* to *Holland*, 25 *l.* to *Edinburgh*, 30 *l.* to *Ireland*, 30 *l.* and ſo to other Places in proportion. Part of which Money is advanced to them for their Journey.

They wait twenty at a time, monthly, diſtributed as follows, *viz.* four at Court, five at one Secretary's Office, five at the other, and two at the third Office for *North Britain*, three at the Council-Office, and one at the Lord Chamberlain's of the Houſhold. Their Poſts, if purchaſed, are eſteemed worth 300 *l.* Their Salary is 45 *l. per Annum* each.

MESSENGERS *of the Exchequer*: The four Purſuivants in that Court are called by this Name. Their Duty and Office is to attend the Lord Treaſurer, and to carry his Letters, Precepts, *&c.* See PURSUIVANT.

MESSENGER *of the Preſs*, a Perſon who by order of the Court ſearches Printing-Houſes, Bookſellers Shops, *&c.* in order to find out, or diſcover ſeditious Books, *&c.*

MESSIAH, a Term ſignifying *Anointed*, or *Sacred*; and in that Senſe applied to Kings and Prieſts: But, by way of Eminence to Jeſus Chriſt, the Saviour promis'd by the Prophets of the Old Law. See CHRIST.

The *Jews* ſtill wait for the coming of the *Meſſiah*; being infatuated with the Notion of a temporal *Meſſiah* that is to be a mighty Conqueror, and to ſubdue all the World. See PROPHECY, *&c.*

Jeſus Chriſt aſſerts himſelf the *Meſſiah*. In St. *John* iv. 25. the *Samaritan* Woman ſays to Jeſus, *I know that when the* Meſſiah *comes* (*who is called the* Chriſt) *he will tell us all things. Jeſus anſwered her, I that ſpeak to thee, am he.*

There are ſeveral Impoſtors that have endeavour'd to paſs for *Meſſiahs. J. Lent*, a *Dutchman*, has written a Hiſtory of falſe *Meſſiahs, De Pſeudomeſſiis*. The firſt he mentions was one *Barcochal*, who appeared under the Empire of *Adrian*. The laſt is Rabbi *Mardochai*, who began to be talk'd of in 1682. A little before him, *viz.* in 1666, appear'd *Sabbethai Sebi*, who was taken by the *Turks*, and turned *Mahometan*.

The Word comes from the *Hebrew*, *Maſchuach*, Anointed, of the Verb *Maſchach*, to anoint: whence Jeſus Chriſt claims the Title on a manifold Account; 1ſt, as having been anointed King of Kings from all Ages. 2dly, As Chief of the Prophets. 3dly, As High-Prieſt of the Law of Grace, or Prieſt for ever according to the Order of *Melchiſedech*.

The Son of God is variouſly denominated according to his various Qualities and Attributes. He is call'd the *Word*, as being the Eternal Son of the Father, and Conſubſtantial with him. *Chriſt*, Χριςὸς, a *Greek* Term, ſignifying *Anointed*, of the ſame import with the *Hebrew Meſſiah*; Jeſus, *i. e. Saviour*, of the *Hebrew*, *Jehoſua*, by reaſon he ſaves his People from their Sins. He is called *Word*, as being the Son of God; *Jeſus*, as Man; *Chriſt*, as being Anointed; and *Meſſiah*, as being both God and Man.

MESSIEURS, a *French* Title of Honour or Civility, lately introduced into our Language. The Word is the Plural of *Monſieur*, and is equivalent to the Engliſh, *Sirs.* See MONSIEUR and SIR.

The Lawyers always begin their Pleadings and Harangues with *Meſſieurs*; which Word is alſo frequently repeated in the Courſe of the Speech; on which occaſion it anſwers to our *Engliſh* Word *Gentlemen*.

The *French* ſay, *Meſſieurs du Parlement*; *du Conſeil*; *des Comptes*, &c.

MESSUAGE in Law, a Dwelling-Houſe with ſome Land aſſigned for its uſe, *&c.*

By this Name may a Garden, Shop, Mill, Chamber, or Cellar be called.

In *Scotland*, *Meſſuage* is what we call the *Manor-Houſe*, *viz.* Principal Dwelling-Houſe within any Barony. See MANOR.

MESYMNICUM, a Name the Antients gave to a certain part of their Tragedy; or to certain Verſes in their Tragedies. See TRAGEDY.

The *Meſymnicum* was a kind of Burden, as *Io Pæan*; *O Dithyrambe*; *Hymen, O Hymenæe*, or the like; which when placed at the end of a *Strophe*, was called *Ephymnium*; and when inſerted in the middle of a *Strophe*, *Meſymnicum*. See STROPHE and CHORUS.

METACARPUS, or METACARPIUM, in Anatomy, that part of the Hand between the Wriſt and the Fingers. See HAND.

The *Metacarpus* conſiſts of four Bones, which anſwer to the four Fingers; whereof that which ſuſtains the Fore-finger is the biggeſt and longeſt. They are all round and long, a little convex towards the back of the Hand, and concave and plain towards the Palm: They are hollow in the middle, and full of Marrow; they touch one another only at their Extremities, leaving Spaces in their middle, in which lie the *Muſculi Interoſſei*. See INTEROSSEI.

In their upper end there is a Sinus, which receives the Bones of the Wriſt; their lower Extremity is round, and is received into the Sinus of the firſt Bones of the Fingers. See FINGER.

The inner part of the *Metacarpus* is called the *Palm*, and the outer the back of the Hand. See PALM, *&c.*

The Word comes from the *Greek* μετα, *poſt*; and καρπὸς, *Manus*. See CARPUS.

METACISM, in Grammar, a Defect in the Pronunciation of the Letter *M.*

Iſidore ſays it's a final *m*, followed by a Vowel, as *bonum aurum*, &c.

METACHRONISM, in Chronology, an Error in Computation of Time, either on the ſide of Defect, or Exceſs. See CHRONOLOGY and TIME.

METACONDYLI, is uſed by ſome Authors for the out-moſt Bones of the Fingers. See FINGER and CONDYLUS.

METAL, in Natural Hiſtory, a ſimple, foſſil Body, that fuſes, and becomes fluid, by Fire, and by Cold coagulates and hardens into a ſolid Maſs, capable of diſtending under the Hammer. See FOSSIL.

Metal is ſaid to be *Simple*, as it may be affirm'd of every the minuteſt Particle of a *Metal*, *e. gr.* a Grain of Gold, that it is Gold, or has all the Properties of Gold. See GOLD.

Fuſible by Fire, that is, when expoſed to a great Fire, it diſſolves into parts which are eaſily moveable among themſelves, or are in actual motion. See FUSION.

Fixed, *i. e.* bearing the Fire without flying off in Vapours. Tho' it is only to a certain degree that *Metals* are fixed; for by the large Burning-Glaſſes of Meſſ. *Tſchirnhauſen* and *Villette*, all *Metals* readily evaporate. See FIXITY.

Such is the proper Idea of *Metals*, which is no ways applicable to any other Body in Nature: For a Diamond, or other Stone, tho' a ſimple Body, is not fuſible in the Fire, nor capable of being ſtretched under the Hammer. See DIAMOND. And Salt, tho' diſſolvable by Fire, is not malleable, but breaks under the Hammer. See SALT, *&c.*

There are indeed certain Woods which yield in ſome meaſure to the Hammer; but then they fall to Duſt in the Fire: And ſo of the reſt. See MALLEABILITY, *&c.*

We find but ſix *Metals* in all Nature, *viz. Gold, Lead, Silver, Copper, Iron,* and *Tin.* See the Nature, Characters, Production, Uſes, *&c.* of each thereof, under its proper Article; GOLD, LEAD, SILVER, COPPER, IRON, and TIN.

To theſe, a ſeventh *Metal* is uſually added, *viz. Mercury,* or *Quick-Silver;* but improperly, as it has not all the Characters of a *Metal,* nor ſcarce any thing in common with the other *Metals,* except Weight and Similarity of parts. See MERCURY, *&c.*

Thus, for Example, it is neither diſſolvable by Fire, malleable, nor fix'd: In effect, it ſeems to conſtitute a peculiar Claſs of Foſſils, and is rather the Mother, or Baſis of all *Metals,* than a *Metal* itſelf. However, as it is uſually reckoned among them, and as it wants nothing to render it a *Metal,* but an additional Sulphur to fix and connect its parts together, it may without any great harm be conſider'd under that Claſs.

The common radical Character of *Metals* is, that of all known Bodies, they are the heavieſt. By Dr. *Halley*'s Experiments, the Weight of Gold to that of Glaſs is determined to be as 7 to 1; and the Weight of Tin, the lighteſt of all *Metals,* to that of Gold, as 7 to 19; which conſiderably ſurpaſſes the Weight of all Stones, Marbles, Gems, and other the moſt ſolid Bodies, as appears from the Tables of ſpecific Gravities. Nor is there any Body in Nature but a *Metal,* that is one third of the Weight of Gold. See SPECIFIC *Gravity.*

The *Royal Society* furniſh us with various Experiments of this kind. The Weights of the ſeveral *Metals,* and other Solids, they have examined Hydroſtatically, by weighing them in Air and in Water; and the Weights of the Fluids by weighing an equal Portion of each. By ſuch Experiments they find, that taking the ſame Weights of Water and Gold, the Bulk or Magnitude of the former is to the latter as 19636 to 1000; conſequently that the Weight of Gold is to Water nearly as 19 to 1.

The Specific Weight of the ſeveral *Metals* by this Means determined, ſtand thus:

Gold	19635	Iron	7852
Quick-Silver	14019	Tin	7321
Lead	11341	Stone	2000
Silver	105135	Water	1000
Copper	8843	Air	$\frac{1}{17}$

The Cubic Inch of		*Ounces.*	*Drams.*	*Grains.*
Gold	Weighs	12	2	52
Quick-Silver		8	6	8
Lead		7	3	30
Silver		6	5	28
Copper		5	6	36
Iron		5	1	24
Tin		4	6	17

As to the Origin and Formation of *Metals,* various are the Sentiments of Philoſophers Antient and Modern.

Plato will have the Cauſe of *Metals* to be a humid Vapour, incloſed in the Bowels of the Earth, which being variouſly intermix'd with Parts of the Earth, produce various *Metals. Plotin* will have Sulphur to be the Father of *Metals;* and an oleaginous viſcous Humour the Mother. *Lidyat* endeavours to prove all *Metals* generated by a ſubterranean Fire; urging, among other Reaſons, that many *Metals,* when taken out of the Earth, are exceedingly hot. *Du Hamel* ſhews, that *Metals* don't take their Riſe either from any vaporous Exhalation, or from Water, or from Earth; but are generated of Mercury, Sulphur and Salt. He adds, that *Metals* take their Matter and Weight from the Mercury, and their Tincture and Form from Sulphur.

The ſame Author owns the firſt Rudiment of a *Metal* to be a ſaline Subſtance ſwimming in Water, which is by little and little carry'd off. By how much the Terreſtrial Parts are more exquiſitely mix'd with the aqueous or humid, by ſo much is the *Metal* more heavy and firm, as having fewer and ſmaller Pores. Hence its Ductility; for its Parts being extremely ſmall, denſe, and complicated, may be drawn out into a very ſpacious Surface. On which account it is, that Gold exceeds all other *Metals* both in Weight and Ductility; hence alſo its Fixity, its Parts being too cloſe and denſe to be exhaled. The Water defends the Earth from being burnt, and the Earth the Water from flying off; neither forſakes the other, but each is bound in an undiſſolvable Knot. The Moiſture gives Ductility, the Earth Solidity. Where the Mixture is leſs perfect, whether the Earth or the Water prevail, the *Metal* will neither have ſo much Weight, as having larger Pores; nor will it bear the Fire ſo well. For if the Earth prevail, as in Iron, or the Water, as in Lead; Heat will ſet the one at liberty from the other; the Moiſture evaporates, and the Earth is reduc'd into Scoria's, *&c.*

Dr. *Woodward* accounts for the Production of *Metals* found in the Earth, in the following manner.

All *Metals* now found in the *Strata* owe their preſent Condition to the Deluge; when, alſo he imagines the *Strata* of Stone, Earth, Marble, *&c.* were form'd. See DELUGE.

The *Metallic* and Mineral Matter now found in the perpendicular Intervals or Fiſſures of the ſeveral *Strata,* whereof the Body of the Earth is compos'd, was, according to him, at the time of the Deluge lodg'd in the Bodies of thoſe *Strata,* and brought thence, and tranſmitted into theſe Intervals ſince that time; the Intervals themſelves not exiſting, till the *Strata* were form'd and broke again, to let the Water from the Earth.

Now the Water which, he imagines, is conſtantly aſcending from the Abyſs (ſee ABYSS) towards the Surface of the Earth, continually pervading the *Strata,* detaches out of their Pores and Interſtices ſuch *Metallic* and Mineral Corpuſcles as it finds looſe in its way, carrying them along with it to the perpendicular Intervals, where having a freer Paſſage than before, it deſerts them, and leaves them in thoſe Intervals. And this he takes to be the way in which all *Metals,* now found in thoſe Places, were brought thither, and ſtill grow.

Thoſe in the *Strata,* however, he obſerves do not, nor cannot grow; but, on the contrary, are continually leſſen'd and diminiſh'd, by ſo much as has been convey'd into the perpendicular Intervals, and brought forth of the Surface of the Earth by Springs and Exhalations from the Abyſs, *&c.* See FOSSIL.

The ſame ingenious Author complains of the great Uncertainty and Inconſtancy in the Mineral and *Metallic* Kingdom; neither Colour, Figure, nor Situation in the Earth, being to be depended on, ſo as to make any poſitive Judgment from them. A Pyrites or Marchaſite, for inſtance, ſhall have the Colour and Brightneſs of Gold and Silver, and yet afford nothing but a little Vitriol and Sulphur; while a Pebble in appearance ſhall have a Mixture of a valuable *Metal* in it. 'Tis common too to find the ſame *Metal* ſhot into a great number of different Forms, as well as to find different Kinds of *Metal* of the ſame Form. And as to their Place in the Earth, there is the ſame Uncertainty, being ſometimes found in the perpendicular Fiſſures or Intervals of the *Strata,* ſometimes interſperſed in the Bodies of the *Strata,* and ſometimes in both. The ſame *Metals* are alſo placed indifferently in all kind of terreſtrial *Metal,* or in *Strata* of very different natures. They are frequently intermix'd with each other, ſo that 'tis a rare thing to find any of them pure and ſimple; but Copper and Iron ſhall be in the ſame Maſs, Gold and Copper, Silver and Lead, Tin and Lead; nay, ſometimes all ſix together in the ſame Lump. See MINERAL.

M. *Tournefort* is of opinion, that all *Metals* have their Origin from Seeds, like Plants, ; that they have Veſſels, with Juices circulating in them, *&c.*

The *French* Chymiſts have been very curious in their Inquiries into the Nature and Production of *Metals.*

M. *Geoffroy,* from a Mixture of Sulphur with a vitriolic Salt, and an argillous Earth, brought an Iron, which he maintain'd to be a new Production, or a Compoſition reſulting from the Aſſemblage of certain Principles, which exiſted ſeparately in the Ingredients that formed the *Metal;* in a word, that it was an artificial Iron. And obſerving that there were Parcels of this *Metal* in the colour'd Aſhes of Plants, and of moſt other inflammable Subſtances, he concluded that it might be form'd there alſo by the Union of the ſame three Principles.

This was oppos'd by M. *Lemery* the younger, who maintain'd that the Iron contain'd in the Aſhes of Plants, was not form'd there by Calcination, but was really exiſtent in the Plants themſelves, being rais'd in their Veſſels along with the Juices of the Earth; and further, that all the Ingredients whereof M. *Geoffroy*'s artificial Iron were form'd, do really contain Iron in themſelves, either in ſmaller or larger Quantities: Not the Argilla only, where the Iron is eaſily diſcover'd by an animated Knife; nor the Oil of Vitriol, which is drawn from a Mineral, the Ground whereof is Iron; but alſo Linſeed Oil, whereof M. *Geoffroy*'s Sulphur was made; and even that of Turpentine, ſweet Almonds, *&c.* relating withal the Operations whereby each of thoſe Oils might be reduc'd to an Earth wherein was Iron.

To this it is anſwer'd, that in what manner ſoever Iron be drawn from the ſeveral Ingredients ſeparately, there will be ſtill found infinitely leſs in 'em, than when mix'd, and that of conſequence the Mixture produces Iron. That as for Oils, 'tis evident they are not ſimple Subſtances, but are compos'd of an Earth, an acid and a ſulphurous or inflammable Part; which are the three preciſe cile Principles requir'd for the Formation of Iron: ſo that, according to all Appearances, 'tis an Aſſemblage of thoſe Sulphurs, Salts and Earth in the Oil, that the Iron is form'd by Calcination; and therefore that the Means uſed to the Iron in the Ingredients, are the very ſame with thoſe by which it is compos'd.

Hence it appears, that vegetable Matters contain the Principles of Minerals. But M. *Geoffroy* goes further: and to ſupport his Doctrine of the Production of *Metals*, undertakes to prove, that the Principles of Vegetables, and thoſe of Minerals, are eſſentially the ſame; and that one may readily, and with eaſe, decompound Minerals, by ſeparating their Principles, and compound 'em again, by ſubſtituting Principles taken from Vegetables in lieu of thoſe taken away.

To clear this Point, he examines and compares the Principles of Mineral and Vegetable Salts. The Principal in the Mineral Claſs, are Nitre, Sea-Salt, and Vitriol: All which Salts we find in Plants. On the other hand, the eſſential Salt of the *Parietaria* is wholly nitrous, and melts on the Coals like Salt-Petre. The fix'd Salts of the *Carduus Benedictus*, *Abſinthium*, *Kali*, *&c.* contain a great deal of Sea-Salt, which cryſtallizes in Cubes, and precipitates on the Coals. Add, that the greateſt part of the fix'd Salts of Plants calcin'd to a certain degree, yield a ſtrong Smell of Sulphur, which can proceed from nothing but a vitriolic Salt, rarify'd and volatiliz'd by the Oil of the Plant. By theſe Salts we may be able to judge of all the other Salts of Plants; for the volatile Salts are nothing elſe but fix'd Salts diſengag'd from the groſſeſt part of their Earth, and join'd with parts of Oil. See SALT.

Further, there is ſcarce any reaſon to doubt, that the acid Juices drawn from Vegetables, are of the ſame nature with the mineral Acids; with this only difference, that the Acids of Plants have been extremely rarify'd by Fermentation, and united ſo cloſely with Sulphurs, that 'tis not without a great deal of difficulty that they are ſeparated.

Thus, diſtill'd Vinegar, which we make no ſcruple of ranking among the vitriolic Acids; does only differ from Spirit of Sulphur, Spirit of Vitriol, or even the Cauſtic Oil of Vitriol, in that the Acids in the Vinegar are diffuſed among a great deal of Phlegm, and ſtrongly united to a great deal of Oil, which yet may be ſeparated. By diſſolving Copper in the Acid of Vinegar, ſeparated, as much as poſſible from its Oil, there are form'd Cryſtals, like in figure to thoſe of blue Vitriol. From all which it appears, that the Salts of Plants do not differ eſſentially from thoſe of Minerals.

For Sulphurs, the inflammable or ſulphureous Principle is the ſame in Vegetables as in Minerals. And M. *Geoffroy* even ſhews, that the Principle of Inflammability in common Sulphur, is the ſame with that which renders the Fat of Animals, the Oils and Reſins of Plants, and the Bitumens of the Earth, inflammable. To which he adds, that this ſame ſulphureous Principle is not only likewiſe found in metallic Subſtances, but that 'tis this which gives them their Fuſibility, Ductility, and metallic Forms. Thus Antimony, which is a Subſtance approaching the neareſt of any to a *Metal*, is little elſe but a burning Sulphur. By exhaling this, it loſes its metallick Form, and becomes a kind of grey Aſhes, which being melted, inſtead of Metal becomes Glaſs. By melting this over again, and adding to it ſome inflammable Matter, as Tartar, it returns into a Regulus.

As to the Species of METALS, there are four which the Chymiſts call *Imperfect*, becauſe their Principles are not bound ſo faſt together, but that the Force of a common Fire deſtroys them; theſe are, Iron, Copper, Lead and Tin: the others, which are Proof againſt common Fire, are Gold and Silver. In the four firſt 'tis eaſy to ſee the Principle of Inflammability. They become all fuſible by the Addition of Salt-Petre, either in a greater or leſs degree. Iron is that wherein this is the moſt viſible; next, Tin; then Copper and Lead. But the Principle is more conſpicuous ſtill, in the Duſt or ſmall Filings of the *Metals*, let fall in the Flame of a Candle, than in the Lump. For Gold and Silver, the ſulphurous Principle is not ſo obvious. No Heat but that of the Sun collected into a Focus, is capable to decompound them. But no doubt they have the ſame Principles with the other *Metals*, tho' not ſo eaſily ſeen. In Gold, as well as in the imperfect *Metals*, the Ground is an Earth capable of Vitrification, as appears by the Glaſs remaining after the Calcination of Gold in a Burning-Glaſs; and there is reaſon to believe, that the greateſt part of what is exhaled in Smoak during the Operation, is the ſulphurous Principle mix'd with Salts. As to Silver, there is ſomething in it extremely various. When purify'd with Antimony, it vitrifies in the Sun; but if purify'd with Lead, it leaves nothing behind it but grey Aſhes. The Ground of this *Metal* is doubtleſs an Earth capable of Vitrification; and what exhales in Smoak, is apparently a Mixture of Sulphur, Salts, and a little Earth volatilized by the Fire. See SULPHUR.

From all which, and many more Obſervations of the ſame kind, M. *Geoffroy* ventures to draw the following Concluſions. That the Subſtances whereof *Metals* are compoſed, don't differ eſſentially from thoſe which compoſe Vegetables. That the imperfect *Metals* are compoſed of a Sulphur, vitriolic Salt, and a vitrifiable Earth. That this ſulphurous Principle is more or leſs ſtrongly join'd with the other Principles; very ſtrongly in Gold and in Silver, leſs in Antimony, and very little in mineral Sulphur. That the Principle of Inflammability may be ſeparated from metallick Subſtances, either by culinary Fire, or by the Sun. That the *Metal* thus deſpoiled of its Principle, is converted into Aſhes. That theſe Aſhes, purſued farther with a violent Fire, vitrify; and that theſe Aſhes, or rather Glaſſes, by the Application of ſome inflammable Matter, reſume the *metallic* Form they had loſt. That 'tis by this means Linſeed-Oil turns Argilla into Iron. That if we knew all the other *metallic* Earths, they might likewiſe be immediately converted into *Metals*, by the Projection of ſome inflammable Matter. That 'tis the ſaline and earthy Parts, found in Oil of Vitriol, that furniſh the Earth capable of Vitrification, which makes the Baſe or Ground of Iron, and receives the *metallic* Form from the ſulphurous Principle of the Oil. That the Iron found in the Aſhes of Plants, was produced there in the ſame manner: And, That 'tis a Compoſition of the vitrifiable Earth of the Plants, the Acid of thoſe Plants, and their oily or inflammable Principle.

The ſame Author, the better to aſcertain the conſtituent Parts of *Metals*, made a great number of Experiments on them with the Duke of *Orleans*'s large Burning-Glaſs; the Reſult whereof falls in with, and confirms the Doctrine laid down above.

From thoſe Experiments, he ſays, it appears, That the four *Metals* which we call *imperfect*, *viz.* Iron, Copper, Tin and Lead, are compoſed of a Sulphur or oily Subſtance, capable of Inflammation, and a metallic Earth, capable of Vitrification. That from this Sulphur proceed the Opacity, Brightneſs and Malleability of a *Metal*. That this metallic Sulphur does not appear at all different from the Oil or Sulphur of Vegetables, or even Animals; and that it is the ſame in Mercury as in the four imperfect *Metals*. That theſe four *Metals* have for their Baſis an Earth ſuſceptible of Vitrification; that this Earth is different in each of the four *Metals*, in that it vitrifies differently in each; and that on this Difference in vitrifying, depends the Difference of *Metals*. See VITRIFICATION.

The excellent *Boerhaave*, after an accurate Survey of the ſeveral *Metals*, their Characters, Properties, Preparations, Uſes, *&c.* draws the following Corollaries concerning the general Nature of *Metals*.

1. That which diſtinguiſhes *Metals* from all other Bodies, as well as from each other, is their Heavineſs: Tho, every *Metal* has its peculiar Weight; which no Art is able to imitate, and which depends, as *Helmont* and the Chymiſts expreſs it, on the Anatic Homogeneity of the Parts. Now, the later Philoſophers have proved, that all corporeal Magnitude has juſt ſo much reality in it, as Weight; and therefore if you have found the Heavineſs of any *Metal*, you have at the ſame time found its Corporeity. Sir *Iſ. Newton* treating of Gravity, and *Huygens* of the Pendulum, ſhew that Weight and Reality are correſpondent. See WEIGHT and GRAVITY.

2. The *Metals* appear to be Simple, yet are really Compounds. Their component Principles, according to the Antients, are Sulphur and Mercury; to which ſome of the Moderns have added Salt: but 'tis certain Salt is no conſtituent Part, or Ingredient of *Metals*, but rather ſomething external adhering to them. All *Metals* conſiſt of two Parts, or Principles; Mercury as the Baſis or Matter; and Sulphur as the Binder or Cement: the firſt, the Subſtratum, or *metallic* Matter; and the ſecond, that which renders it fix'd and malleable. The Mercury, it is to be noted, is the ſame with our Quickſilver, only defæcate, and clear of any heterogeneous Matter; whereas the common Quickſilver is always mix'd. As to the Sulphur, it is not the vulgar foſſil Sulphur, but a peculiar ſort of Matter ſpecifically denominated *Sulphur of Metals*, concluded by ſome of our lateſt, and beſt Chymiſts, particularly Monſ. *Homberg*, to be Fire; which being mix'd with the Mercury, fixes it, and according to the different degrees of its Union and Coheſion therewith, produces different *Metals*. See MERCURY, SULPHUR, FIRE, *&c.*

This Doctrine of the Compoſition of *Metals* is confirm'd by an Experiment of Mr. *Boyle*, who after having retain'd Mercury a long time in a moderate Fire, took a piece of Gold out of it, which 'twas apparent was not in the Mercury before it was expoſed to the Fire. Monſ. *Homberg*'s Experiment is to the ſame effect; from which he concludes, that Gold conſiſts of a ſulphurous ignious Part, and a heavy mercurial Part fixed thereby; and that upon taking away the ſulphurous or fiery Part, the Gold is converted into fluid Mercury. See MERCURY.

3. All *Metals* muſt firſt be Mercury, e'er they be Gold; and the thing ſuperadded to common Mercury, whereby it is prevented from becoming Gold, is a ſharp volatile Body, which, when heated, becomes corroſive, and emits Fumes; which are the Properties of the foſſil Sulphur.

4. If any *Metal*, or other Body, could be found that only differ'd from Gold in its wanting Weight, it were impoſſible ever to make Gold of it; and, on the contrary, if a Body could be had that is as heavy as Gold, all the other Properties, as Colour, Fixity, Ductility, *&c.* might eaſily be added. And hence the more knowing among the Alchymiſts hold the primary Matter of Gold to be Quickſilver; which, ſay they, is Gold, at heart, as coming ne[illegible]eſt to Gold in the point of ſpecific Gravity. Only there[illegible] a corroſive Body, *i. e.* Sulphur, adhering to it, which, if it were ſeparated, you would have Gold; or if it were only inverted, Silver.

And accordingly on ſuch Principles whoever would make Gold out of any other foreign Matter, muſt remember, that the more his Matter differs from Mercury in Weight, *&c.* the leſs Gold it will make. See PHILOSOPHER's *Stone.*

5. Therefore *Metals* are tranſmutable into one another: for if Mercury be the common Matter of all *Metals*, and if all the difference lie in the fixing Spirit or Sulphur, which, as it is leſs or more ſubtile and pure, conſtitutes this or that *Metal*; it is no way improbable they ſhould be tranſmuted by a purer fixing Sulphur, taking place of a corroſive one, and fixing the Matter into a more perfect *Metal.*

6. The pureſt *Metals* reſult of the pureſt and moſt defæcate Mercury, and the ſmalleſt quantity of the ſubtileſt Sulphur. Hence, Mercury of Gold is heavier than common Mercury, and has always ſome impure part that is lighter than Gold; and could that be taken away, and the fixing Spirit be added, it would become heavier than Gold.

7. The imperfect *Metals* conſiſt of impure Mercury and imperfect Sulphur, with ſome other variable heterogeneous Matter in it: Thus, fuſed by the Fire, it emits a Fume which whitens Copper, after which the Sulphur exhales yet further. The reality of ſuch a third Matter is evinced hence, that all theſe baſer *Metals* are reſolvable not only into Mercury and Sulphur, but alſo into *Scoria* or *Sordes*, which are lighter and more earthy than either of the other, and accordingly ſwim therein.

8. Upon the whole it appears, that in the three nobler *Metals*, Gold, Mercury, and Silver, it is principally the greater or leſs proportion of the Sulphur to the Mercury, that determines them to be Gold, Mercury, or Silver: That it is by this Proportion thoſe ſeveral *Metals* are defined and denominated; and that from this difference of Proportion, flow all the ſpecific differences of Colour, Weight, Fixity, Ductility, Volatility, Fuſibility, Solubility, Salubrity, *&c.*

9. That in the other baſer *Metals*, beſides this different Proportion of the two Principals, there intervenes another Cauſe of Diverſity, *viz.* a third Principle, or Matter of an earthy kind, and very diſtant from either of the reſt; which adhering to the pure elemental Sulphur, corrupts and adulterates, and variouſly modifies it: And from the different Circumſtances of this third Principle, conſider'd along with thoſe of the Sulphur itſelf, reſult the ſpecific differences of the more imperfect *Metals* as to Weight, Colour, *&c.*

Bath METAL, call'd alſo *Princes* METAL, is a kind of factitious *Metal*, compoſed of the fineſt and pureſt Braſs mix'd with Tin, or rather with ſome Mineral; whereby it becomes more diſpoſed to receive a Poliſh, Luſtre, *&c.* as alſo fitter to be gilt. See GILDING.

'Tis ſaid to have been invented by Prince *Rupert*, whence its Name.

Bell METAL, is a Compoſition of Copper and Tin melted together. See BELL.

The ordinary Proportion is 22 or 23 Pounds of Tin to an hundred Weight of the former. See BRASS.

Line of METALS. On *Gunter*'s Sector, are ſometimes two Lines thus call'd, and noted with the Characters of the ſeven Metals, ☉, ☽, ☿, ♄, ♀, ♂, and ♃; and their Uſe is to give the proportions between the ſeveral *Metals* as to their Magnitudes and Weights. See their Uſe under the Word SECTOR.

To be laid under METAL, in Gunnery, is when the Mouth of a Gun lies lower than her Breech.

METALS *in Heraldry.* There are two *Metals* uſed in Heraldry, by way of Colours, *viz. Gold* and *Silver*; the firſt called *Or*, and the ſecond *Argent.* See OR and ARGENT.

In the common painting of Arms, theſe *Metals* are repreſented by *White* and *Yellow*, which are the natural Colours of thoſe *Metals.* See COLOUR.

In Engraving, *Gold* is expreſſed by dotting the Coat, *&c.* all over; *Silver*, by leaving it quite blank.

It is a general Rule in Heraldry never to place *Metal* upon *Metal*, nor Colour on Colour: So that if the Field be of one of the *Metals*, the Bearing muſt be of ſome Colour, and *vice verſa*; otherwiſe the Arms are falſe: Tho this Rule admits of ſome Exceptions.

METALLIC, or METALLINE, an Adjective applied to ſomething bearing a relation to *Metals.*

Thus we ſay, painting in Enamel is only to be performed with *metallic Colours*, that is, with ſuch as come from *Metals*, or are made with *Metals*; no other being able to endure the Fire. See ENAMEL.

F. *Romani* has publiſhed a *Metallic Hiſtory* of the Popes. *La France Metallique*, is a Book of Medals moſtly imaginary, pretended to be taken from the Cabinets of the Curious, where they never were, by *Jaques de Bie.* M. *Bizot* has publiſhed the *Metallic Hiſtory* of *Holland.*

METALLURGIA, the Art of *Metals*, that is of preparing and working Metals, from the Glebe or Mineral, to the Utenſil. See METAL.

The *Metallurgia* includes what relates to the finding of the Metallic Glebe, or Ore in the Mine; the judging of its Kind, Richneſs, *&c.* the Proportion of Metal therein; the digging and ſeparating it from the Earth, and other matters; and the purifying and diſpoſing it into a compleat, pure, malleable Metal. See MINE and MINERAL.

Boerhaave divides the *Metallurgia* into four parts. The firſt teaches how Metals grow in the Mine, how they are diſcovered, and how procured out of the ſame. The ſecond how to ſeparate the Metallic from the other Matter of the Ore. The third, how to reduce the ſeparated Matter to its ſimplicity and ductility. The fourth, to work, gild, poliſh, and imitate the finer Metals in rhe coarſer.

METAMORPHOSIS, the Transformation of a Perſon; or a Change into another Form. See TRANSFORMATION.

The Antients held two kinds of *Metamorphoſes*: The one real, the other apparent. The *Metamorphoſis* of *Jupiter* into a Bull, and of *Minerva* into an old Woman, were only apparent. That of *Lycaon* into a Wolf, and of *Arachne* into a Spider, were of the number of the real.

Moſt of the antient *Metamorphoſes* include ſome Allegorical meaning, relating either to Phyſics or Morality.

Ovid's *Metamorphoſes* is a Collection of ſuch Transformations.

Some Authors are of Opinion, that a great part of the antient Philoſophy is couched under them; and Dr. *Hooke* has made an attempt to unriddle, and lay open ſeveral of them.

The Word comes from the *Greak* μετα, Change, or Removal from one place or ſtate to another; and μορφη, Form, Figure.

METAMORPHISTS, a Sect of Heretics in the XVIth Century, whoſe diſtinguiſhing Tenet was, That the Body of Jeſus Chriſt was, upon his Aſcenſion into Heaven, changed, and *Metamorphoſed* into God.

The *Metamorphiſts* were a Branch of the *Sacramentarians.* See SACRAMENTARIAN.

METAPHORA, or METAPHOR, in Rhetoric, a Figure of Speech whereby a Word is transfer'd from its proper Signification, to another: or, whereby the proper Name of one thing is tranſlated and applied to ſome other thing; which other thing is more elegantly explained by this tralatitious or foreign Name, than by that which properly belongs to it. As when we ſay, the Light of the Underſtanding; to burn with Zeal; to float between Hope and Deſpair, *&c.* See TROPE.

The *Metaphor* is the moſt common of all the Figures of Speech; and is that uſually meant when we ſay a thing is ſpoken *Figuratively.* See FIGURE.

The *Metaphor* is a ſhort Simile; an Image being thereby call'd from its proper Subject to give the reſemblance of another. See SIMILE.

An Allegory is no more than a continued *Metaphor.* See ALLEGORY.

The Sources or Places whence *Metaphors* are drawn, are innumerable: They may be fetch'd from Divine Matters; thus *Cicero* calls *Plato* our *God*, *Deus ille noſter Plato.* From the Elements; as a *Torrent* of Eloquence. From Plants; as where Virtue has taken *Root.* From Artificial things; as where *Appian* is call'd the *Cymbal* of the World; *Longinus*, a living *Library*; *Pertinax*, Fortune's *Foot-Ball*, *&c.*

Quintilian diſtinguiſhes *Metaphors* into four kinds: The firſt, when the Word is transfer'd from one Animal to another; as when *Livy* ſays that *Cato* uſed to *bark* at *Scipio*: or, when our Saviour calls *Herod*, *Fox.* The ſecond, when the Word is transfer'd from one Inanimate to another; as *Bridle*, for *Laws.* The third, when Inanimates are apply'd to Animates; as the *Flower* of Youth. And the laſt, when Animates are apply'd to Inanimates; as the River *diſdain'd* its Bounds.

As the *Metaphor* is intended to ſet things before the Eyes; it becomes ſo much the more perfect, as it ſhews them the more vividly, by repreſenting them in Motion and Action. A *Metaphor* ſhould have nothing in it coarſe or ſhocking; nothing that may raiſe it above the Simplicity of Nature: Nor ſhould it appear a *Metaphor* to any but thoſe who view it very cloſely. A *Metaphor* ſhould never be carried too far; for in that Caſe, it degenerates into Puerility. *Metaphors* ſhould always be follow'd in the ſame kind; they become unnatural, when different Images are introduced. In all *Metaphorical* Dictions, there ſhould be a kind of Unity, ſo that the different Words uſed, may have a kind of Suitableneſs to each other. Different Ideas are always abſurd: As in this Inſtance; The Church was beſieged with a Deluge of Troubles: Where the two Images, *Siege* and *Deluge*, have no relation.

There is nothing young Writers are more faulty in, than the indiſcrete uſe of *Metaphors*. Thoſe who affect the *Merveilleux*, are eternally on the *Metaphorical* ſtrain; nor know any bounds or reſtraint. They who underſtand them beſt, uſe them with the greateſt reſerve. Mr. *Addiſon* propoſes it as a Rule for Writers, to imagine their *Metaphors* actually painted before them, and to view and examine the Juſtneſs of their Application and Aſſemblages: under thoſe Circumſtances; throwing every thing out of the Writing, but what might be retained in the Picture. Card. *Perron* preſcribes this general Rule for *Metaphors*; that they muſt always deſcend from the Genus to the Species; and never go backwards from the Species to the Genus: Thus we ſay figuratively, the *Bonds of Society*; and not the *human Cords* which tie us together: *Bond* being a Genus, and Cord a Species.

The Word comes from the *Greek* μεταφορα, Tranſlation, or diſplacing; of μετα, *trans*, and φερω, I bear, or carry.

METAPHRASTES, or METAPHRAST, a literal Tranſlator; or a Perſon who renders an Author into ſome other Language Word for Word. See TRANSLATION.

A *Metaphraſis* uſually ſignifies ſomething more than a Paraphraſe, or a Tranſlation; in which ſenſe, *Metaphraſt* implies a Tranſlator, Gloſſographer, and Interpolator, all at once. See PARAPHRASE, &c.

METAPHYSICS, a Branch of Science, about whoſe Nature and Idea, there is ſome difference among Authors. See SCIENCE.

Some define it that part of Science which conſiders Spirits and immaterial Beings; which others chuſe to diſtinguiſh by the Name of *Pneumatics*. See SPIRIT and PNEUMATICS.

Others, keeping cloſer to the Etymology of the Word, explain *Metaphyſics* by *trans-natural*, or *præternatural*, or even *poſt-natural Philoſophy*. In this ſenſe the Word is form'd of the Prepoſition μετὰ, trans, *beyond*, or *above*; and φυσις Nature, or φυσιχη, Natural.

Others, with more Propriety, conceive *Metaphyſics* to be what ſome others call *Ontology*, or *Ontoſophy*, *i. e.* the Doctrine *de Ente*, or of Being, in the general, *i. e.* of Being *quatenus* Being, or Being in the Abſtract. See ONTOLOGY and ABSTRACTION.

In the ſame view, ſome Philoſophers call this Science by the Name *Philoſophia* or *Scientia generalis*, as being the Foundation, or, as it were, the Stamen or Root from whence all the other parts of Philoſophy ariſe, and wherein they all meet; its Object being *Being* in the Abſtract, or general, not reſtrain'd to this or that Denomination of them; not to Spirit any more than Body: So that the Doctrines of *Metaphyſics*, are applicable to all Beings whatever. See ENS.

The Philoſophers again, are divided as to the Notion of a Science *de Ente*, in general. Some hold it real, preciſe, and ſolid enough to be demonſtrated; others judge it too obſcure, faint, and confuſed to be admitted into Philoſophy.

Being, abſtracted from every Sort or Species of Being, is certainly a very vague Term; and does not ſeem to give footing enough for a Science: We do not ſee how it comes to affect the Mind as an Object. Add, that the common *Metaphyſics* cannot demonſtrate any part of its Subject, but aſſumes the whole: There are no Principles, or Axioms whereon to demonſtrate *Metaphyſics* which contain the Principles of all other Sciences. See MATHEMATICS.

The firſt who wrote profeſſedly on the Subject of *Metaphyſics* is *Ariſtotle*. Indeed he is the firſt who uſes the Word: μετὰ τα φυσικὰ, is the Title of one of his Books, which ſome of his Commentators will have to ſignify no more than *after the Books of Phyſics*. M. *du Hamel*, taking the Prepoſition μετὰ in the ſenſe of *poſt*, is even of Opinion that the Word was coin'd by *Ariſtotle*'s Followers; and that it was utterly unknown to *Ariſtotle*.

Ariſtotle's Metaphyſics ſeem to have been intended for a kind of Natural Theology. F. *Malebranch* and Mr. *Locke* have wrote much more clearly and conſiſtently of *Metaphyſics*, than any of the Antients. See UNITY, MODE, TRUTH, DURATION, &c.

METAPHYSICAL, ſomething belonging to *Metaphyſics*. See METAPHYSICS.

The Word is alſo uſed to denote ſomething too ſubtle, abſtract, and refined. In this ſenſe we ſay, ſuch a Reaſoning, ſuch a Proof, is too *Metaphyſical*, &c.

A *Metaphyſical* Caſe, is an imaginary or chimerical Caſe, which can ſcarce ever happen, or not without much difficulty; and which ought not to be laid down as a Rule for common Occaſions.

METAPLASM, METAPLASMUS, in Grammar, a Tranſmutation, or Change made in a Word, by adding, retrenching, or changing a Letter or Syllable thereof.

The Word comes from the *Greek* μεταπλασμος.

METASTASIS, in Medicine, from μεταςῆναι, *transfero*, I change, or remove; ſignifies the Removal of a Humour from one part, to another, which is moſt commonly known in nervous Caſes: ſometimes alſo in the groſſer Humours; the refluent Blood taking up digeſted Matter from one part, and diſpoſing it upon another. See FLUXION.

METATARSUS, in Anatomy, that part of the human Sceleton, containing the middle of the Foot. See FOOT.

The *Metatarſus* conſiſts of five Bones, reaching from the Heel to the Toes; whereof that which ſuſtains the great Toe, is the thickeſt; and that which ſuſtains the next Toe, the longeſt. The reſt grow, each ſhorter than other. They are longer than the Bones of the *Metacarpus*; in other things they are like them, and are articulated to the Toes, as theſe are to the Fingers. See METACARPUS.

The Word comes from μετα, *trans*, and ταρσος, *pes*, foot.

METATHESIS, *Tranſpoſition*, a Grammatical Figure, whereby the Letters of a Word, or the Words of a Sentence, are tranſpoſed, or ſhifted out of their natural Situation. See TRANSPOSITION.

The Word comes from the *Greek* μετα-θεσις, *trans-poſitio*.

METEMPSYCHI, antient Heretics, who, in imitation of *Pythagoras*, held the *Metempſychoſis* or Tranſmigration of Souls. See METEMPSYCHOSIS.

METEMPSYCHOSIS, in the antient Philoſophy, the Paſſage, or Tranſmigration of the Soul of a Man, after Death, into the Body of ſome other Animal. See TRANSMIGRATION.

Pythagoras and his Followers held, That after Death Men's Souls paſſed into other Bodies, of this or that kind, according to the manner of Life they had led. If they had been vicious, they were impriſon'd in the Bodies of *Hachan*, miſerable Beaſts, there to do Penance for ſeveral Ages; at the Expiration whereof, they returned afreſh to animate Men: If they had lived virtuouſly, ſome happier Brute, or even a human Creature, was to be their Lot. See PYTHAGOREANS.

What led *Pythagoras* into this Opinion, was, the Perſuaſion he had, that the Soul was not of a periſhable nature: whence he concluded, that it muſt remove into ſome other Body, upon its abandoning this. *Lucan* treats this Doctrine as a kind of officious Lye, contrived to mitigate the Apprehenſion of Death, by perſuading Men that they only changed their Lodging; and ceaſed to live, to begin a new Life.

Reuchlin denies this Doctrine; and maintains, that the *Metempſychoſis* of *Pythagoras* imply'd nothing more than a Similitude of Manners, Deſires, and Studies formerly exiſting in ſome Perſon deceaſed, and now revived in another alive. Thus, when it was ſaid that *Euphorbus* was revived in *Pythagoras*, no more was meant than that the martial Virtue, which had ſhone in *Euphorbus* at the time of the *Trojan* War, was now in ſome meaſure revived in *Pythagoras*, by reaſon of the great reſpect he bore to the *Athletæ*. For thoſe People wondering how a Philoſopher ſhould be ſo much taken with Men of the Sword, he palliated the Matter, by ſaying that the Soul of *Euphorbus*, *i. e.* his Genius, Diſpoſition and Inclination, were revived in him. And this gave occaſion to the Report that *Euphorbus*'s Soul, who periſhed in the *Trojan* War, had tranſmigrated into *Pythagoras*.

Ficinus aſſerts, That what *Plato* ſpeaks of the Migration of a human Soul into a Brute, is intended allegorically; and relates meerly to the Manners, Affections, and Habits of its degenerating into a beaſtly Nature by the Impurities of Vice. *Serranus*, tho' he allows ſome force to this Interpretation, yet inclines rather to refer the *Metempſychoſis* to the Reſurrection. See RESURRECTION.

Pythagoras is ſaid to have borrowed the Notion of a *Metempſychoſis* from the *Egyptians*, others ſay from the antient *Brachmans*. It is ſtill retained among the *Banians* and other Idolaters of *India* and *China*; and makes the principal Foundation of their Religion. So extremely are they bigotted to it, that they not only forbear eating any thing that has Life, but many of them even refuſe to defend ſend themſelves from wild Beaſts. They burn no Wood, leſt ſome little Animalcule ſhould be in it; and are ſo very charitable, that they will redeem from the hands of Strangers, any Animals that they find ready to be killed. See BRACHMANS, BANIANS, *&c.*

The Word is *Greek*, form'd of μετὰ, ἐν, and Ψυχὴ, *Soul.*

METEMPTOSIS, a Term in Mathematics, particularly uſed in Chronology, expreſſing the ſolar Equation, neceſſary to prevent the new Moon from happening a Day too late; as, on the contrary, *Proemptoſis* ſignifies the lunar Equation, neceſſary to prevent the new Moon from happening a Day too ſoon. See PROEMPTOSIS.

The new Moons running a little backwards, that is, coming a Day too ſoon at the end of 312 Years and a half; by the *Proemptoſis*, a Day is added every 300 Years, and another every 2400 Years: On the other hand, by the *Metemptoſis*, a Biſſextile is ſuppreſſed each 134 Years, that is, three times in 400 Years. Theſe Alterations are never made, but at the end of each Century; that Period being very remarkable, and rendring the Practice of the Calendar eaſy.

There are three Rules for making this Addition, or Suppreſſion of the Biſſextile-Day, and by conſequence for changing the Index of the Epacts. 1. When there is a *Metemptoſis* without a *Proemptoſis*, the next following, or lower Index, muſt be taken. 2. When there is a *Proemptoſis* without a *Metemptoſis*, the next preceding, or ſuperior Index, is to be taken. 3. When there is both a *Metemptoſis* and a *Proemptoſis*, or when there is neither the one nor the other, the ſame Index is preſerved. Thus in 1600 we had D; in 1700, by reaſon of the *Metemptoſis*, C was taken; in 1800 there will be both a *Proemptoſis* and a *Metemptoſis*; ſo the ſame Index will be retained. In 1900 there will be a *Metemptoſis* again, when B will be taken, which will be preſerved in 2000; becauſe there will then be neither the one nor the other. This is as far as we ſhall need it. *Clavius* has calculated a Cycle of 301800 Years; at the end of which Period, the ſame Indices return in the ſame Order. See EPACT.

The Word comes from the *Greek* μετα, *poſt*, and πίπτω, *cado*, I fall.

METEOR, in Phyſiology, a mixed, moveable, crude, inconſtant, imperfect Body, or Semblance of a Body, appearing in the Atmoſphere, and formed out of the Matter of the common Elements, altered a little, but not tranſformed.

METEORS are of three Kinds: Ignious, or fiery *Meteors*, conſiſt of a fat ſulphurous Smoke ſet on Fire; ſuch are *Lightning*, *Thunder*, *Ignis Fatuus*, *Draco Volans*, *Falling Stars*, and other fiery Phænomena appearing in the Air. See THUNDER, LIGHTNING, IGNIS FATUUS, *&c.*

Aerial or *Airy* METEORS, conſiſt of flatulent and ſpirituous Exhalations; ſuch are *Winds*, *Whirlwinds*, and *Hurricanes*. See WIND, HURRICANE, *&c.*.

Aqueous or *Watery* METEORS, are compoſed of Vapours, or watery Particles variouſly ſeparated and condenſed by Heat and Cold; ſuch are *Clouds*, *Rainbows*, *Hail*, *Snow*, *Rain*, *Dew*, and the like. See CLOUD, RAINBOW, HAIL, SNOW, RAIN, DEW, *&c.*

The Formation of METEORS is explained pretty largely by *Des Cartes*, in a Treatiſe expreſs. *Ariſtotle* and *Gaſſendus* have alſo handled the ſame Subject. Dr. *Woodward*'s Opinion is, That the Matter of *Meteors* is in great meaſure of a mineral nature; That the mineral Particles contained in the Strata of the Earth, are raiſed by the ſubterraneous Heat, together with the Vapours aſcending from the Abyſs, and pervading thoſe Strata; eſpecially at ſuch times as the Sun's Heat is ſufficient to penetrate the exterior Parts of the Earth, and to make room for their Eſcape into the Atmoſphere. Thus ſulphurous, nitrous, and other active and volatile mineral Particles, form various *Meteors*, according to the various Fate they meet with in the Air. See VAPOUR, EXHALATION, MINERAL, AIR, *&c.*

The *Greeks* call them μετέωρα, q. d. *Sublimes*, or high-raiſed; the *Latins*, *Impreſſiones*, as making .Signs or Impreſſions in the Air.

METEOROLOGY, the Doctrine of *Meteors*; explaining their Origin, Formation, Kinds, Phænomena, *&c.* See METEOR.

METEOROSCOPE, a Name the antient Mathematicians gave to ſuch Inſtruments as they uſed for obſerving, and determining the Diſtances, Magnitudes and Places of the heavenly Bodies.

From the *Greek* μετέωρος, *high*; and σκεπτωμαι, *I view, obſerve.*

METHEGLIN, a Liquor, or Drink prepared of Honey; one of the moſt pleaſant and general Drinks the Northern part of *Europe* affords; and much uſed among the antient Inhabitants. See DRINK.

There are divers ways of making it: One of the beſt whereof follows. Put as much live Honey naturally running from the Comb, into Spring-Water, as that when the Honey is thoroughly diſſolved, an Egg will not ſink to the bottom, but be juſt ſuſpended in it: This Liquor boil for an Hour, or more, till ſuch time as the Egg ſwims above the Liquor about the breadth of a Groat; when very cool, next Morning, it may be barrel'd up; adding to each fifteen Gallons an Ounce of Ginger, as much of Mace and of Cloves, and half as much Cinnamon, all groſly pounded: a Spoonful of Yeſt may be alſo added at the Bung-Hole, to promote the working. When it has done working, it may be cloſely ſtop'd up, and after it has ſtood a Month, may be drawn off into Bottles. The Word is *Welch*, *Meddyglyn.*

METHOD, the Art, or Rule of diſpoſing things in ſuch a manner, as they may be eaſily comprehended; either in order to diſcover the Truth, which we ourſelves are ignorant of; or to prove and demonſtrate it to others when known. See TRUTH and ERROR.

METHOD is twofold. The one of *Reſolution*, which is that we generally uſe in our Enquiry after Truth. See RESOLUTION. The other of *Compoſition*, by which the Truth once found, is taught or imparted to others. See COMPOSITION.

In the METHOD of Reſolution, call'd alſo by Geometers the *Analytic Method*, we proceed from ſome general, known Truth, to others which belong to ſome particular or ſingular Thing. See ANALYSIS.

In the METHOD of Compoſition, called alſo the *Synthetic Method*, we propoſe ſome certain, general Truths, from which we deduce particular Truths. See SYNTHESIS.

If in the *Method* of Reſolution we propoſe any Maxims; 'tis not immediately in the beginning, and all together; but as they are found neceſſary in the Diſquiſition: On the contrary, in the *Method* of Compoſition, they are propoſed all together in the beginning, before there is any abſolute need of them.

Theſe two *Methods* differ from each other, as the *Methods* of ſearching out a Genealogy, either by deſcending from the Anceſtors to their Poſterity, or by aſcending from the Poſterity to the Anceſtors: both of them have this in common, That their Progreſſion is from a Thing known, to another unknown. Thoſe Things that are known, in each, are ſet in the front, or firſt place; that by them we may be able to arrive at thoſe which are not known. The following Things are required in both, that Error may be avoided.

1. That no Propoſition be admitted as true, to which a Man can, with a good Conſcience, deny his Aſſent; or which is not evident. 2. That the Connection of the following Propoſition, with the foregoing in every ſtep of the Progreſſion, be likewiſe evident or neceſſary. To theſe may be added two other prudential Maxims, that hold good in each *Method*: As, that we ought to reaſon on thoſe Things only, of which we have clear and perſpicuous Ideas; or of obſcure Things only, ſo far as we know them; and that we ſhould always begin from the ſimple and eaſy, and dwell on them a-while, before we proceed to Things compounded, and more difficult.

As to the Laws peculiar to *Reſolution*, they are, 1. That we muſt clearly and perfectly underſtand the State of the Queſtion propoſed. 2. That with ſome Energy or Effort of the Mind, one or more intermediate Ideas be diſcovered; which are to be a common Meaſure or Standard, by whoſe help the relations between the Ideas to be compared are to be found out. 3. That we cut off all that has no neceſſary relation to the Truth ſought after from the thing which is to be the Subject of our Conſideration. 4. That the compounded Queſtion be divided into parts, and thoſe ſeparately conſider'd in ſuch Order, as that we begin with thoſe which conſiſt of the more ſimple Ideas, and never proceed to the more compounded, till we diſtinctly know the more ſimple, and by reflection have render'd them obvious to the Underſtanding. 5. That certain Signs of our Ideas comprehended in obvious and eſtabliſh'd Figures, or in the feweſt Words poſſible, be imprinted in the Memory, or mark'd on Paper, leſt the Mind have any further trouble about them. 6. Theſe things done, that the Ideas (according to the ſecond Law) be then compared with each other, either by reflection alone, or by expreſs Words. 7. If after we have compared all the Ideas, we cannot find out what we ſeek, we are then, by the third Law, to cut off all the Propoſitions, which, after a full Examination, we find of no uſe to the Solution of the Queſtion, and begin a-freſh. If, after this Method has been repeated as often as is neceſſary, nothing of what we have obſerved ſeems to conduce to the Solution of the Queſtion, we ought to give it over as out of our reach.

The *Synthetic Method*, or *Method* of Compoſition, is only practicable in things, whoſe Principles we perfectly know; as in Geometry, which is wholly employ'd in the Conſideration

ſideration of abſtract Modes; of which our Mind has clear and adequate Ideas: But when the Enquiry is into Subſtances, as in Phyſics, we cannot make uſe of the *Method of Compoſition*, their Kinds, and intimate Eſſences being unknown to us.

This *Method* has not been by any ſo juſtly and accurately obſerved, as by the Mathematicians, whoſe Principles are perfectly known: Its Laws therefore will be beſt drawn from their Practice. Now, as they deſigned to propoſe nothing that could be contradicted; they pitch'd on theſe three Rules: 1. To offer nothing but what was couch'd in Words or Terms perfectly underſtood; for which reaſon they always define the Words they make uſe of. 2. To build only on evident and clear Principles, ſuch as could not be contradicted by any who underſtood them; for which reaſon they firſt of all propound their Maxims or Axioms, which they demand to be granted them, as being ſelf-evident, and needing no Proof. 3. To prove demonſtratively all their Conſequences; for which reaſon they uſe nothing in their Arguments or Proofs, but Definitions that have been laid down, Axioms that have been granted, and Propoſitions that have been already proved; which become Principles to things that follow them.

The Word *Method* comes from the *Greek* μέθοδος, which ſignifies the ſame thing. The Schools have a long time diſputed, whether Logic be an Art, a Science, or a *Method*, See LOGIC.

Gaſſendus diſtributes *Method* into three Kinds or Branches, *viz.* *Methodus Inventionis*, *Method of Invention*, or diſcovering a Truth unknown. See INVENTION.

Methodus Judicii, of *Judging*, or determining of a Truth, or Propoſition propoſed. See JUDGMENT.

And *Methodus Demonſtrationis*, or of *Demonſtration*; that is, of exhibiting it to another. See DEMONSTRATION.

METHOD, *Methodus*, is peculiarly uſed in Mathematics for divers particular Proceſſes. In this ſenſe we ſay

METHOD *of Fluxions.*	See	FLUXIONS.
METHOD *de Maximis & Minimis, &c.*		MAXIMIS.
METHOD *of Tangents.*		TANGENTS.
DIFFERENTIAL *Method*, &c.		DIFFERENTIAL
EXPONENTIAL *Method*, &c.		EXPONENTIAL.

METHODICA *Medicina.* See MEDICINE and PHYSIC.

METHODISTS, METHODICI, an Appellation given to thoſe Phyſicians who adhere to the Doctrine of *Galen*, and the Schools; and who cure with Bleedings, Purges, *&c.* duly apply'd according to Symptoms, Circumſtances, *&c.* in oppoſition to *Emperics* and *Chymiſts*, who uſe violent Medicines, and pretended Secrets or Noſtrums. See EMPERIC, CHYMIST, *&c.*

METOCHE, in the antient Architecture, a Term uſed by *Vitruvius* to ſignify the Space or Interval between the Dentils. See DENTICLE.

Baldus obſerves, that in an antient MS. Copy of that Author, the Word *Metatome* is found for *Metoche*. Hence *Daviler* takes occaſion to ſuſpect that the common Text of *Vitruvius* is corrupted; and concludes, that it ſhould not be *Metoche*, but *Metatome*, *q. d.* Section.

METONIC *Cycle*, in Chronology, the Lunar Cycle, or Period of 19 Years; thus call'd from its Inventor *Meton*, an antient *Athenian*. See CYCLE and PERIOD.

When the *Metonic* Cycle is compleated, the Lunations, or the New and Full Moons return on the ſame Day of the Month; ſo that on whatever days the New and Full Moons happens this Year, 19 Years hence they will fall preciſely on the very ſame Day of the Month, as *Meton* and the Primitive Fathers thought. See LUNATION.

For this reaſon, at the Time of the Council of *Nice*, when the manner of ſettling the Time for obſerving *Eaſter* was eſtabliſhed, the Numbers of the *Metonic* Cycle were inſerted in the Calendar in Letters of Gold, on account of their great Uſe; and the Year of the Cycle for that Year was call'd the *Golden Number* of that Year. See GOLDEN NUMBER.

This is ſometimes alſo call'd the *Lunar Cycle*, or *Period*. See LUNAR *Cycle*.

METONYMY, a Figure in Rhetoric, call'd alſo *Hypallage* and *Tranſnominatio*. It conſiſts in a tranſmutation or change of Names, or putting of one Name for another. See FIGURE.

The *Metonymy* is the moſt extenſive of all the Tropes. See TROPE.

There are four principal Kinds of *Metonymies*: The firſt, when we put the Inventor for the thing invented; as *Bacchus* for Wine, *Ceres* for Bread. The ſecond, when we put the Containing for the thing contained; as a Glaſs for the Wine within it. The third, when the Effect is put for the Cauſe; as the Captain for his Soldiers, *Greece* for the *Greeks*, the Author for his Works. The fourth, when the Sign is put for the thing ſignified; as the Gown for the Prieſthood, *&c.*

The Word comes from the *Greek* μετα, *trans*, and ὄνομα, *Nomen*.

METOPE, or METOPA, in Architecture, the Interval, or ſquare Space between the Triglyphs, in the Frieze of the *Doric* Order. See TRIGLYPH and FRIEZE.

The Antients uſed to adorn theſe Parts with carved Works, or Paintings, repreſenting the Heads of Oxen, Veſſels, Baſons, and other Utenſils of the Heathen Sacrifices.

As there is found ſome difficulty in diſpoſing the Triglyphs and *Metopes* in that juſt Symmetry which the *Doric* Order requires; ſome Architects make it a Rule, never to uſe this Order but in Temples.

Semi METOPE is a Space ſomewhat leſs than half a *Metope*, in the Corner of the *Doric* Frieze.

The Word *Metope*, in the original *Greek*, ſignifies the diſtance between one Aperture or Hole and another, or between one Triglyph and another; the Triglyphs being ſuppoſed to be Solives or Joiſts that fill the Apertures: from μετὰ *inter*, between, and ὀπὴ *foramen*.

METOPOSCOPY, the Art of diſcovering the Temperament, Inclinations, and Manners of Perſons by Inſpecting the Lines in their Faces.

Metopoſcopy is no more than a Branch of Phyſiognomy; the latter taking its Conjectures from all parts of the Body: But both the Body, and the Branch are extremely precarious, not to ſay vain. See PHYSIOGNOMY.

Ciro Spontoni, who has wrote on the Subject of *Metopoſcopy*, obſerves, that there are ſeven principal Laws conſider'd in the Forehead; each of which has its peculiar Planet. The firſt is the Law of *Saturn*. The ſecond of *Jupiter*, &c.

The Word comes from the *Greek* μετωπον, *Vultus*, Face, and σκέπτομαι, *inſpicio*, I view.

METRE, or MEETER, a Term in Poetry; form'd of the *Greek* μέτρον, *Menſura*, and ſignifying *Verſe*, or *Meaſure*. See VERSE and MEASURE.

Metrical Verſes are thoſe conſiſting of a determinate Number of long and ſhort Syllables; as thoſe of the *Greek* and *Latin*. See QUANTITY.

Capellus obſerves, that the Genius of the *Hebrew* Language is incompatible with *Metrical* Poetry. See HEBREW.

METRICE, among the Antients, was that part of their Muſic employ'd about the Quantities of Syllables; or which conſider'd them as long, or ſhort. See QUANTITY and MUSIC.

METROCOMIA, a Term in the antient Church Hiſtory, ſignifying a Town that had other Towns under its Juriſdiction.

What a Metropolis was among Cities, that a *Metrocomia* was among Country-Towns. The antient *Metrocomies* had each its *Chorepiſcopus*, or Rural-Dean, and here was his See or Reſidence. See METROPOLIS and CHOREPISCOPUS.

The Word comes from the *Greek* μήτηρ, Mother, and κώμη, Town, Village.

METROPOLIS, the Capital of a Country, or Province; or the principal City, and, as it were, the *Mother* of all the reſt. See CITY.

The Name is alſo apply'd to Archiepiſcopal Churches; and ſometimes to the principal Church of a City. See CHURCH.

Father *Monet* gives a compleat Liſt of all the *Metropoles*. See METROPOLITAN.

The Word comes from the *Greek* μήτηρ, *Mater*, Mother; and πόλις, *Urbs*, City; as who ſhould ſay, the Mother-City, *&c.*

METROPOLITAN, is indifferently applied to an Archbiſhop, and to his Cathedral Church. See ARCHBISHOP and CATHEDRAL.

The *Roman* Empire having been divided into thirteen Dioceſes, and 120 Provinces; each Dioceſe and each Province had its *Metropolis*, or Capital City, where the Proconſul, or the Vicar of the Empire had his Reſidence. See DIOCESE and PROCONSUL.

By this Civil Diviſion, the Eccleſiaſtical was afterwards adjuſted; and the Biſhop of the Capital City, had the direction of Affairs, and the Pre-eminence over all the Biſhops of the Province. His Reſidence in the Metropolis, gave him the Title of *Metropolitan*. This erection of *Metropolitans* is refer'd to the end of the third Century, and was confirmed by the Council of *Nice*.

Archbiſhop *Uſher* and *de Marca*, however, maintain it to be an Eſtabliſhment of the Apoſtles; but in vain: For 'tis next to certain, that the Eccleſiaſtical Government was regulated on the foot of the Civil, and that it was hence the Name and Authority of *Metropolitans* was given to the Biſhops of the Capital Cities of the Empire, or the Provinces that compoſed it. This is ſo true, that in the Conteſt between the Biſhop of *Arles*, and the Biſhop of *Vienne*, each of whom laid claim to the *Metropolitanſhip* of the Province of *Vienne*; the Council of *Turin* appointed, that which e'er of them could prove his City to be the Civil Metropolis, ſhould enjoy the Title, and Rights of Eccleſiaſtical *Metropolitan*.

Tho the Eccleſiaſtical Government was modell'd on the foot of the Political; yet in *Gaul*, and ſome other Countries, the diſtinctions of *Metropolitan* and *Primate* were not obſerved till very late. As the *Præfectus Galliæ* reſided by turns at *Treves*, *Vienne*, *Arles*, and *Lyons*, he communicated the Rank and Dignity of *Metropolitan* and Primate to each of them in their turn; and yet none of the *Gallican* Biſhops aſſumed to themſelves the Rights, nor even the Precedence of *Metropolitans*. The *Epiſcopate* level'd them all; and as to Order, they had no regard, but to the Privileges of Seniority. This Equality laſted till the fifth Century, when the Conteſt between the Biſhops of *Vienne* and *Arles* was ſet on foot.

M. *du Pin* obſerves, that in the Provinces of *Africa*, excepting thoſe whereof *Carthage* was the Metropolis, the place where the moſt aged Biſhop reſided became the Metropolis. The Reaſon of which without doubt was this, that neither the Proconſul, nor Præfectus ever fix'd their Reſidence.

The ſame Author obſerves, that in *Aſia* there were Metropolis's merely nominal, that is, which had no Suffragan, nor any Rights of *Metropolitans*. The Biſhops of *Nice*, *Chalcedon*, and *Berytus*, had the Precedence of the other Biſhops, and the Title of *Metropolitans*, without any other Right or Prerogative beſides the Honour of the Appellation; they themſelves being ſubject to their *Metropolitans*.

A *Metropolitan* has the Privilege of Ordaining his Suffragans; and Appeals from Sentences paſs'd by the Suffragans, are prefer'd to the *Metropolitan*. See BISHOP and PRIMATE.

The Jeſuit *Cantel* had began a Hiſtory of *Metropoles*; but dy'd e'er the ſecond Volume was finiſhed.

MEZZANINE, a Term uſed by ſome Architects to ſignify an Entreſole. See ENTRESOLE.

The Word is borrowed from the *Italians*, who call *Mezzanini* thoſe little Windows, leſs in height than breadth, which ſerve to illuminate an Attic, or Entreſole.

MEZZO-TINTO, in Sculpture, a particular manner of Engraving Figures on Copper. See ENGRAVING.

Mezzo-Tinto is ſaid to have been firſt invented by Prince *Rupert*; and Mr. *Evelyn*, in his Hiſtory of *Chalcography*, gives us a Head perform'd by that Prince in this way.

'Tis pretty different from the common way of Engraving. To perform it, they rake, hatch, or punch the Surface of the Plate all over with a Knife, or Inſtrument for the purpoſe; firſt one way, then a-croſs, &c. till the face of the Plate be thus entirely furrow'd with Lines or Furrows cloſe and as it were contiguous to each other; ſo that if an Impreſſion were then taken from it, it would be one uniform blot or ſmut.

This done, the Deſign is drawn, or marked on the ſame Face: after which, they proceed with Burniſhers, Scrapers, &c. to expunge and take out the Dents or Furrows in all the parts where the Lights of the Piece are to be; and that more or leſs, as the Lights are to be ſtronger or fainter: leaving thoſe parts black which are to repreſent the Shadows or Deepnings of the Draught.

MIASMA, from μιαινω, *inquino*, I infect; is made uſe of to ſignify ſuch Particles, or Atoms, as are ſuppoſed to ariſe from diſtemper'd, putrifying, or poiſonous Bodies, and to affect People at a diſtance. See CONTAGION.

MICHAELMAS, the Feaſt of St. *Michael* the Archangel, held on the 29th of *September*. See QUARTER-DAY.

MICROCOSM, a *Greek* Term literally ſignifying *Little World*; chiefly underſtood of *Man*, who is ſo called by way of Eminency, as being an Epitome of all that is wonderful in the great World, or Macrocoſm. See MACROCOSM.

The Word is formed from the *Greek* μικρος, *parvus*, little; and κοσμος, *Mundus*, World.

MICROGRAPHIA, MICROGRAPHY, a Deſcription of the Parts, and Proportions of Objects, that are too ſmall to be viewed without the Aſſiſtance of a Microſcope. See MICROSCOPE. Dr. *Hook's Micrographia* is in much eſteem among the Curious.

The Word is compounded of μικρος, *parvus*, and γραφη, *ſcriptio*, *deſcriptio*.

MICROMETER, an Aſtronomical Machine, which by means of a very fine Skrew, ſerves to meaſure extremely ſmall Diſtances in the Heavens; as the apparent Diameters of the Planets, &c. to a great degree of Accuracy. See DISTANCE.

The Word comes from the *Greek* μικρος, *parvus*, and μετρον, *Menſura*; in regard a ſmall Length, *e.g.* an Inch, is hereby divided into a vaſt number of Parts, *e.g.* in ſome, 2800; and in others more.

There is ſome Controverſy about the Invention of the *Micrometer*. Meſſ. *Auzout* and *Picard* have the Credit of it in common Fame; as being the firſt who publiſhed it, in the Year 1666. But Mr. *Townley*, in the *Philoſophical Tranſactions*, reclaims it for one of our own Countrymen, Mr. *Gaſcoyne*. He relates, that from ſome ſcatter'd Papers and Letters of this Gentleman, he had learnt, that before our Civil Wars he had invented a *Micrometer*, of as much effect as that ſince made by M. *Auzout*, and had made uſe of it for ſome Years, not only in taking the Diameters of the Planets, and Diſtances upon Land, but in determining other Matters of nice Importance in the Heavens; as the Moon's Diſtance, &c.

Monſ. *de la Hire*, in a Diſcourſe on the Æra of the Inventions of the *Micrometer*, Pendulum Clock, and Teleſcope, read before the Royal Academy of Sciences, in 1717, makes M. *Huygens* the Inventor of the *Micrometer*. That Author, he obſerves, in his *Obſervations on Saturn's Ring*, &c. publiſhed in 1659, gives a Method of finding the Diameters of the Planets by means of a Teleſcope, *viz.* by putting an Object, which he calls *Virgula*, of a proper Bigneſs to take in the Diſtance to be meaſured, in the Focus of the Convex Object-Glaſs: In this Caſe, ſays he, the ſmalleſt Object will be ſeen very diſtinctly, in that place of the Glaſs. By ſuch means, he adds, he meaſured the Diameters of the Planets, as he there delivers them.

This *Micrometer*, M. *de la Hire* obſerves, is ſo very little different from that publiſhed by the Marquiſs *de Malvaſia*, in his *Ephemerides*, three Years after, that they ought to be eſteemed the ſame; and the *Micrometer* of the Marquiſs differ'd yet leſs from that publiſhed four years after his by *Auzout* and *Picard*. Hence M. *de la Hire* concludes, that 'tis to M. *Huygens* the World is indebted for the Invention of the *Micrometer*: without taking any notice of the Claim of our Countryman, Mr. *Gaſcoyne*, which is prior by many Years to any of them.

Conſtruction and Uſe of the MICROMETER.

1. *Wolfius* deſcribes a *Micrometer* of a very eaſy and ſimple Structure; firſt contrived by *Kirchius*.

In the Focus of a Teleſcope fit a Braſs or Iron Ring A B, (Tab. ASTRONOMY, fig. 11.) with Female Screws diametrically oppoſite to each other. Into theſe inſert Male Screws C E and F B, of ſuch Length, as that they may be turned in the Tube, ſo as to touch each other. And with this Inſtrument very ſmall Spaces in the Heavens may be accurately meaſured.

For when any Objects, viewed thro' a Tube, appear contiguous to the Screws; if theſe be turned till they juſt touch two oppoſite Points, whoſe Diſtance is to be meaſured, it will be evident how many Threads of the Screw they are apart. To determine how many Seconds anſwer to each Thread; applying the Tube towards the Heavens, turn the Screws, till they touch two Points, whoſe Diſtance is already accurately known; and obſerve the Number of Threads correſponding to that Interval. Thus, by the Rule of Three, a Table may be made of the Seconds correſponding to the ſeveral Threads; by means whereof, without more ado, the Diſtances of any Points may be determined.

2. The Structure of the *Micrometer* now chiefly in Uſe, with the Manner of fitting it to a Teleſcope, and applying it, is as follows:

A B C *g* (Plate ASTRONOMY, fig. 12.) is a Rectangular Braſs Frame; the Side A B being about three Inches long, and the Side B C, as likewiſe the oppoſite Side A *g*, about ſix Inches; and each of the three Sides about $\frac{8}{10}$ of an Inch deep. The two oppoſite Sides of this Frame are ſcrewed to the Circular Plate, to be mentioned hereafter.

The Screw P, which has exactly forty Threads in an Inch, being turned round, moves the Plate G D E F along two Grooves made near the Tops of the two oppoſite Sides of the Frame; and the Screw Q having the ſame number of Threads in an Inch as P, moves the Plate R N M Y along two Grooves, made near the bottom of the ſaid Frame, in the ſame Direction as the former Plate moves, but with only half the Velocity of that other. Theſe Screws are turned both at once, and ſo the Plates are moved along the ſame way, by means of a Handle turning the endleſs Screw S, whoſe Threads fall in between the Teeth of the Pinions on the Screws P and Q. And note, that two half Revolutions of the endleſs Screw S, carry the Screw P exactly once round.

The Screw P turns the Hand *a* faſten'd thereto, over a hundred equal Diviſions, made round the Limb of a circular Plate, to which the above named two oppoſite Sides of the Frame are ſcrew'd at right Angles. The Teeth of the Pinion on the Screw P, whoſe Number is 5, take into the Teeth of a Wheel on the back-ſide of the circular Plate, whoſe Number is 25. Again, on the Axis of this Wheel is a Pinion of two, which takes into the Teeth of another Wheel, moving about the Center of the circular Plate, on the out-ſide thereof; having 50 Teeth. This laſt Wheel moves the leſſer Hand *b* once round the above mention'd circular Plate, in the $\frac{1}{100}$ part of the Time the Hand *a* is moving round: For becauſe the Number of Teeth in the Pinion on the Screw P, are 5, and the Number of Teeth of the Wheel this Pinion moves, are 20; therefore the

Screw P moves four times round, in the time that Wheel is moving once round. Further, ſince there is a Pinion of two which takes into the Teeth of a Wheel, whoſe Number is 50; therefore this Wheel with 50 Teeth, will move once round in the time that the Wheel of 20 Teeth moves 25 times round; and conſequently the Screw P, or Hand A, muſt move a hundred times round, in the ſame time as the Wheel of fifty Teeth on the Hand *b*, has moved once round.

Hence it follows, that if the circular Plate W, which is faſten'd at right Angles to the other circular Plate, be divided into two hundred equal Parts, the Index *x*, to which the Handle is faſten'd, will move five of thoſe Parts in the ſame time, in which the Hand *a* moves one of the hundred Diviſions round the Limb of the other circular Plate. Thus by means of an Index, and Plate W, every fifth part of each of the Diviſions round the other Plate, may be known.

Farther, ſince each of the Screws P and Q, have exactly forty Threads in an Inch; therefore the upper Plate G D E F, will move one Inch, while the Hand *a* moves forty times round; the four thouſandth Part of an Inch, while the Hand moves over one of the Diviſions round the Limb; and the twenty thouſandth Part of an Inch, while the Index *x* moves one Part of the two hundred round the Limb of the circular Plate W: And the under Plate R N M Y will move half an Inch, the two thouſandth Part, of an Inch, and the ten thouſandth Part of an Inch, the ſame way, in the ſaid reſpective Times.

Hence, if the under Plate, having a large round Hole therein, be fixed to a Teleſcope, ſo that the Frame is moveable, together with the whole Inſtrument, except the ſaid lower Plate; and the ſtrait ſmooth Edge H I, of the fixed Plate A B I H, as likewiſe the ſtrait ſmooth Edge D E of the moveable Plate G D E F, be perceivable thro' the round Hole in the under Plate, in the Focus of the Object-Glaſs; then, when the Handle of the *Micrometer* is turned, the Edge H I of the narrow Plate A B I H fixed to the Frame, and D E of the moveable Plate, will appear thro' the Teleſcope equally to approach to, or recede from each other.

By theſe Edges we ſhall be able to meaſure the apparent Diameters of the Sun, Moon, *&c.* the Manner of doing which take as follows:

Suppoſe in looking at the Moon thro' the Teleſcope, you have turned the Handle till the two Edges D E and H I, are open'd, ſo as juſt to touch or claſp the Moon's Edges; and that there was twenty one Revolutions of the Hand *a*, to compleat that opening. Firſt ſay, As the focal Length of the Object-Glaſs, which ſuppoſe ten Feet, is to Radius, ſo is 1 Inch to the Tangent of an Angle ſubtended by 1 Inch in the Focus of the Object-Glaſs; which will be found 28 Min. 30 Sec. Again, becauſe there are exactly 40 Threads of the Screws in 1 Inch; ſay, if 40 Revolutions of the Hand *a*, give an Angle of 28′ 30″, what Angle will 21 Revolutions give? The Anſwer will be, 15 Min. 8 Sec. And ſuch was the Moon's apparent Diameter; and ſo may the apparent Diameters of any other Objects be taken.

It muſt be here obſerved, that the Diviſions on the Top of the Plate G D E F, are diagonal Diviſions of the Revolutions of the Screws, with diagonal Diviſions of Inches againſt them. Thus as the ſaid Plate ſlides along, theſe Diagonals are cut by Diviſions made on the Edge of the narrow Plate K L, fixed to the oppoſite ſides of the Frame by means of two Screws. Theſe diagonal Diviſions ſerve for a Regiſter to count the Revolutions of the Screws, and to ſhew how many there are in an Inch, or the parts of an Inch.

Mr. *Derham* tells us, that his *Micrometer* is not, as uſually, to be put into a Tube, but to meaſure the Spectres of the Sun on Paper, (of any Radius) or to meaſure any part of it. By this means he can eaſily, and very exactly, with the help of a fine Thread, take the Declination of a ſolar Spot at any time of the Day; and by his half-Seconds Watch, meaſure the diſtance of the Spot from the Sun's Eaſtern or Weſtern Limb.

MICROSCOPE, or **Engyscope**, a Dioptrical Inſtrument, by means whereof very minute Objects are repreſented exceedingly large, and view'd very diſtinctly; according to the Laws of Refraction. See Refraction.

Microſcopes are properly diſtinguiſhed into ſimple, or *ſingle*; and compound, or *double*.

The *Simple* are thoſe which conſiſt of a ſingle Lens, or a ſingle Spherule: The Compound conſiſt of ſeveral duly combined. See Lens.

As Optics have been improved, other Varieties have been contrived, in the ſorts of *Microſcopes*: Hence *Reflecting-Microſcopes*, *Water-Microſcopes*, &c. See Reflecting, *&c.*

When, and by whom *Microſcopes* were firſt invented, is not certainly known. *Huygens* tells us, that one *Drebbel*, a *Dutchman*, had the firſt *Microſcope*, in the Year 1621; and that he was reputed the Inventor of it: tho' F. *Fontana* a *Neapolitan*, claims the Invention to himſelf, but dates it from the ſame Year. As a Teleſcope inverted is a *Microſcope*; the Diſcovery might eaſily enough have aroſe from thence. See Telescope.

Foundation and Theory of Single Microscopes.

If an Object A B (Tab. Optics, Fig. 21.) be placed in the Focus of a ſmall convex Lens, or a ſimple *Microſcope* D E, and the Eye be applied cloſe to the other ſide of the Microſcope, *the Object will be ſeen diſtinct, in an erect Situation, and magnified in the Ratio of the diſtance of the Focus to the diſtance wherein Objects are to be placed to be ſeen diſtinctly with the naked Eye.*

Dem. For the Object A B being placed in the Focus of the convex Lens D E, the Rays iſſuing from the ſeveral Points thereof, after Refraction, will be parallel to each other. See Lens and Refraction. Conſequently the Eye will ſee it *diſtinctly*, by virtue of what is proved under the Word Telescope.

Further, ſince one of the Rays A F proceeding from the Point A, after Refraction, becomes parallel to the incident Ray; and therefore, ſetting aſide the thickneſs of the Lens, is found directly againſt it; and the ſame holds of all the other Rays carried to the Eye: the Rays A F, and B F, to which the reſt coming from A and B are parallel, will enter the Eye in the ſame manner as if they enter'd without paſſing through the Lens; and will therefore appear *erect*; as if the Lens were away. See Vision.

Laſtly, it is manifeſt that the Object A B will he ſeen under the ſame Angle as if view'd by the naked Eye: But ſince it appears very diſtinct, whereas to the naked Eye, at the ſame diſtance, it would appear extremely confuſed, 'tis the ſame thing as if the Object ſhould ſeem removed to the diſtance F H, wherein it is viewed with equal diſtinctneſs, and under the ſame Angle. The Diameter of the Object A B, therefore, will be to the apparent Diameter I K, as F C to F H, *i. e.* as the diſtance of the Focus of the Lens to the diſtance wherein an Object is to be placed in order to view it diſtinctly. See Magnitude and Angle.

Huygens takes it for granted, that an Object ſeen with the naked Eye, is then in its utmoſt diſtinctneſs, when ſeen at the diſtance of 8 Digits, or tenths of a Foot; which agrees pretty near with the Obſervations of others.

Laws of Single Microscopes.

1. Simple *Microſcopes* magnify the Diameter of the Object A B in the Ratio of the diſtance of the Focus F C to an interval of 8 Digits, *v. g.* If the Semi diameter of a Lens convex on both ſides be half a Digit $AB : IK = \frac{1}{2} : 8 = 1 : 16$, that is, the Diameter of the Object will be increaſed in a ſedecuple Proportion, or as ſixteen to one.

2. Since the diſtance F H is conſtant, *viz.* 8 Digits, by how much the diſtance of the Focus, F C is ſmaller, ſo much the ſmaller Ratio will it have to F H; conſequently the Diameter of the Object will be ſo much the more magnified.

3. Since in Plano-convex Lens's, the diſtance of the Focus is equal to the Diameter; and in Lens's convex on both ſides, to the Semi-diameter; ſimple *Microſcopes* will enlarge the Diameter ſo much the more, as they are Segments of ſmaller Spheres.

4. If the Diameter of the Convexities of a Plano-convex Lens, and a Lens convex on both ſides, be the ſame, *viz.* $= 1$; the Diſtance of the Focus of the firſt will be 1; of the ſecond $\frac{1}{2}$. Conſequently, the Semi-diameter of the Object A B will be to the apparent one in the firſt Caſe as 1 to 8, in the latter as $\frac{1}{2}$ to 8, *i. e.* as 1 to 16. A Lens, therefore, convex on both ſides, magnifies twice as much as a Plano-convex.

As the whole depends on the juſt and ſteady ſituation of Objects with regard to the Lens, various Methods have been contrived to that end: Whence we have ſeveral different kinds of ſingle *Microſcopes*. The moſt ſimple is as follows.

1. A B, *Fig.* 22. is a little Tube, to one of whoſe Baſes B C, is fitted a plain Glaſs, to which an Object, *viz.* a Gnat, Wing of an Inſect, Down, or the like, is applied: To the other Baſe, A D, at a proper diſtance from the Object is applied a Lens convex on both ſides, whoſe Semi-diameter is about half an Inch. The plain Glaſs is turn'd to the Sun, or the Light of a Candle, and the Object is ſeen magnified. And if the Tube be made to draw out, Lens's of different Spheres may be uſed.

Again, a Lens, convex on both ſides, is incloſed in a Cell A C, and by a Screw H there faſtened a-croſs; thro' the Pedeſtal C D paſſes a long Screw, by means whereof, and the female Screw I, a Style or Needle fix'd perpendicular to its extreme, is kept firm at any diſtance from the Lens. In E is a little Tube, on which, and on the Point G, the various Objects are to be diſpoſed:

Thus there may be Lens's of various Spheres applied.

2. But the *Microſcope* which is found to anſwer the end beſt, is as follows: A B, *Fig*. 23. is a round Braſs Tube, whoſe exterior Surface is form'd into a Skrew of a length ſomewhat leſs than the diſtance of the Focus of a Glaſs convex on both ſides, uſed here for illuminating the Object, and fitted to its Baſe A C, by a Ring with a Skrew in it D E.

F G is another Braſs Tube, ſomewhat wider than the firſt, and open each way for an Object to be apply'd to the *Microſcope.* To its upper Baſe G H is faſtned a Spring of Steel-Wire, twiſted into a ſpiral I; whereby an Object placed between two round Plates, or Slices K and L, in the manner hereafter mentioned, is by means of the Skrew B C, brought to the *Microſcopical* Lens, (or magnifying Glaſs, whereof there are ſeveral) and kept firm in its place. To the Baſis H G, which has a female Skrew M, are fitted Cells N, with a male Skrew O, wherein Lens's of various Spheres, guarded by Ferrils, are included. In P is a female Skrew, by which an Ivory Handle P Q is faſtned to the *Microſcope.*

In the Ivory Slice T are round Holes, in which are fitted little Circles of *Muſcovy* Glaſs, for Objects, eſpecially ſmall and pellucid ones, as little Inſects, or the Wings, Scales, &c. of larger, to be faſtned to.

When live Inſects are to be view'd, they are cover'd with the Braſs Slice Y, which is put in a little ſquare Braſs-bed, perforated with Holes X: And the ſame Slice, whether alone, or incloſed in the bed, being laid between the round Plates K and L, is brought to the Lens by means of the Screw A B, till the Object may be diſtinctly view'd.

If other pellucid oblong Objects are to be view'd, as Down, Cuticle, &c. inſtead of the Slice above, is uſed the Inſtrument mentioned above, for viewing Wings of Flies; whoſe Structure is manifeſt from inſpection.

There are other Inſtruments in the Apparatus of the *Microſcope,* as little Tongs, &c. for taking up ſmall Objects, a Glaſs-Tube for viewing the Circulation of the Blood in Fiſhes, &c. which need no deſcription.

What has been ſaid hitherto, is to be underſtood of *Lenticular Microſcopes*; for *Spherical* ones, their Doctrine will be underſtood from what follows.

If an Object A B be placed in the Focus of a Glaſs Spherule F, and the Eye be behind it, *v. g.* in the Focus G; the Object will be ſeen diſtinct, in an erect Situation, and magnified, as to its Diameter, in a Ratio of $\frac{3}{4}$ of the Diameter E I, to the diſtance at which Objects are to be placed to be ſeen diſtinctly with the naked Eye.

The firſt part of the Propoſition is proved in the ſame manner of Spheres, as of Lens's: As, then, a good Eye ſees an Object diſtinctly at the diſtance of 8 Digits, a Glaſs Spherule will inlarge the Diameter of an Object in a Ratio of $\frac{3}{4}$ of the Diameter to 88 Digits. Suppoſe then the Diameter of the Spherule E I $\frac{1}{10}$ of a Digit, C E will be $=\frac{1}{20}$, and F E $=\frac{1}{40}$; and therefore F C $=\frac{1}{20}+\frac{1}{40}=\frac{3}{40}$. Conſequently, the true Diameter of an Object to its apparent one is in the Ratio of $\frac{3}{40}$ to 80; *i. e.* as 3 to 320, or 1 to 107 nearly.

Now a Lens convex on both ſides, increaſes the Diameter in a Ratio of the Semi-diameter to the ſpace of 8 Digits; wherefore $\frac{1}{2}$ having a leſs Ratio to 8 than $\frac{3}{4}$; of a Lens and a Sphere that have the ſame Diameter, the former will magnify more than the latter: And pretty much after the ſame manner it may be ſhewn that a Sphere of a leſs Diameter, magnifies more than another of a large one.

For the *Methods of caſting little glaſs Spherules for* MICROSCOPES; there are various. *Wolfius* deſcribes one as follows: A ſmall piece of very fine Glaſs, ſticking to the wet Point of a Steel-Needle, is to be apply'd to the extreme bluiſh part of the Flame of a Torch; or, which is better, to the Flame of Spirit of Wine, to prevent its being blacken'd. Being there melted, and run into a little round drop, it is to be removed from the Flame; upon which it inſtantly ceaſes to be fluid: folding, then, a thin Plate of Braſs, and making a very ſmall ſmooth perforation, ſo as not to leave any Roughneſs on the Surfaces; and further, ſmoothing them over to prevent any glaring: fit the Spherule between the Plates againſt the Apertures, and the whole in a Frame, with Objects convenient for Obſervation.

Dr. *Adams* tells us another Method, thus: Take a piece of fine Window-Glaſs, and raſe it with a Diamond into as many lengths as you think needful, not exceeding an eighth of an Inch in breadth; then holding one of thoſe lengths between the Fore-finger and Thumb of each Hand over a very fine Flame till the Glaſs begins to ſoften, draw it out till it be as fine as an Hair, and break; then, applying each of the ends into the pureſt part of the Flame, you have two Spheres preſently, which you may make larger or leſs at pleaſure. If they ſtay long in the Flame, they'll have Spots; ſo they muſt be drawn out immediately after they are turn'd round. As to the Stem, break it off as near the Ball as poſſible; and lodging the remainder of the Stem between the Plates; by drilling the Hole exactly round, all the Protuberances are buried between the Plates; and the *Microſcope* performs to admiration.

After theſe manners may Spheres be made much ſmaller than any Lens; ſo that the beſt *Microſcopes,* or thoſe which magnify the moſt, are made thereof. For ſuppoſe the Diameter of a Spherule to be $\frac{1}{12}$ of a Digit, the diſtance of its Focus will be $\frac{1}{24}$; and therefore its real Diameter to its apparent one, as $\frac{1}{12}+\frac{1}{24}$; that is, as $\frac{3}{24}$ to 8, or as 3 to 512; or laſtly, as 1 to 170. Its Surface therefore will be increaſed in the Proportion of 1 to 28900, and its Bulk in a Ratio of 1 to 4913000.

M. *Leewenboeck* and M. *Muſſchenbroeck* have ſucceeded very well in ſpherical *Microſcopes*; and the Apparatus of the latter is much commended: But we forbear any Deſcriptions thereof; it being eaſy for any who conſiders the Structure of thoſe conſiſting of Lens's, to conceive how thoſe of Spheres may be contrived.

Water MICROSCOPE. Mr. *S. Gray*, and after him, *Wolfius* and others, have contrived *Water-Microſcopes,* conſiſting of Spherules, or Lens's of Water inſtead of Glaſs, fitted up ſomewhat after the manner of thoſe above-mentioned; (as Spheres of Water may be likewiſe uſed inſtead of Glaſs in any of the common *Microſcopes)* But ſince the diſtance of the Focus of a Lens or Sphere of Water, is greater then in one of Glaſs, (the Spheres, whereof they are Segments being the ſame) *Water-Microſcopes* magnify leſs, and are therefore leſs eſteemed than thoſe of Glaſs.

The ſame Mr. *Gray* firſt obſerved that a ſmall Drop or Hemiſpherule of Water held to the Eye by Candle-Light or Moon-Light, without any other Apparatus, magnified the Animalcule contain'd in it, vaſtly more than any other *Microſcope.* The Reaſon is, that the Rays coming from the interior Surface of the firſt Hemiſphere, are reflected ſo as to fall under the ſame Angle on the Surface of the hind Hemiſphere, to which the Eye is applied, as if they came from the Focus of the Spherule; whence they are propagated to the Eye in the ſame manner as if the Objects were placed without the Spherule in its Focus.

Hollow Glaſs Spheres, of the Diameter of about half a Digit, fill'd with Spirit of Wine, are frequently uſed for *Microſcopes*; but they don't magnify near ſo much.

Theory of Compound, or double MICROSCOPES.

Suppoſe an Object-Glaſs E D, *Fig*. 24. the Segment of a very ſmall Sphere, and the Object A B placed without the Focus F.

Suppoſe an Eye-Glaſs G H, convex on both ſides, and the Segment of a Sphere greater (tho' not too great) than that of D E, and let it be ſo diſpoſed behind the Object, as that if C E : C L : : C L : C K, the Focus of the Eye-Glaſs may be in K.

Laſtly, ſuppoſe L K : L M : : L M : L I.

If then O be the place wherein an Object is ſeen diſtinct with the naked Eye; the Eye in this Caſe being placed in I, will ſee the Object A B diſtinctly in an inverted ſituation, and magnified in a compound Ratio of M K to L H and L C to C O; as is proved from the Laws of Dioptrics.

Laws of double MICROSCOPES.

1. The more an Object is magnified by the *Microſcope,* the leſs is its *field*, *i. e.* the leſs it takes in at one view.

2. To the ſame Eye-Glaſs, may be ſucceſſively apply'd Object-Glaſſes of various Spheres; ſo as that both the entire Objects, but leſs magnified, and their ſeveral parts, much more magnified, may be viewed thro' the ſame *Microſcope.* In which Caſe, by reaſon of the different diſtance of the Image, the Tube L K, in which the Lens's are fitted, ſhould be made to draw out.

For the Proportion of the Object-Glaſs to the Eye-Glaſs, ſome commend the ſubduple Ratio, and ſome the ſubſeſquiſextile. *De-Chales* will have the Semi-diameter of the Convexity of the Object-Glaſs to be $\frac{1}{8}$ of a Digit; or at moſt $\frac{1}{2}$; in the Eye-Glaſs an entire Digit, or even 1 *Cherubin* makes the Semi-diameter of the Object-Glaſs $\frac{1}{4}$, $\frac{1}{8}$, or $\frac{1}{2}$ of a Digit; the Semi-diameter of the Eye-Glaſs $1\frac{1}{4}$, or $1\frac{1}{2}$ of a Digit.

Since 'tis proved, that the diſtance of the Image L K from the Object-Glaſs D E will be greater, if another Lens, concave on both ſides, be placed before its Focus; it follows, that the Object will be magnified the more if ſuch a Lens be here placed between the Object-Glaſs D E, and the Eye-Glaſs G H. Such a *Microſcope* is much commended by *Conrade*, who uſed an Object-Lens convex on both ſides, whoſe Semi-diameter was two Digits, its Aperture equal to a Muſtard-Seed; a Lens concave on both ſides 12, or at moſt 16 Digits; and [illegible] Eye-Glaſs convex on both ſides, of 6 Digits.

4. Since the Image is projected to the greater diſtance, the nearer another Lens of a Segment of a larger Sphere, is brought to the Object-Glaſs; a *Microſcope* may be compoſed of three Lens's, which will magnify prodigiouſly.

5. From theſe Conſiderations it follows, that the Object will be magnified the more, as the Eye-Glaſs is the Segment of a ſmaller Sphere; but the Field of Viſion will be the greater, as the ſame is a Segment of a larger Sphere: If then two Eye-Glaſſes, the one a Segment of a larger, the other of a ſmaller Sphere, be ſo combin'd, as that the Object appearing very near thro' them, *i. e.* not farther diſtant than the Focus of the firſt, be yet diſtinct; the Object at the ſame time will be exceedingly magnified, and the Field of Viſion much greater than if only one Lens were uſed: And the Object will be ſtill more magnified, and the Field enlarged, if both the Object and Eye-Glaſs be double. But in regard an Object appears dim, when view'd through ſo many Glaſſes, part of the Rays being reflected in paſſing through each; the multiplying of Lens's is not adviſeable: And the beſt among compound *Microſcopes*, are thoſe which conſiſt of one Object-Glaſs, and two Eye-Glaſſes.

For a *Microſcope* of three Lens's, *De-Chales* commends an Object-Glaſs of $\frac{1}{3}$ or $\frac{1}{4}$ of a Digit; and the firſt Eye-Glaſs he makes 2, or $2\frac{1}{2}$ Digits; the diſtance between the Object-Glaſs and Eye-Glaſs about 20 Lines. *Conradi* had an excellent *Microſcope*, the Object-Glaſs whereof was half a Digit, and the two Eye-Glaſſes (which were placed very near) 4 Digits: But it anſwer'd beſt when in lieu of the Object-Glaſs, he uſed two Glaſſes, convex on both ſides, their Sphere about a Digit and half, or at moſt two, and their Convexities touching each other within the Space of half a Line. *Euſtachius de Divinis*, inſtead of an Object-Glaſs, convex on both ſides, uſed two Plano-Convex Lens's, whoſe Convexities touched. *Grindelius* did the ſame; only that the Convexities did not quite touch. *Zahnius* made a a Binocular *Microſcope*, wherein both Eyes were uſed.

Structure or Mechaniſm of a Double MICROSCOPE.

The Induſtry and Addreſs of our Country-man, Mr. *Marſhall*, here deſerves to be remember'd: The moſt commodious *Double Microſcope* is of his Contrivance. In this, the Eye-Glaſſes are placed in the Tube at A and B, *Fig.* 25. and the Object-Glaſs at C. The little Pillar D E is turned by means of a Ball E, moveable in the Socket F; and thus the *Microſcope* is accommodated to any Situation. The ſame Pillar is divided into as many parts, 1, 2, 3, 4, 5, &c. as there are Lens's of different Spheres to be uſed in viewing different Objects; ſo that the diſtance of the Object from the Object-Glaſs may be found without any trouble. But as it is ſcarce exactly enough determined this way, the Tube may be brought nearer the Object at diſcretion, by means of the Screw G H.

The Objects are either laid on the Circle I; or fitted to proper Inſtruments, having their Points or Stiles paſſing through the little Tube L M.

Laſtly, to illumine the Object, a Lens convex on both ſides, N O, is diſpoſed in a convenient Situation. The reſt appears from the Figure.

Reflecting MICROSCOPE, is that which magnifies by Reflection, as the above-mentioned ones do by Refraction. See REFLECTION.

The Structure of ſuch a *Microſcope* may be conceiv'd thus: Near the Focus of a concave Speculum A B, place a minute Object C, that its Image may be form'd larger than it ſelf in D. To the Speculum join a Lens convex on both ſides E F, ſo as the Image D may be in its Focus.

The Eye will here ſee the Image inverted, but diſtinct, and enlarged; conſequently the Object will be larger than if viewed through the Lens alone. See MIRROUR.

The Inventor of this *Microſcope* is the great Sir *I. Newton*; but it is ſomewhat to be feared leſt the Objects appear dim.

Any Teleſcope is converted into a *Microſcope*, by removing the Object Glaſs to a greater diſtance from the Eye-Glaſs. And ſince the diſtance of the Image is various, according to the diſtance of the Object from the Focus; and it is magnified the more, as its diſtance from the Object-Glaſs is greater; the ame Teleſcope may be ſucceſſively converted into *Microſcopes* which magnify the Object in different degrees. See TELESCOPE.

MID, or MIDDLE, in Philoſophy, and Mathematics. See MEAN and MEDIUM.

MIDDLE LATITUDE, in Navigation, is half the Sum of two given *Latitudes*. See LATITUDE.

MIDDLE LATITUDE, is alſo uſed for a Method of working the ſeveral Caſes in Sailing, nearly agreeing with *Mercator*'s way, but without the help of Meridional Parts. See SAILING. See MERIDIONAL *Parts*, MERCATOR, &c.

MIDHAVEN, *Medium Cæli*, in Aſtronomy, is that Point of the Ecliptic which culminates, or is in the Meridian. See CULMINATION, &c.

MIDRIFF, in Anatomy. See DIAPHRAGM.

MIDSHIP-*Men*, are Officers aboard a Ship, whoſe Station, when they are on Duty, is, ſome on the Quarter-Deck, others on the Poops, &c. Their Buſineſs is to mind the Braces, to look out, and to give about the Word of Command from the Captain, and other ſuperior Officers. They alſo aſſiſt on all occaſions both in ſailing the Ship, and in ſtowing and rummaging the Hold.

They are uſually Gentlemen, who, having ſerved their time as Volunteers, and are now upon their preferment.

MIDSUMMER-DAY, is the Feſtival of St. *John* the Baptiſt, held on the 24th Day of *June*. See QUARTER-DAY.

MIGRATION, or *Tranſmigration*, the Paſſage or Removal of any thing out of one State, or Place into another; particularly of Colonies of People, Birds, &c. into other Countries. See TRANSMIGRATION.

The MIGRATION *of the Souls of Men* into other Animals after Death, is the great Doctrine of the *Pythagoreans*, call'd the *Metempſychoſis*. See METEMPSYCHOSIS.

The MIGRATION *of Birds*, as the Swallow, Quail, Stork, Crane, Fieldfare, Woodcock, Nightingale, and other Birds of *Paſſage*, is a very curious Article in Natural Hiſtory, and furniſhes a notable Inſtance of the powerful Inſtinct impreſs'd by the Creator. See INSTINCT.

Mr. *Derham* obſerves two things very remarkable therein; the *firſt*, That theſe untaught, unthinking Creatures ſhould know the proper Times for their Paſſage, when to come, and when to go; as alſo, that ſome ſhould come when others go. No doubt, the Temperature of the Air as to heat and cold, and their natural Propenſity to breed their Young, are the great Incentives to thoſe Creatures to change their Habitation: But it is an odd Inſtinct they ſhould at all ſhift their Habitation; that ſome certain Place is not to be found in all the Terraqueous-Globe aſfording 'em convenient Food and Habitation all the Year round.

The *ſecond*, That they ſhould know what way to ſteer their Courſe, and whither to go. What Inſtinct is it, that moves a poor fooliſh Bird to venture over vaſt Tracts of Lands and Sea? If it be ſaid, that by their high Aſcents up into the Air, they can ſee croſs the Seas, yet what ſhould teach or perſuade them that that Land is more proper for the purpoſe than this? That *Britain*, for inſtance, ſhould afford them better Accommodation than *Egypt*? than the *Canaries*? than *Spain*? or any other of the intermediate Countries? *Phyſico-Theol.* p. 349.

Lud. de Beaufort remarks, that Birds in their Paſſage obſerve a wonderful Order and Polity: They fly in Troops, and ſteer their Courſe through huge unknown Regions, without the Compaſs. *Coſmol. Divin.* It is to be added, that the Birds of Paſſage are all peculiarly accommodated by the Structure of their Parts for long flights. See PASSAGE.

Naturaliſts are divided as to the Places whither Birds of Paſſage retire when they leave us. Mr. *Willoughby* thinks the Swallows fly into *Egypt* and *Æthiopia*. *Ornith. Lib.* 2. *c.* 3. *Olaus Magnus* ſays, they lurk in Holes, or under Water; which is confirmed by *Etmuller*, who aſſures us, that he ſaw a Buſhel of them taken out of a frozen Fiſh-Pond, all hanging together head to head, feet to feet, &c. in one Cluſter. *Diſſert.* 2. *c.* 10. *Olaus* adds, that this is a common thing in the Northern Countries; and that ſuch a Cluſter being carried accidentally by ſome Boys into a Stove, the Swallows, after thawing, began to fly about, but weakly, and for a very little time. A further Confirmation of this Account was given by Dr. *Colas*, a Perſon very curious in ſuch things, to the *Royal Society*. Speaking of the way of Fiſhing in the Northern Parts, by breaking Holes, and drawing their Nets under the Ice, he related, that he ſaw ſixteen Swallows ſo drawn out of the Lake of *Samrodt*, and about thirty out of the King's great Pond in *Roſineilen*; and that at *Schlebitten*, near a Houſe of the Earl of *Dobna*, he ſaw two Swallows juſt come out of the Waters that could ſcarce ſtand; being very wet and weak, with their Wings hanging on the Ground. He added, that he had often obſerved the Swallows to be weak for ſome days after their Appearance.

MILDEW. See MILLDEW.

MILE, in Geography, a long Meaſure, whereby we uſe to expreſs the diſtance between Places. See MEASURE, DISTANCE, &c.

The *Mile* is of different extent in different Countries. The Geographical or *Italian Mile* contains a thouſand Geometrical Paces, *Mille Paſſus*, whence the Term *Mile* is derived. See PACE, LEAGUE, &c.

Caſimir has made a curious Reduction of the *Miles*, or Leagues, of the ſeveral Countries in *Europe* into *Roman* Feet, which are equal to the *Rhinland* Feet generally uſed throughout the North. See FOOT.

	Feet,
The *Mile* of *Italy*	5000
Of *England*	5454

	Feet.
The *Mile* of *Scotland.*	6000
Of *Sweden*	30000
Of *Muſcovy*	3750
Of *Lithuania*	18500
Of *Poland*	19850
Of *Germany*, the Small	20000
The Middle	22500
The Largeſt	25000
Of *France*	5250
Of *Spain*	7090
Of *Burgundy*	6000
Of *Flanders*	6666
Of *Holland*	8000
Of *Perſia*, called alſo *Paraſanga*	18750
Of *Egypt*	25000

MILES, a *Latin* Term, which, in its general import, ſignifies *Soldier*. See SOLDIER and MILITIA.

In our *Engliſh* Laws, and Cuſtoms, *Miles* is peculiarly appropriated to a Knight, called alſo *Eques*. See KNIGHT and EQUES.

MILIARY *Glands*, *Glandulæ Miliares*, in Anatomy, a great number of ſmall Glands interſperſed throughout the Subſtance of the *Cutis*, or Skin. See GLAND and CUTIS.

The *Miliary Glands* are the Organs whereby the Matter of Sweat, and inſenſible Perſpiration, is ſecreted from the Blood. See PERSPIRATION and SWEAT.

They are interwove with the pyramidal *Papillæ* of the Skin; and are each ſerved with a Branch of an Artery, Vein, and Nerve; as alſo with a proper excretory Duct, through which the fluid Matter ſecreted from the Blood in the Subſtance of the Gland, is excreted, and ſent forth at the Pores, or Perforations of the Cuticle. See PORE and CUTICLE.

MILIARY *Fever*, is a malignant Fever wherein the Skin is ſprinkled over with little purple Spots, or Puſtles, in form of Grains of *Millet*.

It is alſo call'd a *purple Fever*, from the colour of the Spots. See PURPLE and FEVER.

MILITANT, a Term underſtood of the Aſſembly of Chriſtians, while here on Earth.

The *Romaniſts* divide the Church into *Militant*, Patient, and Triumphant: The *Militant* is on Earth; the Patient, or Paſſive, they place in Purgatory; and the Triumphant in Heaven. See CHURCH.

MILITARY, ſomething belonging to the *Militia*, or Soldiery. Thus,

The MILITARY *Art* is the Science of War. See WAR.

MILITARY *Government* is the ſupreme Government, Direction, Command, and Diſpoſition of all the *Military* Power of a Nation by Land and Sea. See GOVERNMENT.

The *Military* Government of *England* is wholly under the King; and neither one, nor both Houſes of Parliament have any Right to levy any Forces, or make any War Offenſive or Defenſive. See KING, ARMY, MILITIA, GUARDS, *&c.*

MILITARY *Exerciſes*, are the Evolutions, or various manners of Ranging and Exerciſing Soldiers. See EVOLUTION.

MILITARY *Architecture*, is the Art of Fortification. See ARCHITECTURE and FORTIFICATION.

MILITARY *Execution*, is the delivery of a City or Country up to be ravaged and deſtroy'd by the Soldiers, upon its refuſing to pay Contribution-Money. See EXECUTION.

MILITARY *Teſtament* among the *Romans*, was what we call a Nuncupative-Will; or a Teſtament made only by Word of Mouth, in the Preſence of two Witneſſes. See TESTAMENT.

This was a Privilege peculiar to the Soldiery, and to them only when in the Campaign; for at other times they were ſubject to the common Laws.

MILITARY *Column* among the *Romans*, was a Column on which was engraved a Liſt of the Troops of an Army; or the Number of Soldiers employ'd in any Expedition. See COLUMN.

MILITARY *Order*, ſee ORDER.

MILITARY *Law*, ſee LAW.

MILITARY *Fever*, is a kind of malignant Fever frequent in Armies, by reaſon of the ill Food, *&c.* of the Soldiers. See FEVER.

MILITARY *Ways*, *Viæ Militares*, are the large *Roman* Roads, which *Agrippa* procured to be made through the Empire, in the time of *Auguſtus*, for the more convenient marching of Troops, and conveyance of Carriages. See ROAD.

N. Bergier has wrote the Hiſtory of the Origin, Progreſs, and amazing Extent of theſe *Military* Roads; which were paved from the Gates of *Rome* to the extreme Parts of the Empire. See VIÆ.

MILITIA, a collective Term, underſtood of Perſons who make Profeſſion of Arms.

The Word comes from the *Latin*, *Miles*, a Soldier; and *Miles*, from *Mille*, which was antiently wrote *Mile*: For in levying Soldiers at *Rome*, as each Tribe furniſhed a Thouſand, *Mille* or *Mile*, Men, whoever was of that Number, was called *Miles*. See TRIBE.

MILITIA in its proper, and more reſtrained ſenſe, is uſed to ſignify the Inhabitants, or, as we call them, the *Trained-Bands* of a Town, or Country; who arm themſelves, on a ſhort warning, for their own Defence. In which ſenſe, *Militia* is oppoſed to regular, ſtated Forces.

The ſtanding *Militia* of *England* is now computed to be about 200000 Horſe and Foot; but may be increaſed at the pleaſure of the King.

For the Direction and Command of theſe, the King conſtitutes *Lords Lieutenants* of each County, with Power to Arm, Array, and Form into Companies, Troops, and Regiments, to Conduct, (upon Occaſion of Rebellion, and Invaſion) and Employ the Men ſo Arm'd within their reſpective Counties, and other Places where the King commands; to give Commiſſions to Colonels, and other Officers; to charge any Perſon with Horſe, Horſe-man, Arms, *&c.* proportionable to his Eſtate, *&c.* See *Lord* LIEUTENANT.

No Perſon to be charged with a Horſe unleſs he have 500 Pounds yearly Revenue, or 6000 Pounds Perſonal Eſtate; nor with a Foot-Soldier, unleſs he have 50 Pounds yearly, or 600 Pounds Perſonal Eſtate.

MILK, *Lac*, a white Juice, or Humour, which Nature prepares in the Breaſts of Women, and the Udders of other Animals; for the Nouriſhment of their Young. See BREASTS.

Milk is thicker, ſweeter, and whiter, than the Chyle itſelf, from which it is derived, and that probably, without much more Artifice or Alteration than the leaving behind ſome of its aqueous Parts. The Antients held it form'd from the Blood; but the Moderns are of Opinion, it comes from the pure Chyle convey'd by the Arteries to the Breaſts, and without any other Coction filtrated through the Glands whereof they are compos'd, like Urine through the Reins; without undergoing any conſiderable change.

According to M. *Leewenhoeck*'s Obſervations, *Milk* conſiſts of little Globules ſwimming in a clear tranſparent Liquor, call'd *Serum* or *Whey*.

Milk is a Compoſition of three different Kinds of Parts, Butirous, Caſeous, and Serous. The *Butirous* Parts are the Cream and Oil that ſwim a-top. See BUTTER. The *Caſeous* are the groſſer Parts, and thoſe that coagulate, and are made into Cheeſe. See CHEESE. The *Serous* are properly a Lympha, and make what we call *Whey*.

Dr. *Drake* ſays, that *Milk* is nothing but Oil and Water united by the Artifice of Nature, perhaps by the Intervention of ſome peculiar Salts, which, *Milk* itſelf, however ſweet at firſt, does, after a little ſtanding, diſcover to be pretty plentifully therein.

Milk is firſt found in the Breaſts of Women after they have been pregnant about four Months. The Fermentation of the *Milk* in the Breaſts, the firſt days after a Woman is delivered, occaſions a Fever, which takes its Name therefrom.

Ariſtotle ſays, there are ſome Men who have *Milk* in their Breaſts. *Cardan* tells us he ſaw one that had enough to ſuckle a Child.

In the *Philoſophical Tranſactions*, we have an Account of a Wether brought to *Milk* by the ſucking of a Lamb; which Lamb was maintain'd by it all the Summer, till it was weaned.

Milk corrupted in the Stomachs of Children, occaſions the ſeveral Diſeaſes incident to that Age. *Dobel*, a *Daniſh* Phyſician, who has wrote expreſly on this Subject, tells us, an excellent Remedy in ſuch Caſe, is a Glaſs of Water with a little Salt diſſolved in it: This acts as an Emetic, and throws up the Corruption that occaſion'd the Diſorder. *Celſus* mentions this Remedy, L. 1. c. 3. See CHILDREN.

Galen obſerves, that in Animals fed with *Milk*, the greateſt part of the Food of the Mother is converted into that Humor.

There are ſeveral kinds of *Milk*, uſed not only as Food, but as Phyſic: As Cows *Milk*, Aſſes *Milk*, Sheeps *Milk*, and Goats *Milk*. Theſe are preſcribed as proper to alter a ſharp thin Blood into a Craſis more ſoft, balſamic, and nutritive; and in Conſtitutions where they fit the firſt Paſſages, muſt be very good for that End, as being already prepared into Nutriment, ſo far as is required for their admiſſion into the Blood. But where the Juices of the Stomach are ſharp, theſe Liquors are apt to be turn'd into Curd. Whenever *Milk*, therefore, of what kind ſoever, is order'd in Conſumptions, and as a Reſtorative, it is with good reaſon join'd with the teſtaceous Powders, and ſuch things as are proper to deſtroy thoſe Acidities.

Aſſes *Milk* is ſaid to be a great Beautifier and Preſerver f the Skin. *Poppea*, Wife of the Emperor *Nero*, uſed it r that purpoſe; having four or five hundred Aſſes conantly in her Retinue, to furniſh her every Morning with a eſh Bath.

We have ſeveral artificial *Milks*, ſo call'd from their reemblance of natural ones. As,

Milk *of Sulphur*, a Preparation of Flowers of Sulphur, nd Salt of Tartar; preſcribed by the Phyſicians, as a Sulorific. See Sulphur.

Virgin's Milk, *Lac Virginale*, compoſed of Rock Alum, Spring Water, Litharge, and Vinegar; uſed as a Coſmetic, o drive in Pimples, and check any cutaneous Eruptions, by ts cooling, reſtringent Quality.

Milk *of the Moon*, *Lac Lunæ*, is a Name given by the Naturaliſts to a kind of foſſil Agaric. See Agaric.

Milk *of the Moon*, or of *Silver*, is alſo the Name of a white, porous, friable, inſipid Earth, extracted by ſublimation from a Matter frequently found in Silver-Mines: Whence alſo it has the Name of *Flowers of Silver*. See Silver.

MILKY WAY, *Via Lactea*, or *Galaxy*. See Galaxy.

MILL, in propriety, is a Machine uſed for *Grinding*: But the Word in its general Signification is uſed for all Machines whoſe Action depends on a circular Motion. See Grinding, Machine, &c.

Of theſe there are various kinds, which acquire various Names according to the various manners in which the moving Power is apply'd; but they may all be reduced to three heads, *viz*. *Wind-Mills*, *Water-Mills*, and *Hand-Mills*; under which laſt, are alſo comprehended thoſe worked by Horſes, &c.

Water-Mills are thoſe turned by the force or fall of a River, &c. Of which, again, there are two kinds; thoſe where the force of the Water is apply'd above the Wheel, call'd *Over-Shot*; and thoſe where it is apply'd below the Wheel, call'd *Under-Shot Mills*. See Water-*Mill*.

Wind-Mills, are thoſe turned by the force of Wind gathered in their Sails. Of theſe, ſome are call'd *Vertical*, others *Horizontal*, according to the poſition of the Sails; or rather according to the direction of their Motion with regard to the Horizon. See Vertical and Horizontal.

For the beſt Form of Horizontal Sails, as alſo for determining the Poſition of the Axis of Wind-Mills, ſee Wind-*Mill*.

Portative, or *Hand*-Mills, are thoſe kept in Motion by the Hand; or whoſe Mill-Stones are turn'd, or Piſtons driven by the force of Horſes, or other Beaſts.

The Uſe of *Mills* and Mill-ſtones, according to *Pauſanias*, was firſt invented by *Miletus*, Son of *Meleges*, firſt King of *Sparta*. Tho *Pliny* attributes the Invention of every thing belonging to Bread and Baking, to *Ceres*. *Polydore Virgil* was not able to diſcover the Author of ſo uſeful a Machine. 'Tis doubted whether or no Water-Mills were known to the *Romans*; there being no mention made in the Digeſt but of *Mills* turned by Slaves and Aſſes.

Salmaſius, however, and *Gothofrid*, will not allow *Water-Mills* to have been unknown to the antient *Romans*, though they were not in ordinary uſe.

Wind-Mills are of much more modern Invention: The firſt Model of theſe was brought from *Aſia* into *Europe*, in the time of the Holy-Wars.

Mill is alſo uſed, in the general, for all Machines, which being moved by ſome external Force, ſerve to give a violent Impreſſion on things apply'd thereto.

Mills in this ſenſe, are Machines of vaſt uſe in the Manufactures, Arts, and Trades; for the making and preparing divers kinds of Merchandizes. The principal are thoſe which follow.

Paper-Mill, a Water-Mill furniſh'd with ſeveral Hammers, which beat, or pound the Rags or Cloth in a kind of Wooden-Trough: and thus by reducing them to little pieces, turn them into a kind of Pulp, by means of Water convey'd into the Troughs by a Pipe for the purpoſe. See Paper.

Fulling-Mill, is a Water-Mill which raiſes and beats down large wooden Piſtons in proper Veſſels, call'd Peels or Troughs; in order to full, ſcower, and cleanſe Woollen Stuffs. See Fulling.

Linen-Mills don't differ much from Fulling-Mills. Their Uſe is to ſcower Linens, after having been firſt cleans'd when taken out of the Lixivium, or Lye. See Bleaching.

Some of theſe go by Water, the generality by Horſes.

Mill in Coinage, is a Machine uſed to prepare the *Laminæ* or Plates of Metal, and to give them the proper thickneſs, hardneſs, and conſiſtence before they be ſtruck or ſtamped. See Coining.

This Machine has not been long known among us; but is of ſome ſtanding in *Germany*. It conſiſts of ſeveral Wheels dented like thoſe of Clocks, &c. which move two Cylinders of Steel, between which the Metal is paſſed to be brought to its proper thickneſs. It was firſt turned in order with Water, afterwards with Cattel, &c.

Mill, among the Gold Wire-Drawers, is a little Machine conſiſting of two Cylinders of Steel, ſerving to flatten the Gold, or Silver Wire, and reduce it into *Laminæ*, or Plates. See Gold-Wire.

They have alſo *Mills* to wind the Gold Wire or Thread on the Silk; compoſed of ſeveral rows of Bobins all turned at the ſame time. See Ductility.

Sugar-Mills, is a Machine that ſerves to bruiſe the Sugar-Canes, and expreſs the Liquor or Juice contain'd therein. See Sugar.

The *Sugar-Mills* are very curious Contrivances. Of theſe there are four kinds; being turned either by Water, Wind, Men, or Horſes.

Thoſe turned by the hand were firſt in uſe; but are now laid aſide, as being an intolerable Hardſhip on the poor Negroes, who were doom'd thereto; beſides the ſlowneſs of their Progreſs.

Wind-Mills are the moſt Modern, but they are yet ſomewhat rare: excepting in *St. Chriſtopher's* and *Barbadoes*, and among the *Portugueze*. Theſe make good diſpatch, but have this Inconvenience, that they are not eaſily ſtop'd; which proves frequently fatal to the Negroes who feed them.

Oil-Mills, whether turned by Men, Water, Hand, or Horſe, ſerve to bruiſe or break the Nuts, Olives, and other Fruits and Grains, whoſe Juice is to be taken by Expreſſion to make Oil. See Oil, Olive, &c.

Tan, or *Bark*-Mills, wrought by Water or Horſes, ſerve to cut certain Barks into a coarſe ſort of Powder, proper for the Tanning of Hides, &c. See Bark and Tanning.

Sawing-Mill is a Water-Mill, ſerving to ſaw ſeveral Planks or Boards at the ſame time. See Sawing.

Theſe are frequent in *France*, eſpecially in *Dauphine*. They were lately prohibited in *England*, where they were begun to be introduced, from a view to the Ruin of the Sawyers, which muſt have enſued.

Forge-Mills, turn'd by Water, ſerve to raiſe and let fall one or more huge Hammers, to beat and form the Iron into Bars, Anchors, or other maſſive Works. See Forge.

Mills *for Sword-Blades*, are likewiſe moved by Water. They are frequent at *Vienne* in *Dauphine*. By working heavy Hammers, they forge thoſe excellent Sword-Blades, call'd *Blades of Vienne*.

Leather-Mills, are uſed to full, and prepare with Oil, the Skins of Stags, Buffalo's, Elks, Bullocks, &c. to make what they call *Buff-Leather*, for the uſe of Military-Men.

This is effected by means of ſeveral large Piſtons riſing and falling on the Skins in large Wooden-Troughs, by means of a Wheel without-ſide, turn'd by the force of the Water. See Buff.

Gun-Powder Mill, is that uſed to pound, and beat together the Ingredients whereof Gun-Powder is compoſed.

This is done in a kind of Iron or Braſs Mortar by means of Iron Peſtles wrought by a Wheel without the *Mill*, turn'd by the Water falling on it. See Gun-Powder.

There are alſo *Silk*-Mills, for ſpinning, throwing, and twiſting Silks; which are large round Machines in form of Turrets, five or ſix Foot high, and ſix Yards in diameter; which being turn'd either by the force of Water, or that of Men, work at the ſame time an infinity of Bobins faſtned thereto, whereon the Silk had been wound to be here ſpun, and twiſted. See Silk and Throwster.

There are abundance of *Mills* of this kind in *France*, eſpecially about *Lyons* and *Tours*, ſome of which are ſo diſpoſed, as that three of them will go at the ſame time, and by the ſame Wheel wrought by Water, or by ſtrength of Hand. That in the Hôpital *de la Charite* at *Lyons*, is wonderful, a ſingle Man working no leſs than forty-eight of theſe *Mills*. See Milling.

MILLDEW, *Rubigo*, a Diſeaſe happening to Plants, cauſed by a dewy Moiſture, which falling on them, and continuing, for want of the Sun's heat, to draw it up; by its Acrimony corrodes, gnaws, and ſpoils the inmoſt Subſtance of the Plant, and hinders the Circulation of the nutritive Sap; upon which the Leaves begin to fade, and the Bloſſoms and Fruit are much prejudiced.

According to Meſſ. *Cook* and *Mortimer*, *Milldew* is a thick, clammy Vapour exhaled in the Spring and Summer from Plants, Bloſſoms, and even the Earth itſelf, in cloſe ſtill Weather, when there is neither Sun enough to draw it on high, nor Wind enough to diſperſe it. Hanging thus in the lower Regions, when the Evening's Cold comes on, it condenſes and falls on the Plants; with its thick clammy Subſtance ſtops up their Pores, and thus prevents Perſpiration, and hinders the Sap from aſcending to nouriſh its Flowers, Shoots, &c. See Dew.

'Tis added, this Dew falling on the top of the Shoot of a Cherry-Tree about Midſummer, has been found to ſtop the Shoot; ſo as the Tree has ſhot forth in other places.

Blights and *Milldews* are commonly taken for the ſame thing; yet are they very different. See Blight.

On Plants which have ſmooth Leaves, as the Oak, *&c.* the Dew hangs, and may be ſeen, taſted, *&c.* Others, whoſe Leaves are rougher, imbibe it. When it falls on Wheat, *&c.* it beſpots the Stems with a Colour different from the natural one.

Theſe Dews, Mr. *Mortimer* takes to be the principal Food of Bees; being ſweet, and eaſily convertible into Honey. See Honey.

MILLENARIES, Millenarians, a Sect among Chriſtians, chiefly in the primitive Church, who hold that Jeſus Chriſt is to come and reign on Earth for the ſpace of a thouſand Years; during which time, the Faithful are to enjoy all manner of temporal Bleſſings, and at the Expiration of this Term, the Day of Judgment is to take place. See Millennium.

The *Millenaries* are alſo call'd *Chiliaſts* from the *Greek* χίλιος, *mille*, a Thouſand. See Chiliast.

This Opinion of the *Millenaries* is very antient; and may be traced back almoſt as far as the time of the Apoſtles. It had its Origin from a Paſſage in the *Apocalypſe* too literally underſtood, wherein mention is made of Chriſt's Reign on Earth, *&c.*

The Opinion of *S. Papias*, ſays Mr. *Launoy*, touching the new Kingdom of Jeſus Chriſt on Earth, after the Reſurrection, was held for near three Centuries, e'er it was charged as erroneous; as appears from Eccleſiaſtical Hiſtory. It was allow'd of, and follow'd by the greateſt Men among the Primitive Fathers; as *Irenæus*, *Juſtin Martyr*, *Tertullian*, &c. *Dionyſius* of *Alexandria* and St. *Jerom*, oppoſed this imaginary *Millenary* Reign very ſtrongly.

MILLENNIUM, a Term literally ſignifying a *thouſand Years*; chiefly uſed for the time of our Saviour's ſecond Appearance, and Reign on Earth. See Millenaries.

Mr. *Whiſton*, in ſeveral of his Writings, has endeavoured to ſupport the Notion of the *Millennium*. According to his Computation, it was to have commenced about the Year 1720.

The Word is *Latin*, compounded of *mille*, a Thouſand, and *annus*, Year.

MILLEPEDES, *Wood-Lice*, little Animals of conſiderable Uſe in Medicine. Thus call'd from the great number of their Feet.

Millepedes are ſo much in the Acquaintance of the People, that they ſeem to be Maſters of their medicinal Uſes, and take them in many Caſes without any other Direction. They are, by all Experience, found to be very Diuretic and Abſterſive; which makes them not only frequent in Preſcriptions for Diſorders in the Reins, but alſo in Obſtructions of the Viſcera, and particularly in the Jaundice.

They abound with a nitrous Salt, which they ſeem to derive from the earthy Diet they live on. It is ſomewhat volatilized by its Digeſtion and Circulation in the Inſect; as ſuch Salt always is more or leſs, in proportion to the digeſtive Powers of the Animal, into whoſe Blood it enters; yet not ſo much, but that it is brackiſh and pungent upon the Palate. This makes their deterſive Qualities extend further, than the larger Glands, and enables them to ſcour even the minuteſt Paſſages, and keep the Nerves clear from Viſcidities, and ſuch things as would clog their Springs; whereby they are good in Palſies, Epilepſies, and all nervous Diſtempers.

As they open and cleanſe away Viſcoſities, and by their Minuteneſs and Aſperities cut their way through any Obſtructions, they are good in Struma's, and all inveterate Tumours or Ulcers.

Remarkable Cures have been performed in each way by a long uſe of them. They are beſt taken in Subſtance; or bruiſed in white Wine, the Liquor being taken without ſettling.

There are ſeveral Chymical Preparations of *Millepedes*, as Spirit, volatile Salt, Oil, and Wine of *Millepedes*.

MILL-REE, or Mille-Ray, a *Portugueze* Coin, current for ſomewhat more than the *Spaniſh* Piſtole. See Coin.

The *Mill-ree* is thus call'd, as conſiſting of a thouſand *Rees*. See Ree.

It is alſo called a St. *Stephen*, from the Figure of that Martyr impreſs'd thereon.

MILLIARIUM, among the *Romans*, was a *Mile*, or League; conſiſting of a thouſand Paces, *mille paſſus*; whence the Name. See Mile and League.

In the *Roman* Empire, the *Milliaria*, in all the great Roads, were all mark'd with Stones or Columns, erected for that purpoſe; commencing from a Column in the heart of the City. See Road.

Thoſe Columns were hence denominated *Milliary Columns*. See Column.

MILLING, in the Manufactories, an Operation call'd alſo *Fulling*. See Fulling.

Milling, or *Throwing of Silk*, is the laſt preparation of Silk before dying; ſerving to twiſt it, more or leſs according to the Work it is intended for. See Silk.

To prepare the Silks for *Milling*, they firſt put it in boiling Water, incloſed between two linen Cloths. The *Mill* is a ſquare Machine, compoſed of ſeveral pieces of Wood mortaiſed in each other ſo as to form a kind of large Cage, in the Centre whereof are two Wheels placed parallel over each other, whoſe Axis bears on two Poſts. When the Machine is Simple, a ſingle Man turns theſe Wheels by means of a little Cogg in which they catch, and a large Handle.

The Wheels put in motion by the Handle, communicate their Motion to eight Windles, or Reels, or even more, according to the largeneſs of the Machine; on the Wings, or Arms whereof the Silk is wound from off two Rows of Bobins placed on each ſide the Machine, each Row at the height of one of the two Wheels in the Centre. Theſe Bobins have their Motion by means of leathern Thongs, which bear on the little Cylinders of Wood that ſupport them, and turn at length on the two Wheels at the Centre; ſo that the Silk on each Bobin twiſts, as it winds, and forms its ſeparate Skain.

The ſmalleſt Wheel moves two hundred of theſe Bobins, over which a ſingle Perſon is ſufficient to inſpect, to put new Bobins or Spools in lieu of thoſe diſcharged of their Silk, and to knot the Ends when they break.

MILLION, in Arithmetic, the Number of ten hundred thouſand; or a thouſand times a thouſand. See Numeration.

The Revenues of Princes are now only computed in *Millions*. See Revenue and Political *Arithmetic*.

A Million *of Gold*, or Million *of Money*, is ſometimes underſtood of a *Million* of Pounds; and ſometimes a *Million* of Crowns. See Crown, *&c.*

MILT, in Anatomy, is a popular Name for the Spleen. See Spleen.

Milt, in Natural Hiſtory, the ſoft Row in Fiſhes; thus call'd by reaſon it yields, by expreſſion, a whitiſh Juice reſembling Milk. See Row.

The *Milt* is properly the Seed, or the Spermatic part of the Male Fiſh. The *Milt* of a Carp is reckon'd a choice Bit.

Lewenhoeck, examining the *Milt* of a ſingle Cod-fiſh with an excellent Microſcope, found it to contain more living Animals than there are Men on the Face of the Earth. See Animalcule.

MIME, Mimus, a Term in the antient Comedy, ſignifying a *Buffoon*, or *Mimic*, who acted Poſtures ſuitable to the Perſon or Subject he repreſented.

The Word comes from the *Greek* μῖμος, Imitator.

The ſame Comedians were alſo ſometimes call'd *Pantomimes*, becauſe of their counterfeiting all manner of Poſtures and Geſtures. See Pantomime.

MIMESIS, *Imitation*, in Rhetoric, *&c.* a Figure, wherein the Words, Actions, *&c.* of another Perſon are imitated. See Mime and Pantomime.

MIND, *Mens*, a thinking Being. See Thinking.

Philoſophers generally allow of three Kinds of *Minds*, viz. *God*, *Angels*, and the human *Soul*. For a thinking Being muſt either be finite, or infinite: If infinite, it is *God*; and if finite, it is either join'd with a human Body, or not; if the latter, it is an *Angel*; if the former, a *Soul*. See God, Angel, and Soul.

The *human Mind* is properly defined a thinking, rational Subſtance: By *Thinking*, it is diſtinguiſhed from Body; and by *Reaſoning*, from God, and Angels, which are ſuppoſed to ſee and know things intuitively, without the help of Deduction, and Diſcourſe. See Discourse, Reasoning, and Knowledge.

MINE, in Natural Hiſtory, a place under ground where Metals, Minerals, or even precious Stones, are found. See Metal, Mineral, Precious Stone, *&c.*

As, therefore, the Matter dug out of *Mines* is various; the *Mines* themſelves acquire various denominations: as *Gold-Mines*, *Silver-Mines*, *Copper-Mines*, *Iron-Mines*, *Diamond-Mines*, *Salt-Mines*, *Mines of Antimony*, *of Alum*, &c.

For *Gold* and *Silver* Mines, the richeſt and moſt celebrated are thoſe of *Peru* and *Chili* in *America*. See Gold and Silver.

Iron-Mines are more abundant in *France* than elſewhere. See Iron.

Copper-Mines are chiefly in *Sweden* and *Denmark*. See Copper.

Tin-Mines abound in *England*. See Tin.

Quickſilver-Mines in *Hungary* and *Spain*; *Diamond* Mines in *Golconda*; *Salt*-Mines in *Poland*, &c. See Quicksilver, Diamond, Salt, *&c.*

Metallic Mines are chiefly found in Mountains; tho the reaſon thereof does not appear. It is probable, Plains may abound as much therewith, would People dig deep enough. But Plains are commonly cultivated; and beſide, the Water will ſcarce allow 'em to be dug. Add, that the Metallic Vein always

lways run either horizontal or oblique; and for that Reaſon, are eaſieſt found on the ſides of Eminences.

The Metallic Veins are commonly encompaſſed with a ſort of Stone peculiar to the *Mine*, and are accompanied with ſeveral Strata of different Matters, as Clay, Gravel, Rock, &c. They who work in *Mines*, know by the Size, and Colour of the Stones, when they approach the Vein. See Strata and Vein.

They diſcover that there is a *Mine* in a Mountain by the Marcaſites, or Mineral Stones falling from it; by the Mineral Taſte of the Waters; by the Quality of the Exhalations rais'd from it; and by the difference between the Earth over the *Mines*, and that of the neighbouring parts in the cold time of Spring and Autumn, the Froſt lying on the adjacent Places, when it thaws about the *Mines*. Add, that the Grounds producing but little Graſs, and that little, pale and colourleſs, is an indication of a *Mine*.

Some pretend to diſcover *Mines* by the ſole virtue of the Hazle-Tree, out of which they form a forked Stick, call'd *Virgula divinatoria*, which, they ſay, turns of itſelf, in their hands, but differently, according to the different nature of the Metals or Minerals underneath. This Artifice made a great noiſe in *France* towards the end of the 17th Century; and the *Corpuſcular* Philoſophy was call'd to account for it. But it is now in little Credit. See Virgula Divinatoria.

There are ſome *Mines*, wherein the Metals are found at their firſt openings very crude and imperfect; which yet, in time, grow ripe and rich. *Alonſo Barba* relates, that in *Potoſi*, Stones have frequently been thrown aſide, as not containing any thing conſiderable of Metal; and yet have been found many Years afterwards exceeding full thereof. *Cæſalpinus* aſſures us, that Earths which yield no Metal at all, ſometimes become very fertile Veins. In an Iſland of the *Tyrrhene-Sea*, after the Iron *Mines* have been exhauſted, they ſtop 'em up about ten Years, at the end whereof, they find 'em as rich as before.

For the Formation of Mineral and Metallic Matters in Mines, ſee Mineral.

Mine, in the Art of War, is a ſubterraneous Canal, or Paſſage dug under the Wall, or Rampart of a Fortification intended to be blown up by Gun-powder.

The *Alley*, or Paſſage of a *Mine*, is uſually about four foot ſquare; at the end of this is the *Chamber* of the *Mine*, which is a Cavity about five foot in width and in length, and about ſix in height; and here the Gun-Powder is beſtow'd.

The *Saucidge* of the *Mine* is the Train; for which there is always a little Aperture left. See Saucidge.

There are various kinds of *Mines*, which acquire various Names; as Royal *Mines*, Serpentine *Mines*, Forked *Mines*, according as their Paſſages are ſtrait, oblique, winding, &c.

There are alſo *Mines* made in the Field, which are call'd *Fougades*. See Fougade.

Mines are either dug within the Body of the Earth, as thoſe made by the Beſieged to blow up the Works of the Beſiegers, before they make a Lodgment on the Cover'd Way: Or in Eminences and Riſing Grounds, as to make a Breach in the Ramparts, &c. Or to blow up Walls: Or, laſtly, to tear up Rocks.

M. *Chevalier*, in the Memoirs of the *Royal Academy of Sciences*, has handled the Subject of *Mines* with a great deal of Accuracy. He has calculated the Force of Gun-Powder, the Effort it makes, and the Reſiſtance it meets with in heaving up the Ground. He ſhews, that a Cubic Foot of Air incloſed in two Cubic Feet of Gun-Powder, is capable of ſuſtaining a Weight of near 290000 Pounds. But obſerves withal, that this is vaſtly greater than what it is found by Experience to have; and that in fact, 140 Pounds of Powder don't raiſe above 30000 Pound of Earth. The Reaſon of which difference he aſcribes to ſeveral Cauſes; as, that the Powder does not take fire all at once, ſo that its force is divided; that part of the Shock is loſt in the Canal or Paſſage of the *Mine*, and in the Pores of the Bodies incompaſſing the *Mine*; that the tenacity of the parts of the Earth reſiſt a ſeparation; that it is not enough that the Earth be ſupported, but it muſt be carry'd upwards with a certain Velocity; and that the Weight of the Atmoſphere, is a very conſiderable obſtacle, to which no regard is had in the Calculation. See Gun-Powder.

From a great number of Experiments it appears, 1. That the Effect of a *Mine* is always towards the weakeſt ſide; ſo that the diſpoſition of the Chamber of a *Mine* does not at all contribute to determine this Effect either one way or another, as the Miners miſtakenly imagine. 2. That the Quantity of the Powder muſt be greater or leſs, in proportion to the greater or leſs Weight of the Bodies to be rais'd, and to their greater or leſs Coheſion; and the reſult of all the Experiments that have been made for determining the different Quantity of Powder to be uſed for different Bodies, is to allow for each Cubic Fathom

Of looſe Earth,	9 or 10 Pounds of Powder.
Of firm ſolid Earth, and ſtrong Sand,	11 or 12
Of Argil, or fat clayey Earth,	15 or 16
Of new Maſonry, not very ſtrongly bound,	15 or 16
Of old Maſonry well bound,	25 or 30

3. That the Aperture, or Funnel of a *Mine* that has been play'd, if it had been rightly charg'd, is a Cone, the Diameter of whoſe Baſe is double the height taken from the Center of the *Mine*. 4. That when the *Mine* has been over-charg'd, its Aperture is nearly Cylindrical, the upper Extremity not being much wider than the Chamber at bottom, where the Powder was lodg'd. 5. That, beſide the ſhock of the Powder againſt the Bodies it takes up, it likewiſe cruſhes all the Earth that borders upon it, both underneath and ſide-ways, which Cruſh extends itſelf the further as the Matters make the leſs Reſiſtance.

To account for all the Effects reſulting from theſe Experiments, and to determine the Quantity of Powder required for the charge of a *Mine*, and the moſt advantageous Diſpoſition for anſwering the Intent: Let us conceive, 1. A *Mine*, whereof all the parts wherewith it is incompaſſed are incapable of being compreſs'd, and make an equable Reſiſtance, ſuch as that of a Bomb equally thick throughout, ſuſpended in the Air; where it muſt be obſerved, that beſides the Reſiſtance of the Body, the Effort of the Powder muſt likewiſe ſurmount the Weight of the ambient Air; in which Caſe the Body will be beaten into Duſt, or at leaſt into very ſmall pieces.

2. Conceive a *Mine* incompaſs'd wholly by ſuch Bodies as are equally compreſſible, and that reſiſt every way with equal force. In this Caſe, the firſt Effect of the Powder will be to compreſs all thoſe Bodies equally, and they will not be ſeparated, till by the Violence of their Compreſſion, they are all incapable, any longer, to reſiſt its Effort; ſo that unleſs the Powder be in a great Quantity, all its Effect may end in the mere compreſſion of the adjacent Bodies. For this reaſon, they ſometimes block up the Chamber of the *Mine* with large Beams, and ſometimes wall it up with Stones, that the adjacent Bodies may reſiſt the more.

Laſtly, ſuppoſe a *Mine* where all the Bodies that incompaſs it, are equally compreſſible, but where there is leſs Reſiſtance on one ſide than another; in this Caſe, there will be a Sphere of Compreſſion, whoſe Diameter will be ſo much the greater, as the weak Side reſiſts the more. With regard to which, there are three things to be conſider'd.

Firſt, if the Effort of the Powder be very great with regard to the Reſiſtance of the weak Side, the Compreſſion will but reach a little way, that Side being tore off too ſuddenly for the neighbouring parts to receive their Shock. In which Caſe, the Aperture or Funnel will be almoſt Cylindrical, the Diameter of the upper Extreme not much exceeding that of the Chamber; and the Earth will be thrown to a great diſtance, which the Enemy may make an advantage of, by making Lodgments in the Cavity, as was done at the Siege of *Verue*. Secondly, If the *Mine* be under-charged, it only makes a ſimple Compreſſion on the weakeſt Side, as it hapned at *Cividad Rodrigo*. Thirdly, If the *Mine* be charged with a Quantity of Powder between the two Extremes, it will raiſe a Cone of Earth, the Diameter of whoſe Baſe will have a greater or leſs Ratio to its height from the Centre of the *Mine*, as the Effort of the Powder is greater or leſs. The moſt advantageous Effect is when the Diameter of the Baſe of the Cone is double its height: In which caſe, the Earth blown up, falls almoſt all back again into the Aperture of the *Mine*; ſo that the Enemy cannot make any Lodgment.

To charge a *Mine*, therefore, ſo as it may have the moſt advantageous Effect poſſible, the Weight of the Matter to be carried up muſt be known, *i. e.* the Solidity of a right Cone, whoſe Baſe is double the height of the Earth over the Centre of the *Mine*, which is eaſily found from the Rules of Geometry. Having found the Solidity of the Cone in cubic Fathoms, multiply the number of Fathoms by the number of Pounds of Powder neceſſary for raiſing the Matter it contains, according to the Proportion already laid down; and if the Cone contains Matters of different Weights, take a mean Weight between 'em all; having always a regard to their degree of Coheſion.

As to the Diſpoſition of *Mines*, we have but one general Rule to lay down; which is, that the Side towards which one would determine the Effect, be the weakeſt. But this varies according to Occaſions and Circumſtances.

Knight of the **Mine**, is a Military Honour, antiently confer'd on Perſons who had diſtinguiſh'd themſelves in Engagements in *Mines*.

Mine *Ships*, are Ships fill'd with Gun-Powder, incloſed in ſtrong Vaults of Brick or Stone, to be fired in the midſt of an Enemy's Fleet.

Mine is alſo a *French* Meaſure. See Measure.

MINERA, in Medicine and Anatomy, a Term apply'd to thoſe Parts of the Body wherein there are collections and coacervations of Humours made; which hardning, form Obſtructions, and produce Diſeaſes. In this ſenſe we ſay, the *Minera morbi*, &c.

MINERAL, in Natural Hiſtory, is ſometimes uſed in the general for *Foſſil*, and applied to any Body, ſimple, or compound, dug out of a *Mine*; from which it takes the Denomination. See Mine.

In this ſenſe, the Metals, Sulphurs, foſſil Salts, Semimetals, *&c.* are *Minerals*. See Fossil.

On this Principle, they divide *Minerals* into two Claſſes; the one *fuſible*, and *malleable*; *i.e.* which melt with Fire, and ſtretch on the Anvil; which are what we properly call *Metals*. The others want thoſe two Properties; and are what in the ſtrict ſenſe we call *Minerals*.

Some divide *Minerals* into *Simple* and *Compound*: To the firſt belong *Stones*; *Salts*, as Alum, Nitre, *&c.* *Inflammable Minerals*, as Sulphur and Bitumen; and *Metals*, as Gold, *&c.*

Others of the more accurate Writers, reſtrain the Word *Mineral* to what we otherwiſe call *Semi-metal*. See Semi-metal.

In this ſenſe, a *Mineral* may be defined a compound Foſſil, wherein there is ſomething diſcovered, in all reſpects like Metal, only that it is not malleable; join'd, or compounded with ſome other Foſſil, as Salt, Sulphur, Stone, or Earth. Such are *Antimony*, *Cinnabar*, *Biſmuth*, *Calaminaris*, *Vitriol*, *Pyrites*, *Marcaſſites*, *Cobalt*, *Oker*, the *Magnet*, *Lapis Hæmatites*, *Armenus*, and *Stellatus*. See each under its proper Article, Antimony, Cinnabar, Bismuth, Vitriol, Calaminaris, *&c.*

Some attribute the Formation of *Minerals* to the Action of the Sun without; ſome to the central Fire within; and ſome think the Cold does all by uniting condenſing, and congealing certain Juices.

Des Cartes takes Metals to have been form'd from the beginning of the World; and to have ranged themſelves, by the Laws of Gravity, about the Centre. In proceſs of time, he ſuppoſes them to have been corroded by the acid Salts, *&c.* and abundance of the parts thereof carried up along with thoſe Salts by the ſubterranean Heat, and depoſited in divers parts of the Earth.

Monſ. *Tournefort* ſuppoſes Seeds of *Minerals*, as of Animals, and Vegetables. Every thing, according to him, comes from Eggs, even Stones; and the largeſt Rocks were originally no more than Grains of Sand. See his Syſtem more at length under the Articles Metal and Stone.

Others, as M. *Geoffroy*, contend that Metals, *&c.* may be the reſult of a mixture of certain Matters, which had nothing metallic in them. Thus, in the Aſhes of all Vegetables we find a ferruginous Matter which the Load-ſtone attracts; and yet it will hardly be ſaid that Iron exiſted in the Plants. We ſee no ſigns of Iron in Argilla, work it in what manner you will; and yet add Linſeed-Oil, and by Fire you will procure Iron. And the like may be ſaid of divers other Matters.

Hence it is probable, Metals may be form'd by a mere combination of different Ingredients; much like Sulphur, which we all know is made by adding an inflammable Principle to a vitriolic Salt. The Earth may every where abound with thoſe Matters, which are continually circulating through its Pores and Canals, and which meeting with an Earth homogeneous to them, fix thereto; and commence *Minerals*.

The *Minerals*, Metals, and Stones lie in Beds; and have done ſo ever ſince the Flood, if not from the Creation; yet 'tis highly probable they have a faculty of growing in their reſpective Beds; that, as their Beds are robb'd and emptied by Miners, ſo after a while they recruit again. Thus Vitriol, Mr. *Boyle* thinks, may grow by the help of the Air, and Alum does the ſame. We are aſſured (ſays that Author) by the experienced *Agricola*, that the Earth, or Oil of Alum, being robb'd of its Salts, will, in tract of time, recover it by being expoſed to the Air.

As for Metals, there is good reaſon to believe they grow likewiſe; from what has been alledged by Mr. *Boyle*, in his Obſervations about the growth of Metals, and particularly as to the growth of Iron. To the Inſtances he brings from *Pliny*, *Fallopius*, *Cæſalpinus*, and others, we may add, that in the Foreſt of *Dean* in *Glouceſterſhire*, the beſt Iron, and in the greateſt Quantities, are found in the old Cinders which they melt over again. This ſome impute to the Negligence of the former Melters in not exhauſting the Ore. But Mr. *Derham* thinks it rather owing to the new Impregnations of the old Ore, or Cinders from the Air; than to any ſeminal Principle in the Ore itſelf.

The Chymiſts generally take *Minerals* to be nothing elſe but imperfect Metals, which not having arriv'd at Maturity, may be perfected by Chymical Operations, and raiſed to red Metals. This agreeable, but fatal Deluſion, has given riſe to the Sect of Philoſophers, who ſtudy the Philoſopher's Stone. See Metal, Gold, Philosopher's Stone, *&c.*

Cryſtal Mineral, ſee Crystal *Mineral*.

MINERAL-WATERS, are thoſe, which at their ſpringing forth from under Ground, are found impregnated with ſome *Mineral* Matter; as Salt, Sulphur, Vitriol, *&c.* See Water.

Such are hot *Baths*, *Spaws*, purging, *&c.* Springs. See Bath, Spaw, Spring, *&c.*

MINIATURE, or Mignature, a delicate kind of Painting, conſiſting of little Points or Dots, inſtead of Lines; uſually done on Velom, with very thin, ſimple Water-Colours. See Painting.

Miniature is diſtinguiſhed from other kinds of Painting by the ſmallneſs and delicacy of its Figures, the weakneſs of their Colours, and faintneſs of the Colouring, and in that it requires to be view'd very near.

Thoſe Colours that have the leaſt Body, are the beſt and moſt commodious for painting in *Miniature*; as *Carmine*, *Ultramarine*, fine Lakes, and Green made of the Juices of ſeveral kinds of Herbs and Flowers.

Painting in *Miniature* is the niceſt and moſt tedious of all others; being performed wholly with the Point of the Pencil.

There are ſome Painters who never uſe any white Colour in *Miniature*, but make the ground of the Velom ſerve to raiſe their Figures; in which Caſe, the Lights appear bright in proportion to the depth and ſtrength of the Colours of the Figures. Others, before they go to work, give the Velom a light waſh with white Lead, well prepared and purified.

When the Colours are laid on flat without dotting, tho' the Figures be ſmall, and the ground either Velom or Paper, it is not call'd *Miniature*, but *Waſhing*.

The Colours for *Miniature* may be mix'd up with Water of Gum Arabic, or Gum Tragacanth.

The Word comes from the *Latin Minium*, Red Lead, that being a Colour much uſed in this kind of Painting. The *French* frequently call it Mignature, from *Mignon*, fine, pretty, on account of its ſmallneſs and delicacy.

MINIM, in Muſic, a Note, or Character of Time; equal to two Crochets, or half a Semibreve. See Time, and Characters *of Muſic*.

MINIMA *Naturæ*, or Minima *Naturalia*, among Philoſophers, are the primary Particles, whereof Bodies conſiſt; call'd alſo *Corpuſcles* and *Atoms*. See Corpuscle, Atom, Matter, *&c.*

MINIMA *and Maxima*, in the higher Geometry. See Maxima and *Minima*.

MINIMENTS, or MUNIMENTS. See Muniments.

MINIMS, or Minimi, an Order of Religious, inſtituted about the Year 1440, by S. *Francis de Paulo*.

Theſe have improved on the Humility of the *Minors*, by terming themſelves *Minimi*, or *Minimes*, *q. d.* Leaſt, or Smalleſt. See Minors.

MINION, a ſort of Cannon, or piece of Ordnance, whereof there are two kinds: large and ordinary. See Cannon and Ordnance.

The *large Minion*, or one of the largeſt Size, has its Bore $3\frac{1}{4}$ Inch Diameter, and is 1000 Pounds Weight; its Load is $3\frac{1}{4}$ Pounds of Powder; its Shot 3 Inches in Diameter, and $3\frac{3}{4}$ Pound Weight; its Length is 8 Foot, and its level Range 125 Paces.

The *ordinary Minion* is three Inches Bore, in Diameter, and weighs about 800 or 750 Pounds Weight. It is ſeven Foot long; its Load $2\frac{1}{2}$ Pounds of Powder; its Shot near three Inches Diameter, and weighs 3 Pounds 4 Ounces; and ſhoots point-blank 120 Paces.

MINISTER, *Servant*, one that ſerves God, the Public, or a private Perſon. See Servant.

In the Reformed Church, Prieſts, or thoſe ordain'd to preach, and do the other Functions of the Prieſthood, are call'd abſolutely and ſimply *Miniſters*.

In this ſenſe, Biſhops, *&c.* are ſaid to be *Miniſters* of God; *Miniſters* of the Word; of the Goſpel, *&c.* In ſome Churches they are alſo called Paſtors. See Bishop, Priest, Pastor, *&c.*

Ministers *of the Altar*, are properly thoſe who attend, and aſſiſt the Prieſt at the Adminiſtration of the Euchariſt. Deacon, and Subdeacon are Titles that properly ſignify *Miniſters*; Διακονος, *Miniſter*. See Deacon and Subdeacon.

Officers of State, *&c.* are call'd the King's *Miniſters*; as adminiſtring the Affairs of Juſtice, Policy, *&c.* for him. See Officer.

Minister *of State*, is he with whom a Prince entruſts the Adminiſtration of his State; or to whom he commits the Care, and Direction of the principal Affairs thereof. See State and Government.

Boetius is propoſed as a Model for *Miniſters* of State. The Grand Vizir is the Prime *Miniſter* of the *Ottoman* Empire, See VIZIR.

Foreign Miniſters, or the *Miniſters of Foreign Princes*, are their Embaſſadors, Envoys, Agents, or Reſidents in the Courts of other Princes.

There are two kinds of Foreign *Miniſters*: *Miniſters* of the firſt Rank, who are alſo call'd Embaſſadors, and Envoys in Extraordinary. See EMBASSADOR and ENVOY.

And *Miniſters* of the ſecond Rank, who are the ordinary Reſidents. See RESIDENT.

Thoſe of the firſt Rank have a Repreſentative Character, which the others have not; tho' theſe laſt are ſometimes inveſted with fuller Powers than the former.

MINISTER is alſo the Title certain Religious Orders give to their Superior. See SUPERIOR.

In this ſenſe we ſay the *Miniſter* of the *Mathurins*; the *Miniſter* of the *Trinitarians*. See MATHURIN, *&c.*

Among the *Jeſuits*, the ſecond Superior, or Deputy of each Houſe is call'd *Miniſter*: as being an Aſſiſtant to the Superior, or Rector. See JESUITS.

The General of the *Cordeliers* Order is call'd the *Miniſter* General. See GENERAL.

MINISTRY, or **MINISTERY**, a Profeſſion, Office, or Employment which a Perſon diſcharges for the Service of God, the Public, or ſome particular Perſon. See MINISTER.

In this ſenſe we ſay, a Biſhop muſt give account to God of his *Miniſtry*, &c.

MINISTRY is alſo uſed for the Government of a State, by ſome great Miniſter under the Sovereign Authority. In this ſenſe we ſay, the *Miniſtry* of the Cardinal *de Richelieu*, &c.

MINISTRY is alſo frequently uſed as a collective Word, ſignifying the Miniſters or Officers of State. Thus we ſay, the *Miniſtry* oppoſed a Thing; meaning, the Miniſters oppoſed it.

MINIUM, a Mineral Colour, call'd alſo *red Lead*, uſed by Painters, Illuminers, *&c.* See LEAD.

Minium is a preparation of Lead, performed by Fire. There are two ways of making it. The firſt, of burnt Lead; the ſecond of Ceruſs, or white Lead further urged by Fire. See CERUSS, *&c.*

Beſide the uſe of *Minium* as a Colour; it is alſo an Ingredient in an Officinal Compoſition, call'd *Emplaſtrum de Minio*, uſed as a Deſiccative and Cicatrizer.

Some Authors will have the *Minium* of the Antients to be what we now call *Vermillion*. See VERMILLION.

MINOR, a *Latin* Term, literally denoting *leſs*, uſed in oppoſition to *major*, greater. See MAJOR.

Thus we ſay St. *James minor*: *Aſia minor*: The *Minor* Excommunication, *&c.*

The four *Minor Orders*, are the four leſſer Orders conferr'd, in the *Romiſh* Church, between the Tonſure and Subdeaconate. Theſe are that of *Porter*, or Door-Keeper; that of *Reader*; that of *Exorciſt*; and that of *Acolyte*. See EXORCIST, ACOLYTE, *&c.*

MINOR, in Law, is uſed in the like ſignification, to denote a Perſon yet under Age, or who by the Laws of the Country, is not yet arrived to the Power of Adminiſtring his own Affairs, or coming to the Inheritance of an Eſtate. See AGE.

Among us, a Perſon is a *Minor* till the Age of twenty one: Till this Time his Acts are invalid. See MAJOR.

Yet if a Patron, *&c.* have a Right of Advowſon, by the Common Law he may preſent at the Age of fourteen Years; and may of himſelf, and without his Father, or Guardian, conſent to any Proceſs relating to beneficiary Matters. See PATRON.

Hence, in the Canon Law, there is no Title *de Minoribus*; and the reaſon is, that the ſeveral Ages whereat the Common Law declares a Perſon capable of a Benefice, or of Sacred Orders, are ſo many Species of Canonical Majorities.

MINOR, in Logic, is the ſecond Propoſition of a formal, or regular Syllogiſm, call'd alſo the *Aſſumption*. See SYLLOGISM, PROPOSITION, and ASSUMPTION.

I grant the Major, but deny the *Minor*. See TERM.

MINOR, in Muſic, is apply'd to certain Concords, which yet differ from others of the ſame Denomination by a half Tone. See SEMI TONE.

Thus we ſay, a third *Minor*, or leſſer third: A ſixth Major, and *Minor*. See THIRD, SIXTH, *&c.*

Concords that admit of Major and *Minor*, *i. e.* greater, and leſs, are ſaid to be *Imperfect Concords*. See CONCORD.

MINORS, or *Friars* MINORS, an Appellation which the Cordeliers aſſume, out of ſhew of Humility; calling themſelves *Fratres Minores*, i. e. *Leſſer Brothers*; and ſometimes *Minorites*. See CORDELIERS.

The Title of *Minors*, however, is not abſolutely reſtrain'd to the Cordeliers, but alſo given, in the general, to all the Mendicants, or begging Religious, founded by St. *Francis d'Aſſiſe*. See FRANCISCANS.

There is alſo an Order of *Regular Minors* at *Naples*, eſtabliſhed in the Year 1588, and confirmed by *Sixtus* V.

MINOT, a *French* Meaſure. See MEASURE.

MINOTAUR, in Antiquity, a fabulous Monſter, much talk'd of by the Poets; feign'd to be half Man, and half Bull.

The *Minotaur* was brought forth by *Paſiphae*, Wife of *Minos* King of *Crete*. It was ſhut up in the Labyrinth of that Iſland; and at laſt kill'd by *Theſeus*. See LABYRINTH.

Servius gives the Explication of this Fable. He ſays, that a Secretary of King *Minos*, named *Taurus*, Bull, had an Intrigue with the Queen, *Paſiphae*, in the Chamber of *Dedalus*; and that ſhe was at length delivered of Twins, one of which reſembled *Minos*, and the other *Taurus*. This occaſion'd the Production to be reputed Monſtrous.

MINOVERY, a Treſpaſs committed in the Foreſt, by ſomething that is a Man's Handy-Work; as an Engine to catch Deer, *&c.* See FOREST.

The Word is form'd of the *French Main-oeuvre*, Hand-Work.

MINSTER, antiently ſignified the Church of a Monaſtery, or Convent. See CHURCH.

The Word is *Saxon*, *Mynſter*.

MINSTREL, an antient Term for a *Fidler*, or a Player on any other kind of Muſical Inſtrument.

The Word *Minſtrel* in its Original, was uſed for People who ſung and ſerenaded their Miſtreſſes. Afterwards it became a Name for all kinds of Muſicians: and at length paſs'd to Buffoons and Country Scrapers.

Borel derives the Word from *Manus* and *Hiſtrio*, one who diverts with the Hand; or from *Minor Hiſtrio*, little Buffoon. *Du Cange* derives it from *Minſtrellus*, a diminutive of Miniſter, by reaſon the *Minſtrels* were antiently ranked among the lower Officers, *Miniſters*, or Servants.

MINT, the Place where the King's Coin is form'd. See COIN.

Antiently there were *Mints* in moſt Cities of *England*. See MONEY.

The chief *Mint* at preſent is in the Tower of *London*. See TOWER.

The *Officers of the Mint* are, 1. The *Warden*, who is the Chief, and is to receive the Bullion, and over-ſee all the other Officers. 2. The *Maſter Worker*, who receives the Bullion from the Warden, cauſes it to be melted, and deliver'd to the Moniers, and takes it from them again when coin'd. 3. *Comptroller*, who is to ſee that the Money be made to the juſt Aſſize, and to over-ſee the Officers. 4. The *Aſſay-Maſter*, who weighs the Silver and Gold, and ſees whether it be Standard. 5. The *Auditor*, who takes all the Accounts. 6. The *Surveyor of the Melting*, who is to ſee the Silver caſt out, and that it be not alter'd after it is deliver'd to the Melter, *i. e.* after the Aſſay-Maſter has made Trial of it. 7. The *Clerk of the Irons*, who is to ſee that the Iron be clean, and fit to work with. 8. The *Graver*, who engraves the Dies and Stamps for the Coinage of the Money. 9. The *Melters*, who melt the Bullion before it comes to Coining. 10. The *Blanchers*, who boil and cleanſe the Money. 11. The *Porters*, who keep the Gate of the *Mint*. 12. The *Provoſt of the Mint*, who provides for all the Moneyers, and over-ſees them. And, Laſtly, the *Moniers*, ſome of which ſhear the Money; ſome forge it; and ſome ſtamp or coin it; and ſome round and mill it. See COINAGE.

MINT-*Water*, the diſtill'd Water of the Plant of that Name. See WATER.

MINTERS, or *Moneyers*. See MONEYERS and MINT.

MINTING, is ſometimes uſed for the *Coining* of Money. See COINING.

MINUSCULE, or MINUSCULÆ, in Printing, are the ſmall, or running Letters; as contradiſtinguiſh'd from *Majuſculæ*, or Capitals. See LETTER, MAJUSCULÆ, *&c.*

MINUTE, in Geography, and Aſtronomy, is the 60th part of a *Degree*; which is the 360th part of a Circle. See DEGREE.

Thus we ſay, the Diameter of the Sun is ſeen under an Angle of 39 *Minutes* in Winter; and 31 in Summer. See DIAMETER and SUN.

In this ſenſe, a *Minute* is alſo call'd a *Prime*, or *Prime Minute*. See PRIME.

The Diviſions of Degrees are Fractions, whoſe Denominators increaſe in a Sexagecuple Ratio; that is, a *Minute* or Prime is $= \frac{1}{60}$; a Second, or ſecond *Minute* $= \frac{1}{3600}$, *&c.* See SEXAGESIMAL.

In Aſtronomical Tables, *&c.* *Minutes* are expreſſed by acute Accents, thus, ′; Seconds by two, ″; Thirds by three, ‴. See SECOND, THIRD, *&c.*

MINUTE, in computation of Time, is uſed for the 60th part of an Hour. See HOUR.

MINUTE, in Architecture, is a 30th Part, or Diviſion of a Module. See MODULE.

MINUTE, in ſpeaking of Weights, is the 24th part of a Grain. See GRAIN.

MINUTE is alſo uſed to ſignify a ſhort Memoir, or Sketch of any thing taken haſtily in writing.

In this ſenſe we ſay, the *Minutes* of the Proceedings of the Houſe of Lords, *&c.*

The Word comes from the *Latin Minutus*, ſmall.

MIQUELETS, a kind of foot Soldiers, inhabiting the *Pyrenean* Mountains; arm'd with Piſtols under their Belts, a Carbine, and a Dagger.

The *Miquelets* are dangerous People for Travellers to meet.

MIRABOLANS, or MIROBOLANS, in Pharmacy. See MYROBOLANS.

MIRACLE, in the popular ſenſe of the Word, is a *Prodigy*, or an extraordinary Event that ſurprizes us by its Novelty.

In the more Accurate and Philoſophical Senſe, a *Miracle* is an Effect that does not follow from any of the known Laws of Nature; or which is inconſiſtent with ſome known Laws thereof. See NATURE.

A *Miracle*, therefore, being a ſuſpenſion of ſome Law, can't come from any hand leſs than his who fix'd that Law. See GOD, LAW, *&c.*

Spinoſa denies that any Power can ſuperſede that of Nature; or that any thing can diſturb or interrupt the Order of Things; and accordingly defines a *Miracle* to be a rare Event, happening in conſequence of ſome Laws that are unknown to us. See SPINOSISM.

The Divines define a *Miracle* to be an extraordinary and wonderful Effect, above the Power of Nature, wrought by God, to manifeſt his Power or Providence; or to give Credit to ſome Meſſenger ſent from himſelf. Thus Jeſus Chriſt evinced the Truth of his Miſſion, and his Doctrine by *Miracles*; and thus alſo did *Moſes*.

It is ſtill a diſpute in the World, how far it may be in the power of the Devil to work *Miracles*; or wherein the ſpecific difference lies between the *Miracles* of *Moſes*, and thoſe of *Pharaoh*'s Magicians; thoſe of Jeſus Chriſt and the Apoſtles, and thoſe of *Simon Magus* and *Apollonius Tyanæus*: Whether the latter were any more than mere Deluſions of the Senſes; or whether any ſupernatural and diabolical Power concurred with them. See MAGIC.

The Church of *Rome* abounds in *Miracles*; if we believe their Writers, ſome of their Monks have wrought more *Miracles* than all the Apoſtles; and that without any viſible Neceſſity for them.

As full as that Church pretends to be of Saints, it is a Rule with them, that none are ever Canonized till there be good Proof of his having wrought *Miracles*. So that were all thoſe allowed good *Miracles*, and to have happened out of the common Order of Nature, they are ſo numerous, one would be tempted to think there were no Order or Law of Nature at all. See SAINT.

There are thoſe however, who ſet aſide the Authority of all *Miracles*; thinking it unbecoming the Wiſdom of God to eſtabliſh ſuch Laws, as that he ſhould find it frequently neceſſary to ſuperſede. And as the former, from the avowed Authority of ſome *Miracles*, fetch an Argument for the Truth of all; pleading thoſe which are allow'd as well as thoſe which are queſtion'd; ſo theſe alledge the falſe ones as concluſions againſt them all.

The *Romans* attribute *Miracles* to their Emperors *Adrian* and *Veſpaſian*.

St. *Auguſtine* is a ſtrong Advocate for *Miracles*. He mentions ſeveral whereof he was an Eye-Witneſs, and others whereof he was informed by thoſe that were. In the ſingle City of *Hippo*, he tells us there were ſeventy *Miracles* wrought in the ſpace of two Years, on the building a Chappel in honour of St. *Stephen*.

Tho *Miracles* may prove the Superintendency of a voluntary Agent; and that the Univerſe is not guided by Neceſſity or Fate; yet that Mind muſt be weak and inadvertent, which needs them to confirm the Belief of a Wiſe and Good Deity: Since the Deviation from general Laws, unleſs upon very extraordinary Occaſions, muſt be a Preſumption of Inconſtancy and Weakneſs, rather than of a ſteady Wiſdom and Power; and muſt weaken the beſt Arguments we have for the Sagacity and Power of the Univerſal Mind. *Inquiry into the Original of the Ideas of Beauty*, &c.

MIRROR, or MIRROUR, or *Speculum*, Body which exhibits the Images of Objects preſented thereto, by Reflexion. See REFLEXION.

The Uſe of *Mirrours* is very antient. Mention is made of a *Brazen Mirrour*, or Looking-Glaſs in *Exodus* xxxviii. 8. where *Moſes* is ſaid to have made *a Brazen Laver, or Baſon, of the Looking-Glaſſes of the Women continually aſſembled at the Door of the Tabernacle.* 'Tis true, ſome modern Commentators will not allow the *Mirrours* themſelves to have been Braſs; but of Glaſs, only ſet, or framed in Braſs. But the moſt learned among the Rabbins do all allow, that in thoſe times, the *Mirrours* made uſe of by the *Hebrew* Women in dreſſing their Heads, were of Metal; and that the devout Women mention'd in this Paſſage, made Preſents to *Moſes* of all their *Mirrours* to make the Brazen Laver. See the Jeſuit *Bonfrezius*'s Comment on this Text.

It might likewiſe be proved, that the Antient Greeks made uſe of Brazen *Mirrours*; from divers Paſſages among the antient Poets. See BURNING-*Mirrour*.

MIRROUR, in Catoptrics, is any poliſh'd Body impervious to the Rays of Light, and which of conſequence reflects it equally. See LIGHT.

Thus Water in a deep Well or River, and ſmooth polite Metals, are rank'd among the number of *Mirrours*.

In this ſenſe, the Doctrine of *Mirrours* makes the Subject of *Catoptrics*. See CATOPTRICS.

MIRROUR, however, in the more confined Senſe of the Word, is peculiarly uſed to ſignify a ſmooth Surface of Glaſs, tinn'd or quick-ſilver'd on the back-ſide, which exhibits the Images of Objects oppoſed thereto.

The Doctrine of MIRROURS *is built on the following general Principles.*

1. *Light reflected from any* Mirrour, *or Speculum, makes the Angle of Incidence equal to that of Reflexion*; which ſee demonſtrated under the Word REFLEXION.

Hence, a Ray of Light, as A B (Tab. OPTICS, *Fig* 26.) falling perpendicularly on the Surface of a Speculum, will be reflected back upon itſelf: which we find by Experience it actually does.

From the ſame Point of a *Mirrour*, therefore, there can't be ſeveral Rays reflected to the ſame Point; ſince in that Caſe, all the Angles of Incidence muſt be equal to the ſame Angle of Reflexion C B G, and therefore to each other; which is abſurd. Nor can the Ray A B be reflected into two or more Points; ſince, in that Caſe, all the Angles of Reflexion would be equal to the ſame Angle of Incidence A B F: which is likewiſe abſurd.

2. *From every Point of a* Mirrour, *are reflected Rays thrown on it from every Point of a radiant Object.*

Since then Rays coming from different parts of the ſame Object, and ſtriking on the ſame Point of the Object, cannot be reflected back to the ſame Point; the Rays which flow from different Points of the ſame radiating Object, are again ſeparated after reflexion: ſo that each Point ſhews whence it came. See RADIANT.

Hence it is, that the Rays reflected from *Mirrours* exhibit the Objects to view. Hence, alſo, it appears, that rough uneven Bodies muſt reflect the Light in ſuch manner, as that Rays coming from different Points, will be blended or thrown confuſedly together.

MIRROURS are either *Plane*, *Concave*, *Convex*, *Cylindrical*, *Conical*, *Parabolical*, or *Elliptical*.

Plane MIRROURS, or *Specula*, are thoſe which have a plain or flat Surface. See PLANE.

Theſe, by a popular Word, we call *Looking-Glaſſes*.

For the Manner of making plain Mirrours, *or Specula*, ſee LOOKING-GLASS.

Laws and Phænomena of Plain MIRROURS.

I. *In a plain* Mirrour, *every Point of an Object, as* A, (Tab. OPTICS, *Fig.* 27.) *is ſeen in the Interſection of the Cathetus of Incidence*, A B, *with the reflected Ray* C B.

Hence, 1. As all the reflected Rays meet with the Cathetus of Incidence in B; by whatever reflected Rays the Point A be ſeen, it will ſtill appear in the ſame Place. Conſequently, any number of Perſons viewing the ſame Object in the ſame *Mirrour*; will all ſee it in the ſame place behind the *Mirrour*. And hence it is, that the ſame Object has only one Image, and that we don't ſee it double with both Eyes. See VISION.

2. The diſtance of the Image B, from the Eye C, is compounded of the Ray of Incidence A D, and the reflected Ray C D: And the Object A radiates reflectedly, in the ſame manner as it would do directly, were it removed into the place of the Image.

II. *The Image of a radiant Point*, B, *appears juſt ſo far behind a plain* Mirrour, *as the radiant Point is before it.*

Hence, 1. If the *Mirrour* A G be placed horizontal: the Point A will ſeem ſo much below the Horizon, as it is really elevated above it: Conſequently, erect Objects will appear as if inverted; and therefore Men ſtanding on their Feet, as if on their Heads. Or if the *Mirrour* be faſtned to the Ceiling of a Room, parallel to the Horizon, Objects on the Floor will appear above the Ceiling as much as they really are below it; and that upſide down.

III. *In a plain* Mirrour, *the Images are perfectly Similar, and equal to the Objects.* And hence their Uſe as Looking-Glaſſes.

IV. *In a plain* Mirrour, *things on the right Hand, appear as on the left; and* vice verſa.

Hence alſo, *we have a Method of Meaſuring any inacceſſible Altitude by means of a plain* Mirrour.

Thus, the *Mirrour* being placed horizontally in C, *Fig.* 28. retire from it till ſuch time as the Top of the Tree be ſeen therein.

herein. Meaſure the height of the Eye D E; the diſtance of the Station from the Point of Reflexion E C, and the diſtance of the Foot of the Tree from the ſame. Then to E C, C B, and E D, find a fourth Proportional A B. This is the Altitude ſought.

V. *If a plain Mirrour be inclined to the Horizon in an Angle of 45 Degrees; an Object perpendicular to it will appear parallel, and an horizontal Object perpendicular.*

And hence, the Eye being placed beneath the *Mirrour*, the Earth will appear perpendicularly over it; or if placed over it, the Earth will appear perpendicularly under it. Hence alſo, a Globe deſcending down a Plane a little inclined, may, by means of a *Mirrour*, be exhibited as mounting up a Vertical Plain, to the great ſurprize of ſuch as are unacquainted with Catoptrics.

And hence we have a Method of repreſenting ourſelves as if flying.

For a *Mirrour* inclined to the Horizon under an Angle of 45°, we have obſerved, will repreſent Vertical Objects as if Horizontal. Conſequently, a large *Mirrour* being ſo diſpoſed; as you advance toward it, you will ſeem to move horizontally; and nothing will be wanting to the Appearance of flying, but to ſtrike out the Arms and Legs. It muſt be added, however, that as the Floor is elevated along with you, your Feet will ſtill be ſeen to walk as along a vertical Plane. To deceive the Eye intirely, therefore, it muſt be kept from the Feet.

VI. If the Object A B (*Fig.* 29.) be parallel to the Speculum C D, and be equally diſtant from it, with the Eye; the reflecting Line C D will be half the length of the Object A B.

And hence, to be able to ſee the whole Body in a plain *Mirrour*; its height and breadth muſt be half your height, and breadth. Conſequently, the height and breadth of any Object to be ſeen in a *Mirrour*, being given; we have alſo the height and breadth of the *Mirrour* wherein the whole Object will appear, at the ſame diſtance with the Eye.

Hence alſo, as the length and breadth of the reflecting part of the Speculum, are ſubduple of thoſe of the Object to be reflected; the reflecting part of the *Mirrour*, is to the Surface reflected in a ſubquadruple Ratio. Conſequently, the reflecting Portion being a conſtant Quantity; if in any place you ſee the whole Body in a *Mirrour*, you will ſee it in every other place, whether you approach nearer, or recede farther from it.

VII. If ſeveral *Mirrours*, or ſeveral Fragments, or Pieces of a *Mirrour*, be all diſpoſed in the ſame Plane; they will only exhibit an Object once.

VIII. *If two plain* Mirrours, *as* X Y, *and* Z X, (Fig. 30.) *be join'd at an Angle* X; *the Eye* O, *placed within that Angle, will ſee the Image of an Object* A *placed within the ſame, as often repeated as there may be Catheti drawn determining the places of the Images, and terminated without the Angle* Y X Z.

Hence, as the more Catheti terminated without the Angle, may be drawn as the Angle is more acute; the acuter the Angle, the more numerous the Images. Thus *Z. Traber* found at an Angle of one third of a Circle, the Image was repreſented twice or thrice, at $\frac{1}{4}$ thrice, at $\frac{1}{5}$ five times, at $\frac{1}{12}$ twelve times.

Further, if the *Mirrours* be placed upright, and ſo contracted; or if you retire from them, or approach to them, till the Images reflected by them coaleſce, or run into one, they will appear monſtrouſly diſtorted: Thus if they be at an Angle ſomewhat greater than a right one, you will ſee it with only one Eye; if the Angle be leſs than a right one, you will ſee three Eyes, two Noſes, two Mouths, *&c.* At an Angle ſtill leſs, the Body will have two Heads. At an Angle ſomewhat greater than a right one, at the diſtance of four Feet, the Body will be headleſs, *&c.* Again, if the *Mirrours* be placed the one parallel to the Horizon, the other inclined to it, or declined from it, it is eaſy to perceive that the Images will be ſtill more Romantic. Thus, one being declined from the Horizon to an Angle of 144 Degrees, and the other inclined to it; a Man ſees himſelf ſtanding with his Head to another's Feet.

Hence it appears how *Mirrours* may be manag'd in Gardens, *&c.* ſo as to convert the Images of thoſe near 'em into Monſters of various kinds: And ſince glaſs *Mirrours* will reflect the Image of a lucid Object twice or thrice; if a Candle, *&c.* be placed between the *Mirrours*, it will be multiply'd an infinite number of times.

On theſe Principles are founded various Catoptric Machines, ſome of which repreſent Objects infinitely multiply'd and diſtorted; others infinitely magnify'd, and ſet at vaſt diſtances. See CATOPTRIC, CISTULA, *&c.*

Convex MIRROURS are thoſe whoſe Surface is convex. See CONVEX.

Note, by *Convex* Surfaces, Authors generally mean ſuch as are ſpherically Convex. See CONVEXITY.

Manner of preparing or making Convex Specula, or MIRROURS.

There are divers Methods uſed by divers Artiſts; particularly as to the Matter, or Compoſition. One of the beſt that is known, is given us by *Wolfius* thus;

Melt one part of Tin, and another of Marcaſite together, and to the melted Maſs add two parts of Mercury; as ſoon as the Mercury begins to evaporate into Smoak (which it preſently does) the whole Compoſt is to be thrown into cold Water, and when well cool'd, the Water decanted off. The Mixture is then to be ſtrain'd through a linen Cloth two or three fold; and what is thus ſecerned, pour'd into the Cavity of a glaſs Sphere: this Sphere is to be turn'd gently round its Axis till the whole Surface is cover'd; the reſt being reſerved for future uſe.

If the Sphere were of colour'd Glaſs, the *Mirrour* will be ſo too.

And in the ſame manner may Conic, Elliptic, Cylindric, and other *Mirrours* be made.

How they may be made of Metal, ſee under *Concave* MIRROUR.

Laws, or Phænomena of Convex MIRROURS.

I. In a ſpherical convex *Mirrour*, the Image of a radiant Point appears between the Centre, and the Tangent; but nearer to the Tangent than the Centre.

Hence, the diſtance of the Object from the Tangent is greater than that of the Image. And, conſequently, the Object is further diſtant from the Speculum than the Image.

II. If the Arch B D, (*Fig.* 31.) intercepted between the Point of Incidence D, and the Cathetus A B; or the Angle C form'd in the Centre of the *Mirrour* by the Cathetus of Incidence A C, and that of Obliquation F C, be double the Angle of Incidence; the Image G will appear on the Surface of the Speculum.

III. If the Arch intercepted between the Point of Incidence, and the Cathetus; or the Angle C form'd in the Centre of the *Mirrour* by the Cathetus of Incidence, and the Cathetus of Obliquation, be more than double the Angle of Incidence; the Image will be without the *Mirrour*.

IV. If the Arch intercepted between the Point of Incidence, and the Cathetus; or the Angle form'd in the Centre of the *Mirrour*, by the Cathetus of Incidence, and that of Obliquation be leſs than double the Angle of Incidence; the Image will appear within the Speculum.

V. In a convex *Mirrour*, a remoter Point, A, (*Fig.* 32.) is reflected from a Point F, nearer the Eye O, than any nearer Point B in the ſame Cathetus of Incidence.

Hence, if the Point of the Object A, be reflected from the Point of the *Mirrour* F; and the Point of the Object B from the Point of the *Mirrour* E: all the intermediate Points between A and B will be reflected from the intermediate Points of the Speculum between F and E. Conſequently F E will be the Line that reflects A B.

Hence alſo, a Point of the Cathetus B, ſeems at a greater diſtance C *b* from the Centre C; than a more remote one, A.

VI. A nearer Point B (*Fig.* 33.) not in the ſame Cathetus with a remoter, H; is reflected to the Eye O, from a nearer Point of the Speculum, than the remoter H.

Hence, if the Point of an Object A, be reflected from the Point of a *Mirrour* C; and the Point of the Object B, from the Point of the Speculum D, all upon the ſame Point O: All the intermediate Points between A and B will be reflected from all the intermediate Points between C and D. Conſequently, the Image F G, of the Object B A, is contain'd between the Cathetus B E, and A E.

VII. In a ſpherical convex *Mirrour*, the Image is leſs than the Object.

And hence the Uſe of ſuch *Mirrours* in the Art of Painting, where Objects are to be repreſented leſs than the Life.

VIII. In a convex *Mirrour*, the more remote the Object; the leſs its Image: And again, the ſmaller the *Mirrour*, the leſs the Image.

IX. In a convex *Mirrour*, the right hand is turn'd to the left; and the left to the right: And Magnitudes perpendicular to the *Mirrour*, appear topſy turvey.

X. The Image of a right Line perpendicular to the *Mirrour*, is a right Line; but that of a right Line either oblique to the *Mirrour*, or parallel thereto, is convex.

XI. Rays reflected from a convex *Mirrour*, diverge more than if reflected from a plane *Mirrour*.

Hence Light, by being reflected from a ſpherical *Mirrour*, is weakned; and, conſequently, the Effects of the reflected Light are weaker than thoſe of the direct. Hence alſo, Myopes ſee remote Objects more diſtinctly in a convex *Mirrour*, than they do directly.

Rays reflected from a convex *Mirrour* of a ſmaller Sphere, diverge more than if reflected from a larger. Conſequently ly, the Light is more weaken'd, and its Effects are leſs conſiderable in the former Caſe than the latter.

Concave MIRROURS are thoſe whoſe Surface is concave. See CONCAVE.

Note, by *Concave*, Authors commonly mean *Spherically Concave.*

The Manner of preparing or making Concave MIRROURS.

Firſt, a Mould is to be provided for caſting them. In order to this, take Clay well dry'd, pulverize, and ſift it; mix it up with Water, and then ſtrain or filter it; with this, work up Horſe-Dung and Hair ſhred ſmall, till the Maſs be ſufficiently tough; to which, on occaſion, may be added Charcoal-Duſt, or Brick-Duſt, well ſifted.

Two coarſe Molds are then prepared of a gritty Stone, the one concave, the other convex, which are to be ground on one another with wet Sand between, till ſuch time as the one perfectly fits the other. By this means a perfect ſpherical Figure is acquir'd.

The Maſs prepared before, is now to be extended on the Table by means of a wooden Roller, till it be of Thickneſs proper for the *Mirrour*; and then being ſtrew'd with Brick-Duſt to prevent its ſticking, it is laid over the convex Mould, and ſo gets the figure of the *Mirrour*. When this is dry, it is cover'd with another Lay of the ſame Maſs; which once dry'd, each Cover, or Segment of the hollow Sphere made of Clay, is taken off. The innermoſt of the two being laid aſide, the ſtone Mould is anointed with greaſe prepared from Chalk and Milk, and the outer Cover again put over it.

Laſtly, the Joining being cover'd over with the ſame Clay whereof the Cover is form'd; the whole Mould is bound together with Iron-Wire; and two Holes cut through the Cover, the one for the melted Matter of the *Mirrour* to be poured thro', the other for the Air to eſcape at, to prevent the *Mirrour*'s being ſpoil'd with Bubbles.

The Mould thus prepared; eight parts of Copper, one of *Engliſh* Tin, and five of Marchaſite, are melted together; a little of the mixture is taken out with a Ladle, and if it be too red, when cold, more Tin is put in; if too white, more Copper: The Maſs is then poured into the Mould before prepared; and ſo aſſumes the figure of a *Mirrour*.

Some with ten parts of Copper mix four of *Engliſh* Tin, a little Antimony and Sal Armoniac, ſtirring the Maſs about as long as any Fumes ariſe from it. Others have other Compoſitions; many of which are deſcribed by *Schottus* and *Zahnius*.

The *Mirrour* being thus caſt, is cemented to a Wooden Frame, and thus work'd to and fro over the convex Stone-Mould, firſt with Water and Sand; and, laſtly, without Sand, till it be fit for poliſhing. The Stone-Mould is then cover'd with Paper, and that ſmear'd over with Tripoly Duſt and Calx of Tin: over which the *Mirrour* is work'd to and fro till it have got a perfect Poliſh. And in the ſame manner are Glaſs *Mirrours* poliſh'd, excepting that the convex Surface is there work'd in the concave Mould.

When the *Mirrours* are very large, they are fix'd on a Table, and firſt ground with a gritty Stone, then with Pumice, then with fine Sand, by means of a Glaſs cemented to a wooden Frame; and laſtly rubb'd with Calx of Tin and Tripoly Duſt by a wet Leather.

For concave *Mirrours* of Glaſs; the Mould is made of Alabaſter: The reſt, as in Metal *Mirrours*.

Laws and Phænomena of Concave MIRROURS.

I. If a Ray, as K I, (*Fig.* 34.) fall on a concave *Mirrour* L I, under an Inclination of 60 Degrees, and parallel to the Axis A B; the reflected Ray I B will concur with the Axis A B in the Pole of the Glaſs B. If the Inclination of the incident Ray be leſs than 60 Degrees, as that of E, the reflected Ray E F will concur with the Axis at the diſtance B F, which is leſs than a fourth part of the Diameter. And univerſally, the diſtance of the Point F, wherein the Ray H E concurs with the Axis, from the Centre C, is to half the Radius C D in the Ratio of the whole Sine, to the Coſine of Inclination.

Hence it is gathered by Calculation, that in a concave ſpherical *Mirrour*, whoſe breadth ſubtends an Angle of 6 Degrees, parallel Rays meet after Reflection in a part of the Axis leſs than the one thouſand four hundred fifty ſeventh part of the Radius: if the breadth of the concave *Mirrour* be 12, 18, 24, 30, or 36 Degrees; the part of the Axis wherein the parallel Rays meet after Reflexion is leſs than $\frac{1}{381}$, $\frac{1}{160}$, ^{1}, $\frac{1}{58}$, $\frac{1}{36}$ of the Radius.

And on this Principle it is, that *Burning-Glaſſes* are built.

For ſince the Rays diffuſed thro' the whole Surface of the concave *Mirrour*, after reflection are contracted into a very ſmall compaſs; the Light and Heat of the parallel Rays muſt be prodigiouſly increaſed thereby, *viz.* in a duplicate Ratio of the breadth of the *Mirrour*, and the Diameter of the Circle wherein all the Rays are collected: And ſince the Sun's Rays are, as to any purpoſes on Earth, parallel, (ſee LIGHT) no wonder concave *Mirrours* ſhould burn with ſo much violence. See BURNING-*Glaſs*.

From this ſame Principle is likewiſe deduced a Method of repreſenting the Images of Objects in a dark Room; which ſee under CAMERA *Obſcura*.

II. A lucid Body being placed in the Focus F, of a concave *Mirrour*, H B C; the Rays after reflexion become parallel.

Hence an intenſe Light may be projected to a vaſt diſtance, by a lighted Candle, &c. placed in the Focus of a concave *Mirrour*. Hence alſo, if the parallel Rays be received by another concave *Mirrour*, they will again concur in its Focus, and burn.

Zahnius mentions an Experiment of this kind made at *Vienna*, where two concave *Mirrours*, the one ſix, the other three Foot diameter, being placed about 24 Feet apart, with a Live-Coal in the Focus of the one, and a Match and Tinder in the other, the Rays of the Coal lighted the Candle.

III. If a lucid Body be placed between the Focus F, and the *Mirrour* H C B, the Rays after reflexion will diverge from the Axis B G. Whence it follows that Light is weakned by reflexion.

IV. If a lucid Body be placed between the Focus F, and the Centre I, the Rays after reflexion will meet in the Axis beyond the Centre.

Hence if a Candle be placed in G, its Image will be in K; if it be placed in K, its Image will be in G; in the intermediate Points between G and K the Section of Light will be a Circle, and that ſo much the greater, as it is nearer the Point of Concourſe.

V. If a luminous Body be placed in the Centre of the *Mirrour*, all the Rays will be reflected back upon themſelves.

Hence if the Eye be placed in the Centre of a concave *Mirrour*, it will ſee nothing but itſelf, and that confuſedly through the whole *Mirrour*.

VI. If a Ray falling from the Point of the Cathetus *b*, (*Fig.* 35.) on the convex *Mirrour* *b* F, be together with its reflex I F, continued within the Concavity of the *Mirrour*; F H will be the Incident Ray from the Point of the Cathetus H and F O its reflex.

Hence, 1. Since the Point of the Cathetus H is the Image of the Point *b* in the convex *Mirrour*; but the Point *b* the Image of H in the concave: if the Image of an Object reflected by a convex Speculum, be ſeen by a Reflection made in its Concavity, it will appear like the Object itſelf.

2. Since the Image of an infinite Cathetus is leſs in a convex Glaſs by one fourth of its Diameter; a Portion of the Cathetus leſs than a fourth part of the Diameter, may appear of any magnitude required in a concave one.

3. A Point therefore diſtant from a concave Speculum, leſs than $\frac{1}{4}$ of the Diameter muſt appear behind the *Mirrour* at any diſtance, how great ſoever.

4. Since the Image of any Object how broad ſoever, is contain'd, in a convex Speculum, between the two Lines of Incidence of its extreme Points; if an Object be placed between the two Lines at a diſtance leſs than $\frac{1}{4}$ of its Diameter, the breadth of the Image, how great ſoever, may all appear.

4. Since then the Image of an Object included between two Lines, at a diſtance leſs than one fourth of the Diameter, may exceed the juſt height and breadth of the Object; nay, may be made of any magnitude, how big ſoever: Objects placed between the Focus and *Mirrour*, muſt appear of enormous magnitudes in concave *Mirrours*; the Image being ſo much the greater in the concave *Mirrour*, as it is leſs in the convex.

5. In a convex *Mirrour*, the Image of a remote Object appears nearer the Centre than that of a nearer Object: therefore in a concave *Mirrour*, the Image of an Object remote from the *Mirrour*, appears at a greater diſtance than that of a nearer Object, provided the diſtance of the Object from the Centre be leſs than a fourth part of the Diameter.

6. In a convex Speculum, the Image of a remote Object is leſs than that of a near one; therefore in a concave one, the Image of an Object placed between the Focus and the *Mirrour*, is nearer the Focus than the Speculum.

7. The Image therefore of an Object receding continually from a concave Speculum, becomes continually greater, provided it don't recede beyond the Focus, where it becomes confuſed; and as it approaches, it grows continually leſs.

8. In a convex Speculum, if the Sphere, whereof it is a Segment, be ſmaller, the Image is ſmaller than in another of a larger Sphere; therefore in a concave, if the Sphere whereof it is a Segment, be ſmaller, the Image will be larger than in another, whoſe Sphere is larger; whence concave *Mirrours*, if they be Segments of very ſmall Spheres, will do the Office of Microſcopes.

BRITISH MUSEUM
1 MAY 32

TAB. MISCELLANY

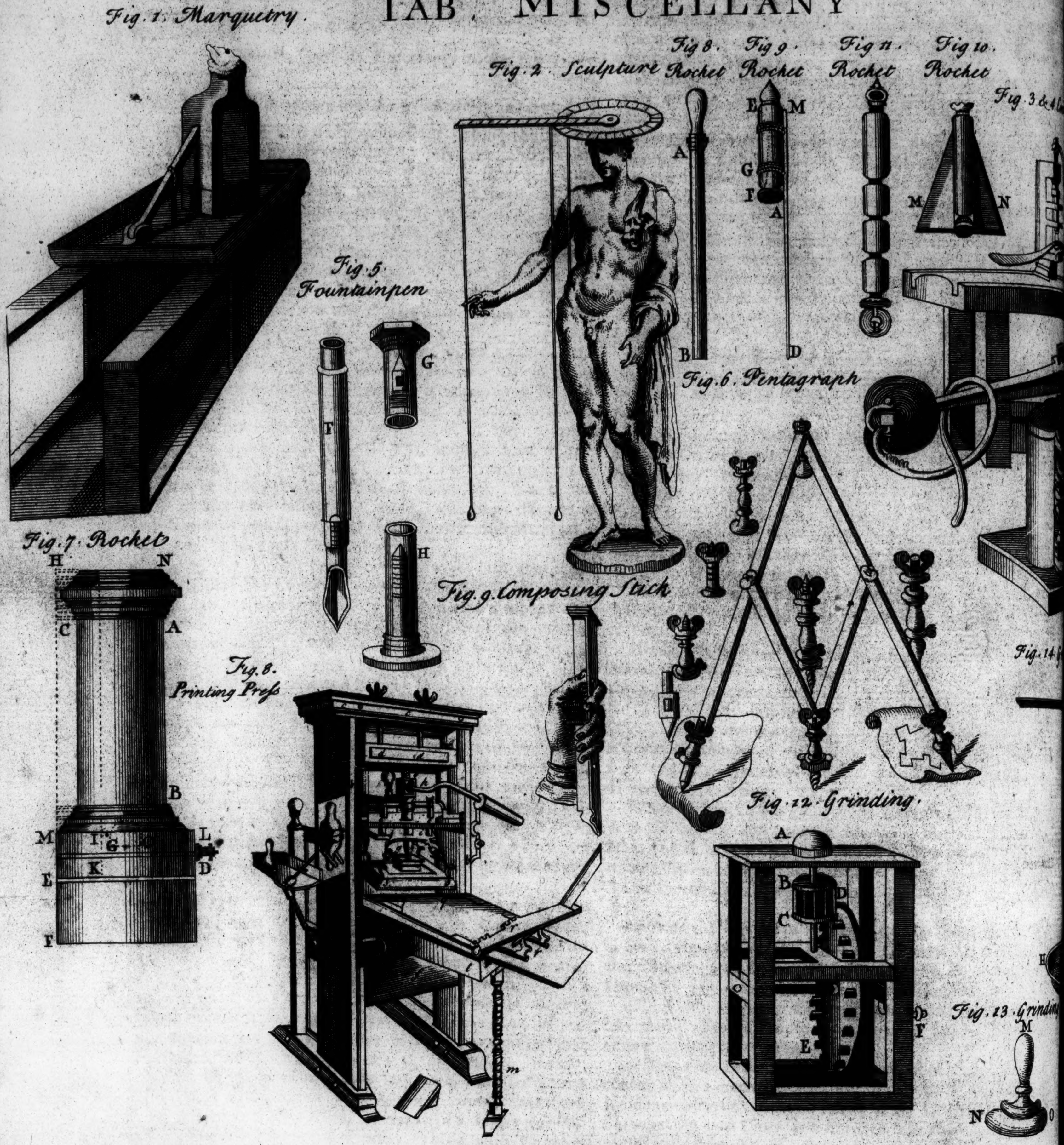
Fig. 1. Marquetry
Fig. 2. Sculpture
Fig. 8. Rocket
Fig. 9. Rocket
Fig. 11. Rocket
Fig. 10. Rocket
Fig. 3 & 4
Fig. 5. Fountainpen
Fig. 6. Pentagraph
Fig. 7. Rocket
Fig. 8. Printing Preſs
Fig. 9. Composing Stick
Fig. 12. Grinding
Fig. 13. Grinding
Fig. 14
A
B
C
D
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TAB. MUSIC

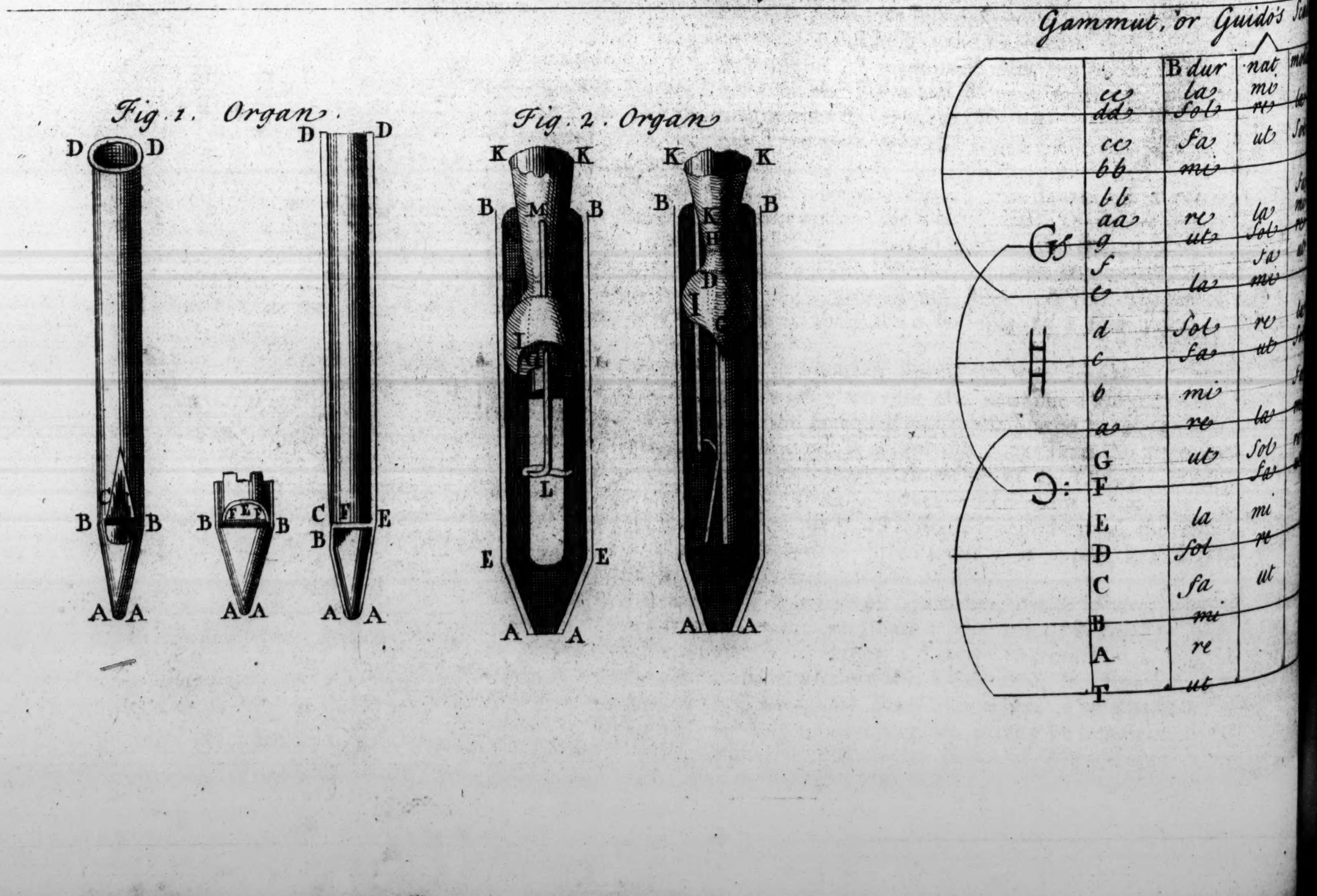
Fig. 1. Organ
Fig. 2. Organ
Gammut, or Guido's
A
B
C
D
E
F
I
K
L
M
B dur
nat
mi
re
ut
fa
sol
la
cc
dd
bb
aa
g
f
e
d
c
b
a
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F
E
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C
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Γ

VII. If an Object be placed between a concave *Mirrour* and its Focus, its Image will appear behind the *Mirrour*, in an erect but inverted Situation.

VIII. If an Object A B, (*Fig.* 36.) be placed between the Focus and the Centre, its Image E F will appear inverted, and in the open Air, beyond the Centre, the Eye being placed beyond the Centre.

IX. If an Object E F be placed beyond the Centre C, and the Eye likewiſe beyond the Centre, the Image will appear inverted in the open Air between the Centre and the Focus.

Hence, the inverted Images of Objects placed beyond the Centre, are reflected by a concave *Mirrour*, erect, and may be received on a Paper apply'd between the Centre and the Focus, eſpecially if the Room be dark: if the Object E F be further diſtant from the Centre than is the Focus, the Image will be leſs than the Object.

On this Principle, concave *Mirrours*, eſpecially thoſe which are Segments of large Spheres, and are capable of reflecting intire Objects, exhibit many pleaſing Phænomena. Thus, if a Man flouriſh a Sword againſt the *Mirrour*, another comes out thereof, and meets him with the ſame Motions; and the Image of his Head coming out of the *Mirrour*, if he ſtrike it with his real Sword, the imaginary Sword will ſtrike his real Head. If he ſtretch out his Hand, another Hand will be ſtretch'd out of the *Mirrour*, and meet it at a great diſtance in the open Air, *&c.*

And on the ſame Principle are built Catoptric Ciſtulæ, which when look'd into, exhibit Images vaſtly bigger than the Cheſt. See CATOPTRIC *Ciſtula*.

X. The Image of a right Line perpendicular to a concave *Mirrour*, is a right Line; but all oblique or parallel Lines are concave.

Cylindrical, *Conical*, *Parabolical*, and *Elliptical* MIRROURS, or *Specula*, are thoſe terminated by a Surface reſpectively Cylindrical, Conical, Parabolical, and Sphæroidical. See CYLINDER, CONE, PARABOLA, *&c.*

To prepare, or make Cylindrical, Conical, Parabolical, Elliptical, and Hyperbolical MIRROURS.

For *Cylindrical* and *Conical Mirrours*, if they are to be of Glaſs, the Method of preparing 'em is the ſame as that already laid down for convex *Mirrours*.

If of Metal, they are to be made after the manner of *Concave Mirrours*, only that the clay Moulds there deſcribed, require other Wooden ones of the Figure of the *Mirrour*.

For *Elliptical*, *Parabolical*, and *Hyperbolical Mirrours*, the Mould is to be thus prepared. On a Wooden or Brazen Plane or Table, deſcribe the Figure of an *Ellipſis*, A B, (*Fig.* 37.) a *Parabola*, or an *Hyperbola* C D, (*Fig.* 38.) after the manner taught under thoſe heads; which done, cut out the Figure from the Plane with all the Accuracy imaginable.

To the Elliptic Figure, fit an Axis, as E F, with two Fulcra to ſuſtain it, *&c.* and to move it. Lay a Quantity of the Lay above deſcribed under it; and turn about the Axis by the Handle, till the Plane A B have turn'd, or impreſs'd the Elliptical Figure exactly thereon.

The Axis of the Parabolical, or Hyperbolical Figure CD, is to be fix'd at the Vertex in ſuch manner as it may always remain Erect. This to be turn'd about as above, till it have given its own Figure to the Clay apply'd about it.

The part of the Mould thus form'd, is to be dry'd, and either ſmear'd over with Fat, or ſprinkled with Brick-Duſt. Then a convex Mould to be made, by putting a Quantity of the ſame Clay into the Cavity thus form'd. This latter is call'd the *Male*, as the former the *Female* Mould.

The Male Mould being well dried, is to be apply'd within the Female; in ſuch manner as only to leave the intended Thickneſs of the *Mirrour* between them. The reſt as for concave *Mirrours*.

Theſe *Mirrours* are not made without the utmoſt difficulty; by reaſon, be the Moulds ever ſo juſt, the Figure of the *Mirrour* is apt to be damaged in the Grinding.

Phænomena, or Properties of Cylindrical MIRROURS.

I. The Dimenſions of Objects correſponding length-wiſe to the *Mirrour*, are not much chang'd; but thoſe correſponding breadth-wiſe, have their Figures alter'd, and their Dimenſions leſſen'd ſo much the more, as they are further from the *Mirrour*: Whence ariſes a very great Diſtortion.

II. If the Plane of Reflexion cut the cylindric *Mirrour* thro' the Axis, the Reflexion is performed in the ſame manner, as in a plain *Mirrour*; if it cut it parallel to the Baſe, the Reflexion happens in the ſame manner as in a ſpherical *Mirrour*; if, laſtly, it cut it obliquely, or be oblique to its Baſe, the Reflexion is the ſame as in an Elliptic *Mirrour*.

Hence, as the Plane of Reflexion never paſſes through the Axis of the *Mirrour*, except when the Eye and Objective-Line are in the ſame plane; nor parallel to the *Baſe*, except when the radiant Point and the Eye are at the ſame height: The Reflexion in a Cylindrical *Mirrour* is uſually the ſame as in an Elliptic one.

III. If a hollow cylindric *Mirrour* be oppoſed directly to the Sun, inſtead of a Focus of a Point, the Rays will be reflected into a lucid Line parallel to its Axis, at a diſtance ſomewhat leſs than a fourth part of its Diameter.

Hence ariſes a Method of Drawing *Anamorphoſes*, *i.e.* wild deformed Figures on a Plane, which appear beautiful and well-proportion'd when view'd in a cylindrical *Mirrour*. See ANAMORPHOSIS.

For *Elliptic*, *Parabolic*, *Conic*, and *Pyramidal Mirrours*, we are not much acquainted with their Properties: Only that,

In the Firſt, if a Ray ſtrike on it from one of its Focus's, it is reflected into the other: So that a lighted Candle being placed in one, its Light will be collected in the other.

That the Second, inaſmuch as all the Rays they reflect meet in one Point, make the beſt Burning-Glaſſes of all others.

And, Laſtly, that wild irregular Figures may be ſo drawn on a Plane, as that the Eye being placed over the Axis of the two laſt, they ſhall appear beautiful and well-proportion'd. See ANAMORPHOSIS.

MIS, a Particle prefix'd to divers Terms, particularly Law-Terms; denoting ſome Fault, or Defect.

As in *Miſpriſion*; *Miſdicere*, to ſcandalize one; *Miſdocere*, to teach amiſs, *&c.* See MISPRISION, *&c.*

MISANTHROPY, a general Hatred to Man, and Mankind: In oppoſition to *Philanthropy*. See PHILANTHROPY.

The Word comes from the *Greek* μῖσος, *Odium*, Hatred; and ανθρωπος, *Homo*, Man.

MISAVENTURE, or MISADVENTURE, in Law, is uſed by *Britton*, *&c.* in an eſpecial Signification, for the killing a Man partly by Negligence, and partly by Chance: As if a Perſon, thinking no harm, careleſly throws a Stone, or ſhoots an Arrow, wherewith he kills another; in this caſe he commits no *Felony*, but only loſes his Goods, and has a Pardon of courſe for his Life. See HOMICIDE.

Staunford diſtinguiſhes between *Aventure* and *Miſaventure*. The firſt he makes to be meer Chance; as if a Man being upon, or near the Water, be taken with ſome ſudden Sickneſs, and ſo fall in, and be drown'd; or into the Fire, and be burnt.

Miſaventure, according to him, is when a Man comes to his Death by ſome outward Violence, as the Fall of a Tree; the Running of a Cart-Wheel; the Stroke of a Horſe, *&c.*

Weſt diſtinguiſhes Homicide into caſual and mix'd. The firſt, when a Man is ſlain by mere Accident, againſt the mind of the Killer; as if the Ax fly off the Helve, and kill a Man: Which is the ſame with *Britton*'s *Miſaventure*.

MISCONTINUANCE, in Law, the ſame with *Diſcontinuance*. See DISCONTINUANCE.

MISDEMEANOUR, an Offence, or Fault, particularly in the Execution of an Office.

High Crimes and MISDEMEANOURS, are Offences of a heinous nature, next to High Treaſon.

MISE, a *French* Term, literally denoting Expence, or Diſburſement, wrote in *Latin Miſum* or *Miſa*; and uſed in our Law-Books in divers Acceptations.

Firſt, as an honorary Gift, or cuſtomary Preſent, wherewith the People of *Wales* uſed to ſalute every new King and Prince of *Wales* at their Entrance upon the Principality. Antiently it was given in Cattle, Wine, Corn, *&c.* for the Support of the Prince's Family; but when that Dominion was annex'd to the *Engliſh* Crown, the Gift was chang'd into Money. The County of *Flint* pays 2000 Marks, *&c.* for their *Miſe*.

The County of *Cheſter* alſo pays a *Miſe* or Tribute of 5000 Marks at the Change of every Owner of the ſaid Earldom, for the enjoying of the Privileges of that Palatinate. At *Cheſter* they have a *Miſe*-Book, wherein every Town and Village in the County is rated what to pay toward the *Miſe*.

Miſes are alſo taken for the Profits of Lands; ſometimes for Taxes or Taillages; and ſometimes for Expences or Coſts: As *pro Miſis & Cuſtagiis*, for Coſts and Charges in the Entries of Judgments, *&c.*

Miſe is alſo a Term uſed in ſpeaking of a Writ of Right. What in other Actions is call'd an *Iſſue*, in a Writ of Right is call'd a *Miſe* or *Me*: ſo that *to join the Miſe upon the Meer*, is as much as to ſay, to *join Iſſue* on the meer Right, *i.e.* to join upon this Point, whether has the more Right, the Tenant or Demandant. See ISSUE, *&c.*

Yet even in a Writ of Right, if a Collateral Point be try'd, it is there call'd an *Iſſue*, not a *Miſe*. See Right.

Mise is alſo uſed as a Participle, for *caſt* or *put upon*. Sometimes corruptly for *Meaſe*, a Meſſuage or Tenement. In ſome Manors, a *meaſe Place* is taken for ſuch a Meſſuage or Tenement, as yields the Lord a Herriot at the Death of the Tenant.

MISERERE, *have mercy*, the Name, and firſt Word of one of the Penitential Pſalms; being that commonly given by the Ordinary to ſuch condemn'd Malefactors, as are allow'd the Benefit of the Clergy. Whence it is alſo call'd the *Pſalm of Mercy*. See Clergy.

Miserere *mei*, is a kind of Colic, or Diſorder of the Inteſtines, wherein the Excrements, inſtead of paſſing off the common way, are thrown up by the Mouth. See Colic.

The *Miſerere mei* is the ſame with what we otherwiſe call *Volvulus* and *Iliac Paſſion*. See Iliac *Paſſion*.

It takes its Name from the intolerable Pain and Anguiſh it occaſions the Patient; which is ſuch, as claims Pity from the Beholders: *Miſerere mei* being a *Latin* Phraſe, which literally ſignifies, *Have pity on me*.

MISERICORDIA, *Mercy*, in Law, is an arbitrary Amerciament or Puniſhment impoſed on any Perſon for an Offence. See Amerciament.

Where the Plaintiff or Defendant in any Action is amerced, the Entry is always *Ideo in Miſericordia*. It is thus call'd, according to *Fitzherbert*, by reaſon it ought to be but ſmall; and leſs than the Offence, according to the Tenor of *Magna Charta*.

Hence, if a Man be unreaſonably amerced in a Court not of Record, as a Court-Baron, *&c.* there is a Writ call'd *Moderata Miſericordia*, directed to the Lord, or his Bailiff, commanding them to take moderate Amerciaments. See Moderata, *&c.*

Multa lenior ſic dicta, quod leniſſima imponitur Miſericordia; *Graviores enim multas* Fines *vocant*; *Atrociſſimas*, Redemptiones. See Fine and Redemption.

Miſericordia Communis, is when a Fine is ſet on the whole County or Hundred.

MISFEASANCE, in Law, Miſdoings or Treſpaſſes. Whence alſo *Miſfeaſor*, a Treſpaſſer. See Trespass.

MISNA, or Mischna, a part of the *Jewiſh* Talmud. See Talmud.

The *Miſna* contains the Text; and the Gemara, which is the ſecond part of the Talmud, contains the Commentaries: ſo that the Gemara is, as it were, a Gloſſary on the *Miſna*.

The *Miſna* conſiſts of various Traditions of the *Jews*, and of Explanations of ſeveral Paſſages in Scripture. The *Jews* maintain, that it was compleated, and reduc'd into a Body, by Rabbi *Juda*, in the ſecond Century, to prevent the Memory of their Traditions from periſhing. But the Generality of the Learned ſcarce allow it of ſo much Antiquity, and bring it ſeveral Centuries lower.

It is written in a much purer Stile, and is not near ſo full of Dreams and Viſions as the Gemara. See Gemara.

MISNOMER, a Term in Law, compounded of the *French Mes*, which in Compoſition ſignifies *amiſs*; and *nommer*, to name: It denotes the uſing of one Name for another; a miſterming or miſnaming. See Name.

MISPRISION, a Term in Law, ſignifying *Neglect*, or *Overſight*.

Misprision *of Treaſon*, or *Felony*, is a Neglect or light Account ſhew'd of Treaſon or Felony by not revealing it, when we know it to be committed; or by letting any Perſon, *&c.* on Suſpicion of Treaſon, to go, before he is indicted. See Treason.

It is the Concealment, or not diſcloſing of known Treaſon; for which the Offenders are to ſuffer Impriſonment during the King's Pleaſure, and to loſe their Goods, and Profit of their Lands, during their Lives.

Miſpriſion of Felony is only fineable by the Juſtices, before whom the Party is attainted; but Juſtices of the Common Pleas have a power to aſſeſs any Amerciaments upon Perſons offending by *Miſpriſions*, Contempts or Neglects, for not doing, or miſdoing any thing in or concerning Fines.

Misprision *of Clerks*, is a Neglect of Clerks in writing or keeping Records. By the *Miſpriſion* of Clerks, no Proceſs ſhall be annull'd or diſcontinu'd. And Juſtices of Aſſize ſhall amend the Defaults of Clerks miſ-ſpelling of a Syllable or Letter in Writing.

MISSAL, Missale, a Maſs-Book, containing the ſeveral Maſſes to be uſed for the ſeveral Days, Feaſts, *&c.* See Mass.

The *Miſſal* was firſt compil'd by Pope *Zachary*, and afterwards reduc'd into better Order by Pope *Gregory* the Great, who call'd it the Book of *Sacraments*.

Each Dioceſe, and each Order of Religious, have their particular *Miſſal*, accommodated to the Feaſt of the Province, or of the Order.

MISSELTOE, Missletoe, or Misletoe, in Natural Hiſtory, a Plant of the Paraſite Kind; growing, not on the Ground, but on other Trees, as the Oak, Apple-Tree, Pear-Tree, Plumb-Tree, Acacia Americana, Beech, Cheſnut, *&c.* See Parasite.

Miſſeltoe, by Phyſicians, *&c.* call'd *Viſcum*, grows to the height of about two Feet. It conſiſts of ſeveral Stems, which are uſually cover'd with a greeniſh, ſometimes a yellowiſh Bark, about the Thickneſs of the Finger, hard, woody, and divided by Knots; from which ſpring the Leaves, which grow by two and two oppoſite to each other, oblong, thick, of a greeniſh, or yellowiſh Colour, vein'd their whole Length, and rounded at the End. Its Flowers grow by three and three, Trefoil-wiſe, at the Extremes of the Branches: each Flower is a yellow Calyx, one third of an Inch in Diameter, divided into four Parts. The Fruit likewiſe grows by three and three, at the Extremes of the Branches. They are a kind of oval Berries, not unlike little Pearls, fill'd with a flattiſh Seed in form of a Heart; cover'd with a fine ſilver'd Membrane, and encloſ'd with a viſcid, glutinous Humour, of a whitiſh Colour, wherein the Seed naturally buds or germinates, and puts forth two Eyes. From this Juice it is, that the *Latins* denominate the Plant *Viſcum*. The Fruit grows on different Branches from the Flowers.

That uncommon Soil, whereon the *Miſſeltoe* grows, has occaſion'd abundance of fabulous Notions both as to its Production and Virtues.

Pliny and moſt Naturaliſts relate, that Thruſhes being exceedingly fond of the Berries of the Miſſeltoe; they ſwallow 'em, and caſt 'em out again on the Branches of Trees where they uſe to perch; and by this means give Occaſion to a new Production of *Miſſeltoe*. By cracking the Berries with their Bills, or Claws, they are ſuppoſed to let out the Viſcous Juice, which facilitates their Sticking: And hence that Proverb, *Turdus ſibi cacat Malum*; the *Viſcum* being ſometimes uſed as Bird-Lime.

Mr. *Bradley* endeavours to refute the popular Opinion of the Antients, that the Seeds of the *Miſſeltoe* could not vegetate. Their endeavouring to propagate it in the Earth without ſucceſs, he takes to have led them into the Error: And aſſerts, that it may be propagated by Seed on any Tree whatever. The Method too is very eaſy. About *Chriſtmas*, when the Berries are full ripe, you need only apply them on the ſmooth Bark of any Tree; the viſcid Juices they are encompaſs'd withal, will make them ſtick; and, provided the Birds do not devour the Seed, you may, without any further Trouble, expect a young Plant the following Year.

Others rather chuſe to account for the Propagation of *Miſſeltoe* from the Syſtem hereafter advanced for that of *Muſhrooms*. See Mushroom.

For the Virtues of *Miſſeltoe*, it ſeems of the moſt Efficacy in the Epilepſy; againſt which ſome will have it a Specific. Dr. *Colbatch* has wrote expreſly to prove it ſuch. It is alſo preſcribed in Apoplexies, Lethargies, and Vertigos; and wore about the Necks of Children to prevent Convulſions, and eaſe the cutting of their Teeth.

The beſt is the *Miſſeltoe of the Oak*; tho' it is not this which is commonly uſed, but that of the Apple or Pear-Tree. Mr. *Bradley* obſerves, that there is no Variety in this Plant, but that the Leaves, Flowers, Fruit, *&c.* are all alike on whatever kind of Tree it grows: But others pretend to diſtinguiſh that of the Oak by ſeveral particulars.

The Virtues aſcribed to the *Miſſeltoe*, may perhaps be the Remains of the Religious Honours paid it by the antient *Gauls*; among whom the Druids, aſſembled conſtantly on the firſt Day of the Year, went in queſt thereof with Hymns, and other Ceremonies and Rejoycings, diſtributing it again among the People, as a Thing ſacred, after having firſt conſecrated it, crying *Au guy l'An neuf*, to proclaim the new Year. See Druids.

The Cry is ſtill kept up at *Picardy*, where they add *Plantez*, to wiſh a plentiful new Year.

M. *Perrault* obſerves, that the *Miſſeltoe* is full of a poiſonous Juice, which weakens the Tree whereon it grows; and that the Fruit has always a diſagreeable Taſte while it ſticks on it.

MISSEN-*Maſt* of a Ship, is a *Maſt*, or round long piece of Timber, ſtanding in the ſternmoſt part. See Mast.

Some great Ships require two *Miſſens*.

Next the Main-Maſt, is the *Main-Miſſen*; and that next the Poop, is call'd the *Bonaventure-Miſſen*. When at Sea they uſe the Word *Miſſen* alone, they always mean the Sail, and not the *Maſt*.

To change the *Miſſen*, is to bring the *Miſſen-Yard* over to the other ſide the Maſt. To peck the *Miſſen*, is to put the *Miſſen* right up and down the Maſt. To ſpell the *Miſſen*, &c.

MISSION, a Term in Theology uſed to ſignify a Power or Commiſſion to preach the Goſpel. See Gospel.

Jeſus Chriſt gave his Diſciples their *Miſſion* in theſe Words, *Go, and teach all Nations*, &c.

The *Romaniſts* reproach the *Proteſtants*, that their Miniſters have no *Miſſion*; as not being authorized in the Exercise of their Miniſtry, either by an uninterrupted Succeſſion from the Apoſtles, or by Miracles; or by any extraordinary Proof of a Vocation.

The *Anabaptiſts* deny any other *Miſſion* neceſſary for the Miniſtry than the Talents neceſſary to diſcharge it.

MISSION is alſo uſed for divers Eſtabliſhments of People zealous for the Glory of God, and the Salvation of Souls, who go and preach the Goſpel in remote Countries, and among Infidels. See MISSIONARY.

There are *Miſſions* in the *Eaſt*, as well as the *Weſt-Indies*.

Among the *Romaniſts*, the Religious Orders of St. *Dominic*, St. *Francis*, St. *Auguſtin*, and the *Jeſuits*, have *Miſſions* in the *Levant*, *America*, &c.

The *Jeſuits* have *Miſſions* in *China*, and all other parts of the Globe, where they have been able to penetrate.

The Mendicants abound in *Miſſions*.

MISSION is alſo the Name of a Congregation of Prieſts, and Laymen, inſtituted by *Vincent de Paul*, and confirmed in 1626 by Pope *Urban* VIII. under the Title of *Prieſts of the Congregation of the* Miſſion.

Theſe profeſs to make it their whole Buſineſs to aſſiſt the poor People in the Country; and to this purpoſe oblige themſelves never to preach, or adminiſter any of the Sacraments in any Town where there is an Archbiſhop, Biſhop, or Provincial reſiding.

They are ſettled in moſt Provinces of *France*, *Italy*, *Germany*, and in *Poland*.

At *Paris* they have a Seminary which they call the *Foreign Miſſion*, where Youth are bred up and qualify'd for foreign *Miſſions*.

MISSIONARY, an Eccleſiaſtic who devotes himſelf and his Labours to ſome *Miſſion*, either for the Inſtruction of the Orthodox, the Conviction of Heretics, or the Converſion of Infidels.

MISSIVE, ſomething *ſent* to another. The Word is form'd from the *Latin Mitto*, I ſend.

In this ſenſe we ſay *Miſſive* Letters, or Letters *Miſſive*, *i. e.* Letters ſent from one to another. See LETTER.

In propriety, *Letters Miſſive* are Letters of Buſineſs; but not Buſineſs of great concern; in contradiſtinction from Letters of Gallantry, Letters on Points of Learning, Diſpatches, *&c.*

MIST, a Meteor, call'd alſo *Fog*. See FOG.

MISY, in Natural Hiſtory, ſee CHALCITIS.

MITE, a ſmall Coin, formerly current; equal to about one third part of a Farthing. See MONEY and COIN.

MITE is alſo a ſmall Weight uſed by the Moneyers. It is equal to the twentieth part of a Grain, and is divided into 24 *Doits*. See WEIGHT.

MITHRIDATE, in Pharmacy, an Antidote, or Compoſition ſerving either as a Remedy or a Preſervative againſt Poiſons.

Mithridate is one of the capital Medicines in the Apothecaries Shops; being compoſed of a vaſt Number of Drugs, as *Opium*, *Myrrh*, *Agaric*, *Saffron*, *Ginger*, *Cinnamon*, *Spikenard*, *Frankincenſe*, *Caſtor*, *Pepper*, *Gentian*, &c.

It is accounted a Cordial, Opiate, Sudorific and Alexipharmic.

Matthiolus ſays it is more effectual againſt Poiſons than *Venice-Treacle*; tho' eaſier to be made. See POISON.

It takes its Name from its Inventor, *Mithridates* King of *Pontus*, who is ſaid to have ſo fortify'd his Body againſt Poiſons with Antidotes and Preſervatives, that when he had a mind to diſpatch himſelf, he could not have any Poiſon that would have effect.

The Receipt of it was found in his Cabinet, written with his own Hand, and was carried to *Rome* by *Pompey*. It was tranſlated into Verſe by *Damocrates*, a famous Phyſician, and was afterwards tranſlated by *Galen*, from whom we have it: Tho there is room to imagine it has undergone conſiderable Alterations ſince the time of its Royal Preſcriber.

MITRALES *Valvulæ*, MITRAL *Valves*, in Anatomy, two Valves in the Heart; thus call'd from their reſembling a Mitre. See VALVE and Heart.

They are placed at the Orifice of the Pulmonary Vein, in the left Ventricle of the Heart. Their Office is to cloſe the Orifice thereof, and prevent the return of the Blood through the Pulmonary Vein into the Lungs again. See PULMONARY *Vein*, CIRCULATION, *&c.*

MITRE, a Pontifical Ornament, wore on the Head by Biſhops, and certain Abbots, on Solemn Occaſions. See BISHOP, ABBOT, *&c.*

The *Mitre* is a round Cap, pointed, and cleft a-top with two Fannels hanging down the Shoulders.

The Abbots wear the *Mitre* turned in Profile; and bear the Croſier inwards, to ſhew that they have no ſpiritual Juriſdiction without their own Cloiſters.

The Pope has granted to ſome Canons of Cathedrals the Privilege of wearing the *Mitre*. The Counts of *Lyons* are ſaid to have aſſiſted at Church in *Mitres*.

In *Germany*, ſeveral great Families bear the *Mitre* for their Creſt; to ſhew that they are Advocates, or Feudatories of antient Abbies, or Officers of Biſhops, *&c.*

The Pope has four *Mitres*, which are more or leſs rich according to the Solemnity of the Feaſt-Days they are to be worn on.

The *Mitre* was originally the Women's Head-Dreſs, as the Hat was that of the Men. This appears from *Servius*, who reproaches the *Trojans*, or *Phrygians*, that were dreſs'd like Women, and wore *Mitres*;

> *Et Tunicæ Manicas, & habent redimicula* Mitræ.

The Cardinals antiently wore *Mitres*, before the Hat which was firſt granted them by the Council of *Lyons* in 1245.

Authors make no mention of the *Mitre* as an Epiſcopal Ornament before the Year 1000.

The Word comes from the *Latin Mitra*, of the *Greek* μίτρα.

MITRE, in Architecture, is the Work-men's Term for an Angle, that is juſt 45 Degrees; or half a right one.

If the Angle be a quarter of a right Angle, they call it a *Half Mitre*.

To deſcribe ſuch Angles, they have an Inſtrument call'd the *Mitre Square*; with this they ſtrike *Mitre-Lines* on their Quarters, or Battens: And for diſpatch, have a *Mitre-Box*, as they call it, which is made of two pieces of Wood, each about an Inch thick, one nailed upright on the Edge of the other; the upper piece hath the *Mitre-Lines* ſtruck upon it on both ſides, and a Kerf to direct the Saw in cutting the *Mitre* Joints readily, by only applying the Piece into this Box.

MITRED *Abbots*, ſee ABBOT.

MITTIMUS, in Law, a Writ, by which Records are transfer'd from one Court to another; ſometimes immediately, as out of the King's Bench into the Exchequer; and ſometimes by a *Certiorari* into the Chancery, and from thence by a *Mittimus* into another Court.

The Word is alſo uſed for a Precept directed by a Juſtice of Peace to a Goaler, for the receiving and ſafe keeping a Felon, or other Offender, by him committed to the Goal.

MIXT, or MIXT *Body*, in Philoſophy, is that which is compounded of divers Elements, or Principles; in contradiſtinction to thoſe which the Chymiſts ſuppoſe to be *Elementary*, or conſiſting of one Principle only; as they take Sulphur, Salt, *&c.* to be. See ELEMENT.

The Schoolmen define a *Mixt Body* to be a Whole, reſulting from ſeveral Ingredients, alter'd, or new modified by the Mixture. On which Principle, the ſeveral Ingredients don't actually exiſt in the *Mixt*, but are all changed, ſo as to conſpire to a new Body of a different Form, from the Forms of the Ingredients. But the modern Philoſophers rarely conceive the Term in ſo much ſtrictneſs.

The Buſineſs of Chymiſtry, we ſay, is to reſolve *Mixt Bodies* into their Principles, or component Parts. See PRINCIPLE, CHYMISTRY, *&c.*

The School-Philoſophers diſtinguiſh *Mixt Bodies* into *Perfect* and *Imperfect*. *Perfect Mixts* are the Claſs of Vital or Animated Bodies, where the Elements or Ingredients they are compoſed of, are changed or transformed by a perfect Mixture. Such are Plants, Beaſts, and Men.

Imperfect Mixts are inanimate Bodies, the Forms whereof remain ſtill the ſame as of the Ingredients that conſtitute them: Such are Meteors, Minerals, Metals, *&c.*

MIXT *Figure*, in Geometry, is that which conſiſts partly of right Lines, and partly of curve Lines. See FIGURE.

MIXT *Number*, in Arithmetic, that which is partly an Integer, and partly a Fraction: as 4 ^{1} to $\frac{1}{4}$. See FRACTION.

MIXT *Action*, in Law, is an Action of two different Natures; being partly real, and partly perſonal. See ACTION, *real*, *perſonal*.

A *Mixt Action* is that which lies both for the *Thing* detained; and againſt the *Perſon* of the Detainer.

Or a *Mixt Action* is that which ſeeks both the Recovery of a thing we are unjuſtly deprived of; and Damages, or a Penalty for the unjuſt detainment thereof. Such are Actions of *Waſte*, and *Quare Impedit*; Actions for Tithes on the Statute 2 & 3 *Edw.* 6. *&c.*

MIXT *Tithes*, are thoſe of Cheeſe, Milk, *&c.* and of the Young of Beaſts. See TITHES.

MIXT *Mode*, according to Mr. *Lock*, is a Combination of ſeveral ſimple Ideas of different Kinds. See IDEA and MODE.

Thus, *Beauty*, as it conſiſts in a certain Compoſition of Colour, Figure, Proportion, *&c.* of different Parts, cauſing Delight to the Beholder, is a *Mixt Mode*. Such alſo is Theft, Murder, *&c.* See MODE.

The Mind, that Author obſerves, being once furniſhed with ſimple Ideas, can put them together in ſeveral Compoſitions, without examining whether they exiſt ſo in Nature together. And hence it is that theſe Ideas are call'd Notions; as if they had their Original and conſtant Exiſtence more in the Thoughts of Men, than in the Reality of Things; and that to form ſuch Ideas, it ſufficed that the Mind put the Parts of them together; and that they were conſiſtent in the Underſtanding, without conſidering whether they had any real Being.

There are three ways whereby we get theſe complex Ideas of *Mixt Modes.* Firſt, By Experience and Obſervation of Things themſelves: Thus by ſeeing two Men wreſtle, we get the Idea of Wreſtling. Secondly, By Invention, or voluntary putting together of ſeveral ſimple Ideas in our own Mind: So he that firſt invented Printing, had an Idea of it firſt in his Mind before ever it exiſted. Thirdly, By explaining the Names of Actions we never ſaw, or Notions we cannot ſee; and by enumerating all thoſe Ideas which go to the making them up.

Thus the mixt *Mode* which the Word *Lie* ſtands for, is made up of theſe ſimple Ideas; Firſt, Articulate Sounds. Secondly, Certain Ideas in the Mind of the Speaker. Thirdly, Thoſe Words, the Signs of theſe Ideas; Fourthly, Thoſe Signs put together by Affirmation, or Negation, otherwiſe than the Ideas they ſtand for are in the Mind of the Speaker, ſince the Language was made.

Complex Ideas are uſually got by the Explication of thoſe Terms that ſtand for them. For ſince they conſiſt of ſimple Ideas combined, they may by Words ſtanding for thoſe ſimple Ideas be repreſented to the Mind of one who underſtands thoſe Words, tho' that Combination of ſimple Ideas was never offer'd to his Mind by the real Exiſtence of Things.

Mixt *Ratio*, or *Proportion*, is when the Sum of the Antecedent and Conſequent is compared with the difference between Antecedent and Conſequent; as if $\overset{3}{a} : \overset{4}{b} : \overset{12}{c} : \overset{16}{d}$ $\overset{7}{a \times b}\ \overset{1}{a \backsim b} :: \overset{28}{c \times d}\ \overset{4}{c \backsim d}$. See Ratio.

MIXTION, the Act of *Mixing*; or the Union and Coalition of divers Corpuſcles into one Body. See Mixt.

The *Peripatetics*, who hold an Alteration eſſential to *Mixtion*, define it the Union of ſeveral alter'd Ingredients, or Miſcibles.

Mixtion makes a conſiderable Operation in the Chymical and *Galenical* Pharmacy.

MIXTURE, in a Philoſophical ſenſe, is an Aſſemblage, or Union of ſeveral Bodies of different Properties, in the ſame Maſs.

To determine the Ratio of the Ingredients of a *Mixture*, is that celebrated Problem propoſed by *Hiero* King of *Syracuſe* to *Archimedes*, on occaſion of a Crown of Gold wherein the Workman had fraudulently mix'd Silver; the Solution whereof was matter of ſo much Tranſport to that divine Mechanic.

It may be determined thus:

Weigh the *Mixture*, immerge it in ſome Fluid; and find the Weight it loſes therein. (See Specific *Gravity*.) Then find what Weight any determinate Quantity of either Ingredient loſes in the ſame Fluid: And by the Rule of Three find what Weight each ought to loſe therein, were its Weight equal to that of the *Mixture*. Subſtract the leſs Loſs from the greater, which will give the Exceſs wherewith the Loſs of the lighter exceeds that of the heavier. Then ſubſtract the Weight loſt by the heavier, from that loſt by the whole *Mixture*, to find the Exceſs of the Weight loſt by the *Mixture* beyond that loſt by the heavier.

Mixture, in Matters of Drapery, the Union, or rather Confuſion of ſeveral Wools of different Colours, not yet ſpun.

Hence a *Mixture*, or mix'd Stuff, is that whoſe Woof and Warp are of Wools of different Colours dy'd and mix'd before they were ſpun.

MOAT, in Fortification, call'd alſo *Foſs* and *Ditch*, a hollow Space or Ditch dug round a Town, or Fortreſs to be defended, on the outſide the Wall or Rampart. See Rampart.

The Length and Breadth of the *Moat* often depends on the nature of the Soil; according as it is Marſhy or Rocky.

A *Dry* Moat is that which is deſtitute of Water, and ought to be deeper than one which is full of Water.

A *Lined* Moat is that whoſe Scarp and Counterſcarp are caſed with a Wall of Maſon's Work lying a-ſlope.

A *Flat-bottom'd* Moat is that which hath no ſloping, its Corners being ſomewhat rounded.

The Brink of the *Moat* next the Rampart in any Fortification is call'd the *Scarp*, and the oppoſite one the *Counterſcarp*. See Scarp and Counterscarp.

MOATAZALITES, a Religious Sect among the *Turks*.

There are two Opinions among the *Turkiſh* Divines concerning God. The firſt admit Metaphyſical Forms, or Attributes; as that God has a Wiſdom by which he is Wiſe; a Power by which he is Powerful; an Eternity by which he is Eternal, &c.

The Second allow God to be Wiſe, Powerful, Eternal; but will not allow any Form in God, for fear of admitting a multiplicity.

Thoſe who follow this latter Opinion are call'd *Moatazilites*: They who follow the former, *Sephalites.*

MOBILE, Moveable; any thing ſuſceptible of Motion, or that is diſpoſed to be moved either by itſelf, or by ſome other prior *Mobile*, or Mover.

Primum Mobile in the antient Aſtronomy, was a ninth Heaven, or Sphere, imagined above thoſe of the Planets and fixed Stars. See Sphere.

This was ſuppoſed to be the firſt Mover, and to carry all the lower Spheres round along with it; by its Rapidity communicating to 'em a Motion whereby they revolved in twenty-four Hours. But the diurnal Revolution of the Planets is now accounted for without the Aſſiſtance of any ſuch *Primum Mobile.*

Perpetuum Mobile, ſee Perpetual *Motion.*

MOBILIA *Bona*, in the Civil Law, are what in Common Law, &c. we call *Moveables*, or *Moveable Goods*. See Moveables.

MOBILITY, in the Schools, &c. an Aptitude, or Facility to be moved.

The *Mobility* of Mercury is owing to the ſmallneſs and ſphericity of its Particles; and is that which renders its Fixation ſo difficult. See Mercury and Fixation.

The Hypotheſis of the *Mobility* of the Earth is the moſt plauſible; and is that commonly admitted, by the latter Aſtronomers. See Earth.

Pope *Paul* V. appointed Commiſſioners to examine the Opinion of *Copernicus* touching the *Mobility* of the Earth. The Reſult of their Enquiry, was, a Prohibition to aſſert, not that the *Mobility* was poſſible, but that it was actually true. That is, they allow'd the *Mobility* of the Earth to be held as an Hypotheſis which gives an eaſy and ſenſible Solution of the Phænomena of the heavenly Motions; but forbad the *Mobility* of the Earth to be maintain'd as a Theſis, or a real effective thing; by reaſon they conceiv'd it contrary to Scripture.

MODAL, in Logic, &c. a Term apply'd to Propoſitions containing certain Conditions, or Reſtrictions. See Conditional.

MODE, or MOOD, in Philoſophy, a *Manner* of Being; or a Quality, or Attribute of a Subſtance, or Subject, which we conceive as neceſſarily depending on the Subject, and incapable of ſubſiſting without it. See Substance.

Mr. *Lock* defines *Modes* to be thoſe Ideas (he ſhould have ſaid *Things*) which don't imply any ſuppoſition of ſubſiſting by themſelves, but are conſider'd as mere dependences and affections of Subſtances.

Our Ideas of things may be reduced to two Kinds: The one of Things which we conceive ſeparately, and by themſelves, call'd *Subſtances*; and the other of Things which we conceive as exiſting in others, in ſuch manner as that we cannot allow them exiſtence without 'em; and theſe we call *Modes*, or Accidents. See Accident.

Thus, when we reflect on Wax, and Roundneſs; we conſider the Wax as a thing which may ſubſiſt without the Roundneſs; *Wax* therefore we denominate a *Subſtance*: on the contrary, we conſider *Roundneſs* ſo dependant on the Wax, that it can't ſubſiſt without it, there being no conceiving of Roundneſs diſtinct and ſeparate from a round Body: This therefore we call a *Mode*, or Accident. See Idea.

It is the Characteriſtic, then, of a true *Mode*, to have ſuch a relation to ſome Subject, as not to be clearly and diſtinctly conceivable without conceiving the Subject, whereof it is a *Mode*, at the ſame time: When, on the other hand, the conception of the Subject does not at all infer or require that of the *Mode*. See Substance.

Thus, what gives us to know that Thought is not a *Mode* of extended Subſtance, or Matter, is, that Extenſion, and the other Properties of Matter may be divided from Thought, without ceaſing to conceive Thought all the while. See Thinking, Extension, &c.

We always conſider Things as clothed with certain *Modes*; except when we reflect on the Abſtract, or General: And it is the Variety of *Modes*, and Relations, that occaſions the great Variety of Denominations of the ſame thing. It is the various *Modes* of Matter, *e. gr.* that make all the Diverſity of Bodies, or corporeal Beings in Nature. See Relation, Matter, &c.

There are various Diviſions and Kinds of *Modes*: One of the moſt common, is into *Internal* and *External.*

Internal Modes are thoſe inherent in the Subſtance, as Roundneſs in the Bowl; Flatneſs in the Noſe; Crookedneſs in the Finger, &c.

Theſe, we have obſerv'd, cannot exiſt, nor even be conceiv'd without the Subject, as being only Circumſtances thereof, or even, according to ſome, only the Subject itſelf conſider'd, not ſimply, but as ſuch. Thus the Roundneſs of the Bowl, is only the Bowl itſelf conſider'd as round, &c.

External MODES are thoſe extraneous to the Subject; as when we ſay a thing is deſir'd, lov'd, beheld, &c. Theſe coincide with what we call *Relations.*

Add, that there are *Modes* which are likewiſe Subſtances, as Apparel, Hair, &c. which may ſubſiſt without the Subject.

Mr. *Lock* divides *Modes* into *Simple* and *Compound.*

Simple MODES are Combinations of ſimple Ideas of the ſame Kind, or even of the ſame ſimple Ideas divers times repeated; as a Dozen, a Score, &c. which are only the Ideas of ſo many diſtinct Units put together.

Mixed MODES are Combinations of ſimple Ideas of ſeveral Kinds; as in *Beauty*, which conſiſts in a certain Compoſition of Colour, Figure, &c. *Theft*, which is the conceal'd Change of the Poſſeſſion of any thing without conſent of the Proprietor, &c.

With regard to *Simple Modes*; that Author obſerves, that the Modifications of any ſimple Idea are as perfectly different and diſtinct Ideas in the Mind as thoſe the moſt remote and inconſiſtent. Thus *two* is as diſtinct from *three*, as Blindneſs from *Heat*. With this View he examines the *Simple Modes* of Space.

Space is a ſimple Idea, which we get both by Sight and Touch: When we conſider it barely in Length between two Bodies, it is call'd *Diſtance*: When in Length, Breadth, and Thickneſs, it may be call'd *Capacity*: When conſider'd between the Extremities of Matter, which fills the Capacity of Space with ſomething ſolid, tangible, and moveable, it is call'd *Extenſion*; and thus Extenſion will be an Idea belonging to Body: But Space may be conceived without it. Each different Diſtance is a different Modification of Space; and each Idea of any different Space, is a ſimple *Mode* of this Idea. Such are an Inch, Foot, Yard, &c. which are the Ideas of certain ſtated Lengths, which Men ſettle in their Minds for the Uſe, and by the Cuſtom of Meaſuring. When theſe Ideas are made familiar to Men's Thoughts, they can in their Minds repeat them as often as they will, without joining to them the Idea of Body, and frame to themſelves the Ideas of Feet, Yards, and Fathoms, beyond the utmoſt Bounds of all Bodies, and by adding theſe ſtill to one another, inlarge their Idea of Space, as much as they pleaſe.

From this Power of repeating any Idea of Diſtance, without being ever able to come to an end, we come by the Idea of Immenſity. See EXTENSION, DISTANCE, MEASURE, &c.

Another *Mode*, or Modification of Space, is taken from the relation of the Parts of the Termination of Extenſion, or circumſcrib'd Space amongſt themſelves; and this is what we call *Figure*. This, the Touch diſcovers in ſenſible Bodies, whoſe Extremities come within our reach; and the Eye takes, both from Bodies and Colours whoſe Boundaries are within its view; where, obſerving how the Extremities terminate, either in ſtreight Lines, which meet at diſcernible Angles; or in crooked Lines, wherein no Angles can be perceived; by conſidering theſe as they relate to one another in all parts of the Extremities of any Body or Space, it has the Idea we call Figure: Which affords to the Mind infinite Variety. See FIGURE.

Another *Mode* belonging to this Head, is that of *Place*. Our Idea of Place is nothing but the relative Poſition of any thing, with reference to its diſtance from ſome fixed and certain Points: Whence we ſay, that a thing has, or has not changed Place, when its diſtance either is, or is not alter'd with reſpect to thoſe Bodies, with which we have occaſion to compare it. That this is ſo, we may eaſily gather from hence; that we can have no Idea of the Place of the Univerſe: tho we can of all its Parts. See PLACE.

Another *Mode* of Space, is the Idea which we get from the fleeting, and perpetually periſhing Parts of Succeſſion, which we call *Duration*. The *Simple Modes* of it are any different Lengths of it, whereof we have diſtinct Ideas, as Hours, Days, Years, &c. Time, and Eternity. The Idea of *Succeſſion* is got by reflecting on that train of Ideas, which conſtantly follow one another in our Minds, as long as we are awake. See SUCCESSION.

The diſtance between any Parts of this Succeſſion is what we call *Duration*: And the Continuation of the Exiſtence of ourſelves, or any thing elſe commenſurate to the Succeſſion of any Ideas in our Minds, is what we call our own Duration, or that of another thing co-exiſting with our thinking.

A Man having once got this Idea of Duration, can apply it to things which exiſt, while he doth not think: And thus we meaſure the time of our Sleep, as well as that wherein we are awake. See DURATION.

In regard to ſome other *Simple Modes*, Mr. *Lock* obſerves, That the Mind has ſeveral diſtinct Ideas of Sliding, Rolling, Walking, Creeping, &c. which are all but the different Modifications of Motion. Swift and Slow are two different Ideas of Motion, the Meaſures whereof are made out of the Diſtances of Time and Space put together. The like Variety we have in Sounds; every articulate Word is a different Modification of Sound, as are all Notes of different length put together, which make that complex Idea call'd Time. See TIME.

The *Modes* of Colours might be alſo very various; ſome of which we take notice of as the different Degrees, or as they are termed, Shades of the ſame Colour. But ſince we ſeldom make Aſſemblages of Colours without taking in Figure alſo, as in Painting, &c. thoſe which are taken notice of, do moſt commonly belong to mix'd *Modes*, as Beauty, Rainbow, &c. All compounded Taſtes and Smells are alſo *Modes* made up of the ſimple Ideas of thoſe Senſes.

As to the *Modes of Thinking*; when the Mind turns its view inward upon itſelf, Thinking is the firſt Idea that occurs, wherein it obſerves a great Variety of Modifications; and therefore frames to itſelf diſtinct Ideas.

Thus the Perception annex'd to any Impreſſion on the Body made by an external Object, is call'd *Senſation*. Where an Idea recurs without the preſence of the Object, it is call'd *Remembrance*. When ſought after by the Mind, and brought again in view, it is call'd *Recollection*. When held there long under attentive Conſiderations, it is call'd *Contemplation*. When Ideas float in the Mind without regard or reflection, it is call'd in *French*, *Reſvery*. When the Ideas are taken notice of, and, as it were, regiſter'd in the Memory, it is *Attention*. When the Mind fixes its view on any one Idea, and conſiders it on all ſides, it is *Intention* and *Study*.

Of theſe various *Modes* of Thinking, the Mind forms as diſtinct Ideas, as it does of White and Red, a Square, or a Circle.

For *Mix'd* MODES, there are three ways whereby we get the complex Ideas thereof. 1. By Experience and Obſervation of things themſelves; thus by ſeeing two Men wreſtle, we get the Idea of Wreſtling. 2. By Invention, or voluntary putting together of ſeveral ſimple Ideas in our own Minds; ſo he that firſt invented Printing, had an Idea of it firſt in his Mind, before ever it exiſted. 3. By explaining the Names of Actions we never ſaw, or Notions we cannot ſee; and by enumerating all thoſe Ideas, which go to the making them up: Thus the mix'd *Mode* which the Word *Lie* ſtands for, is made up of theſe ſimple Ideas: (1.) Articulate Sounds. (2.) Certain Ideas in the Mind of the Speaker. (3.) Thoſe Words, the Signs of theſe Ideas. (4.) Thoſe Signs put together by Affirmation, or Negation, otherwiſe than the Ideas they ſtand for are in the Mind of the Speaker.

Mixt Modes have their Unity from an Act of the Mind, combining thoſe ſeveral ſimple Ideas together, and conſidering them as one complex one: The Mark of this Union is one Name given to that Combination. Men ſeldom reckon any number of Ideas to make one complex one, but ſuch Collections, as there be names for. Thus, the Killing of an old Man is as fit to be united in one complex Idea, as that of a Father; yet there being no Name for it, it is not taken for a particular complex Idea; nor a diſtinct Species of Action from that of Killing any other Man: Thoſe Collections of Ideas have Names generally affixed, which are of frequent uſe in Converſation; in which Caſes Men endeavour to communicate their Thoughts to one another, with all poſſible diſpatch. Thoſe others, which they have ſeldom occaſion to mention, they lay not together, nor give them Names.

This gives the Reaſon, why there are Words in every Language, which cannot be rendred by any one ſingle Word of another. For the Faſhions and Cuſtoms of one Nation make ſeveral Combinations of Ideas familiar in one, which another had never any occaſion to make. Such were, Ὀστρακισμὸς, among the *Greeks*; and *Proſcriptio* among the *Romans*. This alſo occaſions the conſtant Change of Languages; becauſe the Change of Cuſtom and Opinion brings with it new Combinations of Ideas, which, to avoid long Deſcriptions, have new Names annexed to them, and ſo they become new Species of *Mixed Modes*,

Of all our ſimple Ideas, thoſe which have had moſt mixed *Modes* made out of them, are Thinking, and Motion, (which comprehend in them all Action) and Power, from whence theſe Actions are conceived to flow. For Actions being the great Buſineſs of Mankind, it is no wonder that the ſeveral *Modes* of Thinking and Motion, ſhould be taken notice of; and the Ideas of them obſerved, and laid up in Memory, and have Names aſſigned them. For without ſuch complex Ideas with Names to them, Men could not eaſily hold any Communication about them.

Of this kind are the *Modes* of Actions diſtinguiſh'd by their Cauſes, Means, Objects, Ends, Inſtruments, Time, Place, and other Circumſtances; as alſo of the Powers fitted for thoſe Actions. Thus Boldneſs is the Power to do or ſpeak what we intend, without Fear or Diſorder; which Power of doing any thing, when it hath been acquir'd by frequent doing the ſame thing, is that Idea we call *Habit*;

bit; and when forward and ready upon every Occaſion, to break into Action, we call it *Diſpoſition*: Thus Teſtineſs is a Diſpoſition or Aptneſs to be angry. Power being the Source of all Action, the Subſtances, wherein thoſe Powers are, when they exert this Power, are call'd *Cauſes*: And the Subſtances thereupon produced, or the ſimple Ideas introduced into any Subject, *Effects*. The Efficacy whereby the new Subſtance or Idea is produced, is call'd in the Subject exerting that Power, *Action*; in the Subject wherein any ſimple Idea is changed, or produced, *Paſſion*. Which Efficacy in intellectual Agents, we can conceive to be nothing elſe, but *Modes* of Thinking and Willing: In corporeal Agents, nothing elſe but Modifications or Motions.

Whatever ſort of Action, beſides theſe, produces any Effect, we have no Notion or Idea of. And, therefore, many Words which ſeem to expreſs ſome Action, ſignify nothing of the Action, but barely the Effect, with ſome Circumſtances of the Subject wrought on, or Cauſe operating: Thus Creation, and Annihilation, contain in them no Idea of the Action, or Manner whereby they are produced, but barely of the Cauſe, and the Thing done. And when a Country-man ſays, the Cold freezes Water, though the word, Freezing, ſeem to import ſome Action, yet it truly ſignifies nothing but the Effect, *viz.* that the Water that was before fluid, is become hard and conſiſtent; without intimating any Idea of the Action whereby it is done.

In *Mixed Modes*, it is the Name that ſeems to preſerve their Eſſences, and to give them their laſting Duration. The Collection of Ideas is made by the Mind; but the Name is, as it were, the Knot which ties them faſt together: Hence we ſeldom take any other for diſtinct Species of *mixed Modes*, but ſuch as are ſet out by Names. We muſt obſerve, that the Names of *mixed Modes* always ſignify the real Eſſences of their Species; which being nothing but the abſtract complex Ideas, and not refer'd to the real Exiſtence of Things, there is no ſuppoſition of any thing more ſignified by any Name of a *mixed Mode*, but barely that complex Idea, the Mind itſelf has form'd; which when the Mind has form'd, is all it would expreſs by it, and is that on which all the Properties of the Species depend, and from which alone they flow; and ſo, in theſe, the real and nominal Eſſence is the ſame.

This alſo ſhews the Reaſon, why the Names of *mixed Modes* are commonly got, before the Ideas they ſtand for are perfectly known; becauſe there being no Species of theſe ordinarily taken notice of, but ſuch as have Names, and thoſe Species being complex Ideas made arbitrarily by the Mind, it is convenient, if not neceſſary, to know the Names, before we learn the complex Ideas; unleſs a Man will fill his Head with a company of abſtract complex Ideas, which others having no Names for, he has nothing to do with, but to lay by, and forget again. In the beginning of Languages, it was neceſſary to have the Idea, before one gave it the Name; and ſo it is ſtill, where a new complex Idea is to be made, and a Name given it. In ſimple Ideas, and Subſtances, it is otherwiſe; which being ſuch Ideas, as have real Exiſtence and Union in Nature, the Ideas or Names are got, one before the other, as it happens.

The Schoolmen make numerous other Diviſions of *Modes*; as into *Immediate* and *Mediate*: *Eſſential* and *Non-Eſſential*: *Poſitive* and *Privative*: Of *Spirit* and of *Body*: Of *Thinking*, and of *Having*.

Immediate MODES are thoſe immediately attributed to their Subjects or Subſtances.

Mediate MODES are thoſe attributed to Subjects by the intervention of ſome other *Mode*.

Thus, *e. gr.* Motion is an immediate *Mode* of the Body; Knowledge of the Mind, *&c.*

But Swiftneſs and Slowneſs are not immediately attributable to the Body; but only to the Body inreſpect of the Motion.

Eſſential, or *Inſeparable* MODES, are Attributes without which the Subſtance cannot exiſt; as Wiſdom, Goodneſs, Power, *&c.* in God: Figure, Place, Quantity, Extenſion, *&c.* of Body. See ATTRIBUTE.

Non-Eſſential, or *Separable* MODES, are Attributes affecting created Subſtances, and remaining affix'd thereto ſo long as it is neceſſary; ſuch are Coldneſs, of Water: Hardneſs, of Stone: Whiteneſs, of Milk, *&c.*

Poſitive MODES, are thoſe which give ſomething real, poſitive, and abſolute to their Subſtances. Thus Roundneſs is a poſitive *Mode* of a Globe, *&c.*

Privative MODES are attributed to Subjects, when the Mind perceiving ſome Attributes wanting therein, frames a Word, which at firſt ſight ſeems to note ſomething poſitive, but which in reality only notes the want of ſome Property, or *Mode*. Thus a Privation of Light is attributed to a blind Man, *&c.*

MODES *of Spirit* are two, *viz.* Cognition, or *Knowledge*; and *Willing*. See KNOWLEDGE and WILLING.

MODES *of Body* are three, *viz.* *Figure*, *Reſt*, and *Motion*. See FIGURE, REST, and MOTION.

MODES *of Thinking* are the ſame with Eſſential Attributes or *Modes*. See *Eſſential* MODE.

MODES *of Having*, are thoſe whereby any thing may be had by another.

Ariſtotle enumerates ſeven of theſe: A thing, for inſtance, may be had either by the *Mode* of Quality, as Knowledge; by that of Magnitude, as Circumference; by the *Mode* of Part, as the Hand, *&c.*

MODE is alſo uſed in Logic, for the Modification of a Propoſition; or that which renders it *Modal* and *Conditional*. See CONDITIONAL.

MODE in Grammar, }
MODE in Logic, } See MOOD.

MODE in Muſic, is defined by ſome Authors, the particular Manner of conſtituting the Octave; or the melodious Conſtitution of the Octave, as it conſiſts of ſeven Eſſential, or Natural Notes beſides the Key, or Fundamental. See OCTAVE.

A *Mode*, then, is not any ſingle Note, or Sound; but the particular Order of the concinnous Degrees of an Octave: The fundamental Note whereof may, in another ſenſe, be call'd the *Key*, as it ſignifies that principal Note which regulates the reſt.

The proper difference between a *Mode* and a Key, conſiſts in this, that an Octave with all its natural and concinnous Degrees, is call'd a *Mode*, with reſpect to the Conſtitution; or the manner and way of dividing it; and with reſpect to the place of it in the Scale of Muſic, that is, the Degree or Pitch of Tune, it is call'd a *Key*: that is, an Octave of Sounds may be rais'd in the ſame Order, and Kind of Degrees which makes the ſame *Mode*, and yet be begun higher or lower; that is, be taken at different Degrees with reſpect to the whole, which makes different Keys: and from the ſame Definition it follows, that the ſame Key may be found with different *Modes*; that is, the Extremes of two Octaves may be in the ſame Degree of Tune, and the Diviſion of 'em different. See KEY.

Now it may be further obſerved, that of the natural Notes of every *Mode*, or Octave, three go under the Name of the eſſential Notes in a peculiar manner, *viz.* the Fundamental, the Third, and Fifth; their Octaves being reckon'd the ſame, and mark'd with the ſame Letters in the Scale: the reſt are particularly call'd Dependents. Again, the Fundamental is alſo call'd the final; the Fifth the Dominante; and the Third, as being between the other two, the Mediante. See KEY.

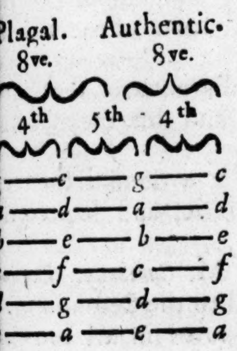
The Doctrine of the Antients with regard to *Modes*, which they ſometimes alſo call Tones, is ſomewhat obſcure; there being an unaccountable Difference among their Authors as to the Definitions, Diviſions, and Names of their *Modes*. They agree indeed, that a *Mode* is a certain Syſtem or Conſtitution of Sounds; and that an Octave, with all its intermediate Sounds, is ſuch a Conſtitution: but the ſpecific differences of Tones, ſome place in the manner of Diviſion, or Order of its concinnous parts; and others merely in the different Tenſion of the Whole, *i, e.* as the whole Notes are acuter or graver, or ſtand higher or lower in the Scale of Muſic.

Boethius is very dark on this head; and defines a *Mode* to be, as it were, an intire Body of Modulation, conſiſting of a Conjunction of Conſonances, as the Diapaſon.

Ptolemy makes the *Modes* the ſame with the Species of the Diapaſon; but at the ſame time ſpeaks of their being at ſome diſtance from each other. Some contended for thirteen, ſome for fifteen *Modes*, which they placed at a Semitone's diſtance from each other; but it is plain, thoſe underſtood the differences to be only in their place or diſtances from each other; and that there is one certain harmonious Species of Octave apply'd to all, *viz.* that Order which proceeds from the *Proſlambanomenos* of the *Syſtema Immutatum*, or the A of the modern Syſtem. *Ptolemy* argues, that if this be all, they may be infinite, tho' they muſt be limited for Uſe and Practice. But, indeed, much the greater part define them by the Species *Diapaſon*; and therefore only make ſeven *Modes*; but as to their Uſe, we are left intirely in the dark.

If the *Modes* be nothing but the ſeven Species of Octaves, the Uſe of 'em can only be, that the *Proſlambanomenos* of any *Mode* being made the principal Note of any Song, there may be different Species of Melody anſwering to thoſe different Conſtitutions. But then we are not to conceive that the *Proſlambanomenos*, or Fundamental of any *Mode* is fixed to any particular Chord of the Syſtem, *v. g.* the *Phrygian* to g; ſo that we muſt always begin there, when we would have a piece of Melody of that Species. When we ſay in general, that ſuch a *Mode* begins in g, it is no more than to ſignify the Species of Octave as they appear in a certain fix'd Syſtem; but we may begin in any Chord of the Syſtem, and make it the *Proſlam.* of any *Mode*, by adding new Chords, or altering the tuning of the old. If this were the true nature, and uſe of the Tones, moſt of theſe *Modes* muſt be imperfect, and incapable of good Melody, as wanting ſome of thoſe which we reckon the eſſential and natural Notes of a true *Mode*. Again, if the eſſential difference of the *Modes* conſiſt only in the Gravity or Acuteneſs of the whole Octave, then we may ſuppoſe one Species or concinnous Diviſion of the Octave, which being apply'd to all the Chords of the Syſtem, makes them true Fundamentals for a certain Series of ſucceſſive Notes, by changing, as above, the Tone of certain Chords in ſome caſes, or by adding new Chords to the Syſtem. But that muſt have been a ſimple kind of Melody, produced by admitting only one concinnous Series, and that too wanting ſome uſeful and neceſſary Chords.

Muſic was conſiderably improved in the XIth Century, by *Guido Aretinus*; who, among other Innovations, reformed the Doctrine of *Modes*. It is true, they were ſtill defined by the Species of the Octave, in *Ptolemy*'s manner, and their number was fix'd to ſeven; but afterwards taking occaſion to conſider the Harmonical and Arithmetical Diviſions of the Octave, whereby it reſolves into a 4th above a 5th, or a 5th above a 4th, they hence conſtituted 12 *Modes*, making of each Octave two different *Modes*, according to this different Diviſion; but becauſe there are two of them that cannot be divided both ways, there are but 12 *Modes*. Of theſe, ſuch as were divided harmonically, that is, with the 5ths loweſt (which were ſix) were call'd *Authentic*; and the other ſix which had the 5ths higheſt, were call'd *Plagal Modes*. See the Scheme annex'd.



To theſe *Modes*, they gave the Names of the antient *Greek* Tones, as *Dorian*, *Phrygian*, *Lydian*: But the ſeveral Authors differ in the Application and Order of theſe Names. So that we are ſtill in great meaſure at a loſs what they meant by thoſe diſtinctions, and what their real uſe was. The beſt Account we can give is this; They conſider'd that an Octave which wants a 4th or 5th, is imperfect; theſe being the Concords next to Octave, the Song ought to touch thoſe Chords moſt frequently and remarkably; and becauſe their Concord is different, which makes the Melody different, they eſtabliſhed by this two *Modes* in every natural Octave that had a true 4th and 5th: Then, if the Song was carried as far as this Octave above, it was call'd a *perfect Mode*; if leſs, as to the 4th or 5th, it wac *imperfect*; if it moved both above and below, it was call'd a *mix'd Mode*. Thus it is ſome Authors ſpeak about theſe *Modes*. Others, conſidering how indiſpenſible a Chord the 5th is in every *Mode*, they took for the Final, or Key-Note in the Arithmetically divided Octaves, not the loweſt Chord of that Octave, but that very 4th. The only difference then in this Method between the Authentic and Plagal *Modes* is, that the Authentic goes above its Final to the Octave; the other aſcends a 5th, and deſcends a 4th; which will indeed be attended with different Effects, but the *Mode* is eſſentially the ſame, having the ſame Final to which all the Notes refer. We are now to conſider wherein the *Modes* of one Species, as Authentic, or Plagal, differ among themſelves. This muſt either be by ſtanding higher or lower in the Scale, *i.e.* by the different Tenſion of the whole Octave, or rather by the different Subdiviſion of the Octave into its concinnous Degrees; there can be no other. We are to conſider then, whether theſe Differences are ſufficient to produce ſuch very different Effects as are aſcribed to the ſeveral *Modes*; for inſtance, that the one produces Mirth, another Sadneſs, a third is proper for Religion, a fourth for Love, *&c.* That theſe Effects are owing merely to the Conſtitution of the Octave, ſcarce any body will affirm. The differences in the Conſtitution will, indeed, have ſome influence, but it will be ſo little, as that by the various Combinations of other Cauſes, one of theſe *Modes* may be uſed to different purpoſes. The greateſt difference is that of thoſe Octaves which have the 3d *l*, or 3d g, making what on other occaſions we call the *Sharp* and *Flat* Key.

However, if the *Modes* depend upon the Species of Octaves, how can they be more than ſeven? And as to the diſtinction between Authentic and Plagal, we have already obſerved, that it is imaginary with reſpect to any eſſential Difference conſtituted thereby in the Kind of the Melody; for tho' the carrying the Song above or below the Final, may have different Effects, yet this is to be aſcribed to other Cauſes beſides the Conſtitution of the Octaves. It is particularly obſervable, that thoſe Authors who give us Examples in actual Compoſition of their twelve *Modes*, frequently take in the Artificial Notes ♯ and ♭, to perfect the Melody of their Key; and by this means depart from the Conſtitution of the Octave, as it ſtands fix'd in the natural Syſtem. There is nothing certain or conſiſtent therefore in their way of ſpeaking; but the *Modes* are all really reducible to two, *viz.* the Sharp and Flat; the other differences reſpecting only the Place of the Scale where the Fundamental is taken.

The antient *Modes*, beſides their general Diviſion into Authentic and Plagal, had alſo their reſpective Names from the ſeveral *Greek* Provinces where they are ſuppoſed to have been invented. Originally, indeed, there were but three, *viz. Doric*, *Lydian*, and *Phrygian*; which were particularly call'd Tones, becauſe at a Tone's diſtance from one another. The reſt were added afterwards, and were ſome of them named from the relations they bore to the former, particularly the *Hypo-Doric*, as being below the *Doric*.

The *Doric* MODE was a mixture of Gravity and Mirth, invented by *Thamiras* of *Thrace*. See DORIC.

The *Phrygian* MODE was adapted to the kindling of Rage; invented by *Marſyas* the *Phrygian*. See PHRYGIAN.

The *Lydian* MODE was proper for Funeral Songs; invented, according to *Pliny*, by *Amphion*. See LYDIAN.

The *Myxolodian* was invented by *Sappho*.

The *Æolic*, *Ionic*, and *Hypo-Doric* were invented by *Philoxenus*.

The *Hypo-Lydian* by *Polymneſtes*.

Beſides theſe *Modes of Tune*, old Authors have alſo introduced *Modes of Time*, or Meaſures of Notes.

Theſe at firſt were diſtinguiſhed into Greater and Leſs, and each of theſe again into *Perfect* and *Imperfect*. But afterwards they reduced all into four *Modes*, which included the whole Buſineſs of Times. As thoſe *Modes* are now diſuſed, they are hardly worth the reciting.

The common *Mode* now in uſe, is much more Simple and Natural than any of thoſe; the Proportion, which in theirs varied, being in ours fix'd, *viz.* 2 : 1. A Large equal to two Long; a Long to two Breves; a Breve to two Semibreves, *&c.* proceeding in the ſame Proportion to the laſt or loweſt Notes. And if on ſome Occaſions the Proportion of 3 : 1 betwixt two ſucceſſive Notes is required, it is eaſily expreſs'd by annexing a Point (.). See TIME, NOTE, *&c.*

The Antients had likewiſe their *Modi* MELOPOEIÆ, of which *Ariſtides* names theſe, *Dithyrambic*, *Nomic*, and *Tragic*, call'd *Modes* from their expreſſing the ſeveral Motions and Affections of the Mind. See MELOPOEIA.

MODEL, an Original, or Pattern propoſed for any one to copy or imitate.

St. *Paul*'s Church is ſaid to be built on the *Model* of St. *Peter*'s at *Rome*.

MODEL is particularly uſed in Building for an Artificial Pattern, made of Wood, Stone, Plaiſter, or other Matter, with all its Parts and Proportions; in order for the better Conducting and Executing of ſome great Work, and to give an Idea of the Effect it will have in Large.

In all large Buildings, it is much the ſureſt way to make a *Model* in *Relievo*; and not to truſt to a bare Deſign, or Draught. See DESIGN.

There are alſo *Models* for the Building of Ships, *&c.* for extraordinary Stair-Caſes, *&c.*

MODEL, in Painting and Sculpture, is any thing propoſed to be imitated.

Hence in the Academies they give the Term *Model* to a naked Man, diſpoſed in ſeveral Poſtures, to give an Opportunity for the Scholars to deſign him in various Views and Attitudes.

The Sculptors have little *Models* of Clay or Wax to aſſiſt them in their Deſigns of others that are larger in Marble, *&c.* and to judge of the Attitude and Correctneſs of a Figure. See FIGURE.

The Statuaries likewiſe give the Name *Model* to certain Figures of Clay or Wax, which are but juſt faſhion'd, to ſerve by way of Guide for the making of larger, whether of Marble, or other Matter. See STATUE.

MODERATOR, in the Schools, the Perſon who preſides at a Diſpute, or at a public Aſſembly. See PRESIDENT.

Such a Doctor was the *Moderator*, the Preſident at ſuch a Diſputation; in ſuch an Aſſembly, *&c.*

MODERN, ſomething new, or of our Time; in oppoſition to any thing Antique, or *Antient*.

MODERN *Authors*, according to *Nauda*, are all thoſe that have wrote ſince *Boetius*. The *Modern* Philoſophy commences with *Galilæus*. The *Modern* Aſtronomy with *Copernicus*. See PHILOSOPHY and ASTRONOMY.

MODERN *Medals* are all thoſe that have been ſtruck within theſe 300 Years. See MEDAL.

MODERN in *Architecture*, is improperly apply'd to the preſent, or *Italian* Manner of Building; as being according to the Rules of the *Antique*. See ANTIQUE. Nor is the Term leſs abuſed, when attributed to Architecture purely *Gothic*. See GOTHIC.

Modern Architecture, in ſtrictneſs, is only applicable to that which partakes partly of the Antique, retaining ſomewhat of its Delicacy and Solidity; and partly of the Gothic, whence it borrows Members and Ornaments, without Proportion or Judgment. See ARCHITECTURE.

MODIFICATION, or MODE, in Philoſophy, that which *modifies* a thing; that is, gives it this or that manner of Being. See MODE.

Quantity and Quality are Accidents that make the *Modification* of all Bodies. See QUANTITY and QUALITY.

According to *Spinoza*'s Syſtem, all the Beings that compoſe the Univerſe, are only ſo many different *Modifications* of one and the ſame Subſtance. 'Tis the different Arrangement and Situation of their Parts, that make all the difference between them. See SPINOSISM.

MODIFICATIVE, ſomething that *modifies*, or gives a thing a certain Manner of being.

Father *Buffier* eſtabliſhes a new Part of Speech, which he calls *Modificative.* Nouns, and Verbs, he obſerves, are ſuſceptible of divers Circumſtances or *Modifications*: In the Phraſe *Zeal acts*, we have a Noun and Verb without any Modification; but in that, *Zeal without Diſcretion acts raſhly*, the Noun and the Verb are each attended with a Modification or Circumſtance.

This laſt Kind of Words, which ſerve to modify Nouns and Verbs, ſince it has no general Name in the common Grammars, he chuſes to call *Modificatives.* It includes what Grammarians commonly call *Adverb*, *Conjunction*, and *Prepoſition.* See CONJUNCTION, PREPOSITION, *&c.*

MODILLIONS, in Architecture, Ornaments in the Corniſh of the Ionic, Corinthian, and Compoſite Columns. See CORNISH.

The *Modillions* are little Conſoles or Brackets under the Soffit of the Corniſh, ſeeming to ſupport the Lamier, tho in reality they are no more than Ornaments. See CONSOLE.

They ought always to be placed over the middle of the Column. They are particularly affected in the Corinthian Order, where they are uſually enrich'd with Sculpture.

The *Modillion* is uſually in form of an S inverted, and fitted to the Soffit of the Corniſh. See CORNISH.

The Proportions of *Modillions* muſt be ſo adjuſted, as to produce a Regularity in the Parts of the Soffits.

The *Inter-Modillions*, *i. e.* the Diſtances between them, depend on the Inter-Columns, which oblige the *Modillions* to be made of a certain Length and Breadth, in order to make the Intervals perfect Squares, which are always found to have better effect than Parallelograms. To this it muſt be added, that in adjuſting the *Modillions*, Care ſhould be taken that they have ſuch a Proportion, as that when the Orders are placed over one another, there be the ſame Number in the upper Order as in the lower, and that they fall perpendicularly over each other.

Modillions are alſo uſed under the Corniſhes of Pediments; tho *Vitruvius* obſerves that they were not allow'd of in his time, in regard *Modillions* were intended to repreſent the Ends of Rafters, which could not be ſuppos'd to be uſed in a Pediment. See PEDIMENT.

Some will have the *Modillions* of a Pediment to repreſent Purlins; and thoſe at the Eaves to repreſent Rafters. *Daviler* rather takes them for a kind of inverted Conſoles or Corbels.

The *Modillion* is ſometimes alſo call'd *Mutule*, tho Uſe has introduc'd a little difference between the Idea of a *Modillion* and a Mutule; the Mutule being peculiar to the Doric Order; and the *Modillions* to the higher Orders. See MUTULE.

The Word comes from the *Italian Modiglione*, a little Meaſure.

MODIOLUS, a Chirurgeon's Inſtrument, the ſame with *Abaptiſton* and *Trepanum.* See TREPANUM.

MODIUS, in Antiquity, a Kind of Buſhel, or Meaſure in uſe among the *Romans* for ſeveral Sorts of Grain. See MEASURE.

It contain'd about nine *Engliſh* Quarts.

MODO *&* *Forma*, in Law, a Phraſe uſed in Proceſſes and Pleadings, whereby the Defendant abſolutely denies the thing charg'd on him by the Plaintiff, *Modo & Forma declarata.*

The Civilians in the like ſenſe ſay, *Negat allegata prout allegantur, eſſe vera.*

MODULATION, in Muſic, is the Art of keeping in, or changing the *Mode* or Key. See MODE.

Under this Term is comprehended the regular Progreſſion of the ſeveral Parts thro the Sounds that are in the Harmony of any particular Key, as well as the proceeding naturally and regularly from one Key to another.

The Rules of *Modulation* in the firſt ſenſe belong to Harmony and Melody. See HARMONY and MELODY.

We ſhall here only add a word with regard to the Rules of *Modulation* in the latter ſenſe.

As every Piece muſt have a principal Key; and ſince the Variety ſo neceſſary in Muſic to pleaſe and entertain, forbids the being confined to one Key; and that therefore it is not only allowable, but neceſſary, to *modulate* into, and make Cadences on ſeveral other Keys, having a Relation and Connection with the principal Key: It muſt be conſider'd what it is that conſtitutes a Connection between the Harmony of one Key and that of another, that it may be hence determin'd into what Keys the Harmony may be conducted with Propriety. See KEY.

As to the Manner in which the *Modulation* from one Key to another is to be perform'd, ſo that the Tranſition may be eaſy and natural; 'tis not eaſy to fix any preciſe Rules: for tho it is chiefly perform'd by the help of the 7th g of the Key, into which the Harmony is to be changed, whether it be flat or ſharp; yet the Manner of doing it is ſo various and extenſive, as no Rules can eaſily circumſcribe. A general Notion of it may be conceiv'd under the following Terms.

The 7th g in either ſharp or flat Key, is the 3d g to the 5th *f* of the Key, by which the Cadence in the Key is chiefly perform'd; and by being only a Semi-tone under the Key, is thereby the moſt proper Note to lead into it, which it does in the moſt natural manner imaginable. Inſomuch that the 7th g is never heard in any of the Parts, but the Ear expects the Key ſhould ſucceed it; for whether it be uſed as a 3d, or as a 6th, it always affects us with ſo imperfect a Senſation, that we naturally expect ſomething more perfect to follow, which cannot be more eaſily and ſmoothly accompliſh'd, than by the ſmall Interval of a Semi-tone, to paſs into the perfect Harmony of the Key. Hence it is, that the Tranſition into one Key is beſt effected, by introducing its 7th g, which ſo naturally leads to it.

MODULE, in Architecture, a certain Meaſure, or Bigneſs taken at pleaſure, for regulating the Proportions of Columns, and the Symmetry or Diſtribution of the whole Building. See COLUMN.

Architects uſually chuſe the Semi-diameter of the bottom of the Column for their *Module*; and this they ſubdivide into Parts, or *Minutes.*

Vignola divides his *Module*, which is a Semi-diameter, into twelve Parts in the Tuſcan and Doric, and into eighteen for the other Orders.

The *Module* of *Palladio*, *Scamozzi*, M. *Cambray*, *Deſgodetz*, *Le Clerc*, *&c.* which is alſo equal to the Semi-diameter, is divided into thirty Parts or Minutes in all the Orders. See MINUTE.

Some divide the whole height of the Column into 20 Parts for the Doric, 22½ for the Ionic, 25 for the Roman, *&c.* and one of theſe Parts they make a *Module*, to regulate the reſt of the Building by.

There are two Ways of determining the Meaſures, or Proportions of Buildings; the firſt by a fix'd Standard Meaſure, which is uſually the Diameter of the lower part of the Column, call'd a *Module*, ſubdivided into 60th Parts, call'd *Minutes.* In the ſecond, there are no Minutes, nor any certain and ſtated Diviſion of the *Module*; but it is divided occaſionally into as many Parts as are judg'd neceſſary. Thus, the height of the Attic Baſe, which is half the *Module*, is divided either into three, to have the height of the Plinth; or into four, for that of the greater Torus; or into ſix, for that of the leſſer. Both theſe Manners have been practiſed by the antient, as well as the modern Architects: But the ſecond, which was that chiefly uſed among the Antients, is in my Opinion preferable. *Perrault.*

As *Vitruvius*, in the Doric Order, has leſſen'd his *Module*, which in the other Orders is the Diameter of the lower part of the Column; and has reduc'd that great *Module* to a mean one, which is the Semidiameter: I here reduce the *Module* to a third part for the ſame reaſon, *viz.* to determine the ſeveral Meaſures without a Fraction. For in the Doric Order, beſide that the height of the Baſe, as in the other Orders, is determin'd by one of theſe *mean Modules*; the ſame *Module* gives likewiſe the heights of the Capital, Architrave, Triglyphs, and Metopes. But our little *Module*, taken from the third of the Diameter of the lower part of the Column, has Uſes much more extenſive; for, by this the heights of Pedeſtals, of Columns, and Entablatures, in all the Orders, are determin'd without a Fraction.

As then the *great Module*, or Diameter of the Column, has 60 Minutes; and the *mean Module*, or half the Diameter, 30 Minutes; our *little Module* has 20. *Id.*

MODUS *Decimandi*, is when Land, a Sum of Money, or a yearly Penſion, belongs to the Parſon, either by Compoſition or Cuſtom, in Satisfaction for Tithes in Kind.

MOHAIR, MOUAIRE, or MOIRE, a kind of Stuff, ordinarily of Silk, both Weft and Warp; having its Grain wove very cloſe.

There are two kinds of *Mohairs*, the one ſmooth and plain; the other water'd like Tabbys: The Difference between the two only conſiſts in this, that the latter is calander'd, the other not.

There are alſo *Mohairs* both plain, and water'd, the Woof whereof is Woollen, Cotton, or Thread.

MOIDORE, MOEDORE, or MOEDA, a Gold Coin, ſtruck and current in *Portugal.* See COIN.

The *Moidore* is properly their *Piſtole*; and is equivalent to two Mille-Rees. See PISTOLE, *&c.*

There are alſo *Doppio-Moedas*, or double Piſtoles, and Demi-Piſtoles.

MOIETY, a *French* Word, *Moitie*; ſignifying the *half* of any thing.

MOINEAU, in Fortification, is a flat Baſtion raiſed in the middle of a Curtain when it is too long, and the Baſtions of the Angles too remote to be able to defend one another. See BASTION.

Here Muſqueteers are placed, to fire each way.

MOLA, in Medicine, ſee MOLE.

The Word is *Latin*, and literally ſignifies a *Mill-ſtone*.

MOLA, in Anatomy, a Bone of the Knee, call'd alſo *Patella*, *Rotulo*, &c. See PATELLA.

MOLARES, in Anatomy, the *Grinders*, an Epithet given to the large Teeth; as ſerving, like Mill-ſtones, to grind the Food. See TEETH.

The Number of *Molares* is not always the ſame. Some Perſons have twenty; and others only ſixteen, *viz.* four, or five on each ſide of either Jaw. They are very large, hard, and ſtrong; being faſtned into their Alveoli or Sockets by ſeveral Roots.

MOLASSES, MOLOSSES, or MELASSES, that groſs, yet fluid Matter, remaining of Sugar, after refining, and which no boiling will bring to a conſiſtence more ſolid than that of Syrup; hence alſo call'd *Syrup of Sugar*. See SUGAR and REFINING.

Properly, *Moloſſes* are only the Sediment of one kind of Sugar call'd *Chypre*, or brown Sugar, which is the Refuſe of other Sugars not to be whiten'd, or reduced into Loaves.

Molaſſes are much uſed in *Holland* among poor People, for the Preparation of Tobacco, and inſtead of Sugar.

There is alſo a kind of Brandy, or Spirit made of it; but exceedingly unwholeſome, and therefore much diſcouraged. See BRANDY.

MOLE, MOLA, or MOLA *Carnea*, in Medicine, a miſhapen Maſs of hard Fleſh, ſometimes generated in the Wombs of Women, inſtead of a *Fœtus*; call'd alſo a *falſe Conception*.

The *Mole* is the Chaos of an Embryo; and would have grown to an Infant, had not the Proceſs of Conception been diſturbed. Tho' it be without regular Bones, Viſcera, *&c.* yet the Lineaments frequently are not ſo far effaced, but that there are ſome Remains of a Child; ſometimes a Hand, and ſometimes a Foot, have been ſpied; but commonly the Secundines.

It is rare that more than one *Mole* is excluded; though *Sennertus* obſerves that there are Inſtances of two, three, or even more. He adds, that tho' they uſually come alone, yet they have been known to come with a *Fœtus*, ſometimes before it, and ſometimes after it. See CONCEPTION.

The *Mole* is diſtinguiſhed from an Embryo, in that it has no Placenta whereby to receive its Nouriſhment from the Mother. Inſtead of that, it grows immediately to the Womb; and is nouriſhed thence. It has a kind of Vegetative Life, and continues growing in bulk till the time of excluſion. Sometimes it has been born in the Womb for two or three Years.

This Production is ſuppoſed to ariſe from ſome Defect or Indiſpoſition of the *Ovum*, or Egg; or, perhaps, from the Male Seed's wanting force to penetrate it ſufficiently in order to open, and expand the Parts. Or the Effect may be accounted for, by ſuppoſing an *Ovum* to drop into the Womb, without being impregnated by the Seed of the Male: In all which caſes, the Egg continuing to grow, and yet wanting ſomething neceſſary to organize and form it into an Embryo, becomes a ſhapeleſs Lump. See EMBRYO.

Authors are divided whether or no the Women ever bring forth *Moles* without any intercourſe with Men. Some ſay there are *Moles* which derive their Origin from the Menſtruous Blood detain'd, coagulated, and harden'd; through which the Blood and Spirits have made themſelves Paſſages, *&c.* See MENSES.

The *Mole* is diſtinguiſhed from a true Conception, by its tremulous palpitating Motion; by its rolling from ſide to ſide; and by the Belly's ſwelling equally every way. The Breaſts ſwell as in caſe of a juſt Embryo; but the Humour generated therein is not true Milk, but a crude Matter, form'd of the ſuppreſſed Menſes.

To bring the *Mola* out of the Womb, Bleeding and violent Purging are uſed, and at laſt ſtrong Emmenagogues. If theſe fail, recourſe is to be had to manual Operation.

The *Latins* give it the Name *Mola*, which literally ſignifies *Mill-ſtone*, from its reſemblance thereto in Form and Hardneſs.

MOLE, *Moles*, a Peer, or Maſſive Work of Maſonry, conſiſting of large Stones thrown into the Sea, in manner of a Bank, with deſign to ſhut up a Port, and defend the Veſſels in it from the Impetuoſity of the Waves, and to prevent the Paſſage of any Veſſel without leave. Thus we ſay the *Mole* of the Harbour of *Meſſina*. See PILE.

The Word *Mole* is ſometimes alſo uſed to ſignify the Harbour itſelf. See HARBOUR.

Among the *Romans*, *Mole*, *Moles*, was alſo uſed for a kind of Mauſoleum built in manner of a round Tower on a ſquare Baſe, inſulate, incompaſs'd with Columns, and cover'd with a Dome. See MAUSOLEUM.

The *Mole* of the Emperor *Adrian*, now the Caſtle of St. *Angelo*, was the greateſt, and moſt ſtately of all the *Moles*. It was crown'd with a Brazen Pine-Apple, wherein was a golden Urn containing the Aſhes of the Emperor.

MOLECULE, MOLECULA, in Phyſics, a little Maſs, or part of any thing. See MASS, *&c.*

Thus we ſay the Air, by Reſpiration, inſinuating itſelf into the Veins and Arteries, endeavours by its elaſtic Power to divide and break the *Molecules* of the Blood, which on their ſide reſiſt ſuch diviſion.

MOLINE, in Heraldry. A *Croſs* MOLINE is that which turns round both ways at all its Extremities, tho' not ſo wide or ſharp as that ſaid to be *Anchored*. See CROSS.

In *Upton*, the Points are all cut off, which makes it very different from the Croſs Anchored. See FER *de Moulin*.

MOLINISTS, a Sect among the *Romaniſts*, who follow the Doctrine and Sentiments of the Jeſuit *Molina*, relating to ſufficient and efficacious Grace. See GRACE, *&c.*

Their great Antagoniſts are the *Janſeniſts*. See JANSENISTS.

MOLINOSISTS, a Sect among the *Romaniſts*, who adhere to the Doctrine of *Molinos*.

Theſe are likewiſe call'd *Quietiſts*. See QUIETISTS.

MOLMUTIN, or MOLMUTIAN *Laws*, the Laws of *Dunwallo Molmutius*, XVIth King of the *Britons*, who began his Reign 440 Years before the Incarnation. See LAW.

He was the firſt who publiſhed any Laws in this Land; and they continued famous therein till the time of *William* the Conqueror.

MOLOSSUS, in the *Greek* and *Latin* Poetry, the Name of a Foot conſiſting of three long Syllables: As *Auderi*, *cantabant*, *Virtutem*. See FOOT.

It takes its Name either from a Dance in uſe among the People call'd *Moloſſi*, or *Epirotes*; or from the Temple of *Jupiter Moloſſus*, where Odes were ſung, in which this Foot had a Share; or becauſe the March of the *Moloſſi* when they went to the Combate, was compoſed of theſe Feet, or had their Cadence.

MOLTA, or MOLTURA, a Duty, or Toll paid by Vaſſals to the Lord for grinding their Corn at his Mill.

MOLTING, or MOULTING, the falling off or change of Hair, Feathers, Skin, Horns, Voice, and other Diſpoſitions of the Body of Animals, happening in ſome, annually, in others at certain Stages of their Life.

The generality of Beaſts *Molt* in the Spring.

The *Molting* of a Deer is the quitting of his Horns in *February* or *March*; the *Molting* of a Serpent is the putting off his Skin. See EXUVIÆ.

MOMENT, in Time, is the moſt minute, and inſenſible Diviſion of Time; or what we otherwiſe call an *Inſtant*. See TIME.

MOMENTS, in the new Doctrine of Infinites, are the infinite ſmall Parts of Quantity. See INFINITE.

Moments are the ſame with what we otherwiſe call *Infiniteſimals*, *Differentials*, and *Fluxions*; being the *Momentary* Increments, or Decrements of Quantity conſider'd as in a continual Flux. See DIFFERENTIAL and FLUXION.

Moments are the generative Principles of Magnitude: They have no determined Magnitude of their own; but are only inceptive thereof. See INCEPTIVE.

Hence, as it is the ſame thing if in lieu of theſe *Moments*, the Velocities of their Increaſes and Decreaſes be made uſe of, or the finite Quantities proportionable to ſuch Velocities; the Method of Proceeding which conſiders the Motions, Changes, or Fluxions of Quantities, is denominated by Sir *Iſ. Newton* the Method of *Fluxions*. See FLUXIONS.

Leibnitz, and moſt of the Foreigners, conſidering theſe infinitely ſmall parts or Infiniteſimals as the differences of two Quantities; and thereby endeavouring to find the differences of Quantities, *i.e.* ſome *Moment* or Quantity infinitely ſmall, which being taken an infinite Number of Times, ſhall equal a given Quantity, call theſe *Moments Differentials*; and the Method of Proceedure, the *Differential Calculus*. See CALCULUS *Differentialis*.

MOMENT, in Mechanics, is the ſame with *Impetus*, or Quantity of Motion in any moving Body; and ſometimes it is uſed ſimply for the Motion itſelf. See IMPETUS.

Moment is frequently defined by the *Vis inſita*, or the Power by which moving Bodies continually change Place. See VIS.

In comparing the Motions of Bodies, the Ratio of their *Moments* is always compounded of the Quantity of Matter, and the Celerity of the moving Body; ſo that the *Moment* of any ſuch Body may be conſider'd as a Rectangle under the Quantity of Matter, and the Celerity. And ſince it is certain that all equal Rectangles have their ſides reciprocally proportionable; therefore if the *Moments* of any moving Bodies are equal, the Quantity of Matter in one to that of the other will be reciprocally as the Celerity of the latter to the Celerity of the former; and, on the contrary, if the Quantities of Matter are reciprocally proportionable to the Celerities, the *Moments*, or Quantities in each, will be equal.

The *Moment* alſo of any moving Body may be conſider'd as the Aggregate or Sum of all the *Moments* of the Parts of that Body; and therefore where the Magnitudes and Number of Particles are the ſame, and where they are moved with the ſame Celerity, there will be the ſame *Moments* of the Wholes. See MOTION.

MONARCHY, a large State govern'd by one; or a State where the ſupreme Power is lodged in the hands of a ſingle Perſon. See GOVERNMENT.

The moſt antient *Monarchy* was that of the *Aſſyrians*, which was founded ſoon after the Deluge.

We uſually reckon four Grand or Univerſal *Monarchies*, the *Aſſyrian*, *Perſian*, *Grecian*, and *Roman*. But St. *Auguſtin* makes them but two, *viz.* thoſe of *Babylon* and *Rome*. There is no neceſſity to make the *Medes*, *Perſians* and *Greeks* ſucceed to the whole Power of the *Aſſyrians*, to multiply the number of the *Monarchies*. It was the ſame Empire ſtill, and the ſeveral Changes that hapned in it, did not conſtitute different *Monarchies*. Thus the *Roman* Empire was ſucceſſively govern'd by Princes of different Nations, yet without any new *Monarchy* being formed thereby. *Rome* therefore may be ſaid to have immediately ſucceeded *Babylon* in the Empire of the World. See EMPIRE.

Of *Monarchies* ſome are Abſolute and Deſpotic, where the Will of the Monarch is uncontrollable; as *France*, &c. others limited, where the Prince's Authority is reſtrained by Laws, and part of the ſupreme Power lodged in other hands; as in *England*. Some again are Hereditary, where Succeſſion devolves immediately from Father to Son; and others Elective, where, on the Death of the *Monarch*, his Succeſſor is appointed by Election, as *Poland*.

The Word comes from the *Greek* μοναρχης, one who governs alone; form'd of μονος *ſolus*, and αρχη *Imperium*, Government.

According to *Hobbes*, *Monarchy*, as well as Ariſtocracy, derives all its Authority from the People, who transfer all their Right, *v. g.* the ſupreme Power, by a Plurality of Suffrages, &c. to ſome one Perſon call'd a *Monarch*; ſo that whatever the People could have done before this Tranſlation, may be now rightfully done by him, to whom the Tranſlation is made. This done, the People are no longer to be look'd on as a Perſon, but a diſſolv'd Multitude; in regard they were only one by virtue of the ſupreme Power, which they have now transferred to another.

Nor can the *Monarch*, ſays he, oblige himſelf by any Covenants, to any Perſon, for the Authority he has receiv'd; in regard he receives the Power from the People, which, as ſoon as that is done, ceaſes to be a Perſon; and the Perſon ceaſing, the Obligation to the Perſon ceaſes of courſe. The People therefore are oblig'd to pay Obedience to the *Monarch*, by virtue of thoſe Covenants, whereby they mutually oblige themſelves to what the People, as a Perſon, injoins to be done.

He argues further, that as a *Monarch* cannot be oblig'd by any Covenants; ſo neither can he do any injury to his Subjects: an Injury being nothing elſe but a Breach of Covenant; and where there is no Covenant, there can be no Breach. *De Cive*, *cap.* 8.

MONASTERY, a *Convent*, or Houſe built for the Reception of Religious, whether it be *Abbey*, *Priory*, *Nunnery*, or the like. See ABBEY, PRIORY, &c.

Monaſtery is in a more immediate ſenſe apply'd to the Houſes of Mendicant Friars, and Nuns. The reſt are more properly call'd *Convents*. See CONVENT.

MONASTIC, ſomething belonging to the *Monks*, or the *Monkiſh* Life. See MONK.

The *Monaſtic* Profeſſion is a kind of civil Death, which has the ſame Effects with the natural Death. The Council of *Trent*, &c. fix ſixteen Years for the Age at which a Perſon may be admitted into the *Monaſtical* Life.

St. *Anthony* is the Perſon who in the fourth Century firſt inſtituted the *Monaſtic* Life; as St. *Pacome*, in the ſame Century, is ſaid to have firſt ſet on foot the Cœnobitic life, *i. e.* Regular Communities of Religious. See COENOBITE.

In a ſhort time, the Deſarts of *Egypt* became inhabited with a Set of Solitaries, who took upon them the *Monaſtic* Profeſſion. See SOLITARY. St. *Baſil* carry'd the Monkiſh Humour into the *Eaſt*, where he compos'd a Rule, which afterwards obtain'd thro a great part of the *Weſt*. In the eleventh Century, the *Monaſtic* Diſcipline was grown very remiſs. St. *Odo* firſt began to retrieve it in the Monaſtery of *Cluny*.

That Monaſtery, by the Conditions of its Erection, was put under the immediate Protection of the Holy See; with a Prohibition to all Powers, both Secular and Eccleſiaſtical, to diſturb the Monks in the Poſſeſſion of their Effects, or the Election of their Abbot. In virtue hereof, they pleaded an Exemption from the Juriſdiction of the Biſhop; and extended this Privilege to all the Houſes dependent on *Cluny*. This made the firſt Congregation of ſeveral Houſes under one Chief immediately ſubject to the Pope, ſo as to conſtitute one Body, or, as they now call it, one *Religious Order*. Till then, each Monaſtery was independent of other, and ſubject to the Biſhop. See ORDER, ABBOT, RELIGIOUS, &c.

MONETAGIUM, MONETAGE, was antiently the Right, or Privilege of Coining Money. See MINT, COINING, &c.

MONK, was antiently a Perſon who retir'd from the World, to give himſelf up wholly to God, and to live in Solitude, and Abſtinence. See RELIGIOUS.

Such were the *Hermites* and *Anchorites*, who withdrew into Deſarts, and lived remote from all Commerce of Mankind. See HERMITE and ANCHORITE.

The Word is deriv'd from the *Latin Monachus*, and that from the *Greek* μόναχος, which ſignifies *alone*; by reaſon the antient *Monks* liv'd in Solitude, as the true *Monks* ſtill do.

Some Writers, as Father *Helyot*, *Diſſert. Prelim.* trace the Original of *Monks* up as early as the time of the *Therapeutæ*, and maintain that there had been an uninterrupted Succeſſion of *Monks* from the *Therapeutæ* to St. *Anthony*. Others, on the contrary, are contented with going back as far as St. *Paul*, the firſt Hermite. See THERAPEUTÆ.

The *Monks*, at leaſt the antient ones, were diſtinguiſh'd into *Solitary* and *Cænobites*.

The *Solitary* are thoſe who live alone, in Places remote from all Towns, or Habitations of Men, as do ſtill ſome of the Hermites. See SOLITARY.

The *Cænobites* are thoſe who live in Community with ſeveral others in the ſame Houſe, and under the ſame Superiors. See COENOBITE.

Thoſe Houſes again were of two kinds, *viz.* *Monaſteries* and *Lauri*. See MONASTERY and LAURUS.

Thoſe we call *Monks* now-a-days, are *Cænobites*, who live together in a Convent or Monaſtery, who make Vows of living according to a certain Rule eſtabliſh'd by the Founder, and wear a Habit which diſtinguiſhes their Order.

Thoſe that are endow'd, or have a fix'd Revenue, are properly call'd *Monks*, as the *Chartreux*, *Benedictines*, *Bernardines*, &c. The *Mendicants*, or thoſe that beg, as the *Carthuſians*, and *Franciſcans*, are properly call'd *Religious*, tho the Names are frequently confounded. See RELIGIOUS.

The firſt *Monks* were thoſe of St. *Anthony*; of St. *Baſil*, call'd in the *Eaſt Calogers*, from καλὸς γερων, *Good old Man*; and thoſe of St. *Jerom*; the Hermites of St. *Auguſtine*, and afterwards thoſe of St. *Benedict* and St. *Bernard*; at length came thoſe of St. *Francis*, St. *Dominic*, with a Legion of others; which ſee under their proper Heads. BENEDICTINS, &c.

Monks are diſtinguiſh'd by the Colour of their Habits into *Black*, *White*, *Grey*, &c.

Among the *Monks*, ſome are call'd *Monks of the Choir*, others *Profeſſed Monks*, and others *Lay Monks*; which laſt are deſtin'd for the Service of the Convent, and have neither Clericature nor Literature. See LAY.

Cloiſter'd MONKS, are thoſe who actually reſide in the Houſe, in oppoſition to *Extra-Monks*, who have Benefices depending on the Monaſtery. They are diſtinguiſh'd further into *Reformed*, whom the Civil and Eccleſiaſtical Authority have made Maſters of antient Convents, and put it in their power to retrieve the antient Diſcipline, which had been relax'd; and *Antient*, who enter the Convent, to live in it according to its Eſtabliſhment at the time when they make their Vows, without obliging themſelves to any new Reform.

Antiently, the *Monks* were all Laymen, and were only diſtinguiſh'd from the reſt by a particular Habit, and an extraordinary Devotion. Not only the *Monks* were prohibited the Prieſthood; but even Prieſts were expreſly prohibited from becoming *Monks*, as appears from the Letters of St. *Gregory*. Pope *Syricius* was the firſt who call'd them to the Clericature, on occaſion of ſome great Scarcity of Prieſts, that the Church was then ſuppos'd to labour under. And ſince that time, the Prieſthood has been uſually united to the Monaſtical Profeſſion. See FATHER, &c.

MONKS *Rhubarb*, ſee RHUBARB.

MONKS *Seam*, among Sailors, is, when the Selvedges f Sails are laid a little over one another, and ſewed on oth ſides.

MONETARIUS, a Name Antiquaries and Medaliſts give to thoſe who ſtruck the antient Coins, or Moneys.

All the old *Roman*, &c. Coins, have the Name of the *Monetarius*, either written at length, or at leaſt the initial Letters of it.

MONEY, or MONY, *Moneta*, a Piece of Metal mark'd for Coin, with the Arms of a Prince, or State, who make it circulate or paſs, at a common rate, for things of different Value; to facilitate the Buſineſs of Commerce. See COMMERCE.

Paulus the Lawyer, defines *Money* a thing ſtamp'd with a public Coin, and deriving its Uſe and Value from its Impreſſion rather than its Subſtance. *ff. de Contr. Empt.*

Monſ. *Boizard* defines it a piece of Matter to which public Authority has affixed a certain Value and Weight to ſerve as a Medium in Commerce.

The *Æra* of the Invention of *Money* is not eaſy to be ſettled. There is no room to doubt but that in the earlieſt Ages, the ordinary way of Traffick among Men was by trucking or exchanging Commodity for Commodity. Thus in *Homer*, *Glaucus*'s golden Armour was valued at one hundred Cows; and *Diomedes*'s Armour at ten. See EXCHANGE.

But in courſe of time, it was found neceſſary in the way of commutative Juſtice, to have ſome common Meaſure or Standard, according to which all other things ſhould be eſtimated. This, as the *Jews* gather from *Joſephus*, was firſt invented by *Cain*: Tho the firſt tidings we hear of it, is in the time of *Abraham*, who paid 400 Shekels for a Burying-Place.

The *Greeks* refer the Invention of *Money* to *Hermodice*, Wife of King *Midas*: And the *Latins* to *Janus*.

This being a common Meaſure for reducing Wares to a Balance, it was call'd by the *Grecks Nomiſma*; not from King *Numa*, but from *Nomos*, as being eſtabliſhed by Law. By the *Latins* it was call'd *Pecunia*; either becauſe the Wealth of thoſe Days conſiſted in their Cattel; or, as *Pliny* will have it, becauſe their firſt Coin was ſtamp'd with the Figure of a Cow. They alſo call'd it *Moneta*, *à monendo*, as *Suidas* obſerves, becauſe when the *Romans* were at a want of *Money*, *Juno* admoniſhed them to uſe Juſtice, and there ſhould be no want of *Money*. The Effect whereof when they had found, ſhe was ſur-named *Juno Moneta*, and *Money* was coin'd in her Temple. In proceſs of time, *Money* herſelf was made a Goddeſs, and inſhrined by the Name of *Dea Pecunia*, in the Figure of a Woman holding a Balance in one hand, and a *Cornucopia* in the other.

On the foot *Money* now ſtands, it may be divided into *Real*, or *Effective*; and *Imaginary*, or *Money of Account*.

Under *Real* MONEY come all Coins or Species, of Gold, Silver, Copper, *&c.* which have courſe in Commerce, and do really exiſt: Such are *Guineas*, *Crowns*, *Piſtoles*, *Louis's*, *Pieces of Eight*, *Ducats*, &c. Which ſee under their proper heads; as alſo under COIN.

Imaginary MONEY, or *Money of Account*, is that which has never exiſted, or at leaſt which does not exiſt in real Species, but has been invented and retained to facilitate the Stating of Accounts, by keeping them ſtill on a fixed footing, not to be changed like current Coins, which the Authority of the Sovereign raiſes or lowers according to the Exigencies of State. Of this kind are *Pounds*, *Livres*, *Maravedies*, *&c.*

This *Money of Account*, M. *Boiſſart* obſerves, is a Sum of Money, or a certain number of Species which may change in Subſtance and Quantity, but never in Quality. Thus fifty Pounds conſiſts of fifty Pieces call'd Pounds, which are not real, but may be paid in ſeveral real Species, as in Guineas, Crowns, Shillings, *&c.* which are changeable, as Guineas, *e.g.* which are ſometimes higher, ſometimes lower.

Real Money, as the Civilians obſerve, has three eſſential Qualities, *viz.* *Matter*, *Form*, and *Weight* or *Value*.

For *Matter*, Copper is that thought to have been firſt coin'd; afterwards Silver, and, laſtly, Gold; as being the moſt beautiful, ſcarce, cleanly, diviſible, and pure of all Metals.

The Degrees of Goodneſs are expreſs'd in Gold by Caracts; and in Silver by Penny-weights. See CARACTS, *&c.*

For there are ſeveral reaſons for not coining 'em pure, and without alloy, *viz.* the great Loſs and Expence in refining them, the neceſſity of hardening them to make 'em more durable, and the ſcarcity of Gold and Silver in moſt Countries. See ALLOY.

Among the antient *Britons*, Iron Rings, or, as ſome ſay, Iron Plates, were uſed for *Money*. Among the *Lacedemonians* Iron Lingets quench'd with Vinegar, that they might not ſerve for any other uſe. *Seneca* obſerves, that there was antiently ſtamp'd *Money* of Leather; *Corium forma publica Impreſſum*. And the ſame thing was put in practice by *Frederic* II. at the Siege of *Milan*; to ſay nothing of an old Tradition among ourſelves, that in the confuſed times of the Barons Wars, the like was done in *England*: But the *Hollanders*, we know, coin'd great Quantities of Paſteboard in the Year 1574. *Numa Pompilius* made *Money* of Wood and Leather. Nor does it appear that the *Romans* were much acquainted with the Art of ſtriking *Money* in Metal in the Time of their Kings. The firſt Silver *Money* they coin'd was in the Year of *Rome* 484; and their firſt Gold *Money* in 546. See COINING.

As to the *Form of Money*, it has been more various than than the Matter.

Under the *Form* are comprehended the Weight, Figure, Impreſſion, and Value.

For the *Impreſſion*, the *Jews*, tho they deteſted Images, yet ſtamp'd on one ſide their Shekel, the golden Pot which had the Manna; and on the other, *Aaron*'s Rod. The *Dardans*, two Cocks fighting. *Alexander* his Horſe *Bucephalus*. The *Athenians* an Owl, or an Ox; whence the Proverb on bribed Lawyers, *Bos in Lingua*. They of *Ægina*, a Snail; whence that other ſaying, *Virtutem & Sapientiam vincunt teſtudines*. For the *Romans*, as they impreſs'd the Image and Inſcription of the Conſul on their Coins while the Common-wealth flouriſh'd, and afterwards that of the Emperor on one ſide; ſo they always varied the Reverſe upon new Events or Exploits. Some think that the great Ounce Medals both of Braſs and Gold were ſtruck chiefly to do honour, and preſerve the Memories of great Men; but it is pretty plain they were current as well as the ſmaller. See MEDAL and MEDALLION.

This Practice of ſtamping the Prince's Image on Coins, has obtain'd among all civiliz'd Nations; the *Turks* and other *Mahometans* alone excepted, who, in deteſtation of Images, inſcribe only the Prince's Name, with the Year of the tranſmigration of their Prophet.

As to the *Figure*, it is either round, as in *England*; multangular or irregular, as in *Spain*; ſquare, as in ſome parts of the *Indies*; or nearly globular, as in moſt of the reſt.

After the Arrival of the *Romans* in this Iſland, the *Britons* imitated them, coining both Gold and Silver with the Images of their Kings ſtamp'd on 'em. When the *Romans* had ſubdued the Kings of the *Britons*, they alſo ſuppreſs'd their Coins, and brought in their own; which were current here from the time of *Claudius* to that of *Valentinian* the Younger, about the ſpace of 500 Years.

Mr. *Camden* obſerves, that the moſt antient *Engliſh* Coin he had known was that of *Ethelbert* King of *Kent*, the firſt Chriſtian King in the Iſland; in whoſe time all *Money* Accounts began to paſs by the Names of *Pounds*, *Shillings*, *Pence*, and *Mancuſes*.

Pence ſeems borrow'd from the *Latin Pecunia*, or rather from *Pendo*, on account of its juſt Weight, which was about three Pence of our *Money*. Theſe were coarſely ſtamp'd with the King's Image on the one ſide, and either the Mint-Maſter's, or the City's where it was coin'd, on the other. Five of theſe Pence made their Scilling, probably ſo call'd from *Scilingas*, which the *Romans* uſed for the fourth part of an Ounce. Forty of theſe Scillings made their Pound, and 400 of theſe Pounds were a Legacy, or a Portion for a King's Daughter; as appears by the laſt Will of King *Alfred*. See PENNY, *&c.*

By theſe Names they tranſlated all Sums of *Money* in their old *Engliſh* Teſtament; Talents by Pundes; *Judas*'s thirty pieces of Silver by thirty Scillinga; Tribute *Money*, by Penining; the Mite by Feorthling.

But it muſt be obſerved, they had no other real *Money*, but Pence only; the reſt being imaginary *Moneys*, *i. e.* Names of Numbers, or Weights. Thirty of theſe Pence made a Mancus, which ſome take to be the ſame with a Mark; Manca, as appears by an old MS. was *quinta pars Unciæ*. See MANCUS.

Theſe Mancas or Mancus's, were reckon'd both in Gold and Silver. For in the Year 680, we read that *Ina* King of the *Weſt-Saxons*, obliged the *Kentiſhmen* to buy their Peace at the price of thirty thouſand Manca's of Gold. In the Notes on King *Canute*'s Laws, we find this diſtinction, that Mancuſa was as much as a Mark of Silver; and Manca a ſquare piece of Gold, valued at thirty Pence.

The *Danes* introduced a way of reckoning *Money* by Ores, mentioned in *Dooms-Day* Book; but whether they were a ſeveral Coin, or a certain Sum, does not plainly appear. This, however, may be gathered from the Abby-Book of *Burton*, that twenty Ores were equivalent to two Marks. They had alſo a Gold Coin call'd Bizantines, or Beſants, as being coin'd at *Conſtantinople*, then call'd *Bizantium*. The value of which Coin is not only now loſt, but was ſo entirely forgot even in the time of King *Edward* the Third; that whereas the Biſhop of *Norwich* was fin'd a Bezantine of Gold to be paid the Abbot of St. *Edmond's Bury*, for infringing his Liberties (as it had been enacted by Parliament in the time of the Conqueror) no Man then living could tell how much it was; ſo it was refer'd to the King to rate how much he ſhould pay. Which is the more unaccountable, becauſe but an hundred Years before, two hundred thouſand Beſants were exacted by the *Soldan* for the Ranſom of St. *Lewis* of *France*; which were then valued at one hundred thouſand Livres.

Tho' the Coining of *Money* be a ſpecial Prerogative of the King, yet the antient *Saxon* Princes communicated it to their Subjects; inſomuch that in every good Town there was at leaſt one Coiner; but at *London* eight, at *Canterbury* four for the King, two for the Arch-biſhop, one for the Abbot at *Wincheſter*, ſix at *Rocheſter*, at *Haſtings* two, *&c.* See Mint.

The *Norman* Kings continu'd the ſame Cuſtom of Coining only Pence, with the Prince's Image on one ſide, and on the other the Name of the City where it was coin'd, with a Croſs ſo deeply impreſs'd, that it might be eaſily parted, and broken into two Halves, which ſo broken, they call'd Half-pence; or into four Parts, which they call'd Fourthings, or Farthings. See Farthing.

In the time of King *Richard* the Firſt, Money coin'd in the Eaſt Parts of *Germany*, came in ſpecial requeſt in *England*, on account of its Purity, and was call'd *Eaſterling Money*, as all the Inhabitants of thoſe Parts were call'd *Eaſterlings*. And ſhortly after, ſome of thoſe People skilled in Coining were ſent for hither, to bring the Coin to Perfection; which ſince has been call'd *Sterling* for *Eaſterling*. See Sterling.

King *Edward* the Firſt, who firſt adjuſted the Meaſure of an Ell by the Length of his Arm, herein imitating *Charles the Great*, was the firſt alſo who eſtabliſh'd a certain Standard for the Coin, which is expreſs'd to this effect by *Greg. Rockley*, Mayor of *London*, and Mint-Maſter. A Pound of *Money* containeth twelve Ounces: In a Pound there ought to be eleven Ounces, two Eaſterlings, and one Farthing; the reſt Allay. The ſaid Pound ought to weigh twenty Shillings and three Pence in Account and Weight. The Ounce ought to weigh twenty Pence, and a Penny twenty four Grains and a half. Note, that eleven Ounces two Pence Sterling ought to be of pure Silver, call'd *Leaf Silver*, and the Minter muſt add of other Weight ſeventeen Pence Half-penny Farthing, if the Silver be ſo pure.

About the Year 1320. the States of *Europe* firſt began to coin Gold, and among the reſt, our King *Edward* the Third. The firſt Pieces he coin'd were call'd *Florences*, as being coin'd by *Florentines*; afterwards he coin'd Nobles; then Roſe-Nobles, current at ſix Shillings and eight Pence; Half-Nobles, call'd *Half-Pennys*, at three Shillings and four Pence of Gold: and Quarters at twenty Pence, call'd *Farthings of Gold*. The ſucceeding Kings coin'd Roſe-Nobles, and double Roſe-Nobles, great Sovereigns, and half *Henry* Nobles, Angels, and Shillings.

King *James* the Firſt coin'd Unites, double Crowns, *Britannic* Crowns. Then the Crowns, Half Crowns, *&c.*

There are various Kinds of *falſe* or baſe *Money*, *viz.* either that ſtruck by an unqualify'd Perſon, and of unſtatutable Metals; or that which has loſt of its Weight, either by being clipped on the Corners, or filed on the Edges, or laſtly, by having ſome of its Surface peel'd off; if Gold, by *Aqua Regalis*; if Silver, by *Aqua Fortis*. Another Kind of baſe *Money* is that made by Pieces of Iron, Copper, or other Metal, cover'd on each ſide with a thin Plate or Leaf of Gold or Silver, neatly ſoder'd and join'd around the Edges, and ſtruck, like other Coin, with Figures, Legends, *&c.* only to be diſtinguiſh'd from them by the Bulk, and Weight, and Sound.

The Word *Money* comes from the old *Anglo-Saxon Munet*, and that from *Moneta a Mundo*, as before obſerv'd. From the ſame *Moneta* the *Germans* have borrow'd their *Muntz*, the *French Monnoye*, the *Spaniards Moneda*, and the *Italians Moneta*.

Moneys *of Account, or Manners of reckoning* Money *in* Europe *and* Aſia.

We here confine ourſelves to the *Moneys* of Account of thoſe two Parts of the World: *America* having none; the reſpective *Moneys* of Account of the *Europeans*, who have there made Settlements, being eſtabliſh'd with 'em. As to *Africa*, the Cities of *Barbary* and *Egypt*, whither the *Europeans* traffick, reckon much after the ſame manner as in the *Levant*, and in the Dominions of the Grand Signior: For the reſt, throughout that vaſt Extent of Coaſts, where we trade for Negroes, Gold-Duſt, Elephants Teeth, Wax, Leathers, *&c.* either the miſerable Inhabitants do not know what *Money* of Account is; or if they have any, 'tis only what Strangers, ſettled among them, have introduc'd. The *Macoute*, however, and the *Piece*, which are Manners of accounting among theſe *Barbarians*, will be deliver'd in their place.

Engliſh Money *of Account* is the Pound, Shilling, and Penny Sterling: The Pound containing 20 Shillings, and the Shilling 12 Pence. See Pound, *&c.* See alſo Coin, and Sterling.

French Money *of Account*, was antiently the Pariſis, Tournois, and the Ecu, or Crown: but ſince the Ordonnance of 1667, they only reckon by Livres, *i. e.* Pounds; Sols, *i. e.* Shillings; and Deniers Tournois, *i. e.* Pence. The Livre, 20 Sols, or $\frac{1}{3}$ of the Ecu, or Crown; the Sol, 12 Deniers. See Livre, Denier, *&c.*

The Maille, Obole, or Half-penny Tournois, is alſo now a *Money* of Account, tho antiently a real Coin. The Maille is divided into two Pites, and each Pite into two Semi-pites; all *Moneys* of Account. To which muſt be added the Franc, of the ſame Value with the Livre, *viz.* 20 Sols Tournois; and the Blanc, 5 Deniers Tournois; and the Carolus, Ten: All three antiently real Coins. See Franc, *&c.*

Dutch and Flemiſh Moneys *of Account.* In *Holland*, *Zeland*, *Brabant*, and *Cologne*, they uſe the Pundt, or Livre de Gros; Schelling, or Sol de Gros; and Penning, or Deniers Gros. The Pundt, containing 20 Schelling; and the Schelling, 12 Pennings. The Pundt equal to 7 Livres, 4 Sols *French*, or 10 Shillings $\frac{8}{10}$ Sterling. They alſo account by Florins or Guilders, Patards and Pennings: The Florin is equal to $\frac{1}{6}$ of the Pound, or 20 Patards; and the Patard, 12 Pennings. The Merchants uſe each Method of Accounting indifferently.

Spaniſh Money *of Account*, is the Peſo, Ducat of Silver and Vellon, Rial of Vellon, and Cornados and Maravedis of Silver and Vellon. The Peſo is to the Ducat as 12 to 10. The Ducat of Silver contains 11 Rials of Silver; and that of Vellon, 11 Rials of Vellon; which makes a difference of near one half. The Silver Rial being current for 7 Shillings Sterling, and that of Vellon only at 3 : 8 *d.* Sterling. 34 Maravedis make the Rial of Vellon, and 63 that of Silver. The Maravedis is divided into 4 Cornaros.

German and Swiſs Moneys *of Account.* In *Switzerland*, and many of the chief Cities of *Germany*, particularly *Francfort*, they account by Florins (but on a footing different from that of *Holland*) by Creux's or Creuxers, and Pennins. The Florin equal to 3 Shillings Sterling, and divided into 60 Creux or Kreux, and the Creux into 8 Pennins. In others, as *Nuremberg*, *&c.* they account by Rixdollars, Florins, and Creux. The Rixdollar equal to 4. 8 *d.* Sterling, divided into 100 Creux, and the Creux into 8 Pennins. In others, as *Hambourg*, *Berlin*, *&c.* by Rixdollars, Marks Lubs, Schellings Lubs, and Deniers Lubs. The Rixdollar and Dollar on the foot of the *French* Crown, or 4 : 6 Sterling, divided into 3 Marks, and the Mark into 16 Schellings, and the Schelling into 12 Pennins. At *Hambourg* they alſo uſe the Livre, Schelling, and Denier de Gros. At *Ausbourg* and *Bolzamont*, they account by Tallers and Creux's; the Taller equal to 4 : 6 Sterling, divided into 90 Creux's. At *Nambourg*, by Rixdollars Gros and Fenins; the Rixdollar equal to 4 : 6 Sterling, divided into 36 Gros, and the Gros into 12 Fenins. At *Strasbourg* by Florins, Creux, and Penins. The Florin equal to 1 : 6 Sterling, divided into 60 Creux, and the Creux into 8 Pennins.

Italian Moneys *of Account.* In *Italy*, the *Moneys* of Account are various, almoſt as the Cities of Commerce. At *Rome*, they account by Pounds, Shillings, and Pence of Gold *di Stampa*. At *Venice*, by Ducats, and Gros *di Banco*. The Ducat divided into 24 Gros, each Gros equal to 2 Pence $\frac{1}{2}$ Sterling. And by Ducats Currant, call'd alſo Sequins, equal to 9 : 2 Sterling; and by Pounds, Shillings, and Pence. At *Lucca* and *Bergamo*, they uſe the four laſt; and only the three laſt at *Boulogna*, *Mantua*, and *Savoy*: In *Geneva*, beſides Pounds, Shillings, and Pence, they account alſo by Florins, containing 6 Soldis, or 6 Pence $\frac{1}{2}$ Sterling. At *Leghorn* and *Genoa*, beſides Pounds, Shillings, and Pence, they account by Piaſtres, equal to 4 : 6 Sterling. At *Nova*, their *Moneys* of Account are Crowns, Shillings, and Pence of Gold *de Marc*. At *Ranconis*, Pounds, Florins, and Gros. At *Ancona*, Crowns, Shillings, and Pence. At *Naples*, Ducats, Tarins, and Grains, equal to one Shilling Sterling, divided into 20 Grains.

Sicilian and Malteſe Moneys *of Account.* At *Meſſina*, *Palermo*, and throughout *Sicily*, they account by Pounds, Ounces, Tarins, Grains, and Piccoli's; which are ſumm'd by 30, 20, and 6: the Ounce being 30 Tarins, the Tarin 20 Grains, and the Grain 6 Piccoli's. At *Malta*, they account by Pounds, Ounces, Carlins, and Grains. The Ounce 30 Tarins, or 60 Carlins, or 600 Grains; the Carlin equal to 6 $\frac{1}{4}$ Sterling.

Poliſh Moneys *of Account.* Throughout *Poland*, moſt of the Dominions of the King of *Pruſſia*, and *Dantzic*, they account by Rixdollars, Roups, and Grochs. The Rixdollar equal to 4 : 6 Pence Sterling, and divided into 32 Roups; and again, in the *Pruſſian* Territories, into 24 Grochs: In *Poland*, into 90 Grochs. Sometimes they uſe the Florin, Groch, and Penny.

Swediſh, Daniſh, and Muſcovite Moneys *of Account.* In *Sweden*, they account by Dalles, equal to 32 Sols Lubs, or 3

5 Shillings Sterling. In *Denmark*, by Rixdollars, Hors, and Schellings; the Rixdollar divided into 4 Hors; and the Hor into 2 Schellings. In *Muſcovy*, they account by Roubles, Altins, and Griſs or Grives. The Rouble equal to 100 Copecs, or 2 Rixdollars, or 9 Shillings Sterling; divided into 10 Griſs; 5 Altins ⅓ make the Grif, or 10 Copecs; the Copec at 13 Pence ¾ Sterling.

Turkiſh Moneys *of Account.* The *Turks*, both in *Europe*, *Aſia*, and *Africa*, account by Bourſes or Purſes; either of Silver or Gold (the laſt only uſed in the Seraglio) with half Purſes of Gold, call'd alſo Rizers. The Purſe of Silver equal to 1500 *French* Livres, or 112 *l.* 10 *s.* Sterling. The half Purſe in proportion. The Purſe of Gold 15000 Sequins, equal to 30000 *French* Crowns, or 6750 Pounds Sterling; ſeldom uſed but for Preſents to Favourites: So that a Purſe, ſimply, ſignifies a Purſe of Silver, or 1500 Livres. They are call'd Purſes, becauſe all the *Money* in the Treaſury of the Seraglio is kept in Leathern Bags or Purſes, of thoſe Contents. The Merchants alſo uſe *Dutch* Dallers, call'd Aſlani or Abouquels, with Meideins and Aſpres. The Daller equal to 33 Meideins, and the Meidein to 3 Aſpres; the Aſpre to ½ Penny Sterling.

Perſian Moneys *of Account.* In *Perſia*, they account by the Toman (call'd alſo Man, and Tumein) and the Dinarbiſti. The Toman is compoſed of 50 Abaſſi's, or 100 Mamoudi's, or 200 Chapes, or 10000 Dinars; which accounting the Abaſſi on the foot of 18 *French* Sols, or the Dinar on that of a Denier, amounts to 3 *l.* 12 *s.* 6 *d.* Sterling the Toman. They alſo account by Larins, eſpecially at *Ormus*, and on the Coaſts of the *Perſian* Gulph. The Larin equivalent to 11 Pence Sterling; and on that footing uſed alſo in *Arabia*, and a great part of the *Eaſt Indies.*

Chineſe Moneys *of Account*, are the Pic, Picol, and Tael; which tho in effect Weights, do likewiſe ſerve as *Moneys of Account*; obtaining in *Tunquin* as well as *China*. The Pic is divided into an hundred Cati's, ſome ſay 125. The Cati into 16 Taels; each Tael equal to 1 Ounce 2 Drachms. See *Chineſe* Coins. The Picol contains 66 Cati's ¼; the Tael equivalent to 6 *s.* 8 *d.* Sterling.

Japoneſe Moneys *of Account*, are the Schuites, Cockiens, Oebans or Oubans, and Taels. Two hundred Schuites are equal to five hundred *Dutch* Livres, or Pounds; the Cockien equal to ten *Low-Countrey* Livres; 1000 Oebans make 45000 Taels.

Mogul Moneys *of Account.* At *Surat*, *Agra*, and the reſt of the Eſtates of the *Great Mogul*, they uſe Lacres, Acres, or Leeths; implying a hundred thouſand: Thus a Lacre of Roupias is a hundred thouſand Roupias; the Lacre being nearly on the footing of the Tun of Gold in *Holland*, and the Million of *France*.

Moneys *of Account of other Iſlands and Coaſts of India.* Throughout *Malabar*, and at *Goa*, they uſe Tanga's, Ventins, and Pardoa's Xeraphin. The Tanga is of two kinds, *viz.* of good, and bad Alloy. Hence their Cuſtom is to count by good or bad *Money*. The Tanga of good Alloy is ⅕ better than the bad; ſo that 4 Tanga's good being allow'd the Pardoa Xeraphin, there will be required 5 of the bad; four Vintins good make a Tanga likewiſe good; 15 Barucos a Vintin. The good Baruco is equal to a *Portugueſe* Rey, a *French* Denier, or $\frac{1}{18}$ of a Penny Sterling. In the Iſland of *Java*, they uſe the Santa, Sapacou, Fardo's, and Cati's; which laſt *Money*, together with the Leeth, or Lacre, is much uſed throughout all the *Eaſt-Indies.* The Santa is 200 Caxas, or little Pieces of that Country hung on a String; and is equal to $\frac{20}{12}$ of a Penny Sterling. Five Santa's make the Sapacou. The Fardo equal to 2 *s.* 8 *d.* Sterling. The Cati contains 20 Taels; the Tael 6 *s.* 8 *d.* Sterling.

There are Iſlands, Cities, and States of the *Eaſt-Indies*, whoſe *Moneys of Account* are not here expreſs'd; partly becauſe reducible to ſome of thoſe above-mentioned; and partly becauſe we find no certain conſiſtent account of 'em in any of the Authors, or Memoirs herein conſulted.

African Moneys *of Account.* From *Cape Verd*, to the *Cape of Good Hope*, all Exchanges and Valuations of Merchandizes are made on the foot of the Macoute and Piece: which tho no *Moneys of Account*, for thoſe Barbarians having no real *Moneys*, need no imaginary ones to value them by, yet ſerve in lieu thereof. At *Loango de Boirie*, and other Places on the Coaſt of *Angola*, the Eſtimations are made by Macoutes; and at *Malimbo*, and *Cabindo*, on the ſame Coaſt, the Negroes reckon by Pieces. Among the firſt, the Macoute is equivalent to ten: Ten Macoutes make an hundred; which likewiſe leaves us a kind of imaginary *Money*. To eſtimate any Purchaſe, Exchange, &c. they fix on the one ſide the number of Macoutes required, *e. g.* for a Negro; on the other for how many Macoutes they agree to receive each kind of Merchandize required for the Negro; ſo that there are ſeveral Bargains made for one. Suppoſe, *v. g.* the Slave be fix'd at 3500; this amounts to 350 Macoutes. To make up this number of Macoutes in Merchandizes, they fix the Price of each in Macoutes. Two *Flemiſh* Knives, *e. g.* are accounted one Macoute; a Copper-Baſon two Pounds Weight, three; a Barrel of Gun-Powder, three, &c. For the Piece, it ſerves in like manner to eſtimate the Value of Goods Duties, &c. on either ſide. Thus the Natives require ten Pieces for a Slave; and the *Europeans* put, *v. g.* a Fuſee at 1 Piece; a piece of Salampoures blue, at 4 pieces, &c.

Moneys *of Account among the Antients.*

Grecian Moneys *of Account.* The *Grecians* reckon'd their Sums of *Money* by Drachmæ, Minæ, and Talenta. The Drachma equal to 7 ¾ *d.* Sterling; 100 Drachmæ made the Mina, equal to 3 *l.* 4 *s.* 7 *d.* Sterling; 60 Minæ made the Talent, equal to 193 *l.* 15 *s.* Sterling: Hence 100 Talents amounted to 19375 *l.* Sterling.

The Mina and Talentum indeed, were different in different Provinces: Their Proportions in *Attic* Drachms are as follow. The *Syrian* Mina contain'd 25 *Attic* Drachms; the *Ptolemaic* 33 ⅓; the *Antiochic* and *Eubæan* 100; the *Babylonic* 116; the greater *Attic* and *Tyrian* 133 ⅓; the *Æginean* and *Rhodian* 166 ⅔.

The *Syrian* Talent contain'd 15 *Attic* Minæ; the *Ptolemaic* 20; the *Antiochic* 60; the *Eubæan* 60; the *Babylonic* 70; the greater *Attic* and *Tyrian* 80; the *Æginean* and *Rhodian* 100.

Roman Moneys *of Account*, were the Seſtertii Nummi, Seſtertia, and Decies Seſtertium. The Seſtertius equal to 1 *d.* 3 *q.* Sterling. One thouſand of theſe made the Seſtertium, equal to 8 *l.* 1 *s.* 5 *d.* 2 *q.* Sterling. One thouſand of theſe Seſtertia made the Decies Seſtertium (the Adverb Centies being always underſtood) equal to 8072 *l.* 18 *s.* 4 *d.* Sterling. The Decies Seſtertium they alſo call'd Decies Centena millia Nummum. Centies Seſtertium, or Centies H S were equal 80729 *l.* 3 *s.* 4 *d.* Millies H S to 807291 *l.* 13 *s.* 4 *d.* Millies Centies H S 888020 *l.* 16 *s.* 8 *d.*

MONEYERS, Moneyors, or Moniers, Officers of the Mint, who work, and coin Gold and Silver Money; and anſwer all the Waſte, and Charges. See Mint and Coining.

Moneyers are alſo taken for *Bankers*; or thoſe who make a Trade of turning, and returning Money. See Banker.

MONITORY *Letters*, are Letters of Admonition, or Warning, ſent from an Eccleſiaſtical Judge upon Information of Scandals and Abuſes within Cognizance of his Court.

MONOCHORD, a muſical Inſtrument wherewith to try the Variety and Proportion of muſical Sounds. See Tune.

It is compos'd of a Rule, divided and ſubdivided into divers Parts, whereon there is a String pretty well ſtretch'd upon two Bridges, at each Extreme thereof. In the middle between both is a moveable Bridge, by whoſe means, in applying it to the different Diviſions of the Lnei, you find that the Sounds are in the ſame Proportion to one another, as the Diviſions of the Line cut by the Bridge were.

The *Monochord* is alſo call'd the *Harmonical Canon*, or *Canonical Rule*; becauſe ſerving to meaſure the Degrees of Gravity, and Acuteneſs of Sounds. See Gravity, &c.

There are alſo *Monochords* with 48 fix'd Bridges; the Uſe of all which may be ſupply'd by one ſingle moveable Bridge; which are placed in the middle, by only ſhifting it under new Chords or Strings, always repreſenting the entire Sound, or the open Note.

Pythagoras is held to have been the Inventor of the *Monochord*. *Ptolemy* examined his Harmonical Intervals with the *Monochord.* See Canon.

When the Chord was divided into equal parts, ſo that the Terms were as 1 and 1, they call'd them *Uniſons*; if they were as 2 to 1, *Octaves*, or *Diapaſons*; when they were as 8 to 2, *Fifths*, or *Diapentes*; if they were as 4 to 3, they called them *Fourths*, or *Diateſſerons*; if the Terms were as 5 to 4, *Diton*, or a *Tierce Major*; if as 6 to 5, a *Demi-Diton*, or a *Tierce Minor*; laſtly, if as 24 to 25, *Demi-diton* or *Dieze.* See Uniſon, Octave, Diapaſon, Diapente, Diateſſeron, &c.

The *Monochord* being thus divided, was properly what they call'd a Syſtem, of which there were many kinds, according to the different Diviſions of the *Monochord.* See Syſtem.

Dr. *Wallis* has taught the Diviſion of the *Monochord* in the *Philoſophical Tranſactions*; but thet Inſtrument is now diſuſed, the modern Muſic not requiring ſuch Diviſion.

Monochord, is alſo uſed for any muſical Inſtrument, conſiſting of only one Chord, or String. See Chord.

The Trumpet Marine is a *Monochord.* See Trumpet.

The Word is *Greek*, form'd of μόνος *ſolus*, ſingle, and χορδὴ Chord.

MONOCHROMA, a Picture all of one Colour. See Camieux, Clair Obſcure, &c.

The Word is compounded of the *Greek* μόνος, ſingle; and χρῶμα, Colour.

MONODY, Monodia, in the antient Poetry, a kind of mournful Song, or Ditty, ſung by a Perſon all alone; to utter his Grief.

The Word is compounded of μονος *ſolus*, and ωδη, Song.

MONOGAMY, the State or Condition of thoſe who have only married once. See Marriage, Bigamy, *&c.*

The Word is compounded of μόνος *ſolus*, and γάμος Marriage.

MONOGRAM, or Monogrammon, a Cypher, or Character compoſed of one or more Letters interwoven; being a kind of Abbreviation of a Name; antiently much uſed as a Badge, Seal, Arms, *&c.* See Seal, Cypher, *&c.*

Under the Eaſtern Empire, it is uſual to find M I K, which are the *Monogram* of *Maria*, *Jeſus*, *Conſtantine*.

The uſe of *Monograms* is of an antient ſtanding, as appears from *Plutarch*, and from ſome *Greek* Medals of the time of *Philip* of *Macedon*, *Alexander* his Son, *&c.*

The *Roman Labarum* bore the *Monogram* of Jeſus Chriſt, conſiſting of two Letters, a P placed perpendicular over the middle of a X, as we find it in ſeveral Medals of the time of *Conſtantine*; thoſe being the two firſt Letters of the Word ΧΡΙΣΤΟΣ, Chriſt. See Labarum.

The Kings formerly marked their Coins with their *Monogram*: Of this we have inſtances in *Charlemain*'s Coins. That Prince alſo uſed the *Monogram* for his Signature. *Eginard* gives us this reaſon for it, *viz.* that *Charlemain* could not write; and that having attempted in vain to learn in his grown Age, he was reduced to the neceſſity of Signing with a *Monogram*.

The Antients uſed *Monograms* as Notes or Abbreviations of Inſcriptions; for the underſtanding whereof we have expreſs Treatiſes of *Valerius Probus*, *Paulus Diaconus*, &c. See Character.

MONOLOGUE, a Dramatic Scene, wherein a Perſon appears alone on the Stage, and ſpeaks to himſelf. See Soliloquy.

The Word *Monologue* is derived from the *Greek* μονος *ſolus*, and λογος, Diſcourſe, Speech.

MONOMACHIA, a *Duel*, or ſingle Combat of Man againſt Man. See Duel.

Monomachia was antiently allow'd by Law for the Trial or Proof of Crimes. It was even permitted in pecuniary Cauſes, as appears by antient Records. It is now forbid both by the Civil and Canon Laws. See Combat.

Alciat has wrote a Treatiſe *de Monomachia.*

The Word comes from the *Greek* μονος *ſolus*, and μαχη Combate.

MONOME, in Algebra, a Quantity that has but one Denomination, or Name; as *ab*, *aab*, *aaabb*. See Quantity.

The *Monome* may be either Rational, or Irrational. See Rational, *&c.*

MONOPETALOUS, in Botany, a Term apply'd to Flowers which have only one undivided Petalum, or Leaf. See Flower, Petala, *&c.*

MONOPHYSITES, a general Name given to all thoſe Sectaries in the *Levant* who only own one Nature in Jeſus Chriſt.

The *Monophyſites* however, properly ſo call'd, are the Followers of *Severus*, and *Petrus Fullenſis*.

The Word comes from the *Greek* μόνος *ſolus*, and φυσις *Natura*.

MONOPOLY, an unlawful kind of Traffick, when one or more Perſons make themſelves ſole Maſters of any Commodity, with deſign to enhance its price; thoſe who have occaſion for it being obliged to purchaſe it at their hands, and on their own terms.

There are two kinds of *Monopolies*: The one, when a Merchant buys up, for inſtance, all the Corn of a Province, to retail it at an advanced Rate to the People.

The other when a Letter, or Patent is procured from the Prince, prohibiting any other Perſon to ſell any Commodity beſides the Patentee.

The Word is pure *Greek*, form'd of μονος and πωλεῖ, ſignifying to ſell alone.

Among the *Romans*, the Term was ſo odious, that *Tiberius*, as *Suetonius* relates, having occaſion to make uſe of it, begg'd leave of the Senate for it, as being borrow'd from the *Greek*.

MONOPTERE, a kind of Temple among the Antients, round, and without Walls; having a Dome ſupported with Columns. See Temple.

MONOPTOTE, Monoptoton, in Grammar, a Noun which has only one Caſe. See Case.

MONOPYRENEOUS *Fruits*, are ſuch as only contain one Kernel, or Seed. See Fruit.

MONORYME, a Poetical Compoſition, all the Verſes whereof end with the ſame Ryme.

Monorymes are ſaid to have been invented by the old *French* Poet *Leonin*, who addreſſed ſome *Latin* Verſes of this kind to Pope *Alexander* III. Whence they are alſo call'd *Leonine Verſes*. See Leonine.

They are but little uſed in *Engliſh*; more in *French*.

The Word comes from the *Greek* μόνος *ſolus*, and ῥυθμος Ryme. See Ryme.

MONOSTICH, Monosticon, an Epigram conſiſting of one ſingle Verſe.

MONOSYLLABLE, a Word of a ſingle Syllable; or, conſiſting of one, or more Letters pronounced all together. See Word and Syllable.

The *French* Language abounds in *Monoſyllables* more than any other. This renders it the more perplexing to Foreigners, and yet the Beauty of the Language ſeems to conſiſt in it. One of the beſt and ſmootheſt Lines in *Malherbe* conſiſts of twelve *Monoſyllables*; ſpeaking of *Caliſta*, he ſays,

Et moi je ne voy rien quand je ne la vois pas.

In this the Genius of the *Engliſh* Tongue differs much from the *French*, an uninterrupted Series of *Monoſyllables* having always an ill Effect. This Mr. *Pope* both intimates and exemplifies in the ſame Verſe.

And ten low Words oft creep in one dull Line.

Paſquier cites an Elegy of forty two Verſes, conſiſting wholly of *Monoſyllables*.

MONOTHELITES, an antient Sect, who ſprung out of the *Eutychians*; thus call'd, as only allowing of one Will in Jeſus Chriſt; as the Word *Monothelite* in the *Greek* imports.

The Opinion of the *Monothelites* had its Riſe in 630, and had the Emperor *Heraclius* for an Adherent. It was the ſame with that of the *Severian Acephali*.

They allow'd of two Wills in Chriſt, conſider'd with regard to the two Natures; but reduc'd them to one, by reaſon of the Union of the two Natures: Thinking it abſurd there ſhould be two free Wills in one and the ſame Perſon.

They were condemn'd by the ſixth General Council, as being ſuppoſed to deſtroy the Perfection of the Humanity of Jeſus Chriſt, in depriving it of Will and Operation. That Council declared their Belief of two Wills, and two Operations, without Diviſion, or without changing the one for the other, without either diſtinguiſhing or confounding them: the Human Will being ſubject to the Divine.

MONOTONIA, Monotony, a Want of Variation, or Inflection of the Voice, or a Fault in Pronunciation, where a long Series of Words are deliver'd with one unvaried Tone. See Pronunciation.

This is one of the principal Faults of our *Engliſh* Orators. *Monotonia* is oppoſed to Chanting or Singing.

MONSEIGNEUR, in the Plural Messeigneurs, a Title of Honour and Reſpect uſed by the *French* in writing to Perſons of ſuperior Rank or Quality. See Seigneur.

The Word is a Compound of *mon*, *my*, and *Seigneur*, *Lord*.

Dukes, Peers, Archbiſhops, Biſhops, and Preſidents *a la Mortier*, are complimented with the Title of *Monſeigneur*. In the Requeſts preſented to the Sovereign Courts, they uſe the Term *Noſſeigneurs*.

Monseigneur, abſolutely uſed, is a Quality now given to the Dauphin of *France*.

This Cuſtom was unknown till the time of *Louis* XIV. Till then, the Dauphin was ſtiled *Monſieur le Dauphin*.

MONSIEUR, in the Plural Messieurs, a Term, or Title of Civility, uſed by the *French*, in ſpeaking to their Equals, or thoſe a little below them; anſwering to Mr. or Sir, among the *Engliſh*. See Sir.

The Superſcriptions of all Letters begin, *A Monſieur*, *Monſieur* ſuch a one.

The Word is a Compound of *mon*, and *Sieur*, Sir. See Sieur.

Borel derives the Word from the *Greek* κυριος, *Lord*, or *Sire*, q. d. *moncyeur*. *Paſquier* derives *Sieur*, and *Monſieur*, from the *Latin Senior*, Elder. The *Italians* ſay *Signor*, and the *Spaniards Senor*, in the ſame Senſe, and from the ſame Origin.

The uſe of the Word was formerly more extenſive. They apply'd it to the People of many Ages before them: Thus, *Monſieur* St. *Auguſtine*, *Monſieur* St. *Ambroſe*; and the Vulgar ſtill ſay *Monſieur* St. *Paul*, *Monſieur* St. *James*, &c.

The *Romans*, during the flouriſhing times of their Liberty, were unacquainted with that term of Parade and Flattery, which they afterwards made uſe of under the Name of *Dominus*. In ſpeaking, or writing to each other, they only gave them their proper Names; which Practice laſted even after *Cæſar* had brought the Republic under his Command. But after the *Roman* Emperors were once well ſeated in the Throne, the Courtiers, and Minions who by Flattery ſought to procure Favours from them, ſtudied new Honours. *Suetonius* obſerves, that a Comedian on the Theatre having call'd *Auguſtus*, *Dominus*, Lord; the Spectators all ſtared at him. So that the Emperor forbad, for the future, that Quality to be attributed to him. *Caligula* was the firſt who expreſly commanded himſelf to be call'd *Dominus*. *Martial*, entirely devoted to Tyranny, calls *Domitian*, *Dominum deumque noſtrum*. In time, the Title was alſo apply'd to the People; and of *Dominus*, at length was form'd *Dom*. See DOM.

MONSIEUR, abſolutely uſed, is a Title or Quality affected to the ſecond Son of *France*, or the King's Brother.

In a Letter of *Philip de Valois*, that Prince ſpeaking of his Predeceſſor, calls him *Monſieur le Roy*, *Monſieur* the King. At preſent, no body calls the King *Monſieur*, but the Children of *France*.

MONSOON, a regular, or periodical Wind, in the *Eaſt-Indies*, blowing conſtantly the ſame way, during ſix Months of the Year, and the contrary way the remaining ſix. See WIND.

In the *Indian* Ocean, the Winds are partly *general*, and blow all the Year round the ſame way, as in the *Æthiopic* Ocean; and partly *periodical*, *i. e.* half the Year blow one way, and the other half near on the oppoſite Points. And thoſe Points and Times of ſhifting differ in different Parts of this Ocean. *Halley*.

Theſe latter, or periodical Winds, are what we call *Monſoons*.

Monſoons then are a Species of what we otherwiſe call *Trade-Winds*. See TRADE *Wind*.

They take the Denomination *Monſoon* from an antient Pilate, that firſt croſs'd the *Indian* Sea by means hereof. Others derive the Name from a *Portugueſe* Word ſignifying *Motion*, or Change of Wind, and Sea.

Lucretius and *Apollonius* make mention of annual Winds which ariſe every Year, *Etheſia Flabra*, which ſeem to be the ſame with what in the *Eaſt-Indies* we now call *Monſoons*.

MONSTER, a natural Birth, or Production of a living thing, degenerating from the proper and uſual Diſpoſition of Parts, in the Species it belongs to. As when there are too many Members, or too few; or ſome of 'em are extravagantly out of Proportion.

Ariſtotle defines a *Monſter* to be a Defect of Nature, when acting towards ſome end, it cannot attain to it, by reaſon ſome of its Principles are corrupted.

Monſters do not propagate their kind; for which reaſon ſome rank Mules among the Number of *Monſters*; as alſo Hermaphrodites. See MULE and HERMAPHRODITE.

The Word comes from the *Latin Monſtrum*, of *Monſtrando*, ſhewing.

Du Cange mentions an Inventory of the Church *d'Evreux* with this Article, *Item unum Monſtrum cum Oſſibus Sancti Petri in Beril, & Crucifixo in ſummitate*.

Females, which bring forth Twins, are moſt liable to produce *Monſters*. The reaſon, probably, is owing to this; that tho the Twins are cover'd with one common Chorion, yet they have each their ſeparate Amnios, which, by their contiguity may chance to grow together, and ſo occaſion a confuſion, or blending of the Parts. Hence ſo many double Creatures. See DOUBLE.

F. *Malbranche* accounts for the Production of *Monſters* in the Animal World, thus:

The Creator has eſtabliſhed ſuch a Communication between the ſeveral parts of his Creation, that we are not only naturally led to imitate one another, *i. e.* have a diſpoſition to do the ſame things, and aſſume the ſame manners with thoſe with whom we converſe; but alſo have certain natural Diſpoſitions which incline us to Compaſſion, as well as Imitation. Theſe things moſt Men feel, and are ſenſible of; and, therefore, need not be proved. The Animal Spirits then are not only naturally carried into the reſpective parts of the Body to perform the ſame Actions, and the ſame Motions which we ſee others do, but alſo to receive in ſome manner their Wounds, and take part in their Sufferings.

Experience tells us, that when we look attentively on any Perſon ſeverely beaten, or that has a large Wound, Ulcer, or the like; the Spirits immediately flow into thoſe parts of our Body which anſwer to thoſe we ſee ſuffer in the other; unleſs their Courſe be ſtopp'd from ſome other Principle. This Flux of Spirits is very ſenſible in Perſons of a delicate Conſtitution, who frequently ſhudder, and find a kind of trembling in the Body on theſe Occaſions; and this Compaſſion in Bodies, produces Compaſſion in the Mind.

Now it muſt be here obſerved, that the view of a Wound, &c. produces a Wound in the Perſon who views it, by ſo much the greater and more ſenſible, as the Perſon is more weak and delicate; the Spirits making a ſtronger Impreſſion on the Fibres of a delicate Body, than in thoſe of a robuſt one. Thus ſtrong, vigorous Men, &c. ſee an Execution without much concern, while Women, &c. are ſtruck with Pity and Horror. As to Children ſtill in their Mother's Womb, the Fibres of their Fleſh being incomparably finer than thoſe in Women, the Courſe of the Animal Spirits muſt neceſſarily produce much greater Alterations.

This thing being laid down, *Monſters* are eaſily accounted for. Suppoſe, *v. g.* a Child born a Fool, and with all its Legs and Arms broke in the ſame manner as thoſe of Criminals in ſome Countries are; which caſe we chuſe to inſtance in, becauſe we are told from *Paris* that ſuch a *Monſter* was actually born there, and liv'd in one of their Hoſpitals twenty Years: The Cauſe of this Accident, according to the Principles laid down, was, that the Mother ſeeing a Criminal executed, every Stroke given to the poor Man, ſtrook forcibly the Imagination of the Mother; and by a kind of Counter-ſtroke, the tender and delicate Brain of the Child. Now, tho the Fibres of the Woman's Brain were ſtrangely ſhaken by the violent flux of the Animal Spirits on this occaſion, yet they had ſtrength and conſiſtence enough to prevent an entire diſorder and overturning; whereas the Fibres of the Child's Brain being unable to bear the ſhock of thoſe Spirits, were intirely diſſipated; and that Ravage was great enough to deprive him of Reaſon all his Life time.

Again, the view of the Execution frighting the Woman, the violent Courſe of the Animal Spirits was directed forcibly from the Brain to all thoſe Parts of the Body correſponding to the ſuffering parts of the Criminal; and the ſame thing muſt happen in the Child. But in regard the Bones of the Mother were ſtrong enough to reſiſt the Impulſe of thoſe Spirits, they were not damaged. And yet the rapid Courſe of theſe Spirits could eaſily overpower, and break the tender and delicate Fibres of the Bones of the Child; the Bones being the laſt parts of the Body that are form'd, and having a very ſlender conſiſtence while the Child is yet in the Womb.

To which it may be here added, that had the Mother determined the Courſe of theſe Spirits towards ſome other part of her Body, by tickling or ſcratching herſelf vehemently, the Child would not, in all probability, have had its Bones broken; but the part anſwering that, to which the Motion of the Spirits was determined, would have been the Sufferer.

Hence appears the reaſon, why Women in the time of Geſtation, ſeeing Perſons, &c. mark'd in ſuch a manner in the Face, impreſs the ſame Mark on the ſame parts of the Child: And why, upon rubbing ſome hidden part of the Body, when ſtartled at the Sight of any thing, or agitated with any extraordinary Paſſion, the Mark or Impreſſion is fix'd on that hidden part rather than on the Face of the Child. From the Principles here laid down, may moſt, if not all, the Phænomena of *Monſters* be eaſily accounted for.

There are alſo *Monſters* in the Vegetable World: Such, *e. g.* are what ſome Botaniſts call *Mules*. See MULE, GENERATION, &c.

Floriſts give the Denomination *Monſters* to what we otherwiſe call *Double Flowers*.

MONSTRANS *de Droit*, a Writ iſſuing out of Chancery to be reſtored to Lands or Tenements that are mine in Right, tho on ſome occaſion found in Poſſeſſion of one lately dead.

MONSTRAVERUNT, a Writ which lies for a Tenant who holds freely by Charter in antient Demeſn, upon his being diſtrained for the payment of any Toll or Impoſition contrary to the Liberty he does, or ought to enjoy.

MONSTRUM was antiently uſed for the Box wherein Relicks were kept. See MONSTER.

MONS *Veneris*, ſee VENERIS *Mons*.

MONTANISTS, antient Heretics, ſo call'd from their Leader *Montanus*, who acted the Prophet, and had his Propheteſſes.

They were alſo called *Phrygians*, *Cataphrygians*, and *Quintilians*. See PHRYGIAN, CATAPHRYGIAN, and QUINTILIAN.

MONTH, MENSIS, the twelfth part of a Year. See YEAR.

Time, we have obſerv'd, is Duration mark'd out for certain uſes; and meaſured by the Motions of the Heavenly Bodies. See TIME and DURATION.

Hence reſult divers kinds of Years, and *Months*, according to the particular Luminary by whoſe Revolutions they are determined, and the particular purpoſes they are deſtined for; as *Solar Months*, *Lunar Months*, *Civil Months*, *Aſtronomical Months*, &c.

Solar MONTH is the Space of Time wherein the Sun moves thro one entire Sign of the Ecliptic. See SUN.

Hence, if regard be had to the Sun's true Motion, the *Solar Months* will be unequal; ſince the Sun is longer in paſſing thro' the Winter Signs, than thoſe of the Summer.

But as he conſtantly travels thro' all the Twelve in 365 Days, 5 Hours, and 49 Minutes, the Quantity of a mean *Month* will be had by dividing that Number by 12. On this Principle, the Quantity of a *Solar Month* will be found 30 Days, 10 Hours, 29 Minutes, 5 Seconds.

Lunar MONTHS are either *Synodical*, *Periodical*, or *Illuminative*.

Lunar Synodical MONTH, call'd alſo, abſolutely, *Lunar* MONTH, and *Lunation*, is the Space of Time between two Conjunctions of the Moon with the Sun; or between two New Moons. See SYNODICAL *Month* and LUNATION.

The Quantity of the *Synodical Month* is 29 days, 12 h. 44′, 3″, 2‴. See MOON.

Lunar Periodical MONTH is the Space of time wherein the Moon makes her round thro' the Zodiac; or wherein ſhe returns to the ſame Point. See PERIODICAL.

The Quantity of this *Month* is 27 days, 7 h. 43′. 8′.

The antient *Romans* made uſe of Lunar *Months*, and made 'em alternately of 29 and 30 Days. They mark'd the Days of each *Month* by three Terms, *viz.* *Calends*, *Nones*, and *Ides*. See CALENDS, NONES, *&c.*

Lunar Illuminative MONTH, is the Space from the firſt time of her Appearance after New Moon, to her firſt Appearance after the New Moon following.

Hence, as the Moon appears ſometimes ſooner after the New Moon, and ſometimes later; the Quantity of the *Illuminative Month* is not always the ſame.

By this *Month* the *Turks* and *Arabs* go.

Aſtronomical, or *Natural* MONTH, is that meaſured by ſome exact Interval correſponding to the Motion of the Sun, or Moon.

Such are the Lunar and Solar *Months* above-mentioned. Where note, That theſe *Months* can be of no uſe in Civil Life; where it is requir'd that the *Months* begin and end on ſome certain day. For this reaſon recourſe is had to another form of *Months*.

Civil, or *Common* MONTH, is an interval of a certain number of whole Days, approaching nearly to the Quantity of ſome Aſtronomical, either Lunar, or Solar *Month*. See DAY.

Theſe *Civil Months* are various, according to the Aſtronomical *Month* they are accommodated to.

Civil Lunar MONTHS are to conſiſt alternately of 29 and 30 Days. Thus will two *Civil Months* be equal to two Aſtronomical ones, abating for the odd Minutes. And, conſequently the New Moon will be hereby kept to the firſt Day of each ſuch *Civil Month* for a long time together.

However, to make 'em keep conſtant Pace with the *Civil Months*, at the end of each 48 *Months*, a *Month* of 29 days muſt be added; or elſe every 33d *Month* muſt conſiſt of 30 days.

This was the *Month* in Civil, or Common Uſe among the *Jews*, *Greeks*, and *Romans*, till the time of *Julius Cæſar*.

Civil Solar MONTHS are to conſiſt alternately of 30 and 31 Days; excepting for one *Month* of the twelve, which for every fourth Year ſhould conſiſt of 30 Days, and the other Years of 29.

This Form of *Civil Months* was introduced by *Julius Cæſar*.

Under *Auguſtus*, the ſixth *Month*, till then from its place call'd *Sextilis*, was denominated *Auguſtus*, in honour of that Prince, and to make the Compliment yet greater, a Day was added to it. So that it now conſiſted of 31 Days, tho till then it had only contain'd 30. To make up for which, a Day was taken from *February*; ſo that henceforward it only conſiſted of 28 Days, and every third Year of 29; tho before it had ordinarily conſiſted of 29 Days, *&c.*

And ſuch are the *Civil* or *Calendar Months* which now obtain thro' *Europe*. See CALENDAR.

Philoſophical MONTH, among Chymiſts, is the ſpace of 40 Days and Nights. See MENSTRUUM.

MONTHLY *Courſes*, ſee MENSES.

MONT-PAGNEL, in Military Matters, an Eminence choſe without the reach of the Cannon of a Place beſieged, where curious Perſons poſt themſelves to ſee an Attack, and the manner of the Siege, without being expoſed to danger.

The Word literally denotes the Poſt of the Invulnerable.

MONUMENT in Architecture, a Building deſtin'd to preſerve the Memory, *&c.* of the Perſon who rais'd it, or for whom it was rais'd.

Such is a Triumphal Arch, a Mauſoleum, a Pyramid, *&c.* See MAUSOLEUM, *&c.*

The Word comes from the *Latin Monere*, to adviſe, and advertize.

The firſt *Monuments* which the Antients erected, were the Stones which they laid over their Tombs, whereon they wrote the Names and Actions of the deceas'd. See TOMB.

Theſe Stones were diſtinguiſh'd by various Names according as their Figures were different. The *Greeks* gave the Name *Steles* to ſuch as were Square in their Baſe, and preſerv'd the ſame Depth throughout their whole Length; whence were deriv'd our Square Pilaſters, or Attic Columns. See PILASTER.

They call'd thoſe *Styles*, which being round in their Baſe, ended in a Point at top, which gave occaſion to the Invention of diminiſh'd Columns.

The Name *Pyramids* they gave to thoſe which were ſquare at the Foot, and terminated in a point at top, in manner of a Funeral Pile. See PYRAMID.

And the Name *Obeliſc*, to thoſe whoſe Baſes were more in Length than in Breadth, and which roſe, ſtill leſſening, to a very great Height, reſembling the Figure of the Spits or Inſtruments uſed by the Antients in roaſting the Fleſh of their Sacrifices, which they call'd *Obeles*. See OBELISK.

The MONUMENT, abſolutely ſo call'd among us, denotes a Magnificent Pillar erected by Order of Parliament, in Memory of the Burning of the City, *Anno* 1666, in the very place where the Fire began.

It is of the Tuſcan Order, 202 Foot high from the Ground, and 15 Foot in Diameter, all of ſolid *Portland* Stone, with a Stair-Caſe in the Middle of black Marble. The Pedeſtal is 21 Foot ſquare, and 40 high; the Front being enrich'd with curious Baſſo Relievo's.

MONY. See MONEY.

MOOD, or MODE, in Logic, call'd alſo *Syllogiſtic* MOOD, is a proper Diſpoſition of the ſeveral Propoſitions of a Syllogiſm, in reſpect of Quantity and Quality. See SYLLOGISM.

By proper Diſpoſition, we mean ſuch wherein the Antecedent being true, the Conſequent, in virtue of the Form, cannot be falſe. So that all thoſe *Moods* or Manners of Syllogiſms are at once excluded, where no Concluſion formally follows; or where the Antecedent being true, a falſe Concluſion may be drawn from it. See CONCLUSION, *&c.*

There are two kinds of *Moods*; the one direct, the other indirect: *Direct Mood* is that wherein the Concluſion is drawn from the Premiſſes directly and immediately; as, Every Animal is a living Thing; every Man is an Animal; therefore every Man is a living Thing.

An *Indirect Mood*, is that wherein the Concluſion is not inferr'd immediately from the Premiſſes, but follows from 'em by means of a Converſion. As every Animal is a living Thing, every Man is an Animal; therefore ſome living Thing is a Man.

There are fourteen direct *Moods*; whereof four belong to the firſt Figure; five to the fourth; 4 to the 2d; and 6 to the 3d. See FIGURE.

They are denoted by ſo many artificial Words framed for that purpoſe, *viz.* 1. *Barbara*, *Celarent*, *Darii*, *Ferioq*; 4. *Baralip*, *Celantes*, *Dabitis*, *Fapeſmo*, *Friſeſom*. 2. *Ceſare*, *Cameſtres*, *Feſiino*, *Baroco*. 3. *Darapti*, *Felapton*, *Diſamis*, *Datiſi*, *Bocardo*, *Feriſon*.

The Uſe and Effect of which Words lie wholly in the Syllables, and the Letters whereof the Syllables conſiſt. Each Word, *e. g.* conſiſts of three Syllables, denoting the three Propoſitions of a Syllable, *viz.* Major, Minor, and Concluſion. Add, that the Letters of each Syllable are either Vowels or Conſonants. The Vowels are *A*, which denotes an univerſal affirmative Propoſition; *E*, an univerſal Negative; *I*, a particular Affirmative; and *O*, a particular Negative.

Thus *Barbara* is a Syllogiſm of the 1ſt Figure, conſiſting of three univerſal affirmative Propoſitions: *Baralip* of the 4th Figure, conſiſting of univerſal affirmative Premiſſes, *&c.* particular affirmative Concluſions, *&c.* See BARBARA, CELARENT, DARII, *&c.*

The Conſonants are chiefly of uſe in the Reduction of Syllogiſms. See REDUCTION.

MOOD or *Mode*, in Grammar, is uſed to ſignify the different Manners of conjugating Verbs, agreeably to the different Actions or Affections to be expreſſed, *e. g.* ſhewing, commanding, wiſhing, *&c.* See VERB.

Hence ariſe 5 *Modes*, *viz.* the *Indicative*, *Imperative*, *Optative*, *Subjunctive*, and *Infinitive*. See INDICATIVE, IMPERATIVE, OPTATIVE, *&c.*

Some Grammarians reckon but four *Modes*, confounding the Optative with the Subjunctive; and ſome make ſix, dividing the Optative into Potential and Optative.

The *Greeks* have five *Modes* of Verbs differing in Termination; but the *Latins* have but four.

In *Engliſh* the Terminations are the ſame in all the *Modes*.

For the Origin of *Modes*, it may be obſerved, that Verbs are of that kind of Words which ſignify the Manner and Form of our Thoughts; whereof the Principal is Affirmation. Verbs are alſo form'd to receive different Inflections, as the Affirmation regards different Perſons and different Times, whence ariſe the Tenſes and Perſons of Verbs.

But beſides theſe, Men have thought fit to invent other Inflections, to explain what paſs'd in their Mind ſtill more diſtinctly: For, in the firſt place, they conſider'd, that beſide the ſimple Affirmations, as *he loves*, *he loved*, there were others modified and conditional, as, *if he loved*, *tho' he ſhould love*. And the better to diſtinguiſh theſe Affirmations from the others, they doubled the Inflections of thoſe Tenſes, or Times, making ſome ſerve for ſimple Affirmations, as *love*, *loved*; and reſerving the reſt for Affirmations that were modified; as, *if he ſhould love*, *might he have loved*: yet they kept not ſteadily to their Rules, but ſometimes made uſe of ſimple Inflections to expreſs Affirmations that were modified; as *etſi verear*, for *etſi verear*. And it is from this laſt kind of Inflection, that Grammarians have formed the *Mood* they call *Subjunctive*. See SUBJUNCTIVE.

But further, beſides the Affirmation, the Action of our Will may be taken for a *Mode*, or Manner of our Thought; and Men have found themſelves under a Neceſſity of expreſſing what they *will*, as well as what they *think*. Now we may will a thing in ſeveral manners; whereof there are three which may be conſider'd as the Principal. *Firſt*, then, We ſometimes will things which don't depend on ourſelves, and in that caſe we only will them by a bare wiſh, which the *Latins* expreſs by the Particle *Utinam*; and we by, *Pleaſe God*. Some Languages, as for inſtance, the *Greek*, have invented particular Inflections for this end; whence the Grammarians have taken occaſion to call it the Optative *Mode*: And there ſeems ſomething like both in the *French*, *Italian*, and *Spaniſh* Tongues, in regard theſe have a kind of triple Tenſes; but in *Latin*, *Engliſh*, *&c.* the ſame Inflections ſerve for the Subjunctive, and for the Optative. For this reaſon, one may very well retrench this *Mode* from the *Latin* Conjugations; it being the different Inflections that make *Modes*, not the different Manner of ſignifying, which may be varied to infinity. See OPTATIVE.

We ſometimes will in another manner; as when we are content it ſhould paſs, tho' we don't abſolutely deſire it; as when *Terence* ſays, *Profudat*, *perdat*, *pereat*, let him ſpend, ſink, periſh. Men might have invented a particular Inflection, to expreſs this Movement, as in *Greek* they have done to expreſs a ſimple Deſire. But they han't done it; and in lieu thereof, make uſe of the Subjunctive. In *Engliſh* we add the Particle, Let him ſpend, *&c.* Some Authors call this the *Potential* or Conceſſive *Mode*.

The third manner of willing, is when what we deſire, depending on another Perſon, of whom we can obtain it, we ſignify our Will that he do it. And this is the Motion we uſe, when we command or pray; and to expreſs this Motion, was invented the *Mode* we call *Imperative*; which has no firſt Perſon in the Singular, becauſe a Man, properly ſpeaking, cannot command himſelf: In ſome Languages it has no third Perſon, becauſe, in ſtrictneſs, a Man cannot command any Perſon, but him to whom he ſpeaks and addreſſes himſelf. And in regard the Command or Prayer always relates to what is to come, it happens that the Imperative *Mode*, and the Future Tenſe, are frequently uſed for each other, eſpecially in the *Hebrew*; as, *non occides*, *thou ſhalt not kill*, for *do not kill*. Hence ſome Grammarians place the Imperative among the Number of Futures. See IMPERATIVE.

Of all the *Modes* we have mention'd, the Oriental Languages have none but the laſt, which is the Imperative; and on the contrary, the modern Languages have none of them any particular Inflection for the Imperative. The Method we take for it in *Engliſh*, is either to omit the Pronoun, or tranſpoſe it; thus, *I love*, is a ſimple Affirmation; *Love*, an Imperative: *We love*, an Affirmation; *Love we*, an Imperative.

MOOD, in Philoſophy, } See MODE.
MOOD, in Muſic, }

MOON, *Luna*, ☽, in Aſtronomy, one of the heavenly Bodies, uſually rank'd among the Planets; but with more propriety accounted a *Satellite*, or ſecundary Planet. See PLANET and SATELLITE.

The *Moon* is an Attendant of our Earth, whom ſhe reſpects as a Centre, and in whoſe Neighbourhood ſhe is conſtantly found; inſomuch as if view'd from the Sun, ſhe would never appear to depart from us by an Angle greater than ten Minutes. See EARTH.

As all the other Planets move primarily round the Sun, ſo does the *Moon* round the Earth: her Orbit is an Ellipſis, in which ſhe is retain'd by the Force of Gravity; performing her Revolution round us in 27 Days, 7 Hours, 43 Minutes; which is alſo the preciſe time of her Rotation round her Axis. See ORBIT, and REVOLUTION.

The mean Diſtance of the *Moon* from the Earth, is $60\frac{1}{2}$ Semi-diameters of the Earth; which is equivalent to 240,000 Miles. See DISTANCE.

The mean Excentricity of its Orbit, is $\frac{55}{1000}$ of its mean Diſtance, which makes a conſiderable Variation in that mean Diſtance. See ECCENTRICITY.

The *Moon's* Diameter is to that of the Earth, as 11 to 40.2; or 2175 Miles: Its mean apparent Diameter is 31 Minutes $15\frac{1}{2}$, and that of the Sun 32 Minutes 12 Seconds. See DIAMETER and SEMI-DIAMETER.

The *Moon's* Surface contains 14,000,000 ſquare Miles; and its Solidity 5,000,000,000 cubical ones: The Denſity of the *Moon's* Body is to that of the Earth, as 48911 to 39214, to that of the Sun as 48911 to 10000: Its Quantity of Matter to that of the Earth, nearly as 1 to 39.15: and the Force of Gravity on its Surface, is to that on the Surface of the Earth, as 139.2 to 407.8. See SOLIDITY, DENSITY, GRAVITY, *&c.*

Phænomena of the MOON.

The Phænomena or different Appearances, of the *Moon*, are very numerous: Sometimes ſhe is *increaſing*, then *waneing*; ſometimes *horned*, then *ſemi-circular*; ſometimes *gibbous*, then *full* and *globular*. See PHASES.

Sometimes, again, ſhe illumines us the whole Night; ſometimes only a part of it; ſometimes ſhe is found in the Southern Hemiſphere; ſometimes in the Northern: All which Variations having been firſt obſerv'd by *Endymion*, an antient *Grecian*, who firſt watch'd her Motions, he was fabled to have fallen in love with her.

The Source of moſt of theſe Appearances, is, that the *Moon* is a dark, opake, and ſpherical Body; and only ſhines with the Light ſhe receives from the Sun: whence only that Half turn'd towards him is illumin'd; the oppoſite one remaining in its native Darkneſs. The Face of the *Moon* viſible on our Earth, is that part of her Body turn'd towards the Earth; whence, according to the various Poſitions of the *Moon* with regard to the Sun, and Earth, we obſerve different Degrees of Illumination; ſometimes a large, and ſometimes a leſs Portion of the enlighten'd Surface being viſible.

The Phaſes of the MOON.

To conceive the Lunar Phaſes: Let S (Plate ASTRONOMY, fig. 13.) repreſent the Sun, T the Earth, RTS a Portion of the Earth's Orbit, and ABCDEFG the Orbit of the *Moon*, wherein ſhe revolves round the Earth, in the ſpace of a Month, advancing from Weſt to Eaſt: Connect the Centres of the Sun and *Moon* by the right Line SL, and thro the Centre of the *Moon* imagine a Plane MLN, to paſs perpendicular to the Line SL: the Section of that Plane with the Surface of the *Moon*, will give the *Line that bounds Light and Darkneſs*, and ſeparates the illumin'd Face from the dark one. See ILLUMINATION.

Connect the Centres of the Earth and *Moon* by TL, perpendicular to a Plane PLO, paſſing thro the Centre of the *Moon*; that Plane will give on the Surface of the *Moon*, the Circle that diſtinguiſhes the viſible Hemiſphere, or that towards us, from the inviſible one, and therefore call'd the *Circle of Viſion*. See *Circle of* VISION.

Whence it appears, that whenever the *Moon* is in A, the Circle bounding Light and Darkneſs, and the Circle of Viſion, coincide: So that all the illumin'd Face of the *Moon* will be turn'd towards the Earth; in which Caſe, the *Moon* is with reſpect to us *full*, and ſhines the whole Night; with reſpect to the Sun, ſhe is in *Oppoſition*; in regard the Sun and *Moon* are then ſeen in oppoſite Parts of the Heavens, the one riſing when the other ſets. See FULL *Moon* and OPPOSITION.

When the *Moon* arrives at B, the whole illumin'd Disk MPN is not turn'd towards the Earth; ſo that the viſible Illumination will be ſhort of a Circle, and the *Moon* will appear *gibbous*, as in B. See GIBBOUS.

When ſhe reaches C, where the Angle CTS is nearly right, there only one half of the illumin'd Disk is turn'd towards the Earth, and then we obſerve a *Half Moon*, as in C; and ſhe is ſaid to be *dichotomized* or *biſſected*. See HALF *Moon* and DICHOTOMY.

In this Situation the Sun and *Moon* are a fourth part of a Circle remov'd from each other; and the *Moon* is ſaid to be in a *quadrate Aſpect*, or to be in her *Quadrature*. See QUADRATURES.

The *Moon* arriving at D, a ſmall part of the illumin'd Face MPN, is only turn'd towards the Earth: for which reaſon, the ſmall part that ſhines upon us, will be ſeen *falcated*, or bent into narrow Angles or *Horns*, as in D. See FALCATED.

At laſt, the *Moon* arriving at E, ſhews no part of her illumin'd Face to the Earth, as in D; this Poſition we call the *New Moon*, and ſhe is then ſaid to be in *Conjunction* with the Sun; the Sun and *Moon* being in the ſame Point of the Ecliptic. See NEW *Moon*, and CONJUNCTION.

As the *Moon* advances towards E, ſhe reſumes her Horns; and as before the *New Moon*, the Horns were turn'd Weſtward; ſo now they *change* their Poſition, and look Eaſtward: when ſhe comes at G, ſhe is again in *quadrate Aſpect* with the Sun; in H *gibbous*, and in A again *full*.

Here, the Arch EL, or the Angle STL, contain'd under Lines drawn from the Centres of the Sun and *Moon* to that of the Earth, is call'd the *Elongation* of the *Moon* from the Sun: and the Arch MO, which is the Portion of the illumin'd Circle MON, that is turn'd towards us, and which is the Meaſure of the Angle that the Circle bounding Light and Darkneſs, and the Circle of Viſion, make with each other, is every where nearly ſimilar to the Arch of Elongation E L; or which is the ſame thing, the Angle S T E is nearly equal to the Angle M L O: as is demonſtrated by Geometers. See ELONGATION.

To delineate the Moon's Phaſes for any time. Let the Circle C O B P (*fig.* 14.) repreſent the *Moon's* Diſk turn'd towards the Earth, and let O P be the Lines in which the Semi-circle O M P is projected, which ſuppoſe cut at right Angles by the Diameter B C; then making L P the Radius, take L F equal to the Co-ſine of the Elongation of the *Moon*; and upon B C, as the greater Axis, and L I, the leſs, deſcribe the Semi-Ellipſis B F C; this Ellipſis will cut off from the *Moon's* Diſk the Portion B E C P of the illumin'd Face viſible on the Earth.

As the *Moon* illumines the Earth by a Light reflected from the Sun, ſo is ſhe reciprocally illumin'd by the Earth, which reflects the Sun's Rays to the Surface of the *Moon*, and that more abundantly than ſhe receives them from the *Moon*. For the Surface of the Earth is above 15 times greater than that of the *Moon*; and therefore ſuppoſing the Texture of each Body alike, as to the Power of Reflecting; the Earth muſt return 15 times more Light to the *Moon*, than ſhe receives from it. In *New Moons*, the illumined Side of the Earth is turn'd fully towards the *Moon*, and will therefore at that time illumine the dark Side of the *Moon*; and then the *Lunar* Inhabitants (if ſuch there be) will have a *full Earth*, as we, in a ſimilar Poſition, have a *full Moon*: And hence ariſes that dim Light obſerv'd in the Old and New *Moons*; whereby, beſides the bright Horns, we perceive ſomewhat more of her Body behind them, tho very obſcurely. When the *Moon* comes to be in oppoſition to the Sun, the Earth ſeen from the *Moon* will appear in *Conjunction* with him, and its dark Side will be turn'd towards the *Moon*; in which Poſition the Earth will diſappear to the *Moon*, as that does to us at the time of the *New Moon*, or in her Conjunction with the Sun. After this, the *Lunar* Inhabitants will ſee the Earth in a *horned Figure*. In fine, the Earth will preſent all the ſame *Phaſes* to the *Moon*, as the *Moon* does to the Earth.

Dr. *Hook*, accounting for the Reaſon why the *Moon's* Light affords no viſible Heat, obſerves, that the Quantity of Light which falls on the Hemiſphere of the full *Moon*, is rarify'd into a Sphere 288 times greater in Diameter than the *Moon*, e'er it arrive at us; and conſequently that the *Moon's* Light is 104368 weaker than that of the Sun. It would therefore require 104368 *full Moons* to give a Light and Heat equal to that of the Sun at Noon. See SUN, HEAT, *&c.*

Motion of the MOON.

Tho' the *Moon* finiſhes its Courſe in 27 Days, 7 Hours, which Interval we call a *Periodical Month*, ſhe is longer in paſſing from one Conjunction to another; which Space we call a *Synodical Month*, or a *Lunation*. See MONTH and LUNATION.

The reaſon is, that while the *Moon* is performing its Courſe round the Earth in its own Orbit, the Earth with its Attendant is making its Progreſs round the Sun, and both are advanced almoſt a whole Sign towards the Eaſt; ſo that the Point of the Orbit, which in the former Poſition was in a right Line paſſing the Centres of the Earth and Sun, is now more weſterly than the Sun: and therefore when the *Moon* is arrived again at that Point, it will not be yet ſeen in Conjunction with the Sun; nor will the Lunation be compleated in leſs than 29 Days and a half. See PERIODICAL, SYNODICAL, *&c.*

Were the Plane of the *Moon's* Orbit coincident with the Plane of the Ecliptic, *i. e.* were the Earth and *Moon* both moved in the ſame Plane, the *Moon's* Way in the Heavens, view'd from the Earth, would appear juſt the ſame with that of the Sun; with this only difference, that the Sun would be found to deſcribe his Circle in the ſpace of a *Year*, and the *Moon* hers in a *Month*: but this is not the Caſe; for the two Planes cut each other in a right Line, paſſing thro the Centre of the Earth, and are inclin'd to each other in an Angle of about five Degrees. See INCLINATION.

Suppoſe, *e. g.* A B (*fig.* 15.) a Portion of the Earth's Orbit; T the Earth; and C E D F the *Moon's* Orbit, wherein is the Centre of the Earth: from the ſame Centre T, in the Plane of the Ecliptic, deſcribe another C D G D H, whoſe Semi-diameter is equal to that of the *Moon's* Orbit: Now, theſe two Circles being in ſeveral Planes, and having the ſame Centre T, will interſect each other in a Line D C, paſſing thro the Centre of the Earth. Conſequently, C E D, one half of the Orbit of the *Moon*, will be raiſed above the Plane of the Circle C G H, towards the North; and D F C, the other half, will be ſunk below it towards the South. The right Line D C, wherein the two Circles interſect each other, is call'd the *Line of the Nodes*, and the Points of the Angles C and D *the Nodes*: whereof, that where the *Moon* aſcends above the Plane of the Ecliptic, Northwards, is call'd the *Aſcending Node*, and the *Head of the Dragon*; and the other D, the *Deſcending Node*, and the *Dragon's Tail*. See NODE. And the Interval of Time between the *Moon's* going from the aſcending Node, and returning to it, a Dracontic Month. See DRAGON'S *Head*, *&c.* DRACONTIC *Month*, *&c.*

If the Line of the Nodes were immoveable, that is, if it had no other Motion, but that whereby it is carry'd round the Sun, it would ſtill look towards the ſame Point of the Ecliptic, *i. e.* would always keep parallel to itſelf; but it is found by Obſervation, that the Line of the Nodes conſtantly changes place, and ſhifts its Situation from Eaſt to Weſt, contrary to the Order of the Signs, and by a Retrograde Motion, finiſhes its Circuit in about 19 Years; in which time each of the Nodes returns to that Point of the Ecliptic, whence it before receded. See CYCLE.

Hence it follows, that the *Moon* is never preciſely in the Ecliptic, but twice, each Period, *viz.* when ſhe is in the Nodes: throughout the reſt of her Courſe ſhe deviates from it, being nearer or further from the Ecliptic, as ſhe is nearer or further from the Nodes. In the Points F and E, ſhe is at her greateſt Diſtance from the Nodes; which Points are call'd her *Limits*. See LIMITS.

The *Moon's* Diſtance from the Nodes, or rather from the Ecliptic, is call'd her *Latitude*, which is meaſur'd by an Arch of a Circle drawn thro the *Moon* perpendicular to the Ecliptic, and intercepted between the *Moon* and the Ecliptic. The *Moon's* Latitude, when at the greateſt, as in E or F, never exceeds 5 Degrees, and about 18 Minutes; which Latitude is the Meaſure of the Angles at the Nodes. See LATITUDE.

It appears by Obſervation, that the *Moon's* Diſtance from the Earth is continually changing; and that ſhe is always either drawing nearer, or going further from us. The reaſon is this, that the *Moon* does not move in a circular Orbit, which has the Earth for its Centre; but in an Elliptic Orbit (ſuch as is repreſented in Fig. 16.) one of whoſe Foci, is the Center of the Earth: A P repreſents the greater *Axis* of the Ellipſis, and the Line of the *Apſides*; and T C, the *Eccentricity*: the Point A, which is the higheſt Apſis, is call'd the *Apogee* of the *Moon*; and P, the loweſt Apſis, is the *Moon's Perigee*, or the Point wherein ſhe comes neareſt the Earth. See APOGEE and PERIGEE.

The Space of Time wherein the *Moon*, going from the Apogee, returns to it again, is call'd the *Anomaliſtic* Month. See ANOMALISTIC.

If the *Moon's* Orbit had no other Motion, but that wherewith it is carry'd round the Sun, it would ſtill retain a Poſition parallel to itſelf, and always point the ſame way, and be obſerv'd in the ſame Point of the Ecliptic; but the Line of the Apſides is likewiſe obſerv'd to be moveable, and to have an angular Motion round the Earth from Weſt to Eaſt, according to the Order of the Signs, returning to the ſame Situation in the ſpace of about nine Years. See ANGULAR *Motion* and APSIDES.

Irregularities in the MOON'S *Motion.*

The Irregularities of the *Moon's* Motion, and that of her Orbit, are very conſiderable: For, 1. When the Earth is in her Aphelion, the *Moon* is in her Aphelion likewiſe; in which caſe ſhe quickens her Pace, and performs her Circuit in a ſhorter time: On the contrary, when the Earth is in its Perihelion, the *Moon* is ſo too, and then ſhe ſlackens her Motion; and thus revolves round the Earth in a ſhorter ſpace, when the Earth is in her Aphelion, than when in her Perihelion: So that the Periodical Months are not all equal. See PERIODICAL *Month*.

2. Again, when the *Moon* is in her *Syzygies*, *i. e.* in the Line that joins the Centers of the Earth and Sun, which is either in her Conjunction or Oppoſition; ſhe moves ſwifter, *cæteris paribus*, than when in the Quadratures. See SYZYGIES.

Further, 3. According to the different Diſtance of the *Moon* from the Syzygies, *i. e.* from Oppoſition or Conjunction, ſhe changes her Motion: In the firſt Quarter, that is, from the Conjunction to her firſt Quadrature, ſhe abates ſomewhat of her Velocity; which, in the ſecond Quarter, ſhe recovers: In the third Quarter, ſhe again loſes; and in the laſt, again recovers. This Inequality was firſt diſcover'd by *Tycho Brahe*, who call'd it the *Moon's Variation*. See VARIATION.

4. Add to this, that the *Moon* moves in an Ellipſis, one of whoſe Foci is in the Centre of the Earth, round which ſhe deſcribes Areas proportionable to the Times, as the primary Planets do round the Sun; whence her Motion in the Perigee muſt be quickeſt, and ſloweſt in the Apogee.

5. The very Orbit of the *Moon* is changeable, and does not always perſevere in the ſame Figure; its Eccentricity being ſometimes increas'd, and ſometimes diminiſh'd; greateſt, when the Line of Apſides coincides with that of the Syzygies; and leaſt, when the Line of Apſides cuts the other at right Angles. See ORBIT.

6. Not

6. Nor is the Apogee of the *Moon* without an Irregularity; being found to move forwards, when it coincides with the Line of Syzygies, and backwards, when it cuts the Line at right Angles. See APOGEE: Nor is this Progreſs and Regreſs in any meaſure equal: in the Conjunction, or Opposition, it goes briskly forwards; and in the Quadratures, moves either ſlowly forwards, ſtands ſtill, or goes backward. See SYZYGIES.

7. The Motion of the Nodes is not uniform; but when the Line of the Nodes coincides with that of the Syzygies, they ſtand ſtill; when the Nodes are in the Quadratures, *i. e.* when their Line cuts that of the Syzygies at right Angles, they go backwards, from Eaſt to Weſt; and this, Sir *I. Newton* ſhews, with the Velocity of 16″, 19‴, 24⁗, in an Hour. See NODE.

The only equable Motion the *Moon* has, is that wherewith ſhe turns round her Axis exactly in the ſame ſpace of Time, in which ſhe revolves round us in her Orbit; whence it happens, that ſhe always turns the ſame Face towards us.

For, as the *Moon's* Motion round its Axis is equal, and yet its Motion or Velocity in its Orbit is unequal; it follows, that when the *Moon* is in its Perigee, where it moves ſwifteſt in its Orbit, that part of its Surface, which, on account of its Motion in the Orbit, would be turn'd from the Earth, is not ſo, entirely; by reaſon of its Motion round its Axis: Thus, ſome Parts in the Limb, or Margin of the *Moon*, ſometimes recede from the Center of the Diſk, and ſometimes approach towards it, and ſome Parts, that were before inviſible, become conſpicuous: which is call'd the *Moon's* Libration.

Yet this Equability of Rotation occaſions an apparent Irregularity; for the Axis of the *Moon*, not being perpendicular to the Plane of its Orbit, but a little inclined to it: and this Axis maintaining its Paralleliſm, in its Motion round the Earth; it muſt neceſſarily change its Situation, in reſpect of an Obſerver on the Earth; to whom, ſometimes the one, and ſometimes the other Pole of the *Moon*, becomes viſible. Whence it appears to have a kind of Libration. See LIBRATION and AXIS.

Phyſical Laws of the MOON'S *Motion.*

Thus much for the *Lunar Phænomena*: It remains that we aſſign the *Phyſical Cauſe* thereof. The *Moon*, we have obſerved, moves round the Earth, by the ſame Laws, and in the ſame Manner, as the Earth round the Sun and other Planets. The Solution therefore of the Lunar Motion, in general, comes under thoſe of the Earth, and other Planets. See PLANET and EARTH.

As for the particular Irregularities in the *Moon's* Motion, to which the Earth, and other Planets, are not ſubject, they ariſe from the Sun, which acts on, and diſturbs her in her ordinary Progreſs thro her Orbit; and are all mechanically deducible from the ſame great Law, whereby her general Motion is directed, *viz.* the Law of *Gravitation* or *Attraction*. See GRAVITATION.

Other ſecondary Planets, *v. g.* the Satellites of *Jupiter* and *Saturn*, are doubtleſs ſubject to the like Irregularities with the Moon; as being expoſed to the ſame perturbating or diſturbing Force of the Sun; but their Diſtance ſecures them from our Obſervation. See SATELLITE *and* DISTURBING *Force.*

The Laws of the ſeveral Irregularities in the *Syzygies*, *Quadratures*, &c. ſee under SYZYGIES, QUADRATURES, &c.

The Aſtronomy of the MOON.

1. To determine the Period of the *Moon's* Revolution round the Earth, or the *Periodical Month*; and the Time between one Oppoſition and another, or the *Synodical Month*: ſince, in the middle of a Lunar Eclipſe, the *Moon* is oppoſite to the Sun: (See ECLIPSE.) Compute the time between two Eclipſes, or Oppoſitions; and divide this, by the number of Lunations, that have paſſed in the mean time: the Quotient will be the Quantity of the Synodical Month.——Compute the Sun's mean Motion during the time of the Synodical Month, and add this to the entire Circle deſcribed by the *Moon*: Then, as the Sum is to 360°, ſo is the Quantity of the Synodical Month to the Periodical.

Thus, *Copernicus* in the Year 1500, *November* 6. at 12 at Night, obſerved an Eclipſe of the *Moon* at *Rome*; and *Auguſt* 1, 1523, at 4 h. 25′, another at *Cracow*: hence, the Quantity of the Synodical Month is thus determined:

Obſ. II	A. 1523	d. 237	h. 4.25′	
Obſ. I	A. 1500	d. 310	h. 2.20′	
Interval of Time	A	22 d.	292 h.	2.5.
And the Days			5	
Exact Interval	A. 22	d. 297	h. 2.5′	
or			11991005‴	

Which divided by 282 Months elapſed, in the mean time, gives the Quantity of the Synodical Month 42521′, 9″, 9‴; that is, 29 days, 12 hours, 41 minutes.

From two other Obſervations of Eclipſes, the one at *Cracow*, the other at *Babylon*, the ſame Author determines more accurately the Quantity of the Synodical Month to be 42524′. 3″. 10‴. 9⁗.

That is 29 d. 11 h.	
The Sun's Motion in the time	29. 6. 24.18
The *Moon's* Motion	389. 6. 24.18
Quantity of the Periodical Month	27 d. 7 h. 43′. 5″.

Hence, 1. The Quantity of the Periodical Month being given; by the Rule of Three we may find the *Moon's* diurnal and hourly Motion, &c. And thus may Tables of the mean Motion of the *Moon* be conſtructed. See TABLES; ſee alſo DIURNAL and HORARY.

2. If the Sun's mean diurnal Motion be ſubſtracted from the *Moon's* mean diurnal Motion; the Remainder will give the *Moon's* diurnal Motion from the Sun: and thus may a Table of Latitudes be conſtructed, ſuch as thoſe of *Bullialdus*. See LATITUDES.

3. Since in the middle of a total Eclipſe, the *Moon* is in the Node; if the Sun's Place be found for that time, and to this be added ſix Signs, the Sum will give the *Place of the Node*. See NODE.

4. From comparing the antient Obſervations with the modern, it appears that the Nodes have a Motion, and that they proceed *in Antecedentia*, *i. e.* from *Taurus* to *Aries*, from *Aries* to *Piſces*, &c. If then to the *Moon's* mean diurnal Motion, be added the diurnal Motion of the Nodes, the ſame will be the Motion of the Latitude; and thence, by the Rule of Three, may be found in what time the *Moon* goes 360° from the Dragon's Head, or in what time ſhe goes from, and returns to it: That is the Quantity of the *Dracontic Month*.

5. If the Motion of the diurnal Apogee be ſubſtracted from the mean Motion of the *Moon*, the Remainder will be the *Moon's* mean Motion from the Apogee: and thence, by the Rule of Three, is determin'd the Quantity of the *Anomaliſtic Month*.

According to the Obſervations of *Kepler*, the mean Synodical Month is 29 d. 12 h. 44′. 3″. 2‴. Her Periodical Month 27 d. 7 h. 43′. 8″. The Place of the Apogee for the Year 1700, *January* 1. Old Stile, was 11 S. 8°. 57′. 1″. The Pſane of the Nodes 4 S. 27°. 39′. 17″. Mean diurnal Motion of the *Moon* 13°. 10′. 35″. Diurnal Motion of the Apogee 6′. 41″. Diurnal Motion of the Nodes 3′. 11″. Laſtly, the Eccentricity 4362 Parts, ſuch, whereof the Diameter of the Eccentrice is 10000: and therefore the diurnal Motion of the Latitude is 13°. 13′. 46″; and the diurnal Motion from the Apogee 13°. 3′. 54″.

Theory of the LUNAR *Motions and Irregularities.*

The Tables of Equation, which ſerve to ſolve the Irregularities of the Sun, do likewiſe ſerve for thoſe of the *Moon*. See EQUATION.

But then theſe Equations muſt be corrected for the *Moon*; otherwiſe they will not exhibit the true Motions in the Syzygies. The Method is thus: Suppoſe the *Moon's* Place in the Zodiac, required in Longitude, for any given time; here, we firſt find, in the Tables, the place where it would be, ſuppoſing its Motion uniform, which we call *mean*, and which is ſometimes faſter, and ſometimes ſlower than the true Motion: then, to find where the *true* Motion will place her, which is alſo the *apparent*, we are to find in another Table at what Diſtance it is from its Apogee; for, according to this Diſtance, the Difference between her true and mean Motion, and the two Places which correſpond thereto, is the greater. The true Place thus found, is not yet the *true* Place; but varies from it, as the *Moon* is more, or leſs remote both from the Sun, and the Sun's Apogee: which Variation reſpecting, at the ſame time, thoſe two different Diſtances, they are to be both conſidered and combined together, as in a Table apart. Which Table gives the Correction to be made of the true Places firſt found: That Place thus corrected, is not yet the *true* Place, unleſs the *Moon* be either in Conjunction, or Oppoſition: If ſhe be out of theſe, there muſt be another Correction, which depends on two things taken together, and compared, *viz.* the Diſtance of the *Moon's* corrected Place from the Sun; and of that at which ſhe is with regard to her own Apogee; this laſt Diſtance having been changed by the firſt Correction.

By all theſe Operations and Corrections, we at length arrive at the *Moon's true Place* for that inſtant. In this it muſt be owned, occur prodigious difficulties: The Lunar Inequalities are ſo many, that it was in vain the Aſtronomers laboured to bring 'em under any Rule, before the Great Sir *Iſ. Newton*; to whom we are indebted both for the mechanical Cauſes of theſe Inequalities, and for the Method of computing and aſcertaining them: So that he has a World, in great meaſure, of his own diſcovering, or rather ſubduing.

From the Theory of Gravity he ſhews, that the larger Planets revolving round the Sun, may carry along with 'em ſmaller Planets revolving round themſelves; and ſhews, *à priori*, that theſe ſmaller muſt move in Ellipſes having their Umbilici in the Centres of the larger; and have their Motion in their Orbit variouſly diſturbed by the Motion of the Sun; and, in a word, muſt be affected with thoſe Inequalities which we actually obſerve in the *Moon*. And from this Theory, argues analogous Irregularities in the Satellites of Saturn.

From this ſame Theory he examines the force which the Sun has to diſturb the *Moon*'s Motion, determines the horary Increaſe of the Area which the *Moon* would deſcribe in a circular Orbit by Radii drawn to the Earth —— her Diſtance from the Earth —— the Horary Motion in a circular and elliptic Orbit——the mean Motion of the Nodes——the true Motion of the Nodes——the horary Variation of the Inclination of the *Moon*'s Orbit to the Plane of the Ecliptic.

Laſtly, From the ſame Theory he has found the annual Equation of the *Moon*'s mean Motion to ariſe from the various dilatation of her Orbit; and that Variation to ariſe from the Sun's force, which being greater in the Perigee, diſtends the Orbit; and being leſs in the Apogee, ſuffers it to be again contracted. In the dilated Orbit, ſhe moves more ſlowly; in the contracted, more ſwiftly: and the annual Equation, whereby this Inequality is compenſated, in the Apogee, and Perigee is nothing at all; at a moderate diſtance from the Sun, amounts to 11′, 50″; and in other places is proportional to the Equation of the Sun's Centre, and is added to the mean Motion of the *Moon*, when the Earth proceeds from its Aphelion to its Perihelion; and ſubſtracted when in its oppoſite part. Suppoſing the Radius of the *Orbis magnus* 1000, and the Earth's Eccentricity $16\frac{7}{8}$; this Equation, when greateſt, according to the Theory of Gravity, comes out 11′, 49″, 8‴. He adds, that in the Earth's Perihelion the Nodes move ſwifter than in the Aphelion, and that in a triplicate Ratio of the Earth's diſtance from the Sun, inverſely. Whence ariſe annual Equations of their Motions, proportionable to that of the Centre of the Sun. Now the Sun's Motion is in a duplicate Ratio of the Earth's Diſtance from the Sun inverſely, and the greateſt Equation of the Centre which this Inequality occaſions, is 1°, *56′*, *26″*, agreeable to the Sun's Eccentricity $16\frac{15}{16}$. If the Sun's Motion were in a triplicate Ratio of its Diſtance inverſely, this Inequality could generate the greateſt Equation 2°, *66′*, *9″*; and therefore the greateſt Equations which the Inequalities of the Motions of the *Moon*'s Apogee and Nodes occaſion, are to 2°, *56′*, *9″*, as the mean diurnal Motion of the *Moon*'s Apogee, and the mean diurnal Motion of her Nodes are to the mean diurnal Motion of the Sun. Whence the greateſt Equation of the mean Motion of the Apogee comes out 19″, 52″; and the greateſt Equation of the mean Motion of the Nodes *9′ 27″*. The former Equation is added, and the latter ſubſtracted, when the Earth proceeds from its Perihelion to its Aphelion; and the contrary in the oppoſite part of its Orbit.

From the ſame Theory of Gravity it alſo appears, that the Sun's Action on the *Moon* muſt be ſomewhat greater when the tranſverſe Diameter of the Lunar Orbit paſſes through the Sun, than when it is at right Angles with the Line that joins the Earth and Sun: And, therefore, that the Lunar Orbit is ſomewhat greater in the firſt caſe, than in the ſecond. Hence ariſes another Equation of the mean Lunar Motion, depending on the Situation of the *Moon*'s Apogee with regard to the Sun, which is greateſt when the *Moon*'s Apogee is in an Octant with the Sun; and none, when that arrives at the Quadrature, or Syzygies; and is added to the mean Motion, in the Paſſage of the *Moon*'s Apogee from the Quadrature to the Syzygies, and ſubſtracted in the Paſſage of the Apogee from the Syzygies to the Quadrature. This Equation, which he calls *Semeſtris*, when greateſt, *viz.* in the Octants of the Apogee, ariſes to 3′, 34″, at a mean diſtance of the Earth from the Sun; but it increaſes and diminiſhes in a triplicate Ratio of the Sun's diſtance inverſely; and therefore in the Sun's greateſt diſtance, is 3′, 34″; in the ſmalleſt, 3′, 56″, nearly. But when the Apogee of the *Moon* is without the Octants, it becomes leſs, and is to the greateſt Equation, as the Sine of double the diſtance of the *Moon*'s Apogee, from the next Syzygy or Quadrature, to the Radius.

From the ſame Theory of Gravity it follows, that the Sun's Action on the *Moon* is ſomewhat greater when a Line right drawn through the *Moon*'s Nodes paſſes through the Sun, than when that Line is at right Angles with another joining the Sun and Earth: And hence ariſes another Equation of the *Moon*'s mean Motion, which he calls *Secunda Semeſtris*, and which is greateſt when the Nodes are in the Sun's Octants, and vaniſhes when they are in the Syzygies, or Quadratures; and in other Situations of the Nodes is proportionable to the Sine of double the diſtance of either Node from the next Syzygy, or Quadrature: it is added to the *Moon*'s mean Motion while the Nodes are in their Paſſage from the Sun's Quadratures to the next Syzygy, and ſubſtracted in their Paſſage from the Syzygies to the Quadratures in the Octants. When it is greateſt, it amounts to 47″, at a mean diſtance of the Earth from the Sun; as appears from the Theory of Gravity: At other diſtances of the Sun, this Equation in the Octants of the Nodes is reciprocally as the Cube of the Sun's diſtance from the Earth; and therefore in the Sun's Perigee is 45″; in his Apogee nearly 49″.

By the ſame Theory of Gravity, the *Moon*'s Apogee proceeds the faſteſt when either in Conjunction with the Sun, or in Oppoſition to it; and returns when it makes a Quadrature with the Sun. In the former Caſe, the Eccentricity is greateſt, and in the latter ſmalleſt. Theſe Inequalities are very conſiderable, and generate the principal Equation of the Apogee, which he calls *Semeſtris*, or *Semi-menſtrual*. The greateſt *Semi-menſtrual* Equation is about 12°, 18′.

Horrox firſt obſerv'd the *Moon* to revolve in an Ellipſis round the Earth placed in the lower Umbilicus: And *Halley* placed the Centre of the Ellipſis in an Epicycle whoſe Centre revolves uniformly about the Earth: And from the Motion in the Epicycle ariſe the Inequalities now obſerved in the Progreſs and Regreſs of the Apogee, and the Quantity of the Eccentricity.

Suppoſe the mean diſtance of the *Moon* from the Earth divided into 100000, and let T (Plate ASTRONOMY, *Fig.* 17.) repreſent the Earth, and T C the mean Eccentricity of the *Moon* 5505 parts; produce T C to B, that C B may be the Sine of the greateſt Semi-menſtrual Equation 12°, 18′ to the Radius T C; the Circle B D A, deſcribed on the Centre C, with the Interval C B, will be the Epicycle wherein the Centre of the Lunar Orb is placed, and wherein it revolves according to the Order of the Letters B D A. Take the Angle B C D equal to double the annual Argument, or double the diſtance of the true Place of the Sun from the *Moon*'s Apogee once equated, and C T D will be the Semi-menſtrual Equation of the *Moon*'s Apogee, and T D the Eccentricity of its Orbit tending to the Apogee equated a ſecond time. Now the *Moon*'s mean Motion, Apogee, and Eccentricity, as alſo the greater Axis of its Orbit 200000; the *Moon*'s true place, as alſo her diſtance from the Earth are found, and that by the commoneſt Methods.

In the Earth's Perihelion, by reaſon of the greater force of the Sun, the Centre of the *Moon*'s Orbit will move more ſwiftly about the Centre C, than in the Aphelion, and that in a triplicate Ratio of the Earth's diſtance from the Sun inverſely. By reaſon of the Equation of the Centre of the Sun, comprehended in the annual Argument, the Centre of the *Moon*'s Orbit will move more ſwiftly in the Epicycle B D A, in a duplicate Ratio of the diſtance of the Earth from the Sun inverſely. That the ſame may ſtill move more ſwiftly in a ſimple Ratio of the diſtance inverſely from the Centre of the Orbit D, draw D E towards the *Moon*'s Apogee, or parallel to T C; and take the Angle E D G equal to the Exceſs of the annual Argument, above the Diſtance of the *Moon*'s Apogee from the Sun's Perigee in Conſequentia; or which is the ſame, take the Angle C D F equal to the Complement of the true Anomaly of the Sun to 360°; and let D F be to D C as double the Eccentricity of the *Orbis magnus* to the mean diſtance of the Sun from the Earth, and the mean diurnal Motion of the Sun from the *Moon*'s Apogee, to the mean diurnal Motion of the Sun from its own Apogee, conjunctly, *i.e.* as $33\frac{7}{8}$ is to 1000, and 52′, 27″, 16‴ to 59′ 8″ 10‴ conjunctly; or as 3 to 100. Conceive the Centre of the *Moon*'s Orbit placed in the Point E, and to revolve in an Epicycle whoſe Centre is D, and Radius D F, while D proceeds in the Circumference of the Circle D A B D: Thus the Velocity wherewith the Centre of the *Moon*'s Orbit moves in a certain Curve, deſcribed about the Centre C, will be reciprocally as the Cube of the Sun's diſtance from the Earth. The Computation of this Motion is difficult, but will be made eaſy by the following Approximation. If the *Moon*'s mean diſtance from the Earth be 100000 parts, and its Eccentricity T C 5505 of thoſe parts, the right Line C B or C D will be found $1172\frac{3}{4}$, and the right Line D F $35\frac{1}{5}$. This right Line at the diſtance T C, ſubtends an Angle to the Earth, which the transferring of the Centre of the Orbit from the place D to F generates in the Motion of this Centre; and the ſame right Line doubled, in a parallel Situation, at the diſtance of the upper Umbilicus of the *Moon*'s Orbit from the Earth, ſubtends the ſame Angle, generated by that tranſlation in the Motion of the Umbilicus; and at the diſtance of the *Moon* from the Earth ſubtends an Angle which the ſame tranſlation generates in the Motion of the *Moon*; and which may therefore be call'd the *Second Equation of the Centre.*

Centre. This Equation at a mean diſtance of the *Moon* from the Earth, is as the Sine of the Angle contain'd between the right Line D F, and a right Line drawn from the Point F to the *Moon*, nearly; and when greateſt, amounts to 2′, 25″. Now the Angle comprehended between the right Line D F and a Line from the Point D, is found either by ſubſtracting the Angle E D E from the mean Anomaly of the *Moon*, or by adding the *Moon*'s diſtance from the Sun to the diſtance of the *Moon*'s Apogee from the Apogee of the Sun. And as Radius is to the Sine of the Angle thus found, ſo is 2′, 25″ to the ſecond Equation of the Centre, which is to be added, if that Sine be leſs than a Semi-circle, and ſubſtracted if greater: Thus we have its Longitude in the very Syzygies of the Luminaries.

If a very accurate Computation be required, the *Moon*'s Place thus found muſt be corrected by a ſecond Variation. The firſt and principal Variation we have already conſider'd, and have obſerv'd it to be greateſt in the Octants. The ſecond is greateſt in the Quadrants, and ariſes from the different Action of the Sun on the *Moon*'s Orbit, according to the different Poſition of the *Moon*'s Apogee to the Sun, and is thus computed: As Radius is to the verſed Sine of the diſtance of the *Moon*'s Apogee from the Sun's Perigee, in conſequentia ſo is a certain Angle P to a fourth Proportional. And as Radius is to the Sine of the *Moon*'s diſtance from the Sun, ſo is the Sine of this fourth Proportional and another Angle Q to the ſecond Variation, which is to be ſubſtracted, if the *Moon's* Light be increaſing; and added, if diminiſhing.

Thus we have the *Moon*'s true Place in her Orbit; and by reduction of this Place to the Ecliptic, the *Moon*'s Longitude. The Angles P and Q are to be determined by obſervation: in the mean time, if for P be aſſumed 2′, and for Q 1′, we ſhall be near the truth.

Nature of the MOON.

1. From the various Phaſes of the *Moon*: From her only ſhewing a little part illumined, when following the Sun ready to ſet: From that Part's increaſing as ſhe recedes from the Sun, till at the diſtance of 80° ſhe ſhines with a full Face; and again wains as ſhe re-approaches that Luminary, and loſes all her Light when ſhe meets him: From the lucid Part's being conſtantly turn'd towards the Weſt, while the *Moon* increaſes; and towards the Eaſt when ſhe decreaſes; it is evident, that only that part ſhines on which the Sun's Rays fall: And from the Phænomena of Eclipſes, happening when the *Moon* ſhould ſhine with a full face, *viz.* when ſhe is 180° diſtant from the Sun; and the darkned Parts appearing the ſame in all Places, it is evident ſhe has no Light of her own, but borrows whatever Light ſhe has from the Sun. See PHASES, ECLIPSE, and SUN.

2. The *Moon* ſometimes diſappears in the clear Heaven, ſo as not to be diſcoverable by the beſt Glaſſes; little Stars of the fifth and ſixth Magnitude all the time remaining viſible. This Phænomenon *Kepler* obſerved twice *Anno* 1580, and 1583; and *Hevelius* in 1620. *Riccioli*, and other Jeſuits at *Bononia*, and many People throughout *Holland* obſerved the like *April* 14, 1642. yet at *Venice* and *Vienna* ſhe was all the time conſpicuous. *December* 23, 1703, there was another total Obſcuration: At *Arles* ſhe firſt appear'd of a yellowiſh brown; at *Avignon* ruddy and tranſparent, as if the Sun had ſhone through; at *Marſeilles*, one part was reddiſh, the other very dusky; and, at length, tho' in a clear Sky, wholly diſappear'd. Here it is evident, that the Colours appearing different at the ſame time, do not belong to the *Moon*; that they are occaſion'd by an Atmoſphere around her variouſly diſpoſed in this and that Place, for refracting of theſe or thoſe coloured Rays.

3. The Eye, either naked, or arm'd with a Teleſcope, ſees ſome parts in the *Moon*'s Face darker than others, which are call'd Maculæ, or *Spots*. Through the Teleſcope, while the Moon is either increaſing or decreaſing, the illumined parts in the Maculæ appear evenly terminated; but in the bright Parts, the Bound of the Light appears jagged and uneven, compoſed of diſſimilar Arches, convex and concave. (ſee Tab. ASTRONOMY, *Fig.* 18.) There are alſo obſerved lucid Parts diſperſed among the darker; and illumined Parts ſeen beyond the limits of Illumination; other intermediate ones remaining ſtill in darkneſs; and near the Maculæ, and even in 'em, are frequently ſeen ſuch lucid Specks. Beſide the Maculæ obſerved by the Antients, there are other variable ones inviſible by the naked Eye, call'd New Maculæ, always oppoſite to the Sun; and which are hence found among thoſe parts which are the ſooneſt illumined in the increaſing *Moon*, and in the decreaſing *Moon* loſe their Light later than the intermediate ones; running round, and appearing ſometimes larger, ſometimes ſmaller.

Hence, (1.) As all parts are equally illumined by the Sun, in as much as they are equally diſtant from him: If ſome appear brighter, and others darker; ſome reflect the Sun's Rays more copiouſly than others; and therefore they are heterogeneous. And, (2.) Since the Boundary of the illumined Part is very ſmooth and equable in the Maculæ, their Surface muſt be ſo too. (3.) The parts illumined by the Sun ſooner, and deſerted later than others that are nearer, are higher than the reſt, *i. e.* ſtand up above the other Surface of the *Moon*. (4.) The New Maculæ anſwer perfectly to the Shadows of terreſtrial Bodies.

4. *Hevelius* writes, that he has ſeveral times found, in Skies perfectly clear, when even Stars of the 6th and 7th Magnitude were conſpicuous, at the ſame Altitude of the *Moon*, and the ſame Elongation from the Earth, and with one and the ſame excellent Teleſcope; that the *Moon* and its *Maculæ* do not appear equally lucid, clear, and perſpicuous, at all times; but are much brighter, purer, and more diſtinct at one time than another. From the Circumſtances of the Obſervation, 'tis evident, the reaſon of the Phænomenon is not either in our Air, in the Tube, in the *Moon*, nor in the Spectator's Eye; but muſt be look'd for in ſomething exiſting about the *Moon*.

5. *Caſſini* frequently obſerv'd *Saturn*, *Jupiter*, and the fix'd Stars, when hid by the *Moon*, near her Limb, whether the illumined or dark one, to have their circular Figure changed into an oval one; and in other Occultations found no alteration of Figure at all. In like manner, the Sun and *Moon* riſing and ſetting in a vaporous Horizon, do not appear Circular, but Elliptic.

Hence, as we know, by ſure Experience, that the Circular Figure of the Sun and *Moon* is only changed into an Elliptic one by means of the Refraction in the vapoury Atmoſphere; 'tis pretty apparent, that at the time when the circular Figure of the Stars is thus changed by the *Moon*, there is a denſe Matter incompaſſing the *Moon*, wherein the Rays emitted from the Stars are refracted; and that at other times, when there was no change of Figure, this Matter was wanting.

This Phænomenon is well illuſtrated by the following Experiment: To the inner bottom of any Veſſel, either Plane, Convex, or Concave, with Wax faſten a Circle of Paper; then pouring in Water, that the Rays reflected from the Circle into the Air may be refracted before they reach the Eye; viewing the Circle obliquely, the circular Figure will appear changed into an Ellipſis.

6. *The Moon is a denſe opake Body, beſet with Mountains, Valleys, and Seas.* That the *Moon* is denſe, and impervious to the Light, has been ſhewn: but ſome parts ſink below, and others riſe above the Surface; and that conſiderably, in as much as they are viſible at ſo great a diſtance of the Earth from the Sun: In the *Moon* therefore are huge *Mountains*, and very deep *Valleys*. *Ricciolus* meaſured the height of one of the Mountains, call'd St. *Catherine*, and found it nine Miles high. Again, in the *Moon* are ſpacious Tracts, having ſmooth even Surfaces, and thoſe reflecting leſs Light than the reſt: Hence, as the Surface of fluid Bodies is naturally even, and as when tranſparent, they tranſmit a great part of the Rays of Light, and reflect very little; the Lunar Spots are fluid, tranſparent Bodies: and as they continue conſtantly the ſame, are *Seas*. In the *Moon*, therefore, are Mountains, Valleys, and Seas.—— Hence again, the lucid parts of the Spots are *Iſlands* and *Peninſula's*.

And ſince in the Maculæ, and near their Limbs, are ſeen ſome parts higher than others, in the Lunar Seas are *Rocks* and Promontories.

And ſince the new Spots are contiguous to the Mountains, and in all reſpects like the Shadows of Bodies on our Earth; no doubt they are the Shadows of the Lunar Mountains: Whence alſo appears the Matter of the *Moon* is opake.

Note, This Reaſoning will be put paſt doubt by viewing the ſenſible Horizon from ſome Eminence: Where it paſſes over a Plain, the Line will appear ſmooth and even; where a-croſs Mountains and Valleys, irregular and winding; ſmooth, but dark, *&c.*

7. *The Moon is incompaſs'd with an heavy and elaſtic Atmoſphere, wherein Vapours and other Exhalations ariſe, and whence they return in form of Dew and Rain.*

In a total Eclipſe of the Sun, we find the *Moon* incircled with a lucid Ring parallel to her Periphery.

Of this, we have too many Obſervations to doubt: In the great Eclipſe of 1713, the Ring was very conſpicuous at *London*, and elſewhere. *Kepler* obſerves the ſame of an Eclipſe in 1605, at *Naples* and *Antwerp*; and *Wolfius* of another in 1606 at *Leipſic*, deſcribed at large in the *Acta Eruditorum*, with this notable Circumſtance, that the part next the *Moon* was viſibly brighter, than that furtheſt from it; which is confirmed by the Obſervations of the *French* Aſtronomers in the *Memoires de l'Academie*, *&c.* 1706.

Hence about the *Moon* is ſome Fluid, which correſponds to her Figure, and which both reflects and refracts the Sun's Rays. And hence alſo, this Fluid is denſer below, near the *Moon*'s Body; and rarer above. Now as the Air which incompaſſes our Earth is ſuch a Fluid, it is manifeſt there is *Air* about the *Moon*; and ſince the different Denſity of the Air depends on its different Gravity and Elaſticity, no doubt the different Denſity of the Lunar Air has the ſame Cauſes. Again, we have obſerv'd the Lunar Air is not always equally clear and tranſparent: ſometimes it changes the ſpherical Figures of the Stars into Ovals; and in the ſeveral total Eclipſes juſt mentioned, there was obſerved a trembling in the *Moon*'s Limb, immediately before immerſion, with an Appearance of thin, light Smoak flying over it during immerſion, very apparent in *England*. And hence, as theſe ſame Phenomena are obſerved in our Air when full of Vapours, it is pretty plain, at the time when theſe Phænomena are obſerved in that of the *Moon*, it is full of *Vapours* and *Exhalations*. And, laſtly, ſince at other times the Lunar Air is clear and tranſparent, producing none of theſe Phænomena, the Vapours muſt have been precipitated on the *Moon*; and therefore either *Dew*, or *Rain*, or *Snow* have fallen.

7. *The* Moon *is a Body in all reſpects like our Earth, and fitted for the ſame purpoſes.* For we have ſhewn that it is *Denſe*——*Opake*——has *Mountains* and *Valleys*——*Seas*, with *Iſlands*, *Peninſulæ*, *Rocks*, and *Promontories*——a changeable *Atmoſphere*, wherein *Vapours* and *Exhalations* riſe and fall ——*Day* and *Night*; a *Sun* to illumine the one, and a *Moon* the other,——*Summer* and *Winter*, &c.

From theſe, by Analogy, may infinite other Properties and Appendages of the *Moon* be deduced: From the Changes in the Atmoſphere will follow *Winds*, and other *Meteors*; and according to the different Seaſons of the Year, *Rain*, *Miſts*, *Froſt*, *Snow*, *&c.* From the Inequalities upon the *Moon*'s Surface will ariſe *Lakes*, *Rivers*, *Springs*, *&c.*

Now Nature, we know, produces nothing in vain: Rains and Dews fall on our Earth to make *Plants vegetate*; and Plants take Root, grow, produce Seeds and Fruits for *Animals* to feed on. But Nature is ſtill uniform and conſiſtent with herſelf, and like things ſerve for like Ends: Why then may not there be *Plants* and *Animals* in the *Moon*? To what other purpoſe ſo nice a Proviſion for them?

Theſe Arguments will receive new force when we come to ſhew that our Earth itſelf is a Planet; and that when viewed from the other Planets, it appears, in ſome, like the *Moon*; in others, like *Venus*; in others, *Jupiter*, *&c.* A Similitude between the Planets, both Optical and Phyſical, being a ſtrong Preſumption their Furniture is alike. See **Earth** and **Planet**.

To meaſure the Height of the Mountains of the Moon.

Suppoſe E D (*Fig.* 19.) the *Moon*'s Diameter, E C D the Boundary of Light and Darkneſs; and A the Top of the Hill in the dark part beginning to be illumined: With a Teleſcope obſerve the Proportion of A E, or the diſtance of A from the Line where the Light commences, to the Diameter of E D: Here we have two ſides of a rectangled Triangle A E, C A; the Squares of which added together give the Square of the third; whence the Semi-diameter C D being ſubſtracted, leaves A B, the *Height of the Mountain*.

Ricciolus, *v. g.* found the Top of the Hill *St. Catherine* illumined at the diſtance of $\frac{1}{16}$ of the *Moon*'s Diameter from the Confines of Light. Suppoſing, therefore, C E, 8; and A E, 1; the Squares of the two will be 65, whoſe Root is 8.062 the length of A C; ſubſtracting therefore $BC = 8$, the Remainder is $AB = 0.62$. The *Moon*'s Semi-diameter, therefore, is to the Mountain's height as 8 is to 0.62; *i.e.* as 800 to 62. Suppoſing, therefore, the Diameter of the *Moon* 1182 *Engliſh* Miles, by the *Rule of Three* we find the height of the Mountain 9 Miles.

The Heights, *&c.* of the Lunar Mountains being meaſurable, Aſtronomers have taken occaſion to give each its Name. *Ricciolus*, whom moſt others now follow, diſtinguiſhed them by the Names of the *Celebrated Aſtronomers*; and by theſe Names they are ſtill expreſſed in Obſervations of the Lunar Eclipſe, *&c.* See the Figure, (Tab. **Astronomy**, *Fig.* 20.)

The apparent Magnitude of the Moon.

The Magnitude of the *Moon*, at riſing and ſetting, is a Phænomenon that has extremely embarraſſed the modern Philoſophers. According to the ordinary Laws of Viſion, it ſhould appear the leaſt when neareſt the Horizon, as being then neareſt to the Eye; and yet we find the contrary true in fact. *Des Cartes*, and from him Dr. *Wallis*, and moſt other Authors, account for this from the long Series of Objects interpoſed between the Eye and the Extremity of the ſenſible Horizon, which make us imagine it more remote than when in the Meridian, where the Eye ſees nothing in the way between the Object and itſelf. This Idea of a great diſtance, makes us imagine the *Moon* the bigger: For any Object being ſeen under any certain Angle, and believed, at the ſame time, very remote, we naturally judge it muſt be very large, to appear under ſuch an Angle at ſuch a diſtance. And thus a pure Judgment of the Soul makes us ſee the *Moon* bigger in the Horizon, than in the Meridian; notwithſtanding its Image painted on the Retina is leſs in the former Situation than the latter.

This Hypotheſis, F. *Gouye* deſtroys, by obſerving that the narrower and more confined the ſenſible Horizon is, the greater does the *Moon* appear; the contrary of which ſhould happen on the Principle laid down.

Gaſſendi is of opinion, that the Pupil of the Eye, which is always more open as the Place is more dark; being more ſo in the Morning and Evening than at other times, by reaſon the Earth is covered with groſs Vapours; and beſides, being obliged to paſs through a longer Column or Series of 'em, to reach the Horizon, the Image of the *Moon* enters the Eye at a greater Angle, and is really painted there greater.

In anſwer to which, it muſt be ſaid, that notwithſtanding this dilatation of the Pupil, occaſion'd by the Obſcurity; if the *Moon* be viewed through a little pin-hole made in a Paper, ſhe appears leſs when in the Horizon.

F. *Gouye* finding both the Conjectures falſe, advances a third: He is of opinion then, when the *Moon* is in the Horizon; the neighbourhood of the Earth, and the groſs Vapours wherewith the *Moon* then appears inveloped, have the ſame Effect, with regard to us, as a Wall, or other denſe Body placed behind a Column; which in that Caſe appears bigger than when inſulate, and incompaſſed on all ſides with an illumined Air. Further, it is obſerved that a Column when fluted, appears bigger than before, when it was plain; the Flutes being ſo many particular Objects, which by their Multitude occaſion the Mind to imagine the whole Object whereof they are compoſed of a larger extent. The ſame thing may be ſaid of the ſeveral Objects ſeen towards the Horizon, to which the *Moon* correſponds at her Riſing and Setting. And hence it is that ſhe appears greater ſtill, when ſhe riſes or ſets between Trees; the narrow, yet diſtinct Intervals whereof have the ſame Effect with regard to the apparent Diameter of the *Moon*, as a greater number of Flutes with regard to the Shaft of a Column.

For the Eclipſes of the Moon, see **Eclipses**.

For the Moon's *Parallax*, ſee **Parallax**.

To find the Moon's *Age.* To the Day of the Month add the Epact of the Year, and the Months from *March* incluſive. The Sum, if under 30; if over, the Exceſs is the *Moon*'s Age. If the Month have but 30 Days, the Exceſs above 29 is the *Moon*'s Age.

To find the *Time of the* Moon's *being in the Meridian*, or *Southing*: Multiply her Age, if under 15 Days, by 4; and divide the Product by 5; the Quotient gives the Hour, and the Remainder multiplied by 12, the Minute. If her Age exceed 15, ſubſtract 15, and proceed with the Remainder as before.

To find the *Time of the* Moon's *beginning to ſhine.* Multiply her Age, if under 15, by 48; and divide the Product by 60: the Quotient gives the Hours; and the Remainder the Minutes. If her Age be above 15 Days, ſubſtract the time thus found, from 24; the Remainder gives the time of ſhining in the Morning.

MOOR, Mora, a *Heath*, or barren Tract of Ground. See **Heath**.

It is ſometimes alſo uſed for a *Moraſs*, *Moſs*, or *Fen.* See **Morass**.

Mora Muſſa, in antient Writings, particularly denotes a Moſs, or Peat-Moſs.

MOORING, at Sea, is the laying out of Anchors, in a proper place, for the ſecure Riding of a Ship. See **Anchor**.

To *Moor a-croſs*, is to lay out one of the Anchors on one ſide, or a-thwart a River, and the other right againſt it.

To *Moor alongſt*, is to have an Anchor in a River, and a Hawſer on Shore.

To *Moor Quarter-ſhot*, is to moor Quartering, between the two firſt ways.

Mooring *for Eaſt*, *Weſt*, *&c.* is when they obſerve which way, and on what Point of the Compaſs the Wind or Sea is moſt likely to endanger the Ship, and there lay out an Anchor.

MOORS-HEAD, in Chymiſtry, a Copper-Cap made in form of a Head, to be ſet over the Chimney of a Reverberating Furnace. See **Reverberatory**.

Moors-Head is alſo the Head of a Copper or Glaſs-Still or Alembic, which is luted on to the Body or Cucurbit, and hath a Beak or Pipe to let the Spirit run down into the Receiver.

MOOT, a difficult Caſe, or Queſtion argued by the Students of Inns of Court, by way of Exerciſe. See **Mooting**.

The Word is formed either from the *Saxon*, *Mooting*, Aſſembly; or the *French*, *Mot*, Word.

MOOTING, the chief Exerciſe of the Students in the Inns of Court; being the arguing of Caſes, which young Utter Barriſters, *&c.* perform at appointed Times, the better to enable them for Practice, and the Defence of their Clients Cauſes. See INNS *of Court*.

Such, as from their Learning and Standing are call'd by the Benchers to argue *Moot Caſes*, are call'd *Utter Barriſters*; the reſt, who for want of Experience, *&c.* are not admitted, are call'd *Inner Barriſters*. See BARRISTER.

The Place where Moot Caſes were argued, was antiently call'd a *Moot-Hall*.

In the Inns of Court there is a *Bailiff*, or *Surveyor of the Moots*, yearly choſen by the Bench to appoint the *Moot-Men* for the Inns of *Chancery*, and to keep Account of Performance of Exerciſes, both there and in the Houſe.

MOOT-MEN are thoſe who argue *Moot-Caſes*. See MOOT.

Out of theſe *Moot-Men* are choſe Readers for the Inns of *Chancery*; where, in Term-time and in Vacations, they argue Caſes in the preſence of Attorneys and Clerks.

MORAL, any thing relating to the *Manners*, or the Conduct of Life. See MANNERS.

Thus, beſides the Theological Virtues, as *Faith*, *Hope*, *Charity*, *&c.* we ſay there are alſo *Moral* Virtues, as *Juſtice*, *Temperance*, *&c.* See VIRTUE.

MORAL *of a Fable*, is the Inſtruction drawn from it. See FABLE.

Thus when *Phædrus* at the end of a Fable adds, *Hoc illis dictum qui*, *&c.* that makes what we call the *Moral*. This, the *Greeks* call'd ἐπιμύθιον when at the end of the Fable, and προμύθιον at the beginning. The *Latins* call it *Affabulatio*.

MORAL *Senſe*, the Faculty whereby we diſcern, or perceive what is Good, Virtuous, Beautiful, *&c.* in Actions, Manners, Characters, *&c.*

A late Author has endeavoured to prove, that it is a peculiar Senſe whereby we get the Ideas of theſe Things; and denominate it a *Moral* Senſe. See *Moral* SENSE.

MORAL *Theology* is that which treats of Caſes of Conſcience; call'd alſo *Caſuiſtry*. See CASUISTRY.

MORAL *Certainty*, or Aſſurance, is uſed to ſignify a very ſtrong Probability; in contra-diſtinction to a Mathematical Demonſtration. See CERTAINTY.

MORAL *Impoſſibility*, is what we otherwiſe call a very great, and almoſt inſuperable Difficulty; in oppoſition to a Phyſical, or Natural Impoſſibility. See IMPOSSIBILITY.

MORAL *Philoſophy*, a Science whoſe Object is to direct, and form our Manners; to explain the Reaſon, and Nature of Actions; and to teach and inſtruct us how to acquire that Felicity or Happineſs which is agreeable to human Nature. See PHILOSOPHY.

Moral Philoſophy is the ſame with what we otherwiſe call *Ethics*. See ETHICS.

MORAL *Actions*, or Acts, are ſuch as render the Rational or Free Agent *Good* or *Evil*; and, conſequently, Rewardable and Puniſhable becauſe he doth them. See GOOD, *&c.*

MORALITY is a Conformity to thoſe unalterable Obligations which reſult from the nature of our Exiſtence, and the neceſſary Relations of Life; whether to God as our Creator, or Mankind as our Fellow-Creature.

MORASSE, a *Marſh*, *Fen*, or low moiſt Grounds, which drain the Waters from above, without having any deſcent to carry them off again.

Somner derives the Word from the *Saxon Merſe*: *Salmaſius* from *Mare*, a Collection of Waters; others from the *German Maraſt*, a muddy Place; and others from *Mareſe*, of *Maricetum*, *à Mariſcis*, *i. e.* Ruſhes.

In *Scotland*, *Ireland*, and the North of *England*, they have a peculiar kind of *Moraſſes*, call'd *Moſſes*, or *Peat-Moſſes*, whence the Country-People dig their Peat or Turf. See TURF.

The Earl of *Cromartie* gives a particular Account of theſe Moſſes in the *Philoſoph. Tranſact.* They are cover'd with a heathy Scurf, under which is a black, moiſt, ſpongy Earth, in ſome Places ſhallower, in others deeper, ordinarily from three or four to ſeven or eight Feet depth, tho' in ſome few Places twice or thrice as much.

This black, ſpungy Earth they cut into oblong Squares with Iron Spades fitted to that end, eight or nine Inches long, and four or five broad; as the Men cut 'em up, they are carried and ſpread on a dry Ground, to be dried in the Wind and Sun. Some of theſe become harder, ſome ſofter, according to the nature of the Mold or Earth: The more black and ſolid, the better Fire; and they are the leaſt eſteemed which are greyeſt, the lighteſt, and moſt ſpungy.

When they have cut off one Surface of four or five Inches deep, they proceed downwards to another, and ſo to a third and a fourth, till they come to the hard Channel, unleſs they be ſtop'd with Water, which they alſo ordinarily remove by making a Channel, if they can; but where they cannot, there the Water ſtagnates. In ſuch waſted Pits, or Peat-Dikes, as they call 'em, where Water hinders the cutting the ſpungy Earth to the Bottom, the Pits will be fill'd up again in ſome Years with new ſpungy Earth; which in proceſs of Time comes to the conſiſtence of Peat-Moſs as at firſt, and a ſcurfy Heath-Turf grows over the Top of it. When the Dikes are dug down to the hard Channel, the Moſſes don't renew, as in the other Caſe; tho' it has been obſerv'd, that if they be cut down to the Channel, provided the Heathy-Turf cut off from the Top be but laid on the Channel, in courſe of Time the Moſs grows again.

Theſe Moſſes always ſtand on Plains; tho' they are frequently found on Hills, and near the Top of 'em too. Yet, as that curious Nobleman obſerves, the Moſſes have always a deſcent to 'em, and generally from 'em; inſomuch that he never knew any, where the Water might ſtagnate. 'Tis the Water draining from above that ſeems to be the Parent of Peat. In many of theſe Moſſes are found Quantities of Fir and Oak Wood, uſually in whole Trees; for the ſmaller Branches are ſeldom found unconſum'd. This Wood is as good for uſe as any old Wood is; only that having imbibed a deal of Moiſture, it takes ſome time to dry, in order to fit it for uſe.

There are many Places, where Wood will not grow, where yet the Moſſes are well ſtock'd with theſe Under-ground Timber; but yet it appears there muſt have been Woods formerly: Elſe how come they in the Moſſes? To prove this, that Noble Lord gives us the Hiſtory and Origin of a Moſs, in great meaſure from his own Experience. In the Pariſh of *Lochbrun*, in the Year 1651, he ſaw, near the Top of a very high Hill, a Plain about a Mile over, then cover'd with a firm ſtanding Wood, but which was ſo very old, that not only the Trees had no Leaves or Bark on, but the outſide for the ſpace of an Inch inward was dead, white Timber, tho' within they were firm. Coming by the ſame Place 15 Years after, he could not diſcover the leaſt Appearance of a Tree, but inſtead thereof a plain green Ground cover'd with a Moſs; the Trees being all fallen, and having lain ſo thick over one another, the Green had over-run the whole Timber, by means of the Moiſture draining from the Hill above it, and ſtagnating on the Plain. He adds, that none could paſs over it; the Scurf not being firm enough to ſupport 'em. In thirty Years more he found the whole Piece of Ground turn'd into a common *Peat-Moſs*, and the Country-People digging Turf and Peats.

This accounts for the Generation of Moſſes, and whence it is that many of them are furniſh'd with Timber.

MORATUR, or DEMORATUR, in Law, ſignifies as much as *he Demurs*; by reaſon the Party here goes not forward, but reſts, or abides upon the Judgment of the Court, who take time to deliberate, argue, and adviſe thereon. See DEMURRER.

When the Council of the Party are of opinion, that the Count or Plea of the adverſe Party is inſufficient in Law; then he *Demurs*, or abides in Law, and refers the ſame to the Judgment of the Court.

MORBID, MORBIDUS, in Medicine, is apply'd to ſignify thoſe Parts, Humours, *&c.* wherein a *Diſeaſe* lies. See DISEASE.

MORBID, in Painting, is particularly apply'd to fat Fleſh very ſtrongly expreſſed.

MORBILLI, in Medicine, a Diſeaſe popularly call'd the *Meaſles*. See MEASLES.

MORBUS, a Term purely *Latin*, ſignifying *Diſeaſe*. See DISEASE.

MORBUS *Comitialis*, is the *Epilepſy*; thus call'd by the *Romans*, becauſe when in any of their public Aſſemblies Perſons fell down with this Diſtemper, they immediately broke up, and diſſolved the *Comitia*, which was the common Appellation for ſuch Courts. See EPILEPSY.

Morbus Regius,	See	JAUNDICE.
Morbus Virgineus,	See	CHLOROSIS.
Morbus Gallicus,	See	VENEREAL *Diſeaſe*.

MORISCO, or MORISK, a kind of Painting, Carving, *&c.* done after the Manner of the *Moors*; conſiſting of ſeveral Groteſque Pieces and Compartiments promiſcuouſly intermingled, not containing any perfect Figure of a Man, or other Animal, but a wild Reſemblance of Birds, Beaſts, Trees, *&c.* See GROTESK.

Theſe are alſo call'd *Arabeſques*, and are particularly uſed in Embroideries, Damask-Work, *&c.* See ARABESK.

Moreſque Dances, vulgarly call'd *Morrice-Dances*, are thoſe altogether in imitation of the *Moors*, as *Sarabands*, *Chacons*, *&c.* which are uſually performed with Caſtagnets, Tabours, *&c.* See CASTAGNETTAS.

MORNING, the beginning of the Day; or the Time of the Sun-riſing. See DAY and RISING.

The Aſtronomers reckon *Morning*, *Mane*, from the time of Mid-night, to that of Mid-day. Thus an Eclipſe is ſaid to begin at 11 a clock in the *Morning*, *&c.*

MORNING-*Star* is the Planet *Venus*, when a little to the Eaſtward of the Sun; that is, when ſhe riſes a little before him. In this Situation ſhe is call'd by the *Greeks Phoſphorus*; by the *Latins Lucifer*, &c. See PHOSPHORUS.

MORNING *Twilight*, ſee CREPUSCULUM.

MORPHEW, is that Freckle or Scurf which breaks out ſometimes upon the Skin, particularly about the Forehead. See FRECKLES.

MORSELLI, and MORSULI, antient Names for thoſe Forms of Medicines which were to be chew'd in the Mouth, as a *Lozenge*; the Word ſignifying a little Mouthful. See LOZENGE.

MORSUS *Diaboli*, Devil's Bit; a Plant which ſeems to have a fringe around its Leaves, is thus call'd.

From a likeneſs hereto, has the Edge or Selvidge of the *Tubæ Fallopianæ*, obtain'd the ſame Appellation. See FALLOPIAN.

MORSUS *Canis rabidi*, } See { HYDROPHOBIA.
MORSUS *Viperæ*, } See { VIPER.

MORT *d'Anceſtre*, in Law, ſee ASSIZE *of Mort d'Anceſtre.*

MORTALITY, a Term frequently uſed to ſignify a contagious Diſeaſe, which deſtroys great Numbers either of Men, or Beaſts.

Bills of MORTALITY, are Weekly Liſts compiled by the Pariſh-Clerks in and about *London*, containing the Numbers of ſuch as die of each Diſeaſe, as well as of thoſe that are born every Week.

The Bills are of ſome ſtanding in *England*, in imitation whereof they are now eſtabliſhed at *Paris*. They are very uſeful on ſeveral accounts, particularly in judging of the *Mortality* of any Diſeaſe, and whether an Epidemic or Infectious Diſtemper increaſes or abates.

Mr. *Graunt*, who examin'd thoſe of *London* very accurately, has wrote an expreſs Treatiſe of 'em. Among other things, he calculates from 'em, that of 100 Perſons who are born in the ſame Week, there are but 64 left at the end of ſix Years; but 40 at the end of ſixteen Years; at the end of twenty ſix Years, but 25; and the end of thirty ſix Years, but 16; at the end of forty ſix Years, but 10; at the end of fifty ſix, no more than ſix; at the end of ſixty ſix Years, but 3; at the end of ſeventy ſix, but 1; and at the end of eighty Years, they are reduced to none.

He likewiſe makes it appear, that in *England* in general, more are born than die; but in *London*, more die than are born: The Proportion of Births to Burials, in the former, being as 1 $\frac{1}{12}$ to one; in the latter as $\frac{1}{30}$ to one. Thus alſo Cities and Market-Towns are found to bury 1. $\frac{7}{100}$ to 1 Birth. But in *Paris* they outdo *London*; their deaths being 1$\frac{1}{2}$ to 1 Birth. In the Villages of *England*, fewer die than are born; there being but one death to 1. $\frac{17}{100}$ Births. See MARRIAGE.

MORTAR, or MORTER, in Architecture, is a Preparation of Lime, Sand, &c. mixed up with Water; ſerving, as a Cement, to bind the Stones, &c. of a Building. See BUILDING, CEMENT, &c.

The Antients had a kind of *Mortar* ſo very hard and binding, that, after ſo long a Duration, 'tis next to impoſſible to ſeparate the Parts of ſome of their Buildings; tho' there are ſome who aſcribe that exceſſive Strength to Time, and the Influences of certain Properties in the Air, which is found to harden ſome Bodies very ſurprizingly.

De Lorme obſerves, that the beſt *Mortar* is that made of *Puzzuoli*; adding, that it penetrates black Flints, and turns 'em white.

The Lime uſed in the antient *Mortar* is ſaid to be burnt from the hardeſt Stones, and even Fragments of Marble. See LIME.

Mr. *Worledge* obſerves, that fine Duſt makes weak *Mortar*; and the rounder the Sand, the ſtronger the *Mortar*. He therefore adviſes the Sand to be waſhed e'er mixed; and adds, that dirty Water weakens the *Mortar* conſiderably. See SAND.

The Proportion of Lime and Sand in our common *Mortar* is extremely variable. *Vitruvius* preſcribes three parts of Pit-Sand and two of River-Sand to one of Lime; but the Sand here ſeems to be over-doſed. About *London*, the Proportion of Sand to quick Lime is as 36 to 25. In ſome Parts they uſe equal Quantities of each.

Wolfius obſerves, that the Sand ſhould be dry and ſharp, ſo as to prick the Hands when rubbed; yet not earthy, ſo as to foul the Water it is waſh'd in.

Vitruvius obſerves, that Foſſil-Sands dry ſooner than thoſe taken out of Rivers. Whence, he adds, the latter is fitteſt for the Inſides, the former for the Outſides of a Building. He ſubjoins, that Foſſil-Sand lying long in the Air, becomes earthy. *Palladio* takes notice, that of all Sands white ones are the worſt; the reaſon is owing to their want of Aſperity.

Mixing and blending of MORTAR;

M. *Felibien* obſerves that the Antient Maſons were ſo very ſcrupulous herein, that the *Greeks* kept ten Men conſtantly employ'd for a long ſpace of time, to each Baſon, which render'd it of ſuch prodigious Hardneſs, that *Vitruvius* tells us the Pieces of Plaiſter falling off from old Walls ſerved to make Tables. *Felibien* adds, it is a Maxim among old Maſons to their Labourers, that they ſhould dilute with the Sweat of their Brow, *i. e.* labour it a long time, inſtead of drowning it with Water, to have done the ſooner.

Beſides the common *Mortar* uſed in laying of Stones, Bricks, &c. there are ſeveral other kinds. As,

White MORTAR, uſed in Plaiſtering the Walls and Ceilings; made of Ox-Hair mixed with Lime and Water, without any Sand. See PLAISTER.

The MORTAR uſed in making of Water-Courſes, Ciſterns, &c. is very hard and durable, made of Lime and Hog's-Greaſe, ſometimes mix'd with the Juice of Figs, and ſometimes with liquid Pitch: after Application it is waſhed over with Linſeed-Oil. See CISTERN.

MORTAR *for Furnaces*, &c. is made with red Clay wrought in Water, wherein Horſe-Dung and Chimney-Soot has been ſteep'd. See FURNACE.

MORTAR *for Sun-Dials* on Walls may be made of Lime and Sand temper'd with Linſeed Oil; or, for want of that, with ſcumm'd Milk. This will grow to the Hardneſs of a Stone.

In Buildings, one part of waſh'd Soap-Aſhes mixed with another of Lime and Sand, make a very durable *Mortar*.

MORTAR, or MORTIER, a Badge, or Enſign of Dignity bore by the Chancellors, and Great Preſidents of the Parliaments of *France*.

It conſiſts of a Piece of Velvet edged with a Gold-Lace. They formerly bore it on their Head, but now in their Hands.

Hence they are call'd *Preſidents a Mortier*.

MORTAR-PIECE, a ſhort Piece of Ordnance, very thick and wide, proper for the Carriage of Bombs, Carcaſſes, Shells, Stones, &c. See ORDNANCE, BOMB, CARCASS, &c.

There are two kinds of *Mortars*; the one hung, or mounted on a Carriage with low Wheels, after the manner of Guns, call'd *Pendent* or *Hanging Mortars*: The other fixed on an immoveable Baſe, call'd *Standing Mortars.*

At the head of the Bore, or Chaſe of the *Mortar*, is the *Chamber*, for the Charge of Powder. This is uſually made Cylindrical, all but the Baſe, which they make Hemiſpherical: Tho' ſome of the later Engineers prefer Spherical Chambers; as the Surface of thoſe being leſs, under equal Capacities, make leſs Reſiſtance to the Gun-Powder. See CHAMBER.

The Thickneſs of the *Mortar* about the Chamber is to be much greater than about the Chaſe; by reaſon the Gun-Powder makes a much greater Effort about the Chamber than elſewhere. The Diameter of the Chamber to be much leſs than that of the Bore; by reaſon Bombs, Shells, &c. are much lighter than Bullets of equal Diameters; and, conſequently, leſs Powder ſuffices. See BULLET.

To *charge*, or *load a Mortar*, the proper Quantity of Gun-Powder is put into the Chamber; and if there be any vacant ſpace, they fill it up with Hay; ſome chuſe a wooden Plug. Over this they lay a Turf; ſome a wooden Tampian fitted to the Bore of the Piece; and laſtly the Bomb, taking care that the Fuſee be in the Axis thereof, and the Orifice be turn'd from the Muzzle of the Piece. What remains, is to be fill'd up with Hay, Straw, Turf, &c. ſo as the Load may not be exploded without the utmoſt Violence. See CHARGE.

The Quantity of Gun-Powder to be uſed, is found by dividing the Weight of the Bomb by 30. Tho' this Rule is not always to be ſtrictly obſerved. See GUN-POWDER.

To *elevate* the *Mortar*, ſo as its Axis may make any given Angle with the Horizon; they apply the Artillery-Level, or Gunner's Quadrant; the uſe whereof ſee under the Articles LEVEL and QUADRANT.

An Elevation of 70 or 80 Degrees is what is commonly choſe for rendring *Mortars* moſt ſerviceable in caſting Shells into Towns, Forts, &c, tho' the greateſt Range be at 45°. See RANGE.

If all *Mortar-Pieces* were, as they ought to be, exactly Similar, and their Requiſites of Powder as the Cubes of the Diameters of their ſeveral Bores; and if their Shells, Bombs, Carcaſſes, &c. were alſo Similar, then, comparing like with like, their Ranges on the Plane of the Horizon, under the ſame Degree of Elevation, would be equal; and, conſequently, one Piece being well proved, *i. e.* the Range of the Granado, Bomb, Carcaſs, &c. being found to any Degree of Elevation, the whole Work of the *Mortar-Piece* would become very eaſy, and exact.

But ſince *Mortars* are not thus Similar, 'tis required that the Range of the Piece at ſome known Degree of Elevation be accurately found by meaſuring; and from hence all the other Ranges may be determined.

Thus, to find the Range of the Piece at any other Elevation required; ſay, as the Sine of double the Angle under which the Experiment was made, is to the Sine of double the Angle propoſed, ſo is the Range known to the Range required.

Suppoſe, for inſtance, 'tis found that the Range of a Piece elevated to 30 Degrees is 2000 Yards; to find the Range of the ſame Piece with the ſame Charge when elevated to 45 Degrees: Take the Sine of 60°, the double of 30°, and make it the firſt Term of the *Rule of Three*; the ſecond Term muſt be the Sine of 90°, the double of 45°; and the third the given Range 2000: The fourth Term will be 2310, the Range of the Piece at 45°. If the Elevation be greater than 45°, inſtead of doubling it, take the Sine of double its Complement to 90°. As ſuppoſe the Elevation of a Piece be 50°. take the Sine of 80°, the double of 40°.

Again, if a determinate Diſtance to which a Shot is to be caſt, be given, and the Angle of Elevation to produce that Effect be required; the Range known muſt be the firſt Term in the *Rule of Three*, which ſuppoſe 2000 Yards; The Range propoſed, which we ſuppoſe 1600 Yards, the ſecond Term; and the Sine of 60 double of the Elevation for the Range of 2000 Yards, the third Term. The fourth Term will be found the Sine of 43°, 52′, whoſe half 21°, 55′, is the Angle of Elevation the Piece muſt have, to produce the deſired Effect. And if 21°, 55′ be taken from 90°, you will have 68°, 4′ for the other Elevation of the Piece, with which the ſame Effect will likewiſe be produced.

For the greater Eaſe, and to avoid the trouble of finding Sines of double the Angles of propoſed Elevations, *Galilæo* and *Torricelli* give us the following Table, wherein the Sines of the Angles ſought are had by inſpection.

A TABLE of Sines for the Ranges of MORTARS.

Degrees.	Degrees.	Ranges.	Degrees.	Degrees.	Ranges.
90	0	0	0	0	0
89	1	349	66	24	7431
88	2	698	65	25	7660
87	3	1045	64	26	7880
86	4	1392	63	27	8090
85	5	1736	62	28	8290
84	6	2709	61	29	8480
83	7	2419	60	30	8660
82	8	2556	59	31	8829
81	9	3090	58	32	8988
80	10	3420	57	33	9135
79	11	3746	56	34	9272
78	12	4067	55	35	9397
77	13	4384	54	36	9511
76	14	4695	53	37	9613
75	15	5000	52	38	9703
74	16	5299	51	39	9781
73	17	5592	50	40	9841
72	18	5870	49	41	9903
71	19	6157	48	42	9945
70	20	6428	47	43	9976
69	21	6691	46	44	9994
68	22	6947	45	45	10000
67	23	7193			

The Uſe of this Table is obvious. Suppoſe, for Inſtance, it be known by Experiment that a *Mortar* elevated 15°, charged with three Pounds of Powder, throw a Bomb to the Diſtance of 350 Fathom; and it be required, with the ſame Charge, to throw a Bomb 100 Fathom farther: Seek in the Table the Number anſwering to 15 Degrees, and you will find it 5000. Then as 350 is to 450, ſo is 5000 to a fourth Number, which is 6428. Find this Number, or that neareſt it, in the Table, and againſt it you will find 20°, or 70°; the Angles of Elevation.

For the Weight, Dimenſions, *&c.* of the Bombs, *&c.* to be caſt out of *Mortars*, and the Lines of the Projection; ſee BOMB, PROJECTILE, *&c.*

MORTGAGE, in our Law, is the ſame with *Hypotheca* in the Civil Law, *viz.* an Obligation, whereby Land or Tenement of the Debtor, are pawned or bound over to the Creditor for Money or other Effects borrow'd; peremptorily to be the Creditor's for ever, if the Money be not paid at the Day agreed on.

The Creditor holding ſuch Land, on ſuch Agreement, is in the mean time call'd *Tenant in Mortgage.*

Glanvile defines *Mortgage, Mortuum Vadium,* to be that *cujus fructus vel reditus interim percepti in nullo ſe acquietant.* Thus 'tis call'd *Mortgage*, i. e. *dead Gage*, of *Mort*, Death, and *Gage*, Pledge; becauſe whatever Profit it yields, yet it redeems not itſelf by yielding ſuch Profit, except the whole Sum borrow'd be likewiſe paid at the Day; the *Mortgager* being by Covenant to receive the Profits till default of Payment. Others hold it call'd *Mortgage*, becauſe if the Money be not paid at the Day, the Land *moritur*, dies, to the Debtor, and is forfeited to the Creditor.

He who lays this Pawn or Gage, is call'd the *Mortgager*, and he that takes it the *Mortgagee.*

This, if it contain exceſſive Uſury, is prohibited by a Statute 37 *Henry* VIII.

The *French* ſometimes uſe the Word in the ſame ſenſe in their Language, where it ſtands in Contradiſtinction to a ſimple Contract, which does not carry with it the mean Profits, and which they call *Vif-gage*, Live-pledge.

As a *Mortgage* is an Engagement for the Security of the Creditor, all means have been taken to aſſure him of the Effect; that of the Pawn or Pledge, ſeems to have been the moſt antient, being in reality the ſame thing, all the difference conſiſts in this, that in a *Mortgage* the Pawn was put into the hands of the Creditor; whereas in a ſimple Engagement, the Thing remained in the hands of the Debtor. But it was afterwards found much more commodious to engage an Inheritance by a ſimple Convention, than by an actual Delivery.

Accordingly, this was practiſed by the *Greeks*, and from them borrow'd by the *Romans*; who, the better to prevent Deceits, fixed up viſible Marks to inform the Public, that the Eſtate was engaged by the Proprietor: Tho theſe Marks were found ſo injurious to the Debtors, that the Uſe of 'em was at length prohibited.

The *Romans* had four Kinds of *Mortgages*, or *Hypothecæ.* The *Conventional*, which proceeds from the Will and Conſent of the Contracters; the *Legal*, which is introduced by the Law, and which is therefore call'd *Tacit.* The *Mortgage of the Prætor*, when by the Flight or Refuſal of the Debtor, the Creditor was put in poſſeſſion of his Effects. And the *Judiciary Mortgage*, when the Creditor was put in poſſeſſion, in conſequence of a Decree or Sentence. The Civil Lawyers diſtinguiſh twenty-ſix different Kinds of *Tacit Mortgages.*

MORTIFICATION, in Medicine, *&c.* a Diſeaſe, wherein, the natural Juices of any part quite loſe their proper Motions; and by that means fall into a fermentative one, and corrupt and deſtroy the Texture of the Part.

There are two Species, or rather Degrees of *Mortification*: The one call'd a *Gangrene*, which is a *Mortification* in its firſt, or beginning State: The other a *Sphacelus*, which is a perfect, or finiſh'd *Mortification.* See GANGRENE and SPHACELUS.

MORTMAIN, a Term in Law, ſignifying an Alienation of Lands and Tenements to any Guild, Corporation, or Fraternity, and their Succeſſors; as Biſhops, Parſons, Vicars, *&c.* See ALIENATION.

Such Alienation may not be done without the King's Licence; and that of the Lord of the Mannor; or of the King alone, if it be immediately holden of him.

The Preſidents and Governours of the Hoſpitals may, without Licence in *Mortmain*, purchaſe Land, *&c.* not exceeding the yearly Value of 3000 *l.* Stat. 14. *Car.* 2.

The Word literally denotes *Dead-Hand*, being a Compound of *Mort*, dead, and *Main*, Hand.

Thus *Hottoman de Verb. Feudal.* ſays, *Manus mortua locutio eſt quæ uſurpatur de iis quorum poſſeſſio, ut ita dicam Immortalis eſt, quia nunquam hæredem habere deſinent. Qua de cauſa res nunquam ad priorem Dominum revertitur. Nam* Manus *pro poſſeſſione dicitur,* Mortua *per Antiphraſin pro Immortali, &c.*

The Reaſon of the Name proceeds from this, that the Services and other Profits due for ſuch Lands, ſhould not, without ſuch Licence, come into a dead Hand, (*Mainmort,*) *i. e.* into a Hand as it were dead, that is, ſo dedicated to God, or pious Uſes, as to be different from other Lands, Tenements, or Hereditaments, and never to revert to the Donor, or any temporal or common Uſe. *Hottoman* defines *Mort-main* to be the Poſſeſſion of thoſe who are, as it were, immortal, becauſe they never ceaſed to have Heirs; ſo that the Eſtate never reverts to its firſt Lord. *Main*, Hand, being uſed for Poſſeſſion; and *Mort*, Deed, by Antiphraſis, for immortal.

MORTOISE, or MORTISE, in Carpentry, *&c.* a kind of Joint, wherein a Hole or Inciſion, of a certain Depth, is made in the Thickneſs of a Piece of Wood, which is to receive another Piece, call'd a *Tenon.* See TENON.

The Word is originally *French.* *Borel* derives it from *mordere*, to bite.

MORTUARY, is a Gift left by a Man at his Death to his Pariſh-Church, for a Recompence of his Perſonal Tithes and Offerings, not duly paid in his Life-time. It is not properly and originally due to an Incumbent from any but thoſe of his own Pariſh: But, by Cuſtom, in ſome Places of the Kingdom, it is paid to the Parſons of other Pariſhes, as the Corps paſſes thro them.

MOSAIC, MOSAIC *Work*, or, as ſome chuſe to call it, MUSAIC, from the *Latin Opus Muſivum*; an Aſſemblage of little Pieces of Glaſs, Marble, precious Stones, *&c.* of various Colours, cut ſquare and cemented on a Ground of Stuc, *&c.* imitating the natural Colours and Degradations of Painting. See PAINTING.

In this ſenſe *Moſaic Work* includes *Marquetry*, or *Inlaid Work*, *Vaneering*, *&c.* But in the reſtrain'd ſenſe of the Word, it only takes in Works of Stone, Metals and Glaſs; thoſe of Wood being diſtinguiſh'd by the Name of *Marquetry* or *Inlaying*.

Others diſtinguiſh otherwiſe between *Moſaic*, and *Marquetry*. In that properly call'd *Moſaic*, the ſeveral Stones are all of the ſame Colour; and the Changes, and Diminutions of Colours, and Shades, are made by applying different Stones one on another, but all of the ſame Colour. *Marquetry*, on the contrary, conſiſts of Stones of different Colours; and by theſe the ſeveral Colours, Shades, Degradations, *&c.* are expreſs'd.

The Critics are divided as to the Origin and Reaſon of the Name *Moſaic*. Some derive it from *Moſaicum*, a Corruption of *Muſaicum*, as that is of *Muſivum*, as it was call'd among the *Romans*. *Scaliger* derives it from the *Greek* μȣ̃σαν, and imagines the Name was given to this ſort of Works, as being very fine, and ingenious. *Nebricenſis* is of opinion they were ſo call'd, becauſe *ex illis Picturis ornabantur Muſea*.

Moſaic ſeems to have taken its Origin from *Paving*: The fine Effect and Uſe of Pavements, compoſed of Pieces of Marble of different Colours ſo well join'd together, as that when dry'd they might be poliſh'd, and the whole make a very beautiful and ſolid Body, which continually trodden upon, and waſhed with Water, was not at all damaged; gave the Painter the hint; who ſoon carry'd the Art to a much greater Perfection: ſo as to repreſent Foliages, Maſques, and other Groteſque Pieces of various Colours, on a Ground of black or white Marble. In fine, obſerving the good Effect which this kind of Work had in Pavements, and finding that it reſiſted Water, they proceeded to line Walls therewith, and to make various Figures for the Ornament of their Temples and public Buildings.

But Nature not producing Variety of Colours enough for 'em in Marbles, to paint all kinds of Objects, they bethought of counterfeiting 'em with Glaſs and Metal Colours; which ſucceeded ſo well with 'em, that having given all manner of Teints to an infinite number of little Pieces of theſe two Matters, to counterfeit Stones of various Colours, in order to get more Colours; the Workmen arranged 'em with ſo much Art, that their *Moſaic* ſeem'd almoſt to diſpute with Paintings. This way of repreſenting Objects having this advantage, that it reſiſts the Injuries of the Air as well as Marble itſelf; and even grows more beautiful with Time, which effaces all other kind of Painting.

But the Moderns are gone further, and ſetting aſide Glaſs and Metals, as too mean Materials, have introduced, along with the fineſt Marbles, the richeſt of precious Stones, as Lapis, Agat, Cornelians, Emeralds, Turquoiſes, *&c.*

Of theſe three Kinds of *Moſaic*-Work, that of colour'd Glaſs and Metals is now little in uſe, tho of a ſurprizing Luſtre and Durableneſs: of the other two, that of Marbles alone is in common Uſe; the *Moſaic* of precious Stone being ſo very dear, that the few Workmen who apply themſelves to it, make little elſe but petty Works, as Ornaments for Altar-Pieces, Tables for rich Cabinets, *&c.* Tho out of theſe muſt be excepted that ſumptuous Chapel of the Dukes of *Tuſcany*, which has been ſo long in hand, and which, if ever it be finiſh'd, will be a noble Monument of the Magnificence and Piety of thoſe Princes, as well as of the Patience and Addreſs of the Workmen employ'd therein.

We ſhall however enter into ſome Detail of the Manner of working in thoſe three Kinds of *Moſaic*; to which we ſhall add a fourth much newer, yet equally ingenious with any of the reſt, made with a kind of *Gypſum* or Talc, found in Stone-Quarries about *Paris*.

MOSAIC *Work of Glaſs.*

This Kind of *Moſaic* they begin with little Pieces of Glaſs, which they provide of as many different Colours as poſſible. To this end, the Glaſſmen's Furnaces being diſpoſed, and their Pots or Crucibles full of the Matter of which Glaſs is made, or rather of Glaſs already made, they put what Colour or Dye they think fit in each Crucible, always beginning with the weakeſt, and augmenting the Strength of the Colours from Crucible to Crucible, till they come to the deepeſt Die, as in mixing of Colours on a Palette to paint in Oil. When the Glaſs is well boil'd, and all the Colours in their perfection, they take out the Glaſs hot, as it is, and lay it on a ſmooth Marble, flatting it down with another like Marble, and then cutting it into Slices of equal bigneſs, and about the thickneſs of an Inch and half. They then with an Inſtrument, which the *Italians* call *Bocca di Cane*, make other Pieces ſquare, and others of different Figures and Sizes, as occaſion requires; theſe they diſpoſe orderly in Caſes; as in Painting *in Freſco*, 'tis uſual to range all the different Teints in Shells, and according to their Colour.

If 'tis deſir'd to have Gold, either in the Ground of the Painting, or in the Ornaments, or the Draperies, they take ſome of the Pieces of Glaſs, form'd and cut in the manner juſt mention'd. Theſe they moiſten on one ſide with Gum-Water, and afterwards lay 'em over with Gold-Leaf. They then put this Piece, or ſeveral Pieces at a time, on a Fire-ſhovel, which they place in the mouth of the Furnace; after having firſt cover'd them with another hollow Piece of Glaſs. Here they continue till ſuch time as they become red-hot; after which the Shovel is drawn out; all at once, and the Gold becomes ſo firmly attach'd to the Glaſs, that it will never afterwards leave it.

Now, to apply theſe ſeveral Pieces, and out of 'em to form a Picture, they firſt make a Cartoon, or Deſign; this they transfer on the Ground or Plaiſter, by calquing, as in Painting in Freſco. See FRESCO.

As this Plaiſter is to be laid thick on the Wall, it will continue freſh and ſoft a conſiderable time, ſo that there may be enough prepar'd at once to ſerve three or four days. It is compos'd of Lime made of hard Stone, with Brick-duſt very fine, Gum-Tragacanth, and Whites of Eggs; when it is thus prepar'd, and laid on the Wall, and made the Deſign of what is to be repreſented, with Plyers they take out the little Pieces of Glaſs, ranging 'em one after another, and ſtill keeping ſtrictly to the light Shadow, different Teints and Colours repreſented in the Deſign before; preſſing or flatting 'em down with a Ruler, which ſerves both to ſink 'em within the Ground, and to render the Surface even.

Thus, in a long time, and with an infinite deal of trouble, they finiſh the Work, which is ſtill the more beautiful, as the Pieces of Glaſs are more uniform, and rang'd at more equal heights. Some of theſe are executed with ſo much Juſtneſs, that they appear as ſmooth as a Table of Marble, and as finiſh'd and maſterly as a Painting in Freſco; with this advantage, that they have a fine Luſtre, and will hold almoſt for ever.

The fineſt Works of this kind, that have deſcended to us, and thoſe whereon the Moderns have retriev'd the Art, almoſt loſt, are thoſe of the Church of St. *Agnes*, formerly the Temple of *Bacchus* at *Rome*; at *Piſa*, *Florence*, and other Cities of *Italy*. The moſt eſteem'd among the Works of the Moderns, are thoſe of *Joſeph Pine*, and the Chevalier *Lanfranc*, in the Church of St. *Peter* at *Rome*. There are very good ones likewiſe at *Venice*.

MOSAIC *Work of Marble, and precious Stones.*

Theſe two Kinds of *Moſaics* bear ſo near a relation to each other, as to the Manner of Working, that to avoid Repetition, we ſhall give 'em both under one; obſerving, by the way, wherein the one differs from the other, either in the ſawing or the ranging of the Stones.

Moſaic of Marble is uſed in large Works, as in Pavements of Churches, Baſilics, and Palaces; and in the Incruſtation and Vaneering of the Walls of the ſame Edifices. As to that of Stones, eſpecially *precious Stones*, 'tis only uſed in ſmall Works, as before obſerv'd.

The Ground of *Moſaic* Works wholly Marble, is ordinarily a maſſive Marble, either white or black. On this Ground the Deſign is cut with a Chiſſel, having been firſt calqued. When 'tis dug of a ſufficient Depth, *i. e.* an Inch or more, 'tis fill'd up with Marble of a proper Colour, firſt contourn'd, or faſhion'd to the Deſign, and reduc'd to the Thickneſs of the Indentures, with various Inſtruments. To make the Pieces, thus inſerted into the Indentures, hold, whoſe ſeveral Colours are to imitate thoſe of the Deſign, they uſe a Stuc, compos'd of Lime and Marble Duſt; or a Maſtic, which each Workman prepares differently: after which, the Work is half poliſh'd with a ſoft kind of Stone.

The Figures thus mark'd out, the Painter, or Sculptor himſelf draws, with a Pencil, the Colours of the Figures not determin'd by the Ground, and in the ſame manner makes Strokes or Hatchings, in the Places where Shadows are to be; and when he has engrav'd with the Chiſſel all the Strokes thus drawn, he fills them up with a black Maſtic, compos'd partly of *Burgundy*-Pitch, pour'd on hot; taking off, afterwards, what is ſuperfluous, with a piece of ſoft Stone or Brick, which with Water and beaten Cement, takes away the Maſtic, poliſhes the Marble, and renders the whole ſo even, one would imagine it only conſiſted of one Piece: 'Tis this kind of *Moſaic* we ſee in the pompous Church of the Invalids at *Paris*, and the fine Chapel at *Verſailles*; and wherewith ſome entire Apartments of that Palace are incruſtated.

For Moſaic Work of precious Stones; there are required other and more delicate Inſtruments than thoſe uſed in Marble; as Wheels, Drills, Tin-Plates, *&c.* uſed by Lapidaries, and Engravers on Stone.

As none but the richeſt Marbles and Stones enter this Work, to make 'em go the further, they are ſawn into the thinneſt Leaves imaginable, ſcarce exceeding half a Line in Thickneſs; the Block to be ſaw'd, is faſten'd firmly with Cords, on the Bench, only rais'd a little on a piece of Wood, one or two Inches high. Two Iron Pins, which are on one ſide the Block, and which ſerve to faſten it, ſerve alſo to direct the Saw, which with Pieces thus ſaw'd, are put into a Vice contrived for the purpoſe; and with a kind of Saw or Bow made of fine Braſs Wire, bent on a Piece of ſpringy Wood, together with Emery ſteep'd in Water, the Leaf is gradually faſhion'd, by following the Strokes of the Deſign made on Paper, and glued on the Piece. See **Marquetry.**

When there are Pieces enough faſten'd to form an entire Flower, or ſome other Part of the Deſign, they are apply'd. The Ground that ſupports this *Moſaic*, is uſually of Free Stone. The Matter wherewith the Stones are join'd together, is a Maſtic, or kind of Stuc, laid very thin on the Leaves as they are faſhion'd; and the Leaves in this State, apply'd with Plyers. If any Contour, or Side of a Leaf, be not either rounded enough, or ſquared enough, to fit the Place where it is to be uſed, when 'tis too large, 'tis brought down with a Braſs File or Raſp, and when too ſmall, is managed with a Drill, and other Lapidary-Inſtruments.

Manner of making MOSAIC *Work of Gypſum.*

The Gypſum is a kind of coarſe Talc, or a ſhining tranſparent Stone, found in the Quarries of *Montmartre* near *Paris*, among the Stones thence dug to make the Plaiſter of *Paris*: 'tis different from the Plaiſter, but retains the Name the *Romans* gave the Plaiſter, *viz. Gypſum.* Of this Stone, calcined in a Kiln, and beaten in a Mortar, and paſs'd thro a Sieve, they make a kind of artificial Marbles, imitating precious Stones, and of theſe compoſe a kind of *Moſaic* Work, which comes little ſhort either of the Durableneſs or Vivacity of the natural Stones; and which has this advantage, that it admits of continu'd Pieces, or Paintings of entire Compartiments, without any Joining viſible.

Some make the Ground of Plaiſter of *Paris*, others of Free-Stone: if the former, 'tis ſpread in a wooden Frame, of the length and breadth of the intended Work, and about an Inch and half thick. This Frame is ſo contriv'd, as, the Tenons being only join'd to the Mortoiſes by ſingle Pins, they may be taken aſunder, and the Frame be diſmounted when the Plaiſter is dry. This Frame they cover on one ſide with a ſtrong Linnen Cloth, nail'd all around, which being plac'd horizontally, with the Linnen at bottom, is fill'd with Plaiſter, paſs'd thro a wide Sieve. The Plaiſter being half dry, the Frame is ſet perpendicular, and left till it be quite dry; then taken out, by diſmounting the Frame. In this *Moſaic*, the Ground is the moſt important Part.

Now to prepare the ſifted Gypſum to be apply'd on this Ground, they diſſolve and boil it in the beſt *Engliſh* Glue, and after mixing with it the Colour it is to bear, the whole is work'd up together into the ordinary Conſiſtence of Plaiſter; and then taken and ſpread on the Ground, five or ſix Inches thick. It muſt be obſerv'd, that if the Work be ſuch, as that Mouldings are requir'd, they are form'd with Gouges and other Inſtruments.

'Tis on this Plaiſter, thus colour'd like Marble or precious Stone, and which is to ſerve as a Ground to a Work either of Lapis, Agat, Alabaſter, or the like, that the Deſign to be repreſented is drawn; having been firſt pounced or calqued. To hollow or impreſs the Deſign, they uſe the ſame Inſtruments with the Sculptors; the Ground whereon they are to work, not being much leſs hard than Marble itſelf. The Cavities thus made in the Ground, are fill'd up with the ſame Gypſum boil'd in Glue, only differently colour'd; and thus are the ſeveral Colours of the Original repreſented. To have the neceſſary Colours and Teints at hand, they temper Quantities of the Gypſum with the ſeveral Colours, in little Pots. When the Deſign is thus fill'd, and render'd viſible, by half poliſhing it with Brick or ſoft Stone; they go over it again, cutting ſuch Places as are either to be weaker, or more ſhadow'd, and filling 'em with Gypſum; which is repeated till all the Colours, added one after another, repreſent the Original to the Life. The Work being finiſh'd, is ſcower'd with ſoft Stone, Sand and Water; then with Pumice-ſtone, and laſtly, poliſh'd with a wooden Mullet and Emery. Laſtly, the Luſtre is given it, by ſmeering it over with Oil, and rubbing it a long time with the Palm of the Hand; which gives it a Luſtre nothing inferior to that of natural Marble.

If 'tis only requir'd to make a variegated Table, or other Work of ſeveral Colours; without *Moſaic* Figures, the Proceſs is ſomewhat different. To this end, they only prepare ſeparately, in large Bowls, as many different Colours as Nature ſhews in the Marble to be imitated, and after incorporating 'em with the Gypſum and Glue-Water, they take a Truel-full of each, and diſpoſe 'em in a Trough, without any order; then without mingling 'em, and only by cutting or croſſing the Gypſum of each Truel once or twice with each of the reſt, they give 'em that beautiful Confuſion, which makes the Value of natural Marbles: Of theſe they then make their Tables, or lay 'em in a Mold; according to the Work to be done.

As to *Marquetry or Inlaid-Work*, the Antients were well acquainted with it, and uſed it for the adorning of their Beds, Tables, and other Moveables; uſing for this purpoſe Ivory, and the richeſt Woods. But Friar *John* of *Verona* ſeems to have contributed the moſt to its Perfection, by diſcovering the Secret of dying Woods of all Colours and Degrees; by which means he was enabled to imitate Painting, and even to repreſent Architecture in Perſpective.

They begin with ſawing their Woods into Leaves, of the Thickneſs of one or two Tenths of an Inch; then take Pieces of the Deſign they are to follow, and faſten 'em to thoſe Leaves, and with a little Steel ſaw the Contour of the Deſign. All that is neceſſary being taken off with the Saw, they give the Shadow to thoſe Places that require it, by placing the Piece in a hot Sand, or otherwiſe, with the Direction neceſſary to ſhadow it more or leſs. This done, they lay each Piece in its place, on a Ground of another Wood, as dry Oak, and there faſten them with ſtrong Glue.

There are two other Branches of *Moſaic* Work; the one call'd *Damaskeening*, or *Damask-Work*, conſiſting in an Aſſemblage of Gold or Silver Threads, of which are ſometimes form'd flat Works, and ſometimes Baſſo-Relievos. See **Damaskeening.**

The other is call'd *Shell-Work*, conſiſting of Shells, artificial Congelations, Petrifications, &c. uſed in Grottos. See **Shell-*Work*.**

MOSQUE, among the *Mahometans*, is a Temple ſet apart for the Exerciſes of Religion. See **Temple.**

There are Royal *Moſques* founded by the Emperors, as *Solimania* and *Velidea* at *Conſtantinople*; and Private *Moſques* founded by Muftíes, Viziers, Baſſa's, &c. they are built like large Halls, with Iſles, Galleries, and Domes; and are adorned on the inſide with Compartiments, and Pieces of *Arabeſque* Work. On one ſide is always found a Pool with ſeveral Cocks.

The *Turks* have converted moſt of the Chriſtian Churches into *Moſques*. At the top is always placed a Creſcent.

The Word comes from the *Turkiſh Meſchit*, which properly ſignifies a Temple built of Wood, ſuch as the *Turks* firſt uſed. Hence the *Spaniards* derive their *Meſcheta*, and the *Italians Moſcheta*, and the *French* and *Engliſh Moſque. Borel* derives the Word from the *Greek* μόσχος *Calf*, becauſe of the frequent mention of a Cow in the *Alcoran*. Others, and with the greateſt Appearance of Reaſon, derive it from the *Arabic Maſchiad*, a Place of Worſhip.

MOSSE, *Uſnea* in Natural Hiſtory, a little Plant of the Paraſite kind, growing on the Barks, &c. of ſeveral Trees, as Oak, Poplar, Aſh, Cedar, &c. See **Parasite.**

The moſt eſteemed, and odoriferous is that of the Cedar; it is of ſome medicinal Uſe, being Aſtringent, and proper to ſtop Hemorrhagies and Dyſſenteries.

The Antients took the *Moſs* of Trees to be the Effect of a Diſorder or Diſcompoſure of the Texture of the Bark; or at moſt a kind of little Filaments ariſing from the Bark. But the Moderns find by ſeveral Obſervations, that Moſſes are all real, diſtinct Plants, whoſe Seed, being extremely ſmall, is incloſed in little Capſulæ, which burſting of themſelves, the Seed is carried off by the Winds, till falling on the Inequalities of the Bark of Trees, it is there ſtop'd, takes Root, and feeds at the expence of the Tree, as Mouldineſs does on Bread, &c. See **Mouldiness.**

The different kinds of *Moſſes* are very numerous; Monſ. *Vaillant* reckons 137 ſeveral Species in the ſingle Neighbourhood of *Paris*.

There is alſo a kind of greeniſh *Moſs* growing on human Sculls that have been long expoſed to the Air, call'd *Uſnea*, or *Muſcus calvarius*. The Antients made a deal of Uſe of it as an Aſtringent, &c. See **Usnea.**

Moſſes make an Article of Commerce; there being ſeveral kinds uſed in Medicine, in Perfuming, &c. Among others, the *Sea-Moſs*, call'd *Coralline*, (ſee **Coralline**) and the *Moſs* of Cedar and Firr, which enter the Compoſition of Cypreſs Powder.

The *Moſs* of common Trees, as Oak, Aſh, Poplar, &c. is uſed for Caulking of Veſſels. 'Tis alſo uſed by Bird-Merchants, to prepare Cages for certain kinds of Birds to hatch in.

The Gardeners, &c. reckon *Moſs* among the Diſeaſes, or Infirmities of Plants. See **Disease.**

Mr. *Mortimer*, &c. directs it to be rubb'd, and ſcraped off with ſome proper Inſtrument that will not hurt the Bark of the Tree, or with a piece of Hair-Cloth after a ſoaking Rain; tho' the ſureſt Cure is by removing the Cauſe; which is effected by draining the Land well of all ſuperfluous Moiſture. Or, it may be prevented, in the firſt planting of Trees, by not ſetting them too deep.

MOTE, Mota, of the *Saxon*, *Gemote*; a Term frequently occurring in our antient Cuſtoms, literally denoting a Meeting, Court, or Plea.

Of Motes, or *Gemotes*, conſider'd in the Senſe of Aſſemblies, or Courts, there were divers kinds, as *Withenagemote*, *Folkegemote*, *Schiregemote*, *Hundredgemote*, *Burgemote*, *Wardegemote*, *Haligemote*, *Swainegemote*, &c. See each under its proper Article, Withenagemote, Folkegemote, *&c.*

Mote, *Mota*, was alſo uſed for a Fortreſs, or Caſtle; or the Scite or Place where ſuch Caſtle ſtood: As *Mota de Windſor*, *&c.*

Mote was alſo a ſtanding Water to keep Fiſh; or a large Ditch incompaſſing a Caſtle, or Dwelling-Houſe. See Moat.

MOTHER, *Mater*, a Female who ſtands in the Relation of Parent to another. See Parent, *&c.*

Thus *Eve* is call'd our common *Mother*. *Cybele* among the Antients was the *Mother* of the Gods.

The *Queen Mother* is the ſame with what we otherwiſe call *Queen Dowager*, See Dowager.

We meet with Empreſſes on Medals and Inſcriptions with the Titles of *Mother of the Camp*; *Mother* of the Senate, *Mother* of the Country: *Mater Senatus*, *Mater Patriæ*, *&c.* See Father.

Mother *Tongue*, is properly an original Language, from which others are apparently form'd. See Language.

Of *Mother Tongues*, *Scaliger* reckons ten in *Europe*, *viz.* the *Greek*, *Latin*, *Teutonic* or *German*, *Sclavonic*, *Epirotic*, *Scythian* or *European Tartar*, *Hungarian*, *Cantabrian*, *Iriſh*, and *Britiſh*. See Greek, Latin, Teutonic, *&c.*

Mother *Churches* are thoſe which have founded or erected others. See Church.

In Beneficiary Matters we ſay it is not lawful for a Man to enjoy at the ſame time both the *Mother* and the Daughter: Meaning that the Canon Law does not allow an Abby, and the Benefices depending thereon, to be held by the ſame Perſon.

Mother *of Pearl*, ſee Pearl.

Fits of the Mother, ſee Hysteric *Affection.*

MOTION, primarily ſo call'd, or *Local* Motion, is a continued, and ſucceſſive Change of Place; or that State of a Body whereby it correſponds ſucceſſively to ſeveral different Places, or is preſent ſucceſſively in ſeveral Parts of Space. See Place.

In this ſenſe, the Doctrine and Laws of *Motion* make the Subject of *Mechanics*, or *Statics*. See Mechanics, *&c.*

The antient Philoſophers conſider'd *Motion* in a more general and extenſive Senſe. They defined it by a Paſſage out of one State into another; and thus made ſix Kinds, viz. *Creation*, *Generation*, *Corruption*, *Augmentation*, *Diminution*, and *Lation*, or *Local Motion*. See Creation, Generation, *&c.*

Some of the later Schoolmen reduce theſe ſix Kinds of *Motion* to four: The firſt is general, including any Paſſage from one State to another; under which ſenſe of *Motion* come *Creation*, *Production*, and *Mutation*. The ſecond is a Paſſage of ſomething already exiſting from one State to another; and thus *Generation* is a *Motion*. The third, a ſucceſſive Paſſage of ſomething already exiſting from one Term to another; and thus *Alteration* and *Accretion* are Species of *Motion*. The laſt, is *Lation*, or *Local Motion*; and thus Walking is *Motion*.

But the lateſt Philoſophers unanimouſly deny any other *Motion* beſide *Local Motion*; and reduce all the Species above-mentioned to this one: So that we have here only to do with *Local Motion*; whereof the reſt are only ſo many different Determinations, or Effects. See Accretion, Alteration, Generation, *&c.*

Phyſical Writers, both Antient and Modern, have ever been perplexed about the Nature and Definition of *Local Motion*.

The *Peripatetics* define it by *Actus Entis in potentia, prout in potentia*, Ariſt. 3. Phyſ. c. 2. But the Notion is too Abſtract and Metaphyſical for our Days; and is of no uſe in explaining the Properties of *Motion*.

The *Epicureans* call it the Migration of a Body, or a part of a Body, from one Place to another. On which Definition, the later *Epicureans* refine, and call it the Migration or Paſſage of a Body from Space to Space: Thus ſubſtituting the word *Space* for that of *Place*.

The *Carteſians* define *Motion* a Paſſage, or Removal of one Part of Matter out of the Neighbourhood of theſe Parts immediately contiguous thereto, into the Neighbourhood of others.

Which Definition agrees, in effect, with that of the *Epicureans*; all the Difference between 'em conſiſting in this, that what the one calls Body and Place; the other calls *Matter*, and *contiguous Parts*.

Borelli, and other late Writers after him, define *Motion* more accurately and fully, the ſucceſſive Paſſage of a Body from one Place to another, in a determinate time, by being ſucceſſively contiguous to all the Parts of the intermediate Space.

Motion, then, they agree to be the tranſlation of a Body from Place to Place: But they differ infinitely when they come to explain wherein this *Tranſlation* conſiſts. And hence their Diviſions of *Motion* become exceedingly precarious.

Ariſtotle, and the *Peripatetics*, divide all *Motion* into *Natural* and *Violent*.

Natural Motion is that which has its Principle, or moving Force, within the moving Body. Such is that of a Stone falling towards the Centre of the Earth.

Violent Motion is that whoſe Principle is without, and againſt which the moving Body makes a Reſiſtance: Such is that of a Stone thrown upwards.

The Moderns generally divide *Motion* into *Abſolute* and *Relative*.

Abſolute Motion is the Change of Place, in any moving Body; whoſe Celerity, therefore, will be meaſured by the Quantity of the abſolute Space which the moveable Body runs thro'.

Relative Motion is a Mutation of the Relative, or vulgar Place of the moving Body; and has its Celerity accounted by the Quantity of relative Space run thro'.

Others divide *Motion* into *Proper*, and *Improper* or *Foreign*.

Proper Motion is a removal out of one proper Place into another, which hereby becomes proper, as being poſſeſſed by this Body alone; in excluſion of all others: Such is the *Motion* of a Wheel in a Clock.

Improper, or *Extraneous*, or *Foreign*, or *Common* Motion, is the Paſſage of a Body out of one common Place into another common Place: Such is that of a Clock when moved in a Ship, *&c.*

The Reaſon of all this Diverſity ſeems to ariſe from the not attending to the different Meanings of the Words; but comprizing all in one Definition and Diſtinction; which they ſhould rather have diſtinguiſh'd into ſeveral parts.

Some, *e. g.* in their Definitions of *Motions*, conſider the moving Body, not as it regards the adjacent Bodies, but as it regards immoveable and infinite Space. Others, again, conſider the moving Body, not as it regards infinite Space, but as it regards other Bodies vaſtly remote. And others, laſtly, conſider the moving Body, not as it regards remote Bodies, but that Surface only to which it is contiguous

But theſe various Meanings once ſettled, the Diſpute clears up; for as every thing that moves may be conſider'd in theſe three ſeveral Manners; there hence ariſe three ſeveral kinds of *Motions*; whereof that which regards the Parts of infinite immoveable Space, without conſideration of the circumambient Bodies, may be call'd *abſolutely and truly proper Motion*. That which regards circumambient Bodies vaſtly remote, which may themſelves poſſibly be moved, we call *relatively common Motion*. The laſt, which regards the Surfaces of the next contiguous Bodies, in as much as it may want all both abſolute and common *Motion*, we call *relatively proper Motion*.

1. An *abſolutely and truly proper* Motion then, is the Application of a Body to different Parts of infinite and immoveable Space. This alone is proper and abſolute *Motion*, being always generated and changed by Forces impreſs'd on the moving Body itſelf, and by thoſe only; and being that to which the real Forces of all Bodies to put others in *Motion* by impulſe, are owing; and to which thoſe *Motions* are proportioned. But this *Motion* we cannot inveſtigate or determine accurately; nor can we diſtinguiſh, when two Bodies are impell'd on each other, in which of the two, *v. g.* that which appears to move the more ſwiftly, or the other which appears to move more ſlowly, and perhaps even to be at reſt, the real *Motion*, and, conſequently, the real Force whence the Impulſe aroſe, is placed; not being able to determine whether the Centre of Gravity, or of the whole Syſtem (which is but a Point in infinite Space) is itſelf at reſt or in *Motion*.

2. *Relatively common* Motion is a Change of the Situation of a Body with reſpect to other remote circumambient Bodies; and this is the *Motion* we ſpeak of, when we ſay that Men, Cities, and the Earth itſelf moves round the Sun. This is alſo the *Motion* we mean, when we eſtimate the Quantity of *Motion*, and the Force any Body has to impel another: For inſtance, if a wooden Sphere, fill'd with Lead to make it the heavier, be caſt from the Hand we uſe to eſtimate the Quantity of *Motion*, and the Force which the Sphere has to impel another, from the Celerity of the Sphere and the Weight of the included Lead; and that truly with regard to the Force itſelf, and the Effect thereof as it falls under our Senſes: But whether the real Power or *Motion* be in the Sphere which appears to ſtrike, or in the Earth which appears to be ſtruck, that, as has been obſerved above, we cannot determine.

Laſtly, *Relatively proper* **Motion** is the ſucceſſive Application of a Body to the different parts of the contiguous Bodies. And this is the *Motion* uſually underſtood in Phyſical Diſputes about the Natures of particular things; as when we ſay, that Heat, Sound, Fluidity, *&c.* conſiſt in *Motion*. This muſt be added however, that by ſucceſſive Application of a Body, its whole Surface, taken together, muſt be conceiv'd ſucceſſively apply'd to different parts of contiguous Bodies.

From theſe ſeveral Definitions of *Motion* ariſe as many Definitions of *Place*: For when we ſpeak of *Motion* (or Reſt) truly and abſolutely proper, then Place is that part of infinite and immoveable Space which the Body fills. When of *Motion relatively common*, then Place is a part of any Space or moveable Dimenſion. When of *Motion relatively proper*, (which is really very improper) Place is then the Surface of the next adjacent Bodies, or ſenſible Spaces. See **Place**.

The Definition of Reſt is pretty well agreed on; but whether *Reſt* be a mere Privation of *Motion*, or any thing poſitive, is hotly diſputed. *Malebranch*, and others, maintain the former ſide of the Queſtion. *Cartes*, and others, the latter: Theſe laſt contend, that a Body at reſt, has no power to perſevere in that reſt, nor to reſiſt any Bodies that would deſtroy it; and that *Motion* may as well be call'd a Ceſſation of Reſt, as Reſt of *Motion*. See **Rest**.

The main Argument urg'd by the former is this: Suppoſe a Globe at reſt, and ſuppoſe God ceaſe to will its reſt; What will be the Conſequence? it will reſt ſtill. Let it be in *Motion*, and let God ceaſe to will its Motion; What will be the Conſequence? it will ceaſe to move; that is, be at reſt; becauſe the Power whereby a Body in *Motion* perſeveres in that ſtate, is the poſitive Will of God; that whereby the quieſcent Body perſeveres, only his privative Will.

But this is a manifeſt *Petitio principii*; for the Force or Conatus whereby Bodies, whether moving or quieſcent, perſevere in thoſe ſtates, is the mere Inactivity of Matter; and therefore were it poſſible for God not to will any thing, a Body already in *Motion*, would move for ever; as a Body at Reſt, would reſt for ever. To this Inactivity of Matter, it is owing that all Bodies reſiſt according to their Quantities of Matter, and that any Body ſtriking another with any given Velocity, will move it in the ſame Proportion which its Denſity, or Quantity of Matter has, to the Denſity or Quantity of Matter of the other.

Motion has ever been eſteem'd a Species of Quantity; and its *Quantum*, or Greatneſs, which we otherwiſe call its *Momentum*, is eſtimated partly from the length of the Line which the moving Body deſcribes; as if a Body paſs over a Line of 100 Feet, the Quantity of its *Motion* is greater than if it paſſed over 10 Feet: and partly from the Quantity of the Matter moved together, or at the ſame time, *i. e.* not from the Bulk or Extenſion of the Body, but from its Maſs or Weight; the Air, and other ſubtile Matters wherewith the Pores are filled, not entring into the account: As if a Body of two cubic Feet run over a Line of 100 Feet, the Quantity of its *Motion* is greater than that of a Body of one cubic Foot deſcribing the ſame Line: For whatever *Motion* one Whole has, that is had in one Half of the other; and the *Motion* of the Whole is the Sum of the *Motion* of all its Parts.

Hence it follows, that for two unequal Bodies to have equal *Motions*, or Momentums, the Lines which they paſs over muſt be in a reciprocal Proportion of their Maſſes or Weights, *i. e.* if one Body have three times the Quantity of Matter that another has, the Line it runs over muſt be $\frac{1}{3}$ of the Line run over by the other. If two Bodies then faſtened to the two Extremities of a Balance or Lever, have their Maſſes in a reciprocal Ratio of their Diſtances from the fixed Point, when theſe are moved they muſt deſcribe Lines in a reciprocal Ratio of theſe Maſſes.

For inſtance, if the Body A (Tab. **Mechanics**, *Fig.* 30.) have three times the Maſs or Weight of B, and each be faſten'd to the Extremities of the Lever A B, whoſe Fulcrum or fixed Point is C, in ſuch manner as that the Diſtance B C is thrice the Diſtance C A; the Lever can't incline either way, but the Space which the leſs Body moves will be thrice the Space A D, which the greater moves: So that their *Motions* will be equal; nor is there any reaſon why the Body A tending downwards, *v. g.* with four Degrees of *Motion*, ſhould raiſe the Body B, rather than B tending downwards likewiſe with the ſame four Degrees of *Motion*, ſhould raiſe the Body A: They will therefore be in Equilibrio. On which Foundation depends the whole Doctrine of Mechanics.

Hence that great Problem of *Archimedes*, Δος πȣ ςῶ ϗ τὴν γῆν κινήσω; with any given Power, how ſmall ſoever, to raiſe any Weight given, how great ſoever; for by increaſing the Diſtance C B infinitely, the Power of the Body A will be increaſed infinitely. See **Mechanics** and **Equilibrium**.

As it is allow'd on all hands, that *Motion* is no eſſential Attribute of Matter; hence ariſes a diſpute about its *Production*, and to what Cauſe it owes its *Continuation*.

The *Carteſians* maintain, that the Creator at the Beginning impreſs'd a certain Quantity of *Motion* on Bodies; and that under ſuch Laws, as that no part of it ſhould be loſt, but the ſame Portion of *Motion* be conſtantly preſerv'd in Matter. And hence conclude, that if any moving Body ſtrike on any other Body, the former loſes no more of its *Motion* than it communicates to the latter. See **Cartesian**.

This Principle Sir *Iſ. Newton* overturns in the following Words: —— 'From the various Compoſitions of two '*Motions*, it is manifeſt there is not always the ſame Quan'tity of *Motion* in the World; for if two Balls join'd to'gether by a ſlender Wire, revolve with an uniform *Motion* 'about their common Centre of Gravity, and at the ſame 'time that Centre be carried uniformly in a right Line drawn 'in the Plane of their circular *Motion*; the Sum of the *Mo*'*tion* of the two Balls, as often as they are in a right Line 'drawn from their common Center of Gravity, will be 'greater than the Sum of their *Motions* when they are in a 'Line perpendicular to that other. Whence it appears, 'that *Motion* may both be generated and loſt. But by rea'ſon of the tenacity of fluid Bodies, and the friction of 'their Parts, with the Weakneſs of the elaſtic Power in ſolid 'Bodies, Nature ſeems to incline much rather to the De'ſtruction than the Production of *Motion*; and in reality '*Motion* becomes continually leſs and leſs. For Bodies 'which are either ſo perfectly hard, or ſo ſoft, as to have 'no elaſtic Power, will not rebound from each other: 'Their Impenetrability will only ſtop their *Motion*. And 'if two ſuch Bodies, equal to each other, be carried with 'equal but oppoſite *Motions*, ſo as to meet in a void Space, 'by the Laws of *Motion* they muſt ſtop in the very Place 'of Concourſe, loſe all their *Motion*, and be at reſt for 'ever, unleſs they have an elaſtic Power to give 'em a 'new *Motion*. If they have Elaſticity enough to enable ''em to rebound with $\frac{1}{4}$, or $\frac{1}{2}$, or $\frac{3}{4}$ of the Force where'with they meet, they will loſe $\frac{3}{4}$, or $\frac{1}{2}$, or $\frac{1}{3}$ of their *Mo*'*tion*. And this is confirmed by Experiments: For if 'two equal Pendulums be let fall from equal heights, ſo 'as to ſtrike full on each other; if thoſe Pendulums be of 'Lead, or ſoft Clay, they will loſe all, or almoſt all their '*Motion*; and if they be of any Elaſtic Matter, they will 'only retain ſo much *Motion* as they receive from their 'elaſtic Power.' If it be asked, how it happens that *Motion* being thus continually loſt, ſhould be continually renewed: The ſame Author adds, that it is renewed from ſome active Principles, 'Such as the *Cauſe of Gravity*, 'whereby the Planets and Comets preſerve their *Motions* in 'their Orbits, and all Bodies acquire a great degree of '*Motion* in falling; and the Cauſe of Fermentation, where'by the Heart and Blood of Animals preſerve a perpetual 'Warmth and *Motion*; the inner parts of the Earth are 'kept continually warm'd; many Bodies burn and ſhine; 'and the Sun himſelf burns and ſhines, and with his Light 'warms and chears all things,' *(as alſo from the Cauſe of Elaſticity, by which Bodies reſtore themſelves into their former Figures;)* 'For we find but little *Motion* in the World, 'except what plainly flows, either from the active Prin'ciples, or from the Command of the Willer.' See **Gravity**, **Fermentation**, **Elasticity**, *&c.*

As to the *Continuation of Motion*, or the Cauſe why a Body once in *Motion* comes to perſevere in it; this has been extremely controverted among Phyſical Writers, and yet follows very evidently from one of the grand Laws of Nature, *viz.* That all Bodies perſevere in their preſent State, whether of Reſt or *Motion*, unleſs diſturbed by ſome foreign Powers. *Motion* therefore once begun, would be continued *in infinitum*, were it to meet with no interruption from external Cauſes; as the Power of Gravity, the Reſiſtance of the Medium, *&c.* So that *Ariſtotle*'s Principle, Whatever is moving affects Reſt, is groundleſs. See **Nature**.

Nor has the *Communication of Motion*, or the manner how a moving Body comes to affect another at Reſt; or how much of its *Motion* is communicated by the firſt to the laſt, been leſs diſputed. See the Laws thereof under the Word **Percussion**.

Motion, we have obſerv'd, is the Subject of Mechanics; and Mechanics is the Baſis of all Natural Philoſophy; which is hence denominated *Mechanical*. See **Mechanical**.

In effect, all the Phænomena of Nature; all the Changes that happen in the Syſtem of Bodies, are owing to *Motion*; and are directed according to the Laws thereof.

Hence, the modern Philoſophers have apply'd themſelves particularly to cultivate the Doctrine of *Motion*; to inveſtigate the Properties, Laws, *&c.* thereof; by Obſervation, Experiment, and the Uſe of Geometry. And to this we owe the great Advantages of the modern Philoſophy above that of the Antients; who were extremely diſregardful

regardful of *Motion*; notwithſtanding that they ſeem'd ſo ſenſible of its Importance, that they defined *Nature* by the firſt Principle of *Motion* and Reſt of the Subſtance wherein it is. See NATURE.

Among all the Antients, there is nothing extant of *Motion*, excepting ſome things in *Archimedes*'s Books *de Æquiponderantibus*. To *Gallileo*, a great part of the Doctrine of *Motion* is owing. He firſt diſcover'd the general Laws of *Motion*, and particularly of the *Deſcent* of heavy Bodies, both at large, and on *inclined* Planes; the Laws of the *Motion* of *Projectiles*; the Vibrations of *Pendulums*, and ſtretched *Chords*; with the Theory of *Reſiſtances*, &c. which were things the Antients had no Notion of. See DESCENT, PENDULUM, PROJECTILE, RESISTANCE, &c.

His Diſciple, *Torricelli*, poliſh'd, and improv'd on the Diſcoveries of his Maſter; and added to them divers Experiments concerning the Force of Percuſſion, and the Equilibrium of Fluids. See FLUID. M. *Huygens* improved very conſiderably on the Doctrine of the Pendulum; and both he and *Borelli* on the Force of Percuſſion. Laſtly, *Newton*, *Leibnitz*, *Varignon*, *Mariotte*, &c. have brought the Doctrine of *Motion* ſtill nearer to Perfection.

The general *Laws of Motion* were firſt brought into a Syſtem, and Analytically demonſtrated together, by Dr. *Wallis*, Sir *Chriſtopher Wren*, and M. *Huygens* all much about the ſame time; the firſt in Bodies not Elaſtic, and the two laſt in Elaſtic Bodies. Laſtly, the whole Doctrine of *Motion*, including all the Diſcoveries both of the Antients and Moderns on that head, was given by Dr. *Wallis* in his *Mechanica*, or *de Motu*, publiſhed in 1669.

MOTION may be conſider'd either as *Equable*, and *Uniform*; or as *Accelerated*, and *Retarded*. *Equable Motions* again may be conſider'd either as *Simple*, or as *Compound*. *Compound Motion* may again be conſider'd either as *Rectilinear*, or *Curvilinear*.

And all theſe again may be conſider'd either with regard to themſelves, or with regard to the manner of their Production, and Communication, by Percuſſion, &c.

Equable MOTION, is that wherein the moving Body proceeds with the ſame unvary'd Velocity.

The Laws of *Equable Motion* are as follow; the Reader being only to obſerve, by the way, that by *Maſs* we mean Quantity of Matter or Weight, expreſs'd by *M*; by *Momentum*, the Quantity of Motion or Impetus, expreſs'd by *I*; by *Time*, the Duration of *Motion*, expreſs'd by *T*; by *Velocity*, its Swiftneſs, noted by *V*; and by *Space*, the Line it deſcribes, noted *S*. See MOMENT, MASS, VELOCITY.

Thus if the Space be $= ſ$, and the Time $= t$; the Velocity will be alſo expreſs'd $ſ : t$: And if the Velocity $= v$, and the Maſs $= m$; the Momentum will likewiſe be $= v\,m$.

Laws of Uniform or Equable MOTION.

Theor. I. The Velocities V and *v* of two Bodies moving equably, are in a Ratio compounded of the direct Ratio of the Spaces S and ſ, and the reciprocal Ratio of the Times T and *t*.

Demonſt. For $V = S : T$ and $v :: ſ : t$.

therefore $$V : v :: \frac{S : ſ}{T\,t}$$

$$V : v :: S\,t : ſ\,T$$

Q. E. D.

Schol. This and the following Theorems may be illuſtrated in Numbers; thus ſuppoſe that a Body A, whoſe Maſs is as 7, that is, 7 Pound, in the time of 3 Seconds paſſes over a Space of 12 Feet; and another Body B, whoſe Maſs is as 5, in the time of 8 Seconds paſſes over a Space of 16 Feet. We ſhall then have $M = 7$, $T = 3$, $S = 12$; $m = 5$, $t = 8$, $ſ = 16$. And therefore $V = 4$, $v = 2$. The Caſe then will ſtand thus:

$$V : v :: S\,t : ſ\,T.$$

$$4 : 2 :: 12.\ 8 : 16.\ 3 :: 4 : 2.$$

Corol. If $V = v$, then will $S\,t = ſ\,T$; therefore $S : ſ \mathrel{:\!\cdot\!:} T : t$. That is, If two Bodies move equably, and with the ſame Velocities, their Spaces are as the Times.

Schol. The Corollaries may be illuſtrated by Numbers, in like manner as the Theorems. Thus ſuppoſe $S = 12$, $T = 6$, $ſ = 8$, $t = 4$. Then will the $V = 12 : 6 = 2$, and $v = 8 : 4 = 2$.

Conſequently by reaſon $V = v$

$$S : ſ = T : t$$

$$12 : 8 = 6 : 4.$$

Corol. 2. If $V = v$, and alſo $t = T$; then will $S = ſ$, and ſo the Bodies moving equably, will deſcribe equal Spaces in equal Times.

Theor. II. The Spaces S and ſ, over which two Bodies paſs, are in a Ratio compos'd of the Ratio of the Times T and *t*, and of the Velocities V, &c.

Dem. For $V : v :: S\,t : ſ\,T$

$$\text{Therefore } V\,ſ\,T = v\,S\,t$$

$$\text{And } S : ſ :: V\,T : v\,t$$

In Numbers $12 : 16 :: 4.3 : 2.8 :: 12 : 16$

Corol. If $S = ſ$, $V\,T = v\,t$, ſo that $V : v :: t\,T$. that is, if two Bodies moving equably, deſcribe equal Spaces; their Velocities will be in a reciprocal Ratio of their Times.

In Numbers, if we ſuppoſe $S = 12$, and $ſ = 12$. Becauſe $S = V\,T$ and $ſ = v\,t$; if $V = 2$ and $v = 3$, $T = 6$ and $t = 4$.

So that we have $V : v = t : T$

$$2 : 3 = 4 : 6.$$

Cor. 2. Further, if $t = T$, then will $V = v$; and therefore Bodies which move equably, deſcribe equal Spaces in equal Times, and have their Velocities equal.

Theor. III. The Momenta, or Quantities of *Motion*, of two Bodies moving equably, I and *i*, are in a Ratio compounded of the Velocities V and *v*, and the Maſſes or Quantities of Matter M and *m*.

Dem. For $I = V\,M$, and $i = v\,m$; therefore $I : i :: V\,M : v.\,m$; that is, the Ratio of I to *i* is compounded of the Ratio of V to *v*, and of M to *m*. Q. E. D.

Cor. 1. If $I = i$, then will $V\,M = v\,m$; and therefore $V : v = M$. That is, if the Momenta of two Bodies moving equably, be equal; their Velocities will be in a reciprocal Ratio of their Maſſes.

Cor. 2. And therefore if $M = m$, $V = v$; that is, if the Momenta and Maſſes of two moving Bodies be equal, their Velocities are alſo equal.

Theor. IV. The Velocities V and *v* of two Bodies moving equably, are in a Ratio compounded of the direct Ratio of their Momenta I and *i*, and the reciprocal one of their Maſſes M and *m*.

Dem. Since $I : i :: V\,M : v\,m$

$$I\,v\,m = i\,V\,M$$

$$V : v = I\,m : i\,M$$

Q. E. D.

In Numbers $4 : 2 :: 28.5 : 10.7 = 4.1 = 2.1 = 4.2$.

Cor. 1. If $V = v$, then $I\,m = i\,M$; and therefore $I : i = M : m$; that is, if two Bodies move equably, and with the ſame Velocity, their Momenta will be in the ſame Ratio with their Maſſes.

Cor. 2. If $M = m$, $I = i$; and therefore if two Bodies, that have the ſame Maſſes, move equably, and with equal Velocity, their Momenta are equal.

Theor. V. In an equable *Motion*, the Maſſes of the Bodies M and *m* are in a Ratio compos'd of the direct Ratio of their Momenta, and the reciprocal Ratio of their Velocities V and *v*.

Dem. Since $I : i :: V\,M : v\,m$

$$\text{Therefore } I\,v\,m = i\,V\,M$$

$$M : m = I\,v : i\,V.$$

In Numbers $7 : 5 :: 28.2 : 10.4 :: 7.1 : 5 : 1 :: 7.5$.

Cor. If $M = m$, then will $I\,v = i\,V$; and therefore $I : i = V : v$. That is, if two Bodies moving equably, have their Maſſes equal, their Momenta will be as their Velocities.

In Numbers, ſuppoſe $I = 12$, $i = 8$, $M = 4$, $m = 4$; then will $V = 12 : 4 = 3$, and $v = 8 : 4 = 2$.

Therefore $I : i = V : v$

$$12 : 8 = 3 : 2.$$

Theor. VI. In an equable *Motion*, the Momenta I and *i* are in a Ratio compounded of the direct Ratio's of the Maſſes M and *m*, and the Spaces S and ſ, and the reciprocal Ratio of the Times T and *t*.

Dem. Becauſe $V : v :: S\,t : ſ\,T$

$$\text{And } I : i :: V\,M : v\,m$$

$$\text{Therefore } V\,I : v\,i :: V\,M\,S\,t : v\,m\,ſ\,T$$

$$I : i \div M\,S\,t : m\,ſ\,T$$

Q. E. D.

Cor. 1. If $I = i$, then will $M\,S\,t = m\,ſ\,T$; and therefore $M : m = ſ\,T : S\,t$, $S : ſ = m\,T : M\,t$ and $T : t = M\,S : m\,ſ$; that is, if two Bodies moving equably, have their Momenta equal, 1. Their Maſſes are in a Ratio compounded of the direct Ratio of their Times, and the reciprocal one of their Spaces. 2. Their Spaces are in a Ratio compounded of the direct Ratio of the Times, and the reciprocal one of their Maſſes. 3. Their Times are in a Ratio, compounded of their Maſſes and their Spaces.

Cor. 2. Further, if $M = m$; then will $ſ\,T = S\,t$; and therefore $S : ſ = T : t$; that is, if two Bodies moving equably, have their Momenta, and their Maſſes equal, their Spaces are as their Times.

Cor. 3. Again, if $T = t$, then will $S = ſ$. Two moving Bodies therefore, whoſe Maſſes and Momenta are equal, deſcribe equal Spaces in equal Times.

Cor. 4. If beſides $I = i$, $S = ſ$; then will $mT = Mt$; and therefore $M : m :: T : t$; that is, if two moving Bodies, whoſe Momenta are equal, paſs over equal Spaces, their Maſſes are proportionable to their Times.

Cor. 5. Further, if $T = t$, then will $M = m$; and therefore Bodies, whoſe Momenta are equal, and which moving equably, deſcribe equal Spaces in equal Times, have their Maſſes equal.

Cor. 6. If beſides $I = i$, $T = t$; then will $MS = mſ$; and therefore $S : ſ :: m : M$; that is, the Spaces paſs'd over in the ſame time, by two moving Bodies, whoſe Momenta are equal, are in a reciprocal Ratio of their Maſſes.

Theor. VII. In an equable *Motion*, the Spaces S and ſ are in a Ratio compounded of the direct Ratio's of the Momenta I and *i*, and the Times T and *t*; and the reciprocal one of the Maſſes M and *m*.

Dem. Becauſe $I : i :: MSt : mſT$,

$$\overline{\qquad ImſT :: iMSt \qquad}$$

Wherefore $S : ſ :: ITm : itM$.

Q. E. D.

In Numb. 12 : 16 :: 3.28 : 5.8.10.7 :: 3.4.1 : 8.2.1 :: 12 : 16.

Cor. 1. If $S = ſ$, $ITm = itM$; and therefore $I : i :: tM : Tm$, $M : m :: IT : it$, $T : t :: iM : Im$. If two Bodies therefore move equably over equal Spaces, 1. Their Momenta will be in a Ratio compounded of the direct Ratio of the Maſſes, and the reciprocal one of the Times. 2. Their Maſſes will be in a Ratio compounded of the Momenta and the Times. 3. The Times will be in a Ratio compounded of the direct Ratio of the Maſſes, and the reciprocal one of the Momenta.

Cor. 2. If beſide $S = ſ$, $M = m$; then will $IT = it$; and therefore $I : i :: t : T$. That is, Bodies whoſe Maſſes are equal, have their Momenta reciprocally proportionable to the Times in which they move over equal Spaces.

Cor. 3. If beſide $S = ſ$, $T = t$; then will $iM = Im$; and therefore two Bodies moving equably, and thro equal Spaces in equal Times, have their Momenta proportionable to their Maſſes.

Theor. VIII. Two Bodies moving equably, have their Maſſes M and *m*, in a Ratio compounded of the direct Ratio's of the Momenta I and *i*, and the Times T and *t*, and the reciprocal one of the Spaces ſ and S.

Dem. Becauſe $I : i :: MSt : mſT$, $ImſT = iMSt$.

Wherefore $M : m :: ITſ : itS$.

Q. E. D.

In Numbers 7 : 5 :: 3.28.16 : 8.10.12 :: 3.7.2 : 1.10.3 :: 7 : 5.

Again $I : i :: MSt : mſT$.

In Numbers 28 : 10 :: 7.12.8 : 5.16.3 :: 7.4.1 : 5.2.1 :: 28 : 10.

Corol. 1. If $M = m$, then will $ITſ = itS$; and therefore $I : i :: tS : Tſ$, $S : ſ :: IT : it$, and $I : t :: iS : Iſ$. That is, in two moving Bodies, whoſe Maſſes are equal; 1. The Momenta are in a Ratio compounded of the direct Ratio of the Spaces, and the reciprocal one of the Times. 2. The Spaces are in a Ratio compounded of the Momenta and the Times. 3. The Times are in a Ratio compounded of the direct Ratio of the Spaces, and the reciprocal one of the Momenta.

Cor. 2. If beſide $M = m$, $T = t$, then will $iS = Iſ$; and therefore $I : i :: S : ſ$. That is, the Momenta of two Bodies, whoſe Maſſes are equal, are proportional to the Spaces paſs'd over in equal Times.

Theor. IX. In equable *Motions*, the Times T and *t* are in a Ratio compounded of the direct Ratio's of the Maſſes M and *m*, and the Spaces S and ſ, and the reciprocal one of the Momenta I and *i*.

Dem. Becauſe $I : i :: MSt : mſT$, $ImſT = iMSt$.

Wherefore $T : t :: iMS : Imſ$.

Q. E. D.

Cor. If $T = t$, $iMS = Imſ$; and therefore $I : i :: MS : mſ$, $M : m :: IS : iS$; and $S : ſ :: Im : iM$. That is, if two Bodies, moving equably, deſcribe equal Spaces in equal Times; 1. Their Momenta will be in a Ratio compounded of the Maſſes and the Spaces. 2. Their Maſſes will be in a Ratio compounded of the direct Ratio of the Momenta, and the reciprocal one of the Spaces. 3. The Spaces will be in a Ratio compounded of the direct Ratio of the Momenta, and the reciprocal one of the Maſſes.

The Laws of MOTIONS *uniformly accelerated and retarded.*

Def. By an *accelerated Motion*, we mean ſuch a one as continually receives freſh Acceſſions of Velocity; and it is ſaid to be uniformly accelerated, when in equal Times its Acceſſions of Velocity are equal. See ACCELERATION.

By a *retarded Motion*, is underſtood ſuch a one, whoſe Velocity continually decreaſes; and it is ſaid to be uniformly retarded, when its Decreaſe is continually proportional to the Time. See RETARDATION.

Axiom. A Body once at reſt, will never move, unleſs ſome other Body put it in *Motion*; and when once in *Motion*, it will continue for ever to move, with the ſame Velocity, and in the ſame Direction, unleſs it be forced from its State by ſome other Cauſe: This is evident from that fundamental Axiom in Philoſophy, That there is nothing without a ſufficient Cauſe.

Cor. 1. A Body therefore moved by one only Impulſe, muſt proceed in a right Line.

Cor. 2. If then it be carry'd in a Curve, it muſt be acted on by a double Power; one, whereby it would proceed in a right Line; another, whereby it is continually drawn out of it.

Axiom 1. If the Action and Re-action of two (*unelaſtic*) Bodies be equal, there will no *Motion* enſue; but the Bodies after Colliſion, will remain at reſt by each other.

Axiom 2. If a moving Body be impell'd in the Direction of its *Motion*, it will be accelerated; if by a reſiſting Force, it will be retarded. Heavy Bodies deſcend with an accelerated *Motion*.

Theor. X. If a Body move with an uniform Velocity; the Spaces will be in a duplicate Ratio of the Times.

Dem. For let the Velocity acquir'd in the Time t be $= v$, then will the Velocity acquir'd in the Time $2t = 2v$, in the Time $3t = 3v$, *&c.* and the Spaces correſponding to thoſe Times, t, $2t$, $3t$, *&c.* will be as tv, $4vt$, $9vt$, *&c.* (by *Theor.* 2.) The Spaces therefore are as 1.4.9. *&c.* And the Times as 1.2.3. *&c.* that is, the Spaces are in a duplicate Ratio of the Times. Q. E. D.

Cor In a *Motion* uniformly accelerated, the Times are in a ſub-duplicate Ratio of the Spaces.

Theor. XI. The Spaces paſs'd over by a Body uniformly accelerated, increaſe, in equal Times, according to the unequal Numbers 1.3.5.7, *&c.*

Dem. If the Times, wherein a moving Body equably accelerated, proceeds, be as 1.2.3.4.5, *&c.* the Space paſs'd over in one Moment, will be as 1, in 2 Moments as 4, in 3 as 9, in 4 as 16, in 5 as 25, *&c.* (*Theor.* 10.) If therefore you ſubſtract the Space paſs'd over in one Moment, *viz.* 1. from that paſs'd over in two Moments, 4. there will remain the Space correſponding to the ſecond Minute, *viz.* 3. In the ſame manner may be found the Space paſs'd over in the third Minute, $9 - 4 = 5$. The Space correſponding to the fourth Minute, $16 - 9 = 7$; and ſo of the reſt. The Space of the firſt Minute therefore is as 1, that of the ſecond as 3, that of the third as 5, of the fourth as 7, of the fifth as 9, *&c.* Therefore the Spaces paſs'd over by a Body, moving with an uniformly accelerated *Motion*, in equal Times increaſe according to the unequal Numbers, 1.3.5.7.9, *&c.* Q. E. D.

Theor. XII. The Spaces paſſed over by a Body equably accelerated, are in a duplicate Ratio of the Velocities.

Dem. For ſuppoſing the Velocities to be V and *v*, the Times T and *t*, the Spaces S and *s*; then will $V : v :: T : t$. Wherefore, ſince $S : s :: T^2 : t^2$, (*Theor.* 10.) $S : s :: V^2 : v^2$.

Corol. Wherefore in a *Motion* uniformly accelerated, the Velocities are in a ſubduplicate Ratio of the Spaces.

Theor. XIII. Heavy Bodies deſcend with an uniformly accelerated *Motion*, in a Medium void of Reſiſtance; if the Spaces be not very great.

Dem. Since heavy Bodies deſcend with one accelerated Velocity, the Power of Gravity muſt continually impel them. But the Power of Gravity is found the ſame at all Diſtances from the Earth where the Experiment can be made. Therefore heavy Bodies muſt be driven downwards in the ſame manner in equal times. If then, in the firſt Moment of Time, they be impell'd with the Velocity *v*, they will be impell'd with the ſame Velocity *v* in the ſecond Moment, and with the ſame in the 3d, 4th, *&c.* Moments. Now the Medium being ſuppoſed void of all Reſiſtance, (by *Hypoth.*) they will ſtill retain the Velocity they acquire; and by reaſon of their equal freſh Acquiſitions every Minute, they will deſcend with a *Motion* uniformly accelerated. *Q. E. D.* See GRAVITY.

Cor. 1. The Spaces of Deſcent therefore, are in a duplicate Ratio of their Times, and alſo of their Velocities, (*Theor.* 10, 12.) and increaſe according to the uneven Numbers 1, 3, 5, 7, 9, *&c.* (*Theor.* 11.)

Cor. 2. The Times, and likewiſe the Velocities, are in a ſubduplicate Ratio of the Spaces, (*Theor.* 10, 13.)

Schol. In ſuppoſing heavy Bodies to move thro' a Medium void of Reſiſtance, we exclude, at once, all manner of Impediments, under what Name ſoever they be call'd, or from whatſoever Cauſe they proceed; and among the reſt, that *Motion*, wherewith the Earth revolving on its Axis, carries with it heavy Bodies during the time of their fall; tho' this is not ſenſible at any moderate diſtance.

Schol. It was *Galilæus* who firſt diſcover'd the Law of the Deſcent of heavy Bodies; and that too by Reaſoning; tho'

tho' he afterwards confirm'd it by Experiments. Theſe he repeated again and again, and ſtill found the Spaces paſs'd over as the Squares of the Times: But it muſt be obſerved, that the Spaces are not to be taken in the Length, but the Height of the Plane, as will be ſhewn hereafter. See DESCENT.

The ſame Experiments were try'd, tho' in a different manner, by *Ricciolus* and *Grimaldus*, who let fall ſeveral ſtony Balls of the ſame Bulk and Weight, 8 Ounces each, from various Altitudes; meaſuring the Times of Deſcent by the Vibrations of a Pendulum. The Reſult of their Experiments is ſeen in the following Table.

Vibrations.	Time.		Space at the End of the Time.	Space paſs'd over in each Time.
	"	'''	*Rom. Feet.*	*Rom. Feet.*
5	0	50	10	10
10	1	40	40	30
15	2	30	90	50
20	3	20	160	70
25	4	10	250	90
6	1	0	15	15
12	2	0	60	45
18	3	0	135	75
24	4	0	240	105

Theor. XIV. If a heavy Body fall thro' a Medium void of Reſiſtance, and from a Height not very great; the Space it paſſes over is ſubduple of that which it would paſs over in the ſame time, with the Velocity it has acquir'd at the end of its fall.

Dem. Let the right Line A B (Tab. MECHANICS, Fig. 31.) repreſent the whole Time of a heavy Body's Deſcent; and let this be divided into any Number of equal Parts; to the Abſciſſes A P, A Q, A S, A B, draw the right Lines P M, Q I, S H, B C, which may be as the Velocities acquired, in thoſe Times, in the Deſcent. Since then A P : A Q : : P M : Q I, A P : A S : : P M : S H, &c. (*Eucl.* VI. 2.) If then the Altitude of the Triangle A B C be conceiv'd to be divided into equal Parts infinitely ſmall; the *Motion* being uniform in a Moment of Time infinitely ſmall; the little Area P *p* M *m* = P *p*. P M as the Space paſs'd over in the little Moment of Time P *p*. (*Theor.* 2.) Therefore the Space paſs'd over in the Time A B, will be as the Sum of all the little Areas, *i. e.* as the Triangle A B C. But the Space that would be deſcribed in the ſame Time A B with the uniform Velocity B C, being as the Rectangle A B C D, (*Theor.* 2.) it will be to the other Space as 1 to 2. (*Eucl.* I. 41.)

Cor. The Space therefore paſs'd over in half the Time A B, with the Velocity B C, is equal to the Space which the heavy Body paſſes over from a State of Reſt in the whole Time A B.

Problem 1. The Time wherein a heavy Body falls from any given Altitude being given; to determine the Spaces it paſſes over in each part of that Time.

Reſol. Let the given Altitude be $= a$, the Time $= t$, the Space paſs'd over in any part of that Time x. Then by *Cor.* of *Theor.* 13.

$$1 : x = t^2 : a$$

$$t^2 x = a$$

$$x = a : t^2.$$

The Space therefore paſs'd over in the firſt part of Time is $a : t^2$, and therefore that paſs'd over in the ſecond part of Time $= 3a : t^2$; that paſs'd over in the third part $= 5\ a : t$, &c. (*Ibid.*)

E. gr. In the above-mentioned Experiments of *Ricciolus*, the Ball deſcended 240 Feet in four Seconds. The Space therefore paſs'd in the firſt Second $= 240 : 16 = 15$; that in the next Second $= 15.3 = 45$: that in the third $= 15.5 = 75$, &c.

Prob. 2. The Time of a heavy Body's Deſcent in a Medium void of Reſiſtance thro' any given Space, being given, to determine the Time wherein it will paſs over another given Space, in the ſame Medium.

Reſol. and Dem. Since the Spaces are as the Squares of the Times, (*Theor.* 13.) to the Space the heavy Body moves in the given Time, the Space required in the Queſtion, and the Square of the given Time, ſeek a fourth Proportional; this will be the Square of the Time required: Its ſquare Root therefore being extracted, will yield the Time required. *E. gr.* In *Ricciolus*'s Experiments the Ball fell 240 Feet in 4 Minutes; 'tis demanded then how much Time it will take up in falling 135 Feet? This Time will be found $= \surd\ (135 : 16 : : 240) = \surd\ (135 : 15)\ \surd 9 = 3$.

Prob. 3. The Space a Body falls in any given Time in a Medium void of Reſiſtance being given, to determine the Space it will fall, in any other given Interval of Time.

Reſol. and Dem. Since the Spaces are as the Squares of the Times, (*Theor.* 13.) find a fourth Proportional to the Square of the Time wherein the Body falls thro' the given Space, the Square of the Time wherein it is to fall thro' the Space required, and the Space required; this fourth Proportional will be the Space required.

E. g. Suppoſe a Ball to fall 290 Feet in four Minutes time; and 'tis inquir'd what time it will ſpend in falling 135 Feet? The Anſwer will be found $= \surd\ (135.16 : 240) = (135 : 15 = \surd\ 3$.

Theor. XV. If a Body proceed with a *Motion* uniformly retarded, it will paſs over half the Space which it would deſcribe in the ſame time by an equable *Motion*.

Dem. Suppoſe the given Time divided into any Number of equal Parts; and draw the right Lines B C, S H, Q I, P M thereto, which are to be as the Velocities correſponding to the Parts of Time *o*, B S, B Q, B P, B A; ſo as letting fall the Perpendiculars H E, I F, M G, the right Lines C E, E F, C G, C B may be as the Velocities loſt in the Times H E, F I, G M, A B; that is, B S, B Q, B F, B A. Since C E : C F : : E H : F I, C G : C B : : G M : B A, (*Theor.* 13.) A B C will be a Triangle, (*Eucl.* III. 17.) If B *b*, therefore, be a Moment of Time infinitely ſmall, its *Motion* will be uniform; and, therefore, the Space deſcribed by the moving Body will be as the little Area B *b c* C (*Theor.* 2.) The Space therefore deſcribed in the Time is as the Triangle A B C, *viz.* as the Sum of all the little Areas B *b c* C. Now the Space deſcribed by the Body moving uniformly with the Velocity B C in the Time A B, is as the Rectangle A B C D, (*Theor.* 3.) therefore the former is half of this. (*Eucl.* I. 41.) *Q. E. D.*

Theor. XVI. The Spaces deſcribed by a *Motion* uniformly retarded, in equal Times, decreaſe according to the uneqal Numbers 7, 5, 3, 1.

Dem. Suppoſe the moving Body in the firſt Inſtant of Time to paſs over ſeven Feet; I ſay, that in the ſecond if it be equally retarded, it will paſs over 5; in the third 3; and in the fourth 1. For let the equal Parts of the Axis of the Triangle B S, S Q, Q P, P A (ſame *Fig.*) be as the Times; the Semi-ordinates B C, S H, Q I, P M as the Velocities at the beginning of any Time; the Trapezia B S H C, S Q I H, Q P M I, and the Triangle P A M as the Spaces deſcribed in thoſe times, as it appears they will be from *Theor.* 16. Let then B C = 4 and B S = S Q = Q P. = P A = 1. Then will S H = 3, Q I = 2, P M = 1, (*Theor.* 13.) $BSHC = (4 + 3)\ 1 : 2 = \frac{7}{2}$. $SQIH = (3 + 2)\ 1 : 2 = \frac{5}{2}$. $QPMI = (2 + 1)\ 1 : 2 = \frac{3}{2}$ $PAM = \frac{1}{2}$. Conſequently the Spaces deſcribed in equal Times are as $\frac{7}{2}$, $\frac{5}{2}$, $\frac{3}{2}$, $\frac{1}{2}$, that is as 7, 5, 3, 1. *Q. E. D.*

For the Cauſe, &c. *of the Acceleration of* MOTION, ſee GRAVITY and ACCELERATION.

For the Cauſe, &c. *of Retardation*, ſee RESISTANCE and RETARDATION.

Laws of the Communication of MOTION.

The Laws wherein *Motion* is communicated by the Colliſion and Percuſſion of Bodies are very different, as the Bodies are either *Elaſtic* or *Unelaſtic*, and as the Direction of the Stroak is *oblique* or *direct*.

What relates to the Colliſion of Bodies *not Elaſtic*, when the Stroak or Shock is direct, will come under the following Laws.

Theor. XVII. A moving Body ſtriking againſt a Body at reſt, will communicate *Motion* thereto, and both will proceed in the direction of the firſt; and the Momentum, or Quantity of *Motion* in the two, will be the ſame after the Stroak, as in the ſingle one before it.

Dem. For 'tis the Action of the firſt that gives the latter all the *Motion* it has; and 'tis the Re-action of the latter that takes off any part of the *Motion* of the firſt. Now, as Action and Re-action are always equal, the Momentum acquir'd by the one muſt be juſt equal to that loſt by the other; ſo that there is neither loſs nor gain from the Stroak.

Corol. The Velocity after the Stroak is found by multiplying the Maſs of the firſt Body by its Velocity before the Stroak, and dividing the Product by the Maſs of the ſecond Body.

Corol. Hence if a Body in *Motion* ſtrike on another moving in the ſame direction, but more ſlowly, both will continue their *Motion* in their firſt Direction; and the Momenta, or Sum of *Motion* will be the ſame after as before the Stroak.

Corol. If two equal Bodies move againſt each other with equal Velocities, after the Stroak they will both remain at Reſt.

Simple MOTION is that produced from ſome one Power.

Compound MOTION is that produced by ſeveral conſpiring Powers: Powers being ſaid *to conſpire*, when the Direction of the one is not oppoſite to that of the other; as when the Radius of a Circle is imagined to whirl round on its Centre, and a Point in the ſame Radius is at the ſame time ſuppoſed impell'd ſtrait along it.

Corol. All *Curvilinear Motion*, therefore, is Compound. (*Cor.* 1. of *Axiom* 1.)

Theor. XVIII. If a moving Body A (*Fig.* 32.) be acted on by a double Power; the one according to the Direction A B, the other according to A C; with the *Motion* compounded thereof, it will deſcribe the Diagonal of a Parallelogram N D; whoſe Sides A B and A C it would have deſcribed in the ſame time with each of the reſpective Powers apart.

Dem. If the Body A were only acted on by the Force impreſs'd along A B; in the firſt inſtant of Time it would be in ſome Point of the right Line A B as in H, and ſo in the Line H L parallel to A C; if it were only acted on by the Power A impreſs'd in the Direction A C, it would in the ſame Inſtant of time be in ſome Point of the Line A C as in I, and ſo in the Line I L parallel to A B. But ſince the Directions of the Powers are not oppoſite to each other, neither of 'em can impede the other; and therefore the Body in the ſame inſtant of Time will arrive both at the Point H L and at I L; and will conſequently be in the Point L, where the two meet. In the ſame manner it appears that if K M and M G be drawn parallel to A B and A C, the Body in the ſecond Inſtant of Time will be in M, and at length in D. *Q. E. D.*

Cor. 1. Since about every right Line as AD, a Parallelogram as A B D C, may be conſtructed by making two equal Triangles A C D and A B D, on one common Baſe A D; every *rectilinear Motion*, when it may be of ſervice for the Demonſtration, may be reſolved into a *compound* one.

Cor. 2. But as the Proportion of the Sides A C and C D may be various, ſo alſo may the right Line A D be deſcribed by a *Motion* compounded various ways; and therefore the ſame rectilinear *Motion* may be reſolved into various compound *Motions*.

Cor. 3. Hence if a moveable Body be drawn by three ſeveral Powers according to the Directions B A, A D, and A C, (*Fig.* 33.) two of which taken together are equivalent to the third; they will be to each other as the right Lines B D, D A, D C, parallel to their Directions; that is, reciprocally as the Sines of the Angles included between the Lines of their Directions, and the Line of Direction of the third: D B being to A D as the Sine of the Angle B A D to the Sine of the Angle A B D.

Theor. XIX. In an equable compound *Motion*, the Velocity produced by the conſpiring Powers, is to the Velocity of each of the two apart, as the Diagonal A D (*Fig. penult.*) of the Parallelogram A B D C, in the Direction of whoſe Sides they act, to either of thoſe Sides A B or A C.

Dem. For in the ſame time that one of the Powers would carry it over the Side of the Parallelogram A B, and the other over A C ſeparately, join'd together they carry it over the Diagonal A D. The Diagonal A D therefore is the Space deſcribed by the conſpiring Powers in the ſame Time: but in an equable *Motion* the Velocities in the ſame Time are as the Spaces; the Velocities therefore ariſing from the conſpiring Forces are to the Velocity ariſing from either Force, as A D to A B or A C. *Q. E. D.*

Cor. 1. The conſpiring Forces therefore being given; *i. e.* the Ratio of the Velocities being given, by the Lines A B and A C given in magnitude, and the Direction thro' thoſe Lines being given in Poſition, or by the Angle of Direction; the Celerity and Direction of the oblique *Motion* is given; becauſe the Diagonal is given both in Magnitude and Poſition.

Cor. 2. The oblique *Motion* however being given, the ſimple ones are not, *vice verſa*, given; becauſe the ſame oblique *Motion* may be compounded of various ſimple ones.

Theor. XX. In a compound *Motion* produced by the ſame Forces, the Velocity is greater if the Angle of Direction be leſs; and leſs, if this be greater.

Dem. Let the greater Angle of Direction be B A C, (*Fig.* 34.) the leſs F A C; ſince the Powers are ſuppoſed the ſame, A C will be common to each Parallelogram A F C E and B A C D and beſides A B = A E. Now 'tis evident that on the footing of the greater Angle, the Diagonal A D is deſcribed; and on the footing of the leſs Angle, A E; and both in the ſame time, by reaſon A B = A E. The Velocities therefore are as A D to A E: Wherefore ſince A D is leſs than A E, the Velocity on the foot of the greater Angle is leſs than on that of the leſs Angle. *Q. E. D.*

Cor. Since the Legs A C and C E, with the included Angle, being given, the Angle C E A, and thence, alſo, A E is found; the Velocity of the conſpiring Powers, and the Angle of Direction, in any particular Caſe, being given; the Velocity of the compound *Motion*, and conſequently the Ratio of the Velocities produced by the ſame Powers under different Angles of Directions, may be determined.

For the particular Laws of MOTION *ariſing from the Colliſion of Bodies both* Elaſtic *and* Unelaſtic, *and that where the Directions are both* perpendicular *and* oblique, ſee PERCUSSION.

For Circular MOTION, *and the Laws of* Projectiles, ſee CENTRAL *Forces*, and PROJECTILE.

For the MOTION *of Pendulums, and the Laws of* Oſcillation, ſee PENDULUM and OSCILLATION.

Perpetual MOTION. See PERPETUAL *Motion*.

The celebrated Problem of a *perpetual Motion*, conſiſts in the inventing of a Machine; which has the Principle of its *Motion* within itſelf. M. *de la Hire* has demonſtrated the Impoſſibility of any ſuch Machine, and finds that it amounts to this, *viz.* to find a Body which is both heavier, and lighter at the ſame time; or a Body which is heavier than itſelf. See MACHINE.

Animal MOTION, is that whereby the Situation, Figure, Magnitude, &c. of the Parts, Members, &c. of Animals are changed.

Under theſe *Motions* come all the Animal Functions, as *Reſpiration*, *Circulation* of the Blood, *Excretion*, *Walking*, &c. See FUNCTION.

Animal Motions are uſually divided into two Species, *viz.* *Spontaneous*, and *Natural*.

Spontaneous, or *Muſcular* MOTION, is that perform'd by means of the Muſcles, at the Command of the Will; hence alſo call'd *Voluntary Motion*. See *Muſcular* MOTION.

Natural, or *Involuntary* MOTION, is that effected without ſuch Command of the Will; by the mere Mechaniſm of the Parts.

Such is the *Motion* of the Heart, and Pulſe; the Periſtaltic *Motion* of the Inteſtines, &c. See HEART, &c.

Inteſtine MOTION, an Agitation of the Particles, whereof a Body conſiſts. See INTESTINE; ſee alſo FERMENTATION, EFFERVESCENCE, &c.

Some Philoſophers will have every Body, and every Particle of a Body, in continual *Motion*. For Fluids, 'tis the Definition they give of ſuch Bodies, *viz.* that their Parts are in continual *Motion*. See FLUIDITY.

And as to Solids, they infer the like *Motion* from the Effluvia continually emitted thro their Pores. See EFFLUVIA.

Hence they deſcribe *Inteſtine Motion*, to be a *Motion* of the internal, and ſmaller Parts of Matter, continually excited by ſome external, latent Agent, which of itſelf is inſenſible, and only diſcovers itſelf by its Effects; appointed by Nature for the great Inſtrument of the Changes in Bodies.

MOTION, in Aſtronomy, is peculiarly apply'd to the orderly Courſes of the heavenly Bodies. See SUN, PLANET, COMET, &c.

The *Motion* of the Earth, from Weſt to Eaſt, is now generally granted among Aſtronomers: See it proved under the Article EARTH.

The *Motions* of the Celeſtial Luminaries are of two Kinds, *Diurnal* or *Common*; and *Secundary* or *Proper*.

Diurnal or *Primary* MOTION, is that wherewith all the heavenly Bodies, and the whole mundane Sphere, appears to revolve every day round the Earth, from Eaſt to Weſt. See DIURNAL.

This is alſo call'd the *Motion of the Primum Mobile*, and the *Common Motion*; to diſtinguiſh it from that proper to each Planet, &c. 'Tis about the various Phænomena reſulting from this *Motion*, that Aſtronomy is chiefly employ'd. See ASTRONOMY.

Secundary or *Proper* MOTION, is that wherewith a Star, Planet, or the like, advances a certain Space every day from Weſt towards Eaſt. See MOBILE.

See the ſeveral Motions of each Luminary, with the Irregularities, &c. *thereof, under its proper Article*; EARTH, MOON, STAR, &c.

MOTION *of Trepidation*. See TREPIDATION and LIBRATION.

MOTION, in Muſic, is the manner of beating the Meaſure, to haſten or ſlacken the Time of the Pronunciation of the Words, or Notes. See MEASURE and TIME.

The *Motion*, in Songs compos'd in double Time, differs from thoſe in triple Time. 'Tis the *Motion* that diſtinguiſhes Courants and Sarabands, from Gavots, Borees, Chacones, &c.

MOTION is alſo uſed among Mechanics, for the Inſide of a Watch, &c. more commonly call'd *Movement*. See MOVEMENT.

MOTIONS, in War, are the Marches, Counter-marches, &c. an Army makes in the changing of its Poſt.

The great Skill of a General conſiſts in diſcovering the Enemies *Motions*, and concealing his own. Nothing is more dangerous, than to make great *Motions* before a powerful Enemy, ready to come to Blows.

MOTION, or *Emotion*, in Rhetoric, &c. See PASSION.

MOTORII, MOTORY *Nerves*, the third Pair of Nerves, ſerving for the Motion of the Eye. See NERVE.

This Pair is united into one near their Inſertion into the Brain; by which means, when one Eye is moved towards any Object, the other is directed towards the ſame. See EYE.

MOTOS, a Piece of *Lint*, or Linnen Cloth, teaz'd like Wool, to be put into Ulcers, to ſtop the Flux of Blood, *&c.*

MOTRIX, ſomething that has the Power or Faculty of *Moving*. See Vis *Motrix*, Faculty, *&c.*

MOTTO, an *Italian* Term, literally ſignifying *Word* or *Saying*; uſed in Arms, Devices, *&c.* See Arms and Device.

The *Motto of an Armoury*, is a ſhort Sentence, or Diction carry'd in a Scroll generally over, ſometimes under the Arms; ſometimes alluding to the Name of the Bearer, ſometimes to the Bearing, and ſometimes to neither.

The *Motto*, or Word, ſays *Guillim*, is an external Ornament annex'd to Coat-Armour; being the Invention or Conceit of the Bearer, ſuccinctly and ſignificantly expreſs'd uſually in three, or four Words, which are ſet in ſome Scroll or Compartiment, plac'd at the foot of the Eſcutcheon.

As the *Motto* holds the loweſt Place in Arms; ſo it is the laſt in Blazoning. In ſtrictneſs, it ſhould expreſs ſomething intended in the Atchievement; but Cuſtom has now receiv'd whatſoever Fancy of the Deviſer. See Blazon.

The Uſe of *Motto's* is very antient; Hiſtory, both ſacred and profane, furniſhing Inſtances thereof. Our Anceſtors made choice of *Motto's* to expreſs their predominant Paſſions, as of Piety, Love, War, *&c.* or ſome extraordinary Adventure befallen them: Moſt of which, from ſome ſuch Original, have become hereditary in divers Families.

The *Motto's* of the Royal Family of *England*, are, *Dieu & mon Droit*, God and my Right; of the Royal Family of *Bourbon*, *Eſperance*, Hope; of the Order of the Garter, *Honi ſoit qui mal y penſe*, Shame be to him that Evil thinks; of the Duke of *Norfolk*, *Sola Virtus invicta*; of the Duke of *Bedford*, *Che ſara ſara*; of the Duke of *Devonſhire*, *Cavendo tutus*, alluding to the Family's Name *Cavendiſh*; of the Duke of *Kingſton*, *Pie repone te*, alluding to the Name *Pierepoint*; of the Earl of *Radnor*, *Quæ ſupra*, alluding to the three Stars in his Arms; of the Earl of *Abingdon*, *Virtus ariete fortior*, alluding to the three battering Rams bore in the Arms; of *Forteſcue* Lord *Clinton*, *Forte ſcutum ſalus Ducum.*

The *Motto of a Device*, is alſo call'd the *Soul of the Device.* See Device.

MOVEABLE, ſomething ſuſceptible of Motion; or that is diſpos'd to be mov'd. See Motion.

Thus a Sphere is ſaid to be the moſt *moveable* of all Bodies, *i.e.* the eaſieſt to move. A Door is *moveable* on its Hinges: The Magnetical Needle, on a Pin, or Pivot, *&c.*

Moveable is frequently uſed in Contradiſtinction to *Fixed.* See Fixed.

Moveable *Feaſts*, are ſuch as are not always held on the ſame Day of the Year, or Month; tho they be, on the ſame Day of the Week. See Feast.

Thus, *Eaſter* is a *moveable* Feaſt; being always held on the firſt Sunday after the full Moon following the 21ſt of *March*; which is *moveable* between the 1ſt of *March*, and the 18th of *April*. See Easter.

All the other *moveable* Feaſts follow *Eaſter*, *i. e.* keep their Diſtance from it; ſo that they are fix'd with reſpect thereto.

Such are *Septuageſima*, *Sexageſima*, *Aſh-Wedneſday*, *Aſcenſion-Day*, *Pentecoſt*, *Trinity-Sunday*, *&c.* Which ſee under their proper Articles.

MOVEABLES, or Moveable *Goods*, by the Civilians call'd *Bona* Mobilia, are ſuch as are capable of being remov'd from one Place to another; or which may be conceal'd or perverted; as not being fix'd to the Ground, *&c.*

In *England*, we have two Kinds of Effects, *Moveable* and *Immoveable*; the *Moveable* are Ready Money, Merchandizes, Bonds, Book-Debts, Cattel, Houſhold Inſtruments, *&c.* that are not faſten'd either with Iron or Nail, nor ſeal'd in the Plaiſter, but may be tranſported without either Fraction or Deterioration.

In the Cuſtomary Laws, we ſay *Moveables* follow the Perſon, and his proper Habitation; *Moveables* follow the Body, *&c.* which Words have different Meanings in different Countries.

Sometimes they ſignify, that *Moveables* go according to the Cuſtom of the Place where is the Habitation of the Deceas'd, tho he die in another Place; ſometimes they ſignify, that *Moveables* follow the Cuſtom of the Place where the Defunct died.

MOVEMENT, *Motion*, a Term frequently uſed in the ſame Senſe with *Automaton*.

The moſt uſual *Movements* are *Watches* and *Clocks*: The firſt are ſuch as ſhew the Parts of Time; the ſecond ſuch as publiſh it See Watch and Clock.

In its popular Uſe, among us, *Movement* ſignifies all the curious Parts of a Watch, Clock, or other curious Engine, which *move*, and, by that Motion, carry on the Deſign of the Inſtrument.

The *Movement* of a Clock, or Watch, is the Inſide; or that Part which meaſures the Time, ſtrikes, *&c.* excluſive of the Frame, Caſe, Dial-Plate, *&c.*

The Parts common to both of theſe *Movements* are,

The *Main-Spring*, with its Appurtenances; lying in the Spring-Box, and in the middle thereof lapping about the Spring-Arbor, to which one end of it is faſten'd. At top of the Spring-Arbor is the *Endleſs Screw*, and its Wheel; but in Spring-Clocks, this is a Ratchet-Wheel with its Click, that ſtops it. That which the main Spring draws, and round which the Chain or String is wrapped, is the *Fuſy*: This is ordinarily taper; in large Works going with Weights, it is cylindrical, and call'd the *Barrel.* The ſmall Teeth at the bottom of the Fuſy or Barrel, which ſtop it in winding up, is call'd the *Ratchet*; and that which ſtops it when wound up, and is for that end driven up by the Spring, the *Garde-gut*. The *Wheels* are various; the Parts of a Wheel, are the *Hoop* or *Rim*; the *Teeth*, the *Croſs*, and the *Collet* or Piece of Braſs ſolder'd on the Arbor or Spindle, whereon the Wheel is rivetted. The little Wheels playing in the Teeth of the larger, are call'd *Pinions*; and their Teeth, which are 4, 5, 6, 8, *&c.* are call'd *Leves*; the Ends of the Spindle are call'd *Pivots*; and the gutter'd Wheel, with Iron Spikes at bottom, wherein the Line of ordinary Clocks runs, the *Pully*. We need not ſay any thing of the *Hand*, *Screws*, *Wedges*, *Stops*, *&c.* See Wheel, Pivot, *&c.*

Theory of Calculating the Numbers for Movements.

1. It is to be obſerv'd, that a Wheel divided by its Pinion, ſhews how many Turns the Pinion has to one Turn of the Wheel.

2. That from the Fuſy to the Balance, the Wheels drive the Pinions; conſequently the Pinions run faſter, or make more Revolutions than the Wheels: but 'tis the contrary from the great Wheel to the Dial-Wheel.

3. That the Wheels and Pinions we write down either as Vulgar Fractions, or in the way of Diviſion in the common Arithmetic; *v.g.* a Wheel of 60 moving a Pinion of 5, is wrote either $\frac{60}{5}$, or better 5)60. And the number of Turns the Pinion has in one Turn of the Wheel, as a Quotient, thus, 5)60(12. A whole *Movement* may be wrote, as in the adjoining Scheme; where the uppermoſt Number expreſſes the Pinion of Report 4, the Dial-Wheel 36, and the Turns of the Pin 9; the ſecond, the Pinion, and Great-Wheel; the third, the ſecond Wheel, *&c.* the fourth, the Contrat Wheel; and the laſt, 17, the Crown-Wheel.

4)36(9

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5)55(11
5)45(9
5)40(8

17

Hence, 4. From the Number of Turns any Pinion makes in one Turn of the Wheel it works in, may be determin'd the Number of Turns a Wheel or Pinion has at any greater Diſtance, *viz* by multiplying together the Quotients; the Produce whereof is the Number of Turns. Thus,

Suppoſe the Wheels and Pinions as in the Caſe adjoining; 11 multiply'd by 9, gives 99, the Number of Turns of the ſecond Pinion 5, in one Turn of the Wheel 55, which runs concentrical, or on the ſame Spindle with the Pinion 5. Again, 99 multiply'd by 8, gives 792, the Number of Turns the laſt Pinion has in one Turn of the firſt Wheel 5.

5)55(11
5)45(9
5)40(8

Hence we proceed to find, not only the Turns, but the Number of Beats of the Balance in the Time of thoſe Turns. For having found the Number of Turns the Crown-Wheel has in one Turn of the Wheel ſought, thoſe Turns multiply'd by its Notches, give half the Number of Beats, in that one Turn of the Wheel. Suppoſe, *v. g.* as in the laſt Caſe, the Crown-Wheel to have 720 Turns, to 1 of the firſt Wheel; this Number multiply'd by 15, the Notches in the Crown-Wheel, produces 10800; half the Number of Strokes of the Balance in one Turn of the firſt Wheel.

The general Diviſion of a *Movement*, is into the Clock and Watch-Parts. See Clock-*Work* and Watch-*Work*.

MOVER, or *firſt* Mover. See Mobile.

Perpetual Mover. See Perpetual *Motion*.

MOULD, in the Mechanic Arts, *&c.* a Cavity artfully cut, with deſign to give its Form, or Impreſſion to ſome ſofter Matter apply'd therein.

Moulds are Inſtruments of great Uſe in Sculpture, Foundery, *&c.* See Sculpture, Foundery, *&c.*

The Workmen employ'd in melting the Mineral or Metallic Glebe dug out of Mines, have each their ſeveral *Mould*, to receive the melted Metal as it comes out of the Furnace; but different according to the diverſity of Metals and Works. In Gold-Mines, they have *Moulds* for Ingots. In Silver-Mines for Bars. In Copper and Lead-Mines for Pigs or Salmons: In Tin-Mines for Pigs and Ingots: And in Iron-Mines for Sows, Chimney-Backs, Anvils, Caldrons, Pots, and other large Utenſils and Merchandiſes of Iron, which are here caſt, as it were, at firſt hand. See Gold, Silver, Lead, Tin, Iron, *&c.*

The *Founders of large Works*, as Statues, Bells, Guns, and other brazen Works, have *Moulds* of Wax, ſupported within ſide by what they call a *Core*, and cover'd without ſide with a Cap or Caſe. 'Tis in the Space which the Wax took up, which is now melted to leave it free, that the liquid Metal runs, and the Work is form'd; being carried thither thro' a great Number of little Canals which cover the whole *Mould*. See FOUNDERY.

The Moulds *of Coiners* are Frames full of Sand, wherein the Plates of Metal are caſt that are to ſerve for the ſtriking of Species of Gold or Silver. See COINAGE.

Moulds *of Founders of ſmall Works* are like the Frames of Coiners. 'Tis in theſe Frames, which are likewiſe fill'd with Sand, that their ſeveral Works are faſhion'd; into which, when the two Frames whereof the *Mould* is compoſed, are rejoin'd, the melted Braſs is run. See FOUNDERY.

Moulds *of Letter-Founders* are partly of Steel, and partly Wood: The Wood, properly ſpeaking, ſerves only to cover the real *Mould* which is within, and to prevent the Workman who holds it in his Hand, from being incommoded by the impreſſion of the Heat of the melted Metal. Only one Letter or Type can be form'd at once in each *Mould*. See *Letter* FOUNDERY.

Moulds *in the Manufacture of Paper*, are little Tables compoſed of ſeveral Braſs or Iron Wires tied to each other by another Wire ſtill finer. Each *Mould* is of the bigneſs of the Sheet of Paper to be made, and has a Rim or Ledge of Wood to which the Wires are faſten'd. Theſe *Moulds* are more uſually call'd Forms. See PAPER.

The Furnaliſts, Furnace, and Crucible Makers alſo make uſe of *Moulds* for a part of their Works, eſpecially Crucibles. They are made of Wood, of the ſame form with the Crucibles; that is in Form of a truncated Cone. They have Handles of Wood to hold, and turn 'em with, when being cover'd with the Earth, the Workman has a mind to round or flatten his Veſſel. See FURNALISTS.

Moulds for Leaden Bullets, are little Iron Pinchers, each of whoſe Branches terminates in a Hemiſpherical Concave, which when ſhut, form an entire Sphere. In the Lips or Sides where the Branches meet, is a little Jet or Hole, thro' which the melted Lead is convey'd.

The Glaſiers have two kinds of *Moulds*, both ſerving to caſt their Lead. In the one they caſt the Lead into long Rods or Canes fit to be drawn thro' the Vice, and the Grooves formed therein. This they ſometimes call *Ingot-Mould*.

In the other they *Mould* thoſe little Pieces of Lead a Line thick, and two Lines broad, faſten'd to the Iron-Bars. Theſe may be alſo caſt in the Vice; which ſee, ſee alſo GLASIERY.

The Goldſmiths uſe the Bones of the Cuttle-Fiſh to make *Moulds* for their ſmall Works; which they do by preſſing the Pattern between two Bones, and leaving a Jet or Hole to convey their Silver thro' after the Pattern has been taken out.

Mould, among Maſons, a Piece of hard Wood or Iron, hollowed within ſide, anſwerable to the Contours of the Mouldings or Corniſhes, *&c.* to be form'd. This is otherwiſe call'd Calliber.

Moulds among Plumbers, the Tables whereon they caſt their Sheets of Lead. Theſe they ſometimes call ſimply *Tables*. Beſides theſe, they have other real *Moulds* wherewith they caſt Pipes without Soldering. See both the one and the other under PLUMBERY.

Moulds among Glaſs-Grinders, are Wooden-Frames whereon they make the Tubes wherewith they fit their Perſpectives, Teleſcopes, and other Optic Machines. Theſe *Moulds* are Cylinders, of a Length and Diameter according to the Uſe they are to be apply'd to, but always thicker at one end than the other, to facilitate the ſliding. The Tubes made on theſe *Moulds* are of two kinds; the one ſimply Paſte-Board and Paper; the other of thin Leaves of Wood join'd to the Paſte-Board. To make of theſe Tubes to draw out, only the laſt or innermoſt is form'd on the *Mould*; each Tube made afterwards ſerving as a *Mould* to that which is to go over it; but without taking out the *Mould* from the firſt. See TUBE.

Moulds uſed in Basket-Making are very ſimple, conſiſting ordinarily of a Willow or Oſier turn'd or bent into an Oval, Circle, Square, or other Figure, according to the Baskets, Panniers, Hampers, Hots, and other Utenſils intended. On theſe *Moulds* they make, or more properly meaſure all their work; and accordingly have 'em of all Sizes, Shapes, *&c.*

Moulds among Tallow-Chandlers are of two kinds: The firſt for the common dipp'd Candles, being the Veſſel wherein the melted Tallow is diſpoſed, and the Wick dipp'd. This is of Wood of a triangular Form, and ſupported on one of its Angles, ſo that it has an opening of near a Foot a-top. The other uſed in the Fabric of *Mould* Candles, is of Braſs, Pewter, or Tin: Here each Candle has its ſeveral *Mould*. See each under CANDLE.

Mould among Gold-Beaters, a certain Number of Leaves of Velom, or pieces of Guts, cut ſquare, of a certain ſize, and laid over one another, between which they put the Leaves of Gold and Silver which they beat on the Marble with the Hammer. They have four kinds of *Moulds*; two whereof are of Velom, and two of Gut. The ſmalleſt of thoſe of Velom conſiſts of forty or fifty Leaves, the largeſt contains an hundred. For the others, each contains five hundred Leaves.

The *Moulds* have all their ſeveral Caſes, conſiſting of two pieces of Parchment, ſerving to keep the Leaves of the *Mould* in their Place, and prevent their being diſorder'd with beating. See GOLD-*Beating*.

Mould *Candles*, ſee *Mould*-CANDLE.

Mould, in Agriculture, *&c.* a kind of Soil; call'd alſo *Loam* and natural Earth. See SOIL and LOAM.

The beſt *Mould* for the Gardeners Purpoſes, according to Mr. *Evelyn*, is that of a blackiſh grey Colour; according to Mr. *Switzer*, that of a lively Cheſnut, or Hazle Colour, which cuts like Butter, and does not ſtick obſtinately, but is ſhort, tolerably light, breaking into ſmall Clods, may be temper'd without cruſting or chapping in dry Weather, or turning to Mortar in wet.

Next to Cheſnut, are the dark Greys, and Ruſſet. The light and dark Aſh-Colours are naught, being thoſe commonly found on heathy Ground. The yellowiſh red is worſt of all.

MOULDINESS, a Term apply'd to ſolid Things that corrupt in the Air, from ſome hidden Principle of Humidity therein; and whoſe Corruption ſhews itſelf by a certain white Down, or Beard on their Surface.

This *Mouldineſs*, when view'd with a Microſcope, affords a curious Spectacle; being a kind of Meadow out of which ariſe Herbs and Flowers, ſome only in the bud, others full blown, and others decay'd; each having its little Root, Stalk, and other Parts: The Figure whereof may be ſeen in *Hook's Micrographia*. The ſame thing may be obſerv'd of the *Mouldineſs* that gathers on the Surface of liquid Bodies.

Mr. *Bradley* obſerv'd this *Mouldineſs* in a Melon very accurately; and found the Vegetation of theſe little Plants exceedingly quick. Each Plant had its Seeds in great Abundance, which did not ſeem to be three Hours e'er they began to ſhoot up, and in ſix Hours more the Plant was compleat and mature, and the Seed ready to fall. When the Fruit had been cover'd with a *Mould* for ſix Days, its vegetative Quality began to abate, and was intirely gone in two Days more; then came on a Putrefaction, and the fleſhy Parts of the Melon yielded nothing elſe but a ſtinking Water, which began to have a gentle Motion in its Surface, and in two days time Maggots appear'd, which in ſix more laid themſelves up in their Bags, where they continu'd four days; and then came out Flies.

MOULDING, any thing caſt in a Mould, or that ſeems to have been ſo; tho' in reality it were cut with the Chiſſel, or the Ax.

MOULDINGS, or *Ornaments*, in Architecture, are Projectures beyond the Naked of a Wall, Column, Wainſcot, *&c.* the Aſſemblage whereof forms *Corniſhes*, *Door-Caſes*, and other Pieces of Architecture. See ORNAMENT.

Some *Mouldings* are crowned with a Fillet; others are without, as the Doucine, Talon, Ovolo, Torus, Scotia, Aſtragal, Gula, Corona, *&c.* See each under its proper Article.

Again, ſome are adorned with Sculpture, either hollow'd, or in Relievo.

Mouldings are in Architecture what Letters are in Writing. By the various Diſpoſitions and Combinations of *Mouldings*, may be made an infinite Number of different Profiles for all ſorts of Orders and Compoſitions, Regular and Irregular; and yet all the kinds of *Mouldings* may be reduced to three, *viz. Square*; *Round*; and *Mixed*, *i. e.* compoſed of the other two.

For this Reaſon, thoſe who invented the *Gothic* Architecture, reſolving to recede from theſe perfect Figures, and affecting to uſe others leſs perfect, to diſtinguiſh their Architecture from the Antique, introduced a new Set of whimſical *Mouldings* and Ornaments. See GOTHIC, GROTESQUE, *&c.*

Regular *Mouldings* are either large, as *Doucines*, *Ovolos*, *Gulas*, *Talons*, *Torus's*, *Scotias*, &c. or ſmall, as *Fillets*, *Aſtragals*, *Conges*, &c. which ſee in their places, DOUCINE, OVOLO, ASTRAGAL, FILLETS, *&c.*

MOULINET is a *French* Term properly ſignifying a little Mill; being a diminutive of *Moulin*, Mill.

It is uſed in Mechanics to ſignify a Roller, which being croſſed with two Levers, is uſually apply'd to Cranes, Capſtans, and other ſorts of Engines of the like nature, to draw Cords, and heave up Stones, Timber, *&c.* See CAPSTAN, *&c.*

Moulinet is alſo a kind of Turn-Stile, or Wooden-Croſs, which turns horizontally upon a Stake fixed in the Ground; uſually placed in the Paſſages to keep out

Horſes, and to oblige Paſſengers to go and come one by one.

Theſe *Moulinets* are often ſet near the Out-works of Fortified Places at the ſide of the Barriers, thro' which People paſs on foot.

MOULTING, in Natural Hiſtory, ſee MOLTING.

MOUND, a Term uſed for a Bank, Rampart, or other Fence; particularly of Earth.

MOUND, in Heraldry, is a Ball or Globe with a Croſs upon it, ſuch as our Kings are uſually drawn with, holding it in their left Hand, as they do the Scepter in the Right. See GLOBE.

MOUNT, MONS, an Elevation of Earth, call'd alſo *Mountain*. See MOUNTAIN.

The Words *Mount* and Mountain are Synonymous; but the former is ſcarce ever uſed in Proſe, unleſs when accompanied with ſome proper Name, as *Mount Ætna*, *Mount Gibel*, *Mount Libanon*, *Mount Sinai*, *Mount Atlas*, *Mount Parnaſſus*, &c.

In Gardening, *Mount* is ſometimes alſo uſed for a Walk raiſed on the ſide of the Garden above the Level of the reſt of the Plot.

MOUNTS *of Piety*, are certain Funds or Eſtabliſhments in *Italy*, where Money is lent out on ſome ſmall Security. We had alſo *Mounts of Piety* in *England*, raiſed by Contribution for the Benefit of People ruin'd by the Extortions of the *Jews*.

MOUNTAIN, MONS, MOUNT, a Part of the Earth riſing to a conſiderable Height above the Level of the Surface thereof. See EARTH.

The Origin of *Mountains* is variouſly aſſigned by Philoſophers: Some will have 'em co-eval with the World, and created along with it.

Others, among whom Dr. *Burnet*, will have 'em to take their Riſe from the Deluge; urging, that the extreme Irregularity and Diſorder viſible in 'em, plainly ſhews they don't come immediately out of the hand of God, but are the Wrecks of the Old World broken into the Abyſs.

Others again, alledge from Hiſtory, that the Roots of many Hills being eaten away, the Hills themſelves have ſubſided, and ſunk into Plains: Whence they conclude, that where the Corruption is natural, the Generation is ſo too.

This, indeed, appears pretty evident, that ſome *Mountains* muſt have been generated gradually, and have grown up in Proceſs of Time, from the Sea-Shells, &c. found in many of 'em; which may be accounted for from a violent Wind blowing the Sand, &c. into huge Heaps, which are afterwards made into a Maſs by the Rain, &c. Some among the Divines tell us, that the Earth was created perfectly even; and that when God ſeparated the Water from the Land, he dug Channels in the Earth; and the Earth ſcoop'd out, he threw up in *Mountains*: but whether the *Mountains* be ſufficient to fill all the Channels of the Ocean, let them look to it.

The Uſes of *Mountains* are almoſt infinite; we ſhall only mention two or three. 1. They ſerve as Skreens to keep off the Cold and nipping Blaſts of the Northern and Eaſtern Winds. 2. They ſerve for the Production of a great Number of Vegetables and Minerals, which are not found in any other Soil. 3. The long Ridges and Chains of lofty and topping *Mountains* being generally found to run from Eaſt to Weſt, ſerve to ſtop the Evagation of the Vapours towards the Poles, without which they would all run from the Hot Countreys, and leave 'em deſtitute of Rain.

Mr. *Ray* adds, that they condenſe thoſe Vapours, like Alembic-Heads, into Clouds, and ſo by a kind of external Diſtillation, give Original to Springs and Rivers; and by amaſſing, cooling, and conſtipating them, turn them into Rain, and by that means render the fervid Regions of the torrid Zone habitable, See SPRINGS, &c.

In Hiſtory we have Inſtances of *Mountains* travelling a conſiderable Diſtance, particularly *Husket-Marvel-Hill*, if I miſ-remember not, in *Herefordſhire*, which is ſaid to have made a conſiderable Journey.

To meaſure the Height of a *Mountain*, ſee ALTITUDE, &c.

Tho there is another way uſed by Dr. *Halley* in the Meaſure of *Snowdon-Hill* in *Wales*, by means of a Barometer, the different Heights of whoſe Mercury at the Top and Bottom of the *Mountain*, give its perpendicular Altitude, accounting 82 Feet perpendicular Aſcent, for every Inch varied in the Height of the Mercury. See LEVELLING.

MOUNTAINS *in the Moon*, ſee MOON.

MOUNTING *the Guard*, *Trenches*, *Breach*, &c. denotes the going upon Duty; being upon Guard, in the Trenches; running to the Breach, &c. See GUARD, TRENCH, &c.

MOUNTING *a Cannon*, *Mortar*, &c. is the ſetting it on its Carriage; or the raiſing its Mouth. See CANNON, MORTAR, CARRIAGE, &c.

MOUNTING in Manufactures, ſomething ſerving to raiſe or ſet off a Work.

Thus the Frame or Border and its Dependencies, makes the *Mounting* of a Looking-Glaſs.

The Fuſt, or But, the *Mounting* of a Muſquet, Carabine, &c.

The Hilt, &c. the *Mounting* of a Sword.

MOUNTING *of a Fan*, the Sticks which ſerve to open and ſhut it, whether they be of Wood, Ivory, Tortoiſe-ſhell, Whale-Bone, Indian-Cane, &c. See FAN.

MOURNING, a particular Dreſs, or Habit wore, to ſignify Grief, on ſome melancholy Occaſion.

The Modes of *Mourning* are various in various Countries; as are alſo the Colours that obtain for that End.

In *Europe*, the ordinary Colour for *Mourning* is *Black*; in *China*, *White*; in *Turky*, *Blue*, or Violet; in *Egypt*, *Yellow*; in *Ethiopia*, *Brown*.

The antient *Spartan* and *Roman* Ladies mourn'd in White; and the ſame Colour obtain'd formerly in *Caſtile* on the Death of their Princes. *Herrera* obſerves, that the laſt time it was uſed, was in 1498, at the Death of Prince *John*. Kings and Cardinals mourn in *Purple*.

Each People have their Reaſons for the particular Colour of their *Mourning*: White is ſuppos'd to denote Purity; Yellow, that Death is the End of human Hopes, in regard Leaves when they fall, and Flowers when they fade, become Yellow. Brown denotes the Earth, whither the Dead return. Black, the Privation of Life, as being the Privation of Light. Blue expreſſes the Happineſs which 'tis hoped the Deceaſed does enjoy; and Purple, or Violet, Sorrow on the one ſide, and Hope on the other; as being a Mixture of Black and Blue.

MOUTH, in Anatomy, a part of the human Face, conſiſting of the *Lips*, the *Gums*, the Inſide of the *Cheeks*, and the *Palate*. See FACE, LIPS, GUMS, &c.

All theſe Parts are lined with a glandulous Coat, which is continu'd over the whole inner Surface of the *Mouth*, and all its Parts, the Teeth excepted.

From the Glands of this Coat, thro innumerable little excretory Ducts, is ſeparated a kind of Salival Juice, which ſerves to keep the *Mouth*, and all its Parts, moiſt, ſmooth, and ſlippery. See SALIVA.

On the hind part of the Palate, perpendicularly over the Rima of the Larynx, hangs a round, ſoft, ſmooth Body, like the End of a Child's Finger, form'd by the Duplicature of the Membrane of the Palate, and call'd the *Uvula*, which is moved by two Muſcles, call'd *Sphenoſtaphilinus* and *Pterygoſtaphilinus*; and ſuſpended by as many Ligaments. See UVULA.

Under the Membrane of the Palate, are a great number of Glands pretty conſpicuous in the fore-part, like Grains of Millet; whoſe excretory Ducts piercing the Membrane, open into the *Mouth*: but towards the hind-part they lie much thicker, and about the Root of the Uvula are gather'd ſo cloſe to one another, that they ſeem to form one large conglomerate Gland; which is therefore, by *Verbeyen*, call'd *Glandula conglomerata Palatina*. See PALATE.

The Gums are, as it were, the Ligaments of the Teeth; which ſee under GENCIVA.

Beſides the proper Parts of the *Mouth*, there are in and about it others, highly ſerviceable and neceſſary thereto.

Among which are the Glands; the moſt conſiderable whereof are the *Parotides*, the *Glandulæ Maxillares*, the *Sublinguales*, and the *Tonſils* or *Amygdalæ*; which ſee in their reſpective Places. See PAROTIDES, &c.

Theſe are the Salival Organs, whence ſprings all that Liquor we call the *Spittle*, which flows into the *Mouth* by the reſpective Ducts, after its Separation from the Blood in the Bodies of the Glands: As the Demand of Spittle is greater in Actions of the lower Jaw, *i. e.* in Maſtication, Deglutition, much Talking, &c. ſo does the Diſpoſition of theſe Salival Ducts favour that Diſcharge on thoſe Occaſions.

Mr. *Derham* obſerves the *Mouth*, in the ſeveral Species, to be nicely adapted to the Uſes of ſuch a Part; well ſized and ſhaped for the catching of Prey, for the gathering and receiving Food, the Formation of Speech, &c.

In ſome Creatures it is wide and large, in ſome little and narrow; in ſome with a deep Inciſure up into the Head, for the better catching and holding of Prey, and more eaſy Comminution of hard, large, and troubleſome Food; in others with a ſhorter Inciſure, for the gathering and holding of herbaceous Food.

In Inſects it is very notable: in ſome forcipated to catch, hold and tear the Prey; in ſome aculeated, to pierce and wound Animals, and ſuck their Blood; in others ſtrongly ridg'd with Jaws and Teeth, to gnaw and ſcrape out their Food, carry Burdens, perforate the Earth, nay, the hardeſt Wood, and even Stones themſelves, for Houſes and Neſts for their Young.

Nor is it leſs remarkable in Birds, being neatly ſhaped for piercing the Air, hard and horny, to ſupply the want of Teeth; hooked in the rapacious Kind, to catch and hold their Prey; long and ſlender, in thoſe who have their Food to grope for in mooriſh Places; and broad and long, in thoſe that ſearch it in muddy Places. See Bill.

Mouth is uſed in the Courts of Princes, for what relates to their Eating and Drinking.

Hence *Officers of the Mouth*, *Yeomen of the Mouth*, &c.

Daviler defines *Mouth*, an Apartment compos'd of ſeveral Rooms, as Offices, Kitchins, *&c.* where the Meat intended for the firſt Tables, is dreſs'd by itſelf. At Court this is call'd the *King's Mouth*.

Mouth, in the Manage, is uſed for the Senſibility a Horſe has in that part, where the Bits are apply'd.

Opening, or *Shutting the* Mouth, of a Cardinal, is a Ceremony uſed in the Conſiſtory at *Rome*; wherein the Pope ſhuts a new-elected Cardinal's *Mouth*, ſo as he may not ſpeak at all, even tho the Pope ſhould ſpeak to him; and remains in the mean time depriv'd of all Voice, both active and paſſive, till the polling of another Conſiſtory, when the Pope *opens the Mouth* again, making a little Harangue, to teach him how to ſpeak, and comport himſelf in the Conſiſtory. See Cardinal.

MOXA, a ſort of Cotton, or downy Subſtance, brought from *China*, and by ſome ſaid to grow on the lower part of the Mugwort-Leaf.

It is not known for any medicinal Efficacy, but what common Report mentions of its curing the Gout, by burning it upon the Part; yet People have not Faith enough to try it this way: and if they had, in all likelihood, any other Cauſtic would do as well, and for the ſame reaſon.

MOYENAU, in Fortification, is a ſmall flat Baſtion, commonly plac'd in the middle of an over-long Curtain; where the Baſtions at the Extremities are not well defended from the ſmall Shot, by reaſon of their Diſtance: This Work is proper for lodging a Body of Muſqueteers, to fire upon the Enemy from all ſides.

MUCILAGE, in Pharmacy, *&c.* a thick, viſcous Juice; ſo call'd, as reſembling Snot, or the *Mucus* of the Noſe. See Mucus.

It is prepar'd from Roots, and Seeds pounded in a Mortar, and infuſed in hot Water, and ſtrained thro' a Cloth.

The Seeds chiefly uſed for this purpoſe, are thoſe of Althæa, Mallows, Symphytum, *&c.*

Mucilages enter the Compoſition of ſeveral Plaiſters; they ſometimes are alſo made of Gums and Fruits, as Figs, Quinces, Izing-Glaſs, *&c.*

Mucilage is alſo a thick, pituitous Matter, evacuated with the Urine in the Gravel, and Dyſuria.

MUCILAGINOUS *Glands*, a very numerous Set of Glands in the Joints, firſt taken notice of, to any purpoſe, by Dr. *Havers*, in his *Oſteology*.

He obſerves, that there are two ſorts; ſome ſmall, next a-kin to milliary Glands, being Glandules plac'd all upon the Surface of the Membranes, which lie over the Articulations.

The other ſort are conglomerated, or many Glandules collected, and planted one upon another, ſo as to make a Bulk, and appear conſpicuouſly. In ſome of the Joints, there are ſeveral of them; in others, there is a ſingle one.

As to the Structure of theſe large Glands; they conſiſt of ſmall Veſicles, which are not gather'd together into ſeveral Lobes, or Bags of Glandules, but are diſpos'd upon ſeveral Membranes lying over one another, of which Membranes there are ſeveral in every one of theſe Glands, which appear evidently in thoſe who are hydropical. They have their Blood-Veſſels, as other Glands, but their Veins have a particular Texture, in their Courſe, for retarding the Return of the Blood from the Glands, that the *mucilaginous* Liquor, which is not ſeparated with the greateſt Expedition, may have time to be ſeparated; which is the Contrivance, wherever a thick Fluid is to be ſecern'd. See Animal *Secretion*.

The large *mucilaginous Glands* are variouſly ſituated; ſome in a Sinus form'd in the Joint, others ſtand near, or over-againſt the Interſtice, between the articulated Bones: but in general, they are ſo plac'd, as to be ſqueez'd gently, and lightly preſs'd in the Inflection or Extenſion of the Joint, in order to yield a Quantity of Mucilage, proportionate to the Motion of the Part, and the preſent Occaſion, without any Injury.

The Deſign of all thoſe Glands is to ſeparate a *mucilaginous* kind of Liquor, that ſerves principally to lubricate the Joints, or to make them ſlippery. It ſerves likewiſe to preſerve the Ends of the articulated Bones from Attrition and Heating: But all this it doth, in conjunction with the medullary Oil; with which, together, is made a Compoſition admirably well fitted for thoſe Ends: for the Mucilage adds to the Lubricity of the Oil, and the Oil preſerves the Mucilage from growing too thick and viſcous.

The Doctor obſerves the ſame Glands to lie between the Muſcles and Tendons; and ſuppoſes that there is the ſame Mixture of an oily and *mucilaginous* Subſtance; the one being that Fat, which is found between the Muſcles, and is ſupply'd by the *Glandulæ Adipoſæ*; and the other ſeparated by the *mucilaginous* Glandules, of which the common Membrane of the Muſcles is every where full. This Mixture in the Interſtices of the Muſcles, lubricates them and their Tendons, and preſerves them from ſhrinking, and growing rigid and dry.

MUCRO *Cordis*, or *Apex*, in Anatomy, the lower pointed End of the Heart; thus call'd from *Mucro* the Point of a Spear, *&c.* See Heart.

Hence *mucronated* is apply'd to whatever tends to, or terminates in a Point, like that of a Spear; as *Mucronatum Os*, *&c.* See Enſiformis *Cartilago*.

MUCOUS *Glands*, are three Glands which empty themſelves into the Urethra; ſo call'd by the firſt Diſcoverer, Mr. *Cowper*, from the Tenacity of the Liquor which they ſeparate.

The two firſt diſcover'd of theſe, are about the bigneſs a *French* Bean, of a depreſs'd oval Figure, and a yellowiſh Colour, like the *Proſtates*, being on each ſide the Bulb of the cavernous Body of the Urethra, a little above it. Their excretory Ducts, ſpring from this internal Surface, next the inner Membrane of the Urethra; into which they open a little lower by two diſtinct Orifices, juſt below its bending under the *Oſſa Pubis in Perinæo*, where they diſcharge a tranſparent viſcous Liquor. The third *mucous* Gland, is a ſmall, conglobate, yellowiſh Gland, like the former, but ſomewhat leſs, ſituate above the Angle of Flexure of the Urethra, under the *Oſſa Pubis*, in the *Perinæum*, near the *Anus*. It has two excretory Ducts, which enter the Urethra obliquely, a quarter of an Inch below the two former; and diſcharge a Liquor like the former, both in Colour and Conſiſtence. See Urethra.

MUCUS *of the Joints*, is a mucilaginous Liquor, ſeparated by its proper Glands, conveniently plac'd in the Interſtices of the Bones, where thoſe Glands are gently preſs'd by the Motion of the Parts: it ſerves to make the Extremities of the Bones or Joints ſlip more eaſily. See Bone.

Mucus *of the Urethra*, a viſcous tranſparent Liquor, ſerving to line and lubricate the Parts, that the Seed may ſlip more freely, without adhering. It comes from Glands lately diſcover'd by Mr. *Cowper*, about the Penis, and is that, which in Women is commonly miſtaken for the Semen. See Penis, Seed, *&c.*

Mucus *of the Noſtrils*, is ſeparated by its proper Glands, plac'd in the internal Membrane of thoſe Parts. It ſerves to moiſten, lubricate, and defend the Olfactory Nerves; which being extremely ſoft and naked, would, without ſuch Proviſion, be ſoon ſpoil'd. See Noſe, *&c.*

MUFTY, ſee Muphti.

MUGGLETONIANS, a Religious Sect, which aroſe in *England*, about the Year 1657; denominated from their Leader *Lodowick Muggleton*, a Journey-man Taylor.

Muggleton, with his Aſſociate *Reeves*, ſet up for great Prophets; and pretended to an abſolute Power of ſaving and damning whom they pleas'd: Giving out, that they were the two laſt Witneſſes of God, that ſhould appear before the End of the World.

MUID, a large Meaſure, in uſe among the *French*, for dry Commodities; as Corn, Pulſe, Salt, Lime, Coals, *&c.* See Meaſure.

The *Muid* is no real Veſſel uſed as a Meaſure; but an Eſtimation of ſeveral other Meaſures, as the Septier, Mine, Minot, Buſhel, *&c.*

At *Paris*, the *Muid* of Wheat, Pulſe, and the like, is compoſed of twelve Septiers, each Septier making two Mines, the Mine two Minots, the Minot three Buſhels, the Buſhel four Quarts, or ſixteen Litrons, each Litron 36 cubic Inches, exceeding our Pint by $1\frac{81}{31}$ cubic Inch.

The *Muid* of Oats is double that of Wheat, tho' compoſed, like that, of 12 Septiers; but each Septier contains 24 Buſhels.

The *Muid* of Charcoal contains 20 Mines, Sacks, or Loads, each Mine two Minots, each Minot eight Buſhels, each Buſhel four Quarts, *&c.*

Muid is alſo one of the nine Casks, or regular Veſſels uſed in *France*, to put Wine and other Liquors in.

The *Muid* of Wine divided into two *Demi-Muids*, four *Quarter-Muids*, and eight *Half Quarter-Muids*, contains 36 Septiers, each Septier 8 Pints, *Paris* Meaſure; ſo that the *Muid* contains 288 Pints. See Meaſure.

MULCT, a Penalty, or Fine of Money. See Fine, Amerciament, *&c.*

MULATTO, or Mulat, a Name given, in the *Indies*, to thoſe who are begotten by a Negro Man on an *Indian* Woman; or an *Indian* Man on a Negro Woman.

Thoſe begotten of a *Spaniſh* Woman and an *Indian* Man, are call'd *Metis*; and thoſe begotten of a Savage by a *Metis*, are call'd *Jambos*.

Theſe are all very different in Colour, and in their Hair.

The Word comes from *Mulat*, or *Mula*, Mule; begotten of two different Species.

MULE, in Natural Hiſtory, a Beaſt generated between an Aſs and a Mare; or between a Horſe and a She-Aſs.

Mules are a ſort of Monſters; and, therefore, don't propagate their kind. See MONSTER.

And yet the Antients mention a ſort of *Mules* that were prolific, in *Phrygia*, *Syria*, *Cappadocia*, and *Africa*. Witneſs *Ariſtotle*, *Hiſt. Animal.* L. VI. c. 36. *Varro de Re Ruſtica*, Lib. II. c. 1. *Columella*, L. VII. c. 36. *Theophraſtus*, and, after him, *Pliny*, L. VIII. c. 44. *Steno*, examining the Teſticles of a *Mule*, found Eggs therein, with a ſort of Placenta about 'em; which perſuaded him that *Mules* might engender without any Miracle.

The *Roman* Ladies had Equipages drawn by *Mules*; as appears from the Medals of *Julia* and *Agrippina*. And at this day, in *Spain* the Coaches of the Nobility, and even Princes, are uſually drawn by no other than *Mules*. We are aſſured that M. *Thuanus*, firſt Preſident of Parliament, had the fourth Coach in *France*, in 1585; till which time every body rid to Court, Parliament, *&c.* on *Mules*. See COACH.

MULES, among Gardeners, a ſort of vegetable Monſters produced by putting the *Farina fœcundans* of one Species of Plant into the *Piſtil* or *Utricle* of another. See GENERATION *of Plants*.

The Carnation and Sweet-William being ſomewhat alike in their Parts, particularly their Flowers; the *Farina* of the one will impregnate the other; and the Seed ſo enliven'd will produce a Plant differing from either. An Inſtance of this we have in Mr. *Fairchild*'s Garden at *Hoxton*; where a Plant is ſeen neither Sweet-William, nor Carnation, but reſembling both equally; which was raiſed from the Seed of a Carnation that had been impregnated by the *Farina* of the Sweet-William. Theſe Couplings being not unlike thoſe of the Mare with the Aſs, which produce the *Mule*; the ſame Name is given 'em; and they are like the others, unable to multiply their Species.

This gives us a hint for altering the Property and Taſte of any Fruit, by impregnating one Tree with the *Farina* of another of the ſame Claſs; *e. gr.* a Codling with a Pearmain, which will occaſion the Codling ſo impregnated to laſt a longer time than uſual, and be of a ſharper Taſte. Or if the Winter-Fruits be fecundated with the Duſt of the Summer-Seeds, they will decay before their uſual time. And from this accidental Coupling of the *Farina* of one with the other, it is that in an Orchard where there is variety of Apples, even the Fruit gather'd from the ſame Tree differ in their Flavour, and in the Seaſon of Maturity. 'Tis from the ſame accidental Coupling that proceeds the numberleſs Varieties of Fruits and Flowers rais'd every Day from Seed. See FARINA and SEED.

MULIEBRIA, a Term ſometimes uſed to ſignify the Privities of Women; or ſo much as is otherwiſe call'd, *Cunnus*. See PUDENDUM, CUNNUS, *&c.*

MULIER, a Term in Law, ſeeming to be a corruption of the *Latin Melior*, or the *French Meilleur*, better; and ſignifying the lawful Iſſue born in Wedlock.

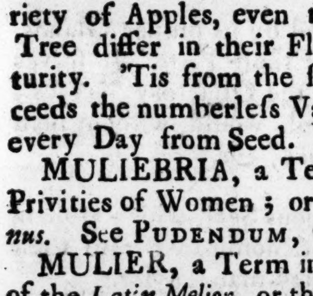
Tho, according to *Glanvile*, the lawful Iſſue is rather call'd *Mulier* than *Melior*, becauſe begotten on *Mulieres*, and not of *Concubinæ*: For he calls ſuch Iſſue *filios Mulieratos*; oppoſing them to Baſtards.

Agreeable to which, *Breton* has *frere Mulier*, *i. e.* the Brother begotten of the Wife; in oppoſition to *frere* Baſtard.

The like ſeems to obtain in *Scotland*. For *Skene* ſays, that *Mulieratus filius* is a lawful Son begot of a lawful Wife. If a Man have a Son by a Woman before Marriage, which is a Baſtard and Illegitimate; and he after marries the Mother of the Baſtard, and they have another Son; this ſecond Son is call'd *Mulier*, and is lawful, and ſhall be Heir to his Father. We ſometimes alſo find 'em with theſe Additions, *Baſtard eigne*, and *Mulier puiſne*.

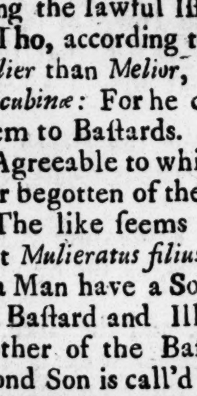
MULIER was alſo antiently uſed as an Addition, ſome ſay for a Wife; others for a Woman born in lawful Wedlock. The former ſenſe is confirmed by Sir *Edward Coke*, who ſays, that antiently *Mulier* was taken for a Wife, and ſometimes for a Widow. *Inſt. Fol.* 434.

MULLET, in Heraldry, a Star of five Points; as in the Figure adjoining.



The *Mullet* is uſually the difference, or diſtinguiſhing Mark for the fourth Son, or third Brother, or Houſe. See DIFFERENCE.

Tho it is often alſo borne as Coat-Armour: As here;



Ruby on a Chief Pearl, two *Mullets* Diamond; being the Coat of the famous Lord *Verulam*, firſt Sir *Francis Bacon*.

The Heralds hold that the *Mullet* repreſents a falling Star; others, with more probability, take it for the Rowel of a Spur, call'd by the *French Molette*. Whence ſome Authors will have it pierced.

When it has ſix Points, it is not call'd a *Mullet*, but a *Star*. See STAR.

MULLET, or MOLETTE, a Stone flat and even at bottom, but round a-top; uſed for Grinding of Matters on a Marble. The Apothecaries uſe *Mullets* to prepare many of their Ingredients; Painters for their Colours, either dry or in Oil. *Mullet* is alſo an Inſtrument uſed by the Glaſs-Grinders; being a Piece of Wood, to one end whereof is cemented the Glaſs to be ground, whether Convex in a Baſon, or Concave in a Sphere or Bowl. The *Mullet* is ordinarily about ſix Inches long, turn'd round; the Cement they uſe is compoſed of Aſhes and Pitch.

MULSUM, or MULSE, is a Liquor made with Honey and Water. See HYDROMEL.

MULTA, or MULTURA *Epiſcopi*, a Fine, or final Satisfaction antiently given the King by the Biſhops, that they might have Power to make their laſt Wills; and that they might have the Probate of other Mens, and the granting of Adminiſtrations.

MULTANGULAR, any Figure, or Body which hath many Angles, or pointed Corners. See ANGLE.

MULTILATERAL, in Geometry, is apply'd to thoſe Figures that have more than four Sides or Angles.

MULTINOMIAL *Roots* in Mathematics, are ſuch as are compoſed of many Names, Parts, or Members, as $a+b+c+d$, *&c.* See ROOT.

For the Method of raiſing an infinite *Multinomial* to any given Power, or of extracting any given Root out of ſuch a Power; ſee a Method of M. *de Moivre* in *Philoſ. Tranſact.*

MULTIPLE, MULTIPLEX, in Arithmetic, a Number which comprehends ſome other Number ſeveral times. See NUMBER.

Thus 6 is a *Multiple* of 2; or, which is the ſame, 2 is a quota part of 6; 2 being contained in 6 three times. And thus 12 is a *Multiple* of 6, 4, 3; and comprehends the 1ſt twice, the 2d thrice, the 3d four times, *&c.*

MULTIPLE *Ratio*, or Proportion, is that which is between ſuch Numbers.

If the leſſer Term of a Ratio be an Aliquot Part of the greater; the Ratio of the greater to the leſs is call'd *Multiple*: And that of the leſs to the greater *Sub-multiple*. See RATIO.

A *Sub-multiple* Number is that contained in the *Multiple*. Thus the Number 1, 2, and 3 are *Sub-multiples* of 6 and 9.

Duple, Triple, *&c.* Ratios; as alſo Sub-duples, Sub-triples, *&c* are ſo many Species of *Multiple* and *Sub-multiple* Ratios. See DUPLE, TRIPLE, *&c.*

MULTIPLICAND, in Arithmetic, is one of the Factors in the Rule of Multiplication; being that Number given to be multiplied by another call'd the Multiplicator, or Multiplier. See MULTIPLICATOR.

MULTIPLICATOR, in Arithmetic, a Number multiplied by another call'd the Multiplicand. See MULTIPLICAND.

The largeſt Number is ordinarily made the Multiplicand, and placed above the ſmaller, or *Multiplicator*; but the reſult is the ſame which ſoever of the Numbers be made Multiplicand or *Multiplicator*; 4 times 5, and 5 times 4 making the ſame Sum. See MULTIPLICATION.

MULTIPLICATION, the Act of *Multiplying* or Increaſing the Number of any thing. See MULTIPLYING.

Thus we ſay the *Multiplication* of the Loaves in the Wilderneſs.

The *Romaniſts* hold a real *Multiplication* of the Body of Jeſus Chriſt in the Euchariſt; ſo that every Communicant has a whole Body, *&c.*

It is ordained and eſtabliſhed, that none from henceforth ſhall uſe to *multiply* Gold or Silver, nor uſe the Craft of *Multiplication*; and if any the ſame do, he ſhall incur the Pain of Felony. *Stat.* 5 *Hen.* 4.

This Statute was made on Preſumption that ſome Perſons skilful in Chymiſtry, could *multiply* or augment thoſe Metals by Elixirs, or other Ingredients; and change other Metals into very Gold and Silver. Under *Henry* VI. Letters Patent were granted to certain Perſons (who undertook to perform the ſame, and to find the Philoſopher's Stone) to free them from the Penalty in the ſaid Statute.

MULTIPLICATION, in Arithmetic, the Act or Art of *multiplying* one Number by another, to find the Product. See PRODUCT.

Multiplication, the third Rule in Arithmetic, conſiſts in the finding of ſome third Number, out of two others given; wherein, one of the given Numbers is contained as often as Unity is in the other.

Or *Multiplication* is the finding what will be the Sum of any Number added to itſelf, or repeated as often as there are Units in another: So that *Multiplication* of Numbers is a compendious kind of Addition. See ADDITION.

Thus the *Multiplication* of 4 by 5 makes 20, *i. e.* four times five amount to twenty; which Algebraiſts expreſs thus, $4 \times 5 = 20$. See CHARACTER.

In *Multiplication*, the firſt Factor, *i. e.* the Number to be multiplied, or *Multiplicand*, is placed over that whereby it is to be multiplied; (ſee MULTIPLICAND) and the Factum or *Product*, under both. An Example or two will make the Proceſs of *Multiplication* eaſy. —— Suppoſe I would know the Sum of 269 multiplied by 8, or 8 times 269.

Operation.

Multiplicand —— —— ——	269
Multiplier —— —— ——	8
Factum, or Product —— ——	2152

Explication.

The Factors being diſpoſed, and a Line drawn underneath, (as in the *Example*) I begin with the Multiplicator thus; 8 times 9 make 72, ſet down 2, and carry 7 tens, as in Addition; then 8 times 6 make 48, and 7 I carried, 55; ſet down 5, and carry 5; laſtly, 8 times 2 make 16, and with 5 I carried 21, which I put down: ſo as coming to number the ſeveral Figures placed in order, 2, 1, 5, 2, I find the Product to be two thouſand one hundred fifty two. See NUMERATION.

Now ſuppoſing the Factors to expreſs things of different Species, *viz.* the Multiplicand Men, or Yards, and the Multiplier Pounds; the Product will be of the ſame Species with the Multiplicator.

Thus the Product of 269 Men or Yards multiplied by 8 Pounds or Pence, is 2157 Pounds or Pence; ſo many of theſe going to the 269 at the Rate of 8 apiece. Hence the vaſt Uſe of *Multiplication* in Commerce, &c.

If the Multiplicator conſiſts of more than one Figure, the whole Multiplicand is to be added to itſelf, firſt, as often as the right-hand Figure of the Multiplicator ſhews, then as often as the next Figure of the Multiplicator ſhews, and ſo on. Thus 421 × 23 is equal to 421 × 3 and alſo 421 × 20. The Product ariſing from each Figure of the Multiplicator, multiplied into the whole Multiplicand, is to be placed by itſelf in ſuch a manner, that the firſt or right-hand Figure thereof may ſtand under that Figure of the Multiplicator from which the ſaid Product ariſes. For Inſtance;

Multiplicand —— —— ——	421
Multiplicator —— —— ——	23
Particular Product of 421 × 3 ——	1263
Particular Product of 421 × 20 ——	842
The Total Product —— ——	9683

This Diſpoſition of the right-hand Figure of each Product, follows from the firſt general Rule; the right-hand Figure of each Product being always of the ſame Denomination with that Figure of the Multiplicator from which it ariſes.

Thus in the Example, the Figure 2 in the Product 842, is of the Denomination of tens, as well as the Figure 2 in the Multiplicator. For 1 × 20 (that is the 2 of 23) = 20, or 2 put in the Place of tens, or ſecond Place. Hence, if either of the Factors have one or more Cyphers on the right-hand, the *Multiplication* may be performed without regarding the Cyphers, till the Product of the other Figures be found: To which they are to be then affix'd on the right. And if the Multiplicator have Cyphers intermixed, they need not to be regarded at all. Inſtances of each follow.

12|	358|	1|0	24|00	8013
1|0	6|000	1|0	3|0	5006
120	2148000	100	72000	48078
				40065
				40113078

Thus much for an Idea of *Multiplication*, where the Multiplicator conſiſts wholly of Integers; in the Praxis whereof 'tis ſuppoſed the Learner is apprized of the Product of any of the nine Digits multiplied by one another, eaſily learnt from the common Table, (ſee TABLE) or otherwiſe.

Note, This *Multiplication* is render'd ſtill eaſier, and more expeditious by the uſe of certain Rods, whereon are mark'd the ſeveral Progreſſions of Digits in the Table, and which give the ſeveral Multiples of any Sum by inſpection, call'd *Nepair's Bones; the Deſcription and Uſe whereof ſee under the head* NEPAIR'S *Bones.*

Where the Multiplicator is not compoſed wholly of Integers; as it frequently happens in Buſineſs, where Pounds are accompanied with Shillings and Pence; Yards with Feet and Inches; the Methods of Proceedure are as follow:

Firſt Method, Suppoſe I have bought 37 Ells of Cloth at 13 *l.* 16 *s.* 6 *d. per* Ell, and would know the Amount of the whole, —— I firſt multiply 37 Ells by 13 *l.* in the common Method of *Multiplication* by Integers, leaving the two Products without adding 'em up; then multiply the ſame 37 Ells by 16 *s.* leaving, in like manner, the two Products without adding 'em. Laſtly, I multiply the ſame 37 by the 6 *d.* the Product whereof is 222 *d.* which divided by 12, (ſee DIVISION) gives 16 *s.* 6 *d.* and this added to the Products of the 16 *s.* the Sum will be 610 *s.* 6 *d.* the Amount of 37 Ells at 16 *s.* 6 *d.* the Ell. Laſtly, the 610 *s.* 6 *d.* are reduced into Pounds by dividing 'em by 20: (ſee REDUCTION) upon adding the whole, the Amount of 37 Ells at 13 *l.* 16 *s.* 6 *d.* will be found as in the following

Operation.

	37 Ells At 13 Pounds.	37 Ells At 16 Shillings.	37 Ells At 6 Pence.
	111	222	222
	37	37	
	30 10 6	18 6	
Product	511 10 6	610 6	

Second Method. Suppoſe the ſame Queſtion; reduce the 13 *l.* 16 *s.* into Shillings, the Amount will be 276 *s.* reduce 276 *s.* into Pence, adding 6, the Amount will be 3318 *d.* Multiply the 37 Ells by 3318, the Amount will be 122766 *d.* which divided by 12; and the Quotient 10230 *s.* 6 *d.* reduced into Pounds by cutting off the laſt Figure on the right, and taking half of thoſe on the left, yields 511 *l.* 10 *s.* 6 *d.* the Price of the 37 Ells, as before.

Tho by theſe two Methods any *Multiplications* of this kind may be effected, yet the Operations being long, we ſhall add a third much ſhorter, by *Aliquot* and *Aliquant* Parts: Obſerving by the way, that Aliquot Parts of any thing are thoſe contained ſeveral times therein, and which divide 'em without any remainder; and that Aliquant Parts are other Parts of the ſame thing compoſed of ſeveral Aliquot Parts: Both as in the following Table.

Aliquot Parts of a Pound of 20 s.

10 *s.*	*make* half *of* 20 *s.*
5 *s.*	a fourth.
4 *s.*	a fifth.
2 *s.*	a tenth.
1 *s.*	a twentieth.
6 *s.* 8 *d.*	a third.
3 *s.* 4 *d.*	a ſixth.
2 *s.* 6 *d.*	an Eighth.
1 *s.* 8 *d.*	a twelfth.
1 *s.* 4 *d.*	a fifteenth.
1 *s.* 3 *d.*	a ſixteenth.
10 *d.*	a twenty-fourth.
5 *d.*	a forty-eighth.

Aliquant Parts of a Pound of 20 s.

3 *s.*	an Aliquant Part compos'd of a 10th and a 20th.
6 *s.*	of a 5th and a 10th.
7 *s.*	of a 4th and a 10th.
8 *s.*	of two 5ths.
9 *s.*	of a 4th and a 5th.
11 *s.*	of a half and a 20th.
12 *s.*	of a half and a 10th.
13 *s.*	of a half, a 10th and 20th.
14 *s.*	of a half and a 5th.
15 *s.*	of a half and a 4th.
16 *s.*	of a half, a 5th, and 10th.
17 *s.*	of a half, a 4th, and 10th.
18 *s.*	of a half and two 5ths.
19 *s.*	of a half, a 4th, and 5th.

To Multiply by Aliquot Parts is nothing elſe in effect but to divide a Number by 3, 4, 5, &c. which is effected by taking a 3d, 4th, or 5th, &c. from the Number to be multiplied. *Example.*

To Multiply, v. g. by 6 s. 8 d. Suppoſe I have 347 Ells of Ribbon at 6 *s.* 8 *d. per* Ell.

Operation.

Multiplicand —— ——	347 Ells.
Multiplicator —— ——	6 *s.* 8 *d.*
Product	115 *l.* 13 *s.* 4 *d.*

The Queſtion being Stated; take the Multiplicator, which according to the Table of Aliquot Parts is the third; and ſay, the third of 3 is 1, ſet down 1; the third of 4 is 1, ſet down 1, remains 1, that is, one ten, which added to 7, makes 17; then the third of 17 is 5; remains 2 Units, *i. e.* two thirds, or 13 *s.* 4 *d.* which place after the Pounds. Upon numbering the Figures 1, 1, and 5, Integers, and 13 *s.* 4 *d.* the Aliquot Part remaining, I find the Sum 115 *l.* 13 *s.* 4 *d.*

For Multiplication by Aliquant Parts: Suppoſe I would multiply by the Aliquant Part 19 *s.* I firſt take for 10 *s.* half the Multiplicand; then for 5, which is the 4th; and, laſtly, for 4, which is the 5th. The Products of the three Aliquot Parts that compoſe the Aliquant Part, being added together, the Sum will be the total Product of the *Multiplication*, as in the following Example; which may ſerve as a Model for *Multiplication* by any Aliquant Part that may occur.

Operation.

Multiplicand	—	356 Ells.
Multiplier	—	19 *s.*
		178 *l.* for ten Shillings.
		89 *l.* for five Shillings.
		71 *l.* for four Shillings.
Product	— —	338 *l.* 4 *s.*

The Proof of Multiplication, is, by dividing the Product, or Factum, by the firſt Factor, or Multiplicand; if the Quotient be equal to the ſecond Factor, or Multiplicator, the Operation is juſt.

Croſs Multiplication, otherwiſe call'd Duodecimal Arithmetic, is a very expeditious Method of Multiplying things of ſeveral Species, or Denominations, by others likewiſe of different Species, &c. *E. gr.* Shillings and Pence by Shillings and Pence; Feet and Inches by Feet and Inches, much uſed in Meaſuring, &c. The Method is thus.

Suppoſe 5 Feet 3 Inches to be multiplied by 2 Feet 4 Inches; ſay, 2 times 5 Feet is 10 Feet, and 2 times 3 is 6 Inches: Again, 4 times 5 is 20 Inches, or 1 Foot 8 Inches, and 4 times 3 is 12 Parts, or one Inch; the whole Sum makes 12 Feet 3 Inches.

In the ſame manner may you manage Shillings and Pence, &c.

F.	I.
5	3
2	4
10	6
1	8
	1
12	3

Multiplication, in Geometry, or *in Lines*, is effected by ſuppoſing a Line *a b* (Tab. Geomet. *Fig.* 9.) called the *Deſcribent*, moving perpendicularly along another *b c*.

For by this means the Deſcribent forms the Rectangle *a d c b*; and if it be divided together with the *Dirigent* into any Number of equal Parts, will by its Motion deſcribe as many little Rectangles as the Units in the Deſcribent and Dirigent will produce when multiply'd into one another; *viz.* 21. See Describent, &c.

For when the Line *a b* hath moved over one part of *a d*, it will by its three parts have deſcribed the three little Rectangles in the firſt Column; when it comes to 2, it will have deſcribed three more. And this is the Reaſon why *Multiplication* in the *Latin* Tongue is uſually expreſſed by the Word *ducta*, drawn: (and from hence alſo comes *Product*) as if *a b* were multiply'd by *b c*, they ſay *a b ducta in b c*, becauſe the Deſcribent is led, as it were, or carried along in an erect Poſture upon the Dirigent, and by that means deſcribes the Rectangle; ſo that the *Rectangle* and *Product* are all one in Geometry.

Now as in all *Multiplication* Unity is to one Factor as the other is to the Product, *Multiplication* in Lines may be performed thus:

Let *a b* (*Fig.* 10.) be to be multiply'd by *a d*: make any Angle at pleaſure; on one of the Legs ſet off *a u* = to Unity; and on the ſame Leg ſet off *u d*, the Multiplicator (3); then ſet the Multiplicand *a b* (2) from *a* on the other Leg of the Angle; draw *u b*, and parallel to it through *d*, draw *d c*, (6). I ſay, *d c* or 6, is the Product: for *a u* : *a d* : : *a b* : *b c*.

Multiplication *of Plants*, ſee Foecundity *of Plants*.

MULTIPLYING, the producing of one's like. See Production.

Mankind *multiply'd* at a prodigious Rate before the Flood, (ſee Peopling.) Rabbits, Fiſh, and moſt Inſects multiply incredibly. The ſingle Milt of a Cod, examin'd with M. *Leewenhoeck*'s Microſcope, was found to contain more Ova than there are Animals on the Face of the Earth. See Insect, &c.

M. *Dodart* has ſeveral Diſcourſes on the Multiplication of Plants in the *Memoirs of the Royal Academy of Sciences.* He has examin'd the Beech-Tree particularly with this view, and found it to ſurpaſs all Imagination. See Foecundity.

Multiplying, in Arithmetic, is the finding a Number which contains the *Multiplicand* as often as there are Units in the *Multiplier*. See Multiplicand, &c.

The Rule of Three conſiſts in *Multiplying* the third Term by the ſecond, and dividing the Product by the firſt. See Rule *of Three.*

Multiplying *Glaſs*, a Lens, or Glaſs in which Objects appear increaſed in Number. See Lens.

A *Multiplying-Glaſs*, call'd alſo *Polyhedron*, is a Glaſs form'd or ground into ſeveral Planes, or Faces, making Angles with one another; through which the Rays of Light iſſuing from the ſame Point undergo different Refractions, ſo as to enter the Eye from every Surface in a different Direction; as if they came from ſeveral Points.

And thus the ſame Point is ſeen in ſeveral imaginary Foci; and therefore appears *Multiply'd*. See Refraction.

For the Phænomena and Laws of Multiplying-*Glaſſes*; ſee Polyhedron.

MULTISILIQUOUS *Plants*, are the ſame with *Corniculate Plants*, *viz.* thoſe which, after each Flower, have divers diſtinct, ſlender, and frequently crooked *Siliquæ*, or Pods, wherein their Seed is contain'd; and which when they ripen, open of themſelves, and let the Seeds drop. See Corniculate and Semination.

To this Claſs belong the Bears-Foot, Columbines, Houſe-Leek, Marigolds, &c.

MULTITUDE, Multitudo, an Aſſemblage, or Collection of a great Number of Things, or Perſons; or, more ſtrictly, *Multitude* is the Abſtract whereby things are ſaid to be *many*.

In which Senſe *Multitude* may be conſider'd as *Number*. See Number.

Multitude is oppoſed to Unity. See Unity.

In Law, ſome will have *Multitude* to imply at leaſt ten Perſons; but Sir *Edw. Coke* ſays, he could never find it reſtrain'd by the common Law to any certain Number, but always left to the Diſcretion of the Judges.

A MULTO *Fortiori*, or *à minore ad majus*, is an Argument often uſed by *Littleton*. The force of it is thus: If it be ſo in a Feoffment paſſing a new Right; much more is it for the Reſtitution of an antient Right. *Coke* on *Littleton*, fol. 253.

MULTUM, in Arithmetic, If A be one, B one, C one, D one, &c. And B, C, and D be not the ſame with A; A, B, C, and D are *Multa*, or *Plura*, many. *Wolfius.*

MUM, a very wholeſome Drink, the Receipt of which, as recorded in the Town-Houſe of *Brunſwick*, the Place of moſt Note for this Liquor, is as follows:

Take 63 Gallons of Water that has been boiled to the Conſumption of a third part; brew it with ſeven Buſhels of Wheaten-Malt, one Buſhel of Oat-Malt, and one Buſhel of ground Beans; when it is tunn'd, let not the Hogſhead be too full at firſt, and as ſoon as it begins to work, put into it of the inner Rind of Firr 3 Pounds, Tops of Firr and Birch 1 Pound, Carduus Benedictus 3 Handfuls, Flower of Roſa Solis, one Handful or two, Burnet, Betony, Marjoram, Avens, Penny-Royal, wild Thyme, of each a Handful and a half; of Elder-Flowers, two Handfuls or more; Seeds of Cardamum bruiſed 30 Ounces, Barberries bruiſed one Ounce; put the Herbs and Seeds into the Veſſel when the Liquor has wrought a while, and after they are added, let the Liquor work over the Veſſels as little as may be, then fill it up: at laſt, when it is ſtopt, put into the Hogſhead ten new-laid Eggs unbroken or crack'd, ſtop it up cloſe, and drink it at two Years end.

Our *Engliſh* Brewers uſe Cardamum, Ginger, and Saſſafraſs inſtead of the inner Rind of Firr; and add Walnut-Rinds, Madder, Red Sanders, and Alecampane.

MUMMY, Mumia, a Carcaſs, or Body embalmed or dried in the manner of the antient *Egyptians.* See Embalming.

The Preparation of *Mummy* is of ſo old a ſtanding, that it was in uſe in *Egypt* before the time of *Moſes.* The Coffin in which the *Mummy* is contain'd is of Sycamore-Wood, which is found to keep ſound for the Space of 3000 Years; but it is very different from our Sycamore.

Mummy is ſaid to have been firſt brought into uſe in Medicine by the Malice of a *Jewiſh* Phyſician, who wrote that Fleſh thus Embalmed was good for the Cure of divers Diſeaſes, and particularly Bruiſes, to prevent the Blood's gathering and coagulating. The *Turks* prevent the Export of *Mummy* into *Europe* as much as poſſible.

Properly ſpeaking, *Mummy* is not the Fleſh of the Deceaſed, but the Compoſition wherewith it is embalmed; but in common uſe *Mummy* is alſo uſed for the Body.

There are two kinds of Bodies call'd by the Term *Mummy.*

The firſt are only Carcaſſes, dried by the Heat of the Sun, and by that means kept from Putrefaction; frequently found in the dry Sands of *Lybia.* Some ſay, they are the Bodies of deceaſed People buried there on purpoſe to keep 'em entire without Embalming; others that they are the Carcaſſes of Travellers, &c. over-whelm'd with Clouds of Sand rais'd by the Hurricanes frequent in thoſe Deſarts. Be that as it will, theſe *Mummies* are of no uſe in Medicine, and are only preſerv'd as Curioſities.

The ſecond kind of *Mummies* are Bodies taken out of the Pits, or Catacombs near *Cairo*, wherein the *Egyptians* depoſited their Dead after Embalming.

'Tis this makes the *Mummy* ſo much valued, and to which ſuch extraordinary Virtues are aſcribed.

'Tis ſaid, that all the *Mummy* ſold in the Shops, whether brought from *Venice* or *Lyons*, or even directly from the *Levant* by *Alexandria*, is factitious, and the Work of certain *Jews*, who knowing the Value the *Europeans* ſet on the *Egyptian Mummy*, counterfeit it by drying Carcaſſes in Ovens, after having prepared 'em with Duſt of Myrrh, Caballin Aloes, *Jewiſh* Pitch, black Pitch, and other coarſe or unwholeſome Drugs.

The *French Charletans*, it ſeems, have likewiſe got the Art of preparing *Mummies*. Their Method is ſimple enough: Out of the Carcaſs of a Perſon hang'd, they take the Brain and Entrails, dry the reſt in an Oven, ſteeping it in Pitch, and other Drugs. And this they ſell for right *Egyptian Mummy*.

Paræus has a very curious Treatiſe of *Mummies*, wherein he ſhews the Abuſes therof; and makes it appear that they can never be of any real medicinal uſe.

Matthiolus is of the ſame Opinion, after *Serapion*. Both theſe Authors take even the *Egyptian Mummies* to be no more than Bodies embalmed with Piſſaſphaltum.

MUMMY, *Mumia*, is particularly uſed for the Liquor, or Juice oozing from human Bodies Aromatized and Embalmed; gather'd in the Sepulchres. This is the *Mummy* chiefly ſpoke of among the antient Writers.

MUMMY is alſo a Medicinal Drug, or a viſcous Compoſition partaking of Bitumen and Pitch found in the Mountains and Foreſts of *Arabia*, and other hot Countreys of the *Eaſt*.

Dioſcorides ſpeaks of a *Mummy* found on the Sea-Coaſts near *Epidaurus*, brought thither by the Torrents from the *Ceraunian* Mountains, and there dried by the Sun into huge heaps.

It ſmells like Bitumen mixt with Pitch. The People thereabouts call it *mineral Wax*. In *Latin*, or rather *Greek*, it is call'd *Piſſaſphaltus*. See PISSASPHALTUS.

Menage, after *Bochart*, derives the Word *Mummy* from the *Arabic Mumia*; of *Mum*, Wax. *Salmaſius* from *Amomo*, a kind of Perfume. See AMOMUM.

Tho others hold, that in the *Arabic* Tongue, the Word *Mumia* ſignifies a Body Embalmed, or Aromatized.

MUMMY is alſo uſed by ſome Phyſicians for I know not what implanted Spirit, found chiefly in Carcaſſes, when the infuſed Spirit is fled.

The infuſed Spirit is ſometimes alſo call'd *Mummy* in living Subjects; and both the one and the other are ſuppoſed to ſerve in Tranſplantation.

A Plant, for inſtance, bringing this *Mumia* from one Subject to another, the Mumia joins and unites itſelf immediately, and cloſes with the Mumia or Spirit of the new Subject; and from this Union ariſes a natural and common Inclination between the two Subjects.

And on this Principle they account for Sympathetic or Magnetic Cures. See SYMPATHETIC, MAGNETIC, &c.

MUMMY is alſo uſed among Gardeners for a ſort of *Wax* uſed in the Planting and Graffing of Trees. See GRAFFING *Wax*.

Agricola directs the Preparation thereof as follows: Take one Pound of common black Pitch, and a quarter of a Pound of common Turpentine; put 'em together in an Earthen-Pot, and ſet 'em on the fire in the open Air, having ſomething in your Hand to cover and quench it in time; the Matter to be thus alternately lighted and quench'd till all the nitrous and volatile Parts be evaporated. To this a little common Wax to be added; and the Compoſition to be ſet by for uſe.

To apply it in the dreſſing of the Roots of Trees, melt it, and dip in the two ends of the Pieces of Root one after another; then put 'em in Water, and plant 'em in the Earth, the ſmall end downward, ſo that the larger may appear a little way out of the Earth, and ſo have the benefit of the Air; then preſs the Earth hard down upon 'em that they may not receive too much wet. See PLANTING.

MUNDICK, a Marchaſite, or Mineral Glebe, found in the Tin Mines, ſometimes white, ſometimes yellow, and at other times green. See MARCHASITE.

It is frequently call'd *Maxy*; and appears to be nothing elſe but a kind of Sulphur; Fire alone being found to ſeparate it from the Tin, in which caſe it evaporates into Smoke. See TIN.

The *Mundick* Ore is eaſily diſtinguiſh'd by its brown, ſad-colour'd Glittering, and by its diſcolouring the Fingers. Some ſay it feeds the Tin, and yet allow that where there is much *Mundick*, there is little or no Tin.

MUNDIFICATIVES, in Medicine, *Cleanſers*; Medicines, or Unguents, that deterge, and dry, and thus cleanſe Ulcers of two kinds of Matter, *viz. Pus* and *Sanies*. See ULCER.

The chief Ingredients in theſe Unguents, are Gentian, Ariſtolochia, Enula Campana, and Vulnerary Herbs. See DETERGENT.

MUNDUS, *World*. See WORLD.

MUNICIPAL, a Term in the *Roman* Law, ſignifying the having the Rights and Privileges of *Roman* Citizens.

This Title the *Romans* frequently beſtow'd on foreign Cities and People; and in effect, it was little more than a Title.

MUNICIPAL *Cities*, MUNICIPIA, according to *Mariana*, came ſomewhat ſhort of the Privileges of the Colonies. See COLONIES.

They had no Suffrages or Votes at *Rome*. They were left to be govern'd by their own Laws and Magiſtrates.

'Tis true, ſome few *Municipal* Cities, by particular Merit, &c. obtain'd the Liberty of Votes; which occaſion'd that receiv'd Diſtinction of *Municipium ſine Suffragio*, & *Municipium cum Suffragio*.

They were ſo call'd, becauſe *Muneris hujus honorarii participes*; but by *Munus honorarium*, was meant no more than the bare Appellation of a *Roman*, whereby they were privileged to fight in a Legion, as Denizens; and not in auxiliary Bands, as Aſſociates. See CITIZEN.

The firſt who had the Honour, were the *Cerites*.

MUNICIPAL, among us, is now underſtood of the Cuſtomary Laws that obtain in any particular City, or Province; and which have no Authority in the neighbouring Places. See CUSTOM.

MUNICIPAL *Officers*, are thoſe elected to defend the Intereſts of Cities, their Rights and Privileges, and to maintain Order and Policy; as Mayors, Sheriffs, Conſuls, Bailiffs, &c. See OFFICE.

In *Spain*, the *Municipal* Offices are bought. In *England*, they come by Election.

MUNIMENTS, or MINIMENTS, the Evidences or Writings, whereby a Man is enabled to defend the Title of his Eſtate. See MUNIMENT-*Houſe*.

Wangford ſays, the word *Muniment* includes all manner of Evidence.

MUNIMENT-*Houſe*, a little, ſtrong Apartment in Cathedral and Collegiate Churches, Caſtles, Colleges, or the like, deſtined for keeping the Seal, Evidences, Charters, &c. of ſuch Church, College, &c. call'd *Muniments*, or *Miniments*.

The Word is form'd of the *Latin Munio*, I defend.

MUNIMINA, the Grants, or Charters of Kings and Princes to Churches; ſo call'd, becauſe *cum eis muniantur* againſt all thoſe who would deprive them of thoſe Privileges.

MUNIONS, in Architecture, are the ſhort upright Poſts or Bars that divide the ſeveral Lights in a Window-Frame. See WINDOW.

MUNITION, or AMMUNITION, the Proviſions wherewith any Place is furniſhed in order for defence; or wherewith a Veſſel is ſtock'd for a Voyage; or that follow a Camp for its Subſiſtence. See AMMUNITION.

MUNITION-*Bread* is the proportion of Bread diſtributed every day to the Soldiers of a Garriſon or Army. Each Officer is allow'd ſo many Rations of *Munition-Bread*. See RATION.

MUPHTI, or MUFTI, the Chief, or Patriarch of the *Mahometan* Religion, reſiding at *Conſtantinople*. See MAHOMETANS.

The *Muphti* is the ſovereign Interpreter of the Alcoran, and decides all Queſtions of the Law. See ALCORAN, &c.

He takes place of the Baſhaws; and his Authority is often terrible to the Grand Signior himſelf. 'Tis he girds on the Sword to the Grand Signior's ſide; which Ceremony anſwers to the Coronation of our Kings.

MURAGE, MURAGIUM, in our Cuſtoms, a reaſonable Toll to be taken of every Cart or Horſe coming laden into a City or Town for the Building or Repairing the Walls thereof.

MURAL, ſomething belonging to a *Wall*; which the *Latins* call *Murus*. See WALL.

MURAL *Crown*, among the antient *Romans*, was a kind of Crown indented a-top, like the Battlements of a Wall. See CROWN.

The *Mural-Crown* was the Reward of thoſe who firſt mounted the Walls of the Enemy; whence it was alſo call'd *Corona obſidionalis*.

MURAL *Arch* is a Wall, or walled Arch placed exactly in the Plane of the Meridian, *i. e.* upon the Meridian-Line; for the fixing of a large Quadrant, Sextant, or other Inſtrument, to obſerve the Meridian Altitudes, &c. of the heavenly Bodies. See MERIDIAN-*Line* and MERIDIAN-*Altitude*.

Tycho de Brahe was the firſt who uſed a *Mural-Arch* in his Obſervations; after him Mr. *Flamſtead*, *de la Hire*, &c. uſed the ſame means. See OBSERVATIONS.

MURENGERS, two Officers of great Antiquity in the City of *Cheſter*, being two of the Principal Aldermen choſe yearly to ſee the Walls kept in good Repair, and to receive certain Toll and Cuſtom for the Maintenance thereof.

MURING, the Walling, or raiſing the Walls of a Building. See WALL and WALLING.

MURRAIN, *Gargle*, a Mortality, or contagious Diſeaſe among Beaſts. See MORTALITY.

Murrains are occaſion'd various ways, but principally by a hot, dry Seaſon; or rather by a general Putrefaction of the Air, which begets an Inflammation in the Blood, and a Swelling in the Throat, which ſoon proves Mortal, and is communicated from one to another.

The Symptoms are generally a hanging down and ſwelling of the Head, rattling in the Throat, ſhort Breath, Palpitation of the Heart, Staggering, abundance of Gum in the Eyes, *&c.* Breath hot, and Tongue ſhining.

The moſt remarkable *Murrain* we hear of, is that mentioned in the *Philoſ. Tranſ.* which ſpread itſelf through *Switzerland, Germany,* into *Poland,* &c.

The Contagion ſeem'd to propagate itſelf in form of a blue Miſt, which fell on the Graſs where the Cattel grazed, inſomuch that whole Herds return'd home ſick, and being very dull, and forbearing their Food, moſt of 'em died away in twenty four Hours time. On diſſection were found large corrupted Spleens, ſphacelous and corroded Tongues, *&c.* Thoſe People who manag'd them without a due regard to their own Health, were infected by 'em, and died like the Beaſts.

Some imagine it had its Riſe from noxious Vapours thrown out of the Earth in three diſtinct Earthquakes perceiv'd in the Neighbourhood of the Place where it began: Tho Dr. *Slare* rather thinks it owing to Swarms of volatile Inſects. The Antidote for the Sound, and the Medicine for the Sick were the ſame, *viz.* Equal Parts of Soot, Gun-Powder, Brimſtone, and Salt, with as much Water as would waſh it down, a Spoonful in a Doſe.

MURREY, in Heraldry, a purple Colour, call'd alſo *Sanguin.* See SANGUIN.

MURTHER, *Homicide,* the Act of killing another with Violence, Injuſtice, and Effuſion of Blood. See HOMICIDE.

Among the number of popular Errors, is the Notion which has obtain'd, that the dead Body would bleed in the Preſence, or upon the Touch of the Murtherer.

The Crime of *Murther* is puniſh'd with Death in almoſt all Nations. See PUNISHMENT.

In our Law, *Murther* has a peculiar import, ſo as to denote a wilful and felonious killing another upon prepenſed Malice, whether ſecretly or openly; and whether *Engliſh* Man or Foreigner, living under the King's Protection.

This prepenſed Malice, which makes the Eſſence of *Murther,* is twofold; 1. *Expreſs,* where it may be evidently proved that there was ill-will. 2. When one killeth another ſuddenly, he having nothing to defend himſelf, as going over a Stile, or the like. For in ſuch a Caſe, or when a Man killeth a mere Stranger, the Law preſumeth he had Malice againſt him, or elſe that he would not do it without any manner of Provocation.

The Word is form'd from the *Saxon Morth,* which ſome will have to ſignify a violent Death; whence the barbarous *Latin Murdrum* and *Mordrum.* Sometimes the *Saxons* expreſs'd it by a Word which imply'd a deadly Work. In the *French* 'tis call'd *Meurtre,* in *Spaniſh Meuretre,* and in *Engliſh Murder.*

The Word was uſed long before the Reign of K. *Canutus;* tho it does not appear that the *Saxon Morth* ſignifies a violent Death, but Death in general.

Formerly, indeed, *Murther* was reſtrained to a clandeſtine killing. Thus, *Murdritus homo antiquitus dicebatur, cujus Interfector neſciebatur ubicumque vel quomodocumque eſſet Inventus. Nunc adjunctum eſt, licet ſciatur quis* Murdrum *fecerit, homicidum per proditionem.* Leges Hen. I.

Arthurum Nepotem propriis manibus per proditionem Interfecit, peſſimo Mortis genere quod Angli Murdrum *appellant.* Math. Paris, An. 1216.

Self-MURTHER, is otherwiſe call'd *Suicide.* See SUICIDE.

MURTHERERS, or MURTHERING-*Pieces,* are ſmall Pieces of Ordnance, either of Braſs or Iron, having Chambers, (that is, *Charges* made of Braſs or Iron) put in at their Breeches. See ORDNANCE.

They are moſtly uſed at Sea at the Bulk-Heads of the Fore-Caſtle, Half-Deck, *&c.* in order to clear the Decks when an Enemy boards the Ship.

MUSCADINE, a rich white Wine, of the Growth of *Provence, Languedoc, Cividad, &c.* See WINE.

The way of making *Muſcadine* at *Frontignac* is as follows: They let the *Muſcadine* Grapes grow half dry on the Vine; as ſoon as they are gathered, they tread and preſs them immediately, and tunn up the Liquor, without letting it ſtand, and work in the Fat; the Lee occaſioning its goodneſs.

The Word, as well as the Liquor, is *French.* Some fetch its Original from *Muſk,* the Wine being ſuppoſed to have a little of the ſmell of that Perfume; others from *Muſcus,* a Fly, becauſe the Flies are extremely fond of its Grapes; as the *Latins* had their *Vinum Apianum,* ſo call'd *ab Apibus,* from the Bees which fed on it.

MUSCLE, MUSCULUS, in Anatomy, a fleſhy, fibrous Part of the Body of an Animal, deſtined to be the Organ of Motion. See MOTION.

The *Muſcle* is a bundle of thin, parallel Plates; and is divided into a great number of Faſciculi, or little *Muſcles,* each incloſed in its proper Membrane, from the internal Surface whereof, paſs an infinite number of tranſverſe Filaments, which interſect the *Muſcle* into ſeveral diſtinct Areas, fill'd with their reſpective Faſciculi of Fibres. See FIBRE.

A *Muſcle* is uſually divided into three Parts, the *Head,* the *Tail,* and the *Belly.*

The *Head* and *Tail,* which are alſo call'd *Tendons,* are the two extremes of the *Muſcle;* whereof the firſt is fix'd to the ſtable part, and the latter to the part intended to be moved. See TENDON.

The *Venter* or *Belly* is the body of the *Muſcle,* being a thick, fleſhy part, into which are inſerted Arteries and Nerves, and out of which iſſue Veins and Lymphaducts.

All theſe parts of a *Muſcle,* the Belly and the Tendons, are compoſed of the ſame Fibres: Their only difference conſiſts in this, that the Fibres of the Tendons are more cloſely and firmly bound together than thoſe of the Belly, which are more looſe. Hence in the Belly there is room for a ſufficient Quantity of Blood to give 'em an Appearance of Redneſs; and the Whiteneſs of the Tendons only proceeds from the Blood's being in ſome meaſure excluded by the tightneſs of their Contexture. The difference then between the Belly and the Tendons ſeems to be the ſame that is between a Skein of Thread, and a Cord made of the ſame Thread.

All the *Muſcles* act by having their Bellies inflated or ſwell'd; for by that means they are ſhorten'd, ſo as to draw, or preſs the ſolid Bodies to which they are faſten'd, according to the direction of their Fibres. All the difficulty then in *Muſcular* Motion, is, to aſſign their Fabric, and the Cauſe of their ſwelling.

Every ſimple *Muſcle,* then, conſiſts of one fleſhy Belly, and two Tendons; but may be again divided into others Similar, tho leſs; and thoſe again into others ſtill leſs, yet ſtill Similar to the great one: Which diviſion may be carried on to a degree of Subtility that exceeds all Imagination; tho 'tis reaſonable to think it muſt have an end. That laſt, therefore, being Similar to the firſt, muſt, in like manner, have its *Belly* and *Tendons;* and this is what we ordinarily call a *Muſcular Fibre,* in an Aſſemblage or Union of ſeveral whereof, a *Muſcle,* properly ſo call'd, conſiſts.

Some take the *Muſcular Fibres* to be Productions of the Arteries and Veins, or the Capillaries of thoſe Veſſels inoſculated with, and continued to each other; by the intumeſcence of whoſe Contents, the Extremities are drawn nearer each other, and by conſequence, the Bone to which the moveable part is fixed, approximated to the other. But that they are, in truth, neither Venous, nor Arterious, nor Lymphatic Veſſels, is evident from the laſt Obſervation. Whether they are Veſicular; or whether they only conſiſt of ſingle Threads, may be ſtill a Queſtion.

Dr. *Boerhaave,* from a conſideration that the Nerves enter every *Muſcle* along with its Veins and Arteries, and that there laying aſide their outer Integument, they are ſo diſtributed thro the whole Body of the *Muſcle,* as that no one Point can be aſſigned wherein a part of 'em is not found; that thoſe Nerves terminate here; and that in other parts of the Body the Extremities of the Nerves are expanded, as it were, into Membranes; concludes, that the *Muſcular Fibres* are nothing elſe but extremely ſlender Expanſions of the Nerves ſtript of their Integument, hollow within, and of the Figure of a *Muſcle,* and full of a Spirit communicated by the Nerve from its Origin in the Brain or *Cerebellum,* by the continual Action of the Heart. See NERVE.

Of theſe Fibres united, are form'd Faſciculi or Bundles; which, again, have each their ſeveral Membrane, wherein they are involved, and kept diſtinct from others. This Membrane is extremely ſlender and porous within, full of Oil, which is accumulated in time of Reſt and ſpent in Motion, furniſhed by the Arteries; and this Oil, in conjunction with a ſmooth mucous Juice ſecreted by ſmall mucilaginous Glands, interſperſed among theſe Faſciculi, ſerves to lubricate the parts, and preſerve the Faſciculi from fretting on each other.

Now, beſides the Nerves, there are Arteries alſo carried into the *Muſcles,* and thoſe in ſuch abundance, and of ſuch contexture, that a Man might be inclined to think the whole Body of the *Muſcle* compoſed of 'em. Theſe are principally diſtributed among the Faſciculi, and the Membranes that ſeparate 'em, and perhaps alſo in the external Surface of each *Fibrilla,* where they terminate in reticular Plexus's, or Folds, in little oily Secretories, ſmall Lymphatics, and perhaps in hollow *Fibrillæ* like Nerves; which *Fibrillæ* may again either terminate in the Cavity of the Nervous Muſcular Fibres, or make others like 'em. This, at leaſt, is clear, that every Branch of an Artery in the *Muſcles* has its correſponding little Vein, which united to the other, increaſes its Bulk; whence the Blood-Veſſels of the *Muſcles* are alſo Lymphatics.

Of two ſuch *Muſcles* as have been deſcribed, faſten'd in oppoſite Situations to each other, moſt of the *Muſcles,* we know of, conſiſt.

It has been already obſerved, that the Tendon of a *Muſcle* conſiſts of the ſame Number of Fibres with the *Muſcle* itſelf; with this difference, that the Cavity of the muſcular Fibres diminiſhing, and loſing of their former Diameter, form one compact, hard, tough, dry, narrow Body, which is but little Vaſcular: From what has been ſaid then, it appears, that the Redneſs of a *Muſcle* is owing to the Blood; and its Bulk to the Fulneſs of the Arteries, Veins, oily Cells, and Lymphatics. Hence we ſee, why in old Age, Leanneſs, Conſumptions, Atrophies, conſtant Heat, and hard Labour, their Redneſs as well as Bulk are ſo diminiſhed; and yet in old Age, Leanneſs, *&c.* the Motion remains. This may be effected, when the *Muſcles* have no Redneſs left; as appears in Inſects, whoſe Fleſh is not perceivable.

The Fibres, Faſciculi, Arteries, and Nerves may be ſeparated from each other in a live or a dead Body, without breaking. They are always in a degree of Tenſion, and endued with a contractive Force; ſo that when cut aſunder, the Ends fly back from each other; and then they become ſhorter, their Bulk is leſſen'd, and they contract themſelves into a wavy undulating kind of Surface, and throw off their proper Juices. Hence it appears they are always in a ſtate of Violence, are ever oppoſing their Elongation, ever endeavouring to ſhorten themſelves, but more in a live Body than a dead one; and therefore require Antagoniſts. 2. If the Cerebrum be ſtrongly compreſs'd, or have any violent Contuſion; if it be ſuppurated, obſtructed, or torn, the voluntary Action of all the *Muſcles* immediately ceaſes, as well as all Senſe and Memory; however the ſpontaneous Action of the *Muſcles* in the Heart, Lungs, the *Viſcera*, and Vital Parts, remains. 3. Theſe ſame Alterations being made in the Cerebellum, the Action of the Heart, Lungs, and Life itſelf, ceaſes; when yet the Vermicular Motion continues a long time after in the Ventricle and Inteſtines. 4. The Nerve of any *Muſcle* being compreſs'd, tied up, corrupted, or cut, all the Motion of that *Muſcle*, both Vital and Voluntary, immediately ceaſes; and if a nervous Trunk ſending Branches to ſeveral *Muſcles*, be thus bound up, cut, *&c.* they are all affected in the ſame manner. 5. The ſame things being done in any part of the ſpinal Marrow, the Action of all the *Muſcles* whoſe Nerves ariſe from the part affected, is deſtroy'd: And, 6. The ſame things being done to the Artery which carries Blood to one or more *Muſcles*, the Effect is the ſame. 7. The Tendon of a *Muſcle* in Action does not undergo any ſenſible Alteration, but the Belly ſhortens, becomes hard, pale, ſwoln, protuberant; the Tendons are approached nearer, and the more moveable part faſten'd to the Tendon, is drawn towards the other leſs moveable; which Action of a *Muſcle* is call'd its *Contraction*, which is much greater and ſtronger than that inherent Contraction obſerved under the firſt Phænomenon; and therefore is not natural, but ſuperadded. 8. The Tendon of a *Muſcle* not in Action, is ſtill the ſame; but the Belly ſofter, redder, laxer, longer, and flatter; and this ſtate of a *Muſcle* is call'd its *Reſtitution*, tho it is uſually owing to the contrary Action of its Antagoniſt; for that being fruſtrated, the Contraction of the other continues, as not being balanced by the Action of an Antagoniſt. 9. If one Antagoniſt remain at Reſt while the other is in Action, the Member in that caſe will be bent; if both act at the ſame time, it will be fix'd and immoveable; if neither act, it will be indifferent, and ready to be moved whither the leaſt exceſs ſhall carry it. 10. All theſe Changes mentioned in the 7th, 8th, and 9th Articles, are performed in the ſmalleſt Moment of Time, and in the whole *Muſcle* at once; ſo that they can paſs and repaſs reciprocally without leaving any Trace in the Body behind them. 11. By injecting warm Water into the Artery of a quieſcent *Muſcle*, even that of a dead Carcaſs; its Contraction is reſtored; and that long after Death. 12. The Bulk of a *Muſcle* is increaſed rather than diminiſhed by every Experiment of its Contraction. 13. A Limb being bent, by ſome external force, againſt the Will, the Flexor *Muſcle* of that Member aſſumes a ſtate of Contraction, as if it acted by its proper Motion; tho not altogether ſo ſtrenuouſly. 14. The Will remaining indifferent, all the voluntary *Muſcles*, and all their Veſſels are equally full, and moved by the Blood and Spirits equably convey'd to 'em, and that throughout the whole Body at once.

For the Application of this Structure of the MUSCLES, *in accounting for the great Phænomenon of Muſcular Motion*, ſee MUSCULAR *Motion*.

As the *Muſcular Fibres*, or, which comes to the ſame, the Faſciculi of Muſcular Fibres, have not always the ſame Situation with regard to each other, nor run in the ſame direction, but ſometimes run parallel to themſelves and their Tendons; and are ſometimes diſpoſed obliquely both to their Tendons and to each other: hence there ariſes two different kinds of *Muſcles*.

The one Direct and Parallel, which ſome call *Simple Muſcles.*

The other Inclined, or Oblique; call'd *Compound Muſcles.*

Under the firſt of theſe kinds are included ſeveral other Species; for, firſt, Either the fleſhy Fibres run ſtrait from one Extreme to the other, as in the *Sartorius*, *&c.* or are turn'd into a Circle, as in the *Sphincters* of the Bladder, and Anus; or twiſted into a Spiral, as in the *Oeſophagus*: And hence they come to be call'd *Recti*, *Orbiculares*, and *Spirales.* See RECTI, ORBICULARES, *&c.*

The ſecond kind alſo includes various Species, according to the various Angles which the oblique Fibres make with the Tendons; ſome inclining equally to each Tendon, ſo as to form a Rhombus, or acute angled Parallelogram with 'em, the Muſcles are hence call'd *Rhomboidales*; others riſing from two parallel Tendons, are inſerted obliquely into one common Tendon, as in the *Biceps* of the Hand; others, laſtly, ariſing from the Periphery of the Circle, concur in a Centre, and form *Muſcles* call'd *Radiæos.* See RHOMBOIDES, RADIÆUS, *&c.*

There are divers Species, and Diviſions of *Muſcles.*

Some Authors diſtinguiſh them into *Muſcles of Voluntary*, and of *Involuntary* or *Natural* or *Neceſſary Motion.*

The *Muſcles of Involuntary*, or *Neceſſary Motion*, have their contracting and extending Powers within themſelves, and have no Antagoniſt; ſuch are the *Heart* and *Lungs* ſuppoſed to be. See HEART and LUNGS.

The *Muſcles of Voluntary Motion*, which we more peculiarly denominate *Muſcles*, and which are thoſe we have here chiefly regard to, have each of 'em their Antagoniſt *Muſcles*, which act alternately in a contrary Direction; the one being ſtretched and extended, while the other is contracted at the Motion of the Will. See MOTION.

The *Muſcles* have alſo different Names from their different Actions, Situations, Forms, *&c.* Thoſe which ſerve to move the ſame Members contrary ways, are call'd *Antagoniſts*; and thoſe that concur to the ſame Action, *Fellows*, or *Pairs.* See ANTAGONIST, *&c.*

Digaſtrics are thoſe which have two Bellies; *Trigaſtrics* thoſe with three. See DIGASTRIC.

Sphincters are thoſe deſtined to ſhut ſeveral Apertures and Paſſages in the Body; as the *Muſcle* at the Neck of the Bladder, and that of the *Anus*, which have the ſame Effect with the String of a Purſe to cloſe thoſe Parts. See SPHINCTER.

Some *Muſcles* have two or three Heads, call'd *Biceps* and *Triceps.* See BICEPS, TRICEPS, *&c.*

We call *Elevators* thoſe which lift up or raiſe the Parts; *Depreſſors* thoſe which move 'em downwards. See ELEVATOR, *&c.*

Flexors thoſe who bend 'em; *Extenſors* thoſe which ſtretch 'em out; *Adductors* thoſe which move the Parts inwards; *Abductors* thoſe which move 'em outwards; *Rotators* thoſe which move 'em round. See FLEXOR, EXTENSOR, ABDUCTOR, ADDUCTOR, ROTATOR, *&c.*

The *Muſcles* have alſo different Names from their different Figure; ſome reſembling a Bat; ſome a Lizard; and ſome a Turbet: Some are Triangular, others Square, others Scalenous, others Pentagonal, others Pyramidal, Round, *&c.* Whence come the Names of *Deltoides*, *Rhomboides*, *Scalenous*, *Trapezius*, *&c.* See DELTOIDES, SCALENUS, TRAPEZIUS, *&c.*

Anatomiſts are not agreed on the Number of *Muſcles* in the human Body; ſome reckon 529; ſome 446; and others only 435. The Calculus, according to theſe laſt, is as follows:

Two of the Forehead; two of the Occiput; ſix of the Eye-Lids; twelve of the Eyes; ſeven of the Noſe; eight of the external Ear; four of the internal Ear; thirteen of the Lips; eight of the Tongue; four of the Palate; fourteen of the Larynx; ſeven of the Pharynx; ten of the *Os Hyoides*; twelve of the Under-Jaw; fourteen of the Head; eight of the Neck; eight of the *Omoplates*; eighteen of the Arms; twelve of the Elbows; eight of the *Radii*; twelve of the *Carpi*; forty eight of the Fingers; fifty ſeven of uſe in Reſpiration; ſix of the Loins; ten of the *Abdomen*; two of the Teſticles; one of the Bladder; four of the *Penis*; four of the *Anus*; thirty of the Thighs; twenty two of the Legs; eighteen of the Feet; forty four of the Toes. The following Table of the Names and Offices of the ſeveral *Muſcles* in the Body, is extracted from Dr. *Keil.*

A TABLE of the MUSCLES *from Dr.* Keil.

Frontales, they pull the Skin of the Forehead upwards.
Occipitales, pull the Skin of the Hind-head upwards.
Attollens
Deprimens } *Auricularum.*
Internus Malleoli, diſtends the *Tympanum.*
Externus Malleoli, relaxes the *Tympanum.*
Obliquus Malleoli.
Muſculus Stapidis, moves the Stirrup.
Corrugator Supercilii.
Lectus Palpebræ ſuperioris, lifts up the upper Eye-Lid.
Orbicularis Palpebrarum, ſhuts both Eye-Lids.

Attollens
Deprimens
Abductor } *Oculorum.*
Adductor

Obliquus major, pulls the Eye forwards, and obliquely downwards.

Obliquus minor, pulls the Eye forwards, and obliquely upwards.

Attollens
Dilatans } *Nares.*
Deprimens

Inciſivus, pulls the upper Lip upwards.

Triangularis, pulls it downwards.

Caninus
Elevator Labii inferioris } pull the lower Lip upwards.

Quadratus, pulleth it downwards.

Zygomaticus, draws both Lips obliquely to either ſide.

Orbicularis, draws both Lips together.

Buccinator, thruſts the Meat between our Teeth.

Temporalis
Maſſeter } pull the Jaw upwards.

Pterigoidæus internus, draws the Jaw to either ſide.

Pterigoidæus externus, draws the Jaw forwards.

Quadratus, pulleth the Jaw and the Cheeks downwards.

Digaſtricus, pulleth the Jaw downwards.

Periſtaphilinus Internus, pulls the Uvula forwards.

Periſtaphilinus Externus, pulls the Uvula backwards.

Styloglоſſus, draws the Tongue upwards.

Genioglоſſus, pulls it out of the Mouth.

Ceratoglоſſus, pulls it into the Mouth.

Geniohyoidæus, pulls the *Os Hyoides* and Tongue upwards and forwards

Sternohyoidæus, pulls the *Os Hyoides* downwards.

Milohyoidæus, pulls it obliquely upwards.

Coracohyoidæus, pulls it obliquely downwards.

Stylohyoidæus, pulls it to either ſide, and ſomewhat upwards.

Stylopharingæus, pulleth up, and dilateth the *Pharynx*.

OEſophagæus, ſtreightens the *Pharynx*.

Stermothyroidæus, pulls the *Thyroides* downwards.

Hyothyroidæus, pulls the *Thyroides* upwards.

Cricothyroidæus.

Cricoarytænoidæus Poſticus.

Cricoarytænoidæus Lateralis.

Thyroarytænoidæus, dilates the *Glottis.*

Arytænoidæus, contracts the *Glottis.*

Splenius
Complexus } move the Head backwards.

Rectus major
Rectus minor } nod the Head backwards.

Obliquus inferior
Obliquus ſuperior } perform the Semi-circular Motion of the Head.
Maſtoidæus

Rectus internus major
Rectus internus minor } nod the Head forwards.

Rectus Lateralis, nods the Head to one ſide.

Intercoſtales interni & externi
Subclavius
Serratus Anticus major } pull the Ribs upwards in Inſpiration.
Serratus Poſticus ſuperior
Triangularis

Serratus Poſticus inferior
Sacrolumbaris } make the Motion of the Ribs downward in Expiration the ſwifter.

Diaphragma, uſed in Inſpiration and Expiration.

Obliquus externus
Obliquus internus
Tranſverſalis } compreſs the Parts contained in the lower Belly; aſſiſt the Motion of the Ribs downwards in Expiration; and help to bend the Vertebræ of the Loins forwards.
Rectus
Pyramidalis

Longiſſimus Dorſi, keeps the Body erect.

Tranſverſalis Dorſi, moves the Body obliquely backwards.

Interſpinalis, draws the acute Proceſſes near one another.

Quadratus Lumborum, draws the Vertebræ of the Loins to one ſide.

Longus
Scalenus } bend the Vertebræ of the Neck.

Pſoas parvus, helps to bend the Vertebræ of the Loins.

Cremaſter, draws up the Teſticles in the Act of Generation.

Erectores Penis.

Tranſverſalis Penis.

Acceleratores Urinæ.

Erectores Clitoridis.

Sphincter Veſicæ, contracts the Neck of the Bladder, that the Urine may not run continually.

Levatores Ani, draw up the Anus.

Sphincter Ani, ſhuts the Anus.

Serratus Anticus minor, draws the Shoulder-Blade forwards.

Trapezius, moves it upwards, backwards, and downwards.

Rhomboides, pulls it backwards.

Levator Scapulæ, pulls the Shoulder-Blade upwards.

Deltoides
Supra-Spinatus } lift the Arm upwards.
Coracobrachialis

Teres major
Latiſſimus Dorſi } pull the Arm downwards.

Pectoralis, moves the Arm forwards.

Infra Spinatus
Tranſverſalis } draw the Arm backwards.
Subſcapularis

Biceps
Brachiæus internus } bend the Fore-Arm.

Longus
Brevis
Brachiæus externus } extend the Fore-Arm.
Anchonæus

Rotundus
Quadratus } perform the Motion of Pronation, or turn the Palm of the Hand downwards.

Longus
Brevis } perform the Motion of Supination, or turn the Palm of the Hand upwards.

Cubitæus internus
Radiæus internus } bend the Wriſt.

Cubitæus externus
Radiæus externus } extend the Wriſt.

Palmaris, helps the Hand to graſp any thing cloſely.

Palmaris Brevis, makes the Palm of the Hand concave.

Sublimis
Profundus } bend the Fingers.

Extenſor Digitorum Communis.

Lumbricales, aſſiſt in bending the firſt Joint of the Fingers.

Interoſſei interni, draw the Fingers to the Thumb.

Interoſſei externi, draw the Fingers from the Thumb.

Flexor Pollicis longus.

Flexor Pollicis brevis.

Extenſor primi.

——— *Secundi.*

——— *Tertii Internodii Pollicis.*

Tenar, draws the Thumb from the Fingers.

Antitenar, draws the Thumb to the Fingers.

Abductor Indicis.

Extenſor Indicis.

Hypotenar, draws the little Finger from the reſt.

Extenſor Auricularis.

Pſoas
Iliacus } bend the Thigh.
Pectinæus

Glutæus major
Glutæus medius } extend the Thigh.
Glutæus minor

Triceps, pulls the Thigh inwards.

Pyriformis
Gemini } they move the Thigh outwards.
Quadratus

Obturator internus
Obturator externus } help to move the Thigh obliquely, and circularly.

Seminervoſus
Semimembranoſus } bend the Leg.
Biceps
Gracilis

Rectus
Vaſtus externus } extend the Leg.
Vaſtus internus
Crureus

Sartorius, makes the Legs croſs one another.

Poplitæus, turns the Leg ſomewhat inwards.

Membranoſus, turns it a little outwards.

Tibialis Anticus
Peronæus Anticus } bend the Foot.

Graſtocnemii
Solæus } extend the Foot.
Plantaris

Tibialis Poſticus, moves the Foot inwards.

Peronæus Poſticus, moves the Foot outwards.

Profundus
Sublimis } bend the four leſſer Toes.
Lumbricalis

Longus
Brevis } extend the four leſſer Toes.

Flexor Pollicis.

Extenſor Pollicis.

Tenar, draws the great Toe from the reſt.

Antitenar, draws it to the reſt.

Flexor Pollicis Longus.

——— *Brevis.*

Abductor Minimi Digiti
Interoſſei interni } draw the Toes toward the great Toe.

Interoſſei externi, draw them from the great Toe.

Tranſverſalis, brings all the Toes cloſe to one another.

The word *Muſcle* is derived from the *Greek* μῦς, or the *Latin Mus*, a Mouſe; on account of the Reſemblance it is ſuppoſed to bear to a skin'd Mouſe. The *Latins* alſo call it *Lacertus*. *Steno*, and other later Authors, reckon the Heart among the number of *Muſcles*, in regard its Compoſition and Action don't differ in any thing from thoſe of other *Muſcles.*

MUSCULAR, or **Musculous**, ſomething that relates to the Muſcles; or that partakes of the nature thereof. See Muscle.

In this ſenſe we ſay, *Muſcular Fibre, Muſcular Coat, Muſcular Fleſh, Muſcular Veins, Muſcular Arteries,* &c.

Muscular *Fibres* are the fine Threads, or Fibres, already deſcribed, whereof the Body of Muſcles is compoſed. See Muscle.

Anatomiſts are exceedingly divided as to the nature of theſe Fibres. Some will have 'em Blood-Veſſels, *viz.* Veins, and Arteries; others Nerves, &c. See Artery, Nerve, &c.

Some reſtrain *Muſcular* Fibres to the longitudinal red, call'd alſo *Fleſhy* Fibres: The tranſverſe, and ſpiral Ramifications wherewith the former are bound about, they call *Nervous Fibres.* See Fibre.

Dr. *Morgan* endeavours to prove, that all the Fibres that enter the Structure and Compoſition of a Muſcle, are endued with an intrinſic Elaſticity, Spring, or Power of contracting and reſtoring themſelves, as a given Weight or Force, by which they may be ſtretch'd; and that this Elaſticity, or contractive reſtitutive Power being a natural inherent Property of the Fibres themſelves, does not depend on the Mixture, Rarefaction, or Efferveſcence of any Fluids or Humours whatſoever. See Muscular *Motion.*

Muscular *Membrane*, or *Membrana* **Musculosa**, a Membrane ſuppoſed to inveſt the whole Body, immediately under the Adipoſe Membrane; call'd alſo *Panniculus Carnoſus*, and *Membrana Muſculorum Communis.* See Panniculus *Carnoſus.*

Muscular *Arteries*, are two *Arteries* proceeding from the Subclavians, and diſtributed among the *Hind-Muſcles* of the Neck; as alſo to the Arteries of the Loins. See Artery. They are divided into *Upper* and *Under.*

The *Upper-Muſculars* proceed from the large Artery, and loſe 'emſelves in the Fleſh.

The *Under-Muſculars* are Branches of the inner Iliac Arteries.

The Name is alſo given to two Arteries of the Thigh, the one call'd the *Internal-Muſcular*, as being diſtributed among the inner *Muſcles* of the Thigh; the other the *External-Muſcular*, becauſe it proceeds to the outer Part.

Muscular-*Veins*, is alſo a Name given to ſeveral Veins; two whereof come from the Skin and the *Hind-Muſcles* of the Thigh, and terminate in the Subclavians. See Vein.

There are three others alſo call'd *Muſculars*, and diſtinguiſh'd into *Upper, Middle,* and *Under*; the firſt terminates in the Trunk of the *Vena Cava*, the two others open into the external Iliac Vein.

Muscular *Fleſh.* See *Muſcular* Flesh.

Muscular *Motion*, is the ſame with voluntary or ſpontaneous Motion; thus call'd, becauſe effected by means of the Contraction and Dilatation of the *Muſcles.* See Motion, Muscle, &c.

The Mechaniſm of a *Muſcle* we have deliver'd at large; but how this Mechaniſm is employ'd to produce Motion in Animals, is matter of endleſs doubt.

The generality of Writers ſuppoſe the Belly of the *Muſcle* to be ſwell'd, and thus its Extremes brought nearer; and conſequently the Parts it is fixed to, moved.

The Structure of a *Muſcle* we have ſhewn to be ſuch as renders it capable of being ſwell'd and contracted, and by that means of having its Extremities brought nearer each other, which is its proper Action: But how the Contraction is effected, is the Point in diſpute.

The generality of Authors account for it from the Influx of ſome Fluid into the Muſcular Fibres: Others ſolve it from the natural Elaſticity of thoſe Fibres.

The Retainers to a Fluid, again, are divided as to the particular Fluid employ'd for this purpoſe.

From the Structure and Phenomena of the *Muſcles* above laid down, we may gather the Properties of the hidden Cauſe that moves the *Muſcles*; *viz.* 1*ſt*, That it may either be preſent or abſent in a *Muſcle*; and therefore, 2*dly*, May enter into it, and go out again: *i. e.* 3*dly*, It is derived to it from ſome other Place, and paſſes from it elſewhere. And, 4*thly*, All this, by an inſtantaneous Direction of the Will. 5*thly*, And in the ſame Moment of Time, wherein the *Muſcle* is contracted, muſt paſs from within outwards to every Point of the Surface of the *Muſcle*; that is, 6*thly*, it muſt be at once equally diſtributed throughout the whole Belly of the *Muſcle*: And therefore, 7*thly*, fill and dilate the Membranes of the Fibres, change 'em out of an oblong into a more ſpherical Figure, lengthen their leſs Diameter, and diminiſh their longer, and ſo draw the Tendons nearer each other. *Laſtly*, that it muſt have its Riſe from the *Cerebrum* and *Cerebellum*, the Origin of the Nerves and be ſtrong enough to overcome thoſe Obſtacles which here ſtrongly reſiſt it. To conclude then, it muſt be a moſt fluid, ſubtile, active Body, and be apply'd with ſome Energy within the *Muſcle.*

Now all the Fluids in the Body that have any Pretenſions to theſe Properties, that are any way qualified to produce the Phænomena above, or that have been alledged as the Cauſe of *Muſcular Motion*, are the *Animal Spirits*, (or, as our later Writers call it, the *Nervous Juice*) and the *Blood*: but as each of theſe ſingly ſcarce appears adequate to the Effect, hence Authors have ſuppoſed 'em to mix in the *Muſcles*, and each to contribute to the Action of the other. But the Animal Spirits ſeem to have the greateſt number of Advocates, tho' their Exiſtence was never yet fully prov'd; beſides that the manner of their Action, as aſſign'd by Authors, ſeems to be arbitrary and precarious.

Some, with the great Dr. *Willis*, make the Tendons a Receptacle for the Spirits, which are rais'd at the Inſtigation of the Will, and ſent thence into the Belly of the *Muſcle*, where meeting with the active Particles of the Blood, they ferment, and cauſe an Intumeſcence, and ſo contract the *Muſcle.*

Others, amongſt whom *Des Cartes* and his Followers, allow no Receptacle for 'em but the Brain, ſend 'em thence thro' the Nerves like Lightning at every Summons of the Will; becauſe they can't allow the Tendons to be a proper Lodgment, on account of the Cloſeneſs of their Contexture, nor can believe that the Animal Spirits ſhould remain there unactive.

Others, among whom M. *du Verney*, imagine this Intumeſcence may be without Fermentation by the Animal Spirit, and a Juice from the Arteries running into the Tendons and Fleſhy Fibres, and extending them, as Ropes, &c. ſwell in moiſt Weather.

Dr. *Chirac*, and others, maintain, that every Muſcular Fibre, beſides its Vein, Artery, and Nerve, has alſo from Space to Space, ſeveral little Cavities, or Pores of an oblong Figure, when the *Muſcle* is ſlack or flaccid; but the Blood circulating thro' the *Muſcle*, is continually depoſiting into thoſe Pores a ſulphurous Recrement, abounding with Alkaline Salts, which meeting with the Spirits that flow by the Nerves into thoſe ſame oval Pores, their Nitro-Aerial Particles ferment, with the ſaline ones of the Sulphurous Recrement, and, by a kind of Exploſion, ſo diſtend the Pores, as to change the long oval Figure into a round one; and thus the *Muſcle* is contracted.

Borelli takes the Fibres of a *Muſcle* to conſiſt of a Chain of divers Rhombus's or Lozenges, whoſe Areas are enlarged or contracted as the Nervous Juice, with the Lympha and Blood, are let into, or forced out of 'em, at the Inſtance of the Soul.

Dr. *Croon* ſuppoſes every Fleſhy Fibre to conſiſt of a Chain of little Bladders, or Globules, communicating with each other; into which the nutritious Juice, and one or two more Liquors entering, do, by means of the natural Heat, make an Efferveſcence; by which the Body of the *Muſcle* is extended, &c.

Dr. *Cheyne* takes the ſmall *Fibrillæ* of the *Muſcles* to be ſo many ſlender elaſtic Canals, bound about by ſmall tranſverſe parallel Threads, which divide the hollow *Fibrillæ* into ſo many elaſtic *Cyſtes* or *Veſiculæ*, which are orbicular, being formed of two concave Segments of a Sphere; into every one of which *Veſiculæ*, an Artery, Vein, and Nerve enter; the two firſt to carry and bring back the Blood, the laſt to carry thither the *Liquidum Nervoſum*, or Nervous Juice, which mingling in the *Veſiculæ* with the Blood, does, by its acid pointed Particles, prick and break the Globules of the Blood, ſo as to let out the impriſoned elaſtic Air (contained in the Globules) into thoſe little *Veſiculæ*; whereby the elaſtic Cells of the Fibres will be blown up, and thereby their Longitudinal Diameters from Cell to Cell ſtraitned: and this muſt contract the Length of the whole Fibre, and ſo move that Organ to which one of the Tendons is fix'd.

Dr. *Keil*, not contented with this Theory, ſets up another, wherein the ſame Structure of the *Muſcle* is ſuppoſed, and the ſame Fluids; *viz.* the Blood and Nervous Juice, the Agents or Inſtruments of Contraction: but inſtead of the pungent Particles of the Nervous Juice piercing the Globules of Blood, and ſetting at liberty the impriſon'd elaſtic *Aura*, he accounts for the Whole from the Doctrine of Attraction.

He endeavours to ſhew, that the Diſtenſion of the Veſicles of the Fibres is not owing to their being fill'd with a greater Quantity of Blood and Animal Spirits than before their Contraction; but to a Rarefaction ariſing from the Mixture of thoſe two Fluids, by means whereof they come to poſſeſs a greater Space.

To account for this Rarefaction of the Blood and Spirits in the Veſicles of the Muſcular Fibres, he ſuppoſes a ſmall Globule of Air between the Particles of a Fluid, which Particles have a ſtrong attractive Force, whereby they endeavour to come together: By preſſing every way equally on the Globule of Air, they will hinder its eſcape from between them. But the Force whereby they endeavour to come together being vaſtly greater than that of Gravity, the Globule of Air muſt be conſiderably condenſed; but the Force of Elaſticity being proportional to that of its Condenſation, the Force wherewith the airy Globule endeavours to expand itſelf, will likewiſe be vaſtly great; ſo that if the *Niſus* of the Particles of the Fluid to come together ſhould be taken off, the Air between 'em would expand itſelf with a conſiderable Force. Now, if upon the mixing of another Fluid, the Particles of the firſt Fluid ſhould be more ſtrongly attracted to the Particles of this other Fluid, than they were before to one another, their *Niſus* to one another would then ceaſe, and give the incloſed Globule of Air liberty to expand itſelf; ſo that the whole Fluid will take up a greater Space than it did before: But when the Particles of the two Globules come to be united together, they will again incloſe the Globule of Air that lies between them, and, by their mutual Attraction, ſoon bring it to its former State of Condenſation.

Now, that the Blood contains a great number of Globules of Air, is evident from the great Quantity it yields in the Air-Pump; and that the Particles of the Blood have a ſtrong attractive Force, cannot well be deny'd. Upon the meeting, then, of theſe two Fluids in the Veſicles of the Fibres, the Nervous Juice, conſiſting of ſmaller Particles than the Blood, muſt, from what Sir *I. Newton* has proved of the Rays of Light, attract the Particles whereof they are compoſed more ſtrongly than thoſe do one another; and conſequently the *Niſus* of thoſe Particles to one another ceaſing, the condenſed Globule of Air will expand itſelf with a conſiderable Force; whereby each Veſicle of the Fibre will be diſtended, and conſequently, therefore, ſhorten'd; *i. e.* the whole *Muſcle* will be contracted: but when the Particles of the Globule of Blood are well mixed with the Nervous Fluid, they will both together incloſe the Globule of Air again, and compreſs it into as ſmall a Space as it was before: And thus the Contraction of the *Muſcle* muſt immediately ceaſe, till freſh Blood and Spirits, ſtill ſucceeding one another, continue the Inflation of the Veſicles. But when a *Muſcle* has been ſtrongly attracted for ſome time, the Quantity of Spirits ſpent being more than can be prepared in the Space of Time by the Glands which ſupply its Nerves, the Inflation of the Veſicles muſt fall, and the *Muſcle* grow feeble and weak. And thus that ingenious Author conceives the Veſicles to be diſtended without any Ebullition or Effervеſcence; and their Diſtenſion to ceaſe without any Precipitation, or flying-off of the Aerial Globules thro' the Pores of the *Muſcles*.

He proceeds to ſhew how artfully the Mechaniſm of the Fibres is contrived for Contraction. 'Tis a known Experiment, that a Bladder blown up and diſtended as to its Capacity, but contracted as to Length, will raiſe a Weight to ſome determined Height. Two Bladders, therefore, thus blown up, and communicating with each other, he argues, will raiſe the Weight double the Height, and three Bladders thrice the Height, &c. So that if there were a String of Bladders join'd together, of equal Bulk, and like Figures, the Space thro' which the Weight would riſe, would be proportionable to the Number of Bladders, *i. e.* to the Length of the String. Now each Fibre of a *Muſcle* conſiſting of an infinite Number of ſmall Veſicles, reſembles a String of Bladders; ſo that the Contraction of the *Muſcle* is always proportionable to the Length of its Fibres.

Farther, the Veſicles whereof the Fibres conſiſt being very ſmall, tho' one large Bladder might raiſe a Weight as high as ſeveral ſmall ones, yet the Quantity of elaſtic Fluid uſed in the Inflation will in that caſe be much greater than where the Weight is rais'd by a String of ſmall ones.

For, ſuppoſing two Bladders of ſimilar Figures, but the Diameter of the one triple that of the other; then will the one require twenty-ſeven times the Quantity of elaſtic Fluid to expand it that the other does, and will alſo expand to twenty-ſeven times the Space; and yet three of the leſs Bladders join'd together, (he goes on) will raiſe the Weight to the ſame Height that the bigger one does; but with nine times leſs Expence of elaſtic Fluid, and take up but a ninth part of the Space. By diminiſhing, therefore, the Bigneſs of the Veſicles, and increaſing their Number, the Force required to diſtend them, and the Diſtenſion itſelf, may be diminiſhed in any given proportion, and come at laſt to be inſenſible. Suppoſe a Bladder, *v. g.* of a determinate Bigneſs, can raiſe a Weight a Foot; a hundred Bladders, whoſe Diameters are each a hundredth Part of the former, being blown up, will raiſe the Weight to the ſame Height; but the Force required to inflate them, and the Swelling of all put together, will be ten thouſand times leſs than the large one.

Again, if a Weight of a determined Bigneſs can be rais'd to a certain Height by a Bladder, or one String of Bladders, to which the Weight is tied; twice that Weight may be rais'd by two ſuch Bladders, or Strings; thrice by three, &c. and, conſequently, the Weight a *Muſcle* can raiſe, will be always as the Number of its Fibres, *i. e.* as its Thickneſs, ſuppoſing the Diſtenſion of the Veſicles equal, and the abſolute Strength of one *Muſcle* to that of another, as their Bulks.

Dr. *Boerhaave* finding all the Requiſites before laid down, for the Action of the Muſcles in the nervous Juice, or animal Spirits, and in no other Fluid in the Body, thinks it needleſs to have recourſe to a Mixture of ſeveral Liquors where one will do; and therefore makes no ſcruple to attribute the whole Buſineſs to it alone. The manner of Action he conceives thus.

Suppoſe the Spirit, from any Cauſe, to be moved more ſwiftly from the Origin of ſome one Nerve, than thro the reſt; the influx will here be greater into the *Muſcular* Fibre open to this Nerve than into another: This will therefore be more dilated; and the other Phenomena, mentioned above, will ſucceed. The ſame Cauſe continuing, the Effect will be increaſed, ſo that in a Moment of Time, the whole will be ſwell'd up; and while the ſame Determination laſts, will remain contracted: And this obtaining in an infinite number of *Fibrillæ* at once, the whole Muſcle will be inflated. Hence it neceſſarily follows, that as the Celerity is increaſed in one Nerve, the Motion will be leſs in another; this therefore being relax'd, the Effort in contraction will be the ſtronger. For which Reaſon, all the turgid Fibres of a Muſcle will compreſs the intermediate Spaces and Blood with a great Force; whence the Veins will be emptied, and the Arteries being compreſſed, will repel the groſſer, that is, the red parts of the Blood, but will drive the more ſubtile parts by the Force of the Heart and their own, into the moſt minute Canals; and thus the Cruor being expell'd, the whole Body of the Muſcle will be found to act by a ſubtile Humour concurring from the Nerves and Arteries.

Thus are all the Phænomena accounted for; without any other Aſſumption than an accelerating Force in the Origin of the Nerves; which is common to all Hypotheſes, and which can't be traced any further.

All other Hypotheſes, therefore, *Boerhaave* abſolutely rejects; nor makes the leaſt account of *Galen*'s incorporeal Power inflating the Muſcles; the nitrous Spirit of the Nerves mixing with the Oil of the Blood, and ſo rarifying it; the acid Parts of the nervous Juice mixing with the alcalious ones of the Blood; the Ebullition of the Air, and the arterious Juice; and the increaſe or diminution of attractive Force of the minute Corpuſcles of the Humours, as repugnant to Senſe, Experience, the Laws of Matter, and of Mixture, and to the Phænomena of the Muſcles.

Dr. *Aſtruc* has gone a good way towards proving the nervous Juice alone concern'd in *Muſcular Motion*; and that the Blood has no ſhare in it; by the following Experiment, which he tried ſeveral times with the ſame ſucceſs.

Cutting open the *Abdomen* of a live Dog, and removing the Inteſtines out of the way, he bound up the *Aorta* where it divaricates into the *Iliac* Arteries, with a Thread, ſo as to conſtringe each *Iliac* and the *Hypogaſtric* Artery very cloſely; then ſewing up the *Epigaſtric* Muſcles, he found the Senſation and Motion ſtill as brisk and vivid in the Dog's *Poſteriors*, as before. So that when once ſet at liberty, he ſtood on all four, and walk'd with his uſual Eaſe and Firmneſs; tho it is certain there could not be one drop of Blood convey'd to thoſe hind parts.

Aſtruc, however, differs from *Boerhaave* in the manner wherein this nervous Juice acts; nor will allow that Celerity, wherewith the Muſcles act at the Command of the Will, to be owing to the Velocity of the Juice ſent thro the Nerve, but to an Impreſſion given to one extremity of the Thread, and communicated thro all the intermediate Parts to the other Extremity; ſuppoſing the Nerves in their natural State to be turgid, and full of Spirits: ſo that if the Extremity in the Senſory be ever ſo little preſs'd by the Acceſſion of any new Spirit, as much will be inſtantly expell'd at the other Extreme, and *vice verſa*; a ſmall Impreſſion given to the outer Extremity of the Nerve will immediately move the other Extreme open to the Senſory, ſo that part of it will drop out: Which accounts for Senſation, as well as *Muſcular Motion*.

Laſtly, Dr. *Lower* and Mr. *Cowper*, and after them, Dr. *Morgan*, the lateſt Writer on the Subject, ſetting aſide all adventitious Fluids, account for *Muſcular Motion* from the intrinſic Elaſticity of the nervous *Fibrillæ* contracting and reſtoring themſelves againſt the ſtretching Force of the Circulating Blood.

This Syſtem, *Morgan* endeavours to evince from the following Conſiderations:

1. All the Veſſels in an Animal, conſiſting of flexible, diſtractile Fibres, are in a ſtate of Tenſion; *i. e.* are both ſtretch'd tranſverſly and longitudinally by their contained Fluids: Thus, *e. gr.* let a Vein, or Artery be cut, and the oppoſite Sides of the Veſſel will contract, and come nearly to a contact about the Axis; while the two ends receding both ways, leave a Chaſm, which ſhews that the Veſſel, while in its natural State, was diſtended both ways; and, conſequently, that Contraction in all their Dimenſions, is the natural intrinſic Action of the Veſſels or Fibres.

And the ſame might be deduced, *à priori*, from the Growth of Animals; for by the increaſed Quantity of the accumulated Blood, the Veſſels muſt neceſſarily be enlarged every way. Now, againſt this diſtending Power of the Fluids, the ſolid Muſcular *Fibrillæ* continually exert a contractive, or reſtitutive Force, by which they are kept in their proper State of Tenſion.

2. That this contractive Power of the Muſcular Fibres is a natural intrinſic Property of the Fibres themſelves, and does not depend on any Mixture, or mutual Action of Fluids, is evident from hence, that theſe Fibres retain the ſame Property, after they are taken out of the Body and dried; as we ſee in Thongs, Cat-gut, and other ſuch like Cords or Strings cut out of the Muſcular Coats and Skins of Animals, which may be ſtretched out to a conſiderable length beyond their natural State; and when the ſtretching Force or Weight is taken off, they will immediately contract again by their native Spring.

3. While a Muſcle contracts, the Blood is ſqueezed out, and during its ſtate of Contraction, it is more hard and ſolid than before; that is, it contains leſs Blood when contracted, than when ſtretch'd; which ſhews, that the Contraction cannot be by the addition of another Fluid from the Nerves mixing with the Blood in the Muſcles.

4. No ſuch Fluid in the Nerves could ever be found, as being mixed with the Blood, would occaſion ſuch Fermentation or Expanſion. But ſuppoſing the *Muſcular* Cells thus inflated, no ſuch effect could follow as ſhortning the Muſcle in length, and ſwelling it in thickneſs: But the Conſequence muſt be, that the Muſcle would be lengthned as well as thickned; that is, it muſt increaſe its Dimenſions proportionably every way, which is the proper Action of the Fluids on the Solids.

If then it be ſaid, that theſe Bladders, when the Muſcle is ſtretched, are drawn into oblong Spheroids: and when inflated by the mixture of the nervous Fluid, reduced to a ſpherical Figure; by which means their Axes are ſhortned, and their conjugate Diameters enlarged: 'Tis anſwer'd, that thoſe ſmall Veſicles are ſoft, flexible, diſtractile, and equally yielding every way; and ſince an included expanſive Fluid muſt preſs its containing Veſſels equally yielding every way, and equally expanſive; a Veſſel, notwithſtanding ſuch Diſtenſion, muſt retain its natural Figure, and be equally ſtretch'd in all Directions.

Again, ſince the Blood circulates freely thro theſe *Muſcular* Cells, it is plain, that as ſoon as they begin to inflate, it muſt be immediately puſh'd forward with an increaſed Velocity in the Courſe of its Circulation, which muſt prevent any ſuch Inflation in the Muſcles. Before theſe Veſicles, therefore, can be diſtended in the manner ſuppos'd, the Exit of the Fluid muſt be hindred; that is, the Circulation muſt be ſtopt. If any one doubt of this, let him try whether he can blow up a Bladder, or other Veſſel, that is open at both ends, and where the expanſive Fluid has as free an Egreſs as Ingreſs.

Thus much premiſed, the natural Action of a Muſcle will be eaſily explain'd. From its Structure, it follows, that on the Contraction of its tranſverſe and ſpiral Fibres, which are the Ramifications of the Nerves, the longitudinal, red, and fleſhy Fibres, or Blood-Veſſels, which conſtitute the Body of the Muſcle, muſt be ſqueezed and drawn together, as being compell'd to follow the Motion of theſe elaſtic Cords; by which means the Blood-Veſſels being compreſs'd, muſt be forced, with ſome Impetuoſity, thro the Muſcle, and propell'd forward in the Courſe of its Circulation.

Now if the Blood ſhould hereupon ſtop, and return no more to the Muſcle, 'tis plain the Muſcle muſt for ever remain in this contracted State, as its proper and natural State of Quieſcence to which it tends, and where it would reſt: But the Blood having receiv'd a freſh Impetus by the Contraction, and returning upon the Muſcle in the Courſe of its Circulation, again ruſhes into the Blood-Veſſels, which being inlarged in all their Dimenſions by the Force of the returning Blood, the tranſverſe and ſpiral nervous Fibres muſt be hereby ſtretch'd, and the Muſcle extended; by this means the Blood-Veſſels being brought to their natural extent, and conſequently the diſtending Force of the Blood ceaſing, the contractive Power of the Nerves will in that ſtate begin to act again, and reſtore themſelves with the ſame Force by which they were extended, till the returning Blood re-enters the Muſcle, and ſtretches it again.

MUSÆUM, was originally uſed to ſignify a Place in the Palace of *Alexandria*, which took up at leaſt a fourth part of the City; ſo call'd as being deſtin'd and ſet apart to the *Muſes*, and the Sciences. See Muse.

Here were lodged and entertained a great number of learned Men, who were divided into Companies or Colleges, according to the Sciences or Sects whereof they were Profeſſors.

To each Houſe or College, was allotted a handſome Revenue.

This Eſtabliſhment is attributed to *Ptolemy Philadelphus*, who here fixed his Library. See Library.

Hence the word *Muſæum* has paſs'd into a general Denomination, and is now apply'd to any Place ſet apart as a Repoſitory of Things that have ſome immediate Relation to the Arts or the *Muſes*, whence the Word firſt took its Riſe. See Repository, &c.

The Musæum at *Oxford*, call'd the *Aſhmolean* Musæum, is a noble Pile erected at the Expence of the Univerſity, for the promoting and carrying on ſeveral Parts of curious and uſeful Learning. It was begun in 1679, and finiſhed in 1683; at which time, a valuable Collection of Curioſities was preſented to the Univerſity by *Elias Aſhmole* Eſq; and the ſame day there repoſited, and afterwards digeſted and put in a juſt order by Dr. *Plott*, who was conſtituted firſt Keeper of the *Muſæum*.

Divers conſiderable Acceſſions have been ſince made to the *Muſæum*; as of Hieroglyphics, and other *Egyptian* Antiquities by Dr. *Huntingdon*; of an entire Mummy by Mr. *Goodyear*; of a Cabinet of natural Rarities by Dr. *Liſter*; as alſo of divers *Roman* Antiquities, Altars, Medals, Lamps, &c.

Over the Entrance of the *Muſæum* is this Inſcription;

MUSÆUM ASHMOLEANUM, SCHOLA NATURALIS HISTORIÆ, OFFICINA CHYMICA.

MUSES, Fabulous Divinities of the antient Heathens, who were ſuppoſed to preſide over the Arts, and Sciences.

The Antients admitted nine *Muſes*, and made them the Daugthers of *Jupiter* and *Mnemoſyne*, or Memory.

At firſt, indeed, their Number was but three, viz. *Melete*, *Mneme*, and *Aœde*; *Greek* Words ſignifying Memory, Singing, and Meditation. But a certain Sculptor of *Sicyon* having Orders to make three Statues of the three *Muſes* for the Temple of *Apollo*, and miſtaking his Instructions, made three ſeveral Statues of each *Muſe*; theſe however were found ſo beautiful, that they were all ſet up in the Temple, and from that time they began to reckon nine *Muſes*: To whom *Heſiod* afterwards gave Names; viz. *Calliope*, *Clio*, *Erato*, *Thalia*, *Melpomene*, *Terpſichore*, *Euterpe*, *Polhymnia*, and *Urania*.

Each of theſe were ſuppoſed to preſide over their reſpective Art; *Calliope* over Heroic Poetry; *Clio* over Hiſtory; *Melpomene* over Tragedy; *Thalia* over Comedy; *Euterpe* over Wind-Muſic; *Urania* over Aſtronomy; *Terpſichore* over the Harp; *Erato* the Lute; *Polhymnia* Rhetoric.

They are painted Young, Handſome, and Modeſt, agreeably dreſs'd and crown'd with Flowers. Their uſual Abodes were about Mount *Helicon* in *Bœotia*, and Mount *Parnaſſus* in the *Phocide*. Their Buſineſs was to celebrate the Victories of the Gods, and to inſpire and aſſiſt the Poets; and hence the Cuſtom of Invoking their Aid at the beginning of a Poem. See Invocation.

It muſt not, however, be imagined, that the Deities thus invoked, are conſider'd even by the antient Poets themſelves as Divine Perſons, from whom they expect any real Help. Under the Name of *Muſe* they wiſh for the Genius of Poetry, and all the Conditions and Circumſtances neceſſary for a happy Execution of their Undertaking.

They are mere Allegories and Manners of expreſſing themſelves poetically; as when they make Gods of Sleep, of Fame, of Revenge, and other natural and moral things. See God.

Accordingly, the *Muſes* are of all Ages, Countries, and even of all Religions. There are Chriſtian as well as Heathen *Muſes*, *Latin*, *Greek*, *Engliſh*, *French*, &c. There are alſo *new Muſes*, which appear every day in favour of thoſe who, diſdaining things too trite and common, chuſe to ſtrike out of the Road.

When *Virgil* wrote his Eclogues, he invoked the *Sicilian Muſes*, becauſe he imitated *Theocritus*; and the *Sicilian* Poet having ſucceeded; the *Roman* begg'd for a Genius as happy as that of this Iſlander.

The *Muſes* of the Poet *Lucretius* had never inſpired any Perſon before him. 'Tis plain, from the Doctrine of his Book, what kind of Divinity it was he invoked. He addreſſes himſelf to *Venus*, but at the ſame time tells us, that none of the Gods trouble themſelves with human Affairs. His *Muſes* therefore muſt of neceſſity be mere Allegories.

The Word *Muſe*, according to *Phornutus*, is derived from the *Greek* μῶϑαι, which ſignifies the ſame with ζητεῖν, to ſearch. Others derive it from ὁμοίουσα, ſimilar, or alike; all the Sciences being bound and united together. *Euſebius* derives it from μυέω, to initiate, to inſtruct. *Plato* and *Scaliger* from μαῖωϑαι, *obſtetricare*, becauſe to them are attributed the Invention of the Arts; and 'tis they who produced them. Laſtly, *Heinſius* and *Voſſius* derive it from the *Hebrew* גוושר Muſar, Science, *Diſciplina*.

The *Muſes* are call'd by various Names; *Camænæ*, *Heliconiades*, *Parnaſſides*, *Aonides*, *Pierides*, *Pegaſides*, *Agannipides*, *Theſpiades*, *Libethrides*, and *Caſtalides*.

MUSHROOM, or MUSHROON, in Natural Hiſtory, a Plant, of a Form and Structure very different from that of all other Plants; having neither Seeds, nor Flowers, that have ever yet been diſcover'd. See PLANT, SEED, &c.

There are various kinds of *Muſhrooms*; and the Vulgar call by this Name all that come under the general Head of Fungus's. See FUNGUS.

They are all uſed with ſome ſuſpicion, tho' ſome are more harmleſs, as well as more delicious than others. Thoſe uſed among us, are *Muſhroom of the Wood*, call'd *Morils*, and *of the Meadows*, call'd *Champignions*, which are gathered in Autumn, and eſteemed for their Whiteneſs above, their Vermilion underneath, and the Sweetneſs of their Smell.

Mr. *Bradley* mentions a hundred kinds of *Muſhrooms*, which he has ſeen in *England*; beſides thoſe very numerous ſmall ones, which conſtitute the Mouldineſs of Liquors, Fruits, &c. which laſt are ſuch quick Growers, that they arrive at perfection in leſs than 12 Hours. See MOULDINESS.

The Fungoides only differs from a *Muſhroom* in its external Form; the Coralloides are of the ſame Species, tho of a different Name, as being branch'd like Coral; and *Truffles* come under the ſame kind. See CORALLOIDES, TRUFFLES, &c.

Matthiolus mentions *Muſhrooms* which weigh'd 30 Pounds each, and were as yellow as Gold. *Fer. Imperatus* tells us he ſaw ſome which weigh'd above a hundred Pounds; and, to add no more, the *Journal des Scavans* furniſhes us with an account of ſome growing on the Frontiers of *Hungary* which were a full Chariot Load.

The Origin and Production of this Plant has extremely puzzled the Botaniſts. How a Plant ſhould be produced without a Seed, is a Myſtery; and yet the beſt Microſcopes are not able to diſcover any appearance of a Seed; and the manner of cultivating this Plant, ſeems to make it ſtill more probable that it has not any.

M. *Tournefort* gives a very curious Account of their Culture, in the *Memoirs of the French Academy*, the Subſtance of which we ſhall here preſent the Reader withal.

All the Secret of bringing up *Muſhrooms* ſpeedily and in abundance, conſiſts in ranging Balls of Horſe-Dung about the bigneſs of the Fiſt, in Lines, at the diſtance of about three Feet from each other, and at the depth of one Foot under Ground, and covering theſe over with Mould, and that again with Horſe-Dung.

If this be done in *April*; in the beginning of *Auguſt* the pieces of Dung will begin to whiten, and grow mouldy, being ſtrew'd all over with little Hairs, or fine white Threads, branch'd, and woven about the Straws whereof the Dung is compoſed. The Dung now loſes its former excrementitious Smell, and ſpreads an admirable Odour of *Muſhrooms*.

According to all Appearance theſe white Threads are no other than the open'd Seeds or Buds of *Muſhrooms*, which Seeds were before incloſed in the Dung, but in ſo ſmall a compaſs, that they could not be perceiv'd till after they had ſhot themſelves into little Hairs. By degrees the Extremity of theſe Hairs grows round into a kind of Button, which ſwelling by little and little, at length opens itſelf into a *Muſhroom*, whereof the lower part is a kind of Pedicle bearded in the place where it enters the Ground, and at the other end loaden with a kind of roundiſh Capital or Head, in manner of a Calotte, which expands itſelf without producing either Grains or Flowers that are ſenſible; the bottom is ſpread with *Laminæ*, which proceeding from the Centre to the Circumference, may be call'd the *Leaves of the Muſhroom*.

At the foot of each *Muſhroom* are found an infinite number of little ones not bigger than the Head of a Pin, when the others are at their growth. The Buds of the *Muſhrooms*, or the white Hairs of the Dung, preſerve themſelves a long time without rotting, if kept dry; and if laid again on the Ground, will produce.

Muſhrooms, then, are nothing elſe but the Produce of what we call the Mouldineſs of Horſe-Dung: But what Analogy is there between theſe two things? Or how ſhould ſo artful and delicate a Structure as this of a Plant reſult from the mere fortuitous Concourſe of a few Juices, differently agitated?

It ſeems paſt doubt then, that *Muſhrooms*, like all other Plants, have their Origin in Seeds: Now we know that the Seeds of Plants cannot vegetate every where; there are firſt required certain Juices proper to penetrate their Coats, to excite a Fermentation, and to join themſelves to the little parts thereof, and increaſe them. Hence ariſes that infinite Diverſity of Places, wherein different Species of this Plant are produced. There are ſome which will only grow on ſome other particular Plants, whoſe Trunk, Bark, or Roots, alone have the Juices proper for them.

What M. *Tournefort* mentions from Meſſ. *Lemery* and *Mery*, is ſtill more ſurprizing: There is a Species of *Muſhrooms* which grow on the Fillets and Bandages apply'd to the Fractures, &c. of the Patients in the *Hotel-Dieu*. After which, it will not be at all ſurprizing that Horſe-Dung prepared in the manner M. *Tournefort* mentions, ſhould be a Soil or Matrix capable of making common *Muſhrooms* grow.

Hence it ſeems to follow, that the Seeds of *Muſhrooms* ſhould be ſpread in an infinite number of Places where they do not vegetate, and in a word throughout the whole Earth; and the ſame may be ſaid of a great number of other Plants.

It muſt be own'd, the Imagination is ſhock'd at ſuch a prodigious Multitude of different Seeds, thrown every where at random, and in many Places to no purpoſe; but a little Reaſoning will put the Matter of Fact paſt doubt.

Dioſcorides tells us, he was aſſured that Pieces of the Bark of the Poplar-Tree being laid in the Ground over Horſe-Dung, there would grow out of them very good *Muſhrooms*. *Ruel* ſays, that by boring the Trunk of a white Poplar-Tree near the Root, and waſhing it with Leven ſteep'd in Water, *Muſhrooms* ſpring out of it, as it were, inſtantly. He adds, that the Hillocks produce ſeveral kinds of *Muſhrooms*, if the Stubble be burnt on 'em in the rainy Seaſon.

M. *Tournefort* tells us, on his own Knowledge, that where the Stubble is burnt in *Provence*, *Languedoc*, and the Iſlands of the *Archipelago*, there ariſe great Quantities of black Poppies in the firſt Autumnal Rains, which diſappear the Year following; ſo that they are never found but on burnt Lands. And we know that after the Burning of *London*, the Ground as far as the Fire reach'd, ſhot up with vaſt Quantities of *Eryſimum Latifolium Majus Glabrum*. One of the chief Reaſons, if not the only one, why Mountains produce Plants different from the Plains or Valleys; Places become fenny, from the ſame Places when they were dry; is the difference in the nutricious Juices found in thoſe Places. Without this, how ſhall we account for the Origin of Miſletoe or Hypocyſtus, which are never known to grow in the Earth, at leaſt without adhering to ſome other Plant; the one growing on Trees, the other to the Root of the Cyſtus? Why do the Ivy and Vine of *Canada*, the Pellitory, Polypody, the Species of Capillaries, grow only on the Trunks of Trees, on Walls, and in the Clefts of Rocks, unleſs it be that the Juices of thoſe Places are the beſt adapted to them?

Theſe and other inconteſtable Facts prove plainly both the vaſt Multitude of Seeds diſperſed every where, and the Neceſſity of certain Circumſtances to make 'em vegetate.

If to this Speculation on the inviſible Seeds of Plants, we join that of the inviſible Eggs of Inſects, which muſt be allow'd equal thereto, the Earth will be found full of an inconceivable Infinity of Animals and Vegetables, perfectly form'd, and deſigned, as it were, in Miniature, and only waiting for certain favourable Circumſtances to enable them to make their Appearance in large. How rich then muſt the Hand be, that has ſown with ſo much Profuſion?

We have been the more particular on this Head, on account of the Oddneſs of the Phænomena; and becauſe what is here ſaid of *Muſhrooms* will give light into the Generation of all other Vegetables, &c. whoſe Seeds are yet undiſcovered.

Dr. *Liſter*, indeed, thinks he has found out the Seeds of *Muſhrooms*. He inſtances particularly in the *Fungus Poroſus, Craſſus magnus I. B.* the Texture of whoſe Gills is like a Paper prick'd full of Pin-holes. Theſe Gills, he makes no doubt, are the very Flower and Seed of this Plant; when it is ripe, the Gills are eaſily ſeparable from the reſt of the Head, each Seed being diſtinct from other, and having its Impreſſion in the Head of the *Muſhroom*, juſt as the Seed of an Artichoke hath in the bottom of it; the bigger end of the Seed is full and round, and they are diſpoſed in a ſpiral Order like thoſe of the Artichoke: And the ſame he thinks of all other *Muſhrooms*, however differently figured. If it happens that theſe, when ſown, prove ſteril, and don't produce their Kind, it is no wonder; there being whole Genus's of Plants that come up, and flower, and ſeed, yet their Seed was never known to produce Plants of their Kind, being no more than a barren volatile Duſt, as all the Orchides, or Bee-Flowers.

MUSIC, the Science of Sound, conſider'd as capable of producing Melody, or Harmony: or, the Art of diſpoſing and conducting Sounds, conſider'd as grave and acute; and of proportioning them among themſelves, and ſeparating them by juſt Intervals, pleaſing to the Senſe. See SOUND.

Mr. *Malcolm* better defines *Muſic*, a Science that teaches how Sounds under certain Meaſures of Tune, and Time, may be produc'd, and ſo order'd or diſpos'd, as either in Conſonance (*i. e.* joint Sounding) or Succeſſion, or both, as they may raiſe agreeable Senſations.

From this Definition, the Science naturally divides itſelf into two general Parts, *Speculative* and *Practical*.

The *firſt*, the Knowledge of the *Materia Muſica*, or how to produce Sounds in ſuch Relations of Tune, and Time, as ſhall be agreeable in Conſonance, or Succeſſion, or both: By which, we don't mean the actual Production of theſe Sounds by an Inſtrument or Voice, which is meerly the mechanical or effective Part; but the Knowledge of the various Relations of Tune and Time, which are the Principles, out of which the Pleaſure ſought derives. See TUNE.

The 2*d*, How theſe Principles are to be apply'd; or how Sounds, in the Relations they bear to *Muſic* (as thoſe are determin'd in the firſt part) may be order'd, and variouſly put together in Succeſſion and Conſonance, ſo as to anſwer the End: And this we call the Art of *Compoſition*, which is properly the practical Part of *Muſic*. See COMPOSITION.

Some add a third Branch, *viz.* the Knowledge of *Inſtruments*; but as this depends altogether on the firſt, and is only an Application or Expreſſion of it, it cannot come regularly under the Definition, and conſequently is no part of the Diviſion of the Science.

The firſt Branch, which is the contemplative Part, divides itſelf into theſe two, *viz.* the Knowledge of the Relations and Meaſures of Time, and the Doctrine of Time itſelf.

The former is properly what the Antients call'd *Harmonica*, or the Doctrine of Harmony in Sounds, as containing an Explication of the Grounds, with the various Meaſures and Degrees of the Agreement of Sounds, in reſpect of their Tune. See HARMONICA.

The latter is what they call'd *Rythmica*, becauſe it treats of the Numbers of Sounds or Notes with reſpect to Time; containing an Explication of the Meaſures of long and ſhort, or ſwift and ſlow, in the Succeſſion of Sounds. See RYTHMICA.

The ſecond Branch, which is the practical part, as naturally divides into two parts, anſwering to the parts of the firſt.

That which anſwers to the *Harmonica*, the Antients called *Melopœia*, becauſe it contains the Rules of making Songs, with reſpect to Tune, and Harmony of Sounds; tho we have no reaſon to think the Antients had any thing like Compoſition in Parts. See MELOPOEIA.

That which anſwers to the *Rythmica*, they call'd *Rythmopœia*, containing Rules for the Application of the Numbers and Time. See RYTHMOPOEIA.

We find a ſtrange Diverſity in the antient Writers, as to the Nature, Office, Extent, Diviſion, *&c.* of *Muſic*.

The Name is ſuppos'd originally form'd from *Muſa*, Muſe; the Muſes being ſuppos'd to be the Inventors thereof. *Kircher*, however, will have it take its Name from an *Egyptian* Word, as ſuppoſing its Reſtoration after the Flood to have begun there, by reaſon of the Reeds, *&c.* on the Banks of the *Nyle*. *Heſychius* tells us, the *Athenians* gave the Name *Muſic* to every Art.

Hermes Triſmegiſtus defines *Muſic* to be the Knowledge of the Order of all things; which is alſo the Doctrine of the *Pythagorean* School, and of the *Platoniſts*, who teach, that every thing in the Univerſe is *Muſic*.

Agreeable to which wide Senſe, ſome divide *Muſic* into *Divine* and *Mundane*.

The firſt reſpecting the Order and Harmony that obtains among the Celeſtial Minds; the other, the Relations and Order of every thing elſe in the Univerſe. *Plato*, however, by the *Divine Muſic*, underſtands that which exiſts in the Divine Mind, *viz.* thoſe Archetypal Ideas of Order and Symmetry, according to which God formed all things: And as this Order exiſts in the Mundane Creatures, he calls it *Mundane Muſic*.

Which laſt Species they again ſubdivided into four, *viz.*

1. *Elementary Muſic*, or the Harmony of the Elements of Things.

2. *Celeſtial Muſic*, or the *Muſic* of the Spheres; comprehending the Order and Proportions in the Magnitudes, Diſtances and Motions of the heavenly Bodies, and the Harmony of the Sounds reſulting from thoſe Motions.

3. *Human Muſic*, which conſiſts chiefly in the Harmony of the Faculties of the human Soul, and its various Paſſions; and is alſo conſider'd in the Proportion, Temperament and mutual Dependance of the Parts of the Body.

4. What, in the proper and limited ſenſe of the Word, is call'd *Muſic*; which has for its Object, Motion, conſider'd as under certain regular Meaſures and Proportions, by which it affects the Senſes in an agreeable manner.

Now as Motion belongs to Bodies, and as Sound is the Effect of Motion, and cannot be without it, but all Motion does not produce Sound; hence this laſt Branch of *Muſic* became ſubdivided.

Where the Motion is without Sound, or as 'tis only the Object of Sight, it was either call'd *Muſica Orcheſtria* or *Saltatoria*, which contains the Rules for the regular Motions of Dancing; or *Muſica Hypocritica*, which reſpects the Motion and Geſtures of the Pantomimes.

When the Motion is perceiv'd only by the Ear, *i. e.* when Sound is the Object of *Muſic*, there were three Species; *viz. Harmonica*, which conſiders the Differences and Proportions with reſpect to Grave and Acute; *Rythmica*, which reſpects the Proportion of the Sounds as to Time, or the Swiftneſs and Slowneſs of their Succeſſions; and *Metrica*, which belongs properly to the Poets, and reſpects the Art of making Verſes.

Ariſtides Quintilianus, *Bacchius*, and other antient Writers, define *Muſic* the Knowledge of Singing, and of the Things belonging thereto; which he calls the Motions of the Voice and Body: as if the Singing itſelf conſiſted only in the different Tones of the Voice.

The ſame Author, conſidering *Muſic* in the largeſt ſenſe of the Word, divides it into *Contemplative* and *Active*. The firſt, he ſays, is either *Natural* or *Artificial*. The *Natural* is either *Arithmetical*, becauſe it conſiders the Proportion of Numbers; or *Phyſical*, which examines the Order of the Things of Nature.

The artificial he divides, as above, into *Harmonica*, *Rythmica*, *Metrica*.

The active, which is the Application of the artificial, is either *Enuntiative* (as in Oratory;) *Organical* (or Inſtrumental Performance;) *Odical* (for Voice and ſinging of Pſalms;) *Hypocritical*, in the Motions of the Pantomimes. To which ſome add *Hydraulical*, tho' in reality no more than a Species of the Organical; in which, Water is uſed, for the producing or modifying of Sound.

Porphyry makes another Diviſion of *Muſic*, taking it in the limited Senſe, as having Motion both dumb and ſonorous for its Object; and without diſtinguiſhing the Speculative and Practical, he makes its Parts theſe ſix, *viz.* *Rythmica*, for the Motions of Dancing; *Metrica*, for the Cadence and Recitation; *Organica*, for the Practice of Inſtruments; *Poetica*, for the Numbers and Feet of Verſes; *Hypocritica*, for the Geſtures of the *Pantomimes*; and *Harmonica*, for Singing.

The *Muſical Faculties*, as they call them, are *Melopœia*, which gives Rules for the Tones of the Voice or Inſtrument; *Rythmopœia*, for Motions; and *Poeſis*, for making Verſes.

Muſic appears to have been one of the moſt antient of Arts. And of all others, *Vocal Muſic* muſt undoubtedly have been the firſt Kind. For Man had not only the various Tones of his own Voice to make his Obſervations on, before any other Art or Inſtrument was found out, but had the various natural Strains of Birds, to give him occaſion to improve his own Voice, and the Modulations of Sounds it was capable of.

Of many antient Authors who agree in this Conjecture, we ſhall only mention *Lucretius*, who ſays,

> *At Liquidas Avium Voces imitarier Ore,*
> *Ante fuit multo quam levia Carmina Cantu,*
> *Concelebrare Homines poſſent, Aureiſque juvare.*

The firſt Invention of ſtring'd Inſtruments he aſcribes to the Obſervation of the Winds whiſtling in the hollow Reeds.

As for other kind of Inſtruments, there were ſo many Occaſions for *Chords* or Strings, that Men could not be long in obſerving their various Sounds, which might give Riſe to ſtring'd *Inſtruments*. See CHORD.

And for the pulſatile Inſtruments, as *Drums* and *Cymbals*, they might ariſe from the Obſervation of the hollow Noiſe of concave Bodies.

Plutarch, in one place, aſcribes the firſt Invention of *Muſic* to the God *Apollo*, and in another to *Amphion*, the Son of *Jupiter* and *Antiope*. This laſt, however, is pretty generally allow'd to have been the firſt who brought *Muſic* into *Greece*, and to have been the Inventor of the *Lyre*. The Time he lived in, is not agreed upon. See LYRA.

To him ſucceeded *Chiron*, the Demi-God; *Demodocus*; *Hermes Triſmegiſtus*; *Olympus*; *Orpheus*, whom ſome make the firſt Introducer of *Muſic* into *Greece*, and the Inventor of the *Lyra*; *Phemius*; *Terpander*, who was Contemporary with *Lycurgus*, and ſet his Laws to *Muſic*. To him ſome attribute the firſt Inſtitution of *Muſical* Modes, and the Invention of the *Lyre*; *Thales*; and *Thamyris*, who is ſaid to have been the firſt Inventor of Inſtrumental *Muſic* without Singing.

Theſe were the eminent Muſicians before *Homer*'s Time. Others of a later Date, were *Laſus Hermionenſis*, *Melnippides*, *Philoxenus*, *Timotheus*, *Phrynnis*, *Epigonius*, *Lyſander*, *Simmicus*, and *Diodorus*; who were all conſiderable Improvers of *Muſic*. *Laſus* is ſaid to have been the firſt Author who wrote on *Muſic* in the Time of *Darius Hyſtaſpes*; *Epigonius* invented an Inſtrument of forty Strings, call'd the *Epigonium*. *Simmicus* alſo invented an Inſtrument, call'd *Simmicium*, of thirty-five Strings. *Diodorus* improv'd the *Tibia*, by adding new Holes; and *Timotheus* the *Lyre*, by adding a new String; for which he was fined by the *Lacedemonians*.

As the Accounts we have of the Inventors of *Muſical* Inſtruments among the Antients, are very obſcure; ſo are alſo the Accounts what thoſe Inſtruments were; we ſcarce knowing any thing of them beſides the bare Name.

The general Diviſion of Inſtruments, is into *Stringed Inſtruments*, *Wind Inſtruments*, and the *Pulſatile Kind*. Of *Stringed Inſtruments*, we hear of the *Lyra* or *Cythara*, the *Pſalterium*, *Trigon*, *Sambuca*, *Pectis*, *Magadis*, *Barbiton*, *Teſtudo*, *Epigonium*, *Simmicium*, and *Pandura*, which were all ſtruck with the Hand, or a *Plectrum*; and which ſee in their Places.

Of *Wind Inſtruments*, we hear of the *Tibia*, *Fiſtula*, *Hydraulic Organs*, *Tubæ*, *Cornua*, and *Lituus*.

The *Pulſatile Inſtruments*, were the *Tympanum*, *Cymbalum*, *Crepitaculum*, *Tintinnabulum*, *Crotalum*, and *Siſtrum*; which ſee.

MUSIC has even been in the higheſt Eſteem in all Ages, and among all People. Nor could Authors expreſs their Opinion of it ſtrongly enough, but by inculcating, that it was uſed in Heaven, and was one of the principal Entertainments of the Gods, and the Souls of the Bleſſed.

The Effects aſcribed to it by the Antients, are almoſt miraculous; by means hereof, Diſeaſes are ſaid to have been cured, Unchaſtity corrected, Seditions quell'd, Paſſions rais'd and calm'd, and even Madneſs occaſion'd. *Athenæus* aſſures us, that antiently all Laws Divine and Civil, Exhortations to Virtue, the Knowledge of Divine and Human Things, Lives and Actions of illuſtrious Men, were written in Verſe, and publickly ſung by a Chorus to the Sound of Inſtruments; which was found the moſt effectual means to impreſs Morality, and a right Senſe of Duty on the Mind.

Muſic made a great part of the Diſcipline of the antient *Pythagoreans*, and was uſed by them to draw over the Mind to laudable Actions, and ſettle in it a paſſionate Love of Virtue. It being their Doctrine, that the Soul itſelf conſiſts of Harmony; and therefore by *Muſic*, they pretended to revive the primitive Harmony of its Faculties. By this primitive Harmony, they meant that which, according to their *Dogma*, was in the Soul, in its pre-exiſtent State in Heaven. See PYTHAGOREAN.

Dr. *Wallis* has endeavour'd to account for the ſurpriſing Effects aſcribed to the antient *Muſic*; and charges them principally on the Novelty of the Art, and the Hyperbola's of the antient Writers: Nor does he doubt but the modern *Muſic*, *cæteris paribus*, would produce Effects at leaſt as conſiderable as the antient. The truth is, we can match moſt of the antient Stories of this kind in the modern Hiſtories. If *Timotheus* could excite *Alexander*'s Fury with the *Phrygian* Sound, and ſooth him into Indolence with the *Lydian*; a more modern Muſician is ſaid to have driven *Eric* King of *Denmark* into ſuch a Rage, as to kill his beſt Servants. Dr. *Niewentiit* tells us of an *Italian*, who by varying his *Muſic* from briſk to ſolemn, and ſo *vice verſa*, could move the Soul, ſo as to cauſe Diſtraction and Madneſs. And Dr. *South* has founded his Poem, call'd *Muſica Incantans*, on an Inſtance he knew of the ſame thing.

Muſic, however, is not only found to exert its Force on the Affections, but on the Parts of the Body alſo; witneſs the *Gaſcon* Knight, mention'd by Mr. *Boyle*, who could not contain his Water at the playing of a Bag-pipe; the Woman, mention'd by the ſame Author, who would burſt out in Tears at the hearing of a certain Tune, with which other People were but little affected: To ſay nothing of the trite Story of the *Tarantula*. We have an Inſtance in the Hiſtory of the *French* Academy, of a Muſician's being cured of a violent Fever, by a little Concert occaſionally play'd in his Room.

Nor are our Minds and Bodies alone affected with Sounds, but even inanimate Bodies. *Kircher* tells us of a large Stone, that would tremble at the Sound of one particular Organ-pipe; and *Morhoff* mentions one *Petter*, a *Dutch-man*, who could break Rummer-Glaſſes with the Tone of his Voice. *Merſenne* alſo tells us of a particular Part of a Pavement, that would ſhake and tremble, as if the Earth would open, when the Organs play'd. Mr. *Boyle* adds, that Seats will tremble at the Sound of Organs; that he has felt his Hat do ſo under his Hand, at certain Notes both of Organs and Diſcourſe; and that he was well inform'd, every well-built Vault would anſwer ſome determinate Note.

There is a great Diſpute among the Learned, whether the Antients or Moderns beſt underſtood and practiſed *Muſic*: Some maintaining that the antient Art of *Muſic*, by which ſuch wonderful Effects were perform'd, is quite loſt; and others, that the true Science of Harmony is now arrived to much greater Perfection, than was known or practiſed among the Antients.

This Point is no other way to be determined, but by comparing the Principles and Practice of the one with thoſe of the other

As to the Theory or Principles of Harmonics, 'tis certain we underſtand it better than they; becauſe we know all that they knew, and have improved conſiderably on their Foundations. The great Diſpute then lies on the Practice.

With regard to this, it may be obſerv'd, that among the Antients, *Muſic*, in the moſt limited Senſe of the Word, included *Harmony*, *Rythmus*, and *Verſe*; and conſiſted of Verſes ſung by one or more Voices alternately; or in Choirs, ſometimes with the Sound of Inſtruments, and ſometimes by Voices only.

Their Muſical Faculties, we have already obſerved, were *Melopœia*, *Rythmopœia*, and *Poeſis*. The firſt whereof may be conſider'd under two Heads, *viz.* *Melody* and *Symphony*. As to the latter, it contains nothing but what relates to the Conduct of a ſingle Voice, or making what we call *Melody*. Nor do they appear to have ever thought of the Concert, or Harmony of Parts. This then was no part of the antient Practice, but entirely a modern Invention, to which we are beholden to *Guido Aretinus*, a Benedictine Friar. We would not, however, be underſtood to mean, that the Antients never join'd more Voices or Inſtruments than one together in the ſame Symphony; but that they never join'd ſeveral Voices, ſo as that each had a diſtinct and proper Melody, which made among them a Succeſſion of various Concords, and were not in every Note Uniſons, or at the ſame Diſtance from each other as Octaves. This laſt indeed agrees to the general Definition of the Word *Symphonia*; yet 'tis plain that in ſuch Caſes, there is but one Song, and all the Voices perform the ſame individual Melody. But when the Parts differ, not by the Tenſion of the whole, but by the different Relations of the ſucceſſive Notes, this is the modern Art, which requires ſo peculiar a Genius, and on which account the modern *Muſic* has much the advantage of the antient. For further ſatisfaction on the Subject, ſee *Kircher*, *Perrault*, Dr. *Wallis*, Mr. *Malcolm*, and others; who unanimouſly agree, that after all the pains they have taken to know the true State of the antient *Muſic*, they could not find the leaſt reaſon to think there was any ſuch thing in their Days as *Muſic* in Parts. See SYMPHONY, SYNAULIA, &c.

The antient *Muſical* Notes are very myſterious and perplexed: *Boetius* and *Gregory the Great* firſt put 'em into a more eaſy and obvious Method. It was in the Year 1204, that *Guido Aretine*, a Benedictine of *Aretium* in *Tuſcany*, firſt introduced the Uſe of a Staff with five Lines, on which, with the Spaces, he marked his Notes by ſetting a Point up and down upon 'em, to denote the Riſe and Fall of the Voice; tho *Kircher* mentions this Artifice to have been in uſe before *Guido*'s Time. See NOTE, STAFF, &c.

Another Contrivance of *Guido*'s was to apply the ſix Muſical Syllables *ut*, *re*, *mi*, *fa*, *ſol*, *la*, which he took out of the *Latin* Hymn,

UT *queant Laxis* RE*ſonare fibris*
MI*ra Geſtorum* FA*muli tuorum*
SOL*ve polluti* LA*bii reatum.*
O Pater Alme.

Beſide his Notes of *Muſic*, by which, according to *Kircher*, he diſtinguiſhed the Tones, or Modes, and the Seats of the Semi-tones, he alſo invented the Scale, and ſeveral Muſical Inſtruments, call'd *Polyplectra*, as Spinets and Harpſicords. See NOTE, GAMUT, &c.

The next conſiderable Improvement was in 1330, when *Joannes de Muris*, Doctor at *Paris*, invented the different Figures of Notes, which expreſs the Times, or Length of every Note, at leaſt their true relative Proportions to one another, now call'd *Longs*, *Breves*, *Semi-breves*, *Crochets*, *Quavers*, &c.

The moſt antient Writer of *Muſic*, we have already obſerved, was *Laſus Hermionenſis*; but his Work, as well as thoſe of many others both *Greek* and *Roman*, are loſt. *Ariſtoxenus*, Diſciple of *Ariſtotle*, is the eldeſt Author extant on the Subject; after him came *Euclid*, Author of the Elements: *Ariſtides Quintilianus* wrote after *Cicero*'s time. *Alypius* ſtands next; after him *Gaudentius* the Philoſopher, and *Nicomacus* the *Pythagorean*, and *Bacchius*. Of which ſeven *Greek* Authors, we have a fair Copy, with a Tranſlation and Notes, by *Meibomius*. *Ptolemy*, the celebrated Mathematician, wrote in *Greek* of the Principles of Harmonics, about the time of the Emperor *Antoninus Pius*. This Author keeps a Medium between the *Pythagoreans* and *Ariſtoxenians*.

ians. He was ſucceeded at a good diſtance by *Manuel Bryennius.*

Of the *Latins* we have *Boethius*, who wrote in the time of *Theodoric* the *Goth*, and one *Caſſiodorus*; about the ſame time *Martianus*, and St. *Auguſtin* not far remote. Of the Moderns are *Zarlin*, *Salinas*, *Vincenzo Galileo*, *Doni*, *Kircher*, *Merſenne*, *Paran*, *de Caux*, *Perrault*, *Wallis*, *Des Cartes*, *Holdiſworth*, *Malcolm*, &c.

MUSICAL *Sound*,	See	SOUND.
MUSICAL *String*,		CHORD.
MUSICAL *Faculties*,		MUSIC.
MUSICAL *Notes*,		NOTE.

MUSK, a kind of Perfume, of a very ſtrong Scent; only agreeable when moderated by the Mixture of ſome other Perfume. See PERFUME.

It is found in a kind of Bag, or Tumour growing about the bigneſs of a Hen's Egg under the Belly towards the genital Parts of a wild Beaſt of the ſame Name; and appears to be nothing elſe but a kind of bilious Blood there congealed, and almoſt corrupted.

The Animal is pretty common in the Kingdoms of *Boutan*, *Tonquin*, and ſome other, as *Cochin China*, *&c.* But the moſt eſteemed are thoſe in the Kingdom of *Tibet*.

They inhabit the Woods and Foreſts, where the Natives hunt 'em down: when the Beaſt is kill'd, they cut out the Bladder under the Belly, ſeparate the coagulated Blood, and dry it in the Sun, where it is reduced into a light friable Subſtance almoſt of the nature of a Powder, of a dusky reddiſh Colour; and acquires a very ſtrong and diſagreeable Smell. It is then tied up again in Veſſels, and exported to other Countreys; and this is the *Musk* which we uſe.

What the Antients have wrote of it, is fabulous, *viz.* that it comes from the Teſticles of a Caſtor, which, to ſtop the purſuit of the Hunter, caſtrates itſelf. The occaſion of their Error may be owing to this, that among the *Indians* the *Musk* Animal goes by the name of *Caſtor*.

Musk is in conſiderable uſe among the Perfumers and Confectioners; tho much leſs now than formerly. It is ſuppoſed to fortify the Heart and Brain; and is good againſt Deafneſs; but is little uſed in Medicine, as being apt to occaſion the Vapours.

The Word comes from the *Arabic Moſcha*, Musk: whence was form'd the common *Greek* μοσχ&.

MUSKET, or MUSQUET, a Fire-Arm bore on the Shoulder, and uſed in War; to be fired by the Application of a lighted Match. See FIRE-*Arm*.

The length of the *Musket* is fixed to three Feet eight Inches from the Muzzle to the Touch-Pan, and its Bore is to be ſuch as may receive a Ball of 22 to 24 in a Pound.

Muskets were antiently bore in the Field by the Infantry; at preſent they are little uſed ſave in the Defence of Places.

MUSKETOON, a *little Muſquet*, ſhorter, tho thicker than the ordinary Muſquet.

It is fired by the colliſion of a Steel and Flint in the Lock; whereas the Muſquet is fired by a Match. Its Bore is a 38th part of its Length; and carries five Ounces of Iron, or ſeven and a half of Lead, with an equal Quantity of Powder.

MUSSLIN, MUSLIN, or MOUSSELIN, a fine Cloth, wholly of Cotton; ſo call'd as not being even, but having a downy Nap on its Surface reſembling Moſs, which the *French* call'd *Mouſſe*.

There are various kinds of *Muſlins* brought from the *Eaſt-Indies*, chiefly *Bengall*; *Betelles*, *Tarnatans*, *Mallemolles*, *Tanjebs*, *Terindames*, *Doreas*, &c.

MUST, ſweet Wine, newly preſſed from the Grape; or the new Liquor preſs'd from the Fruits before it has work'd or fermented. See WINE.

MUSTARD, a Preparation of a Grain of that Name, ground or beaten up with Vinegar, or the *Muſt* of Wine; whence its Name.

MUSTARD-SEED, in *Latin Sinapi*, gives the Denomination to a Species of Topical Medicines call'd *Sinapiſms*. See SINAPISM.

Muſtard-Seed is alſo uſed in preparing Chagrine. See CHAGRINE.

MUSTER, a Review of Military Forces, in order to take account of their Numbers, Condition, Accoutrements, Arms, *&c.*

The Word is form'd of the *French Mouſtre*, Specimen. See REVIEW.

MUSTER *of Record* (*Stat.* 18 *Hen.* 6.) is to be enrolled in the Number of the King's Soldiers. See ROLL.

MUSTER-*Maſter General*, or *Maſter of the King's* MUSTERS, is an Officer in an Army, who takes account of every Regiment, their Number, Horſes, Arms, *&c.*

MUSTER-*Rolls*, are Liſts of the Soldiers in every Troop, Company, Regiment, *&c.*

MUSULMAN, a Title by which the *Mahometans* diſtinguiſh themſelves; ſignifying, in their Language, *True Believer*, or *Orthodox*. In *Arabic* they call it *Moſlem*, *Moſleman*, and *Moſolmam*. See MAHOMETAN.

The Name was firſt given the *Sarazens*; as is obſerved by *Leunclavius*. There are two kinds of *Muſſulmen*, very averſe to each other; the one call'd *Sonni*, and the other *Chay*. The *Sonni* follow the Interpretation of the Alcoran given by *Omer*; and the *Chay* are Followers of *Haly*. The Subjects of the King of *Perſia* are *Chay*; and thoſe of the Grand Signor, *Sonni*.

Some Authors will have it, that *Muſſulman* ſignifies *Saved*, that is, Predeſtinated; and that the *Mahometans* give themſelves the Appellation, as believing themſelves all Predeſtinate.

Martinius is more particular as to the Origin of the Name, he derives it from the *Arabic* םמלם *Muſalam*, Saved, taken out of Danger; and obſerves, that the *Mahometans* eſtabliſhing their Religion by Fire and Sword, maſſacred all thoſe who would not embrace it, and granted Life to all that did, calling them *Muſſulmans*; *i. e. Erepti è periculo*, whence the Word, in courſe of Time, became the diſtinguiſhing Title of all thoſe of that Sect, who have affixed to it the ſignification of *True Believer*.

MUSULMANISM, ſee MAHOMETANISM.

MUTATION, the Act of Changing: or, ſometimes the Change itſelf. See CHANGE and PERMUTATION.

'Tis one of the Laws of Nature, that the *Mutation* of Motion is ever proportional to the moving Force impreſs'd. See NATURE.

MUTATION, in the antient Muſic, ſignifies the Changes, or Alterations that happen in the Order of the Sounds which compoſe the Melody.

Ariſtoxenus ſays it is, as it were, a kind of Paſſion in the Order of the Melody. See MELODY.

The Changes are, firſt, in the *Genera*; when the Song begins in one, as the *Chromatic*, and paſſes into another, as the *Diatonic*. Secondly, In the Syſtem; as when the Song paſſes out of one *Tetrachord*, as *Meſon*, into another, as *Diazeugmenon*; or more generally, when it paſſes from a high place of the Scale to a lower, or contrarily, *i. e.* part of it is ſung high, and part low. Thirdly, In the Mode or Tone, as when the Song begins in one, as the *Doric*; and paſſes into another, as the *Lydian*. Fourthly, In the *Melopœia*, that is, when the Song changes the very Air, ſo as from Gay and Sprightly, to become Soft and Languiſhing; or from a Manner that expreſſes one Paſſion or Subject, to the Expreſſion of ſome other.

MUTE, in Grammar, a Letter which is not ſounded, or heard in the Pronunciation; or a Letter which yields no Sound of itſelf and without a Vowel. See LETTER

The Conſonants are ordinarily diſtinguiſhed into *Mutes* and *Liquids*, or half Vowels. See CONSONANT.

The *Mutes* in the *Engliſh* Alphabet are Eleven, *viz.* B, C, D, G, H, K, P, Q, T. They are call'd *Mutes* becauſe a Liquid can't be ſounded in the ſame Syllable before them, as *rpo*; but a *Mute* may be pronounced in the ſame Syllable before a Liquid, as *pro*, See LIQUID.

MUTE, *Dumb*, a Perſon that cannot ſpeak, or has not the uſe of Speech. See DUMBNESS.

Mutes and *Dwarfs* make their Fortune in the Grand Signor's Seraglio. The *Mutes* ſerve as Executioners to take off Perſons of the firſt Rank.

MUTE, in Law, he that ſtands Dumb, or Speechleſs.

A Priſoner may ſtand *Mute* two manner of ways; 1. When he ſpeaks not at all: In which Caſe it is enquired, whether he ſtand *Mute* of Malice, or by the Act of God: If by the latter, then the Judge, *ex Officio*, ought to enquire whether he be the ſame Perſon; and of all other Pleas, which he might have pleaded if he had not ſtood *Mute*. 2. He is ſaid to be *Mute* when he pleads not Guilty, or does not directly anſwer, or will not put himſelf upon the Enqueſt to be tried.

MUTILATION, the retrenching, or cutting away of any Member of the Body.

The uſe of the Word is alſo extended to Statues and Buildings, where any part is wanting, or the Projecture of any Member is broke off.

MUTILATION is ſometimes underſtood in a more immediate manner for *Caſtration*. See CASTRATION.

MUTUAL, a relative Term, denoting ſomething that is reciprocal between two or more Perſons. See RECIPROCAL.

Thus we ſay *Mutual Aſſiſtance*, *Mutual Averſion*, &c.

There are *Mutual*, or reciprocal Duties, Offices, *&c*, between Superiors, and Inferiors; the King and his Subjects; the Maſter and his Servants, *&c.*

Vaugelas makes a Diſtinction between *Mutual* and Reciprocal. *Mutual*, according to him, is underſtood of what is between two only; and Reciprocal of what is between more than two. But this Deciſion is little regarded in common uſe.

A Mutual *Teſtament* is that made by two Perſons leaving their Effects reciprocally to the Survivor.

MUTULE, Mutulus, in Architecture, an Ornament, otherwiſe call'd *Modillion*. See Modillion.

The only difference between *Mutule* and Modillion conſiſts in this, that the former is uſed in ſpeaking of the *Doric* Order, and the latter in the *Corinthian*. See Doric, *&c.*

The *Mutules* in the *Doric* anſwer to the *Triglyphs*; whence ſome make *Guttæ*, or Drops to hang. See Guttæ.

MUTUUM, in the Civil Law, is a Loan ſimply ſo call'd; or a Contract introduced by the Law of Nations, whereby a thing conſiſting in Weight, as ſuppoſe Bullion; in Number, as Money; or in Meaſure, as Corn, Timber, Wine, *&c.* is given to another, upon Condition that he ſhall return another thing of the ſame Quantity, Nature, and Value on demand.

This, therefore is a Contract without Reward: So that where Uſe or Intereſt ariſe, there muſt be ſome particular Article in the Contract whereon it is founded.

MUZZLE of a Gun, is ſtrictly the Moulding or Circle which incompaſſes, and ſtrengthens the Mouth of it.

MYLOGLOSSUM, in Anatomy, a Pair of Muſcles thus call'd, becauſe ariſing about the backſide of the *Molares*, or Grinding-Teeth, and inſerted into the Ligament of the Tongue; helping to pull it upwards. See Tongue.

Theſe are the ſame with what Mr. *Cowper* calls *Styloglosſum*. See Styloglossum.

MYLOHYOYDEUM, in Anatomy, a broad, but ſhort Muſcle lying immediately under the *Biventer* Muſcle of the Jaw, and which ſpringing from the lower Margin on each ſide the under Jaw, is inſerted into the Baſis of the *Os Hyoides*. See Hyoides.

Beſides the common Uſe aſcribed to this Muſcle, which is to move the *Hyoides*, the Tongue, and the Larynx both upwards, inwards, and ſide-ways; its Series of tranſverſe Fibres have a further uſe when it is at reſt; and that is to compreſs the Glands under the Tongue, and by that means promote the diſcharge of Saliva into the Mouth from the lower ſalival Ducts. Whence it is we uſe this Muſcle when we want Saliva in the Mouth.

MYOCEPHALE, in Anatomy, a little part of the *Tunica Uvea*; ſo call'd, as reſembling the Head of a Fly. See Uvea.

The Word is form'd of the *Greek* μυῖα Fly, and κεφαλὴ, Head.

MYOLOGY, in Anatomy, a Deſcription of the Muſcles; or the Knowledge of what relates to the Muſcles. See Muscle.

Anatomy is divided into *Oſteology*, *Myology*, &c. See Anatomy.

The Word is form'd of μῦς, μῦος, a Muſcle, and λογος, Diſcourſe.

MYOMANCY, a kind of Divination, or Method of foretelling Events by means of Mice. See Divination.

Some Authors hold *Myomancy* one of the moſt antient Kinds of Divination; and think it is on this account that *Iſaiah*, lxvi. 17. reckons Mice among the abominable things of the Idolaters. But beſide that it is not certain that the *Hebrew* Word עכבר uſed by the Prophet, ſignifies a *Mouſe*; 'tis evident it is not Divination by that Animal, be it what it will, is here ſpoke of; but the eating it.

MYOPES, Perſons who are ſhort-ſighted; or, as we popularly call it, *Purblind*. See Sight.

Myopes are properly ſuch as ſee remote Objects confuſedly, and near ones diſtinctly. See Myopia.

The defect of *Myopes* is not in the Optic Nerve, the Pupil, or the like; but in the Form of the Cryſtalline, or the diſtance of the Retina from the ſame. The Cryſtalline being rounder, or more convex than ordinary, the Rays will be render'd more Convergent than ordinary in paſſing thro the ſame (ſee Refraction); by this means they will be brought to meet, or concur at the leſs diſtance from the Cryſtalline; ſo that if the Retina be at its uſual diſtance, they will concur e'er they reach it. 'Tis the too great nearneſs, then, of the Retina to the Cryſtalline, that conſtitutes the *Myopia*.

Myopes have their Sight very durable; and rarely come to need Spectacles. See Spectacles.

Thoſe who labour under the oppoſite Defect, are call'd *Presbytæ*. See Presbyta.

The Word is form'd of μυῖα, Fly; by reaſon remote Objects appear to them like Flies; or, perhaps, by reaſon the ſame Conformation of the Eye is obſerved in Flies.

MYOPIA, *Short-ſightedneſs*, a Confuſion or Obſcurity of Sight, when directed to remote Objects. See Vision, Sight, *&c.*

The *Myopia* is owing to the too great Convexity of the Ball of the Eye, and particularly of the Cryſtalline; whence it happens that the viſual Rays concur before they reach the Retina. See Myopes.

For this Reaſon, to ſee an Object diſtinctly, they muſt either apply it cloſe to the Eye; or uſe a concave Glaſs. See Concave.

The *Myopia* wears off by time, the Eye growing flatter and flatter as Perſons draw towards old Age. See Eye.

MYOTOMIA, from μῦς *Muſculus*, a Muſcle, and τέμνω *ſeco*, to cut; is a Diſſection of the Muſcles.

MYRIAD, the Number of Ten Thouſand.

Whence *Myriarcha*, a Captain, or Commander of Ten Thouſand Men.

MYRMECIA, in Medicine, a kind of Wart growing on the Palm of the Hand, and Soal of the Foot; hard, and leſs than thoſe call'd *Thymi*: they have alſo deeper Roots, and are more painful. They are uſually broad at bottom, and narrow at top.

MYRMIDONS, Myrmidones, in Antiquity, a People of *Theſſaly*, fabled to have aroſe from Ants, or Piſmires, upon a Prayer put up to that purpoſe by King *Iacus* to *Jupiter*, after his Kingdom had been diſpeopled by a ſevere Peſtilence.

In *Homer*, and *Virgil*, the *Myrmidons* are *Achilles*'s Soldiers.

MYRMILLO, a kind of Gladiator in antient *Rome*; call'd alſo *Murmulio*. See Gladiator.

Turnebus derives the Name from the *Myrmidons*.

MYRABOLANS, a kind of Medicinal Fruit, brought from the *Indies*; much more uſed in the *Arabic* than the *Greek* Pharmacy; and more among the Antients than the Moderns; and ſtill more abroad than in *England*.

There are five kinds of *Myrabolans*: The firſt call'd *Citrine*, of a yellowiſh red, hard, oblong, and the ſize of an Olive. The ſecond call'd *black*, or *Indian Myrabolans*, the bigneſs of an Acorn wrinkled, without Stone. The third, *Chebule Myrabolans*, the ſize of a Date, of a yellowiſh brown, pointed at the end. The fourth *Emblics*, round, rough, the ſize of a Gall, of a dark brown. The laſt call'd *Bellerics*, hard, yellow, round, the ſize of an ordinary Prune, leſs angular than the reſt.

Myrabolans of each kind are ſlightly Purgative, and Aſtringent.

The Word comes from the *Greek* μύρον *Unguent*, and βαλανος Acorn; as being in form of Acorns, and uſed in Medicine.

MYRRH, a kind of Gum, or Reſin iſſuing, by Inciſion, and ſometimes ſpontaneouſly, from the Trunk, and larger Branches of a Tree growing in *Arabia*, *Egypt*, and eſpecially *Abyſſinia*. See Gum.

Authors are not agreed about the Tree which produces this Gum: 'Tis true, they all make it ſmall, and thorny; but diſagree about the Form of its Leaves.

The Inciſions are made twice a Year, and the *Myrrh* oozing out is received on Ruſh-Mats, diſpoſed underneath.

The Druggiſts ſell two kinds of *Myrrh*, viz. *Myrrh in Tears*, which they call *Stacte*; the other *Ungulata*, or *Nail'd*.

Of the firſt kind, the beſt is in bright yellow, tranſparent Drops, friable, light, of a ſtrong diſagreeable ſmell: But this is very rare; and moſt of that in uſe is the *Naild Myrrh*, ſo call'd from little white Spots obſerved thereon, much like thoſe on the Nails of the Fingers. The beſt is in little Maſſes, or Tears, red, and tranſparent; which, when broke, contain a kind of unctuous Liquor, the moſt precious part of the *Myrrh*, and the real *Stacte* of the Antients. See Stacte.

This Gum enters a great number of Medicinal Compoſitions. Its Bitterneſs renders it good for the Stomach, and againſt Worms; 'tis chew'd to prevent Infection from contagious Diſeaſes. Dr. *Quincy* ſays it is excellent to cleanſe and ſtrengthen the Womb, and againſt tickling Rheums; a good Detergent; and as ſuch much added externally in Unguents for the Healing of Wounds; and makes the principal Ingredient uſed in Embalming. The Chymiſts draw from it Oils, Spirits, Tinctures, *&c.* to which they attribute extraordinary Virtues.

The Word comes from μυρω, I run, or trickle.

The Antients had Veſſels of a kind of *Myrrh*, call'd *Vaſa Murrhina*, *Myrrhina Pocula*, *&c.* Some ſay they were made of what we now call *Agat*, others of *Onyx*, others of *Coralline*, and others of a Gum congealed and condenſed.

MYRTIFORMES *Carunculæ*, in Anatomy, little Caruncles, or fleſhy Knots adjoining to, or rather in the Place of the *Hymen* in Women. See Caruncle.

They are about the bigneſs of Myrtle-Berries, whence they take their Name; and are ſuppoſed by ſome to be largeſt in Maids, and by degrees to grow leſs thro the uſe of Venery.

Others, and with more probability, derive them from the broken Membrane of the *Hymen*, whoſe Fragments ſhrunk up, they take them to be. See Hymen.

MYRTLE, Myrtles, the Berries, or Fruit of a Shrub well known under the Name of *Myrtle*, growing common in *Spain*, eſpecially in the Mountains of *Laſterra Morena*, *&c.*

There are two kinds of *Myrtle*, Male and Female; the latter whereof produces the beſt Berries, and in the greateſt Quantity.

The Fruit is at firſt green, but becomes black inſenſibly within; it is a white Seed in form of a Creſcent, ſolid, hard, and of an aſtringent Taſte; while the Fruit continues on the Trees, 'tis ſucculent and ſmooth, and only becomes acid and wrinkled, becauſe dried in the Sun for the convenience of Carriage.

They are much uſed in Medicine, eſpecially in *France*, where they prepare Oils, Syrups, *&c.* from 'em.

The Perfumers likewiſe uſe 'em in their Perfumes, and draw an Eſſence from 'em. The *German* Dyers make a blue Colour from 'em. In *England* the Leaves and Branches are uſed for Tanning of Leather.

MYSTERY, Mysterium, ſomething ſecret, or hidden; impoſſible, or difficult to be comprehended.

The Word is primarily uſed in ſpeaking of certain Truths revealed in Scripture, into the underſtanding whereof human Reaſon cannot penetrate: Such are the Doctrine of the *Trinity*, the *Incarnation*, *&c.* See Trinity, *&c.*

The Word comes from the *Greek* μυϛηειον; and that, according to ſome Etymologiſts, from μύω *Claudo*, *taceo*, I ſhut, I am ſilent, and ϛομα, Mouth; but then whence comes the *r*? Muſt the *m* of ϛομα be converted into an *r*? The Word, then, is derived with more Propriety from the *Hebrew* סתר *Sator*, to hide, whence is form'd מסתר *Miſtar*, a hidden thing.

We have an Epitome of the *Myſteries of Faith*, or the *Myſteries of Chriſtianity*, in the Symbols, or Creeds, compiled by the Apoſtles, the Council of *Nice*, and St. *Athanaſius*. See Creed.

In all theſe, mention is made of the *Myſtery* of the Trinity; the *Myſteries* of the *Incarnation* of the Son of God, his *Death* and *Paſſion*, and his *Deſcent* into *Hell* for the Redemption of Mankind. Of his *Reſurrection* the third Day, his *Aſcenſion* to Heaven, his *ſitting at the right Hand of God*, and his *coming again to judge the World.* Of the *Divinity*, and Co-equality of the Holy Ghoſt with the Father and the Son: Of the Unity of the Church: Of the Community of Saints; the participation of the Sacraments; and the general Reſurrection.

Theſe are the principal *Myſteries* of Faith; which the Church declares neceſſary to be known and believ'd, in order to Salvation.

From the earlieſt Ages there have been particular Feſtivals inſtituted by the Church in honour of theſe *Myſteries*; to return Thanks to God for having revealed them, and to oblige the Miniſters and Paſtors to inſtruct the People therein. See Feasts.

Such are the Feaſt of the *Myſtery of the Incarnation*, call'd alſo *Chriſtmas*; thoſe of the *Circumciſion*, *Paſſion*, *Reſurrection*, *&c.* See Incarnation, Circumcision, Easter, Epiphany, *&c.*

The Heathens too had their *Myſteries*: The *Egyptian* Prieſts concealed the *Myſteries* of their Religion and Philoſophy under *Hieroglyphics.* See Hieroglyphic.

Thoſe who revealed the *Myſteries* of the *Bona Dea* were ſeverely puniſhed; and none were truſted with them but thoſe formerly initiated, and ſworn to ſecrecy.

But theſe were not call'd *Myſteries*, as being incomprehenſible, or raiſed above the ken of Reaſon; but becauſe they were covered, and diſguiſed under Types, and Figures, to raiſe the greater Veneration in the People.

The *Myſteries* of Paganiſm were celebrated in Grotto's, fitter to conceal Crimes than to hold religious *Myſteries* in.

In Scripture-Language, the Term *Myſtery* is uſed with ſome Latitude. He that reveals Secrets, (or *Myſteries*) makes known to thee what ſhall come to paſs; *Dan.* ii. 29. There is a God in Heaven that reveals *Myſteries*, *ib.* v. 28.

In which Places, *Myſtery* is any thing not to be known without Divine Revelation.

We ſpeak the Wiſdom of God in a *Myſtery*, which God had reſolved before all Ages to reveal for our Glory, 1 *Cor.* ii. 7. We are to be accounted (ſays St. *Paul*) as Miniſters of Jeſus Chriſt, and Diſpenſers of the *Myſteries* of God, 1 *Cor.* iv. 1. Tho' I underſtand all *Myſteries*, and have the Knowledge of all Things, if I have not Charity, I am nothing, 1 *Cor.* xiii. 2. Behold I ſhew you a *Myſtery*, 1. *Cor.* xv. 51. By reading my Epiſtle, you may underſtand my Knowledge in the *Myſtery* of Chriſt; *ad Epheſ.* iii. 4. And in the following Verſes he adds, that this *Myſtery* is, that the *Jews* are Fellow-Heirs, and make but one Body with the *Jews*, being Sharers with them in the Promiſes of God in the Goſpel. Holding the *Myſtery* of the Faith in a pure Conſcience, 1 *Tim.* iii. 9. When the ſeventh Angel begins to ſound his Trumpet, the *Myſtery* of God ſhall be finiſh'd, as he has declared to his Servants the Prophets, *Revel.* x. 7.

In all which Paſſages, the Word *Myſtery* is taken for the ſecret hidden Things, which God has diſcover'd by his Miniſters the Prophets, Jeſus Chriſt, and the Apoſtles.

MYSTICAL, Mystic, ſomething Allegorical, or *Myſterious.* See Mystery, Allegory, *&c.*

The Commentators on the Scriptures, beſides a literal, find alſo a *myſtical* and a moral Meaning.

The Bible, they contend, is a Book written both within ſide, and without ſide. Within ſide, with regard to the *myſtical*, internal, ſublime, and hidden Senſe; and without ſide with regard to the literal and grammatical Senſe, immediately expreſs'd by the words.

In effect ſeveral of the antient Fathers, and Doctors of the Church, underſtand the Books mentioned in *Ezech.* ii. 9. and in the *Apocalypſe.* v. 1. *which were wrote both within ſide and without*, of the Scriptures.

The literal and *myſtical* Senſe they think are here fairly intimated.

The Senſe of Scripture, ſay they, is either that immediately ſignified by the Words and Expreſſions in the common uſe of Language: or it is mediate, ſublime, typical, and *myſtical*; wherein the things themſelves ſignified, are made to ſignify ſtill other and further things, according to the particular Deſign, and Intention of God, and the Prophets and Apoſtles inſpired by him. See Typical.

The literal Senſe they again divide into literal *Proper*, which is contained in the Words taken ſimply and properly:

And literal *Metaphorical*, where the Words are to be underſtood in a figurative and metaphorical Senſe; as *where the Right-Eye is commanded to be pluck'd out*, &c. Wherever the proper literal Senſe contains any thing abſurd or indecent, there recourſe muſt be had to the literal Metaphorical.

All Scripture has a true literal Senſe, but not always a *Myſtical* one. We muſt always underſtand it in the literal Senſe, when it ſpeaks immediately of any of the Laws of Nature, of Charity, of doing Good, when it gives us Inſtructions for the Conduct of Life, for the Regulating our Manners, when it relates any Matter of Fact, or any Point of Hiſtory.

The ſame Paſſage of Scripture has ſometimes ſeveral literal Senſes, expreſs'd and ſignified immediately by the Words taken in their proper and their figurative Senſe, and which appear to have been all intended by the inſpir'd Perſon who ſpoke them, as having been ſo underſtood by others of them. As thoſe Words in *Pſalm* ii. *Thou art my Son, this day have I begotten thee*; which St. *Paul* underſtands according to the ſtrict Letter in *Heb.* i. of the Generation of Jeſus Chriſt in time: And in *Acts* xiii. 33. he takes them in a metaphorical Senſe, and applies them to our Saviour's Reſurrection. Thus in *Hoſea* xi. 1. the Words of the Prophecy, *I have called my Son out of* Egypt, are underſtood literally of the Children of *Iſrael* whom God brought out of *Egypt* under the Conduct of *Moſes*; and yet in *Matth.* ii. 15. they are underſtood metaphorically of Jeſus Chriſt. See Prophecy.

The *Myſtical Senſe* of Scripture is that which the things expreſs'd by the Words ſignify further; or it is a ſecond Signification, and Expreſſion ſignified by the firſt; this ſecond being expreſs'd immediately by the firſt, and mediately by the Words themſelves. Writers allow of three kinds of *Myſtical* Senſe in the Word of God: The firſt correſponding to Faith, and call'd *Allegorical*; the ſecond to Hope, call'd *Anagogical*; and the third to Charity, call'd the *Tropological Senſe.*

The four Senſes, and their Applications are included in the *Latin* Diſtich,

Litera geſta docet, quid credas Allegoria,
Moralis quid agas, quo tendas Anagogia.

Sometimes the ſame Word in Scripture is taken in all the four Senſes. Thus the word *Jeruſalem* literally ſignifies the Capital of *Judea*; Allegorically, the Church Militant; Tropologically and Morally, a Believer; and Anagogically, Heaven.

So, that Paſſage in *Geneſis*, *Let there be Light, and there was Light*; ſignifies, according to the Letter, Corporeal Light; by Allegory, the Meſſiah; in the Tropological Senſe, Grace; and Anagogically, the Light of Glory.

MYSTICS, Mystici, a kind of Religious Sect, diſtinguiſhed by their profeſſing pure, ſublime, and perfect Devotion, with an intire diſintereſted Love of God, free of all ſelfiſh Conſiderations. See Pietists, Molinosists, &c.

The *Myſtics*, to excuſe their fanatic Extaſies, and amorous Extravagancies, alledge that Paſſage of St. *Paul*; *The Spirit prays in us by Sighs and Groans that are unutterable.* Now, if the Spirit, ſay they, pray in us; we muſt reſign ourſelves to its Motions, and be ſway'd, and guided by its Impulſe, by remaining in a State of mere Inaction. See Quietism.

Paſſive Contemplation is that State of Perfection to which the *Myſtics* all aſpire. See Contemplation.

MYSTIC *Theology*, is a refined and ſublime kind of Divinity, profeſs'd by the *Myſtics*. It conſiſts in a Knowledge of God, and Divine things, not acquir'd in the common way, but infuſed immediately by God, and which has the Effect to move the Soul in an eaſy, calm, devout, affective manner; to unite it intimately to God; to illumine the Underſtanding, and warm and enliven the Will in an extraordinary manner.

Among the Writings attributed to *Dionyſius* the *Areopagite*, is a Diſcourſe of *Myſtic Theology*. Several others have wrote on the ſame Subject, both Antients and Moderns.

MYTHOLOGY, the Hiſtory of the fabulous Gods, and Heroes of Antiquity; and the Explanation of their Myſteries, of their Religion, their Fables, and Metamorphoſes. See Gods, Fables, Metamorphoses, &c.

Natalis Comes has wrote a *Mythology*.

The Word is *Greek*, and ſignifies a Diſcourſe or Deſcription of Fables; from μύϑος *Fabula*, and λογος *Sermo*, Diſcourſe.

MYURUS, in Medicine, a Pulſe which is continually weakening by inſenſible Degrees; ſo that the ſecond Beat is fainter than the firſt; the third than the ſecond, &c. See Pulse.

The Word is formed of the *Greek* μυουρος, like a *Mouſe's Tail*; which is compounded of μῦς, Mouſe, and οὐρὰ, Tail; the Diminution of the Pulſe being ſuppoſed like that of the thickneſs of the Tail of that Animal, which grows leſs from the Root to the Tip.

N.

N, A Liquid Conſonant, and the 13th Letter of the *Greek*, *Latin*, *Engliſh*, *&c.* Alphabets. See LETTER and ALPHABET.

The *N* is a *d*, paſs'd thro' the Noſe; ſo that when the Noſe is ſtopped by a Cold, or the like, 'tis uſual to pronounce *d* for *n*. M. *l'Abbe de Dangeau* obſerves, that in the *French*, the *n* is frequently a meer Naſal Vowel, without any thing of the Sound of a Conſonant in it. He calls it the *Sclavonic* Vowel.

The *Hebrews* call their *N Nun*, which ſignifies *Son*, as being ſuppoſed the Offspring of *M*; partly on account of the reſemblance of Sound, and partly on that of the Figure. Thus from the *M*, by omitting the laſt Column, is form'd *N*: and thus from the Capital *N*, by omitting the firſt Column, is form'd the *Greek Minuſcule ν*. Hence for *Biennius*, *&c.* the *Latins* frequently uſe *Bimus*, *&c.* And the *Greek ν* at the end of a Word, they convert into an *m*; as φαρμαχον, *Pharmacum*, *&c.*

N before *p*, *b*, and *m*, they change into *m*, and frequently into *l* and *r*, as *in-ludo*, *illudo*; *in-rigo*, *irrigo*, *&c.* In which they agree with the *Hebrews*, who, in lieu of *Nun*, frequently double the following Conſonant; and the *Greeks*, who do the ſame, as when for *Manlius*, they write μαλλιος, *&c.*

The *Greeks* alſo, before κ, γ, χ, ν, changed the ν into γ: in which they were followed by the antient *Romans*, who for *Angulus* wrote *Aggulus*; for *anceps*, *agceps*, *&c.*

The *Latins* retrench the *n* from *Greek* Nouns ending in ων; as λεων, *Leo*; δεgκων, *Draco*. On the contrary, the *Greeks* add it to the *Latin* ones ending in *o*; as κάτων.

N, among the Antients, was a Numeral Letter, ſignifying 900; according to the Verſe in *Baronius*,

> *N, quoque Nongintos numero deſignat habendos.*

And when a Line was ſtruck over it, $\bar{N}$, Nine Thouſand.

Among the antient Lawyers, *N. L.* ſtood for *Non Liquet*, *i. e.* the Cauſe is not clear enough to paſs Sentence upon.

Nº, in Commerce, *&c.* is uſed as an Abbreviation of *Numero*, Number. Thus alſo in Medicine, *Caryophyllorum*, Nº vi. ſignifies ſix Cloves.

NABONASSAR, in Chronology. The *Æra of* NABONASSAR is famous. We know but little of the Hiſtory of the Man; only that he was King of *Babylon*, and was alſo call'd *Beleſus*; tho' ſome will have him the *Baladan* mention'd in *Iſaiah* xxxix. 1. and 2 *Kings* xx. 12. Some even conjecture that he was a *Mede*; and that he was ſet on the Throne by the *Babylonians*, upon their riſing and ſhaking off the Subjection of the *Medes*.

The Beginning of this Prince's Reign is of great Importance in Chronology; by reaſon *Ptolemy* aſſures us, there were Aſtronomical Obſervations made by the *Chaldeans* from *Nabonaſſar* to his Time: and *Ptolemy*, and the other Aſtronomers, account their Years from that Epocha.

From the Obſervations quoted by *Ptolemy*, it follows, that the firſt Year of this Æra is the 747th Year before Jeſus Chriſt; and the 3967th of the *Julian* Period. See EPOCHA.

The Years of this Epocha are *Egyptian* Years, of 365 Days each; commencing on the 26th of *February*, and reckon'd, according to the Computation of Aſtronomers, from Noon. See YEAR.

NADIR, in Aſtronomy, the Point oppoſite to the Zenith; *i. e.* that Point directly under our feet; or a Point in a right Line drawn from our Feet thro' the Center of the Earth, and terminating in the Under-Hemiſphere. See ZENITH.

The Zenith and *Nadir* are the two Poles of the Horizon, each 90° diſtant from it, conſequently each in the Meridian. See HORIZON.

The Word *Nadir* is pure *Arabic*.

The *Sun's Nadir*, is the Axis of the Cone projected by the Shadow of the Earth; thus call'd, in regard that Axis being prolonged, gives a Point in the Ecliptic diametrically oppoſite to the Sun.

NÆVI, in the Animal Oeconomy, Marks made on the *Fœtus* by the Imagination of the Mother, in longing for any thing.

See theſe accounted for under the Article MONSTER. See alſo FOETUS and IMAGINATION.

NAIANT, or NATANT, that is, *Swimming*; a Term in Heraldry, uſed in the blazoning of Fiſhes, when drawn in an Horizontal Poſture, Feſs-wiſe, or tranſverſely, a-croſs the Eſcutcheon; that being their *Swimming* Poſture. See FISHES.

NAIDS, or NAIDES, a ſort of Heathen Divinities, ſuppoſed to preſide over Fountains and Rivers. See GOD. *Strabo* ſays, the *Naids* were Prieſteſſes of *Bacchus*.

The Word comes from the *Greek* νάειν, *to glide*, or ναίειν, *to abide*, *inhabit*.

NAILING *of Cannon*, the driving of a *Nail*, or Iron Spike, by force, into the Touch-hole of a Piece of Artillery; ſo as to render it uſeleſs to the Enemy. See CANNON.

NAILS, in the Animal Body, a kind of horny Excreſcences, growing over the Ends of the Fingers and Toes of Men, and ſeveral other Animals; much of the ſame nature with the Hoofs of others. Hoofs being nothing elſe but a Number of ſmall Husks, anſwering to ſo many *Papillæ* of the Skin; it may be concluded, that *Nails* are no more but the Covers, or Sheaths of the *Papillæ Pyramidales* of the Skin, on the Extremities of the Fingers and Toes, which dry, harden, and lie upon one another See PAPILLÆ.

Their Uſe is to defend the Ends of the Fingers in handling any hard and rugged Bodies; that Part being exceedingly ſenſible, by reaſon of the great Number of Nerves which terminate here for the Senſation of Feeling. See FEELING.

The *Nails* are form'd, and grow after the ſame manner as the reſt of the Body; their Nouriſhment they receive from their Roots, as is eaſily obſervable from the white Specks ſometimes ſeen on them, and which conſtantly recede from the Root.

The *Romans* were very curious in the Cutting of their *Nails*, and had it done by Artiſts, who made an Employment of it.

The *Chineſe* Doctors and *Litterati* pique themſelves on the exceſſive Length of their *Nails*. F. *le Compte* ſays, ſome of them wear *Nails* near as long as their Fingers. See CIRCUMCISION.

NAILS *in Building*, *&c.* are little Metalline Members, ſerving to bind or faſten the Parts together, *&c.*

The ſeveral Kinds of *Nails* are very numerous. As *Back* and *Bottom Nails*; made with flat Shanks to hold faſt, and not open the Wood: *Clamp Nails*, thoſe proper to faſten the Clamps in Buildings, *&c.* *Claſp Nails*, whoſe Heads claſping and ſticking into the Wood, render the Work ſmooth, ſo as to admit a Plane over it: They are of two Kinds, *viz. long*, proper for fine Buildings of Fir, *&c.* and *ſtrong*, fit for Oak, and other hard Wood. *Clench Nails*, thoſe uſed by Boat, Barge, *&c.* Builders; proper for boarded Buildings, that are to be taken down, becauſe they will drive without ſplitting, and draw without breaking. *Clout Nails*, thoſe ordinarily uſed for nailing on of Clouts to Axle-Trees. *Deck Nails*, thoſe proper for faſtning of Decks in Ships, doubling of Shipping, and Floors laid with Planks. *Dog Nails*, proper for faſtening of Hinges to Doors, *&c.* *Flat Points* are of two kinds, *viz. Longs*, much uſed in Shipping, and proper where there is occaſion to draw, and hold faſt, yet no neceſſity of Clenching. *Jobent Nails*, thoſe commonly uſed to nail thin Plates of Iron to Wood. *Lead Nails*, uſed to nail Lead, Leather and Canvas to hard Wood. *Port Nails*, commonly uſed to nail Hinges to the Ports of Ships. *Pound Nails*, are four-ſquare in the Shank; much uſed in *Norfolk*, *Suffolk* and *Eſſex*, tho' ſcarce elſewhere, except for paling. *Ribbing Nails*, uſed to faſten the Ribbing, to keep the Ribs of Ships in their place in Building. *Roſe Nails*, are drawn four-ſquare in the Shank, and commonly in a round Tool. *Rother Nails*, chiefly uſed to faſten Rother-Irons to Ships. *Round-head Nails*, proper to faſten in Hinges, or other Uſes, where a neat Head is required. *Scupper Nails*, much uſed to faſten Leather and Canvas to Wood. *Sharp Nails*, much uſed, eſpecially in the *Weſt-Indies*, made with ſharp Points, and flat Shanks. *Sheething Nails*, uſed to faſten Sheething-Boards to Ships: the Rule for their Length, is to have them full three times as long as the Board is thick. *Square Nails*, of the ſame Shape as ſharp *Nails*, chiefly uſed for hard Woods. *Tacks*, the *ſmalleſt* of *Nails*, are to faſten Paper to Wood; *Middling*, for Wool-Cards and Oars; *Larger*, for Upholſterers, and Pumps.

In Lathing, 500 *Nails* are ordinarily allowed to a Bundle of five-foot Laths. In Flooring, 200, *i. e.* 240 are allowed for a Square of Flooring.

Nails are ſaid to be toughened, when too brittle, by heating them in a Fire-Shovel, and putting ſome Tallow or Greaſe among them.

NAIL is alſo a ſort of Long Meaſure, chiefly uſed in the Commerce of Cloths; containing the 16th Part of a Yard. See YARD and MEASURE.

NAIRANGIA, a kind of Divination, in uſe among the *Arabs*, drawn from ſeveral *Phænomena* of the Sun and Moon. See DIVINATION.

The Word is form'd from the *Arabic Nairan*, the Plural of *Nair*, Light.

NAISSANT, in Heraldry, is applied to a Lion, or other Animal, ſhewing only the Head, Shoulders, Fore-feet, and Legs, with the Tip of the Tail; the reſt of the Body lying hid under the Shield, or ſome Charge, or Ordinary thereon; from which it appears to be iſſuing or *ariſing*.

Naiſſant differs from *Iſſuant*, in that the Animal in the former Caſe iſſues out at the middle, and in the latter, at the bottom, of the Shield or Charge. See ISSUANT.

F. *Meneſtrier* ſays, *Naiſſant* is only uſed for Animals, which ſhew the bare Head as ariſing out of the Extremity of the Chief, or from above the Feſſe.

NAKED, in Architecture. The NAKED *of a Wall, &c.* is the Surface, or Plain, from whence the Projectures ariſe; or which ſerves as a Ground to the Projectures. See PROJECTURE.

Thus, we ſay, a Pilaſter ought to exceed the *Naked* of the Wall by ſo many Inches; and that the Foliages of a Capital ought to anſwer to the *Naked* of the Column. See COLUMN, *&c.*

NAKED *Fire*, is a Term uſed by the Chymiſts for an *Open Fire*; or one where the containing Veſſel is immediately expoſed to the Fire. See FIRE and HEAT.

NAKED *Seeds*, in Botany, are ſuch Seeds of Plants as are not incloſed in any Pod, or Caſe. See PLANT and SEED.

NAM, or NAAM, in Law, the taking, or diſtraining another Man's moveable Goods. This is either lawful, or unlawful.

Lawful Naam, is a reaſonable Diſtreſs, proportionable to the Value of the Thing diſtrained for; and was antiently call'd either *Vif* or *Mort*, as it was made of quick or dead Chattel.

Lawful Naam, is ſo either by the Common Law, as when a Man takes another's Beaſts doing damage in his Ground; or by a Man's particular Fact, as by reaſon of ſome Contract, *&c.* And hence *Namation*, the Act of diſtraining, or taking a Diſtreſs. See DISTRESS.

In *Scotland*, the Word is particularly uſed for *Impounding*.

NAME, a Word, whereby Men have agreed to expreſs ſome Idea; or which ſerves to deſign, or expreſs a Thing, or Subject ſpoken of. See WORD.

This the Grammarians uſually call a *Noun*, tho' their *Noun* is not of quite ſo much Extent as our *Name*. See NOUN.

Seneca, Lib. II. *de Beneficiis*, obſerves that there are a great Number of Things which have no *Name*; and which, therefore, we are forced to call by other borrowed *Names*. *Ingens eſt*, ſays he, *Rerum Copia ſine Nomine quas cum propriis Appellationibus ſignare non poſſumus, alienis Accommodatis utimur*: Which ſhews why in the Courſe of this Dictionary, we frequently give very different Senſes to the ſame Word.

It was *Adam* that firſt gave Things their *Names*, *Gen.* ii. 19. *Formatis, igitur, Dominus Deus, de humo cunctis Animantibus Terræ, & Univerſis Volatilibus Cæli, & omnibus Beſtiis Terræ, adduxit ea ad Adam, ut videret quid doceret Ea; omne enim quod vocavit Adam Animæ Viventis ipſum eſt Nomen ejus.* Ver. 20. *Appellavitq; Adam Nominibus ſuis cuncta Animantia, & univerſa Volatilia Cæli, & omnes Beſtias Terræ.*

Names are diſtinguſhed into Proper and Appellative.

Proper Names, are thoſe which repreſent ſome individual Thing, or Perſon, ſo as to diſtinguiſh it from all other Things of the ſame Species: as *Socrates*, which repreſents a certain Philoſopher.

Appellative, or *General Names*, are thoſe which ſignify common Ideas; or which are common to ſeveral Individuals of the ſame Species, as Horſe, Animal, Man, Oak, *&c.*

Proper Names are either call'd *Chriſtian*, as being given at Baptiſm, or *Sirnames*: the firſt, impoſed for diſtinction of Perſons; anſwering to the *Roman Prænomen*. See PRÆNOMEN.

The ſecond for the Diſtinction of Families, anſwering to the *Nomen* of the *Romans*, and the *Patronimicum* of the *Greeks*. See SIRNAME.

Originally every Perſon had but one *Name*; as among the *Jews*, *Adam*, *&c.* among the *Egyptians*, *Buſiris*; among the *Chaldees*, *Ninus*; the *Medes*, *Aſtiages*; the *Greeks*, *Diomedes*; the *Romans*, *Romulus*; the *Gauls*, *Divitiacus*; the *Germans*, *Arioviſtus*; the *Britains*, *Caſſibelan*; the *Engliſh*, *Hengiſt*, *&c.* And thus of other Nations, except the Savages of Mount *Atlas*, whom *Pliny* and *Marcellinus* repreſent as *Anonimi*, *nameleſs*.

The *Jews* gave the *Name* at the Circumciſion, *viz.* eight Days after the Birth: The *Romans* to Females the ſame Day, to Males the ninth; at which time they held a Feaſt, call'd *Nominalia*.

Since Chriſtianity has obtained, moſt Nations have followed the *Jews*, Baptizing, and giving the *Name* the eighth Day after the Birth; except our *Engliſh* Anceſtors, who, till of late, baptized, and gave the *Name* on the Birth-Day.

The firſt Impoſition of *Names* was founded on different Views, among different People; the moſt common was to mark the good Wiſhes of the Parents, or to intitle the Children to the good Fortune a happy *Name* ſeem'd to promiſe: Hence *Victor*, *Caſtor*, *Fauſtus*, *Statorius*, *Probus*, *&c.*

Accordingly we find ſuch *Names*, by *Cicero* call'd *Bona Nomina*, and by *Tacitus*, *Fauſta Nomina*, were ſtill firſt enrolled, and ranged in the *Roman* Muſters; firſt called to ſerve at the firſt Sacrifices in the Foundation of Colonies, *&c.* And, on the contrary, *Livy* calls *Atrius Umber*, *abominandi ominis Nomen*: And *Plautus*, on occaſion of a Perſon named *Lyco*, i. e. *Greedy Wolf*, ſays;

> *Voſmet nunc facite conjecturam cæterum*
> *Quid id ſit hominis, cui* Lyco *nomen ſiet.*

Hence, *Plato* recommends it to Men to be careful in giving happy *Names*; and the *Pythagoreans* taught expreſly, that the Minds, Actions, and Succeſſes of Men were according to their *Names*, Genius, and Fate. Thus, *Panormitan*, *ex bono Nomine oritur bona Præſumptio*; and the common Proverb, *Bonum Nomen bonum Omen*: And hence the Foundation of the *Onomantia*. See ONOMANTIA.

Hence *Camden* takes it for granted, that the *Names*, in all Nations and Languages, are ſignificative, and not ſimple Sounds, for meer diſtinction ſake. This holds not only among the *Jews*, *Greeks*, *Latins*, *&c.* but even the *Turks*; among whom, *Abdalla* ſignifies *God's Servant*; *Soliman*, *Peaceable*; *Mahomet*, *Glorified*, *&c.* And the Savages of *Hiſpaniola*, and throughout *America*, who, in their Languages, name their Children *Gliſtering Light*, *Sun-Bright*, *Fine Gold*, *&c.* And they of *Congo* by the *Names* of Precious Stones, Flowers, *&c.*

To ſuppoſe *Names* given without any Meaning, however, by the Alteration of Languages, their Signification may be loſt, that learned Author thinks, is to reproach our Anceſtors; and that contrary to the ſenſe of all antient Writers. Thus *Porphyry* notes, that the *Barbarous Names*, as he calls them, were very emphatical, and very conciſe: And accordingly, it was eſteemed a Duty to be Φερώνυμοι, or *ſui Nominis Homines*: as *Severus*, *Proteus*, and *Aurelius*, are called *ſui Nominis Imperatores*.

And it was the uſual way of giving *Names*, to wiſh the Children might diſcharge their *Names*: Thus when *Gunthraur*, King of *France*, named *Clotharius* at the Font, he ſaid, *Creſcat Puer, & hujus ſit Nominis Executor*.

The antient *Britains*, the ſame Author adds, generally took their *Names* from Colours, becauſe they painted themſelves; which are now loſt, or remain hid among the *Welch*: When they were ſubdued by the *Romans*, they took *Roman Names*; ſome of which ſtill remain, corrupted; tho' the greateſt part are become extinct, upon the Admiſſion of the *Engliſh-Saxons*, who introduced the *German Names*, as *Cudda*, *Penda*, *Oſwald*, *Edward*, *&c.* The *Danes*, too, brought with them their *Names*; as *Suayne*, *Harrold*, *Knute*, *&c.* And the *Normans*, at the Conqueſt, brought in other *German Names*, as originally uſing the *German* Tongue; ſuch as *Robert*, *William*, *Richard*, *Henry*, *Hugh*, *&c.* after the ſame manner as the *Greek Names*, *Aſpaſius*, *Boethius*, *Symmachus*, *&c.* were introduced into *Italy*, upon the Diviſion of the Empire. After the Conqueſt, our Nation, which had ever been averſe to foreign *Names*, as deeming them unlucky, began to take *Hebrew Names*; as *Matthew*, *David*, *Sampſon*, &c.

The various *Names* antiently, or at preſent obtaining among us, from what Language or People ſoever borrowed, are explained by *Camden* in his *Remains*.

As to the Period when *Names* began to be multiplied, and *Sirnames* introduced, *&c.* See SIRNAME.

Of late Years, it has obtained among us, to give *Sirnames* for *Chriſtian Names*; which ſome diſlike, on account of the Confuſion it may introduce. *Camden* relates it as an Opinion, that the Practice firſt began in the Time of *Edward* VI. by ſuch as would be Godfathers, when they were more than half Fathers. Upon which, ſome were perſuaded to change their *Names* at Confirmation; which, it ſeems, is uſual in other Countries. Thus, two Sons of *Henry* II. of *France*, chriſten'd *Alexander* and *Hercules*, changed them at Confirmation into *Henry* and *Francis*.

In Monaſteries, the Religious aſſume ſuch *Names* at their Admittance; to ſhew they are about to lead a new Life, and have renounced the World, their Family, and even their *Name*: v. g. *Siſter* Mary *of the Incarnation*, *Brother* Henry *of the Holy Sacrament*, &c.

The Popes alſo change their *Name* at their Exaltation to the Pontificate; a Cuſtom firſt introduced by Pope *Sergius*, whoſe *Name*, till then, as *Platin* informs us, was *Swines-ſnout*. But *Baronius* refers it to Pope *Sergius* I. and *Onuphrius* to *John* XII. or XIII. who, at the ſame time, adds a different reaſon for it from that of *Platin*, *viz.* that 'twas done in Imitation of St. *Peter* and St. *Paul*, who were firſt called *Simon* and *Saul*. Indeed Pope *Marcellus*, of late, refuſed to change his *Name*.

In *Italy*, 'tis frequent to join the *Name* of ſome Saint, in a kind of Devotion, to the Chriſtian *Name*; as *Joannes Baptiſta Spinoſa*, &c.

Among the Antients, thoſe deified by the Heathen Conſecrations, had new *Names* given them; as *Romulus* was called *Quirinus*; *Melicertus*, *Portunus*, &c. See CONSECRATION.

New *Names* were alſo given in Adoptions, and ſometimes by Teſtament; thus *L. Æmilius*, adopted by *Scipio*, took the *Name* of *Scipio Africanus*; and thus *Auguſtus*, who was firſt called *Thureon*, took the *Name Octavian* by Teſtament. See ADOPTION.

Names were alſo changed at Enfranchiſements into new Cities. Thus *Lucumo*, at his firſt being made free of *Rome*, took the *Name*, *Lucius Tarquinius Priſcus*, *&c.* and Slaves, when made free, uſually aſſumed their Maſters *Names*. See FREEDOM, SLAVE, *&c.*

Thoſe called to the Equeſtrian Order, if they had baſe *Names*, were always new named, *Nomine Ingenuorum veterumq; Romanorum*. And among the Primitive Chriſtians, it was the Practice to change the *Names* of the Catechumens: thus the Renegado *Lucianus*, till his Baptiſm, was called *Lucius*.

Of the NAME, a Phraſe, or Diction frequent among Hiſtorians and Genealogiſts, to denote Perſons of the ſame Quality, and *Name*. 'Tis near nine hundred Years ſince the Emperors of the *Weſt* firſt began to diſtinguiſh themſelves in this manner by their Number; and in the *Italia Sacra* of *Ughellus*, we meet with a Charter of the Emperor *Louis le Debonnaire*, *Anno* 818. wherein he ſtiles himſelf the *Firſt of the Name*. *Le Blanc* mentions a Charter of the Year 1084. wherein the Emperor *Henry* III. ſtiles himſelf King of *Italy*, the *Fourth of the Name*; and Emperor, the *Third of the Name*.

Some *French* Writers obſerve, that in a Manuſcript preſerved in the King's Library, their *Louis* XI. is only ſtiled the *Ninth of the Name*; *Louis the Debonnaire*, and *Louis the Stammerer*, not being then reckon'd in the Number, by reaſon they were Emperors, as well as Kings of *France*: On which Footing, the preſent King, inſtead of the *Fifteenth*, ſhould only be the *Thirteenth of the Name*.

NAMIUM *Vetitum*, in our Law-Books, an unjuſt taking of the Cattle of another, and driving them to an unlawful Place, pretending Damages done by them. In ſuch Caſe, the Owner of the Cattle may demand Satisfaction for the Injury, which is call'd *Placitum de Namio Vetito*.

NAPE, is uſed for the hind-part of the Neck; by reaſon of the ſoft ſhort Hair growing thereon, like the Nap of a Cloth. See NECK.

NAPHTA, or NAPTHA, a kind of liquid Sulphur or Bitumen, very ſoft, and inflammable, exuding out of the Earth in ſeveral Places in *Chaldea*; particularly the Place where ſtood the antient *Babylon*; and ſtill found in ſeveral Provinces of *Italy* and *France*, particularly in *Auvergne*, and near *Raguſa*. See SULPHUR and BITUMEN.

That of *France* is ſoft and black, like liquid Pitch, and of a fœtid Smell; that of *Italy* is a kind of *Petrol*, or a clear Oil, of various Colours, oozing out of a Rock, ſituate on a Mountain in the Dutchy of *Modena*. See PETROL.

Naphta is eſteemed penetrating, reſolutive, and vulnerary; but its Vertues are little known in Medicine: its chief Uſe is in Lamps, *&c.* on account of its Inflammability.

The *Turks* call the *Naptha*, *Carab Sakiz*, black Maſtic, to diſtinguiſh it from Pitch. *Voſſius* has an expreſs Treatiſe on *Naptha*, *Antient and Modern*: He ſays, 'tis a Flower of Bitumen, of more force than any other Bitumen.

The Word, in the original *Chaldee*, ſignifies *ſtillare*, to ooze, or drop; *Naptha*, according to *Pliny*, running like a kind of Bitumen.

NAPIERS, or NEPERS *Bones*. See NEPERS *Bones*.

NARCOTICS, in Medicine, Opiates, or Medicines, that excite Drowſineſs and Sleep. See OPIATES.

Narcotics act, by calming and diminiſhing the Motion of the Blood and Spirits.

Authors are of various Opinions, as to the Manner wherein *Narcotics* operate. The Antients tell us, 'tis by their being cold in nature. *Etmuller*, after *Willis*, takes the Animal Spirits to be compoſed of a fluid volatile Salt; and thinks they are diſſolved by the Mixtures of Sulphurs and Oils, wherewith *Narcotics* abound. M. *Andry*'s Opinion is, that the Salt of *Narcotics*, diſſolves in any Liquor whatever, and that their ramous Branches becoming thus diſengaged from the Salts, are embaraſſed among one another, and thus ſtop the Courſe of the Blood and Spirits. Laſtly, others think, that *Narcotics* cloſe the Orifices of the Nerves and thus block up the Paſſage of the Spirits.

Linder, in his Treatiſe *de Venenis*, thinks, that the Operation of *Narcotics* is not the ſame in all; Drowſineſs being producible from a great Variety of different Cauſes. See SLEEP.

The Word comes from the *Greek* ναρκωτικὸς, of ναρκωσις, *Drowſineſs*.

NARRATION, in Oratory and Hiſtory, a Recital, or Rehearſal of a Fact as it happen'd, or as it is ſuppoſed to have happen'd.

This is of two kinds, either *Simple* and *Hiſtorical*; as where the Auditor or Reader is ſuppoſed to hear or read of a Tranſaction at ſecond hand: or *Artificial* and *Fabulous*, as where their Imaginations are raiſed, and the Action, as it were, re-acted before them.

The *Narration*, according to the Writers of Rhetoric, makes the ſecond part of a juſt Speech, or Harangue; *viz.* that immediately following the *Exordium*. See ORATION. It makes the whole of a Hiſtory; abating for the occaſional Reflections, Epiſodes, and Digreſſions. See HISTORY.

Cicero requires four Virtues in a *Narration*, *viz.* Perſpicuity, Probability, Brevity, and Sweetneſs.

The *Narration* is rendred *perſpicuous*, by obſerving the Order of Time, by uſing none but proper and known Terms, and by reciting the Action uninterruptedly.

It is rendred *probable*, by the Credibility of the Narrator; by the Simplicity and Openneſs of the *Narration*, by avoiding nothing far remote from the common Senſe and Opinion of Mankind, and by a preciſe Detail of Circumſtances.

It is rendred *brief*, by taking it up no higher than is juſt neceſſary; nor fetching it back, as that impertinent Author in *Horace*, *Qui Gemino Bellum Trojanum orditur ab ovo*: And by avoiding trivial Circumſtances.

Laſtly, it is rendred *ſweet*, by uſing ſmooth, numerous, and well-ſounding Words; by arranging them, ſo as to avoid any *Hiatus*, or Claſhing. By the Greatneſs, Novelty, and Unexpectedneſs of the Things related; and by enriching it with Tropes and Figures; as frequent Admirations, Exclamations, Interrogations, Expectations, Suſpences, ſurprizing Events; by Grief, Joy, Fear, *&c.* See TROPE.

NARRATION, in Poetry, is uſed particularly for the Action, or Event, that makes the Subject of an Epic Poem. See ACTION.

F. *Boſſu* obſerves, that the Actions in Poetry are equally ſuſceptible of the two kinds of Oratorial *Narration*; and that each conſtitutes a particular Species of Poetry.

Thoſe under the Artificial, or Active Form, are now call'd *Dramatic*. See DRAMA.

And thoſe only related by the Poet, who here perſonates an Hiſtorian, are call'd *Epic*. See EPOPEA.

In the Drama, the *Narration* is the whole of the Piece; in the *Epopea*, 'tis only a Part, tho' in effect it is the principal Part, and the Body of the Poem. 'Tis preceded by the *Propoſition* and *Invocation*, which *Boſſu* calls the *Præludes*; and is frequently interrupted by the Poet's ſpeaking in Perſon, demanding Pardon, Favour, *&c.* See INVOCATION, *&c.*

The *Narration* includes the whole Action, Epiſodied, with all its Circumſtances and its Ornaments. See EPISODE.

'Tis in this Part that the Action is to be begun, carried on, and ended. 'Tis this, is to ſhew the Cauſes of all that is related: in this the Difficulties are to be propoſed and reſolved, and the Perſons, both human and divine, are here to ſhew their Intereſts, their Manners, and their Qualities, by their Actions and their Diſcourſe: and all this is to be deſcribed with the Beauty, the Majeſty, and Force of Verſe, Stile, Sentiments, Compariſon, and other Ornaments proper to the Subject in general, and to each thing in particular.

The Qualities of the Epic *Narration* are, that it be agreeable, probable, moving, ſurprizing, and active.

Horace ſpeaks of the *Utile* and *Dulce* as on the ſame Footing. *Boſſu* looks on the *Utile* as an eſſential Property; and the *Dulce* as no more than an additional Quality.

NASAL, ſomething belonging to the Noſe, *Naſus*. As the Noſe-Piece of a Helmet, *&c.*

NASAL, in Grammar, *&c.* a Term applied to thoſe Sounds, or Letters, in whoſe Formation, the Noſe is the principal Organ; and particularly where the Sound form'd is paſſed thro the Noſe. See LETTER.

In moſt *Engliſh* Words, the Sounds expreſſed by the Characters *an*, *en*, *in*, *on*, *un*, are ſimple Sounds; and proper *Naſal* Vowels.

NASALIA, in Medicine, a ſort of Remedies to be taken by the Noſe; call'd alſo *Errhines*. See ERRHINES.

NASI *Os*, in Anatomy, a thin Bone, making the upper Part of the Noſe. See NOSE.

NATALIS, NATALIS *Dies*, or NATALITIUM, properly ſignify a Man's Birth-Day.

The Word was firſt uſed among the Heathens, to ſignify the Feaſt held on the Anniverſary of the Birth of an Emperor; whence it came, in time, to ſignify any ſort of Feaſt. And accordingly, in the *Faſti*, we meet with *Natalis Solis*, *Natalis Invicti*, &c. The Primitive Chriſtians, finding it thus eſtabliſhed, uſed it in the ſame manner; and hence we meet in the antient Martyrologiſts with *Natalis Calycis*, for the Feaſt of the Supper, or *Maunday-Thurſday*. *Natalis Cathedræ*, for the Pontificate of St. *Peter*: The *Natalis*, or *Natalitium* of ſuch a Church, for the Feaſt of the Dedication.

The Word *Genethlion* is uſed by the *Greeks* in the ſame ſenſe as *Natalis*, or *Natalitium*, among the *Latins*.

The *Ludi Natalitii*, Natal Games, were Games introduced on the Anniverſaries of the Birth-Days of their great Men.

The Natal Ring, *Annulus Natalitius*, was a Ring only wore on the Birth-Day.

NATES, in Anatomy, a Term expreſſing thoſe two fleſhy Parts of the Body, popularly called the *Hips*, or *Buttocks*.

NATES *Cerebri*, are two Circular Protuberances of the Brain, ſituate on the back-ſide of the *Medulla Oblongata*, near the *Cerebellum*. See BRAIN.

NATION, a Collective Term, uſed for a conſiderable People, inhabiting a certain Extent of Ground, encloſed within certain Limits, and under the ſame Government.

Each *Nation* has its particular Character: 'Tis proverbially ſaid, Light as a *Frenchman*, Waggiſh and Silly as an *Italian*, Grave as a *Spaniard*, Wicked and Unlucky as an *Engliſhman*, Fierce as a *Scotchman*, Drunken as a *German*, Idle as an *Iriſhman*, Deceitful as a *Greek*, &c.

NATION is alſo uſed in ſome Univerſities, for a certain Diſtinction of the Scholars, or Profeſſors of Colleges: Thus the Faculty of *Paris* conſiſts of four *Nations*; *viz.* that of *France*, that of *Normandy*, that of *Picardy*, and that of *Germany*; which are again, excepting that of *Normandy*, diſtinguiſhed into *Tribes*; each Tribe has its Deacon.

The *German Nation* comprehends all foreign *Nations*, *Engliſh*, *Italian*, &c. When the Procureur of the *French Nation* ſpeaks in publick, his Stile is, *Honoranda Gallorum Natio*. He of *Picardy* ſays, *Fideliſſima Picardorum Natio*. He of *Normandy*, *Veneranda Normannorum Natio*. He of the *Nation* of *Germany*, *Conſtantiſſima Germanorum Natio*.

NATIONAL *Synod*. See SYNOD.

NATIVE, is applied to a Perſon conſider'd as born in a certain Place; or deriving his Origin therefrom.

The more accurate Writers diſtinguiſh between a *Native* of a Place, and being *born* therein. *Born* ſignifies no more than the having been there produced, or brought into the World, whether that were the proper Country, or Habitation of the Parents, or whether they were there only by accident, as Strangers, &c. Whereas *Native* refers to the proper Manſion, or Reſidence of the Parents and the Family; and where the Perſon has his Education. And hence a Perſon may be a *Native* of one Place, and *born* at another. Thus Jeſus Chriſt is call'd a *Nazarite*, and *Galilean*, as a *Native*; tho' he were born at *Bethlehem* in *Juda*.

NATIVE, NATIVUS, in our antient Law-Books, ſignified a Perſon who was born a Slave; by which he differ'd from one who had ſold himſelf, or became a Slave by his own Deed.——*Servos enim alios* Bondos *dicimus alios* Nativos, *alios* Villanos. *Bondi ſunt qui pactionis Vinculo ſe adſtrinxerunt. De* Nativis, *infra. Villani ſunt qui Glebæ aſcripti Villam colunt Dominicam, nec exire licet ſine Domini Licentia.* Spelm.

NATIVÆ *Tenentes*, in our old Law-Books, are Tenants who hold *Native* Land; *i.e.* Land ſubject to the Services of *Natives*. *Spelman*.

NATIVI *de Stipite*, were Villains or Bond-men by Birth or Family.———There were alſo *Nativi Conventionarii*, who were Villains by Contract or Covenant. *Servi enim alii natura, alii facti, alii emptione, alii redemptione, alii ſua vel alterius datione.* LL. *Hen.* I. *cap.* 76. In *Cornwall* it was a Cuſtom, that if a Freeman married *Nativam*, and brought her *ad Liberum Tenementum & Liberum Thorum*, and had two Daughters, one of them was free, and the other a Villain. *Bracton Lib.* 4.

NATIVITY, *Natal-Day*, or the Day of one's Birth.

The Term is chiefly uſed in ſpeaking of Saints, &c. The *Nativity* of St. *John Baptiſt*, &c. When we ſay abſolutely the *Nativity*, it is underſtood of that of Jeſus Chriſt, or the Feaſt of *Chriſtmas*. See FEAST.

'Tis commonly held, that Pope *Teleſphorus* was the firſt who decreed the Feaſt of the *Nativity* to be held on the 25th of *December*. *John*, Archbiſhop of *Nice*, in an Epiſtle upon the *Nativity* of Jeſus Chriſt, relates, that at the inſtance of St. *Cyril* of *Jeruſalem*, Pope *Julius* procured a ſtrict Inquiry to be made into the Day of our Saviour's *Nativity*; which being found to be on the 25th of *December*, they began thenceforth to celebrate the Feaſt on that Day. See CHRISTMAS.

In antient Law-Books, *Nativity*, *Nativitas*, ſignifies Bondage, or Servitude.

NATIVITY, in Aſtrology, the ſame with *Horoſcope*. See HOROSCOPE.

Caſting the Nativity, or by Calculation ſeeing to know how long the Queen ſhould live, &c. was made Felony. *An.* 23 *Eliz. c.* 2.

NATRON, or ANATRON, in Natural Hiſtory, a kind of black, greyiſh Salt, taken out of a Lake of ſtagnant Water, in the Territory of *Terrana* in *Egypt*. See SALT.

'Tis much of the nature of Nitre, whence it is called *Egyptian Nitre*, and is even ſuppoſed to be the proper Nitre of the Antients. See NITRE.

'Tis a popular Error, that all Bones or Stones thrown into this Lake, are by degrees converted into *Natron*. It makes a great Ebullition, when mixed with Acids; whence it is ranked as of the Alkali Kind.

'Tis uſed in the Whitening of Linnen; but burns them, if not corrected by a Mixture of Aſhes. See WHITENING.

The *Natron* of *Egypt*, as deſcribed by *Pliny*, *Matthiolus*, and *Agricola*, is an Alkali Salt perforated in manner of a Sponge, and of a Lixivial Taſte.

Its Principles, Dr. *Leigh* takes to be chiefly two; *viz.* a Sea-Salt, and an Urinous Salt. The firſt, he takes it for granted, it receives from the Earth; the ſecond, from the Air.

Dr. *Huntington*, who was on the ſpot, ſays the *Natron* is thought to riſe from the bottom of the Lake; where, by the Heat of the Sun, it is condenſed, and hardened into the Form we ſee it in: But his Opinion is, that 'tis rather ſeparated by the Sun from the Water.

M. *de la Chambre* adds, that three or four Days before the *Nile* begins to overflow, there falls a certain Dew, of a fermentative Vertue, inſomuch as to leaven a Paſte expoſed to it, and that at the ſame time the *Natron* riſes.

Hippocrates, *Galen*, *Matthiolus*, *Dioſcorides*, &c. mention it as of uſe in Phyſic; and M. *de Clos* is even of opinion, that all the Mineral Waters of *France* are impregnated with this kind of *Nitre*; and that 'tis hence they derive their Medicinal Vertues.

It is of ſingular Efficacy in fertilizing of Ground; which Dr. *Leigh* accounts for, by ſuppoſing its volatile Particles heated by ſome ſubterraneous Fire, or by the Warmth of the Sun; and thus readily made to aſcend up the minute Tubes of Plants, and carry with them the Juices of the Earth.

Pliny derives the Invention of Glaſs from ſome of this *Natron* accidentally melted down into the Sand, where it run into Streams of Glaſs. See GLASS.

This *Nitre* is diſtinguiſhed from Salt Petre, by its fermenting with Acids, which Salt Peter will not do; by its volatile Spirit, its lixivial Smell, by the clammy inſipid Subſtance it yields, &c. It agrees with Salt Petre, in that, by dropping Spirit of Sulphur upon it, it ſhoots into pyramidal Cryſtals. Dr. *Leigh* thinks it comes nearer a Sal Armoniac than Salt Petre. See SALT PETRE.

Dr. *Liſter* conjectures, that moſt of the Salt Water of the Lakes of *Egypt*, having paſs'd thro' the Bodies of thoſe vaſt Animals wherewith they are ſtocked, as *Crocodiles*, *Hippopotami*, &c. muſt of conſequence be rendred Urinous, or Salino-Urinous; which is a Compoſition of Sal Armoniac. See SAL ARMONIAC.

NATTA, or NATA, or NASA, or NAPTA, in Medicine, a Tumor ariſing in ſeveral Parts of the Body.

Blancard defines it, a large, ſoft, reddiſh, painful Tumor, ariſing uſually on the Back, ſometimes on the Shoulders: Its Root is very ſmall, yet it grows ſo prodigiouſly, that it ſometimes equals a Melon, or Gourd.

Nattæ, or, as ſome call them, *Nates*, ofteneſt appear on the Neck, much after the manner of *Talpæ*. See TALPA.

They are of the Oedematous Kind, and are to be extirpated by Inciſion, and their Return prevented by red precipitate, Vitriol, or burnt Allom ſtrew'd on the Place.

Bartholine mentions a Lady, who cured herſelf of a *Natta*, by biting it off.

NATURAL, ſomething concerning *Nature*, belonging to *Nature*, ariſing from a Principle of *Nature*, or conformable to the ordinary Courſe and Order of *Nature*. See NATURE.

When a Stone falls downwards, we vulgarly ſay it does it by a *Natural* Motion; but if it be thrown upwards, its Motion is ſaid to be violent. So Water ſuſpended in a ſucking Pump, is ſaid to be out of its *Natural* Place: Cures wrought by Medicines, are *Natural Operations*; but the miraculous ones wrought by Chriſt, *Supernatural*. See SUPERNATURAL, &c.

NATURAL *Children*, are thoſe born out of lawful Wedlock. See BASTARD.

NATURAL *Horizon*, is the ſenſible or phyſical Horizon. See HORIZON.

NATURAL *Law*. See *Law of* NATURE.

NATURAL *Day*, } See { DAY.
NATURAL *Year*, } See { YEAR.

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TAB. NATURAL HISTORY.

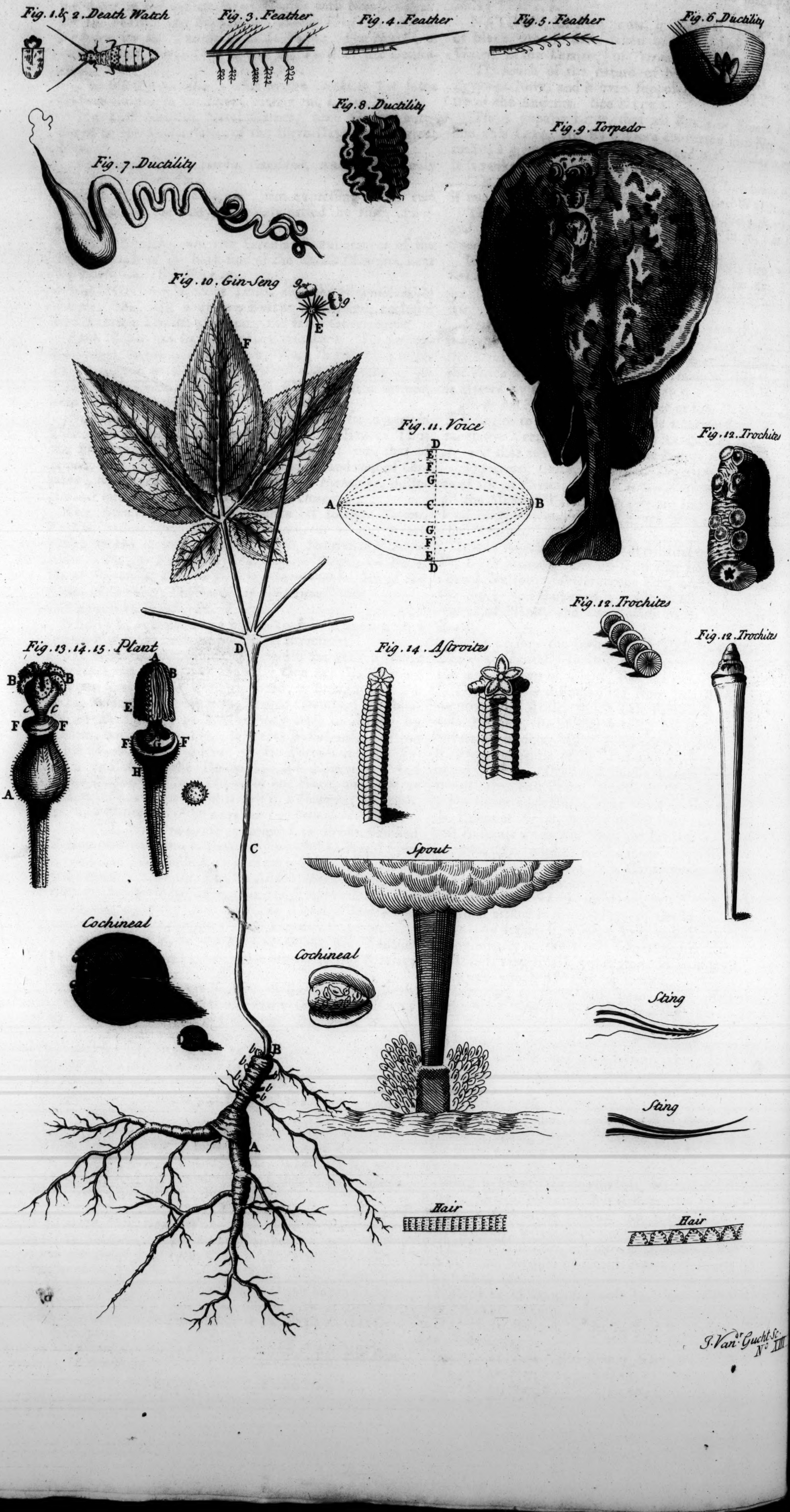
Fig. 1. & 2. Death Watch
Fig. 3. Feather
Fig. 4. Feather
Fig. 5. Feather
Fig. 6. Ductility
Fig. 8. Ductility
Fig. 7. Ductility
Fig. 9. Torpedo
Fig. 10. Gin-Seng
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Fig. 11. Voice
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Fig. 12. Trochites
Fig. 12. Trochites
Fig. 12. Trochites
Fig. 13. 14. 15. Plant
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Fig. 14. Astroites
Spout
Cochineal
Cochineal
Sting
Sting
Hair
Hair

J. Vandr Gucht Sc.
No XIII

Natural *Faculty*, is that Power, ariſing from the Blood's Circulation, which is conſpicuous in all the Secretions performed within the Body; that Secretion alone excepted, which is made at the Origin of the Nerves. See Faculty.

Natural *Functions*, in the Animal Oeconomy, are thoſe Actions whereby things taken into the Body, are changed, and aſſimilated, ſo as to become Parts of our Body. See Function.

Theſe are the Actions of the *Viſcera*, the Veſſels that receive, retain, move, change, mix, ſecern, apply, excern, and ſpend the Humours of the Body. See Digestion, Nutrition, *&c.*

Natural *Inclinations*, are thoſe Tendencies, or Motions of the Mind, towards things ſeemingly good, which are common, in a greater or leſs degree, to all Mankind.

Natural Inclination, according to F. *Mallebranch*, is the ſame thing with regard to Minds, that Motion is with regard to Bodies; and as all the Varieties in the Material World ariſe from the ſeveral Motions of Bodies, ſo do all thoſe of the Intellectual World from Inclinations; and as all Motions are the Reſults of Impreſſions immediately communicated by the Finger of the Creator; ſo all Inclinations are certainly nothing elſe but continual Impreſſions of the Will of the Creator, on that of the Creature; and muſt therefore of neceſſity be agreeable to his; and therefore can naturally have no principal End, but his Glory; nor any ſecondary one, but their own Preſervation, and that of others; both ſtill with regard to his Will who gave them Being.

Now, as, properly ſpeaking, there is but one Love in God, *viz.* that of himſelf; ſo he only impreſſes one Love or Deſire in us, which is that of Good in the general. 'Tis this general Love, or Deſire, is the Principle of all our particular ones; as, in effect, 'tis the Will itſelf: The Will being defined to be a continual Impreſſion of the Author of Nature, which carries the Mind of Man to Good in general. See Will.

But the Impreſſion towards Good in the general, doth not only proceed from God, but alſo all our Inclinations to particular Goods; as, *v. g.* Self-preſervation, *&c.* See Passion.

Natural *Hiſtory*, a Deſcription of any of the Natural Products of the Earth, Water, or Air; *v. g.* Beaſts, Birds, Fiſhes, Metals, Minerals, and Foſſils; together with ſuch extraordinary Phænomena, as at any time appear in the Material World; ſuch as Meteors, and Monſters, *&c.* See History.

Beſide *General Natural Hiſtory*, as thoſe of *Pliny*, &c. there are *Particular* ones; and that of two kinds: The firſt, thoſe which only conſider one kind of Things, ſuch as the *Hiſtory of Shells*, of Dr. *Liſter*; of *Fiſhes*, of *Willoughby*; that of *Birds*, of the ſame; that of *Plants*, of *Ray*, or *Rolfincius*; thoſe of *Inſects*, of *Swammerdam*, and *Mouffet*; that of *Animals*, of *Geſner*; that of *Foſſils*, of *Lockmund*, &c.

The ſecond, thoſe which conſider the ſeveral kinds of natural Things found in particular Countreys, or Provinces; as the *Natural Hiſtory* of *Dauphine*, by *Chorier*; the *Natural Hiſtory of the Antilles*, by F. *Tertre*, and M. *Lonvillieres*; thoſe of *Oxfordſhire* and *Staffordſhire*, by Dr. *Plott*; that of *Lancaſhire*, by *Leigh*; of *Northamptonſhire*, by *Morton*; and that of the ſame County, expected from Mr. *Bridges*; that of the Weſtern Iſlands, by *Martin*, &c.

Natural *Philoſophy*, that Science which conſiders the Powers of *Nature*, the Properties of *Natural* Bodies, and their mutual Action on one another; otherwiſe call'd *Phyſics*. See Physics.

Natural *Magic* is that which only makes uſe of natural Cauſes. See Magic.

Natural *Cauſe*, ſee Cause.

Natural, in Heraldry, is uſed where Animals, Fruits, Flowers, *&c.* are blazon'd with the Colours they naturally have, tho different from the common Colours of Heraldry: and this is to prevent the Armories being accus'd of Falſity, when blazon'd with the Names of Colours unknown in Heraldry.

Natural, in Muſic, is uſed variouſly. Sometimes, it is taken for *Diatonic*; and ſometimes for *Phyſical*, in which latter Senſe, *Natural Muſic* is that performed by *Natural* Organs, *i. e.* Vocal Muſic, in contradiſtinction to Artificial, or Inſtrumental.

Natural *Harmony* is that produced by the *Natural*, and Eſſential Chords of the Mode. See Harmony.

Natural *Note* is uſed in oppoſition to *Flat* and *Sharp* Notes, which are call'd Artificial Notes. See Note, Scale, *&c.*

Natural is alſo uſed for ſomething coming immediately out of the hands of Nature, in oppoſition to *Factitious*, or *Artificial*, which ſignifies ſomething wrought by Art.

Biſhop *Wilkins* obſerves, that there appears a world of difference between *Natural* and Artificial Things when view'd with Microſcopes; the firſt ever ſhews adorn'd with all imaginable Elegance and Beauty; the latter, tho the moſt curious in the World, infinitely rude and unhewn: The fineſt Needle appears a rough Bar of Iron; and the moſt accurate Engraving or Emboſſment, as if done with a Mattock or Trowel.

NATURALIST, a Perſon who has ſtudied *Nature*, and is well verſed in *Natural* Bodies, eſpecially in what relates to Metals, Minerals, Stones, Vegetables, and Animals.

Ariſtotle, *Ælian*, *Pliny*, *Solinus*, and *Theophraſtus* were the greateſt *Naturaliſts* among the Antients; but they fell into abundance of Errors, which have been corrected by the happy Induſtry of the Moderns. *Aldrovandus* is the moſt Copious and Compleat of the modern *Naturaliſts*; his Work is in ſeventeen Volumes in *Folio*.

NATURALIZATION, in Law, the Act of Naturalizing any one, or of putting any Foreigner into the Condition of a natural-born Subject, and entitling him to the Rights and Privileges thereof. See Denizen.

In *France*, *Naturalization* is the King's Prerogative; in *England* 'tis only done by Act of Parliament. In *France*, *Swiſs*, *Savoyards*, and *Scots*, need not any *Naturalization*, being reputed *Regnicoles*, or Natives.

NATURALS, *Res Naturales*, in Medicine: In every Animal, howſoever ſick and diſeaſed, there is ſtill remaining ſome degree of Life, and Strength; and the Cauſes and Effects of each: Theſe are call'd *Naturals*, *Natural things*, *things according to Nature*; and ſometimes barely *Nature*; in contradiſtinction to *Non-Naturals*, which ſee.

NATURE, *Natura*, φυσις, is a Term very variouſly uſed. *Ariſtotle* has a whole Chapter wrote expreſly to enumerate the various Acceptations of the *Greek* Word φυσις, render'd in *Engliſh*, *Nature*; and among *Latin* Writers, the different Acceptations are ſo many, that a certain Author reckons up fourteen or fifteen. Mr. *Boyle*, in a preciſe Treatiſe of the *vulgarly receiv'd Notion of Nature*, gives us eight principal ones.

Nature, then, is uſed for the Syſtem of the World; the Machine of the Univerſe, or the Aſſemblage of all created Beings.

In this Senſe we ſay, the *Author of Nature*; the Sun is call'd the *Eye of Nature*, becauſe he illumines the Univerſe, and the *Father of Nature*, becauſe he warms the Earth, and makes it fruitful. And thus we ſay of the Phænix, or a Chimæra, that there is no ſuch thing in *Nature*.

Inſtead of the word *Nature* in this Senſe, Mr. *Boyle*, to avoid Ambiguity, and Abuſe of the Word, propoſes to have *World*, or *Univerſe* ſubſtituted. See World.

Nature, in a more confined Senſe, comprehends the ſeveral kinds of Beings, Created and Increated; Spiritual and Corporeal. See Ens.

In this Senſe, we ſay, *Human Nature*, meaning all Men together that poſſeſs the ſame Spiritual, Reaſonable Soul. *Angelical Nature*; the *Divine Nature*, &c.

And in this Senſe, the School Divines ſay, *Natura Naturans*, *& Natura Naturata*, ſpeaking of God, who is the *Natura Naturans*, as giving Being and *Nature* to all others; in oppoſition to the Creatures, who are the *Natura Naturata*, as receiving their Nature.

Nature, in a ſtill more reſtrained Senſe, is uſed for the Eſſence of a thing; or that which the Schoolmen call the *Quiddity* thereof, that is, the Attribute which makes it what it is.

In this Senſe, the *Carteſians* ſay, 'tis the *Nature* of the Soul to think.

And here the word Eſſence, Mr. *Boyle* would have obtain, in lieu of *Nature*. See Essence.

Nature is particularly uſed for the eſtabliſh'd Order, and Courſe of material Things, the Series of Second Cauſes, or the Laws which God has impoſed on the Motions impreſs'd by him. See Cause.

In this Senſe it is we ſay, Phyſics is the Study of *Nature*. *Nature* makes the Night ſucceed the Day; *Nature* has made Reſpiration neceſſary to Life, *&c.*

Thus *S. Thomas* defines *Nature* a kind of divine Art, given to Beings, which carries them to the End they are determined for: In effect, *Nature*, in this Senſe, is nothing elſe but that Concatenation of Cauſes and Effects, or that Order and Oeconomy which God has eſtabliſhed in the Parts of his Creation.

In this Senſe too we ſay, that Miracles are Effects above the Powers of *Nature*: So Art forces or ſurpaſſes *Nature*, by means of Machines, and moving Powers, by reaſon they produce Effects which exceed what we find in the common Courſe of Things. See Miracle, *&c.*

Nature, again, is taken for an Aggregate of Powers belonging to any Body, eſpecially a living one.

In this ſenſe Phyſicians ſay, that *Nature* is ſtrong, weak, or ſpent; or, that in ſuch a Diſeaſe, *Nature* left to herſelf, will perform the Cure.

Nature, ſtill more ſtrictly, is uſed for the Action of Providence, the Principle of all things; or, that ſpiritual Being which is diffuſed throughout the Creation, and moves and acts in all Bodies, and gives them certain Properties, and procures certain Effects. See **Providence.**

In this, which Mr. *Boyle* conſiders as the moſt uſual Senſe, *Nature* is nothing elſe but God, acting himſelf, and according to certain Laws he himſelf has fix'd. See **God.**

This ſeems pretty agreeable to the Opinion of many of the Antients, who made *Nature* the God of the Univerſe, the Το Παν, who preſides over, and governs all; tho others own'd this an imaginary Being, and by *Nature* meant no more than the Qualities, or Vertues which God has given his Creatures, and which their Poets and Orators took occaſion of perſonifying.

F. *Mallebranch* ſays, the *Nature* ſo much talk'd of in the Schools is fit for nothing but to lead us back to Idolatry; the antient Heathens hereby underſtanding ſomething, which, without being God, acts continually throughout the Univerſe. Thus the Idol *Nature* muſt be an actual Principle, which, with the concurrence of God, is the next and immediate Cauſe of all the Changes which befall Matter. Which ſeems to fall in with the Opinion of the *Anima Mundi*; as if *Nature* were a Subſtitute of God, or a collateral Cauſe with God, or a middle Being between God and created Things. See **Anima Mundi.**

Ariſtotle defines *Nature, Principium & Cauſa motus & ejus in quo eſt primo per ſe & non per accedens.* A Definition ſo obſcure, that none of his Commentators, with all their Gloſſes, have been able to render it intelligible.

This Principle, which the *Peripatetics* call'd *Nature*, they ſuppoſed to act neceſſarily; and was therefore deſtitute of Knowledge or Liberty. See **Necessity.**

Thus alſo the *Stoics* conceived *Nature* as a certain Spirit or Virtue diffuſed throughout the Univerſe, which gave every thing its Motion, ſo that all muſt be dragg'd away by the invariable Order of a blind *Nature*, and an inevitable Neceſſity. See **Fate.**

In ſpeaking of the Action of *Nature*, no more is to be underſtood, but that *Bodies act on one another*, in a manner *agreeable to the general Laws of Motion which the Creator has eſtabliſhed.*

In this lies the Myſtery of that great Word, which is only a compendious way of expreſſing the Action of all Bodies: But the *Mechaniſm of Bodies*, would, perhaps, better expreſs what is here meant by *Nature*. See **Mechanism.**

Some, Mr. *Boyle* obſerves, will have the *Nature* of a thing to be only the Law that it receives from the Creator, and according to which it acts on all Occaſions. But this is an improper, and figurative Expreſſion.

The ſame Author propoſes a Notion of *Nature* as more fit than any yet given to paſs for the principal one of *Nature*; with regard to which many Axioms and Expreſſions relating to that Word, may be conveniently underſtood. In order to this, he diſtinguiſhes between *General* and *Particular Nature.*

General Nature he defines the Aggregate of the Bodies that make up the World in its preſent State, conſider'd as a Principle by virtue whereof they act and ſuffer according to the Laws of Motion preſcribed by the Author of things.

Particular Nature of any Subordinate or Individual conſiſts in the general *Nature* apply'd to a diſtinct Portion of the Univerſe. Or it is a Convention of the Mechanical Properties (as Magnitude, Figure, Order, Situation, and Local Motion) of Parts convenient and ſufficient to conſtitute of, or entitle to, its particular Species or Denominations, the particular Body they make up; the Concourſe of all theſe being conſider'd as the Principle of Motion, Reſt, *&c.*

Laws of **Nature**, are Axioms, or general Laws, and Rules of Motion, and Reſt obſerved by natural Bodies in their Actions on one another; and in all the Changes which befall them in their *Natural* State. See **Law.**

The *Laws of Nature*, and of Motion, are, in effect, the ſame; Cuſtom, indeed, has made ſome difference, and we find Authors call the particular Caſes of Motion, *Laws of Motion*; which ſee under **Motion**; the more General, or Catholic ones, and thoſe from which, as from Axioms, the others are deduced, they call *Laws of Nature.*

Of theſe, Sir *Iſaac Newton* has eſtabliſhed three.

Laws of NATURE.

1. *Every Body perſeveres in the ſame State, either of Reſt, or uniform rectilinear Motion; except ſo far as it is forced to change that State by ſome foreign Force.*

Thus Projectiles perſevere in their Motions, except ſo far as they are retarded by the Reſiſtance of the Air, and the Cauſe of Gravity; and thus a Top, whoſe Parts by their Coheſion, are continually drawing one another out of their rectilinear Motion, only ceaſes to run round becauſe reſiſted by the Air, and the Friction of the Plane whereon it moves. And thus the larger Bodies of the Planets and Comets preſerve their progreſſive and circular Motions a long time undiminiſhed in Regions void of all ſenſible Reſiſtance. See **Vis** *Inertiæ*, **Resistance**, and **Medium.**

2. *The Change of Motion is ever proportional to the moving Force whereby it is effected, and in the Direction of the Right Line wherein that Force is impreſs'd.*

If a certain Force produce a certain Motion; a double Force will produce double the Motion; a triple Force triple the Motion, whether it be impreſs'd all at once, or ſucceſſively, and by degrees. And this Motion (ſince it is ever directed to the ſame Point with the generating Force) if the Body were in Motion before, is either to be added to it, as if the Motions conſpire; or ſubſtracted from it, as where contrary; or added obliquely, as where oblique; and is compounded with it, according to the Determinations of each.

3. *Reaction is always contrary and equal to Action; or the Actions of two Bodies upon one another are always mutually equal, and directed contrary ways.*

Whatever preſſes, or pulls another, is equally preſs'd or pull'd thereby. Thus, if I preſs a Stone with my Finger, the Finger is equally preſs'd by the Stone. If a Horſe draw a Weight by a Rope, the Horſe is equally drawn back towards the Weight; for the Rope being equally ſtretch'd each way, will with an equal Endeavour to relax itſelf, drive the Horſe toward the Stone, and the Stone towards the Horſe, and will hinder the Progreſs of the one, as much as it promotes that of the other.

Again, if any Body by ſtriking on another, do in any manner change its Motion, it will, itſelf, by means of the other, undergo an equal Change in its own Motion, by reaſon of the Equality of the Preſſure.

In theſe Actions the Changes are equal; not thoſe, we mean, of the Velocities, but thoſe of the Motions, the Bodies being ſuppoſed free of any other Impediments. For the Changes of Velocities, which are likewiſe made contrary ways, in as much as the Motions are equally changed, are reciprocally proportional to the Bodies. See **Reaction.**

This Law alſo obtains in Attractions. See **Attraction.**

Nature, in Proſody: A Syllable is ſaid to be long or ſhort by *Nature*, to ſignify that it is ſo without any Rule of Grammar, to render it ſo by Poſition, or otherwiſe.

NAVAL, ſomething relating to Ships, or Navigation. See **Ship** and **Navigation.**

In this ſenſe we ſometimes ſay, *Naval Strength, a Naval Combat*, &c.

Naval *Crown, Corona Navalis*, among the antient *Romans*, a Crown adorn'd with Figures of Prows of Ships, confer'd on Perſons who in Sea-Engagements firſt boarded the Enemy's Veſſel. See **Crown.**

Tho *A. Gellius* ſeems to ſpeak generally, where he ſays, the *Naval Crown* was adorn'd with Prows of Ships; *Lipſius* diſtinguiſhes two kinds of *Naval Crowns*: The one he calls *Simple*, the other *Roſtrata.*

The firſt he ſuppoſes plain, and given to the common Soldiers, *&c.* The latter much more Glorious, adorn'd with Prows of Ships, and only given to Generals, or Admirals, who had gain'd ſome important Victory at Sea.

NAVE, in Architecture, *Navis Eccleſiæ*, the Body of a Church; or the Place where the People are diſpoſed; reaching from the Rail or Balluſter of the Choir to the chief Door. The Antient *Greeks* call'd it *Pronaos.* See **Church.**

The *Nave* of a Church belongs to the Pariſhioners; 'tis they are to repair it, *&c.*

Baldus derives the Word from the *Greek* ναὸς, Temple; which *Salmaſius* brings from ναυς, ναος, Ship; by reaſon the Vault or Roof of a Church bears reſemblance to a Ship.

NAVEL, a Part in the middle of the Belly, by Anatomiſts call'd *Umbilicus.* See **Umbilicus.**

Navel-*String*, by Anatomiſts is call'd *Funiculus Umbilicalis.* See **Funiculus.**

NAVICULARE *Os*, in Anatomy, the third Bone in the Foot, between the *Aſtragalus*, and the *Oſſa Cuneiformia*, thus call'd from *Navis*, a Ship, to which it bears ſome Reſemblance; for which reaſon likewiſe it is ſometimes call'd *Cymbiforme*, from *Cymba*, a Boat, and *Scaphoides*, from a *Greek* Word of the like import. See **Foot.**

It has behind it a large *Sinus*, which receives the fore convex Head of the firſt Bone, and before it, is convex; 'tis diſtinguiſhed into three Heads, which are received into the *Sinus's* of the *Oſſa Cuneiformia.*

NAVIGATION, the Art, or Act of *Sailing*; or of conducting a Veſſel from one Place to another, the ſafeſt and moſt commodious way.

This Art, in the full Latitude of the Word, comprehends three parts; *viz.* Firſt, the Art of conſtructing and building Ships. (ſee **Ship.**) Second, the loading of Ships. (ſee **Burden.**) And, Third, the Direction and Government of the Ship; which is in a peculiar Senſe call'd *Navigation*, or *Sailing*. See SAILING.

In this reſtrained Senſe of the Word, *Navigation* is either *Improper*, or *Proper*.

The *firſt*, uſually call'd *Coaſting*, is where the Ports are on the ſame, or a very neighbouring Coaſt; and where the Veſſel is ſeldom out of ſight of Land, or out of reach of Sounding. See COASTING.

In this, little elſe is required, but an Acquaintance with the Lands, the Compaſs, and Sounding-Line; each of which ſee in its Place, COMPASS and SOUNDING.

The *latter* is where the Voyage is long, and out in the main Ocean. In this, beſides the Requiſites in the former, are likewiſe required the uſe of *Mercator*'s Chart, *Azimuth*, and *Amplitude Compaſſes*, *Log-Line*, and other Inſtruments for Celeſtial Obſervations, as *Quadrants*, *Foreſtaffs*, &c. See each Inſtrument, *&c.* in its Place.

Navigation turns principally on four things; two whereof being known, the reſt are eaſily found from them by the Tables, Scales, and Charts.

Theſe four things are, the Difference in Latitude, Difference in Longitude, the Reckoning or Diſtance, and the Courſe or Rumb of the Wind.

The *Latitudes* are eaſily found, and with ſufficient Accuracy. See LATITUDE.

Nor is there any thing wanting to the Perfection of *Navigation*, but to determine the *Longitude*.

The Mathematicians of many Ages have applied themſelves with the utmoſt Aſſiduity to ſupply this grand *Deſideratum*, but hitherto in vain; notwithſtanding the magnificent Rewards of ſeveral Princes and States to the Diſcoverer.

For the various Methods that now occaſionally obtain at Sea, ſee LONGITUDE.

The *Courſe* and *Diſtance*, we have already obſerved, are had by the Log-Line, or dead Reckoning, and the Compaſs.

The Poets refer the Invention of the Art of *Navigation* to *Neptune*, ſome to *Bacchus*, others to *Hercules*, others to *Jaſon*, others to *Janus*, who is ſaid to have made the firſt Ship. See SHIP. Hiſtorians to the *Æginetes*, the *Phœnicians*, *Tyrians*, and the antient Inhabitants of *Britain*.

Some will have it, the firſt hint was taken from the flight of the Kite; others, as *Oppian de Piſcibus*, Lib. I. from the Fiſh call'd *Nautelus*. Others aſcribe it to Accident: But Scripture refers the Origin of ſo uſeful an Invention to God himſelf, who gave the firſt Specimen thereof in the Ark built by *Noah* under his Direction. For the Raillery the good Man underwent on account of his Enterprize, ſhews evidently enough, the World was then ignorant of any thing like *Navigation*, and that they even thought it impoſſible.

However, Hiſtory repreſents the *Phœnicians*, eſpecially thoſe of their Capital *Tyre*, as the firſt *Navigators*; being urged to ſeek a foreign Commerce by the Narrowneſs and Poverty of the Slip of Ground they poſſeſs'd along the Coaſts; by the Conveniency of two or three good Ports; and by their natural Genius to Traffic.

Accordingly, *Lebanon*, and the other neighbouring Mountains furniſhing them with excellent Wood for Ship-building, in a ſhort time they were Maſters of a numerous Fleet, which conſtantly hazarding new *Navigations*, and ſettling new Trades, they ſoon arrived at an incredible Pitch of Opulency and Populouſneſs: inſomuch as to be in a Condition to ſend out Colonies; the Principal of which was that of *Carthage*, which keeping up their *Phœnician* Spirit of Commerce, in time not only equal'd *Tyre* itſelf, but vaſtly ſurpaſs'd it; ſending their Merchant-Fleets thro' *Hercules*'s *Pillars*, now the Straights of *Gibralter*, along the Weſtern Coaſts of *Africa* and *Europe*; and even, if we believe ſome Authors, to *America* itſelf, the Diſcovery whereof ſo many Ages afterwards, has been ſo glorious to the *Spaniards*. See COMMERCE.

Tyre, whoſe immenſe Riches and Power are repreſented in ſuch lofty Terms both in ſacred and profane Authors, being deſtroy'd by *Alexander the Great*; its *Navigation* and Commerce were transfer'd by the Conqueror to *Alexandria*, a new City, admirably ſituated for thoſe purpoſes, propos'd for the Capital of the Empire of *Aſia*, which *Alexander* then meditated: And thus aroſe the *Navigation* of the *Egyptians*, which was afterwards ſo cultivated by the *Ptolemys*, that *Tyre* and *Carthage* (which laſt, after having a long time diſputed Empire with the *Romans*, was at length ſubdued) were quite forgot.

Egypt being reduced into a *Roman* Province after the Battel of *Actium*, its Trade and *Navigation* fell into the hands of *Auguſtus*; in whoſe time *Alexandria* was only inferior to *Rome*, and the Magazines of the Capital of the World wholly ſupplied with Merchandiſes from the Capital of *Egypt*.

At length, *Alexandria* itſelf underwent the Fate of *Tyre* and *Carthage*; being ſurpriz'd by the *Saracens*, who, in ſpite of the Emperor *Heraclius*, overſpread the Northern Coaſts of *Africa*, &c. whence the Merchants being driven, *Alexandria* has ever ſince been in a languiſhing State, tho ſtill it have a conſiderable Part of the Commerce of the Chriſtian Merchants, trading to the *Levant*.

The Fall of *Rome*, and its Empire, drew along with it, not only that of Learning, and the polite Arts, but that of *Navigation*; the *Barbarians*, into whoſe hands it fell, contenting themſelves with the Spoils of the Induſtry of their Predeceſſors.

But no ſooner were the more Brave among thoſe Nations well ſettled in their new Provinces, ſome in *Gaul*, as the *Franks*; others in *Spain*, as the *Goths*; and others in *Italy*, as the *Lombards*; but they began to learn the Advantages of *Navigation* and Commerce, and the Method of managing them, from the People they had ſubdued; and this with ſo much ſucceſs, that in a little time ſome of them became able to give new Leſſons, and ſet on foot new Inſtitutions for its Advantage.

Thus it is to the *Lombards* we uſually aſcribe the Invention and Uſe of *Banks*, *Book-keeping*, *Exchange*, and *Rechange*, &c. See BANK, EXCHANGE, *&c.*

It does not appear which of the *European* People, after the Settlement of their new Maſters, firſt took themſelves to *Navigation* and Commerce; ſome think it began with the *French*, tho the *Italians* ſeem to have the juſteſt Title to it; and are accordingly ordinarily look'd on as the Reſtorers hereof, as well as of the politer Arts, which had been baniſhed together, from the time the Empire was torn aſunder.

'Tis the People of *Italy* then, eſpecially, and particularly thoſe of *Venice* and *Genoa*, who have the Glory of this Reſtoration; and it is to their advantageous Situation for *Navigation*, they in great meaſure owe their Glory.

In the bottom of the *Adriatic* were a great number of marſhy Iſlands, only ſeparated by narrow Channels, but thoſe well ſcreen'd, and almoſt inacceſſible, the Reſidence of ſome Fiſhermen, who here ſupported themſelves by a little Trade of Fiſh and Salt, which they found in ſome of theſe Iſlands. Thither, then, the *Veneti*, a People Inhabiting that part of *Italy* along the Coaſts of the Gulph, retir'd, when *Alaric* King of the *Goths*, and afterwards *Attila* King of the *Huns*, ravaged *Italy*.

Theſe new Iſlanders, little meaning that this was to be their fixed Reſidence, did not think of compoſing any Body Politic; but each of the ſeventy two Iſlands of this little *Archipelago*, continued a long time under its ſeveral Maſters, and each made a diſtinct Common-wealth: When their Commerce was become conſiderable enough to give Jealouſy to their Neighbours, they began to think of Uniting into a Body. And it was this Union, firſt begun in the ſixth Century, but not compleated till the Eighth, that laid the ſure Foundation of the future Grandeur of the State of *Venice*.

From the time of this Union, their Fleets of Merchant-Men were ſent to all the Parts of the *Mediterranean*, and at laſt to thoſe of *Egypt*, particularly *Cairo*; a new City, built by the *Saracen* Princes on the Eaſtern Banks of the *Nile*; where they traded for their Spices, and other Products of the *Indies*.

Thus they flouriſh'd, increas'd their Commerce, their *Navigation*, and their Conqueſts on the *Terra firma*, till the famous League of *Cambray* in 1508, when a number of jealous Princes conſpir'd to their Ruin; which was the more eaſily effected by the Diminution of their *Eaſt-India* Commerce, which the *Portugueſe* had got a part of, and the *French* another.

Genoa, which had apply'd itſelf to *Navigation* at the ſame time with *Venice*, and that with equal ſucceſs, was a long time a dangerous Rival, diſputed with it the Empire of the Sea, and ſhared with it the Trade to *Egypt*, and other Parts both of the Eaſt and Weſt.

Jealouſy ſoon began to break out, and the two Republics coming to blows, 'twas three Centuries almoſt continued War, e'er the Superiority was aſcertain'd; when towards the end of the fourteenth Century, the fatal Battel of *Chioza* ended the noble Strife: The *Genoeſe*, who till then had uſually the Advantage, having now loſt all; and the *Venetians* almoſt become deſperate, at one happy Blow, beyond all Expectation, ſecur'd to themſelves the Empire of the Sea, and Superiority in Commerce.

About the ſame time that *Navigation* was retriev'd in the Southern Parts of *Europe*, a new Society of Merchants was form'd in the North, which not only carried Commerce to the greateſt Perfection it was capable of till the Diſcovery of the one and other *India*, but alſo form'd a new Scheme of Laws for the Regulation thereof, which ſtill obtain under the Name of *Uſe and Cuſtom of the Sea*.

This Society is that famous Aſſociation of the *Hans* Towns, commonly ſuppoſed to have begun about the Year 1164. See HANS TOWNS.

The modern State of *Navigation* in *England*, *Holland*, *France*, *Spain*, *Portugal*, &c. is too popular to need a particular Detail. See COMMERCE and COMPANY.

We ſhall only add, that in examining the Reaſons of Commerce's paſſing ſucceſſively from the *Venetians*, *Genoeſe*, and *Hans-Towns*, to the *Portugueſe* and *Spaniards*; and from thoſe again to the *Engliſh* and *Dutch*; it may be eſtabliſhed as a Maxim, That the Relation of Commerce and *Navigation*, or, if we may be allow'd to ſay it, their Union, is ſo intimate, that the Fall of the one, inevitably draws after it the other; and that they will always either flouriſh or dwindle together.

Hence ſo many Laws, Ordinances, Statutes, &c. for its Regulation; and hence particularly that celebrated *Act of Navigation*, which an eminent Author calls the *Palladium*, or tutelary Deity of the Commerce of *England*; which is too important not to be here mentioned; as it is the ſtanding Rule, not only of the *Engliſh* among themſelves, but alſo of other Nations with whom they traffic.

Act of Engliſh NAVIGATION, is a Statute whereby the Parliament of *England* have ſettled every thing relating to *Navigation* and Commerce.

Till this Act, all Nations were at liberty to import all kinds of Merchandizes, whether of their own Growth, or loaden elſewhere, and that on their own Veſſels.

Cromwell firſt perceiving the Prejudice this Liberty did to the *Engliſh* Commerce, which was now almoſt wholly in the hands of Foreigners, chiefly the *Dutch*, whom he hated; animated the *Engliſh*, by ſeveral Acts of his Parliaments, to reſume their Trade into their own hands; and particularly paſſed an Act prohibiting the *Dutch* from importing any Merchandizes, except thoſe of their own Growth or Manufacture, which were very few.

Upon the Reſtoration, the firſt Parliament *Charles* II. call'd, diſtinguiſhing, in *Cromwell*, the Politician from the Parricide, condemn'd the Memory of the one, and follow'd the Plan of the other with regard to *Navigation* and Commerce; by paſſing that celebrated *Bill or Act of Navigation*, which ſtill ſubſiſts in its full Latitude, and its antient Vigour. Its Date is the 23d of *September* 1660. Its chief Articles follow.

1. That no Merchandizes ſhall be imported or exported to or from any of the *Engliſh* Colonies in *Aſia*, *Africa*, or *America*, but on Veſſels built within the Dominions of *England*, or really belonging to *Engliſhmen*, and whoſe Maſters, and at leaſt three fourths of the Crew are of that Nation, on pain of Forfeiture of the Goods and Veſſel.

2. That no Perſon born out of the Subjection of *England*, or not naturaliz'd, ſhall exerciſe any Commerce in thoſe Colonies for himſelf, or others.

3. That no Merchandizes of the Growth of *Aſia* or *America*, ſhall be imported into any of the Dominions of *England* on any other than *Engliſh* Veſſels.

4. That none of the Commodities of *Europe* ſhall be imported into *England* by any other Veſſels than thoſe of the Parts, Countries, and States where the Commodities grow, or are manufactured.

5. That all Kinds of Fiſh, and Train-Oils not fiſh'd by *Engliſh* Veſſels, imported into *England*, ſhall pay double Duties.

6. That the Commerce from Port to Port in *England* and *Ireland* ſhall be carried on wholly by *Engliſh* Veſſels and Merchants.

7. That none but *Engliſh* Veſſels ſhall reap the Benefit of the Diminutions made, or to be made in the Cuſtoms.

8. All foreign Veſſels are prohibited importing into *England* and *Ireland* any of the Commodities of *Muſcovy*, or even any Maſts, or other Woods, foreign Salt, Pitch, Roſin, Hemp, Raiſins, Prunes, Oils of Olive, any kind of Corn, or Grain, Sugars, Aſhes and Soap, Wine, Vinegar, Brandy, Currants, and other Commodities the Product of the *Turkiſh* States, except Veſſels built in the Places where the Commodities grow or are manufactured, or where 'tis uſual to take them up; and unleſs the Maſter and three fourths of the Crew be Natives of the Country where they are loaden.

9. That to prevent all falſe Declarations to favour the Entry of foreign Goods, all thoſe mention'd in the laſt Article ſhall be deem'd to belong to Strangers that are not brought in Veſſels of the Quality mention'd in the firſt Article; and as ſuch ſhall pay the Duties uſed to be paid by other Commodities.

10. That to prevent Frauds in buying and diſguiſing foreign Veſſels, the Proprietors ſhall take an Oath that they really belong to them, and that no Foreigner has any part in them.

11. That *Engliſh* Veſſels, or reputed *Engliſh*, may import into the Dominions of *England*, any Merchandizes of the *Levant*, tho not taken up in the Places where they grow, or are manufactured. Provided it be in ſome Part of the *Mediterranean* beyond the Straights of *Gibralter*. And the ſame is underſtood of Commodities brought from the *Eaſt-Indies*; provided they be taken up in ſome Port beyond the Cape of *Good-Hope*: And thoſe from the *Canaries*, and other Colonies of *Spain*; and the *Azores*, and other Colonies of *Portugal*, which are allow'd to be ſhip'd, the one in *Spaniſh* Ports, the other in *Portugueſe*.

12. Theſe Penalties, Prohibitions, and Confiſcations not to extend to Goods taken from the Enemies of *England*, nor to Fiſh caught by the *Scots*, or their Corn, and Salt, which may be imported into *England* by the *Scotch* Veſſels.

5. Five Shillings *per* Ton Duty is impoſed on every *French* Veſſel arriving in any Port of *England*, ſo long (and even three Months longer) as 50 Sols *per* Ton lies on the *Engliſh* Veſſels in *France*.

Laſtly, That Sugars, Tobacco, and other Commodities of the Growth of the *Engliſh* Colonies, ſhall not be imported into any other Part of *Europe*, but the Dominions of *England*. And that Veſſels going out of the Ports of the ſame Crown for the *Engliſh* Colonies, ſhall give 1000 *l.* Security, if under one hundred Tons, and 2000 *l.* if above, e'er they depart, that they will import their Cargo into ſome Port in the ſaid Dominions; and the like, e'er they quit thoſe Colonies, that they will land their whole Cargo in *England*.

NAVIS, *Argo Navis*, or the Ship *Argo* in Aſtronomy, a Conſtellation of the Southern Hemiſphere. See ARGO.

NAUMACHIA, NAUMACHY, a Spectacle, or Shew, among the antient *Romans*, repreſenting a Sea-Fight.

The Word is alſo uſed for a *Circus* incompaſſed with Seats and Porticos; the Pit whereof, ſerving as an *Arena*, was fill'd with Water for the exhibiting of Sea-Fights. See CIRCUS.

There were ſeveral of theſe *Naumachias* at *Rome*; three built by *Auguſtus*, one by *Claudius*, and another by *Domitian*. *Nero's Naumachia* ſerv'd for the Reverſe of his Medals.

The Word comes from the *Greek* ναῦς, *Veſſel*, and μαχη, *pugna*, fight.

NAUSEA, in Medicine, a Retching, or Propenſity and Endeavour to Vomit; ariſing from a Loathing of Food, excited by ſome viſcous Humour that irritates the Stomach, and urges it thus to diſcharge itſelf; or a *Nauſea* is when the thoughts or ſight of proper Food create a Sickneſs in the Stomach, or a Tendency to Vomit.

The uſual Cauſes of a *Nauſea*, and *Anorexia*, are hard Drinking, great Heat, a Fever, Conſumptions, Laxneſs of the Stomach occaſion'd by Tea, &c. Narcotics, as Tobacco, Paſſions of the Mind, Suppreſſion of Evacuations inducing a Plethora, foul Stomach, tenacious Humours lodg'd therein, &c.

Boerhaave defines a *Nauſea* Anatomically, to be a retrograde Spaſmodic Motion of the Muſculous Fibres of the *Oeſophagus*, Stomach, and Inteſtines; attended with Convulſions of the Abdominal Muſcles, and the *Septum tranſverſum*. See VOMITING.

Nauſea and Vomiting only differ from one another, as more or leſs Violent. The *Nauſea* is properly the Effort the Stomach makes to Vomit, which has not always the Effect.

The Word is *Latin*, form'd from the *Greek* ναυσία, of ναῦς, *Navis*, Ship: In regard, People, at the beginning of their Voyages, are uſually inclined to Vomiting.

NAUTICAL *Planiſphere*, a Deſcription of the Terreſtrial Globe upon a Plane, for the uſe of Mariners. See PLANISPHERE and *Sea*-CHART.

NAUTICAL *Chart*, ſee *Sea*-CHART.

NAUTICAL *Compaſs*, the Sea-Compaſs, ſee COMPASS.

NAUTICUS, in Anatomy, a Muſcle; call'd alſo *Tibialis Poſticus*. See TIBIALIS.

NAUTILUS, in Natural Hiſtory, a petrified Shell, found in the Earth; in other reſpects like thoſe found in the Sea, or in Rivers. See FOSSIL, PETREFACTION, SHELL, and STONE.

NAVY, the Fleet, or Shipping, of a Prince, or State. See FLEET.

The Direction of the *Navy Royal* of *England* is in the Lord High-Admiral, and under him in the Principal Officers and Commiſſioners, who all hold their Places by Patent. See ADMIRAL.

Principal Officers of the Navy are four, *viz.* The *Treaſurer*, whoſe Buſineſs is to receive Moneys out of the Exchequer, and to pay all the Charges of the *Navy*, by Warrant from the Principal Officers. The *Comptroller*, who attends, and comptrolls all Payment of Wages, is to know the Rates of Stores, to Examine and Audit all Accounts, &c. The *Surveyor*, who is to know the State of all Stores, and ſee Wants ſupply'd, to eſtimate Repairs, charge Boatſwains, &c. with what Stores they receive; and at the End of each Voyage, to State and Audit Accounts. And laſtly, *The Clerk of the Acts*, whoſe Buſineſs is to Record all Orders, Contracts, Bills, Warrants, &c.

Commiſſioners of the Navy, are five. The firſt Executes that Part of the Comptroller's Duty which relates to the Victuallers Accounts. The ſecond, another Part of the ſaid Comptroller's Duty relating to the Accounts of the Store-Keepers of the Yards. The third has the Direction of the

Navy at the Port of *Portſmouth*. The fourth has the ſame at *Chatham*. And the fifth at *Plymouth*.

The *Navy* was antiently Victualled by Contract; but the Victualling is now under Commiſſioners, who keep their Office on *Tower-Hill*. See VICTUALLING-*Office*.

The ordinary Expence of the *Navy* in a Year of Peace, continuing in Harbour, is ſo well regulated, that it amounts to ſcarce 130000 *l. per Annum*.

The number of Ships and Veſſels in the *Navy*, as it ſtood in the Year 1710, are 7 Firſt-Rates, 13 Second-Rates, 48 Third-Rates, 65 Fourth-Rates, 68 Fifth-Rates, 40 Sixth-Rates, 5 Fire-Ships, 7 Bomb-Veſſels, 18 Yatchts, 1 Advice-Boat, 2 Brigantines, 7 Sloops, 4 Store-Ships, 13 Hulks, 26 Hoys, 2 Smacks. See RATE.

NAZAREATE, the State and Condition of a *Nazarite*, or *Nazarean* among the *Jews*. See NAZARITE.

The *Nazareate* was a Separation from the reſt of Mankind; particularly in three things; 1. In that the Perſons devoted hereto drank no Wine. 2. In that they did not ſhave their Hair. 3. In avoiding the Touch of dead People, which they held a Defilement.

The *Nazareate* was of two Kinds, the one Temporary, the other for Life. The Rabbins enquire what the Term of the Temporary *Nazareate* was, and determine it by the *Cabbala*; for ſince, in Scripture, *Numbers* vi. 5. where 'tis ſaid, *Domino ſanatus erit*, the *Hebrew* Verb, יהיה *erit*, conſiſts of four Letters; the firſt and third whereof taken as numeral Letters, do each make 10, and the reſt each 5, all together 30; the Term of the *Nazareate*, ſay they, was 30 Days. See CABBALA.

NAZARITE, or NAZARENE, in the Old Teſtament, is uſed for a Perſon diſtinguiſhed and ſeparated from the reſt, by ſomething extraordinary, either his Sanctity, Dignity, or ſome Vow.

In the Book of *Numbers*, ch. vi. we find the Vow of a *Nazarite* deſcribed; *i. e.* the Vow whereby a Man or Woman *ſeparate* themſelves to the Lord; and the Conditions, or Effects thereof as to Abſtinence, *&c.* See NAZAREATE.

The Word comes from the *Hebrew* נזר *Nazar*, to diſtinguiſh, ſeparate; in which it differs from *Nazarean*, an Inhabitant of the Country call'd *Nazareth*, which comes from נזר *Natzar*, or *Netzer*, to *ſave*, *preſerve*.

NAZARITES, or NAZARENES, were likewiſe a Kind of Sectaries in the Church, in the firſt Ages thereof.

S. *Epiphanius* tells us the *Nazareans* were the ſame with the *Jews* in every thing relating to the Doctrine and Ceremonies of the Old Teſtament; and only differ'd from them in this, that they added Chriſtianity thereto, profeſſing to believe that Jeſus Chriſt was the Meſſiah.

There were two Kinds of *Nazarites*, the one *Pure*, who kept the Law of *Moſes* and Chriſtianity together; the other, real *Ebionites*. See EBIONITES.

Eccleſiaſtical Writers tell us, that St. *Matthew* preached the Goſpel to the *Jews* at *Jeruſalem*, and the reſt of *Paleſtine*, in their own Language; and that accordingly they had his Goſpel written in the *Hebrew* of that Time. And S. *Epiphanius* adds, that this Goſpel was preſerved entire among the *Nazareans*; only he doubts whether they might not have retrench'd the Genealogy of Jeſus Chriſt, which was not in the Copy of the *Ebionites*. S. *Jerome*, who tranſlated it out of *Hebrew* into *Greek* and *Latin*, ſays, A great many People took the *Hebrew* Goſpel uſed by the *Nazareans* and *Ebionites*, to be the Original of S. *Matthew*.

Hence *Baronius* in his *Annals* ſays, if the Vulgate *Latin* Verſion were to be reform'd, it ſhould rather be done by the *Hebrew* Original, than by the *Greek*; which is but a Copy.

Caſaubon treats this Opinion of *Baronius* as impious, as not being able to conceive how the Authority of the *Greek* Verſion ſhould depend on a Text quite loſt. He adds, That it was never uſed by any but the *Nazareans*, *Ebionites*, and ſome other Heretics; and that it was full of Fables, as having been alter'd and corrupted by thoſe Heretics.

NEALING, or rather ANNEALING, a Term uſed for the Preparing of ſeveral Matters by heating or baking them in an Oven, or the like.

NEALING *of Glaſs*, is the baking of Glaſs to dry, harden, and give it the due Conſiſtence, after it has been blown, and faſhion'd into the proper Works. See GLASS.

This is uſually perform'd in a kind of Tower, call'd the *Leer*, built over the Melting-Furnace. See FURNACE.

NEALING *of Glaſs* is alſo uſed for the Art of Staining Glaſs with Metal Colours. See PAINTING *on Glaſs*.

NEALING *of Steel*, is the heating it in the Fire to a blood-red Heat; and then taking it out, and letting it cool gently of itſelf. See STEEL.

This is done to make it ſofter, in order to Engrave or Punch upon it. See TEMPERING.

NEAP-TIDES, the Tides in the 2d and 4th Quarters of the Moon; which are low Tides, in reſpect of the Spring-Tides. See TIDES.

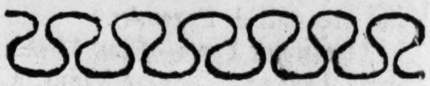
NEAT-WEIGHT, the Weight of a Commodity without the Caſk, Bag, or Caſe. See WEIGHT.

NEBULOUS, *Cloudy*, in Aſtronomy, a Term apply'd to certain of the fix'd Stars, which ſhew a dull, hazy Light, and are leſs than thoſe of the ſixth Magnitude, and ſo ſcarce viſible to the naked Eye, to which, at beſt, they only appear like little duſky Specks or Clouds.

Through a moderate Teleſcope, theſe *Nebulous* Stars plainly appear to be Congeries or Cluſters of ſeveral little Stars. See STAR.

In the *Nebulous* Star call'd *Præſepe*, in the Breaſt of *Cancer*, there are reckon'd 36 little Stars; three of which, Mr. *Flamſtead* gives us in his Catalogue. See CANCER.

In the *Nebulous* Star of *Orion* are reckon'd 21. F. *le Compte* adds, that in the *Pleiades* are 40; 12 in the Star in the middle of *Orion's* Sword; in the extent of two Degrees of the ſame Conſtellation, 500; and 2500 in the whole Conſtellation. See ORION.



NEBULY, NEBULE, or NEBULOUS, in Heraldry, a Term uſed when a Coat is charged with ſeveral little Figures, in form of Clouds, running within one another; or when the Out-line of a Bordure, Ordinary, *&c.* is indented or waved, after the manner in the adjoining Figure.

NECESSARY, in a Philoſophical Senſe, that which cannot but be, or cannot be otherwiſe. See NECESSITY.

The Schoolmen make a great many Kinds, or Diviſions hereof: As,

NECESSARY *in Cauſing*: when there is a Cauſe from which an Effect muſt *neceſſarily* follow. NECESSARY *in Predicating*. And, NECESSARY *in Being*.

There is alſo a *Logical* NECESSARY: *Phyſical* NECESSARY: *Metaphyſical*, and *Moral* NECESSARIES.

NECESSITY, what is done by a *neceſſary* Cauſe, or by an irreſiſtible Power; in oppoſition to Liberty. See LIBERTY and POWER.

Neceſſity is uſually confounded with Conſtraint; yet, in God, the *Neceſſity* of being Good is not any Conſtraint, but a Perfection. In effect, *Neceſſity*, according to *Rochefaucault*, differs from Conſtraint in this, that the former is join'd with the Pleaſure and Inclination of the Will, to which Conſtraint is contrary.

Simplicius, from *Plato* and *Epictetus*, diſtinguiſhes two Kinds of *Neceſſity*; the one *Violent* or *Coactive*, which is oppoſite to Liberty; the other *Spontaneous* or *Voluntary*, very conſiſtent with it; for this, adds he, it is that *neceſſitates* all things to act according to their Nature, as being connatural to them; ſince αὐτοκίνητον, a thing that moves itſelf, muſt of *Neceſſity* be moved according to its own Nature, *i. e.* the Will: That is, ſince it is τὸ αὐτοκίνητον, a Self-mover, it muſt neceſſarily move according to its own Nature, *i. e.* ſpontaneouſly.

This Diſtinction is admitted by many of the Divines, particularly S. *Auguſtine*, who urges it againſt the *Pelagians*, as is ſhewn by *Janſenius*.

The Schools diſtinguiſh a *Phyſical Neceſſity*, and a *Moral Neceſſity*; a Simple, *Abſolute Neceſſity*, and a *Relative* one.

A Phyſical NECESSITY is the want of a Principle, or of the natural Means neceſſary to act, which is otherwiſe call'd a *Phyſical* or *Natural Impotence*. See IMPOTENCE.

A Moral NECESSITY, or Impotence, is only a great Difficulty, ſuch as that ariſing from a long Habitude, a ſtrong Inclination, or violent Paſſion.

A Simple, or *Abſolute* NECESSITY, is that which has no dependance on any State, or Conjuncture, or any particular Situation of things, but is found every where, and in all the Circumſtances in which the Agent can be ſuppoſed.

Such is in a blind Man the *Neceſſity* he is under of not diſtinguiſhing Colours.

Relative NECESSITY, is that which places him in a real Incapacity of acting, or not acting in thoſe Circumſtances, and that Situation he is found in; tho in other Circumſtances, and another State of things, he might act, or not act.

Such, in the Opinion of the *Janſeniſts*, is the *Neceſſity* of doing Evil in a Man, who, with a violent Paſſion, has only a feeble Grace to reſiſt it; or the *Neceſſity* of doing well in a Man, who having Grace of ſeven or eight Degrees of Strength, has only Concupiſcence of two or three Degrees to withſtand.

All theſe Kinds of *Neceſſity* are oppoſite to *Liberty*; ſince even in the laſt, 'tis as impoſſible for the Man to act, or not act, as if he were in a State of *Abſolute*, *Simple*, and *Phyſical Neceſſity*.

The Schoolmen admit other Species of *Neceſſity*; *Antecedent*, *Concomitant*, *Conſequent*, *&c.*

Antecedent NECESSITY, is that ariſing from an antecedent

Cauſe, neceſſarily operating. Such is the *Neceſſity* of the Sun's Riſing to-morrow Morning.

Concomitant Necessity ariſes from an antecedent and neceſſary Cauſe, but depends on the Circumſtances of the Effect; the Effect all the while being free. Thus 'tis neceſſary *Peter* ſhould ſit, ſuppoſing he is ſitting.

NECK, a Part in the human Body, and in that of ſeveral other Animals, between the Head and the Trunk of the Body. See Body.

All Animals have *Necks* except thoſe without Lungs and Voice, as Fiſhes and Frogs.

The upper Part before is call'd the *Throat*; and the lower Part the *Pomum Adami*. The Hole between the two *Clavicles* is call'd the *Jugulum*, by the *Greeks* σφαγὴ, Murther; it being very eaſy to kill in this Part. The hind Part of the *Neck* is call'd *Cervix*; and the Hole between the firſt and ſecond *Vertebra*, the *Nape*; that underneath, *Epomis*.

Its lateral Parts commence from the bottom of the Ears, and are call'd *Parotides*.

The inner Parts of the *Neck* are ſeven *Vertebræ*, the *Trachea*, *Larynx*, *Jugular* Veins, Carotid Arteries, the Intercoſtal Nerve, that of the eighth Pair, with the Recurrent, and ſeveral Muſcles. See each Part under its proper Article.

The Necks *of Quadrupeds*, Mr. *Derham* obſerves, are always equal to the Length of their Legs; to enable them to reach the Ground for their Food, without ſtooping the Body. See Quadruped and Leg.

Indeed, the Elephant is an Exception from the Rule; its *Neck* is very ſhort; but then it has a peculiar Proviſion by a Proboſcis, or Trunk. See Proboscis.

Another thing remarkable in the *Necks* of Graminivorous Quadrupeds, is a ſtrong, tendinous and inſenſible *Aponeuroſis*, or Ligament, braced from the Head to the middle of the Back; by means whereof they are enabled conſtantly to hold down the Head, tho very heavy, to gather their Food without Pain or Labour.

NECROLOGY, a Book, antiently kept in Churches and Monaſteries; wherein were regiſter'd the Benefactors to the ſame, the Time of their Deaths, and the Days of their Commemoration; as alſo the Deaths of the Priors, Abbots, Religious Canons, &c.

This was otherwiſe call'd *Calendar*, and *Obitory*. See Calendar, &c.

The Word comes from the *Greek* νεκρὸς, *Mors*, Death, and λόγος.

NECROMANCY, the Art, or Act of communicating with Devils, and doing ſurpriſing Feats by their Aſſiſtance; particularly calling up the Dead: From νεχρος, *Death*, and μαντεια, *Enchantment*. See Magic, Sorcery, &c.

NECROSIS, in Medicine, a compleat Mortification of any part; call'd alſo Sideratio and Sphacelus. See Sphacelus, &c.

The Word is *Greek*, νέκρωσις, where it has the ſame Signification.

NECTAR, among the antient Poets, the Drink of the fabulous Deities of Antiquity.

NEEDLE, a very familiar little Inſtrument, or Utenſil, made of Steel, pointed at one end, and pierced at the other; uſed in Sewing, Embroidery, Tapiſtry-Work, &c.

Needles make a very conſiderable Article in Commerce; and the Conſumption thereof is almoſt incredible. The Sizes are from Nº 1, the largeſt; to Nº 25, the ſmalleſt.

There is ſcarce any Commodity cheaper than *Needles*; which will appear ſomething extraordinary to the Reader, after he has been ſhewn the infinite Number of Operations they undergo e'er brought to Perfection.

Manufacture of Needles.

German and *Hungary* Steel is of moſt repute for *Needles*. The firſt thing, is to paſs it thro' a Coal-fire, and under a Hammer, to bring it out of its ſquare Figure into a Cylindrical one. This done, 'tis drawn thro' a large Hole of a Wire-drawing Iron; return'd into the Fire, and drawn thro' a ſecond Hole of the Iron, ſmaller than the firſt; and thus ſucceſſively from Hole to Hole, till it have acquir'd the degree of Fineneſs requir'd for that Species of *Needles*; obſerving every time it is to be drawn, that it be greas'd over with Lard to render it the more manageable. See Wire-*Drawing*.

The Steel thus reduced into a fine Wire, is cut in Pieces of the length of the *Needles* intended. Theſe Pieces are flatted at one end on the Anvil, in order to form the Head and Eye. They are then put in the Fire, to ſoften 'em further, and thence taken out, and pierc'd at each extreme of the flat Part, on the Anvil, by force of a Punchion of well temper'd Steel, and laid on a leaden Block, to bring out, with another Punchion, the little Pieces of Steel remaining in the Heads.

The Corners are then filed off the Squares of the Heads, and a little Cavity filed on each ſide the flat of the Head. This done, the Point is form'd with a File; and the whole filed over. They are then laid to heat red-hot, on a long, flat, narrow Iron, crooked at one end, in a Charcoal-fire; and when taken out thence, are thrown into a Baſon of cold Water to harden. On this Operation, a good deal depends; too much heat burns 'em; and too little leaves 'em ſoft; the Medium is only to be learnt by Experience.

When harden'd, they are laid in an Iron-Peel, on a Fire more or leſs brisk, in proportion to the Thickneſs of the *Needles*, taking care to move 'em from time to time; this ſerves to temper 'em, and take off their Brittleneſs; Care, here, too, muſt be taken of the degree of Heat.

They are then ſtreightned one after another with the Hammer; the Coldneſs of the Water uſed in hardning 'em having twiſted the greateſt part of 'em.

The next Proceſs is the Poliſhing. To do this, they take twelve or fifteen Thouſand *Needles*, and range 'em in little Heaps againſt each other on a Piece of new Buckram, ſprinkled with Emery Duſt. The *Needles* thus diſpoſed, Emery Duſt is thrown over 'em, which is again ſprinkled over with Oil of Olives. At laſt, the whole is made up into a Roll, well bound at both ends.

This Roll is then laid on a Poliſhing Table, and over it a thick Plank loaden with Stones, which two Men work backwards and forwards a day and half, or two days ſucceſſively. By which means, the Roll thus continually agitated by the Weight and Motion of the Plank over it, the *Needles* within ſide being rubb'd againſt each other with the Oil and Emery, are inſenſibly poliſhed.

In *Germany*, inſtead of Hands, they poliſh with Water-Mills.

After Poliſhing, they are taken out, and the Filth waſh'd off 'em with hot Water and Soap: then wiped in hot Bran a little moiſten'd, placed, with the *Needles*, in a round Box ſuſpended in the Air by a Cord, which is kept ſtirring till the Bran and the *Needles* be dry. The *Needles* thus wiped in two or three different Brans, are taken out and put in wooden Veſſels to have the good ſeparated from thoſe whoſe Points or Eyes have been broke either in poliſhing or wiping; the Points are then all turn'd the ſame way, and ſmooth'd with an Emery-ſtone turn'd with a Wheel.

This Operation finiſhes 'em; and there remains nothing but to make 'em into Packets of two hundred and fifty each.

Chirurgeons Needles, are crooked, and their Points triangular. They are of different Sizes, and bear different Names according to the Purpoſes they are uſed for.

The largeſt are *Needles for Amputation*; the next, *Needles for Wounds*; the fineſt, *Needles for Sutures*. They have others very ſhort and flat, for Tendons; others, ſtill ſhorter, and the Eye placed in the middle, for the tying together of Veſſels, &c. See Suture, &c.

Magnetical Needle, in Navigation, &c. a *Needle* touch'd with a Load-ſtone, and ſuſpended on a Pivot or Centre, on which, playing at liberty, it directs itſelf to certain Points in, or under the Horizon. See Magnet.

Magnetical Needles are of two Kinds, *viz. Horizontal* and *Inclinatory*.

Horizontal Needles, are thoſe equally balanced on each ſide the Pivot which ſuſtains 'em; and which, playing Horizontally, with their two extremes point out the North and South Points of the Horizon. For their Application and Uſe, ſee Compass.

Conſtruction of an Horizontal Needle. A Piece of pure Steel is provided, of a length not exceeding ſix Inches, leſt its Weight impede its Volubility; very thin, to take its Verticity the better; not perforated with any Holes, &c. for Ornament ſake, which prevent the equable diffuſion of the Magnetic Virtue.

A Perforation is made in the middle of its Length, and a braſs Cap or Head ſolder'd on, whoſe inner Cavity is Conical, ſo as to play freely on a Stile or Pivot, headed with a fine Steel Point.

The North Point of the *Needle* in our Hemiſphere is made a little lighter than the Southern, the Touch always deſtroying the Balance, if well adjuſted before, and rendring the North End heavier than the South, and thus occaſioning the *Needle* to dip. See Dipping-*Needle*.

Now to give the *Needle* its Verticity, or directive Faculty, 'tis to be rubb'd leiſurely on each Pole of a Magnet, from the South Pole towards the North; firſt beginning with the Northern End, and going back at each repeated rub, towards the South. A Rub in a contrary Direction takes away the Power communicated by the former. See Pole and Touching.

If after Touching, the *Needle* be out of its *Equilibrium*, ſomething muſt be filed off from the heavier Side, till it balance evenly.

Needles in Sea-Compaſſes are uſually made in a Rhomboidal, or oblong Form. See their Structure under the Article Compass.

A *Needle*, on Occaſion, may be prepared without touching it on a Load-ſtone: For a fine Steel *Needle*, gently laid on the Water, or delicately ſuſpended in the Air, will direct itſelf to the North and South.

Thus, alſo, a *Needle* heated in the Fire, and cooled again, in the Direction of the Meridian, or even only in an erect Situation, acquires the ſame Faculty. See Magnetism, Pole, &c.

The *Needle* is not found to point preciſely to the North, except in very few Places; but deviates from it, more or leſs, in different Places, and that too at different Times; which Deviation is call'd the

Declination of the Needle, the Variation of the Horizontal *Needle* from the Meridian; or the Angle it makes with the Meridian, when freely ſuſpended in a Horizontal Plane. See Declination.

Inclinatory, or *Dipping-Needle*, see Dipping-*Needle*.

NEEP-*Tides*, see Neap-*Tide*.

A Ship is ſaid to be *Beneeped* when ſhe wants Water to bear her off the Ground.

NEFASTUS, a *Latin* Term. The *Romans* uſed the Term *Dies Nefaſti*, for thoſe Days wherein it was not allow'd to adminiſter Juſtice, or hold Courts; nor for the Pretor to pronounce the three ſolemn Words or *Formula*'s of the Law, *do, dico, addico*, I give, I appoint, I adjudge. See Fastus.

Theſe Days were diſtinguiſh'd in the Calendar by the Letter *N*, or by *N. P. Nefaſtus Primo*; as when the Day was only *Nefaſtus*, for the firſt Part thereof. See Day.

NEGATION, in Logic, an Act whereby the Mind ſeparates one Idea from another; or affirms the one is different from the other. As, the Soul is not the Body.

NEGATIVE, a Term that denies, or implies a Denial, of any thing.

Logicians, &c. ſay, A *Negative* cannot be proved but by converting it into an Affirmative.

Negative *Heretics*, in the Language of the Inquiſition, are thoſe, who being accuſed of Hereſy, by Witneſſes, whoſe Evidence they don't deny, ſtill keep on the *Negation*, make open Profeſſion of the Catholic Doctrine, and declare their abhorrence of Hereſy.

There are alſo *Negative Schiſms*, and *Poſitive* ones. In the *Negative*, 'tis ſufficient to reject the Errors of a Church without ſeparating from it, or ſetting up a diſtinct Society.

Negative *Pains*, the Laws whereby certain Perſons are excluded from Honours, Dignities, &c. without inflicting any direct and poſitive Pains.

Negative *Quantities*, in Algebra, thoſe affected with the Sign —. See Quantity.

Negative Quantities, are the Effects of poſitive ones; where Poſitive end, there *Negative* ones commence. See Positive.

Negative *Pregnant*, in Law, a *Negative* which implies or brings forth an Affirmative: As if a Man being impleaded to have done a thing on ſuch a Day, and in ſuch a Place, denies he did it, *Modo & forma declarata*; which implies nevertheleſs that he did it in ſome ſort.

NEGATIVELY, Negative, in the School-Philoſophy, is variouſly uſed in contradiſtinction to Poſitively. See Positively.

NEGRO'S, a Kind of Slaves, which make a conſiderable Article in the modern Commerce.

The *Negro's*, properly call'd *Blacks*, or *Moors*, are a People of *Africa*, whoſe Country extends on each ſide the River *Niger*, and is call'd *Nigritia*: Tho, whether the People communicated their Name to the River, &c. or received it therefrom, is not eaſily determined.

The Origin of *Negro's*, and the Cauſe of that remarkable Difference in Complexion from the reſt of Mankind, has much perplex'd the Naturaliſts; nor has any thing ſatisfactory been yet offer'd on that head. See Blacks.

They are brought from *Guinea*, and other Coaſts of *Africa*, and ſent into the Colonies in *America*, to cultivate Sugar, Tobacco, Indigo, &c.

This Commerce, which is ſcarce defenſible on the foot either of Religion, or Humanity, is now carried on by all the Nations that have Settlements in the *Weſt-Indies*; particularly the *Engliſh*, *Dutch*, *Spaniards*, and *Portugueſe*; the *Spaniards*, indeed, have few *Negro's* at firſt hand, but have always treated with other Nations, to furniſh them therewith: Thus they were formerly furniſhed by the Company of the *Grilles*, eſtabliſhed at *Genoa*; ſince by the *Aſſienta* in *France*; and ſince the Peace of *Utrecht*, by the *Engliſh South-Sea Company*. See Assienta and Company.

The beſt *Negro's* are brought from *Cape Verd*, *Angola*, *Senegal*, the Kingdom of *Joloffes*, that of *Galland*, *Damel*, the River *Gambia*, &c.

A *Negro* between 17 or 18 and 30 Years of Age, was antiently only valued at about 45 *s.* in the Commodities proper for that Country, which are Brandies, Iron, Linnen, Paper, Braſs-Pots, Baſons, &c. But their Value is now much enhanced, and it is ſeldom they meet with a good *Negro* for five Pounds. They frequently give ſeven or eight.

There are various ways of procuring them: Some, to avoid Famine, ſell themſelves, their Wives and Children, to their Princes, or great Men, who have wherewithall to ſubſiſt them. Others are made Priſoners in War; and great numbers ſeiz'd in Excurſions, made for that very purpoſe by the petty Princes upon one another's Territories; in which 'tis uſual to ſweep away all both Old and Young, Male and Female.

The *Negro's* make a frequent Practice of ſurprizing one another while the *European* Veſſels are at Anchor, and dragging thoſe they have thus caught to 'em, and ſelling them in ſpite of themſelves; and 'tis no extraordinary thing to ſee the Son ſell, after this manner, his Father or Mother, and the Father his own Children, for a few Bottles of Brandy, or a Bar of Iron.

As ſoon as the Ship has its Complement, it immediately makes off; the poor Wretches, while yet in ſight of their Country, falling into ſuch deep Grief and Deſpair in the Paſſage, that a great part of 'em languiſh, fall into Sickneſs, and die: others of 'em diſpatch themſelves, by refuſing any Food; others by ſtopping their Breath, in a manner peculiar to themſelves, by turning and folding their Tongue, which immediately ſtrangles them; others daſh out their Brains againſt the Ship; and others jump over board.

The only ſure means to preſerve 'em, is to have ſome Muſical Inſtrument play to 'em, be it ever ſo mean. But this exceſſive Love for their Country abates as they get further off.

At their arrival in the Colonies, each *Negro* is ſold for 38 or 40 Pounds. They make the chief Riches of the Inhabitants of the Iſlands, &c. A Man, *v. g.* who has twelve *Negroes*, is eſteem'd a rich Man.

NEIF, Naf, *Nativa*, in our antient Cuſtoms, a Bond-Woman, or She-Villain. See Nativus.

Antiently, Lords of Manors ſold, gave, or aſſigned their *Neifs* and Natives. See Slave, Villain, &c.

Writ of Neifty, is an antient Writ whereby the Lord claim'd ſuch a Woman for his *Neif*.

NE *injuſte Vexes*, a Writ which lies for a Tenant againſt the Lord forbidding him to diſtrain on the Tenant, who has formerly prejudiced himſelf by doing or paying more than he needed.

NEMÆAN *Games*, one of the four kinds of Games, or Combats, celebrated among the antient *Greeks*. See Games.

Some ſay, they were inſtituted by *Hercules*, on occaſion of his killing the *Nemæan* Lion; and that it was on that account they had their Name, as alſo the Place of Celebration, the Foreſt of *Nemæa*.

Others relate, That the ſeven Chiefs ſent to *Thebes*, under the Conduct of *Polynices*, being extremely pinch'd in their Journey with Thirſt, met with *Hypſipyle* of *Lemnos*, who had in her Arms *Opheltes* Son of *Lycurgus*, Prieſt of *Jupiter*, and *Eurydice*. They begging her to ſhew 'em ſome Water, ſhe laid the Child down on the Graſs, and conducted 'em to a Well. In her Abſence, a venomous Serpent kill'd the Child; upon which the Nurſe, out of an exceſs of Grief, grew deſperate. The Chiefs, at their return with her, kill'd the Serpent, buried the young *Opheltes*, and to divert *Hypſipyle*, inſtituted the *Nemæan Games*.

Pauſanias refers the Inſtitution thereof to *Adraſtus*, and the Reſtoration thereof to his Deſcendants.

Laſtly, *Hercules*, on his Victory over the *Nemæan* Lion, augmented the Games, and conſecrated them to *Jupiter Nemæus*. *Ælian* ſays, 'Twas indeed the ſeven Chiefs going to the Siege of *Thebes*, that inſtituted them; but adds, that 'twas in favour of *Pronactes*.

They were open'd with Sacrificing to *Nemæan Jove*, appointing him a Prieſt, and propoſing Rewards for ſuch as ſhould be Victors in the Games.

They were held every three Years, in the Month call'd *Panemos* by the *Corinthians*, and *Boedromion* by the *Athenians*.

The *Argians* were the Judges, and ſat clothed in black, to expreſs the Origin of the Games. As they were inſtituted by Warriors, none at firſt were admitted to 'em but Military Men, and the Games themſelves were only *Equeſtrian* and *Gymnic*; at length they were open to the People, and other Kinds introduced.

The Conquerors were crown'd with Olive, till the time of the War with the *Medes*; when, a Blow they receiv'd in that War, occaſion'd them to change the Olive for Smallage, a funeral Plant. Tho others maintain, that the Crown was originally Smallage, on account of the Death of *Opheltes*, otherwiſe call'd *Archemorus*; this Plant being ſuppoſed to have receiv'd the Blood which run from the Wound made by the Serpent.

NEMINE *Contradicente*, i. e. *None contradicting it*, a Term chiefly uſed in Parliament, when any Matter is carried with univerſal Conſent.

NENIA, or Nænia, in the antient Poetry, a kind of Verſes ſung at the Obſequies of the Dead. See Obsequies.

Authors repreſent them as ſorry Compoſitions, ſung by hired Women-Mourners. The firſt Riſe of theſe *Nenia* is aſcribed to the *Phrygians*.

The Word comes from the *Greek* νηνία, on which *Scaliger* obſerves that it ſhould be wrote in *Latin Nenia*, not *Nænia*.

Guichart notes *Nænia* to have antiently been the Name of a Song to lull Children a-ſleep, and conjectures it to come from the *Hebrew* נין *Nin*, Child.

In the Heathen Antiquity, the Goddeſs of Tears and Funerals was call'd *Nænia*, whom ſome ſuppoſe to have given that Name to the Funeral-Song; and others to have taken her Name from it. Some will have the one, and ſome the other, form'd from the Sound or Voice of thoſe that weep.

NEOMENIA, in the Schools, &c. a Term uſed for the *New Moon*. See Moon.

Some ſay, the *Jews* reckon'd two kinds of *Neomeniæ*, or New Moons; the firſt on the Day of her Conjunction with the Sun; the ſecond on that of her Apparition, or *Phaſis*; and add, that they celebrated two Paſſovers, by reaſon of the uncertainty which of theſe Days it ſhould be held on.

F. *Hardouin*, on the contrary, maintains, they had no other *Neomenia* but that of the Moon's Conjunction with the Sun; which it was eaſy to aſcertain by Aſtronomical Calculation: whereas the other was liable to Miſtakes; the Moon ſometimes not ſhewing herſelf till four or five days after her Conjunction. See Passover.

NEOPHYTES, Neophytæ, *i. e. New Plants*, in the Primitive Church, were new Chriſtians; or the Heathens newly converted to the Faith.

The Fathers never diſcover'd the Myſteries of their Religion to the *Neophytes*.

The Term is ſtill apply'd to the Converts which the Miſſionaries make among the Infidels. The *Japoneſe Neophytes* in the latter end of the 16th, and beginning of the 17th Century, are ſaid to have ſhewn Prodigies of Courage and Faith, equal to any in the Primitive Church.

The Word has formerly been likewiſe uſed for New Prieſts, or thoſe firſt admitted into Orders; and ſometimes for the Novices in Monaſteries.

Originally the Word ſignifies a *new Plant*, being form'd of the *Greek* νεος, new, and φύω, I produce, *q. d.* newly born; Baptiſm, whereby they commenced *Neophytes*, being a kind of new Birth.

NEPENTHE, in Pharmacy, a Name given to an Opiate, or *Laudanum*, by *Theo. Swingerus*, from the great Opinion he had of its giving Eaſe in all manner of Pain; the Word importing as much, from the Privative, νή, *non*, or *abſque*, without; and πενθος, *Luctus*, Sorrow.

The *Nepenthe* mention'd in antient Authors, was a Plant, now unknown. *Homer* ſays, it was a Plant of *Egypt*; and adds, that *Helena* made uſe of it to charm her Hoſts, and make 'em forget their Pains.

Some Authors ſay, it was the Plant we call *Helenium*, and others *Ænopia*. M. *Petit* has a Diſſertation on the antient *Nepenthe*,

NEPER's, Naiper's, or Napier's *Bones*, an Inſtrument, whereby Multiplication and Diviſion of large Numbers are much facilitated and expedited; ſo call'd from its Inventor *J. Neper*, Baron of *Merchiſton* in *Scotland*.

Conſtruction of Neper's *Bones.*

Five Rods, Plates, or *Lamellæ*, are provided of Wood, Metal, Horn, Paſtboard, or other Matter, (Tab. Algebra, *Fig.* 1.) of an oblong Form, and divided each into nine little Squares; each of which is reſolved into two Triangles by Diagonals.

In theſe little Squares are wrote the Numbers of Multiplication Table; in ſuch manner as that the Units, or right-hand Figures, are found in the right-hand Triangle; and the Tens or the left-hand Figures, in the left-hand Triangle: As in the Figure.

Uſe of Neper's *Bones in Multiplication.*

To multiply any given Number by another; diſpoſe the *Lamellæ* in ſuch manner, as that the top Figures may exhibit the Multiplicand; and to theſe, on the left-hand, join the *Lamellæ* of Units; in which ſeek the right-hand Figure of the Multiplicator; and the Numbers correſponding thereto, in the Squares of the other *Lamellæ*, write out, by adding the ſeveral Numbers occurring in the ſame Rhomb together, and their Sums. After the ſame manner write out the Numbers correſponding to the other Figures of the Multiplicator; let them be diſpoſed under one another as in the common Multiplication; and laſtly, add the ſeveral Numbers into one Sum.

For Example. Suppoſe the Multiplicand 5978, and the Multiplicator 937. From the outermoſt Triangle on the right-hand (Tab. Algebra, *Fig.* 2.) which correſponds to the right-hand Figure of the Multiplicator 7, write out the Figure 6, placing it under the Line. In the next Rhomb, towards the left, add 9 and 5; their Sum being 14, write the right-hand Figure, *viz.* 4, againſt 6; carrying the left-hand Figure, 1, to 4 and 3, which are found in the next Rhomb. The Sum 8, join to the 46, already put down: after the ſame manner, in the laſt Rhomb, add 6 and 5, the latter Figure of the Sum 11, put down as before, and carry 1 to the 3 found in the left-hand Triangle; the Sum 4 join as before on the left of 1846: Thus will you have the *Factum* of 7 into 5978; and after the ſame manner will you have the *Factum* of the Multiplicand, into the other Figures of the Multiplicator: The whole added together gives the whole Product.

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   5978
    937
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  41846
 17934
53802
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5602186
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Uſe of Neper's *Bones in Diviſion.*

Diſpoſe the *Lamellæ* ſo, as that the uppermoſt Figures may exhibit the Diviſor; to theſe, on the left-hand, join the *Lamellæ* of Units. Deſcend under the Diviſor, till you meet thoſe Figures of the Dividend, wherein 'tis firſt requir'd, how oft the Diviſor is found, or at leaſt the next leſs Number, which is to be ſubſtracted from the Dividend; the Number correſponding to this, in the Place of Units, write down for a Quotient. By determining the other parts of the Quotient after the ſame manner, the Diviſion will be compleated.

For Example. Suppoſe the Dividend 5601386, and the Diviſor 5978; ſince it is firſt asked how often 5978 is found in 56013, deſcend under the Diviſor, (Tab. Arith. *Fig.* .) till in the loweſt Series you find the Number 53802, approaching neareſt to 56013; the former whereof is to be ſubſtracted out of the latter, and the Figure 9 correſponding thereto in the *Lamellæ* of Units write down for the Quotient. To the Remainder 2211, join the following Figure of the Diviſor 8; and the Number 17934 being found, as before, to be the next leſs Number thereto, the correſponding Number in the *Lamellæ* of Units, 3, is to be wrote down for the Quotient; and the Subſtraction to be continued as before. After the ſame manner the third and laſt Figure of the Quotient will be found to be 7; and the whole 937.

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5978)5601346(937
     53802
     -----
      22118
      17934
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       41846
       41845
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NEPHEW, a Term relative to Uncle and Aunt, ſignifying a Brother or Siſter's Son; who, according to the Civil Law, is in the third Degree of Conſanguinity; and according to the Canon Law, in the ſecond. See Agnation and Cognation.

The Word is form'd from the *Latin Nepos*; which in the corrupt Ages of that Language ſignified the ſame thing.

NEPHRITES, or Nephriticus *Dolor*, in Medicine, a Name given to a painful Diſeaſe occaſion'd by the Stone or Gravel in the Kidneys. See Stone.

The Word is borrow'd from the *Greek* νεφριτις, *Diſeaſe of the Reins*; from νεφρος, *Rein*. See Kidney.

The *Greeks* give the Name νεφριτης, to the firſt *Vertebra* of the Loins, from its neighbourhood to the Kidneys. See Vertebra

NEPHRITIC, ſomething that relates to the Kidneys. See Kidney.

The Word is form'd of the *Greek* νεφρος, Rein, Kidney.

Nephritic *Colic*, is a Colic or Pain ariſing from a Stone or Gravel in the Reins, &c.

This is the moſt cruel of all *Colics*. See Colic.

NEPHRITICS, Medicines proper for Diſeaſes of the Kidneys, particularly the Stone. See Stone, &c.

Such particularly are the Roots of Althæa, Dog's Graſs, Sparagraſs, Sago, Pellitory of the Wall, Mallows, Pimprenella, red Chich-Peas, Peach-Kernels, Turpentine, &c. See Lithonthriptic.

NEPHRITICUM *Lignum*, a kind of Medicinal Wood growing in *New Spain*, chiefly in the Kingdom of *Mexico*; call'd by the *Indians*, *Coalt Tiapalcypathy*, as being ſovereign againſt *Nephritic* Pains. See Wood.

It muſt be choſen well clear'd of its Bark and Rind; it is of a bitter Taſte, and a reddiſh yellow Colour; but when infuſed in cold Water, gives it a ſky-blue Tincture, when view'd by a falſe Light, and a gold Colour, by a true one: A little of any Acid being mixed with the Tincture, both Colours diſappear, but a little Oil of Tartar reſtores its ſky-blue. See Colour.

Some ſubſtitute Ebony, and others red *Braſil* Wood for *Lignum Nephriticum*, but the Deceit becomes apparent by infuſing it in Water.

NEPHRITICUS *Lapis*, a precious Stone, ſo call'd from its extraordinary Virtues againſt the Stone and Gravel in the Kidneys. See STONE.

'Tis a kind of Jaſper, of a greyiſh Colour, mix'd with a little blue, ſometimes white and black; and only differs from Jaſper, in its being harder, and always without any thing of red.

'Tis brought chiefly from *New Spain*, where it is ſometimes found in Pieces large enough to make moderate Cups. There is ſome likewiſe found in *Old Spain* and *Bohemia*.

This Stone is very dear, by reaſon of the wonderful Virtues aſcribed to it. A Cup made of it was ſold for 1600 Crowns in the time of the Emperor *Rudolphus* II.

The beſt for Medicinal Uſe is of a bluiſh grey, fat and unctuous, as *Talc* of *Venice*.

The *Indians* of *New Spain*, who firſt diſcover'd its uſe, and taught it the *Europeans*, wear it hung about their Neck, after having cut it in various Figures, chiefly Beaks of Birds: Whence ſome *Charletans* take occaſion to counterfeit it, by cutting *Jada*, and other Stones, into like Figures; and ſell it at great Prices to thoſe who have an Opinion of its *Nephritic* Faculty.

NEPOTISM, a Term uſed in *Italy*, in ſpeaking of the Authority which the Pope's Nephews, *i. e.* his Baſtards, have in the Adminiſtration of Affairs, and in the Care the Popes take to raiſe and enrich them.

Many of the Popes have endeavoured to reform the Abuſes of *Nepotiſm*, but hitherto in vain. *Leti* has wrote expreſly on the Subject, *Il Nepotiſmo*.

NEPTUNALIA, Feaſts held among the Antients in honour of *Neptune*.

The *Neptunalia* differ'd from the *Conſualia*, in that the latter were Feaſts of *Neptune*, conſider'd as preſiding over Horſes and the Manage. See CONSUALIA.

Whereas the former were Feaſts of *Neptune* in the general, and not conſider'd under any particular Quality. They were celebrated on the 10th of the Calends of *Auguſt*.

NEREIDS, or NEREIDES, Fabulous Deities of the Antients, ſuppoſed to inhabit the Sea. See GOD.

The *Nereids* were fifty in number; all the Sons of *Neptune* by the Nymph *Doris*. Their Name and Genealogies are deſcribed by *Heſiod*.

NERVE, in Anatomy, a round, white, long Body, like a Cord, compoſed of ſeveral Threads, or Fibres; deriving its Origin from the Brain, or the Spinal Marrow; and diſtributed throughout all the Parts of the Body; ſerving for the Conveyance of a Juice call'd *Animal Spirits*, for the performance of Senſation and Motion. See SENSATION, MUSCULAR *Motion*, &c.

For the Origin of the Nerves: From every Point of the Cortex of the Brain, there ariſe minute medullary Fibres; which, in their Progreſs uniting together, at length become ſenſible, and thus conſtitute the *Medulla* of the Brain, and the Spine. See CORTEX, MEDULLA, &c.

Hence they are continued, and in their farther Progreſs, become diſtinguiſh'd or ſeparated by Coats which are detach'd to them from the *Dura* and *Pia Mater*, into ſeveral diſtinct *Faſciculi*, or *Nerves*; reſembling, in the Poſition of their component *Fibrillæ*, ſo many Horſes Tails, wrapp'd up in a double Tunic. See FIBRE.

'Tis probable that the medullary Fibres of the *Cerebellum*, riſing up towards the fore-parts of the *Medulla Oblongata*, do, part of them, join the *Nerves* ariſing thence, but ſo as ſtill to retain their different Origin, Progreſs, and Functions. The reſt of the Fibres of the *Cerebellum* are ſo mix'd with thoſe of the Brain, as that there is, perhaps, no part of the whole *Medulla Oblongata*, or *Spinalis*, where there are not found Fibres of each kind; and thus, to conſtitute the Body of each *Nerve*, both kinds of Fibres contribute; tho the end and effect of each be quite different. See CEREBEL, &c.

The *Nerves* thus form'd, and ſent from the *Medulla Oblongata* and *Spinalis* while within the *Cranium*, are *ten Pair*; tho very improperly ſo accounted; inaſmuch as moſt of them do in reality conſiſt of ſeveral diſtinct, very large *Nerves*.

From the Spinal Marrow, continued without the *Cranium*, there ariſe, after the like manner, thirty Pair, to which may be added another Pair ſent from the *Vertebræ* of the Neck, augmented in its Progreſs by Branches from the ſecond and third Pair, and at laſt join'd to the eighth Pair.

All theſe, while within the *Medulla*, are pulpous; as ſoon as they quit it, they acquire a Sheath, or Caſe, wherewith being defended, they proceed to the *Dura Mater*, which is perforated into an open *Vagina*, reaching as far as the *Foramina* of the *Cranium*, deſtin'd for the tranſmiſſion of *Nerves*; where the nine firſt Pair, and the *Acceſſory* Pair, aſſuming this *Vagina*, or Caſe, paſs ſafely out of the *Cranium*.

The other thirty and one Pair deſcend thro' Spaces between the Commiſſures of the *Apophyſes* of the *Vertebræ*; whence, firm, hard, and well cloath'd as they are, they are diſperſed thro' all, even the ſmalleſt Points of the ſolid Parts of the Body yet known. See SOLID.

The Coats, or Covers of theſe *Nerves* are every where inveſted with Blood-Veſſels, Lymphatics, and other Veſicles of a very tight Texture, which ſerve to collect, ſtrengthen, and contract the *Fibrillæ*; and from which many of the Phænomena of the *Nerves*, and of Diſeaſes, are accountable.

As ſoon as the laſt Extremities of the *Nerves* are about to enter the Parts to which they belong, they again lay aſide their Coats, and become expanded either into a kind of thin *Membranula*, or into a ſoft Pulp. See MEMBRANE and FLESH.

Now, upon conſidering firſt, That the whole vaſcular Medulla of the Brain goes to the conſtituting of the *Fibrillæ* of the *Nerves*; nay, is wholly continued into, and ends in them; Secondly, That upon compreſſion, tearing, diſperſion, putrefaction, &c. of the Medulla of the Brain, all the Actions uſed to be perform'd by the *Nerves* ariſing thence, are immediately aboliſhed, even tho the *Nerves* continue entire and untouch'd; Thirdly, That the *Nerves* themſelves are every where found lax, pendulous, crooked, retrograde, and oblique, yet effect Motion and Senſation almoſt inſtantaneouſly; Fourthly, That when cloſe bound or compreſs'd, tho in all other reſpects entire, they loſe all their Faculty in thoſe Parts between the Ligature and the Extremes to which they tend, without loſing any in thoſe Parts between the Ligature and the Medulla of the Brain, or *Cerebellum*: it evidently appears, that the *nervous Fibrillæ* do continually take up a Humour or Juice from the Medulla of the Brain, and tranſmit it by ſo many diſtinct Canals to every Point of the whole Body; and by means hereof alone perform all their Functions in Senſation, Muſcular Motion, &c. See SENSATION and MUSCLE.

Which Humour is what we popularly call *Animal Spirits*, or the *Nervous Juice*. See ANIMAL *Spirit*.

Nor does there appear any Probability in that Opinion maintain'd by ſome; *viz.* That the *Nerves* perform all their Action by the Vibration of a tenſe *Fibrilla*; which is inconſiſtent with the nature of a ſoft, pulpous, flaccid, crooked, wavy *Nerve*, and with that nice diſtinctneſs wherewith the Objects of our Senſes are repreſented, and Muſcular Motions perform'd.

Now, after the ſame manner as the Arterial Blood is perpetually carried into all the Parts of the Body furniſh'd with thoſe Veſſels; ſo we conceive a Juice prepar'd in the Cortex of the Brain and *Cerebellum*, convey'd thence every Moment thro' the *Nerves* to every Point of the ſolid Body. The ſmallneſs of the Veſſels in the Cortex, as exhibited in *Ruyſch's Injections*, which yet are only Arterious, and therefore incredibly thicker than the laſt Emiſſary derived thence, ſhew how ſlender theſe hollow *Nervous Stamina* muſt be. But the great Bulk of the Brain compared with the exceeding Smallneſs of each *Fibrilla*, ſhews, that their number muſt be great beyond the limits of all Imagination.

And again, the great Quantity of Juice conſtantly brought hither, and violently agitated, will occaſion a conſtant Plenitude, Openneſs, and Action of theſe little Canals.

But, as freſh Juice is every moment prepared, and the laſt is continually protruding the former; as ſoon as it has done its laſt Office, it ſeems to be driven out of the laſt Filaments into the ſmalleſt Lymphatic *Venulæ*, both about the Glands, and elſewhere; thence into the Lymphatics ſomewhat larger; and again from theſe to the common Lymphatic Veſſels with the Valves of Veins, and at length into the Veins and the Heart; and thus like the other Juices of the Body, does it make its Circuit round the Body. See CIRCULATION *of the Spirits*.

Upon the whole, if we conſider the great Bulk of the Brain, *Cerebellum*, *Medulla Oblongata*, and *Medulla Spinalis*, with regard to the Bulk of the reſt of the Solids of the Body; the great number of *Nerves* diſtributed hence throughout the whole Body; that the Brain and *Carina*, that is the Spinal Marrow, are the Baſis in an Embryo, whence, according to the great *Malpighi*, the other parts are afterwards form'd; and laſtly, that there is ſcarce any part of a Body, but what feels or moves; it will appear very probable, that all the ſolid parts of the Body are wove out of nervous Fibres, and conſiſt wholly of 'em. See STAMEN.

The Antients only allow'd of ſeven *Pairs* or *Conjugations of Nerves*, proceeding from the Brain; which, with their Functions, they compriſed in theſe two *Latin* Verſes:

> *Optica prima, oculos movet altera, tertia guſtat,*
> *Quartaq; quinta audit, vaga ſexta eſt, ſeptima linguæ.*

But the Moderns, as before obſerv'd, reckon ten, which are as follow.

NERVES *of the Brain, or Cerebrum.*

Olfactory NERVES, *Par Olfactorium*, or the Olfactory Pair, ariſes in the fore-part of the Brain, juſt below the *Os Frontis*; theſe being pretty thick near the *Os Cribroſum*, are there call'd *Proceſſus Papillares*, which Dr. *Drake* takes to be a properer Name in that Place, than that of *Nerves*; they appearing rather Productions of the *Medulla Oblongata*, whence the *Olfactory Nerves* ariſe, than diſtinct *Nerves*. As ſoon as they have made their way thro the *Os Cribroſum*, they are diſtributed throughout the Membranes of the Noſe. Their Uſe is in the Senſation of Smelling. See SMELLING.

Optic NERVES. Theſe paſs the Skull thro two Perforations in its Baſis, a little above the *Sella Equina*, and are thence convey'd to the Tunics of the Eye; whereof, the *Retina*, ſuppoſed to receive the Objects of Viſion, is an Extenſion of the inner or medullary part alone. See VISION and RETINA.

NERVES *that move the Eyes*, *Oculorum Motorii*, ariſe from the *Crura* of the *Medulla Oblongata*, near the Annular Protuberance; whence they march out between two Branches of the Cervical Artery; and paſſing out of the Skull at an irregular oblong hole, immediately under the former, are ſpent on thoſe Muſcles of the Eyes call'd *Attollent*, *Depriment*, *Adducent*, and *Obliquus inferior*; except ſome ſmall Fibres ſpent in the Muſcles of the upper *Palpebra*. See EYE.

Pathetic NERVES, ariſe behind the *Teſtes*, and paſſing out of the Skull at the ſame Foramen with the former Pair, ſpend themſelves wholly on the Trochlear Muſcle.

Fifth Pair of NERVES, the largeſt of all thoſe coming from the Brain, has its uſe as well as diſtribution more extenſive; ſerving both for Senſe and Motion, for Touch and Taſte. It ſends Branches not only to the Eyes, Noſe, Palate, Tongue, Teeth, and moſt parts of the Mouth and Face, but alſo to the Breaſt, lower Venter, *Præcordia*, &c. by means of the Intercoſtals, which are partly compoſed of Branches of this *Nerve*; whence ariſes a Conſent or Sympathy between the ſeveral Parts of the Body. See CONSENT *of Parts*.

It ariſes from the Annular Protuberance, near the *Proceſſus Cerebelli*, and is at its Origin very large, but before its egreſs from the *Dura Mater* is divided into two Branches, each conſiſting of innumerable nervous Fibres, whereof thoſe of one Branch are pretty tough and firm; the other ſoft and lax. A little beyond the *Sella*, it forms a *Plexus* call'd *Ganglioformis*, near which, each *Nerve* is divided into an *interior* and *poſterior* Branch.

The *Anterior* or Fore-Branch, after a few Twigs ſent to the *Dura Mater*, enters the Receptacle on each ſide the *Sella*; whence it ſends off one or two Twigs to the Intercoſtal; and as ſoon as it emerges thence, is again ſubdivided into three nearly equal Branches. The *uppermoſt* paſſing the *Foramen Lacerum* into the Orbit of the Eye, is immediately ſubdivided into three leſs Branches; the firſt of which, after ſending Twigs to the *Tunica Adnata*, *Glandula Lacrymalis*, the Muſcles that draw up the Noſe, and the orbicular Muſcles, running over the Muſcle which draws up the upper Eye-lid, is ſpent on the Muſcles of the Forehead, and the common Integuments of the forepart of the Head.

The *ſecond* Branch running under the *Pathetics* and *Motorii*, is divided into two; whereof the outer and ſmaller ſends off ſeveral *Fibrillæ* into the Fat that envelopes the Optic *Nerve*; and joining with others from the third Pair, forms a ſort of *Plexus* on the Trunk of the Optic *Nerve*; whence *Fibrillæ* are detach'd into the *Muſculus Deprimens*, *Adducens*, and the *Tunica Sclerotica*. The inner and bigger Slip is ſubdivided into four Twigs; the firſt running over the Optic *Nerve*, enters the *Sclerotica*, and is ſpent in that Membrane. The ſecond, returning into the Skull by a peculiar Perforation, pierces the *Dura Mater*, and, ſometimes turning back again, paſſes out of the Skull thro one of the Holes of the *Cribriforme*, and is diſtributed into the interior Membrane of the Noſe. The third Twig is ſpent partly on the Eye-lids and their orbicular Muſcles, the external Integument of the Noſe, and the Muſcles which draw it upwards. The fourth is diſtributed by ſeveral Twigs into the Eye-lids and orbicular Muſcles. The third Slip of the upper Branch is ſpent on the *Glandula Innominata* and *Tunica Adnata*.

The *leſs inferior* Branch, e'er it leave the Skull, enters the Orbit of the Eye, and running along the outſide of the *Muſculus Abducens*, goes out again at a little Perforation peculiar to it; after which it divides into ſeveral Fibres, ſome of which go to the Integuments of the Cheeks; the reſt to the Muſcles that raiſe the upper Lip. As ſoon as it quits the Skull at the third Foramen, it is ſubdivided into three little Branches, the firſt of which, after ſome Twigs beſtow'd on the *Maſſeter*, the Teguments of the Face, the Gums, and upper Teeth; enters a peculiar Sinus of the Bone making the lower part of the Orbit, and goes out at a Hole particular to it; after which it divides into ſeveral *Fibrillæ* which go to the Teguments of the Face, the upper Lip, the Muſcle that draws the lower part of the Noſe laterally, and the inner Muſcle of the Noſe.

The *ſecond ſmall* Branch running downwards behind the Ducts which go from the Noſe to the Fauces, is divided into two; the upper whereof is diſtributed by many Twigs into the *Membrana Pituitaria*. The lower, paſſing a peculiar Hole on the hind and lateral part of the Bone of the Palate, is diſtributed into that ſpongy Fleſh that lines the Palate, and the tough Membrane that covers it.

The *third little* Branch is ſpent on that part of the *Membrana Pituitaria* that lines the Fauces upon the *Uvula* and Muſcles thereabouts, and upon the Tonſils.

The *greater* or *poſterior* Branch, after ſending a few Twigs to the *Dura Mater*, paſſes the Skull thro the fifth Foramen; and having ſent off ſome Twigs to the *Buccinator*, *Maſſeter*, and the Muſcles of the lower Jaw, is divided into three conſiderable Branches.

The *firſt* paſſes to the Root of the Tongue, and thence proceeding forwards, ſends ſeveral Branches to the Maxillary Glands. It ſends others along the inner Subſtance of the Tongue, which end in Capillaries at its Extremity, and joining every where with the Branches of the ninth Pair, ſerve both the Muſcles and Papillary Glands, and contribute to the Taſte, as well as the Motion of the Tongue.

The *ſecond*, or middle Branch, after diſtributing a Twig into the Maxillary Glands, and the Muſcles *Styloglоſſus*, and *Myloglоſſus*, enters the hollow of the lower Jaw, along which it runs accompanied with Branches of the Carotid Arteries and little Veins, which return to the internal Jugulars; and beſides ſending off a Twig to each Tooth, with the Membranes of the foreſaid Veſſels, contributes to form a Membrane which lines the whole Sinus. At the fourth Grinder it divides into two; the leſs whereof runs to the joining of the Jaw; the bigger, paſſing out at a peculiar Perforation, is divided into ſeveral Fibres, which are diſpoſed into the Muſcles of the lower Lip and Chin.

The *third* or exterior Branch, is ſpent on the parotid Glands.

Sixth Pair of NERVES, or the *Guſtatorii*, riſe from the Medullary Tracts of the *Centrum Ovale*, below the annular Proceſs, and proceeding forwards, enters the ſame Receptacle, or Sinus of the Skull, on the ſide of the *Sella*, as the fifth Pair does; whence ſending off a Twig to join thoſe of the fifth Pair, in their paſſage to the Intercoſtals, it goes out of the Skull at the ſame Hole with the *Motorii Oculorum*, and ends in the abducent Muſcles of the Eye; ſending withal ſome Twigs to the Tongue. See TONGUE.

The Seventh Pair, or Auditory NERVES, ariſing from the medullary Tract of the fourth Ventricle, and paſſing out of the Skull thro a Hole of the *Os Petroſum*, divides into two Branches, or *Portions*, a *hard* and a *ſoft* one. The *hard* entring a little *Sinus* in the upper part of the Bone that conſtitutes the Barrel of the Ear; ſends off a Twig which diſtributes itſelf into the *Dura Mater*, except ſome ſmall Twigs which go to the Membrane that lines the Ear, to the internal Muſcles that line the Ear, and the fine Membrane that clothes the inſide of the Cavity of the *Apophyſis Mamillaris*. After this, the hard Branch ſends off two other Twigs, one to the eighth Pair, the other to the *Tympanum*, whoſe Chord it forms; whence creeping over the *Malleolus*, it goes out of the Ear, and ſends a Ramification to the Tongue.

The ſame hard Branch, coming out of the *Proceſſus Mamillaris*, ſends ſome Twigs to the Maſſeter, and others to the Glands about the Ear; where it divides into two other Ramifications; the interior beſtowed on the Glands, the Cheek, and the upper Lips, the reſt on the lower *Palpebra*, and the external part of the Face. The exterior Ramification, beſtowing ſome *Fibrillæ* on the Glands, out of which it iſſues, divides into two; the upper diſtributed into the *Quadratus* and outer parts of the under Lip; the lower ſpent on the Integuments of the fore and lateral part of the Neck, lower Jaw, and the *Maſtoidal* Muſcle.

The *ſoft* and larger *Portion* of this Pair divides into three Ramifications, the upper whereof paſſes a ſmall *Foramen* into the *Concha*, where expanding, it forms a fine Membrane which lines its inner Surface. The ſecond and third Ramifications are alſo ſpent on the inner parts of the *Concha* and ſemicircular Ducts, which they furniſh with Membranes, the immediate Organs of Hearing. See HEARING.

Eighth Pair of NERVES, or the *Par Vagum*, ſprings from the *Medulla Oblongata*, a little above the *Olivaria Corpora*, and paſſes out of the Skull thro the ſame Perforations with the lateral *Sinus's* of the *Dura Mater*.

This, in its progreſs, is join'd by the *Par Acceſſorium*, and a little further by a Twig of the hard part of the ſeventh Pair, and at the ſecond *Vertebra* of the Neck by the *Nerves* that iſſue from the Cervical Marrow; and detaches ſeveral Twigs to the Muſcles of the *Larynx*, *Gula*, Neck, &c. particularly the *Ganglioform Plexus*, form'd by its Union with a Branch of the Intercoſtal. Hence deſcending to the Thorax, it makes another *Plexus* under the *Clavicle*, whence ariſes the *Recurrent Nerve* on the right ſide, as on the left it has its Riſe from the Trunk of the *Nerve* itſelf. The right Recurrent is reflected at the Axillary Artery, the left at the deſcending Branch of the *Aorta*; each running aſide the

Trachea, impart ſome Twigs to it, and terminate in the Muſcles of the *Larynx.* Their Uſe is in the Formation and Modulation of the Voice. See Voice.

Againſt the Origin of the *Aorta* it ſends off a Branch towards the Heart; which dividing into two, the leſſer twiſts about the Pulmonary Vein; the bigger proceeds to the *Pericardium*, and Heart, after having ſent off a Twig, which with others from the Intercoſtals, make the *Plexus Cardiacus ſuperior*: proceeding ſtill further, it ſends out ſeveral Ramifications, which, meeting together, make the *Plexus Pneumonicus*, whence ariſe Fibres that conſtringe the Veſſels and Veſicles of the Lungs. In its Paſſage downwards, it diſtributes ſeveral Branches to the *Oeſophagus*, along which it runs.

About the lower *Vertebræ* of the Neck, the Trunk divides into two Branches, the external and internal, communicating all along by ſeveral Ramifications, and at length reuniting. The reſt of this Pair joins with the Intercoſtals in the formation of ſeveral *Plexus's* in the lower Venter, and in them ſeems to terminate. See Plexus.

Along with theſe, and wrapp'd up in the ſame Coat from the *Dura Mater*, paſſes the

Acceſſory Nerve, or *Par Acceſſorium.* It has its Origin from the *Medulla* contain'd in the *Vertebræ* of the Neck. Soon after its return out of the Skull, it leaves the *Par Vagum* again, and is diſtributed into the Muſcles of the Neck and Shoulders.

Intercoſtal Nerves, conſiſt of *nervous* Filaments derived partly from the Brain, *viz.* Branches of the fifth and ſixth Pair; and partly from the Spinal Marrow, by thoſe Branches they receive from the Vertebral *Nerves.*

In each Trunk of theſe *Nerves*, e'er it arrives at the Thorax, are two *Cervical Plexus's*, the upper whereof receives a Branch from each Trunk of the *Par Vagum*; the under ſends out ſeveral Ramifications to the *Oeſophagus* and *Aſpera Arteria*, and particularly a large one to the recurrent *Nerve.* From the ſame *Plexus* deſcend two other Ramifications to the *Cardiac Plexus*; which are join'd a little lower by a third, from which the *Intercoſtal Nerve* deſcending to the Clavicles, divides into two, and embraces and conſtringes the ſubclavian Artery; thence entring the Thorax, it receives three or four Twigs from the upper *Vertebral Nerve*, together with which it conſtitutes the *Intercoſtal Plexus*; and thence deſcending along the ſides of the *Vertebræ*, and receiving a *nervous* Twig from each of them to the *Os Sacrum*, and entring the *Abdomen*, it forms ſeveral conſiderable *Plexus's*, *viz.* the *Lienaris*, *Hepaticus*, the two *Renales*, *Meſentericus magnus*, and two little ones in the *Pelvis.* See Plexus.

Ninth Pair of Nerves, *Motorii Linguæ*, ariſe from the middle of the *Centrum Ovale*, by three or four ſmall Twigs, and go out of the Skull near the Proceſs of the *Occiput*; and ſend their Branches to the Tongue.

They may be likewiſe call'd *Guſtatorii*, as they contribute, together with the Branches of the fifth and ſixth Pair, to the Senſation of Taſting. See Tasting.

Tenth Pair of Nerves, ariſe by two or three Branches from the *Medulla oblongata*, juſt below the *Corpora Pyramidalia* and *Olivaria*, or rather, at the beginning of the *Medulla Spinalis*; whence reflecting a little backwards, it goes out of the Skull between the firſt *Vertebra* of the Neck, and the Proceſs of the *Occiput.*

It is ſpent on the external Muſcles of the Head and Ears. See Ear, *&c.*

Nerves *from the Spinal Marrow.*

The *Spinal* Nerves, (*i. e.* thoſe ſpringing from the *Medulla* after its egreſs out of the Skull, where it lays aſide the name *Oblongata*, and aſſumes that of *Spinalis*) are thirty Pair: Of which, ſome are reckoned as belonging to the Neck, as having their Origin thence, and call'd *Cervical Nerves*; others to the *Dorſum*, or Back, and call'd *Dorſal Nerves*; others to the Loins, call'd *Lumbal Nerves*, and the reſt to the *Os Sacrum.*

Cervical Nerves. Of theſe there are ſeven Pair: The firſt Pair ariſe between the firſt and ſecond *Vertebra* of the Neck, and, contrary to the reſt, come out before and behind; whereas the other ſix Pair come out laterally from the Junctures of the *Vertebræ*, thro particular Perforations near the tranſverſe Proceſſes. They go to the Muſcles of the Head and Ear.

The ſecond Pair contributes the main Branch towards the formation of the *Diaphragmatic Nerves*, which, according to *Vieuſſens*, ſpring only from the fourth and ſixth Pair.

The three laſt Pair of the Neck joining with the two firſt of the *Dorſum*, or Thorax, make the *Brachial Nerves.*

All the *Cervical Nerves* ſend innumerable Branches to the Muſcles, and other parts of the Head, Neck, and Shoulders.

Dorſal Nerves are in number twelve. Theſe, excepting what the two upper pair contribute to the *Brachial Nerves*, are generally diſtributed into the Intercoſtal and Abdominal Muſcles, the *Pleura* and external parts of the Thorax.

Lumbal Nerves, are five Pair: The firſt of which ſends two Branches to the lower ſide of the Diaphragm. The ſecond ſome Twigs to the Genital Parts, and others, as well as the three following, to give the firſt Roots to the *Crural Nerves.* The reſt of the Branches of the *Lumbal Nerves* are diſtributed into the Muſcles of the Loins and adjacent Parts.

Nerves *of the Os Sacrum*, are ſix Pair; the firſt three or four Pair whereof are beſtow'd wholly on the Crural *Nerves*; the reſt on the Muſcles of the *Anus*, *Veſica*, and Genital Parts.

Brachial Nerves, are the Offspring, partly of the *Cervicals*, and partly of the *Dorſals.* Theſe, after the ſeveral Branches whereof they are compoſed have been variouſly complicated and united, run but a little way in a Trunk e'er they divide again into ſeveral Branches, variouſly diſtributed into the Muſcles of the Skin and Arms.

Diaphragmatic Nerves, are likewiſe the Offspring of the Cervicals. Theſe, after joining in a Trunk, run thro the *Mediaſtinum* undivided, till they arrive near the Diaphragm, into which they ſend off ſeveral Branches; ſome into the Muſcular, others into the Tendinous part of it.

Crural Nerves, conſiſt of an Union of ſix or ſeven Pair, *viz.* the three laſt of the Lumbal, and three or four firſt of the *Os Sacrum.* Theſe, after having ſpent their upper Branches on the Muſcles of the Thigh and Skin, as far as the Knee, proceed in a Trunk downwards, which ſends its Branches to the Extremiries of the Toes, ſupplying as it goes, the Muſcles and Skin of the Leg and Foot. This is the largeſt and firmeſt nervous Trunk in the Body.

Nerves, in Botany, are long, tough, Strings running either a-croſs, or length-wiſe of the Leaves of Plants. See Leaves.

Nerves, in Architecture, are the Mouldings of the Projecting-Arches of Vaults; or thoſe ariſing from the Branches of Ogives, and croſſing each other diagonally in *Gothic* Vaults, ſerving to ſeparate the Pendentives. See Vault, Ogive, *&c.*

NERVOSA *Corpora*, in Anatomy. See Cavernosa *Corpora.*

NERVOUS *Spirit*, or *Juice*, is a pure, ſubtile, volatile Humour, better known by the Name of *Animal Spirits*; ſecreted from the Arterious Blood in the Cortical Part of the Brain, collected in the *Medulla Oblongata*, and thence driven, by the force of the Heart, into the Cavities of the Nerves; to be convey'd by them throughout the Body, for the Purpoſes of Senſation and Animal Motion. See Spirit.

NEST, ſee Nidus.

NESTORIANS, a Sect of antient Heretics; ſtill, as 'tis ſaid, ſubſiſting in ſome parts of the *Levant.*

They take their Name from *Neſtorius*, who, of a Monk, became a Prieſt, and a celebrated Preacher, and was at length, after the Death of *Siſinnius* in 428, rais'd by *Theodoſius* to the See of *Conſtantinople.*

At firſt he ſhew'd a world of Zeal againſt Hereſy in his Sermons before the Emperor; but at length taking the liberty to ſay, that he found in Scripture, that *Mary was the Mother of Jeſus*, but that he no where found, that *Mary was the Mother of God*, his Auditory was ſhock'd, and a great part of 'em retir'd from his Communion.

His Writings were ſoon ſpread thro *Syria* and *Egypt*, where he made many Converts, notwithſtanding the vigorous Oppoſition of St. *Cyril.*

His diſtinguiſhing Tenet was, that there are two Perſons in Jeſus Chriſt; and that the Virgin was not his Mother as God, but only as Man.

The Doctrine was condemn'd in the Council of *Epheſus*, at which aſſiſted above 200 Biſhops; and *Neſtorius* was anathematiz'd and depoſed from his See.

Neſtorius was not the Author of this Error; but borrow'd it at *Antioch*, where he had ſtudied. *Theodorus Mopſueſtanus* had taught the ſame before him.

'Tis ſomething difficult to determine whether or no the *Chaldee* Chriſtians, who ſtill profeſs *Neſtorianiſm*, have preciſely the ſame Sentiments with *Neſtorius*, whom they ſtill eſteem as their Patriarch. They have made ſeveral Reunions with the *Romiſh* Church, but none of 'em have ſubſiſted long. The moſt conſiderable was that under the Pontificate of *Paul* V.

Till the time of Pope *Julius* III, they acknowledg'd none but one Patriarch, who aſſumed the Quality of Patriarch of *Babylon*; but a diviſion ariſing among 'em, the Patriarchate became divided, at leaſt for a Time; and a new Patriarch was appointed by that Pope, who made his Reſidence at *Caremita* in *Meſopotamia*; whoſe Succeſſor, however, unable to withſtand the Power of the Patriarch of *Babylon*, was obliged to retire within the Confines of *Perſia.* Thus

Matters ſtood till the Pontificate of *Paul* V. under whom there was a ſolemn Re-union with the *Romiſh* Church, whom their Patriarch ſolemnly own'd for the Mother, *&c.* of all Churches; ſending his Miniſters to *Rome* to negotiate the Union, and compoſing an Explication of the Articles of Religion, where their Diſputes with the *Romiſh* Church were repreſented as only verbal, *&c.*

NET, NEAT, in Commerce, ſomething pure, and unadulterated with any foreign Mixture.

Thus, Wine is ſaid to be *Net* when not falſify'd or balderdaſh'd; and Coffee, Rice, Pepper, *&c.* are *Net*, when the Filth and Ordures are ſeparated from them.

A Diamond is ſaid to be *Net* when it has no Stains or Flaws; a Cryſtal, when tranſparent throughout.

NET is alſo uſed for what remains after the Tare has been taken out of the Weight of any Merchandize; *i.e.* when it is weigh'd clear of all Package. See TARE.

Thus we ſay, a Barrel of Cochineal weighs 450 Pounds; the Tare is 50 Pounds, and there remains *Net* 400 Pounds.

NET-*Produce*, a Term uſed to expreſs what any Commodity has yielded, all Tare and Charges deducted.

The Merchants ſometimes uſe the *Italian* Words, *Netto procedido*, for *Net-Produce.*

NET-*Maſonry*, ſee MASONRY.

NETE *Hyperboleon*, in the antient Muſic, the name of the higheſt and moſt acute of the Chords of the Lyre, or the antient Scale, or Diagramma. See DIAGRAMMA.

It anſwer'd to the *A*, *mi*, *la*, of the third Octave of the Organ, or the modern Syſtem.

The Word is compoſed of the *Greek* νητη and υπερβολεων, *i. e. The laſt of the higheſt Chords.*

NETE *Diazeugmenon*, in the Antient Muſic, was one of the Chords of the Lyre, or Syſtem of the Antients. See DIAGRAMMA.

It anſwers to the *E*, *ſi*, *mi*, of the third Octave of the Organ, or modern Syſtem.

The Word comes from the *Greek* νητη and διαζευγμένων, *laſt of the ſeparate ones*; where is underſtood the word *Chord.*

NETE *Synemmenon*, in the Antient Muſic, the Name of the higheſt Chord of a Tetrachord of the *Greek* Syſtem, added to make the *b ſoft* fall between the *Meſe* and *Parameſe*, *i.e.* between *la* and *ſi.* See DIAGRAMMA.

This Chord had the ſame Sound with the *Paranete Diazeugmenon*, or our *la* by *b mollis.*

The Word comes from the *Greek* νητη and συνημμένον, *the laſt of thoſe added*; where is underſtood the word *Chord.*

NEURITICS, or NERVINES, in Medicine, Remedies proper for Diſeaſes of the Nerves, and Joints.

Such are Betony, Lavender, Roſemary, Sage, Laurel, Marjoram, and other among the Cephalics.

The Word is form'd from the *Greek* νεύρος, *Nervus.* Hence alſo

NEUROGRAPHIA, in Anatomy, a Deſcription of the Nerves. See NERVE.

Raim. Vieuſſens, a Phyſician of *Montpellier*, has an excellent Treatiſe in *Latin*, under the Title *Neurographia Univerſalis*, where he ſhews, that there are more Ramifications of the Nerves in the Skin, than in the Muſcles, and all the other parts. See SKIN.

Duncan, another Phyſician of the ſame Place, has a Treatiſe call'd *Neurographia Rationalis.*

Neurographia is ſomething more general than

NEUROLOGY, which implies a Diſcourſe of the Nerves; in as much as the former may be underſtood, not only of Diſcourſes on the Nerves, but alſo of Figures and Engravings, repreſenting them; whereas the latter is reſtrained to diſcourſing alone.

NEUTER, a Perſon free or indifferent, who has eſpouſed neither Party, and is neither Friend nor Foe.

Thus we ſay a Judge is to be *Neuter* in the Cauſes he judges; and thus, we ſay, in Queſtions, where Reaſon appears *Neuter*, a Man muſt ever incline to the Side of the Unhappy.

NEUTER, in Grammar, is uſed for a ſort of Gender of Nouns which are neither Maſculine, nor Feminine. See GENDER.

The *Latins* have three kinds or Genders, Maſculine, Feminine, and *Neuter.* In *Engliſh*, and other modern Tongues, there is no ſuch thing as *Neuter* Nouns. See NOUN.

Verbs NEUTER, by ſome Grammarians call'd *Intranſitive Verbs*, are thoſe that govern nothing, and that are neither active nor paſſive. See VERB.

When the Action expreſs'd by the Verb has no Object to fall upon, but the Verb alone ſupplies the whole Idea of the Action, the Verb is ſaid to be *Neuter*; as *I ſleep*, *thou yawneſt*, *he ſneezes*, *we walk*, *ye run*, *they ſtand ſtill.*

Some divide *Verbs Neuter* into, *1ſt*, Such as don't ſignify any Action, but a Quality; as *albet*, it is white; or a Situation, as *ſedet*, he ſits; or have ſome relation to Place, as *adeſt*, he is preſent; or ſome other State or Attribute, as *regnat*, he rules, *&c.*

And, *2dly*, thoſe that do ſignify Actions, tho thoſe ſuch as don't paſs into any Subject different from the Actor; as *to dine*, *to ſup*, *to play*, &c.

But this latter kind ſometimes ceaſe to be *Neuter*, and commence active; eſpecially in *Greek* and *Latin*, when a Subject is given them; as *vivere vitam*, *ambulare viam*, *pugnare pugnam.* Thus the old *French* Poets ſay, *Soupirer ſon tourment*; the *Engliſh*, *to ſigh his Woes*, &c.

But this is obſerved only to obtain where ſomething particular is to be expreſs'd, not contain'd in the Verb; as *vivere vitam beatam*, to live a happy Life; *pugnare bonam pugnam*, to fight a good fight, *&c.*

According to the Abbot *de Dangeau*, *Verbs Neuter* may be divided into *active* and *paſſive*; the firſt thoſe that form their Tenſes in *Engliſh* by the auxiliary Verb *to have*; in *French* by *avoir*. The ſecond thoſe that form them in *Engliſh* with the Verb *to be*; in *French*, *etre.*

Thus, *to ſleep* and *to yawn*, *dormer* and *eternuer*, are *Neuters* active. *To come*, and *to arrive*, are *Neuters* paſſive.

The ſame Author ſubdivides each Kind into ſeveral Branches. See VERB.

NEUTRALITY, the State of a Perſon or Thing that is *Neuter.* See NEUTER.

NEUTRAL *Salts*, among Chymiſts, are a ſort of intermediate Salts between Acids and Alcalies; partaking of the nature of both. See SALT, ACID, and ALCALY.

Mr. *Boyle* alſo gives the Appellation *Neutral* to a ſort of Spirits, differing in divers Qualities both from Vinous, Acid, and Urinous Spirits. Theſe he alſo calls Anonymous and *Adiaphorous* Spirits. See ADIAPHOROUS.

NEWEL, in Architecture, the upright Poſt, which a Pair of Winding-Stairs turn about; or that part of the Stair-Caſe which ſuſtains the Steps. See STAIR.

The *Newel* is a Cylinder of Stone, which bears on the Ground, and is form'd by the ends of the Steps of the Winding-Stairs.

There are alſo *Newels of* Wood, which are pieces of Wood placed perpendicularly, receiving the Tenants of the Steps of Wooden-Stairs into their Mortices, and wherein are fitted the Shafts and Reſts of the Stair-Caſe, and the Flights of each Story.

NEW-*Moon*, that State of the Moon a little before, and a little after her Conjunction with the Sun. See Moon and CONJUNCTION.

NEWTONIAN *Philoſophy*, the Doctrine of the Univerſe, and particularly of the heavenly Bodies; their Laws, Affections, *&c.* as deliver'd by Sir *Iſaac Newton.* See PHILOSOPHY.

The Term *Newtonian Philoſophy*, is apply'd very differently; whence divers confuſed Notions relating thereto.

Some Authors, under this *Philoſophy*, include all the Corpuſcular Philoſophy conſider'd as it now ſtands corrected and reform'd by the Diſcoveries and Improvements made in ſeveral parts thereof, by Sir *I. Newton.* In this ſenſe it is that *Graveſande* calls his *Elements of Phyſics*, *Introductio ad Philoſophiam Newtoniam.*

And in this ſenſe the *Newtonian* is the ſame with the *New Philoſophy*, and ſtands contradiſtinguiſh'd to the *Carteſian*, the *Peripatetic*, and the antient *Corpuſcular.* See CORPUSCULAR, PERIPATETIC, CARTESIAN, *&c.*

Others, by *Newtonian Philoſophy*, mean the Method or Order which Sir *I. Newton* obſerves in philoſophizing; *viz.* the Reaſoning, and drawing of Concluſions directly from Phænomena, excluſive of all previous Hypotheſes; the beginning from ſimple Principles; deducing the firſt Powers and Laws of Nature from a few ſelect Phænomena, and then applying thoſe Laws, *&c.* to account for other things. To this Purpoſe, the ſame *Graveſande* explains himſelf in his *Inſtitut. Newton. Philoſ.*

And in this ſenſe, the *Newtonian Philoſophy* is the ſame with the *Experimental* Philoſophy; and ſtands oppoſed to the Antient *Corpuſcular.* See EXPERIMENTAL, *&c.*

Others, by *Newtonian Philoſophy*, mean that wherein Phyſical Bodies are conſider'd Mathematically; and where Geometry and Mechanics are apply'd to the Solution of Phænomena: In which ſenſe, the *Newtonian* is the ſame with the *Mechanical* and *Mathematical* Philoſophy. See MECHANICAL.

Others, again, by *Newtonian Philoſophy*, underſtand that part of Phyſical Knowledge, which Sir *I. Newton* has handled, improved, and demonſtrated, in his *Principia.*

Others, laſtly, by *Newtonian Philoſophy*, mean, the new Principles which Sir *I. Newton* has brought into Philoſophy; the new Syſtem founded thereon; and the new Solution of Phænomena thence deduced: or that which characterizes, and diſtinguiſhes his Philoſophy from all others. Which is the ſenſe wherein we ſhall here chiefly conſider it.

As to the Hiſtory of this *Philoſophy*, we have but little to ſay: It was firſt made public in the Year 1686, by the

Author, then a Fellow of *Trinity*-College, *Cambrigde*; and in the Year 1713, republiſhed with conſiderable Improvements. Several other Authors have ſince attempted to make it plainer; by ſetting aſide many of the more ſublime Mathematical Reſearches, and ſubſtituting either more obvious Reaſonings, or Experiments, in lieu thereof; particularly *Whiſton* in his *Prælect. Phyſ. Mathemat.* and *Graveſande* in *Element. & Inſtit.*

Notwithſtanding the great Merit of this Philoſophy, and the univerſal Reception it has met with at home, it gains ground very ſlowly abroad; *Newtonianiſm* has ſcarce two or three Adherents in a Nation; but *Carteſianiſm*, *Huygenianiſm*, and *Leibnitzianiſm* remain ſtill in poſſeſſion.

The *Philoſophy* itſelf is laid down chiefly in the third Book of the *Principia*. The two preceding Books are taken up in preparing the way, and laying down ſuch Principles of Mathematicks as have the moſt relation to *Philoſophy*: Such are the Laws and Conditions of Powers. And theſe, to render them leſs dry and geometrical, the Author illuſtrates by *Scholia* in *Philoſophy*, relating chiefly to the Denſity and Reſiſtance of Bodies, the Motion of Light, and Sounds, a Vacuum, *&c.*

In the third Book he proceeds to the *Philoſophy* itſelf; and from the ſame Principles deduces the Structure of the Univerſe; and the Powers of Gravity, whereby Bodies tend towards the Sun and Planets; and from theſe Powers, the Motions of the Planets and Comets, the Theory of the Moon and the Tides.

This Book, which he calls *de Mundi Syſtemate*, he tells us, was firſt wrote in the popular way: But conſidering, that ſuch as are unacquainted with the ſaid Principles, would not conceive the Force of the Conſequences, nor be induced to lay aſide their antient Prejudices; for this Reaſon, and to prevent the thing from being in continual Diſpute; he digeſted the Sum of that Book into Propoſitions, in the Mathematical manner; ſo as it might only come to be read by ſuch as had firſt conſider'd the Principles. Not that it is neceſſary, a Man ſhould maſter them all. Many of them, even the firſt-rate Mathematicians, would find a Difficulty in getting over. 'Tis enough to have read the Definitions, Laws of Motion, and the three firſt Sections of the firſt Book; after which, the Author himſelf directs us to paſs on to the Book *de Syſtemate Mundi.*

The ſeveral Articles of this Philoſophy, are deliver'd under their reſpective Heads in this Dictionary; as SUN, MOON, PLANET, COMET, EARTH, AIR, CENTRIPETAL *Force*, RESISTANCE, MEDIUM, MATTER, SPACE, ELASTICITY, *&c.* A general Idea, or Abſtract of the Whole, we ſhall here gratify the Reader withal; to ſhew in what Relation the ſeveral Parts ſtand to each other.

The great Principle on which the whole Philoſophy is founded, is the *Power of Gravity*. This Principle is not new: *Kepler*, long ago, hinted it in his *Introduct. ad Mot. Martis*. He even diſcovered ſome of the Properties thereof, and their Effects in the Motions of the primary Planets: But the Glory of bringing it to a Phyſical Demonſtration was reſerved to the *Engliſh Philoſopher*. See GRAVITY.

His Proof of the Principle from Phænomena; together with the Application of the ſame Principle to the various other Appearances of Nature, or the deducing thoſe Appearances from that Principle, conſtitute the *Newtonian Syſtem*; which, drawn in Miniature, will ſtand thus.

I. The Phænomena are, 1. That the Satellites of *Jupiter* do, by *Radii* drawn to the Center of the Planet, deſcribe Areas proportional to their Times; and that their Periodical Times are in a ſeſquiplicate Ratio of their Diſtances from its Centre: in which all Obſervations of all Aſtronomers agree. 2. The ſame Phænomenon holds of the Satellites of *Saturn*, with regard to *Saturn*; and of the Moon with regard to the Earth. 3. The periodical Times of the primary Planets about the Sun, are in a ſeſquiplicate Ratio of their mean diſtances from the Sun. But, 4. The primary Planets do not deſcribe Areas any way proportional to their periodical Times, about the Earth; as being ſometimes ſeen Stationary, and ſometimes Retrograde with regard thereto. See SATELLITES, PERIODS, *&c.*

II. The Powers whereby the Satellites of *Jupiter* are conſtantly drawn out of their rectilinear Courſe, and retain'd in their Orbits, do reſpect the Center of *Jupiter*, and are reciprocally as the Squares of their diſtances from the ſame Centre. 2. The ſame holds of the Satellites of *Saturn* with regard to *Saturn*; of the Moon with regard to the Earth: And of the primary Planets with regard to the Sun. See CENTRIPETAL *Force*.

III. The Moon gravitates towards the Earth, and by the Power of that Gravity is retain'd in her Orbit: And the ſame holds of the other Satellites with reſpect to their primary Planets; and of the Primaries with reſpect to the Sun. See MOON.

As to the Moon, the Propoſition is thus proved: The Moon's mean diſtance is 60 Semidiameters of the Earth; her Period, with regard to the fix'd Stars, is 27 Days, 7 Hours, 43 Minutes; and the Earth's Circumference 123249600 *Paris* Feet. Now, ſuppoſing the Moon to have loſt all its Motion, and to be let drop to the Earth, with the Power which retains her in her Orbit; in the ſpace of one Minute ſhe will fall $15\frac{1}{12}$ *Paris* Feet; the Arch ſhe deſcribes in her mean Motion at the diſtance of 60 Semidiameters of the Earth being the verſed Sine of $15\frac{1}{12}$ *Paris* Feet. Hence, as the Power as it approaches the Earth, increaſes in a duplicate Ratio of the diſtance inverſly; ſo, as at the Surface of the Earth, 'tis 60 × 60 greater than the Moon: A Body falling with that Force in our Region muſt, in a Minute's time, deſcribe the ſpace of 60 × 60 × $15\frac{1}{12}$ *Paris* Feet; and $15\frac{1}{12}$ *Paris* Feet in the ſpace of one Second.

But this is the Rate at which Bodies fall, by their Gravity, at the Surface of our Earth; as *Huygens* has demonſtrated, by Experiments with Pendulums. Conſequently, the Power whereby the Moon is retain'd in her Orbit, is the very ſame we call *Gravity*: For if they were different, a Body falling with both Powers together, would deſcend with double the Velocity, and in a Second of Time deſcribe $30\frac{1}{6}$ Feet. See DESCENT *of Bodies.*

As to the other ſecundary Planets, their Phænomena with reſpect to their primary ones, being of the ſame kind with thoſe of the Moon about the Earth; 'tis argued, by Analogy, they depend on the ſame Cauſes: It being a Rule or Axiom all Philoſophers agree to, That Effects of the ſame kind, have the ſame Cauſes. Again, Attraction is always mutual, *i. e.* the Reaction is equal to the Action. Conſequently, the primary Planets gravitate towards their ſecundary ones; the Earth towards the Moon, and the Sun towards 'em all. And this *Gravity*, with regard to each ſeveral Planet, is reciprocally as the Square of its diſtance from its Centre of Gravity. See ATTRACTION, REACTION, *&c.*

IV. All Bodies gravitate towards all the Planets; and their Weights towards any one Planet, at equal diſtances from the Centre of the Planet, are proportional to the Quantity of Matter in each.

For the Law of the Deſcent of heavy Bodies towards the Earth, ſetting aſide their unequal Retardation from the Reſiſtance of the Air, is this; that all Bodies fall equal ſpaces in equal times: But the nature of Gravity or Weight, no doubt, is the ſame on the other Planets, as on the Earth. See WEIGHT.

Suppoſe, *e. gr.* ſuch Bodies raiſed to the Surface of the Moon, and together with the Moon deprived at once of all Progreſſive Motion, and drop'd towards the Earth: 'Tis ſhewn, that in equal Times they will deſcribe equal Spaces with the Moon; and, therefore, that their Quantity of Matter is to that of the Moon, as their Weights to its Weight.

Add, that ſince *Jupiter*'s Satellites revolve in times that are in a ſeſquiplicate Ratio of their diſtances from the Centre of *Jupiter*, and conſequently at equal diſtances from *Jupiter* their accelerating Gravities are equal; therefore, falling equal Altitudes in equal Times, they will deſcribe equal Spaces: juſt as in heavy Bodies on our Earth. And the ſame Argument will hold of the primary Planets with regard to the Sun. And the Powers whereby unequal Bodies are equally accelerated, are as the Bodies; *i. e.* the Weights are as the Quantities of Matter in the Planets. And the Weights of the primary and ſecundary Planets towards the Sun, are as the Quantities of Matter in the Planets and Satellites.

And hence are ſeveral Corollaries drawn relating to the *Weights* of Bodies on the Surface of the Earth, Magnetiſm, and the *Exiſtence* of a Vacuum. Which ſee under the Articles VACUUM, WEIGHT, and MAGNETISM.

V. Gravity extends itſelf towards all Bodies, and is in proportion to the Quantity of Matter in each.

That all the Planets gravitate towards each other, has been already ſhewn; likewiſe, that the Gravity towards any one conſider'd apart, is reciprocally as the Squares of its Diſtance from the Centre of the Planet: Conſequently, Gravity is proportional to the Matter therein. Further, As all the Parts of any Planet, A, gravitate towards another Planet, B; and the Gravity of any part is to the Gravity of the whole, as the Matter of the part to the Matter of the whole; and Reaction equal to Action: The Planet B will gravitate towards all the Parts of the Planet A; and its Gravity towards any part, will be to its Gravity towards the whole, as the Matter of the part to the Matter of the whole.

Hence, we derive Methods of finding and comparing the *Weights* of Bodies towards different Planets; of finding the *Quantity of Matter* in the ſeveral Planets; and their *Denſities*: Since the Weights of equal Bodies revolving about Planets, are as the Diameters of their Orbits directly, and as the Squares of the Periodical Times, inverſly; and the Weights at any diſtance from the Centre of the Planet are greater or leſs in a duplicate Ratio of their diſtances, inverſly: And ſince the Quantities of Matter in the Planets are as their Powers at equal diſtances from their Centres: And, laſtly, ſince the Weights of equal and homogeneous Bodies towards homogeneous Spheres, are, at the Surfaces of the Spheres, as the Diameters of thoſe Spheres; and, conſequently, the Denſities of heterogeneous Bodies are as the Weights at the Diameters of the Spheres. See DENSITY.

VI. The common Centre of Gravity of the Sun, and all the Planets, is at reſt: And the Sun, tho always in Motion, yet never recedes far from the common Center of all the Planets.

For, the Matter in the Sun being to that in *Jupiter* as 1033 to 1; and *Jupiter's* diſtance from the Sun to the Semidiameter of the Sun in a Ratio ſomewhat bigger; the common Center of Gravity of *Jupiter* and the Sun, will be a Point a little without the Sun's Surface. And by the ſame means the common Centre of *Saturn* and the Sun will be a Point a little within the Sun's Surface: And the common Centre of the Earth, and all the Planets will be ſcarce one Diameter of the Sun diſtant from the Centre thereof. But the Centre is always at reſt: Therefore, tho the Sun will have a Motion this and that way, according to the various Situations of the Planets, yet it can never recede far from the Centre. So that the common Centre of Gravity of the Earth, Sun, and Planets may be eſteem'd the Centre of the whole World. See SUN and CENTRE.

VII. The Planets move in Ellipſes that have their *Foci* in the Centre of the Sun; and deſcribe Areas proportional to their Times.

This we have already laid down *à poſteriori*, as a Phenomenon: And now, that the Principle of the heavenly Motions is ſhewn, we deduce it therefrom *à priori*. Thus: Since the Weights of the Planets towards the Sun are reciprocally as the Squares of their diſtances from the Centre of the Sun; if the Sun were at reſt, and the other Planets did not act on each other; their Orbits would be Elliptical, having the Sun in their common Umbilicus; and would deſcribe Areas proportional to the Times: But the mutual Actions of the Planets are very ſmall, and may be well thrown aſide. Therefore, &c. See PLANET and ORBIT.

Indeed, the Action of *Jupiter* on *Saturn* is of ſome conſequence; and hence, according to the different Situations and Diſtances of thoſe two Planets, their Orbits will be a little diſturbed. See DISTURBING *Force*.

The Sun's Orbit too, is ſenſibly diſturbed by the Action of the Moon: And the common Centre of the two deſcribes an Ellipſis round the Sun placed in the Umbilicus; and with a Radius drawn to the Centre of the Sun, deſcribes Areas proportional to the Times. See EARTH and SATURN.

VIII. The Aphelia and Nodes of the Planets are at reſt. Excepting for ſome inconſiderable Irregularities ariſing from the Actions of the revolving Planets and Comets.—Conſequently, as the fix'd Stars retain their Poſition to the Aphelia and Nodes; they, too, are at reſt. See NODE, STAR, &c.

IX. The Axis, or Polar Diameter of the Planets, is leſs than the Equatorial Diameter.

The Planets, had they no diurnal Rotation, would be Spheres; as having an equal Gravity on every ſide: But by this Rotation, the Parts receding from the Axis, endeavour to riſe towards the Equator, which, if the Matter they conſiſt of be fluid, will be affected very ſenſibly. Accordingly *Jupiter*, whoſe Denſity is found not much to exceed that of Water on our Globe, is obſerved by the Aſtronomers to be conſiderably leſs between the Poles, than from Eaſt to Weſt. And on the ſame Principle, unleſs our Earth were higher at the Equator than towards the Poles, the Sea would riſe under the Equator, and over-flow all near it. See SPHEROID.

But this Figure of the Earth, Sir *Iſ. Newton* proves likewiſe *à poſteriori*; from the Oſcillations of Pendulums being ſlower, and ſmaller, in the Equatorial, than the Polar Parts of the Globe. See PENDULUM.

X. All the Moon's Motions, and all the Inequalities in thoſe Motions, follow from theſe Principles: *E. gr.* Her unequal Velocity, and that of her Nodes, and Apogee in the Syzygies and Quadratures; the differences in her Eccentricity, and her Variation, &c. See MOON, QUADRATURE, SYZYGY, &c.

XI. From the Inequalities in the Lunar Motions, we can deduce the ſeveral Inequalities in the Motions of the Satellites. See SATELLITES.

XII. From theſe Principles, particularly the Action of the Sun and Moon upon the Earth, it follows, that we muſt have Tides; or that the Sea muſt ſwell and ſubſide twice every Day. See TIDES.

XIII. Hence likewiſe follows, the whole Theory of Comets; as, that they are above the Region of the Moon, and in the Planetary Spaces; that they ſhine by the Sun's Light reflected from them; that they move in Conic Sections, whoſe *Umbilici* are in the Centre of the Sun: and by Radii drawn to the Sun, deſcribe Areas proportional to the Times; that the Orbits, or Trajectories, are very nearly Parabolas; that their Bodies are ſolid, compact, &c. like thoſe of the Planets, and muſt therefore acquire an immenſe heat in their *Perihelia*; that their Tails are Exhalations ariſing from them, and encompaſſing them like Atmoſpheres. See COMET.

The Objections rais'd againſt this *Philoſophy*, are chiefly againſt the Principle *Gravity*; which ſome condemn as an *occult Quality*, and others as a *miraculous*, and præter-natural Cauſe; neither of which have longer any room in ſound Philoſophy. Others, again, ſet it aſide, as deſtroying the Notion of *Vortices*; and others, as ſuppoſing a *Vacuum*. But theſe are all abundantly obviated under the Articles GRAVITY, ATTRACTION, VORTEX, VACUUM, QUALITY, &c.

NEXUS *of Matter*, ſee COHESION.

NICHE, in Architecture, a Cavity, or Sinking, in the Thickneſs of a Wall; to place a Figure, or Statue in. See STATUE.

The larger *Niches* ſerve for Groups of Figures; the ſmall ones for ſingle Statues, ſometimes only for Buſts.

The Word comes from the *Italian Nicchio*, Sea-Shell; in regard the Statue is here incloſed as in a Shell; or, perhaps, by reaſon of the Shell wherewith the Top of ſome of them is adorn'd.

Great Care muſt be taken to proportion the *Niches* to the Figures; and that the Pedeſtals of the Figures be proportion'd to the *Niches*.

Round NICHE, is that whoſe Plan and Circumference are Circular.

Square NICHE, That where they are Square.

Angular NICHE, That form'd in a Corner of the Building.

Ground NICHE, That which, inſtead of bearing on a Maſſive, has its Riſe from the Ground; as the *Niches* of the Portico of the Pantheon at *Rome*: Theſe are otherwiſe call'd Tribunals. See TRIBUNAL.

Niches are ſometimes made with Ruſtic-work, ſometimes with Shell-work, and ſometimes of Crail'd, or Arborwork.

NICHOLAITANS, or NICOLAITANS, one of the moſt antient Sects in the Chriſtian Church. It had its Name from *Nicholas*, a Perſon ordain'd a Deacon of the Church of *Jeruſalem* together with St. *Stephen*.

The diſtinguiſhing Tenet of the *Nicholaitans*, as repreſented by Eccleſiaſtical Hiſtorians, is, that all Married Women ſhould be common; to take away all occaſion of Jealouſy.

Other Authors tax *Nicholas* with other Impurities; but *Clemens Alexandrinus* imputes them all to his Diſciples, who, he ſays, abuſed their Maſter's Words. *Nicholas*, it ſeems, having a very beautiful Wife, was ſuſpected by the Apoſtles as jealous of her, and as being a laſcivious Man.

To remove this ſuſpicion, he call'd his Wife; and to ſhew he was not at all attach'd to her, offer'd any of them the liberty of eſpouſing her. This is confirm'd by *Euſebius*, who adds, that *Nicholas* never had more than one Wife.

Other things charg'd on the *Nicholaitans*, are, That they made no ſcruple of eating Meats offer'd to Idols: That they maintain'd that the Father of Jeſus Chriſt was not the Creator: That ſome of them adored one *Barbelo*, who inhabited the eighth Heaven, and who proceeded from the Father, and was the Mother of *Jaldabaoth*; or, according to others, of *Sabaoth*, who had forcibly taken poſſeſſion of the ſeventh Heaven. Others of them gave the Name *Prounicos* to the Mother of the heavenly Powers; but all aſcribe infamous Actions to her, and with her authorize their own Impurities. Others ſhewed Books, and pretended Revelations under the Name of *Jaldabaoth*.

Irenæus and *Epiphanius* relate theſe and other Extravagancies; and repreſent the *Nicholaitans* as Authors of the Sect of *Gnoſtics*. See GNOSTICS.

Cocceius, *Hoffman*, *Vitringa*, and *Maius*, take the Name *Nicholaitan* to be coin'd, to ſignify a Man addicted to Pleaſure and Debauchery; adding, that it has nothing to do with *Nicholas* one of the ſeven Deacons. And, as the Doctrine of the *Nicholaitans* is mention'd in the *Apocalypſe*, immediately after mention made of *Balaam*, and his Doctrine, they compare the two Names *Balaam* and *Nicholas*, which, in their Originals, the one in *Greek*, the other *Hebrew*, have nearly the ſame ſignification, *viz. Prince*, or *Maſter of the People*.

Maius adds, 'twas probable enough the *Nicholaitans* might value themſelves on being the Diſciples of one of the ſeven Deacons; but that it was without any ground: notwithſtanding what the Antients, ever too credulous, have repreſented to the contrary.

NICOTIANA, or *Herba Nicotiana*, a Term given to *Tobacco*; from *Nicot* the *French* Ambaſſador at the Court of *Portugal*, who firſt ſent it into *France* in 1560, and gave it his own Name; as he himſelf tells us in his Dictionary. See TOBACCO.

NICTITATING *Membrane*, in Anatomy, a thin Membrane which covers the Eyes of ſeveral Creatures, and ſhelters them from Duſt, or too much Light; yet is ſo thin, that they can ſee indifferently well through it. See EYE.

The *Nictitating Membrane* is chiefly found in the Bird and Fiſh Kind. See BIRD and FISH.

This *Membrane* in the Eagle's Eye, is remarkably cloſe and firm, inſomuch as to be accounted as a ſecond Eye-lid: And hence that remarkable Firmneſs of the Eagle's Sight in viewing the Sun. See EAGLE.

NIDUS, *Neſt*, a Depoſitory, wherein certain Animals, Fowls particularly, Inſects, and Reptiles lodge their Eggs, for Incubation; and wherein, when hatch'd, they nurſe their Young till they become able to ſhift for themſelves.

The Word is *Latin*, and ſuppoſed to be derived from *Nidor*, ſtrong, or ill Smell; in regard the Neſts of Animals uſually ſtink.

Mr. *Derham* ſays, he has often wonder'd how Waſps, Hornets, and other Inſects that gather dry Materials (as the Duſt of Wood ſcraped off for that purpoſe) ſhould find a proper Matter to cement and glue their Combs, and line their Cells; but he adds, That in all probability 'tis in their own Bodies: as in the *Tinea Veſtivora*, the Cad-Worm, *&c.*

Geodart obſerves of his *Eruca* that fed on Leaves, that it made its Cell on Leaves glued together with its own Spittle.

NIECE, a Term relative to Uncle and Aunt, ſignifying Brother or Siſter's Daughter; which, in the Civil Law, is the third Degree of Conſanguinity, and in the Canon Law, the ſecond. See AGNATI and COGNATI.

NIENT *Comprize*, in Law, an Exception taken to a Petition as injuſt; becauſe the thing deſired is not in that Act, or Deed whereon the Petition is grounded.

Thus, a Perſon deſires of the Court to be put in Poſſeſſion formerly adjudg'd to him among other Lands: The adverſe Party pleads that this Petition is not to be granted, by reaſon tho the Petitioner had a Judgment for certain Lands and Houſes, yet this Houſe is not *comprized* therein.

NIEPE, NEPE, or NEEP *Tides*, are thoſe Tides which happen when the Moon is in the middle of the ſecond and laſt Quarters. See TIDE.

The *Niepe-Tides* are oppoſite to the Spring-Tides; and as the higheſt of the Spring-Tides is three Days after the Full or Change, ſo the loweſt of the *Niepe* is four Days before the Full or Change; on which occaſion the Seamen ſay, That it is *deep Niep*.

When a Ship wants Water, ſo that ſhe cannot get out of the Harbour, off the Ground, or out of the Dock, the Seamen ſay, *She is Nieped*.

NIGHT, that Part of a Natural Day, during which the Sun is underneath the Horizon. See DAY.

Or *Night*, is that Space of Time wherein the Sun is out of our Hemiſphere.

Under the Equator, the *Nights* are always equal to the Days. Under the Poles, the *Night* holds half the Year.

The antient *Gauls* and *Germans* divided their Time not by Days, but *Nights*; as appears from *Tacitus* and *Cæſar*. And the People of *Iceland* and the *Arabs*, do the ſame at this day. The ſame is obſerved of our *Saxon* Anceſtors.

Thus, in the Council of *Cloveſhoe*, *Anno* 824, we read, *Ibi finita & proſcripta contentione coram Epiſcopo poſt* 30 Noctes, *illum Juramentum ad Weſtminſter deductum eſt*. Whence our Cuſtom of ſaying, *Seven-night*, *fort-night*, &c.

NIGHT-*Mare*, a popular Name for a Diſeaſe by the *Greek* Phyſicians call'd *Ephialtes*, and the *Latins*, *Incubus*; to which People lying a-ſleep on their Backs, and having their Stomach charg'd with heavy Food difficult of Digeſtion, are very liable.. See INCUBUS.

The Diſeaſe makes the ſleeping Patient appear as if oppreſs'd with a huge Weight on the Breaſt; whence he ordinarily imagines ſome Spectre or Fantom ſtopping his Breath.

The Diſeaſe does not ariſe, as was antiently imagined, from groſs Vapours filling the Ventricles of the Brain; but rather from a too great repletion of the Stomach which prevents the Motion of the Diaphragm, and, of conſequence, the Dilatation of the Breaſt neceſſary to Reſpiration.

Others take it to be produced by a Convulſion of the Muſcles of Reſpiration. See EPHIALTES.

Etmuller obſerves, That the *Arabs* call this Diſeaſe a *Nocturnal Epilepſy*; ſince upon its prevailing much, it degenerates into an Epilepſy; and is in effect the *Prodromus* hereof in young People, as in old ones of an Apoplexy.

NIHIL, NIHILUM, *Nothing*; among the School Philoſophers, is what has no real *Eſſe*, and is only conceived negatively, and denominated by a Negative. See ESSE.

NIHIL *Capiat per Billam*, or *per Breve*, is a Form uſed when Judgment is given againſt the Plaintiff, ſo as to bar his Action, or overthrow his Writ.

NIHIL *Dicit*, is a failing to put in an Anſwer to the Plaintiff's Plea by the Day aſſign'd.

NIHILI *Album*, ſee POMPHYLAX.

NIHILS, or NICHILS, Iſſues, which the Sheriff that is oppoſed ſays are nothing worth, and Illeviable; for the Inſufficiency of the Parties that ſhould pay them.

Clerk of the NICHILS, *Nihilorum Clericus*, is an Officer of the Exchequer who makes a Roll of the Sums which are *Nichil'd* by the Sheriff. See EXCHEQUER.

NILOMETRE, an Inſtrument uſed among the Antients, to meaſure the height of the Water of the *Nile*, in its over-flowings. See OVERFLOWING.

In the *French* King's Library is an *Arabic* Treatiſe on *Nilometres*, entitled *Neili fi alnal al Nil*; wherein are deſcribed all the overflowings of the *Nile* from the 1ſt Year of the *Hegira* to the 875th.

Herodotus mentions a Column erected in a Point of the Iſland *Delta*, to ſerve as a *Nilometre*: And there is ſtill one of the ſame kind in a Moſque of the ſame Place.

As all the Riches of *Egypt* ariſe from the over-flowing of the *Nile*, the *Egyptians* uſed to ſupplicate them at the hands of their *Serapis*, and committed the moſt execrable Crimes, as Actions, forſooth, of Religion, to obtain the Favour. This occaſion'd *Conſtantine* expreſly to prohibit theſe Sacrifices, *&c.* and to order the *Nilometre* to be removed into the Church; whereas till that time it had been in the Temple of *Serapis*. *Julian* the Apoſtate, had it replaced in the Temple, where it continued till the Time of the Great *Theodoſius*. See on the Subject of *Nilometres*, the *Acta Eruditorum Lipſii*, *Anno* 1686.

The Word comes from the *Greek* νεῖλος, *Nile*, (and that from νέα ἰλὺς, *New Mud*; or, as others will have it, from νέω, *I flow*, and ἰλυς, *muddy*) and μέτρον, *Meaſure*.

The *Greeks* ordinarily call'd the *Nilometre*, *Niloſcope*.

NIMBIS, in Antiquity, a Term ſignifying a Circle, obſerved on certain Medals, around the Heads of ſome Emperors; anſwering to the Circles of Light, or *Aureolæ*, placed around the Images of Saints.

The *Nimbis* is ſeen on the Medals of *Maurice*, *Phocas*, and others, even of the upper Empire.

NIMETULAHITE, a kind of Religious among the *Turks*; ſo call'd from *Nimetulahi* their Inſtitutor.

When a *Turk* would be admitted into the Order, he is to ſhut himſelf up cloſe in a Chamber forty Days, tied down to four Ounces of Food *per* Day. The term expired, the *Nimetulahites* take him by the Hand, and lead him a *Mooriſh* Dance accompanied with an infinity of ridiculous Actions, or Geſtures; till the violence of the Exerciſe, with his former Regimen, throw him down on the Ground. This Fall is conſtrued an Extaſy, during which he is ſuppoſed to have a Viſion.

The *Nimetulahites* meet every *Monday* in the Night-time, and ſing Hymns to God, *&c.*

NIPPLE, ſee BREASTS.

NISI *Prius*, in Law, a Writ Judicial, which lieth in Caſes, where the Jury being impanel'd, and returned before the Juſtices, one of the Parties requeſts to have ſuch Writ, for the Eaſe of the Country, whereby to will the Sheriff to cauſe the Inqueſt to come before the Juſtices in the ſame Country.

It is call'd a Writ of the *Niſi Prius*, and its Effect is, that the Sheriff is hereby commanded to bring to *Weſtminſter* the Men impanell'd at a certain Day, or before the Juſtices of the next Aſſizes, *Niſi die Lunæ apud talem Locum prius venerint*, &c.

NITRE, in Natural Hiſtory, a ſort of Salt, thus call'd by the Antients; by the Moderns, more uſually, *Saltpetre*. See SALTPETRE.

Naturaliſts differ as to the Point whether our Saltpetre be the *Nitre* of the Antients. *G. C. Schelhamer* has a particular Treatiſe on the Subject, *de Nitro tum veterum tum noſtro Commentarius*.

Moſt other Authors hold the antient *Nitre* to be Mineral or Foſſil; whereas our Saltpetre is Artificial. *Serapion* ſays, their Mines of *Nitre* were like thoſe of common Salt, and that it was form'd out of running Water congeal'd in its Progreſs into a ſort of Stone. He adds, That their *Nitre* was of four kinds, diſtinguiſh'd by the Countries whence it came; *viz.* the *Armenian*; *Roman*; *African*; call'd *Aphronitre*, and by *Avicenna*, *Baurach*; and the *Egyptian*, which was the moſt famous, giving Name to all the reſt; itſelf denominated from *Nitria*, a Province in *Egypt*, where it was found in great abundance. He aſſures us, too, that their *Nitre* was of divers Colours, *viz.* white, red, and livid; that ſome was cavernous, like a Spunge; others cloſe and compact; others tranſparent like Glaſs; and others ſcaly.

Schelhamer gives a different Account: The Antients, he obſerves, diſtinguiſh'd between Νίτρον, *Nitre*, Ἀφρόνιτρον, *Aphronitre*, and Ἀφρὸς νίτρου, *Spuma Nitri*, or *Scum of Nitre*.

He adds, That *Agricola*, *&c.* is miſtaken in aſſerting that there were antiently Mines in *Lydia*, *Magneſia*, *Caria*, &c. out of which *Nitre* was dug like Stones out of a Quarry: And that the *Nitre* uſed by the Antients was brought out of ſeveral Countries mentioned by *Pliny*, *L.* xxxi. *c.* 10. A Lake in *Macedonia*, whoſe Waters were *Nitrous*, and in the middle whereof, however, was a Spring of freſh Water, furniſh'd the greateſt Quantity, and the beſt: It was call'd *Calluſtricum* from a neighbouring Cape in the Gulf of *Theſſalonica*, and was form'd like a Cruſt on the Surface of the Water during the Dog-days. The Waters of the Lake *Aſcanius* in *Bithynia*, and thoſe of certain Springs near *Chalcis*, were ſweet and potable towards the Surface, yet *nitrous* at bottom.

There was alſo *Nitre* gather'd on the Ground near *Philippi*, in *Thrace*; but it was little, and of no great value.

The Valleys of *Media* alſo furniſh'd ſome. And there were *Nitre*-Pits in *Egypt*, as there are Salt-Pits among us. See NATRON and NITRIAN *Waters*.

The chief Virtue the Antients aſcribe to their *Nitre*, is, that of drying, deterging, and attenuating; and, as ſuch, it was uſed in Ulcers, Diſorders of the Eyes, the Itch, the Bite of Serpents, Gout, *&c.* They alſo took it inwardly to reſolve and attenuate viſcid Humours: But its cooling Quality, whereof the modern Phyſicians make ſo much uſe, they were unacquainted withall.

'Tis excellent in Diſeaſes of the Heart, accompanied with a propenſity to vomit.

Abundance of our Phyſicians are full of the Notion of a *volatile Nitre* abounding in the Air; and a world of Phænomena they account for from the Operation of the Particles thereof. See AIR.

That the Atmoſphere abounds with Saline Particles, is moſt certain; for being filled continually with Effluvia from the Earth and Sea, it muſt needs have from both a great Quantity of Saline Corpuſcles; and theſe will be of different Kinds, according to the Variety of thoſe Salts from whence they are derived. See SALT.

But why theſe ſhould be moſtly ſuppoſed of a *Nitrous* nature, is not ſo eaſy to prove; for Saltpetre is by no means found in greater Quantity than the other Salts, eſpecially common Salt; nor is it of a much more volatile Nature than they, nor capable of being raiſed more eaſily, or by a leſſer heat. But ſince Soot, and that which produces it, Smoak, is found to abound very much with a truly volatile Salt; and ſince ſuch a kind of Salt is produced frequently by the Putrefaction of Animal and Vegetable Bodies, 'tis probable the Air may abound with Salts of this kind, among many other decompounded ones of different Natures and Names. See ATMOSPHERE, *&c.*

Spirit of NITRE, ſee SPIRIT.

NOBILIARY, a Collection, or Hiſtorical Account of the Noble Families of a Province, or Nation.

Chorier has publiſhed a *Nobiliary* of *Dauphine*; and *Caumartin*, another of *Provence*. The *Germans* are particularly careful of their *Nobiliaries*, to keep up the Purity of their Families.

NOBILISSIMUS, in Antiquity, a Title, or Quality given to the Princes of the Imperial Family. See TITLE.

F. *Doucine* advances, That the Title *Nobiliſſimus* was firſt given under the Emperor *Juſtin*; yet we find the Title, *Nobilis Cæſar*, or *Nob. C.* that is, *Nobiliſſimus Cæſar*, on Medals long before that Time, even as early as *Trajan*. So that even M. *Tillemont* is miſtaken where he ſays, The Quality of *Nobiliſſimus* is not to be found in Hiſtory before the Time of *Conſtantine the Great*, who firſt gave it to his two Brothers; after which it was attributed to ſuch of the Emperor's Children as were not *Cæſars*.

Triſtan adds, That the *Cæſars* bore the Title of *Nobiliſſimi* in all Ages; but that the *Nobiliſſimate* firſt became a diſtinct independent Dignity in the Time of *Conſtantine the Great*.

NOBILITY, a Quality that dignifies, or renders a Thing *Noble*; particularly, that raiſes a Perſon poſſeſs'd thereof above a Peaſant, or Commoner. See NOBLE.

In *England*, indeed, but no where elſe, the Term *Nobility* is reſtrain'd to Degrees of Dignity above Knighthood. See KNIGHT.

Some refer the Origin of *Nobility* in *Europe* to the *Goths*; who, after they had ſeiz'd a Part of *Europe*, rewarded their Captains with Titles of Honour, and call'd them *Nobles*, *Nobiles*, to diſtinguiſh them from the common People.

Nobility, in *England*, is only confer'd by the King, and that by Patent; in virtue whereof, it becomes Hereditary. In other Countries there are other ways of acquiring it.

Thus, in *France*, *v. gr.* there are ſeveral Offices which convey perfect *Nobility*, and ſuch as deſcends to Poſterity. Such are all Offices of the Crown, thoſe of *Counſellor of Eſtate*, &c.

Others they have which only communicate an Acceſſory, or Perſonal *Nobility*, which dies with the Perſon. Thus, a *Counſellor in Parliament* enjoys all the Rights and Exemptions of *Nobility*; yet his Son is never reputed *Noble*; unleſs there have been a Succeſſion of them, and both Father and Grandfather have been *Noble*; which they call *Patre & Avo Conſulibus*.

They have a third Kind of *Nobility*, call'd *Nobility of the Bell*, *de la Cloche*; which is what the Mayors and Sheriffs of certain Cities, as *Lions*, *Bourges*, *Rochel*, *Poitiers*, &c. acquire in virtue of their Magiſtracy.

The *Nobility* of *England* is call'd the *Peerage* of *England*. See PEERAGE.

Its Degrees are only five, *viz.* That of a *Duke*, *Marquiſs*, *Earl* or *Count*, *Viſcount*, and *Baron*. See each Degree under its proper Article, DUKE, MARQUISS, *&c.*

The Privileges of the *Engliſh Nobility* are very conſiderable: They are all eſteem'd as the King's Hereditary Counſellors; and are privileged from all Arreſts, unleſs for Treaſon, Felony, breach of Peace, Condemnation in Parliament, and Contempt of the King. No Supplicative can be granted againſt them; no *Capias*, or *Exigent*, ſued againſt them for Action of Debt, or Treſpaſs; no *Eſſoigne* lies againſt them: In Criminal Caſes, they are only to be tried by a Jury of Peers, who are not put to their Oath; but their Verdict *upon their Honour* ſuffices. In their Abſence they are allow'd a Proxy to Vote for them; and in all Places of Truſt are allow'd to conſtitute Deputies, by reaſon of the Neceſſity the Law ſuppoſes them under of attending the King's Perſon.

Guillim obſerves, That if an Appeal of Murther or Felony be ſued by a Commoner, againſt a Peer, he ſhall be tried by Commoners, not Peers.

No Peer may go out of the Kingdom without the King's leave: If any have leave, he is to return upon the King's Writ, or to forfeit Goods and Chattels.

Anton. Matthæus obſerves, That *Nobility* among the *Romans* was a quite different thing from what it is among us. The *Nobles* of the *Romans* were either thoſe rais'd to the Magiſtrature, or deſcended from Magiſtrates: There was no ſuch thing as *Nobility* by Patent.

Bartoli ſays, That Doctors, after they have held a Chair in an Univerſity for twenty Years, became *Noble*; and are entitled to all the Rights of Counts. See COUNT.

But this Claim is not admitted at Court, *&c.* tho *Bartholis*'s Sentiments be back'd with thoſe of ſeveral other Authors, particularly *Chaſſaneus* in his *Conſuetudin. Burgundiæ*; *Boyer ſur la Coutume de Berry*; *Faber de Dig. deſ.* *&c.* which laſt, however, reſtrains *Bartholis*'s Rule to Doctors in Law, and Princes Phyſicians. See DOCTOR.

By an Edict of the *French* King, in 1669, 'tis declared, That Trade ſhall not derogate from *Nobility*, provided the Perſon don't ſell by retail. See COMMERCE.

In *Bretagne*, by antient Cuſtom, a *Noble* loſes nothing by Trading even in retail: But he reaſſumes all his Rights as ſoon as he ceaſes Traffic; *his Nobility having ſlept all the time.*

In *Germany*, a Woman not *Noble* by Birth doth not become *v. gr.* a Counteſs, or Baroneſs, by marrying a Count, or Baron. A Lady of the higher Degree, indeed, becomes a Princeſs by marrying a Prince; but this doth not hold of a Lady of the lower *Nobility*. See MARRIAGE.

On the Coaſt of *Malabar*, Children are only capable of being *Noble* by the Mother's ſide; it being allow'd them to take as many Husbands as they pleaſe, and to quit them when they think good.

NOBLE, a Perſon who has a Privilege which raiſes him above a Commoner, or Peaſant; either by Birth, by Office, or by Patent from his Prince. See NOBILITY.

In *England*, the word *Noble* is of a narrower import, than in other Countries, being confined to Perſons above the Degree of Knights; whereas, abroad, it comprehends not only Knights, but alſo what we ſimply call *Gentlemen*. See KNIGHT, GENTLEMAN, *&c.*

The *Nobles* of *England* are alſo call'd *Pares Regni*, as being *Nobilitate Pares*, tho *Gradu Impares*. See PEER.

The Word comes from the *Latin*, *Nobilis*, form'd from the antient *Noſcibilis*, diſtinguiſhable, remarkable.

The *Venetian Nobleſſe* is famous: 'Tis in this that the Sovereignty of the State reſides. It is divided into three Claſſes: The firſt only comprehends 24 Families.

The ſecond includes the Deſcendants of all thoſe who were wrote in the golden Book, in 1289, and deſtined to govern the State, which then began to be Ariſtocratic.

The third conſiſts of ſuch as have bought the Dignity of *Noble Venetians*.

This laſt Claſs is only admitted to the inferior Employs; The two former, to all indifferently.

The Title of *Noble Venetians* is ſometimes alſo given to foreign Kings, Princes, *&c.*

NOBLE, or *Roſe Noble*, a Money of Account containing 6 *s.* 8 *d.* See MONEY.

The *Noble* was antiently a real Coin, under the Denomination of *Noble*, or *Roſe Noble*. See Coin.

Authors obſerve, that there has not been any Piece of Gold or Silver of this Name, coin'd with us, ſince 9 *H.* V. They were firſt coin'd by *Edw.* III. in 1334.

The *Noble* contain'd 80 *d.* the ſame with the preſent Money of Account: Its half was call'd *Obolus*, containing 40 *d.* its fourth part the *Quadrance*, or Farthing in thoſe days, 20 *d.*

NOCTAMBULI, a Term of equal import with *Somnambuli*, applied to Perſons who have a Habit of riſing, and walking about in their Sleep. See Sleep.

The Word is a compound of the *Latin Nox*, Night, and *ambulo*, I walk.

Skenkius, *Horſtius*, *Clauderus*, and *Hildanus*, who have wrote of Sleep, give us divers unhappy Hiſtories of ſuch *Noctambuli*.

The Diſorder conſiſts in this, that the proper Organs of Muſcular Motion are at liberty, while the Organs deſtined for Senſation are bound up, or in a State of Inaction. See Muscular *Motion* and Sensation.

To conceive the Cauſe, it is to be obſerv'd, that the Laws of the Union of the Soul and Body, are ſuch, as that certain Ideas follow upon certain Motions of the Fibres of the Brain; and certain Motions of thoſe Fibres upon certain Ideas. Now, by much thinking on any one thing, the Fibres acquire ſome permanent Situation, which gives a freer Paſſage to the Spirits towards a certain part of the Body than ordinary. If then the Animal Spirits become too copious, or too much agitated, or conſiſt of parts too ſolid; they throw themſelves into the Paſſages they find the moſt open, glide into the Nerves and Muſcles correſponding to thoſe Paſſages, and there produce the Motions proper to thoſe Muſcles.

Accordingly, the Body riſes and walks; tho the Soul be excluded from thinking on the Objects that uſe to employ it on ſuch occaſions.

The Bilious, according to *Horſtius*; the Melancholic, according to *Salius*; and the Sanguine, according to *Libavius*, are the moſt ſubject to thoſe *nocturnal* Vagaries.

The Remedies are all ſuch things as temper the Agitation of the Spirits, and relax the Fibres; as Bleeding, and all Coolers, either internally or externally: Aperitives too, have a good effect; but the beſt Remedy is Cold-Bathing.

NOCTILUCA, among Naturaliſts, a Species of Phoſphorus, ſo call'd becauſe it ſhines in the Night, and without any Light being thrown on it; as that made of Urine, *&c.* by which it is diſtinguiſhed from the other Species of Phoſphorus, which, e'er they ſhine, muſt be expoſed to the Sun-Beams; ſuch as is the *Bolonian*-Stone, *&c.* See Phosphorus and Bolonian-*Stone*.

Mr. *Boyle*, in a particular Treatiſe on the Subject, gives an Account of three *Noctilucæ*. The firſt, invented by *Krafft*, he calls the *Conſiſtent*, or *Gummous Noctiluca*, as being of a Texture not unlike that of a Cherry-Gum. This, on account of its uninterrupted Action, is, by the *Germans*, call'd the *Conſtant Noctiluca*; among us it is now known under the denomination of *ſolid Phoſphorus*.

The ſecond, *Liquid*, invented by the ſaid *Krafft*; being only a Diſſolution of the former in a convenient Liquor. The third Kind was prepared by Mr. *Boyle* himſelf; and of a different Nature from both the other; for, it would not ſhine of itſelf, like either of them, but required the Contact of the Air (tho not any external Rays or Heat) to make it produce Light, which would be very durable, in a well-ſtopp'd Veſſel. Add, that it was not the Body that ſhone, but an Exhalation, or Effluvium mix'd with the Air; on which accounts, the Inventor gives it the Denomination of the *Aerial Noctiluca*.

The ſame Mr. *Boyle*, afterwards, prepared another ſort; which, from the little pellucid Fragments, or Cryſtals therein, he denominated the *Icy Noctiluca*.

NOCTURNAL, ſomething that relates to *Night*, *Nox*; in contradiſtinction to *Diurnal*. See Night and Diurnal.

In this ſenſe we ſay, *Nocturnal Aſſemblies*; *Nocturnal Pollutions*, *&c.* See Pollutions, *&c.*

Nocturnal *Pains*, a frequent Concomitant of Venereal Diſorders, which can only be palliated with Narcoticks: nothing but a Mercurial Courſe, or a long continued uſe of Diet-Drinks can entirely remove them.

NOCTURNAL *Arch*, in Aſtronomy, the Arch of a Circle deſcribed by the Sun, or a Star, in the Night.

Semi-Nocturnal *Arch of the Sun*, is that Portion of a Circle he paſſes over between our Meridian, and the Point of the Horizon wherein he riſes; or, between the Point of the Horizon where he ſets, and our Meridian.

NOCTURNAL, is particularly uſed for a *Star-Dial*, or an Inſtrument uſed to determine the Hour of the Night; chiefly at Sea, from the Altitude, or Depreſſion of ſome of the Stars about the Pole. See Dial.

There are *Nocturnals* of various Contrivances; ſome of them Projections of the Sphere: Thoſe ordinarily uſed are adapted either to the Pole Star, or the two Stars in *Urſa minor*, call'd the Guards.

Conſtruction of the Nocturnal.

The Inſtrument conſiſts of two Circular Plates, (Tab. Navigation, *Fig.* 13.) applied on each other. The greater, which has a Handle to hold the Inſtrument, is about 2½ Inches Diameter, and is divided into 12 Parts, agreeing to the 12 Months; and each Month ſubdivided into every fifth Day: And ſo as that the middle of the Handle correſponds to that Day of the Year, wherein the Star here regarded has the ſame right Aſcenſion with the Sun.

If the Inſtrument be fitted for two Stars, the Handle is made moveable. The upper leſt Circle is divided into 24 equal Parts, for the 24 Hours of the Day, and each Hour ſubdivided into Quarters, as in the Figure. Theſe 24 Hours are noted by 24 Teeth; to be told in the Night. Thoſe at the Hours 12, are diſtinguiſhed by their length. In the Centre of the two circular Plates, is adjuſted a long Index A, moveable upon the upper Plate. And the three Pieces, *viz.* the two Circles and Index, are join'd by a Rivet which is pierced thro the Centre, with a Hole two Inches in Diameter for the Star to be obſerv'd thro.

Uſe of the Nocturnal.

Turn the upper Plate till the longeſt Tooth mark'd 12, be againſt the Day of the Month on the under Plate; then bringing the Inſtrument near the Eye, ſuſpend it by the Handle, with the Plane nearly parallel to the Equinoctial; and viewing the Pole-Star thro the Hole of the Centre, turn the Index about, till, by the Edge coming from the Centre, you ſee the bright Star or Guard of the little Bear; if the Inſtrument be fitted to that Star; and that Tooth of the upper Circle, that is under the edge of the Index, is at the Hour of the Night on the edge of the Hour-Circle, which may be known without a Light, by accounting the Teeth from the longeſt, which is for the Hour 12.

NODATED *Hyperbola*, a kind of Hyperbola, which, in turning round, croſſes itſelf. See Curve and Hyperbola.

NODE, Nodus, in Chirurgery, a Tumour ariſing on the Bones, uſually proceeding from ſome Venereal Cauſe. See Tumor and Bone.

It ſeems generated of a thick, cold, viſcid Humour, which is often found very difficult to reſolve.

They frequently apply to it a leaden Plate cover'd with Mercury. The Cure is firſt attempted by *Emplaſt. de Ranis cum Mercurio*; which failing, ſome Mercurial Unguent is now and then rubb'd on them; and afterwards Mercurial Plaiſters made of Cinnabar, *&c.* applied.

Some Phyſicians call it *Exoſtoſis*; others give the Name *Nodus* to all Tumors ariſing on the Joints, and Nerves.

Node, *Nodus*, is alſo uſed for the Tumors, or Protuberances ariſing on the Joints of old Gouty People; call'd alſo *Tophi*. See Tophus.

They are ſuppoſed to be form'd of a thick, crude, heavy, viſcid indigeſted Matter; mix'd with a hot, ſharp, bilious Juice, the groſſer and more terreſtrial Part whereof being detain'd, grows into a ſtony ſort of Concretion. See Gout.

NODES, in Aſtronomy, the two Points wherein the Orbit of a Planet interſects the Ecliptic. See Orbit and Ecliptic.

Such are the two Points C and D, (Tab. Astron. *Fig.* 33.) whereof the *Node* C, where the Planet aſcends Northwards above the Plane of the Ecliptic, is call'd the *Aſcending Node*, the *Northward Node*, and the *Head of the Dragon*; and thus mark'd ☊. The other *Node* D, where the Planet deſcends to the South, is call'd the *Deſcending Node*, the *Southward Node*, or the *Dragon's Tail*; thus mark'd ☋. See Dragon's *Head* and *Tail*, *&c.*

The right Line D C, wherein the two Circles interſect, is call'd *the Line of the Nodes*. See Line.

It appears from Obſervation, that the Line of the *Nodes* of all the Planets conſtantly changes its Place, and ſhifts its Situation *in conſequentia*; *i. e.* from Eaſt to Weſt, contrary to the Order of the Signs.

Thus, by a retrograde Motion, the Line of the Moon's *Nodes* finiſhes its Circuit in 19 Years; in which time, after having receded from any Point of the Ecliptic, it returns to the ſame. See Moon.

When the Moon is in the *Nodes*, ſhe is alſo in the Ecliptic, *viz.* twice in each Period; when ſhe is at her greateſt diſtance from the *Nodes. viz.* in the Points E, F, ſhe is ſaid to be in her Limits. See LIMIT.

The Moon muſt be in one of the *Nodes* when there is an Eclipſe, either of the Sun or Moon. See ECLIPSE, PLANET, *&c.*

NODE, in Dialling, is ſometimes uſed for the Style, Index, or Gnomon of a Dial. See GNOMON.

Sometimes it is alſo uſed for a Hole in the Ceiling of a Room, or in the Window, for the making of a Dial on the Floor, Wall, or the like.

NODUS, or *Knot*, ſee KNOT.

NODUS *in Poetry*, *&c.* ſee INTRIGUE.

NODULUS, in Pharmacy, a Bag of Medicinal Ingredients put into Beer or Wine, the Tincture whereof the Patient is to take.

NOETIANS, a Sect of antient Heretics, Diſciples of *Noetius*, an *Epheſian*, the Maſter of *Sabellius*.

They only allowed of one Perſon in the Godhead; *viz.* the Father; and accordingly taught, that 'twas God the Father that ſuffered: An Error, ſays *Epiphanius*, who wrote an hundred Years after *Noetius*, never heard of before; tho 'tis certain there had been other *Patripaſſians* in the Church before him. See PATRIPASSIAN.

Being reprehended by his Superiors, *Noetius* made them this Anſwer: *What harm have I done? I adore one only God; I own none but him. He was born, ſuffered, and is dead.*

NOLI *me tangere*, in Medicine, a kind of Cancer, or a malignant Eruption in the Face, occaſioned by an extremely ſharp, corroſive Humour. 'Tis ſaid to be very dangerous touching it; for, frequently, in endeavouring to cure it, 'tis irritated the more, and the Patient's Death haſtened.

Hence its Name, which literally ſignifies, *don't touch me.*

NOLI *me tangere*, is chiefly uſed among us for an external Ulcer in the *Alæ* of the Noſe; proceeding often from a Venereal Cauſe, tho ſometimes the Effect of a Scrophulous Conſtitution. See ULCER.

It does not always confine itſelf to the Alæ, but will ſpread and corrode the very Subſtance of the Noſe. The Cure is difficult, eſpecially when it ariſes from a bad Conſtitution.

The Botaniſts alſo deſcribe a Plant under this denomination, which it derives from a ſingular Property it has, of darting out its Seed when ripe, upon the firſt approach of the Hand to touch its Pods. See SEMINATION.

NOMADES, a Name given, in Antiquity, to ſeveral Nations or People, whoſe whole Occupation was to feed and tend their Flocks; and who had no fix'd Place of Abode, but were conſtantly ſhifting, according to the Conveniences of Paſturage.

The moſt celebrated among the *Nomades* were thoſe of *Africa*, who inhabited between *Zengitania* to the Eaſt, and *Mauritania* to the Weſt.

Saluſt ſays, they were a Colony of *Perſians* brought into *Africa* with *Hercules*.

The *Nomades* of *Aſia* inhabited the Coaſts of the *Caſpian*-Sea.

The *Nomades* of *Scythia* were, and ſtill are, the Inhabitants of *Little Tartary*.

The Word comes from the *Greek* νέμω, *I feed.*

NOMANCY, the Art of divining the Fates of Perſons by means of the Letters that form their Names. See NAME.

Nomancy is more uſually call'd *Onomancy*. See ONOMANCY.

The Word is a Compound of the *Latin*, *Nomen*, Name, and μαντεία, *Divination.*

Nomancy, or, as it ſhould rather be call'd, *Nominomancy*, or *Onomatomancy*, ſeems to be nothing elſe but the Cabbaliſtic *Gematria*. See CABBALA.

NOMARCHA, in Antiquity. *Egypt* was antiently divided into ſeveral Regions, or Quarters, call'd *Noma's*, from the *Greek* νόμος, taken in the Senſe of a Diviſion; and the Officer who had the Adminiſtration of each *Noma* from the King, was call'd *Nomarcha*, from νόμος, and ἀρχὴ *Command.*

NOMBRIL *Point*, in Heraldry, is the next below the Feſs-Point; or the very Centre of the Eſcutcheon. Supppoſing the Eſcutcheon divided into two equal Parts below the Feſs; the firſt of theſe Diviſions is the *Nombril*; and the lower the *Baſe*. See POINT and ESCUTCHEON.

NOME, or NAME, in Algebra, is any Quantity with a Sign prefixed or added to it, whereby it is connected with ſome other Quantity; upon which the whole becomes a *Binomial*, or *Trinomial*, *&c.* See QUANTITY.

Thus $a+b$ is a Binomial, whoſe Names are a and b; and $a+b+c$ a Trinomial, whoſe Names are a, b, and c, *&c.* See BINOMIAL, TRINOMIAL.

NOMENCLATOR, among the *Romans*, was uſually a Slave, who attended Perſons that ſtood Candidates for Offices, and prompted them the Names of all the Citizens they met, that they might ſollicite them, and call them by their Names; which among that People, was the higheſt piece of Civility. See CANDIDATE.

The *Nomenclator* was alſo call'd *Protocollus*.

NOMENCLATOR *of the Roman Church*, was an Officer, whoſe Buſineſs was to call the Perſons whom the Pope invited to Dinner. He alſo liſten'd to thoſe who demanded Audience; in the ſame manner as thoſe now retain'd by the Cardinals, call'd *Auditors*.

NOMENCLATURE, a Catalogue of ſeveral of the more uſual Words in any Language, with their Significations; compiled in order to facilitate the Uſe of ſuch Words to thoſe who are to learn the Tongue.

We have *Latin*, *Greek*, *French*, &c. *Nomenclatures*.

NOMINA *Villarum*, an Account of the Names of all the *Villages*, and the Poſſeſſors thereof, in each County, drawn up by the ſeveral Sheriffs, at the Inſtance of King *Edw.* I. and return'd by them into the Exchequer; where it is ſtill preſerved.

NOMINALS, or NOMINALISTS, a Sect of School-Philoſophers, the Diſciples and Followers of *Ocham*, an *Engliſh* Cordelier in the 14th Century.

The *Nominaliſts* were great dealers in Words; whence they were vulgarly denominated *Word-ſellers*.

They had the denomination *Nominaliſt*, becauſe, in oppoſition to the *Realiſts*, they maintain'd, that Words, not Things, were the Object of Dialectics. See REALISTS, *&c.*

This Sect had its firſt Riſe towards the end of the XIth Century, and pretended to follow *Porphiry* and *Ariſtotle*; but it was not till *Ocham*'s time that they bore this Name.

The *Nominals* were the Founders of the Univerſity of *Leipſic*: There are many yet abroad, who pique themſelves on being *Nominals*.

The *Nominals*, with the *Stoics*, admit the formal Conceptions, or Ideas of Things, as the Subject and Foundation of Univerſality; but to this they add Names, which repreſent and ſignify, after the ſame univocal manner, and without any diſtinction, a great variety of ſingle things alike in Genus and Species.

Whence it is they are call'd *Nominals*; as pretending, that to become Learned, 'tis not enough to have juſt Ideas of things, but 'tis likewiſe required to know the proper Names of the *Genera* and *Species* of Things, and to be able to expreſs them clearly and preciſely, without Confuſion, or Equivocation.

NOMINATION, the Action of Naming, and appointing a Perſon for ſome Function, Employ, or Benefice.

The Word is chiefly uſed for the Right of Preſenting to a Benefice, *&c.* See BENEFICE, *&c.*

In Common Law, however, there is a difference between *Nomination*, and Preſentation; the former being properly a Power which a Man has, by virtue of a Manor, or otherwiſe, to appoint, or name a Clerk to a Patron of a Benefice, to be by him *preſented* to the Ordinary. See PRESENTATION and COLLATION.

NOMINATIVE, in Grammar, the firſt Caſe of Nouns which are declinable. See CASE.

The ſimple Poſition, or laying down of a Noun, or Name, is call'd the *Nominative Caſe*; yet is it not ſo properly a *Caſe*, as the Matter or Ground whence the other Caſes are to be form'd, by the ſeveral Changes and Inflexions given to this firſt Termination. See NOUN.

Its chief uſe is to be placed in Diſcourſe before all Verbs, as the Subject of the Propoſition, or Affirmation; as, *Dominus regit me*, the Lord governs me; *Deus exaudit me*, God hearkens me.

NOMINATOR, he who names, or preſents a Perſon to an Office, or Benefice.

Hence *Nominee*, the Perſon named or preſented.

Errard obſerves, there are ſome Cuſtoms where the *Nominator* is reſponſible for the Solvability of the *Nominee*.

NOMOCANON, a Collection of Canons, and of Imperial Laws, relating or conformable thereto. See CANON.

The firſt *Nomocanon* was made by *Johannes Scholaſticus* in 554.

Photius, Patriarch of *Conſtantinople* in 883, compiled another *Nomocanon*, or Collection of the Civil Laws with the Canons: This is the moſt celebrated. *Balſamon* made a Commentary on it in 1180.

NOMOCANON, is alſo a Collection of the antient Canons of the Apoſtles, Councils, and Fathers, without any regard to Imperial Conſtitutions; ſuch is that publiſhed by *M. Cotelier*.

NOMOCANON again, is ſometimes uſed for a Penitential Book of the *Greeks*.

The Word is compoſed of the *Greek* νόμος, *Lex*, Law; and κανὼν, Canon, Rule.

NON-*Ability*, in Law, an Exception taken againſt the Plaintiff, or Defendant, upon ſome Cauſe, why he cannot commence a Suit in Law; as Præmunire, Outlawry, Profeſs'd in Religion, Excommunicate, or a Stranger born.

This laſt holds only in Actions real, and mixed; and not in perſonal, except he be both a Stranger and an Enemy.

The Civilians ſay, that ſuch Man hath not *Perſonam ſtandi in judicio.*

NON *admittas*, or *Ne admittas*, a Writ which lies for the Plaintiff in a *Quare Impedit*, or him that has Action of *Darre in Preſentment* depending in the Common-Bench, and fears the Biſhop will admit the Clerk of the Defendant during the Suit between them.

NON-*Appearance*, a Default in not Appearing in a Court of Judicature. See APPEARANCE.

NON-*Claim*, in Law, the omiſſion, or neglect of him who ought to challenge his Right within a time limited. See CLAIM.

By ſuch neglect, he is either barr'd of his Right; as at this day, upon *Non-claim* within five Years after a time, and Right to him accrued; or of his Entry by Deſcent, for want of *Claim* within five Years after the Diſſeiſin.

NON *Moleſtando*, a Writ which lies for him who is moleſted contrary to the King's Protection granted him.

NON *Omittas*, a Writ which lies where the Sheriff having deliver'd a former Writ to a Bailiff of a Franchiſe in which the Party it is to be ſerved on, dwells; and the Bailiff having neglected to do it: Upon the Sheriff's returning, that he deliver'd it to the Bailiff; this ſecond Writ ſhall be directed to the Sheriff, charging him to execute the King's Command himſelf.

NON *Ponendo in Aſſiſis, & Juratis*, a Writ granted on divers Occaſions to Men for the freeing them from ſerving on Aſſizes and Juries; as by reaſon of Old Age, &c. See JURY, &c.

NON *Procedendo ad Aſſiſam Rege inconſulto*, a Writ to ſtop the Trial of a Cauſe appertaining to one who is in the King's Service, &c. till the King's Pleaſure be further known.

NON *ſanæ Memoriæ*, or *Non ſane Memorie*, is an Exception taken to an Act declared by the Plaintiff or Demandant to be done at a time when the Party that did it was Mad, or not in his Wits; as to a laſt Will, &c. See NON *Compos*.

NON *ſum Informatus*, ſee INFORMATUS *non ſum*.

NON-*Reſidence*, in Law, is applied to ſuch Spiritual Perſons as are not reſident on, but do abſent themſelves, for one Month together, or two at ſeveral times of the Year, from their Benefices. See BENEFICE.

Regularly, Perſonal Reſidence is required of Eccleſiaſtical Perſons upon their Cures. See RESIDENCE.

NON-*Reſidentia pro Clericis Regis*, is a Writ directed to the Ordinary, charging him not to moleſt a Clerk employ'd in the King's Service, on account of his *Non-Reſidence*.

NON-*Suit*, in Law, a Renunciation of the Suit, by the Plaintiff or Demandant; moſt commonly upon the diſcovery of ſome Error, or Defect, when the Matter is ſo far proceeded in, as that the Jury is ready at the Bar, to deliver their Verdict.

The Civilians term it *Litis renunciationem*.

NON *Compos mentis*, a Phraſe denoting a Perſon not to be of ſound Memory, or Underſtanding.

Of this, in common Law, there are ſaid to be four Kinds: Firſt, an Ideot born; Secondly, He that by Accident loſeth his Memory and Underſtanding; Thirdly, a Lunatic, that has *Lucida intervalla*, ſometimes has Underſtanding, and ſometimes not; Fourthly, He that by his own act, for a time, depriveth himſelf of his right Senſes, as a Drunkard: But this laſt kind ſhall give no Privilege to him or his Heirs.

A Deſcent takes away the Entry of an Ideot, tho the want of Underſtanding were perpetual.

NON *obſtante*, *notwithſtanding*, in Law, a Term, or Clauſe uſual in Statutes and Patents. *All Grants of ſuch Penſions, and every* Non obſtante *therein contained, ſhall be void. Henry* III. took up the Clauſe *Non obſtante*, (firſt introduced by the Pope) in his Grants.

NON-*obſtancy*, in the *Romiſh* Canon Laws, makes the third part of the Proviſions of the Court of *Rome*; beginning with *Non obſtantibus*; and comprizing Abſolutions of Cenſures, Rehabilitations, and neceſſary Diſpenſations, for the Enjoyment of Benefices. None inferior to the Pope can uſe the Clauſe *Non obſtante*.

NON *Term*, the Time of Vacation between Term and Term. See VACATION.

It was antiently call'd *the Times or Days of the King*'s *Peace.* See PEACE *of God and the Church.*

Among the *Romans* it was call'd *Feriæ*, or *Dies Nefaſti*. See FERIÆ and NEFASTI.

NON *eſt factum*, in Law, an Anſwer to a Declaration, whereby a Man denieth that to be his Deed whereupon he is impleaded.

NON *eſt Culpabilis, He is not Guilty*, in Law, the general Plea to an Action of Treſpaſs, whereby the Defendant abſolutely denies the Fact charg'd on him by the Plaintiff; whereas in other ſpecial Anſwers, the Defendant grants the Fact to be done, but alledges ſome Reaſons in his Defence, why he lawfully might do it.

As this is the general Anſwer in an Action of Treſpaſs, *i. e.* a Criminal Action civilly proſecuted; ſo is it in all Actions criminally follow'd, either at the Suit of the King, or others, wherein the Defendant denies the Crime objected to him.

NON *Plevin*, *Non plevina*, a Default in not Replevying of Land in due time.

Hengam writes, That the Defendant ſhould be ſure to replevy his Lands ſeiz'd by the King, within fifteen Days. And that if he neglects, then, at the Inſtance of the Plaintiff at the next Court-Day, he ſhall loſe his Seiſin, *ſicut per defaltam poſt defaltam*.

By *Stat. 9 Edw.* 3. it was enacted, That no Perſon ſhould thenceforward loſe his Land becauſe of *Non Plevin*.

NON-*Tenure*, an Exception to a Count, whereby the Party urges, that he holdeth not the Land mentioned in the Count, or at leaſt ſome part of it.

Weſt diſtinguiſhes *Non-Tenure* into *General* and *Special*. The firſt, where one denies himſelf ever to have been Tenant to the Land in queſtion. The ſecond, where he only alledges that he was not Tenant the Day whereon the Writ was purchaſed.

NON *liquet, it does not appear*: A Verdict given by a Jury, when a Matter is to be defer'd to another Day of Trial. See VERDICT.

The ſame Phraſe was uſed among the *Romans*; after hearing the Cauſe, ſuch of the Judges as thought it not ſufficiently clear to pronounce upon, caſt a Ballot into the Urn with the two Letters *N L*, for *Non Liquet*.

NON-*Entity*, *Nihil*, or *Nothing*, is whatever has no real Being, and is only conceived Negatively, or only claims a negative Denomination. See ESSE, ESSENCE, &c.

NON-*Naturals*, in Medicine, *Res Non Naturales*, are the Cauſes and Effects of Diſeaſes, whether near or remote. See DISEASE.

Phyſicians have digeſted all the Cauſes of Diſeaſes into ſix Claſſes, which they call the ſix *Non-naturals*. Theſe are,

1. Air. 2. Meat and Drink, 3. Motion and Reſt. 4. The Paſſions of the Mind. 5. Excretions and Retentions. 6. Sleep and Waking. See each under its proper Article, AIR, MEAT, DRINK, &c.

They are thus call'd, becauſe by their uſe or abuſe they become either Good, *Naturals*, or Evil, *Contra-naturals*.

But the Diviſion, in effect, is of no great uſe; the Cauſes of Diſeaſes being much more commodiouſly laid down otherwiſe. See DISEASE.

NONÆ and *Decimæ* were Payments antiently made to the Church by thoſe who were Tenants of their Farms.

The *Nonæ* were the Rent or Duty claim'd for things belonging to Husbandry; the *Decimæ* were claim'd in Right of the Church. See DECIMÆ.

NONAGE, in Law, an Incapacity of doing certain things from a want of Age. See AGE.

The Term of *Nonage* is different, with regard to different things. In Matters of Inheritance, a Man is in his *Nonage* till twenty-one Years; for Marriage till fourteen, &c. See MINORITY.

NONAGESIMAL, in Aſtronomy, the 90th Degree of the Ecliptic, reckon'd from its Eaſtern Point. See ECLIPTIC.

The Altitude of the *Nonageſimal* is equal to the Angle of the Ecliptic, and paſſes thro the Poles thereof: Whence the Altitude of the *Nonageſimal*, under a given Elevation of the Pole, is eaſily found.

If the Altitude of the *Nonageſimal* be ſubſtracted from 90°, the Remainder is the Diſtance of the *Nonageſimal* from the Vertex.

NONAGIUM, in Law, the ninth part of moveable Goods; antiently paid in nature of a *Mortuary*; being claim'd by the Clergy upon the Death of thoſe of their Pariſh. See MORTUARY.

At firſt it was a third Part of the Goods, and was call'd *Tertragium*; till by a Bull of *Clement* VI. it was reduced to a Ninth.

NONAGON, a Figure having nine Angles and Sides. See POLYGON,

NONCONFORMISTS, the Name of a Religious Sect, or rather of a number of Sects, in *England*.

The Term was antiently confin'd to the *Puritans*, or rigid *Calviniſts*; at preſent it extends to all who Diſſent from the eſtabliſhed Church, the *Romaniſts* alone excepted. See DISSENTER.

The Word had its Riſe from a Declaration of King *Charles* I. who appointed that all the Churches of *England*

and *Scotland* ſhould have the ſame Ceremonies and Diſcipline; the Acquieſcence wherein, or Diſſenting from which, determined *Conformity*, and *Nonconformity*.

NONCUPATIVE, in the Schools, a Term uſed to expreſs ſomething that is only nominal, or has no Exiſtence but in Name.

Felix of *Urgel* maintain'd, that Jeſus Chriſt, as Man, was only God *Noncupatively*, *i. e.* only by Name. *Alcuin*, in his Anſwer to *Felix*, maintains, that 'tis to fall into *Neſtorianiſm* to diſtinguiſh two Sons of God in Jeſus Chriſt, the one Natural, the other Adoptive; and two Gods, the one Real, the other *Nuncupative*.

NONCUPATIVE, or *Nuncupative Will*, in Law, a laſt Will or Teſtament only made verbally, or *viva voce*, and not put in Writing. See WILL and TESTAMENT.

NONES, NONÆ, in the *Roman* Calendar, the fifth Day of the Months *January*, *February*, *April*, *June*, *Auguſt*, *September*, *November*, and *December*; and the ſeventh of *March*, *May*, *July*, and *October*: Theſe four laſt Months having ſix Days before the *Nones*, and the others only four. See CALEND.

The Word apparently has its Riſe hence, that the Day of the *Nones* was nine Days before the Ides, and might be call'd *Nono-Idus*. See IDES.

March, *May*, *July*, and *Auguſt* had ſix Days in their *Nones*; by reaſon theſe alone in the antient Conſtitution of the Year by *Numa*, had 31 days apiece; the reſt having only 29, and *February* 30. But when *Cæſar* reform'd the Year, and made other Months contain 31 Days, he did not likewiſe allot them ſix Days of *Nones*. See CALENDAR, YEAR, MONTH, *&c.*

NONE, is alſo one of the ſeven Canonical Hours, in the *Romiſh* Church.

None is the laſt of the leſſer Hours that comes before *Veſper*; and anſwers to three a-clock in the Afternoon. See VESPER.

The ſingle Office, and that for the Dead, end at *Nones*, which Father *Roſweyd* obſerves, was antiently the Hour for the breaking up of the *Synaxis*, or uſual Meetings at Church of the Primitive Chriſtians.

The Hour of *Nones* was alſo the uſual time for taking the Repaſt on Faſt-days; tho ſome would keep the Faſt till Night. See FAST.

NONUS *Humeri Placentini*, in Anatomy, a Muſcle, call'd alſo *Rotundus minor*. See ROTUNDUS.

NORMAL *Line*, in Geometry, is uſed for a *perpendicular Line*. See PERPENDICULAR.

NORROY, or *North Roy*, *i. e.* Northern King; the Title of the third of the three Kings at Arms, or Provincial Heralds. See KING *at Arms*, and HERALD.

His Juriſdiction lies on the North ſide of *Trent*, whence his Name; as *Clarencieux*, on the South. See CLARENCIEUX.

NORTH, in Coſmography, one of the Cardinal Points of the Horizon, being that Interſection of the Horizon and Meridian neareſt the *North-Pole*. See CARDINAL *Point* and HORIZON.

NORTH-*Star*, the laſt in the Tail of the little Bear; call'd alſo the *Pole-Star*. See POLE-*Star*.

NORTH *Wind*,	See	WIND.
NORTH *Pole*,		POLE.
NORTH *Sea*,		SEA.
NORTH *Sea Company*,		COMPANY.
NORTH *Wall*,		WALL.
NORTH *Dial*, &c.		DIAL, *&c.*

NORTH *Eaſt*, a Rhumb, or Point, in the middle between the Eaſt, and the *North*. See RHUMB and POINT.

NORTH *Weſt*, is a Point or Rhumb in the middle between the *North* and Weſt. See WEST, *&c.*

NORTH *North Eaſt*, *North Eaſt and by Eaſt*, are Subdiviſions of the Compaſs between the *North* and Eaſt. See WIND.

NORTHERN *Signs*, are thoſe ſix on the *North* ſide of the Equator. See SIGN.

NORTHERN *Light*, or *Aurora Borealis*, ſee AURORA BOREALIS.

NORTHERN *Aſpect* or *Expoſure*, ſee EXPOSURE.

NORTHING, in Navigation, the difference of Latitude a Ship makes in ſailing towards the *North* Pole. See SAILING, LATITUDE, *&c.*

NOSE, the external Organ of Smelling; or that Part in Men, rais'd in the middle of the Face. See FACE.

The *Noſe* is uſually divided by Anatomiſts into external and internal; a diviſion of very little ſervice.

It is farther ſubdivided into ſeveral Parts which make up its external Figure: Whereof the firſt is the *Dorſum*, or Ridge, running along the whole length of it; one part whereof, about the middle, more prominent than the reſt, is call'd the *Spine*; and the Extreme, which in many is turn'd round, the *Orbiculus*: The Sides are call'd the *Alæ* or *Pennæ*.

The Teguments of the Noſe are common to the reſt of the Face. Under theſe appear the Muſcles of the Noſe, which are three Pair, *viz.* the *Elevatores Alæ Naſi*, ſerving to pull the *Alæ* upwards, and turn them outwards; the *Dilatores Alæ Naſi*, which draw them from each other, and widen the external Apertures of the Noſtrils; and the *Conſtrictores Alæ Naſi*, which draw them downwards nearer each other; and at the ſame time the upper Lip alſo downwards. See each Muſcle deſcribed under its proper head, ELEVATORES *Alæ Naſi*, *&c.*

The Frame of the *Noſe* is chiefly ſupported by two Bones, which end in Cartilages, of a triangular Figure; and are divided in the middle by a third, call'd *Septum*, into two Partitions, call'd the *Nares*, or *Noſtrils*.

This *Septum* likewiſe ends in a Cartilage; by means of which Cartilages, the lower part of the *Noſe* is render'd moveable, which the upper, being perfectly oſſeous, is not. The Cartilages of the *Alæ* are tied to the other by Ligaments, which looſe Connexion renders them moveable.

The Bones of the *Noſe* are either *Proper*, or *Common*. The firſt of the *Proper*, are the two external ones that conſtitute the *Dorſum*, and are join'd to the *Oſſa frontis*, the fourth Bone of the upper Jaw, and to each other, uſually *per harmoniam*. See DORSUM *Naſi*.

In the Concave of the Arch of theſe two Bones, at their Union internally, is placed the bony part of the *Septum*. Its upper part joins the *Os Ethmoides*; but in Adults is continued ſo as the *Ethmoides*, and its Proceſs, call'd *Criſta Galli*, appear of a piece with the *Septum*. The *Septum* is thinneſt in the middle, and divides the right Noſtril from the left; tho its Poſition is ſeldom perpendicular. It is capp'd with another thin Bone, from its Figure call'd *Vomer Aratri*, and is join'd to the fourth Bone of the upper Jaw, and to the *Oſſa Palati*. See SEPTUM.

The other proper Bones are the *Turbinata*, or *Spongioſa*, two of which are uſually found in each Noſtril, ſometimes three, one over the other. The middlemoſt, when there are three, is ſo placed as to ſhelter the Perforation of the *Antrum maxillæ ſuperioris* into the Noſtril, and prevents the ſudden ruſhing in of Air from the Noſtril into the *Antrum*. They are all very porous, and turn'd, not unlike the Shell *Concha Veneris*. In Quadrupeds, theſe Bones are very numerous. See SPONGIOSA.

The common Bones of the *Noſe* are ſuch as make Fences for the *Foramina Narium*, and help to compoſe the Parts adjacent. The largeſt of theſe is the fourth Bone of the upper Jaw, which has the greateſt ſhare in framing the *Foramina*. See JAW.

Theſe fourth Bones, with the *Septum* and *Oſſa turbinata*, chiefly frame the internal Parts of the *Foramina*. In the upper part, a Portion of the *Os frontis*, the inſide of the *Os Unguis*, the *Os Cribroſum*, with part of the *Sphenoides*; and backwards towards the Fauces, the *Oſſa Palati*, help to compoſe the *Foramina*.

Beſide the Cavities circumſcribed by the Bones now mentioned, the *Foramina* have ſeveral collateral Cavities that open into them: The largeſt is that call'd *Antrum Genæ*; by Dr. *Highmore*, *Antrum maxillæ ſuperioris*, framed in the fourth Bone of the upper Jaw, near two Inches long, and an Inch broad; the bony Parts of which, with the *Sphenoides*, make the *Foramen lacerum externum*. Its lower Surface makes a thin Covering to all the Roots of the *Molares*, and *Canini*; which frequently upon drawing a Tooth, to which it ſticks, is taken along with it, whereby this Cavity is open'd into the *Alveolus*, and conſequently into the Mouth.

All theſe Cavities of the *Noſe* and Cheek, as alſo the *Oſſa turbinata*, *Septum*, *&c.* are inveſted with a Membrane furniſh'd with large Arteries from the *Carotides*; and Veins, which empty themſelves into the Jugulars; and Nerves, from the fifth Pair, as well as the *Olfactory* Nerves.

In this Membrane are a great number of ſmall Glands, placed very near each other, from whence flows all that *Pituita*, commonly diſcharg'd at the Noſtrils.

By means of this Mucus or *Pituita* is the Membrane kept ſoft, and defended from the Injuries of extraneous Bodies, eſpecially thoſe of the Air, which muſt paſs this way in Inſpiration when the Mouth is ſhut. See MUCUS.

By this means, the Olfactory Nerves, here diffuſed, are render'd capable of the Perception of odoriferous Effluvia; which the dryneſs of the Part would be apt to deſtroy. See SMELLING.

Beſides this uſe of the *Noſe*, which is the principal, Nature has made it, as it were, a *Diverticulum* to the Eyes; there being a conſiderable Paſſage into each Noſtril that empties itſelf under the middle *Os turbinatum*, ariſing from two Apertures call'd *Puncta Lachrymalia*, at the great *Canthus*.

By this way, the ſuperfluous Moiſture of the Eyes is carried off, which would otherwiſe incommode the Cheeks; as in effect it does, when thoſe Parts are affected with any diſorder; as in the *Ægylops*, and *Fiſtula Lacrymalis*. See FISTULA, *&c.*

The Diſeaſes to which the *Noſe* is ſubject, are a *Coryza*, *Ozæna*, *Polypus*, *Sarcoma*, and *Noli me tangere*, beſide Sneezing, and a loſs of Smelling. See each in its Place.

Amb. Parce in his 23*d* Book, mentions an *Italian* Chirurgeon, who had the Art of reſtoring loſt *Noſes*, or making them come again after they were cut off. His Method was to make an Aperture in his Patient's Arm, and there to engraft the mutilated *Noſe*; the Arm being bound up for 24 days, the *Noſe* took Root in the Wound, and glued itſelf with the Fleſh of the Arm, and grew to its Bulk; which done, he cut off the Fleſh of the Arm, and faſhion'd the *Noſe* to his liking, apply'd it in its place, and heal'd the Wounds at leiſure.

This Operation we ſee burleſqu'd in *Hudibras: So learned* Taliacotius, *&c.* and alſo in the *Acta Eruditorum Lipſii, Anno* M.DC.LXXXII.

Hagarup, a *Dane*, maintains, that the *Noſe* is in ſome meaſure fitted for an Organ of Sight, and that a Man may ſee thro it; grounding his Opinion on the Authority of *Smetius*, who in his 5th Book of *Medicinal Miſcellanies*, relates of his own Knowledge, that a Youth, quite blind in other reſpects, could ſee the Light, and was able to diſcern the Whiteneſs of Flowers by the *Noſe*.

But, for our part, we ſhould rather account for theſe Senſations from the Faculties of feeling and ſmelling, than thoſe of ſeeing: Not but there is a very great Reſemblance between the various Organs of Senſe, enough to give ground to the Opinion, that they only differ as more or leſs delicate; for which reaſon we don't abſolutely reject the Inſtance given by *Grimaldi*, of a Man who could diſtinguiſh Colours by his feeling.

The Nerves, whoſe Texture and Conſtitution, for any thing we know, is the ſame throughout the whole Body, are confeſſedly the Vehicles of all Senſations from without; and thoſe are all depoſited in the ſame Senſory, whether they be brought from the Eye, the Ear, the *Noſe*, *&c.* and that ſingular *Apparatus*, obſervable in each Organ, ſeems rather intended for the *Bene eſſe*, than the *Eſſe* of that Senſe; rather to ſtop and detain the tranſient Effluvia, to collect them where too ſcanty, diſperſe them where too copious, ſoften them where too rude, and break their force where too violent, and by this means to proportion them to the ſeveral degrees of Fineneſs, Tenſion, *&c.* of the Nerves of the reſpective Organs, in order to render the Senſations adequate to the ends; than to produce them. See SENSATION.

In *Tartary*, the greateſt Beauties are thoſe who have the leaſt *Noſes*. *Rubruqus* mentions the Wife of the Great *Cingbis-can*, the Mother of *Tamerlane*, as a celebrated Beauty, becauſe ſhe had only two Holes for a *Noſe*. In moſt other Countreys, *China* excepted, great *Noſes* are in honour.

The *Crim-Tartars* break the *Noſes* of their Children while young, as thinking it a great piece of Folly to have their *Noſes* ſtand before their Eyes.

NOSOLOGY, a Diſcourſe, or Treatiſe, of *Diſeaſes*. See DISEASE.

The Word is compounded of *νοσος*, Malady, Diſeaſe, and *λογία*. Hence,

NOSOCOMIUM, an Hoſpital, or Infirmary, for the Reception of the Diſeaſed. See HOSPITAL, LAZAR, *&c.*

NOSTRILS, *Nares*, the two Apertures or Cavities of the *Noſe*, thro' which the Air paſſes, and which ſerve to convey Odours, and to carry off the *Pituita* ſeparated in the *Sinus* of the Baſe of the *Cranium*. See NOSE.

The *Noſtrils* are ſeparated by a Cartilage, and lined with a very ſenſible Membrane. See SMELLING.

Cicero obſerves, that the Situation of the *Noſtrils* ſo near the Mouth, is very convenient; as the judging of the Smells of Meats and Drinks, is a great part of their Office: he adds, that their erect Poſition argues the Creator's Wiſdom, in regard all Odours riſe from below upwards. See ODOUR.

NOT *Guilty*, ſee NON *eſt Culpabilis*.

NOTARICON, the third Part, or Species of the *Jewiſh* Cabbala. See CABBALA.

Rabbi *Nathan*, in his great *Aruch*, ſays, that *Notaricon* is when a ſingle Letter is taken for the Sign of a Thing, *i. e.* for a whole Name. He adds, that the Word comes from the *Latin Notarius*, a Perſon who writes in Notes, or Short-Hand. R. *Elias Levita* gives the ſame Account in his *Thesbetes*, except that in lieu of one Letter for a Word, he mentions two or three.

But after all, neither the one nor the other is alone ſufficient: For as a ſingle Letter frequently makes a Word; ſo in *Notaricon*, a whole Word ſometimes ſtands for a ſingle Letter.

There are therefore two principal Kinds of *Notaricon*: The firſt is, when by *Apheresis*, or *Apocope*, the firſt or laſt Letters of ſeveral Words are join'd to make a ſingle Word or Phraſe; which therefore is of two kinds, the one Initial, the other Final: and each is done ſeveral Ways, *viz.* either by taking the Letters the common way, or backwards. Tho, there is alſo a third kind made, as the Rabbins call it, by Leaps, *i. e.* by leaping over ſome Letters.

The firſt of theſe Kinds, which the Rabbins call *Raſche Thebotb*, appears very antient; and is ſuppoſed by ſome, well verſed in the *Hebrew*, to have took its Origin from the *Pſalms*, and other Places of Scripture, proceeding alphabetically, *i. e.* the firſt Verſe beginning with א, the firſt Letter of the Alphabet; the ſecond with ב, the ſecond Letter, *&c.* See an Inſtance of this firſt Kind of *Notaricon* under the Head MACHABEE.

The ſecond Kind is alſo very common, and call'd *Sopbe Thebotb*, *i. e.* the End of Words. For inſtance, by telling the laſt Letters of the Words, מה שמו מהלי, *Mibi quodnam nomen eſt. Quodnam*? they find the Name of God *Jebovab*. This is ſtill more puerile, when they take the Letters backwards.

The third Kind is more modern, more groſs, and perplexed. Here a Letter gives a whole Word, inſtead of a Word's only giving a Letter; ſo that a Word ſhall furniſh a whole Phraſe.

Thus, for an example; in the firſt Word of *Geneſis*, בראשית, *In the Beginning*, is found *be created the Heaven and the Earth*, *the Sea*, *the Abyſs*, &c.

NOTARY, a *Scribe*, or *Scrivener*; or one who takes *Notes*, and ſhort Draughts of Contracts, or other Inſtruments. See NOTE.

NOTARY, *Notarius*, among the *Romans*, was a Name common to all who wrote under the Direction of others, or who received, and kept Sentences, and Contracts.

From the 44th Novel of *Juſtinian*, it appears, that Contracts were firſt wrote in Notes, or Abbreviations, by the *Notaries* or Clerks of the *Tabelliones*; and were not yet obligatory. Afterwards they were wrote at length by the *Tabellio* himſelf, then ſign'd and ſeal'd. See TABELLIO.

NOTARY, is particularly uſed for an Officer, who draws, and keeps Notes and Minutes of Contracts, Obligations, and other Inſtruments, paſſed before him, and delivers out authentic Copies, *&c.* thereof.

Ragueau diſtinguiſhes between *Notarii*, *Notaries* and *Tabelliones*: *Notaries*, he ſays, in ſeveral Cities, are only to receive and paſs the Minutes of Contracts, and to deliver them to the Parties in brief; being obliged to carry them to the *Tabelliones* to be kept, and to have engroſſed Copies delivered out to the Parties.

He adds, that the *Notaries* were antiently Clerks of the *Tabelliones*; and that ſeparating, by degrees, from their Maſters, they at length erected Offices of their own: and at laſt took place of the *Tabelliones*, who were ſuppreſs'd.

They had their Name *Notarii* from *Notæ*; becauſe antiently they wrote in Notes, or Short-hand.

NOTARIES are now little uſed among us, except in Mercantile Affairs; tho' in *France* they ſtill ſubſiſt in their Legal Capacity. The *Notaries* of the *Chatelet* are called the King's Counſellors, and Note-Keepers.

Thoſe among us, are called *Notaries Public*; and have the drawing, paſſing, keeping, iſſuing, *&c.* of all the Deeds, Contracts, Charter-parties, *&c.* in the Mercantile World. In their Books are alſo regiſter'd Proteſts, Remonſtrances, *&c.*

In the firſt Ages of the Church, there were *Eccleſiaſtical Notaries*, whoſe Office was to collect and preſerve the Acts of the Martyrs. They were ſuppoſed to have been firſt inſtituted by St. *Clement*. Their Number was ſeven, and they were diſpoſed in the ſeven Quarters or Regions of *Rome*.

Pope *Fabian*, judging the Short-hand of the *Notaries* too obſcure for common Uſe, added ſeven Sub-deacons to 'em, to tranſcribe at length what the *Notaries* drew in ſhort.

At length theſe *Notaries* were laid aſide, and two other Kinds eſtabliſh'd in their ſtead, *viz.* *Apoſtolical Notaries*, and *Epiſcopal Notaries*; whoſe Buſineſs lies in Spiritual and Beneficiary Inſtruments.

NOTATION, in Arithmetic, the Art of Characterizing Numbers, or of deſigning them by proper Figures. See CHARACTER.

The Choice of Arithmetical Characters is arbitrary: Hence, in various Nations, they are various. But perhaps there are none ſo commodious as thoſe commonly uſed in *Europe*, uſually ſaid to have been invented by the *Arabs*, and thence call'd *Arabic Characters*; tho' Dr. *Wallis* obſerves, that *Altepedi*, an *Arab*, refers the Invention to the *Indians*. See *Numeral* CHARACTER.

The *Greeks*, *Hebrews*, and other Eaſtern Nations, as alſo the *Romans*, expreſs'd Numbers by the Letters of their common Alphabet. See *Literal* CHARACTER.

NOTATION, in Algebra, is the repreſenting of Quantities by Letters of the Alphabet; or calling them by thoſe Names. See QUANTITY, CHARACTER, *&c.*

NOTÆ *Maternæ*, *Mother's Spots*. See NÆVUS.

NOTE, *Nota*, a Mark made in a Book or Writing, where there occurs ſomething remarkable, and worthy of particular *Notice*.

NOTE, is alſo uſed for an Obſervation, or Explication of ſome Paſſage in an Author, added in the Margin, at the bottom of the Page, or elſewhere, by an Editor.

In this ſenſe, *Note* ſtands contra-diſtinguiſhed to Text. See Text.

The *Notes* make the principal Differences in the Editions of Claſſic, *&c.* Authors. We have *Virgil*, *Horace*, *Terence*, *&c.* with *Ruæus's Notes*, the *Dauphin's Notes*, *Dacier's Notes*, *Bentley's Notes*, *Hare's Notes*; with *Notis Variorum*, *&c.* See Variorum.

Note is alſo a minute, or ſhort Writing, containing ſome Article of Buſineſs. In this ſenſe we ſay, a *Promiſſory Note*, a *Note under hand*, a *Bank Note*, &c. See Promissory, Bank, *&c.*

To *Note a Bill*, is when a Public Notary goes to be a Witneſs, or take notice that a Merchant will not accept or pay it. See Bill.

Note *of a Fine*, is a Brief of a Fine made by the Chirographer, before it be ingroſſed. See Fine and Chirographer.

Note is alſo uſed for a Character, or Abbreviature, ſerving to denote, or expreſs ſomething in a little compaſs. See Character, Symbol, Abbreviature, and Notation.

The antient Notaries wrote all in *Notes*, or Short-hand; whence they were ſometimes denominated *Curſores*, *Quia notis Curſum verba expediebant.* See Notary.

Notes in Muſic, are Characters which mark the Tones, *i. e.* the Elevations, and Fallings of the Voice; and the ſwiftneſs, or ſlowneſs of its Motions. See Sound.

In the general, under *Notes* are comprehended all the Signs, or Characters uſed in Muſic, for the making Harmony of Sounds. See Character.

But, in Propriety, the Word only implies the Marks which *denote* the degree of Gravity, or Acuteneſs, to be given each Sound. See Gravity.

The *Greeks* uſed the common Letters of their Alphabet for muſical *Notes*; and in regard more *Notes* were needed than they had Letters, the defect was ſupply'd by the different Situation of the Letters, *viz.* by placing of them upright, inverted, *&c.* and by cutting off, or doubling ſome Strokes.

Thus the ſame Letter *Pi*, expreſs'd different *Notes* in all the following forms, Π, ⊔, ⊏, ⊐, Γ, ⅂. For every ſeveral *Mode* they had 18 Signs.

Now, *Alipius* gives us Signs for 15 different *Modes*, which with the differences of the *Genera*, and the diſtinction between Voice and Inſtrument, Mr. *Malcolm* obſerves, makes in all 1620 *Notes.* Not that they had ſo many diſtinct Characters; but the ſame Character has different Significations, on different Occaſions. Thus Φ in the *Diatonic* Genus is *Lycanos Hypaton* of the *Lydian* Mode; and *Hypate meſon* of the *Phrygian*.

The *Latins*, in the time of *Boethius*, had eaſed themſelves of ſo needleſs a Burthen; and only uſed the firſt 15 Letters of their Alphabet for *Notes.* Theſe, Pope *Gregory* conſidering that the Octave was the ſame in effect with the firſt, and that the order was the ſame in the upper and lower Octave of the Gamut, reduced to ſeven; which were to be repeated in a different Character.

At length, in the 11th Century, a *Benedictine*, one *Guido Aretin*, in lieu of the Letters, ſubſtituted the ſix Syllables *ut*, *re*, *mi*, *fa*, *ſol*, *la*; placing them on different Lines, and marking them with Points. Laſtly, it was thought proper to add *Notes* likewiſe in the Spaces. See Gamut.

Of the ſeven muſical *Notes*, *ut*, *re*, *mi*, *fa*, *ſol*, *la*, *ſi*, the firſt ſix are aſcribed to *Aretine*, who is ſaid to have invented them at *Pompoſa* in the Dutchy of *Ferrara.* The ſeventh, *viz.* *ſi*, was added, according to ſome, by *Vander Putten*; according to others, by *Le Maire.* It ſerves very good purpoſes, in avoiding the difficulty of the Diviſions remaining in *Guido*'s Scale.

Indeed *Voſſius* won't allow *Guido* the Honour of inventing any of them; but ſhews that the *Egyptians* had uſed them long before him; in which he is confirmed by the Teſtimony of *Halicarnaſſeus*: However, common Fame aſcribes to him not only the *Notes*, but alſo the Lines, Letters, or Clefs, Flats, and Sharps.

The *Notes ut*, *re*, *mi*, &c. he is ſaid to have taken from a Hymn in the Veſpers of S. *J. Baptiſt*, *Ut queant laxis reſonare fibris*, *&c.* See Music.

Hitherto the *Notes* only ſerved to expreſs the Degrees of Tune; they were all of equal value as to time; till about the Year 1330, *John de Meurs*, a Doctor of *Paris*, gave different Figures to the different Points, to expreſs the Quantity of Time each was to be dwelt upon.

There are three things to be conſider'd in theſe *Notes.* 1. The *Quantity*, *i. e.* the ſize and figure of the head. 2. The *Quality*, *i. e.* the Colour of the head, whether it be white or black, full or open. 3. The *Properties*, as the *Italians* expreſs themſelves, *viz.* whether the *Note* is accompanied with a Virgula, or Comma, or not. It muſt likewiſe be conſider'd whether the *Notes* be ſeparate and diſtinct, or bound together.

The ſeveral muſical *Notes*, are, the *Large*, which contains 8 Meaſures, tho *Merſennus* makes it 12. (ſee its Figure under Character;) the *Long*, containing 4 Meaſures; the *Breve*, containing 2; the *Semibreve*, containing 1; the *Minim* $\frac{1}{2}$; the *Crochet* $\frac{1}{4}$; the *Quaver* ^{1}; the *Semiquaver* $\frac{1}{16}$; and the *Demiſemiquaver* $\frac{1}{32}$.

Uſually we only diſtinguiſh ſix principal *Notes*, repreſented by as many different Characters, *viz.* the *Semibreve*, equal to two Minims; the *Minim*, equal to two Crochets; the *Crochet*, equal to two Quavers; the *Quaver*, equal to two Demiquavers; and the *Semiquaver*, equal to two Demiſemiquavers. See each under its proper Article, Semibreve, Minim, Crochet, *&c.*

The Mathematicians compute, that one may make 720 Changes, or Varieties with ſix *Notes*, without ever repeating the ſame twice; and that of the *Notes* of each Octave, one may make 40320 different Tunes, or Songs. See Change, Combination, *&c.*

NOTHING, *Nihil*, *Nihilum*, or *Non Ens*, ſee Nihil.

The Schoolmen diſtinguiſh between *Nothing* taken *ſtrictly*, which is what is impoſſible, or implies a Contradiction; and *Nothing* taken more *generally*: which is both poſſible, and impoſſible while in a State of poſſibility. See Possible.

Again, they diſtinguiſh *Nothing* into *Negative*, which is the abſence of Reality in any Subject; and *Privative*, which is the abſence of Reality in a Subject capable thereof, or wherein it ought to be found.

NOTHUS, a *Latin* Term, properly ſignifying *Baſtard*; or a Perſon of ſpurious Birth. See Bastard.

Hence it is apply'd figuratively by Phyſicians, *&c.* to ſuch Diſeaſes as tho, in reſpect of a Similitude of Symptoms, *&c.* they have the ſame Denomination as ſome others; yet are of different Origin, Seat, or the like, from the ſame. See Empyema. *&c.*

Nothus, is ſometimes alſo uſed for the back part of the Cheſt.

NOTHÆ *Coſtæ*, in Anatomy, the five loweſt Ribs on each ſide; call'd Baſtard, or Spurious Ribs, in regard they don't join with the Breaſt-Bone as the other Ribs do, nor are they, as the others are, bony, but cartilaginous. See Ribs.

NOTION, in Logic, an Idea, or Repreſentation of any thing, in the Mind. See Idea.

M. *Leibnitz* is very accurate in the Diſtinction of *Notions*, in the *Acta Erudit. Leipſ.* *Anno* 1684.

A *clear* Notion, he defines to be ſuch a one as ſuffices us to recollect the Object; *v. gr.* that a given Figure is reckon'd in the number of Triangles.

An *obſcure* Notion, is that which doth not ſuffice to recollect the Object; ſuch, *v. gr.* is that of a Plant, which upon ſeeing, you are in doubt whether or no it be the ſame you had ſeen elſewhere, and which is call'd by this or that Name.

Diſtinct Notion is that wherein you are able to aſſign the very Marks, or Characters by which you recollect the thing; *v. gr.* That a Circle is a Figure terminated with a curve Line returning into itſelf, the ſeveral Points whereof are equally diſtant from one and the ſame intermediate Point.

A *confuſed* Notion is that wherein you are not able to aſſign the Marks or Characters whereby you recollect the Object; tho it be reſolvable into them. Such, *v. gr.* is the *Notion* of red Colour.

An *adequate* Notion, that wherein you have diſtinct *Notions* of the Marks or Characters whereof it is compoſed; ſuch, *v. gr.* is the *Notion* of a Circle above inſtanced, where you have diſtinct *Notions* of the Curve returning into itſelf, of the intermediate Point, and of the equal Diſtance and Termination.

An *inadequate* Notion, that wherein you have only a confuſed *Notion* of Characters that enter a diſtinct one.

Some confuſed *Notions* are admitted into Mathematics; *viz.* ſuch whoſe reſolution is of no great Conſequence to any Demonſtrations.

Thus, *Euclid* does not reſolve the *Notion* of Equalities, tho it enter the *Notion* of an equilateral Triangle, a Rhombus, *&c.* inaſmuch as the Propoſitions for whoſe Demonſtration it ſhould be uſed, are eaſily granted without ſuch a detail; as, *v. gr.* that things equal to the ſame third, are equal to one another, *&c.* But no *Notions* are admitted into the Number of Mathematical Definitions, except diſtinct ones, and thoſe too as adequate as poſſible, or as occaſion requires. See Definition.

The Schoolmen diſtinguiſh *Notions* into *formal*, and *objective*; and each of theſe they ſubdivide into *firſt*, and *ſecond.*

A firſt formal Notion, is the Knowledge we have of any thing according to what it is, or has in itſelf; as the Knowledge of Fire, *quatenus* Fire; of a light Body, *quatenus* light, *&c.*

A firſt objective Notion, is the thing itſelf known, according to what it is, or has in itſelf; as the Fire known as Fire, *&c.*

Second formal Notion, is the Knowledge of a thing according to what it receives from the Underſtanding; as, of Fire, that it is the Subject; and not the Predicate.

Second objective Notion, is what agrees to the thing by means of the Operation of the Intellect, or what it receives from the Intellect.

Common Notions, call'd alſo *Prænotions*, προλήψεις, and κοιναι εννοιαι, are certain Principles ſuppoſed to be innate, and which therefore are ſelf-evident, *i. e.* appear, or are known by their own Light, without the Intervention of any Medium, or Proof, being impreſs'd, as it were, by the Finger of God; to ſerve as the Foundations of all our Concluſions in the Sciences, which are to be demonſtrated hereby. See *Innate* Idea.

Theſe *common Notions*, conſider'd as the Foundations of Sciences, are call'd *Axioms*. See Axiom.

They are call'd *common*, not as if ſo actually and neceſſarily perceived by every Perſon, that no body could be ignorant of, or deny them; but becauſe they are judged to be true, and certain by all Perſons of ſound Reaſon. For the ſame Reaſon as we ſay, *Such a Food is wholeſome*; not that it is ſo to all Men, but to all that are of a ſound Body, and Conſtitution. *Ariſtot. Topic.* c. 4.

There are two kinds of *common Notions*, viz. *Theoretical*, which lay the Ground-works for Speculation; ſuch are, Every thing either is, or is not; nothing can be made by itſelf; the whole is greater than a part; equal things being added to equal, the Sums are equal: And *Practical*, which lay the Foundation for Honeſty, and good Morals; ſuch are, God is to be loved and worſhipped; our Parents to be honoured; to give every body their due; to do as we would be done by. ——

Some Philoſophers, however, and thoſe of beſt Note, deny the Reality of any Innate, or *Common Notions*; urging, that the Mind does not need any actual *Notions* to prepare it to think, but that an innate Faculty of Thinking may ſuffice; as appears in an Infant, from its perception of Pain, Taſte, Colour, *&c.* They add, that the common Organs of Senſe, if they have but Objects preſented to them, and the Faculty we have of reflecting on, and variouſly combining or ordering the Ideas received thereby, are ſufficient to furniſh us with all the Stock of Knowledge we have. See Knowledge.

NOTITIA, Notice, a Term uſed for ſomething that has come under the Knowledge of a Perſon. Hence *Notification*, the Action of giving Notice, *&c.*

Notitia is alſo uſed as the Title of certain Books compoſed for giving a particular Knowledge of the Places, Roads, *&c.* of a Province or Kingdom, Dioceſe, *&c.* as appears by the *Notitia Imperii*, *&c.*

M. *Valois* has given a *Notitia Galliarum*, which is a Collection of the ſeveral Names the Cities and Provinces of that Kingdom have bore at different times.

The *Notitiæ Dignitatum Imperii*, both Eaſtern and Weſtern, are of the utmoſt uſe both in the *Roman* and in Eccleſiaſtical Hiſtory; yet are they of little Service, at leaſt to young People, without good Notes; ſuch are thoſe of *Pancirollus*, &c. And unleſs the Text, which is ſtrangely corrupted and mutilated, be ſupplied.

NOTORIOUS, ſomething known, manifeſt, and publick.

Hence *Ars Notoria*, a Chimerical Science or Art, whereby it is pretended a Perſon may arrive at the Knowledge of all Things, all Sciences, *&c.* And that by Infuſion, without any Labour, or Trouble, beſide that of making a few Ceremonies.

NOTRE *Dame, Our Lady*, a Term frequently uſed for the Holy Virgin.

Hence Feaſts of *Notre Dame*; the Office of *Notre Dame*; Congregations, Nunneries, Orders of *Notre Dame*. See Virgin.

NOVALE, in our antient Cuſtoms, Land newly plowed, and converted into Tillage; and which had not been till'd within the Memory of Man, before.

—*Quod* Novale *ſemel fuit, ſemper erit* Novale *quoad decimarum retentionem vel ſolutionem.* What was once *Novale*, will ever remain ſo, as to the paying, or non-paying of Tythes. Thus, *Excepta decima* Novalium *cujuſdam Terræ quam de novo excoluerunt.* Pat. 6 *Edw.* 3. See Frutectum.

Novale is ſometimes alſo uſed for fallow Land, *i. e.* Land which has been plowed for two Years, and reſts, or lies fallow one more; or that lies fallow every other Year. See Fallow.

NOVATIANS, a Sect of antient Heretics, ſo called from *Novatus*, an *African* Biſhop; and *Novatian* a Prieſt of *Rome*.

Novatian firſt ſeparated himſelf from the Communion of Pope *Cornelius*, on pretence of his being too eaſy in admitting to Repentance thoſe who had fallen off in times of Perſecution.

Novatus coming to *Rome*, join'd himſelf to the Faction of *Novatian*: and both maintain'd, That there was no other admiſſion into the Church but by the Repentance in Baptiſm; grounding their Opinion on that of St. *Paul*: *'Tis impoſſible for thoſe once enlightened, and who have taſted the heavenly Gift, if they fall away, to retrieve themſelves by Repentance.*

Not that they denied but a Perſon fallen into any Sin, how grievous ſoever, might obtain Pardon by Repentance; for they themſelves recommended Repentance in the ſtrongeſt Terms. But their Doctrine was, That the Church had it not in its power to receive Sinners into its Communion; as having no way of remitting Sins but by Baptiſm, which, once received, could not be repeated.

In proceſs of Time, the *Novatians* ſoftened and moderated the Rigour of their Maſter Doctrine; and only refuſed Abſolution to very great Sinners.

The two Leaders were proſcribed, and declared Heretics, not for excluding Penitents from Communion; but for denying that the Church had a Power of remitting Sins.

The *Novatians* were alſo call'd *Catharets*, from καθαρὸς, *pure*, q. d. *Puritans*.

NOVATION, or *Innovation*, in the Civil Law, a change, or alteration of an Obligation, whereby it becomes extinguiſhed, or annihilated.

Thus when an Obligation is diſcharged without receiving any Money; but a ſimple Promiſe is accepted in its ſtead; this occaſions a *Novation*.

There are two kinds of *Novations*; the one voluntary, the other neceſſary and conſtrained.

Neceſſary Novation is that made in conſequence of a Sentence, or Decree of Juſtice.

Voluntary Novation is made three ways, *viz.* by changing the Cauſe of the Obligation without the Intervention of any other Perſon; by changing the nature of the Obligation; and by Delegation, as when the Debtor makes over a Debt to the Creditor for his Satisfaction.

In all theſe Caſes there is a will to *Innovate*: Accordingly *Juſtinian* ſays, *Voluntate non Lege novandum.*

NOVEL, *New*; ſee Romance.

Novel, in Juriſprudence, a Term uſed for the Conſtitutions of ſeveral Emperors, *viz.* *Juſtin*, *Tiberius*, *Leo*, and particularly *Juſtinian*. See Constitution and Law.

Moſt of *Juſtinian's Novels* were originally *Greek*; and afterwards, tranſlated into *Latin*. Their Number 165, comprized in nine Collections, or Chapters. See Civil *Law*.

They had their name *Novel*, either from their making a great Alteration in the Face of the antient Law; or, as *Cujas* rather thinks, becauſe made on new Caſes, not yet conſider'd, and after the reviſal of the Code, compiled by order of the Emperor.

Wherever *Accurſius* ſpeaks of *Novels*, he means thoſe publiſhed in *Greek* by *Juſtinian*; the *Latin* Verſion of them made in the time of *Bulgarus*, he calls *Authentics*, by reaſon of its Exactneſs and Fidelity. See Authentics.

Novel *Aſſignment*, in an Action of Treſpaſs, is an Aſſignment of Time, Place, or ſuch like, in a Declaration, more particularly than it was in the Writ.

Novel *Diſſeiſin*, ſee Assize *of Novel Diſſeiſin*.

NOVEMBER, the eleventh Month in the Year; but the ninth in the Year of *Romulus*; whence its Name. See Month.

NOVENDIAL, or *Novemdial*, in Antiquity, a Sacrifice among the *Romans*, held on occaſion of any Prodigy's appearing to menace them with ill Fortune. See Sacrifice.

It had its Name from the Term of its Celebration, *viz.* *Novem dies*, Nine Days.

NOVEMSILES, in Mythology, a Species of Gods worſhipped among the antient *Romans*.

The *Dii Novemſiles*, were the Gods of the *Sabines*; adopted by *Romulus*, and a Temple built to them in conſequence of a Vow by King *Tatius*.

Some Antiquaries take the Name to have been given to thoſe which were laſt placed among the Number of the Gods; as *Hercules*, *Veſta*, *Sanctity*, *Fortune*, *&c.*

NOVEMVIR, a Magiſtrate of *Athens*, in the Number of the *Nine*.

The *Novemvirs* were the chief Magiſtrates of the City: Their Office only held for one Year. Their Chief was call'd *Archon*, whoſe Name was recorded in the *Athenian* Feaſts; as, at *Rome*, that of the Conſuls. See Archon.

The ſecond bore the Title of King, the third that of *Polemarcha*, *i. e.* Chief of the Troops, and the remaining ſix, *Theſmotetes*.

NOVICE, a Perſon not yet ſkill'd or experienced in an Art or Profeſſion.

In the antient *Roman* Militia, *Novicii*, or *Novitii*, were the young raw Soldiers, diſtinguiſhed by this Appellation from the Veterans. See VETERAN.

In the antient Orders of Knighthood, there were *Novices*, or Clerks in Arms, who went thro a kind of Apprenticeſhip e'er they were admitted Knights. See KNIGHT.

NOVICE is particularly uſed in Monaſteries for a Religious yet in his, or her Year of Probation, and who has not made the Vows. See NOVICIATE.

In ſome Convents the Subprior has the Direction of the *Novices*. In Nunneries, the *Novices* wear a white Veil; the reſt a black one.

A *Novice* is not eſteemed dead in Law, but is capable of Inheriting till the time of actual Profeſſion; nor can his Benefices be given away, during the Year of Probation, without his conſent.

The Council of *Trent* prohibits a *Novice* from aſſigning over his Benefices till two Months before the Expiration of his Year of Probation; and he may even reſume them if the Profeſſion be null.

A *Novice* is not allow'd to make any Donation to his Superior, by reaſon of the Dependance he is under.

Novices may either quit the Convent during their *Noviciate*, or may be turn'd off by the Convent.

NOVICIATE, a Year of Probation, appointed for the Trial of Religious, whether or no they have a Vocation, and the neceſſary Qualities for living in the Rule; the Obſervation whereof they are to bind themſelves to by Vow. See PROBATION.

The *Noviciate* laſts a Year at leaſt; in ſome Houſes more. 'Tis eſteem'd the Bed of the Civil Death of a *Novice*, who expires to the World by Profeſſion. See VOW and PROFESSION.

NOVICIATE is alſo uſed for the Houſes, or Places where *Novices* are inſtructed.

In this ſenſe, the *Noviciate* is frequently a Cloiſter ſeparated from the grand Dormitory.

NOUN, *Nomen*, in Grammar, a *Name*, or a Word that expreſſes the Subject ſpoke of; or expreſſes a Subject whereof ſomething is, or may be, affirmed; as *Man*, *Food*, *Whiteneſs*, *Henry*, *&c.* See WORD and NAME.

A *Noun*, therefore, in Language, anſwers to an Idea in Logic. See IDEA.

The generality of Subjects ſpoke of have particular Names; yet there are others, which, without being attach'd to the ſame particular Subject, are yet real *Nouns*.

Thus, beſide the particular Name, which each Perſon bears, and whereby others denote him, he gives himſelf another when he ſpeaks of himſelf; as *I* and *My Self*.

'Tis only the more particular Names that in Grammar have retain'd the Quality of *Nouns*; the more general ones are call'd Pronouns. See PRONOUN.

Nouns, again, are to be view'd in another Light, *viz.* as divided into *Nouns Subſtantive*, and *Nouns Adjective*.

They are call'd *Subſtantives* when the Objects they deſign are conſider'd ſimply, in themſelves, and without any regard to their Qualities. See SUBSTANTIVE.

They are call'd *Adjectives* when their Objects are conſider'd as clothed with any Qualities. See ADJECTIVE.

Thus, when I ſay ſimply the *Heart*, the word Heart is call'd a *Noun Subſtantive*; inaſmuch as it does not expreſs any of its Qualities: But if I ſay, the *generous Heart*, or the *perfidious Heart*, I then conſider the Heart as accompanied with the Quality *generous*, or the Quality *perfidious*. For this reaſon, the Words *generous* and *perfidious* are call'd *Nouns Adjectives*, becauſe they add a Quality to the Object.

But in effect the Object is alone deſign'd by the *Nouns Subſtantives*; which in this view are alone the proper *Nouns*.

Adjectives, at bottom, are only Modificatives of *Nouns*; tho in one view they may be conſider'd as *Nouns*; *viz.* as they don't ſo much repreſent a Quality or Circumſtance of the Object, as the Object itſelf, clothed with that Quality or Circumſtance. Nor muſt it be omitted, that a *Noun Adjective* frequently becomes a Subſtantive: For as its nature is to expreſs the Quality of an Object, if that Quality happen to be the Object itſelf ſpoke of, then, according to our firſt Definition, it becomes a Subſtantive.

Thus, if I ſay a *good Intention*, the word *good* is here an *Adjective*, repreſenting the Intention as clothed with the Quality of Goodneſs; but if I ſay *the Good is to be choſen*, 'tis evident that *Good* is here the Subject ſpoke of, and of conſequence is a *Noun Subſtantive*. Nor are there Caſes wanting wherein *Nouns Subſtantive* become *Adjectives*.

'Tis true, in the common uſe of Grammar, *Nouns* that are really *Adjectives*, are not reckon'd as ſuch; none being eſteem'd as ſuch, but thoſe which without any, or at leaſt any conſiderable change in their Inflexion and Termination, are join'd indifferently to *Nouns Subſtantives* of different Genders.

Nouns are again divided into *Proper* and *Appellative*.

Nouns Proper are thoſe which expreſs a particular Thing or Perſon, ſo as to diſtinguiſh it from all other Things of the ſame Kind; as *Socrates*. See PROPER.

Nouns Appellative, are thoſe common to ſeveral Individuals of the ſame Kind, as *Man*, *Angel*, &c. See APPELLATIVE.

NOURISHMENT, ſee NUTRITION.

NOWED, *Nouée*, i. e. *Knotted*, in Heraldry, is applied to the Tails of ſuch Creatures as are very long, and ſometimes repreſented in Coat-Armour as if tied up in a Knot.

NUBECULA, *little Cloud*, in Medicine, a Term ſometimes uſed for a Diſeaſe in the Eye, wherein Objects appear as thro a Cloud, or Miſt.

The *Nubecula* ſeems to ariſe from certain groſs Particles detain'd in the Pores of the *Cornea*, or ſwimming in the aqueous Humour, and thus intercepting the Rays of Light.

NUBECULA is alſo uſed for a Matter, in form of a Cloud, ſuſpended in the middle of the Urine. This they ſometimes alſo call *Cnæorema*. See URINE.

NUCHA, the hinder Part, or Nape of the Neck; call'd alſo *Cervix*. See CERVIX.

NUCHTHEMERON, ſee DAY.

NUCIFEROUS, from *Nux*, a Nut, and *fero*, to bear; Botaniſts call all Trees thus, which bear Nuts.

NUCKIANÆ *Glandulæ*, in Anatomy, a Number of ſmall Glands ſituate in that part of the Skull wherein the Orbits of the Eyes are, between the abducent Muſcle of the Eye, and the upper part of the *Os Jugale*. See GLAND and CRANIUM.

They were thus denominated from their Inventor Dr. *Nuck*.

The ſame Author gave his Name to a Salivary Duct, *Ductus Nuckianus*. See SALIVARY, *&c.*

NUCLEUS, a *Latin* Word, literally denoting the Kernel of a Nut, or Stone-Fruit; or, more ſtrictly the edible Part contained within the Skin of the Kernel. See FRUIT.

Botaniſts uſe it in a larger ſenſe, for any Fruit or Seed contained within a Husk or Shell.

Hevelius, and ſome other Aſtronomers, uſe the Word *Nucleus* for the Body of a Comet, which others call its *Head*, in contradiſtinction to its *Tail*, or Beard. See COMET.

Some alſo apply the Term *Nucleus* to the Central-Parts of the Earth, and other *Planets*; as ſuppoſing them to be looſe from the exterior Part, which they conſider as a Cortex or Shell. See MAGNETISM.

NUCLEUS, in Architecture, is the middle Part of the Flooring of the Antients; conſiſting of Cement which they put betwixt a Lay, or Bed of Pebbles, cemented with Mortar made of Lime and Sand.

NUDE *Contract*, *Nudum Pactum*, a bare Contract, or Promiſe of a Thing without any Conſideration: *Ex quo*, ſay the Lawyers, *non oritur actio*. See CONTRACT and COVENANT.

NUDE *Matter*, ſee MATTER.

NUDITIES, in Painting, and Sculpture, thoſe Parts o a human Figure not cover'd with any Drapery; or tho Parts where the Carnations appear. See CARNATION.

NUEL, or rather *Newel* of a Stair-Caſe, ſee NEWEL a STAIR-*Caſe*.

NULLITY, the Quality of a thing *null*, *i. e.* void, a of no effect; by reaſon of ſomething contrary to Law, to Cuſtom, or to Form.

There are two kinds of *Nullities* to invalidate a Contract, Title, *&c.* viz. *de facto*, and *de jure*. The former where the thing commences *Null ipſo facto*, as ſoon as the thing is proved: In the latter, the Act does not immediately become *Null*, but a handle is given thereby to have it intirely annulled or ſet aſide. See DE FACTO, *&c.*

NUMBER, in Arithmetic, a Collection, or Aſſemblage of ſeveral Units. See UNIT.

Stevinus chuſes to define *Number* to be that whereby the Quantity of any thing is expreſs'd. Agreeably to which, Sir *I. Newton* conceives *Number* to conſiſt, not in a Multitude of Units, as *Euclid* defines it, but in the abſtract Ratio of a Quantity of any kind to another Quantity of the ſame kind which is accounted as Unity. And on this view he divides *Number* into three Kinds, *viz.* *Integers*, *Fractions*, and *Surds*. See each under its proper Article, INTEGER, FRACTION, and SURD.

Wolfius defines *Number* to be ſomething which refers to Unity as one right Line refers to another. Thus, aſſuming a right Line for Unity, a *Number* may likewiſe be expreſſed by a right Line.

A leſs general Definition of *Number*, that Author thinks won't comprehend the ſeveral kinds of whole *Numbers*, Fractions, Rationals, and Surds.

The Schoolmen, keeping to *Euclid*'s Definition, hold *Number* to conſiſt of Matter and Form: The *Matter* is the things number'd; *e. gr.* Coins: The *Form*, the Idea whereby comparing the ſeveral Pieces, we bring them into one Sum, as ten: So that *Number* depends altogether on the Mind of the Perſon that *numbers*; whence changing the Idea at pleaſure, an hundred Men ſhall only be call'd one, or it ſhall be two, or four, *&c.*

Hence, ſay they, the Form of a *Number*, is not any thing added to the things *number'd*; for the Idea is a mere Mode of the Mind, not any thing ſuperadded to the things. And hence, tho there may be ſome Efficacy in *Number*, conſider'd with reſpect to the Matter, as when we ſay, *A triple Rope is not eaſily broke*; yet there is none in reſpect to Form: For what Alteration ſhould my Idea make? And hence the Folly of the Philoſophy of *Numbers*.

The ſame Philoſophers call *Number* a *diſcrete Quantity*: *Quantity*, as it admits of more and leſs; and *diſcrete*, ſince the ſeveral Units it conſiſts of are not united, but remain diſtinct.

For the Manner of deſigning, or characterizing Numbers, ſee NOTATION.

For that of expreſſing or reading thoſe already characteriz'd, ſee NUMERATION.

Mathematicians, conſidering *Number* under a great many Circumſtances, different Relations, and Accidents, make many Kinds of *Numbers*.

A determinate NUMBER, is that refer'd to ſome given Unit; as a Ternary, or three; which is what we properly call a *Number*.

An indeterminate NUMBER, that refer'd to Unity in the general; which is what we call Quantity. See QUANTITY.

Homogeneal NUMBERS, are thoſe refer'd to the ſame Unit.

Heterogeneal NUMBERS, thoſe refer'd to different ones. For every *Number* ſuppoſes ſome determinate Unit, which is determined by the Notion to which we have regard in *Numbering*. *E.gr.* 'tis a diſtinguiſhing Property of a Sphere, that the ſeveral Points of its Surface are equidiſtant from its Centre: If then, this be laid down as a Note of Unity, all Bodies to which it agrees will have the nature of Unity; and are the ſame Units, *quatenus* contain'd under this Notion. But if Spheres be diſtinguiſhed, *e. gr.* with regard to the Matter they are compoſed of; then thoſe which before were the ſame Units, commence different. Thus, ſix golden Spheres and three golden Spheres are *homogeneal Numbers* among themſelves; and three braſs Spheres and four ſilver ones, are *heterogeneous Numbers*.

Whole NUMBERS, call'd alſo *natural Numbers*, and *Integers*, or ſimply *Numbers*, are all the various Aſſemblages of Unity, or the Ideas we have of ſeveral Multitudes; or, according to *Wolfius*, all thoſe which, in the manner of expreſſing, refer to Unity, as a Whole does to a Part.

Broken NUMBERS, or *Fractions*, are thoſe conſiſting of ſeveral parts of Unity, or thoſe which refer to Unity as a Part to the Whole. See FRACTION.

Rational NUMBER, is that commenſurable with Unity.—*Rational whole Number*, is that whereof Unity is an *Aliquot* part.——*Rational broken Number*, that equal to ſome *Aliquot* part or parts of Unity.——*Rational mixt Number*, that conſiſting of a whole *Number* and a broken one, or of Unity and a Fraction. See FRACTION.

Irrational NUMBER, or *Surd*, a *Number* incommenſurable with Unity. See SURD.

Even NUMBER, that which may be divided into two equal parts, or without Remainder or Fraction; as 4, 6, 8, 10, *&c.* The Sum, as alſo the Difference, and the *Factum*, or Produce of any Number of even *Numbers*, is always an even *Number*,

An *even Number* multiply'd by an *even Number*, produces an *evenly even Number*.

An *even Number* is ſaid to be *evenly even*, when it may be meaſur'd or divided without any Remainder by another *even Number*.

Thus, twice four being eight, eight is an *evenly even Number*.

A *Number* is ſaid to be *unevenly even*, when it may be equally divided by an uneven *Number*; as 20, which may be divided by 5.

Uneven NUMBER, that which exceeds an *even Number* at leaſt by Unity; or which cannot be divided into two equal Parts. Such are 3, 5, 9, 11, *&c.*

The Sum, or the Difference, of two *uneven Numbers*, makes an *even Number*; but the *Factum* of two makes an *uneven* one.

If an even *Number* be added to an *uneven* one, or if the one be ſubſtracted from the other; in the former Caſe, the Sum, in the latter the Difference, is an *uneven Number*. But the *Factum* of an even and an *uneven Number*, is even.

The Sum of any even *Number* of *uneven Numbers*, is an even *Number*; and the Sum of any *uneven Number* of *uneven Numbers*, is an *uneven Number*.

Primitive or *prime* NUMBER, is that which is only diviſible by Unity; as, 5, 7, 11, *&c.*

Prime NUMBERS *among themſelves*, are thoſe which have no common Meaſure beſide Unity; as 12 and 19.

Compound NUMBER, is that diviſible by ſome other *Number* beſides Unity; as 8, diviſible by 4, and by 2.

Compound NUMBERS *among themſelves*, thoſe which have ſome common Meaſure beſides Unity; as 12 and 15.

Perfect NUMBER, that whoſe *aliquot* Parts added together, make the whole *Number*; as 6, 28, *&c.* The *aliquot* Parts of 6, being 3, 2, and 1 = 6. And thoſe of 28, being 14, 7, 4, 2, 1. which together make 28.

Imperfect NUMBERS, thoſe whoſe *aliquot* Parts added together, make either more or leſs than the Whole, whereof they are Parts.

Imperfect Numbers, are diſtinguiſh'd into *Aubndant* and *Defective*.

Abundant NUMBERS, are thoſe whoſe *aliquot* Parts added together, make more than the *Number* whereof they are Parts; as 12, whoſe *aliquot* Parts, 6, 4, 3, 2, 1. make 16.

Defective NUMBERS, are thoſe whoſe *aliquot* Parts added together, make leſs than the *Number* whoſe Parts they are; as 16, whoſe *aliquot* Parts, 8, 4, 2, and 1. only make 15.

Plane NUMBER, that ariſing from the Multiplication of two *Numbers*; *ex.gr.* 6, which is the Product of 3 multiply'd by 2. The *Numbers* which thus multiply'd produce a *Plane Number*, as here, 2 and 6, are call'd the *Sides* of the Plane.

Square NUMBER, the Product of any *Number* multiply'd by itſelf; thus 4, the *Factum* of 2, by 2, is a *ſquare Number*. See SQUARE.

Every *ſquare Number* added to its Root, makes an *even Number*.

Cubic NUMBER, the Product of a *ſquare Number*, multiply'd by its Root; *ex.gr.* 8, the Product of the *ſquare Number* 4, multiply'd by its Root 3. See CUBE.

All *Cubic Numbers*, whoſe Root is leſs than 6, *v. g.* 8, 27, 64, 125, being divided by 6, the Remainder is their Root itſelf. Thus 8 being divided by 6, 2, the Remainder of the Diviſion, is the Cube Root of 8. For the *Cubic Numbers* beyond 125; 216, the Cube of 6, divided by 6, leaves no Remainder; 346, the Cube of 7, leaves a Remainder 1, which added to 6, gives the Cube Root of 343. And 512, the Cube of 8, divided by 6, leaves 2, which added to 6, makes the Cube Root of 512. So that the Remainders of the Diviſions of the Cubes above 216, divided by 6, being added to 6, always give the Root of the *Cubic Number* divided; till that Remainder be 5, and of conſequence 11 the Cube Root of the *Number* divided: But the *Cubic Number* above this, being divided by 6, there remains nothing, the Cube Root being 12. Thus, if you continue to divide the higher Cubes by 6, you muſt not add the Remainder of the Diviſion to 6, but to 12, the firſt Multiple of 6; and thus coming to the Cube of 18, the Remainder of the Diviſion muſt not be added to 6, nor to 12, but to 18: and thus *in infinitum*.

Monſ. *de la Hire*, from conſidering this Property of the *Number* 6, with regard to *Cubic Numbers*, found that all other *Numbers* rais'd to any Power whatſoever, had each their Diviſor, which had the ſame effect with regard to them, that 6 has with regard to Cubes. And the general Rule he has diſcover'd, is this: If the Exponent of the Power of a *Number* be even, *i. e.* if that Power be rais'd to the 2d, 4th, 6th, *&c.* Power, it muſt be divided by 2; and the Remainder, if there be any, added to 2, or to a Multiple of 2, gives the Root of the *Number* correſponding to its Power, *i. e.* the 2d or 6th Root, *&c.* But if the Exponent of the Power of the *Number* be *uneven*, *i. e.* if it be rais'd to the 3d, 5th, 7th, *&c.* Power, the Duple of that Exponent will be the Diviſor which ſhall have the Property here requir'd.

Polygonous NUMBERS, the Sums of Arithmetical Progreſſions, beginning with Unity. Theſe, where the Difference of Terms is 1, are call'd *Triangular Numbers*; where 2, *Square Numbers*; where 3, *Pentagonal Numbers*; where 4, *Hexagonal Numbers*; where 5, *Heptagonal*, *&c.* See POLYGON.

Pyramidal NUMBERS. The Sums of Polygonous *Numbers*, collected after the ſame manner as the Polygons themſelves are gather'd out of Arithmetical Progreſſions, are call'd *firſt Pyramidal Numbers*.

The Sums of the firſt Pyramidals, are call'd *ſecond Pyramidals*. The Sums of the ſecond Pyramidals, are call'd *third Pyramidals*, *&c.*

In particular, they are call'd *Triangular Pyramidal Numbers*, if they ariſe out of *Triangular Numbers*. *Firſt Pentagonal Pyramidals*, if they ariſe out of *Pentagons*, *&c.* See PYRAMID.

Cardinal NUMBERS, thoſe which expreſs the Quantity of Units; as 1, 2, *&c.*

Ordinal NUMBERS, thoſe which expreſs the Order or Rank; as 1ſt, 2d, 3d, *&c.*

Golden NUMBER, in Chronology, a Period of 19 Years, invented by *Meton* the *Athenian*; at the end whereof, the ſame Lunations return in the ſame Days, tho' not preciſely in the ſame Hour and Minute of the Day. See PERIOD and LUNATION.

Hence this Period, call'd by the *Greeks Enneadecaeteris*, is not perfectly juſt; there being a *Proemptoſis*, or Leap, at the end of each 312 Years, *i. e.* in that time, the Lunations fall out a Day ſooner than the *Golden Number* expreſſes them. See PROEMPTOSIS.

This, among other things, was what engag'd Pope *Gregory* XIII. to reform the Calendar, to throw out the *Golden Number*, and ſubſtitute the Cycle of Epacts inſtead of it. For the Uſe of the *Golden Number*, which, in the *Julian* Calendar, ſerves to find the New Moons, only ſerves in the *Gregorian* to find the Cycle of Epacts. See EPACT; ſee alſo CYCLE, and CALENDAR.

This *Number* is ſaid to have had its Name, *Golden*, from the Greatneſs of its Uſe; or becauſe the *Athenians* receiv'd it with ſo much Applauſe, that they had it wrote in the publick Market in Letters of Gold.

M. *Caſſini* defines the *Golden Number* after a new manner. He ſays, 'tis the Number of Years elaps'd ſince that which had the New Moon on its firſt Day; as that of the Year 1500, whoſe *Golden Number* was 0; which he takes for his Epocha. See METONIC.

NUMBER, in Grammar, is a Modification of Nouns, Verbs, *&c.* to accommodate them to the Varieties in their Objects, conſider'd with regard to *Number.* See NOUN, *&c.*

Nouns or Names agreeing to ſeveral Things, may be conſider'd either as apply'd to one of thoſe Things ſingularly, or to a *Number* of them; and thoſe either conſider'd as ſeveral, or as united. To diſtinguiſh theſe Caſes, two *Numbers* have been invented, the *Singular* and *Plural.*

When a Noun indicates an Object conſider'd as ſingle, or alone, or a number of them conſider'd as united together, 'tis ſaid to be of the *Singular Number*; as a Tree, a Troop, a Temple. See SINGULAR.

When it indicates ſeveral Objects, and thoſe as diſtinct, it is of the *Plural Number*; as Trees, Temples. Thus when I ſpeak of myſelf, as making part of ſeveral others, inſtead of *I*, I ſay *We*, *&c.* See PLURAL.

The *Greeks* have a third *Number*, which they call the *Dual Number*, as ſignifying two. The *Hebrews* have ſomething like it; but then it only takes place when the Words ſignify a thing double either by Nature, as the Hands, the Eyes, *&c.* or by Art, as Sciſſars, Tongs, *&c.*

As to Common and Appellative Names, they ſeem all naturally to require a *Plural Number*, yet are there ſeveral which have none; as the Names of Gold, Steel, *&c.*

The Difference of *Numbers* in Nouns is expreſs'd by a Difference of Termination or Ending.

In *Engliſh*, the *Singular* is uſually converted into *Plural*, by adding *s*; as Tree, Trees; Hand, Hands, *&c.* Where the Pronunciation requires it, as when the *Singular* ends in *s*, or *x*, *ſh*, or *ch*, 'tis uſually done by the Addition of *es* inſtead of *s*.

The *Plurals* of Adjectives, tho' vary'd from the *Singulars* in moſt other Languages; yet in *Engliſh* are generally the ſame. See VERB.

NUMBERS, in Poetry, Oratory, Muſic, *&c.* are certain Meaſures, Proportions, or Cadences, which render an Air, Verſe, or Period, agreeable to the Ear. See VERSE, MEASURE, *&c.*

Poetical and Proſaic Numbers, are ſomewhat different: *Poetical* NUMBERS conſiſt in a certain Harmony, in the Order, Quantities, *&c.* of the Feet and Syllables; which make the Piece muſical to the Ear, and fit it for Singing: for which all the Verſes of the Antients were intended. 'Tis of theſe *Numbers Virgil* ſpeaks in his IVth *Eclogue.*

——*Numeros memini ſi verba tenerem.*

And again, in the VIth *Eclogue:*

Tum vero in Numerum Faunoſq; Feraſq; videres
Ludere——

The *Numbers* are what conſtitute the Air and Character of a Verſe; and denominate it *ſmooth*, or *ſoft*, or *low*, or *rough*, or *rapid*, or *ſonorous.* The following Lines of *Milton* furniſh an Inſtance of ſoft eaſy *Numbers.*

Then feed on Thoughts, which voluntary move
Harmonious Numbers; as the tuneful Bird
Sings darkling, and in ſhadieſt Covert hid,
Tunes her Nocturnal Note:——

How different from the *Numbers* of theſe:

Arms meet with Arms, Faucheons with Faucheons claſh,
And Sparks of Fire, ſtruck out from Armour, flaſh.
But when loud Surges laſh the ſounding Shore,
The hoarſe rough Verſe ſhould like the Torrent roar.

Rhetorical or Proſaic NUMBERS, are a ſort of ſimple unaffected Harmony, leſs glaring than that of Verſe; yet ſuch as is perceiv'd, and affects the Mind with Pleaſure. The *Numbers* are that by which the Style is ſaid to be *eaſy*, *free*, *round*, *flowing*, *&c.* See STYLE.

A fine Inſtance of *Numbers* we have in that Paſſage of *Tully* for *Marcellus: Nulla eſt tanta vis, tantaq; copia quæ non ferro ac viribus debilitari frangiq; poſſit.* All the Beauty of which would be entirely loſt to any tolerable Ear, if the *Numbers* were a little inverted, thus: *Nulla eſt vis tanta, & copia tanta quæ non poſſit debilitari frangiq; viribus & ferro.*

Numbers are a Thing abſolutely neceſſary in all Writing, and even all Speech. Hence *Ariſtotle*, *Tully*, *Quintilian*, *&c.* lay down abundance of Rules as to the beſt manner of intermixing *Dactyls*, *Spondees*, *Anapeſts*, *Iambus's*, *Choraic* and *Dichoraic Moloſſus's*, *&c.* in order to have the *Numbers* perfect.

The Subſtance of what they have done, is reducible to what follows: 1. The Style becomes *numerous*, by the alternate Diſpoſition and Temperature of long and ſhort Syllables; ſo, as that the Multitude of ſhort ones neither render it too haſty, nor that of long ones too ſlow and languid.

Thus, *Tully* to *Cæſar*: *Domuiſti Gentes immanitate barbaros; multitudine innumerabiles, locis infinitas, omni copiarum genere abundantes*, *&c.*

Sometimes, indeed, long or ſhort Syllables are deſignedly thrown together, without any ſuch Mixture; to paint the Celerity or Slowneſs of a Thing by that of the *Numbers*; as,

Quadrupedante putrem ſonitu quatit ungula campum.
Æneid. l. 8.

Luctantes Ventos, Tempeſtateſq; Sonoras.
Id. l. 1.

2. The The Style becomes *numerous* by the intermixing of Words of one, two, and more Syllables; *e. gr. Vivis & vivis non ad deponendam ſed ad confirmandam audaciam.* Whereas the too frequent repetition of Monoſyllables renders the Style pitiful, and grating; *e. gr. Hac in Re nos hic non feret.*

3. It contributes greatly to the *numerouſneſs* of a Period, to have it cloſed by magnificent and well ſounding Words; as, *Qui locus quietis ac tranquilitatis pleniſſimus fore videbatur, in eo maximæ moleſtiarum, & turbulentiſſimæ tempeſtates extiterunt.*

4. The *Numbers* depend not only on the nobleneſs of the Words in the Cloſe, but of thoſe in the whole tenor of the Period; as in the fine Oration of *Cicero* for *Fonteius*, Brother of one of the Veſtal Maids. *Nolite pati, Judices, aras Deorum immortalium, Veſtæque matris, quotidianis Virginum Lamentationibus de Veſtro Judicio commoveri.*

5. To have the Period flow eaſily and equably, the harſh concurrence of Letters and Words is to be ſtudiouſly avoided, particularly the frequent meeting of rough Conſonants; as *Ars ſtudiorum, Rex Xerxes:* The beginning the firſt Syllable of a Word with the laſt of the preceding; as, *Res mihi inviſæ ſunt:* The frequent repetition of the ſame Letter or Syllable; as in that Verſe of *Ennius*, *Africa terribili tremit horrida terra tumultu:* And the frequent uſe of like-ending Words; as *Amatrices*, *Adjutrices*, *Præſtigiatrices fuerunt.*

Laſtly, The utmoſt Care is to be taken, leſt in aiming at *Oratorial Numbers*, you fall into *Poetical* ones; and inſtead of Proſe, write Verſe; which even *Cicero* himſelf is ſometimes guilty of; witneſs, *Cum loquitur tanti fletus gemituſque fiebant.* See VERSE.

NUMERAL *Letters*, thoſe Letters of the Alphabet, which are generally uſed for Figures; as I, V, X, C, D.

NUMERAL *Characters.* See CHARACTER.

NUMERALS, in Grammar, are thoſe Words which expreſs *Numbers*; as *Six*, *Eight*, *Ten*, *&c.* See ORDINALS.

NUMERATION, in Arithmetic, the Art of valuing, pronouncing, or reading, any *Number*, or Series of *Numbers.* See NUMBER.

The Characters whereby Numbers are ordinarily expreſs'd, are the nine following ones, *viz.* 1, 2, 3, 4, 5, 6, 7, 8, 9. It being the Law of the common *Numeration*, that when you are arrived at ten, you begin again, and repeat as before; only expreſſing the Number of Tens.

Weigelius, indeed, ſhews how to number without going beyond a Quaternary, *i. e.* by beginning to repeat at each Fourth. And *Leibnitz*, in what he calls his *Binary Arithmetic*, begins to repeat at every Second; only uſing two Characters, 1 and 0. But theſe are rather Matters of Curioſity than Uſe. See BINARY *Arithmetic.*

That the nine Numerical Notes may expreſs not only Units, but alſo Tens or Decads, Hundreds or Centuries, Thouſands, *&c.* they have a local Value given them; ſo, as that when either alone, or when placed in the right-hand place, they denote Units; in the ſecond place, Tens; in the third, Hundreds; in the fourth, Thouſands. See NOTATION, *&c.*

Now, *To expreſs any written Number, or aſſign the proper Value to each Character*; Divide the propoſed Number by Comma's into Claſſes, allowing three Characters in each Claſs; beginning at the right-hand. Over the right-hand Figure of the third Claſs, add a ſmall Mark or tranſverſe Line; over the right-hand Figure of the fifth Claſs, add two Marks or tranſverſe Lines; over that of the ſeventh, three, *&c.* The Number to the left of the firſt Comma, expreſs by Thouſands; that which has over it the firſt tranverſe Line, expreſs by Millions; that with two, by Billions; that with three, by Trillions, *&c.* Laſtly, the left-hand Character of each Claſs, expreſs by Hundreds; the middle one, by Tens; and the right-hand one, by Units. Thus will the *Numeration* be effected.

E. gr. The following Numbers, $2'''$, $125,473''$, $613,578'$, $432,597$. is thus expreſs'd or read: Two Trillions, one hundred twenty Millions of Billions, four hundred ſeventy three Billions, ſix hundred thirteen Thouſands of Millions, and five hundred ſeventy eight Millions, four hundred and thirty two thouſand, five Hundred and ninety ſeven.

NUMERATOR, in Arithmetic, a Term uſed in ſpeaking of Fractions. It ſignifies the Number that denotes the Parts of the Integer, and is placed over the little Bar, which ſeparates it from the under Number, call'd the *Denominator*, which ſhews into how many Parts the Integer is divided. See DENOMINATOR.

Thus, *v. g.* $\frac{7}{10}$ expreſſes ſeven Tenths; where 7 is the *Numerator*, and 10 the Denominator. See FRACTION.

NUMERICAL, ſomething that relates to *Number*.

NUMERICAL *Algebra*, is that which makes uſe of Numbers inſtead of Letters of the Alphabet. See ALGEBRA.

NUMERICAL *Difference*, is the difference whereby one Individual is diſtinguiſhed from another. See INDIVIDUAL.

Hence a thing is ſaid to be *Numerically the ſame*, *idem Numero* or *numerice*, when it is the ſame in the ſtricteſt Senſe of the Word. See UNITY and IDENTITY.

NUMERO, in Commerce, *&c.* a Term prefixed to any Number of things; marked, or abbreviated thus, N°.

De NUMERO, *i. e.* by Tale, is uſed in antient Authors for the payment, *e. gr.* of a Pound in a certain *Number* of Pieces, *e. gr.* 20 Shillings; in contradiſtinction to a *Libra penſa*, or Pound weighed out. See POUND.

NUMISMATOGRAPHIA, a *Greek* Term uſed for the Deſcription and Knowledge of antient Medals and Coins, whether of Gold, Silver, or Braſs. See MEDAL and COIN.

Fulvius Urſinus, *Auguſtine* Biſhop of *Terracona*, *Erizzo* a noble *Venetian*, and *Sambucus* a *Poliſh* Gentleman, have all been ſucceſsful in the *Numiſmatographia*: Nor muſt the more modern Authors on the ſame Subject be omitted; *viz.* the two *Mezzabarba's*, *Patin*, *Spanheim*, *Hardouin*, *Morel*, *Vaillant*, *Jobert*, *Baudelot*, *Beger*, and among ourſelves, *Evelyn*.

NUMMUS, a Piece of antient *Roman* Money; whereof there were two Kinds: the one Gold, the other Silver. See MONEY.

The Gold *Nummus*, call'd *Stater* and *Aureus*, weigh'd two Drachms, and was worth, according to *Budæus*'s Computation, about 16 *s.* Sterling.

The Silver *Nummus* was juſt the *Roman Denarius*, which weigh'd one Drachm. See COIN.

The *Jewiſh Nummus* was their Shekel. See SHEKEL.

NUN, NONNE, an old Word, antiently uſed for a Female Religious; and ſtill retain'd in that ſenſe in our Language; and in other Languages, particularly the *French*; but by way of Ridicule and Burleſque. See RELIGIOUS.

Hence alſo *Nunnery*, a Monaſtery of Female Religious. See MONASTERY.

The Word comes from *Nonna*, *Nonnana*, or *Nonnanis*; all *Latin* Terms, firſt uſed for Penitents, then for Religious.

Borel derives it from *Nonni*, or *Nonnæ*, which in *Italian* ſignifies *Grandfathers*, or *Grandmothers*. And adds, that it was apply'd by way of Honour to the Woman, as that of Father to the Man, *Religious*. See FATHER.

NUNDINAL, a Name which the *Romans* gave to the eight firſt Letters of the Alphabet, uſed in their Calendar. See LETTER.

This Series of eight Letters, A, B, C, D, E, F, G, H, is placed and repeated ſucceſſively from the firſt to the laſt Day of the Year; one of theſe always expreſs'd the Market-Days, or the Aſſemblies call'd *Nundinæ*, *quaſi Novendinæ*, becauſe they returned every nine Days.

The Country People, after working eight Days ſucceſſively, came to Town the ninth, to ſell their ſeveral Commodities, and to inform themſelves of what related to Religion and Government.

Thus the *Nundinal* Day being under the Letter A, on the 1ſt, 9th, 17th, and 25th Days of *January*, *&c.* the Letter D will be the *Nundinal* Letter of the Year following.

Theſe *Nundinals* bear a good deal of reſemblance to the Dominical Letters; which return every eight Days, as the *Nundinals* did every nine. See DOMINICAL *Letter*.

NUNTIO, an Ambaſſador from the Pope, to ſome Catholic Prince or State; or a Perſon who attends, on the Pope's behalf, at an Aſſembly of ſeveral Ambaſſadors. See EMBASSADOR.

The Word *Nuntio* has the ſame Import with Embaſſador, but is reſtrain'd in its Uſe to the Embaſſadors of Popes alone; as that of *Internuntio* is to his Envoy Extraordinary.

Brantom informs us, that when he firſt came to Court, the *Nuntio* had only the Title of *Embaſſador*.

The *Nuntio* has a Juriſdiction, and may delegate Judges in all the States he reſides, except in *France*, where he has no Authority but that of a ſimple Embaſſador.

NUPER *Obiit*, in Law, a Writ which lies for a Co-heir, being deforced by her Co-partner, of Lands or Tenements, whereof their common Father or Anceſtor died ſeized in Fee Simple.

If the Anceſtor died ſeized in Fee Tail, the Co-heir deforced ſhall have a *Formedon*. See FORMEDON.

NUPTIAL, ſomething that relates to Marriage. See MARRIAGE.

NURSERY, in Gardening, is generally uſed in the ſame ſenſe as *Seminary*, *viz.* for a Seed-plot for the raiſing of young Trees, or Plants. See SEMINARY.

Some Authors, however, make a difference between the two; holding *Nurſery*, properly, not to be a place wherein Plants are ſown; but a place for the reception and rearing of young Plants, which are removed, or tranſplanted hither from the Seminary, *&c.*

Mr. *Lawrence* recommends the having ſeveral *Nurſeries*, for the ſeveral Kinds of Trees: One for tall *Standards*; *viz.* Apples, Aſhes, Elms, Limes, Oaks, Pears, Sycamores, *&c.* Another for *Dwarfs*, *viz.* ſuch as are intended for Apricocks, Cherries, Peaches, Plumbs, *&c.* And a third for *Ever-Greens*.

The *Nurſery for Standards* ſhould be in a rich, light Soil; ſown, with the proper Seeds, in *October*, or *November*. For *Apples* and *Pears*, Crab- and Wild-Pear Kernels, are to be preferred for Stocks: *Elms* and *Limes* are to be raiſed from planted Suckers: *Walnuts* to be ſown with the green Shell upon 'em, to preſerve them from Mice. This *Nurſery*, if it be well managed and weeded for two Years, the Crabs and Pears will be fit for Grafting and Inoculating the third Year. See ORCHARD.

Firs and Pines are to be raiſed from thoſe little Seeds, taken out of their large Apples.

The *Nurſery for Dwarfs* does beſt by itſelf, that it may not be over-top'd by taller Trees. Stones of Apricocks and Peaches are not proper to raiſe thoſe Trees; but in lieu thereof, ſow the Stones of the Pear-Plumb, Muſſel or *Bonum Magnum* Plumb; which prove better and more laſting than the former. For Stocks for all ſorts of Cherries, black Cherry-Stones do beſt. See STOCK.

Mr. *Mortimer* directs all Stone Fruit to be ſown quickly after gathering; for that if they be kept, they will be two Years e'er they come up. Add, that if they have not all the Moiſture of the Winter to rot the Shells, the Kernel will ſcarce come up at all.

To furniſh the *Nurſery of Ever-Greens*, the ſeveral ſorts of Seeds or Berries, as Yew, Holly, Juniper, *&c.* are to be put in ſo many diſtinct Pots or Boxes, with fine Mould over them, and thus buried for a year; after which, they are to be taken out and ſown.

If they were to be ſown when gather'd like other Seeds, they would not come up the firſt year, nor grow ſo kindly.

NUSANCE, in Law, is uſed not only for a thing done to the annoyance of another in his Fee Lands or Tenements; but alſo the Aſſize or Writ lying for the ſame.

The Writ of *Nuſance*, *de Nocumento*, is either ſimply *de Nocumento*, or *de parvo Nocumento*.

Manwood makes three Kinds of *Nuſances* in the Foreſt; the firſt, *Common Nuſance*; the ſecond, *Special Nuſance*; the third, *General Nuſance*.

Writs of *Nuſances* are now popularly term'd *Treſpaſſes*, and Actions upon the *Caſe*. See TRESPASS, *&c.*

The Word is derived from the *French Nuire*, to hurt.

NUT, *Nux*, a ſort of Fruit, incloſed in a hard Cortex or *Shell*. See FRUIT.

Of theſe we have divers Kinds; ſmall Nuts, Filberds, Cheſnuts, Walnuts, *&c.* See FILBERD and NUX.

NUTATION, in Aſtronomy, a kind of Trepidation, or tremulous Motion of the Axis of the Earth; whereby, in each annual Revolution, it is twice inclined to the Ecliptic; and as often returns to its former Poſition. See EARTH.

That the Moon has a like Motion, is ſhewn by Sir *Iſ. Newton*, in the firſt Book of his *Principia*; but he obſerves withal, that this Motion muſt be very ſmall; and ſcarce ſenſible. See MOTION and AXIS.

NUTMEG, a kind of Aromatic Nut, or Spice, brought from the *Eaſt Indies*; whereof there are two Kinds, *Male* and *Female*. See SPICE.

The *Female* is that chiefly uſed among us; its Form is round, its Smell agreeable, and its Taſte hot and pungent.

The *Male* is a wild Nut, of a longiſh Form, and without either Taſte or Smell; yet ſometimes put off, while yet in the Pod, for the Female.

The *Nutmegs* are encloſed in three different Covers: The firſt, thin, reddiſh, of an agreeable Smell and aromatic Taſte, call'd *Mace*; by others, tho' improperly, *Flower of Nutmeg*. This wraps up the Shell, and opens in proportion as the Pod grows. The Shell, which makes the ſecond Cover, is hard, thin, and blackiſh. Under this, is a greeniſh Film of no uſe; and in this is found the *Nutmeg*, which is properly the Kernel of the Fruit. Every *Nutmeg* has a little Hole in it, which ſome ignorantly take for a Defect.

The beſt *Nutmegs* are thoſe gather'd in *April*. They muſt be choſen heavy, of a whitiſh brown Colour, well marbled without ſide, reddiſh within, having a fat unctuous Humour, and an agreeable Smell.

As to the Mace, it muſt be choſen in large Leaves of a high Colour, like the *Nutmeg* in Taſte and Smell. See MACE.

Nutmegs comfited green, are excellent to fortify the Stomach, and reſtore the natural Heat. They are particularly eſteem'd Carminative. The Powder, *Duke*, eſteem'd a Sovereign againſt Rheums, is only *Nutmeg* pulverized with Sugar, and a little Cinnamon.

Nutmegs, by Diſtillation, or Expreſſion, yield an Oil, ſaid to have wonderful Virtues.

The whole Commerce of *Nutmegs* is in the hands of the *Dutch Eaſt-India Company*.

The *Nutmeg*-Tree is propagated after a particular manner. *Tavernier* tells us, that the Birds devouring the *Nutmeg* when ripe, give it back whole by Stool; and that thus falling down to the Ground, beſmear'd with a viſcous Matter, it takes Root, and produces a Tree. See MISLETO.

NUTRITION, in the Animal Oeconomy, the Acceſſion or Appoſition of new Parts in the Body, ſimilar to thoſe it already conſiſted of; either for its Augmentation, or for the Reparation of ſuch as are wore off.

By the continual Motion of the Fluids in the minute Veſſels of the Body, and the Actions of the Muſcles, &c. ſmall Parcels are of neceſſity wore off from the Solids, become mix'd with the Fluids, move with them, and are at length eliminated and exhaled thro' the Pores. See PORE and SOLID.

And at the ſame time, the Fluids, diminiſh'd as they are by a conſtant Attrition, apply to the Orifices of the perſpiring Veſſels, and vaniſh out of the Body. See PERSPIRATION.

Hence the Animal Body, by the very Condition of its Frame, becomes ſoon liable to Deſtruction.

To preſerve Life, therefore, 'tis neceſſary that a Reſtitution be made to the Juices and Solids of the Body; equal, and ſimilar to thoſe loſt in thoſe Motions; which is what we call the Action of *Nutrition*.

Now the loſt Juices are eaſily ſupply'd by Meat, Drink, Air, &c. taken into the Stomach, digeſted, converted into Chyle, then into Blood, and thence ſecreted by the proper Ducts, and carry'd by the Action of the Body, to the proper Receptacles; after the manner laid down under the Articles DIGESTION, CHYLIFICATION, SANGUIFICATION, and SECRETION.

But the *Nutrition* of the ſolid Parts is much more obſcure. This indeed has proved the Subject of infinite Doubts and Differences among Authors; nor had we any rational or ſatisfactory Account of the ſame, till that of the accurate *Boerhaave*, whoſe Doctrine is as follows.

Every ſolid Part of the Body conſiſts of other leſſer ones, in all reſpects like the larger; Veſſels, *v.g.* of Veſicles, and thoſe of others ſtill ſmaller; Bones of *Oſſicles*, &c. Which Structure goes beyond all Limits of Senſe, however aſſiſted by Art; as appears by the Experiments and Obſervations of *Malpighi*, *Ruyſch*, *Leewenhoeck*, and *Hook*. Yet is it ſcarce poſſible this Diviſion and Subdiviſion ſhould be infinite, as that of Foods and Juices is.

Again, it appears from Microſcopes, Injections, ſmall Wounds, Exſiccations, &c. that the ſolid Parts of the Body are very ſmall, compared with the Fluids; and it is almoſt demonſtrable from conſidering the Riſe, and Generation, of the Veſſels, and the Reſolution of the greater Veſſels into their ſmaller conſtituent ones, that all the ſolid Maſs in the Body is conſtructed of mere Nerves, as its Elements. See NERVE, STAMEN, &c.

And in effect, all this Maſs, an incredibly ſmall Particle only excepted, at firſt aroſe out of what was a very ſmall Colliquament, much like the nervous Juice itſelf; as is abundantly ſhown by the great *Malpighi* in his two Treatiſes on incubated Eggs. For neither does the White of the Egg nouriſh, till, by means of the Incubation, it have paſs'd innumerable degrees of Fluidity, from its firſt Thickneſs to that exceeding Subtility wherein it terminates. But even then, the Liquor thus given to the Embrio, is exceedingly thick, in compariſon with what it is to be when converted into its Veſſels and *Viſcera*.

Now the firſt tender Solids ariſing from this ſubtile Humour, do again paſs infinite intermediate Degrees, e'er they arrive at their utmoſt State and Conſiſtence; as is ſhewn by *Malpighi* in *Eggs*, and by *Ruyſch* in *Embrio's* and *Fœtus's*. Hence, therefore, it follows, that the Solids, in their firſt Formation out of the Liquids whence they ariſe, only differ from 'em in Reſt, Coheſion, and Figure. Therefore ſuch a Particle, now in its fluid State, will become a part of the Solid to be form'd out of it, as ſoon as there happens to be a Power to effect its Coheſion with the other ſolid Parts; howſoever that Coheſion is effected.

This Coheſion is eaſily produced in a Fibre already form'd, if there happen to be a proper Cavity in the Solid, left open by ſome loſt Particle, and at the ſame time a Particle in the Fluid, anſwerable thereto in Bulk, Figure, and Nature; and laſtly, a Power wherewithal to intrude it into that Place, or accommodate it thereto. Thus will ariſe a real *Nutrition* of the Solids in the minute Veſſels, by whoſe Union the large ones are form'd; that is, in the Nerves, or in Veſſels ſimilar thereto. Which being impracticable by any other Liquid than that brought into theſe Veſſels; it appears very evident that the nervous Juice, at leaſt a Juice perfectly like it, is the immediate Matter of *Nutrition*: Whence *Nutrition* appears one of the laſt and moſt perfect Actions in the Body; ſince to have this laudable, all the precedent Actions muſt of neceſſity have been ſo. See SPIRIT.

The Chyle therefore, which ſome make the immediate Matter of *Nutrition*, is, indeed, fitted to fill the larger Veſſels, but cannot nouriſh or reſtore them. This, when attenuated, chang'd, more intimately mix'd in the Lungs by means of Reſpiration, and thus fitted for the Paſſage of certain Veſſels, is, indeed, rendred fitter, yet far from being quite fit, to be the Matter of *Nutrition*. See CHYLE.

But, by the repeated Action of the Lungs, the *Viſcera*, Veſſels, &c. there is form'd out of this Humour, a ſoft, tenacious, plaſtic, inſipid Serum, which thickening by the Fire, becomes perfectly like the White of an Egg. This Fluid, therefore, has in it all the Conditions found in that from whence, by ſure Experience, we know all the ſolid Parts of an Animal, ariſe, by meer Incubation. It is therefore a ſtep nearer, but is not yet quite diſpoſed for Nutriment. Much leſs is the Cruor, or red, globular Part of the Blood ſo. Neither are yet fitted to enter the Veſſels; yet both the one and other are, by different Authors, made the *Nutritive* Juice. See BLOOD, SERUM, and CRUOR.

But as the Heat of Incubation, ſo the Action of the *Viſcera* and Veſſels, on the Serum, introduces various Changes therein; till at length a part of it be rendred ſubtile enough for the Purpoſe required. This, when exhauſted, is inſtantly repaired: and thus we have the true immediate Matter of *Nutrition*.

But this ſame Humour loſing too many of its oily Parts, by many repeated Circulations, is rendred too ſharp; and being likewiſe ſtrip'd of its moſt liquid Parts, from the ſame Cauſe, becomes too denſe; and is thus rendred unfit for this Secretion. Hence the neceſſity of new Chyle, and new Food, to keep up *Nutrition*.

The Matter of *Nutrition* thus aſcertain'd; *the Manner wherein, and the Cauſe whereby it is effected*, are as follow. A Juice being driven directly thro a full, conic or cylindric, elaſtic or rigid Canal; if its Courſe be from a wider to a narrower Part, or if it have any thing to oppoſe its Motion, will endeavour to ſtretch the Sides of its Canal according to the Axis of its Length. This muſt be the Caſe, every where in the Body, except, perhaps, in the Veins and Receptacles. By this *Niſus*, or Endeavour, how weak ſoever, continually repeated, the Veſſels will be inſenſibly lengthen'd out; and in lengthning, will be made more and more ſlender. Hence the laſt Extremities of the Veſſels, which in Man are extremely ſmall, are continually ſtretch'd and rendred leſs and leſs coherent, *i. e.* ſtill nearer and nearer to Diſſolution; and thus at length will they cohere ſo weakly, as ſcarce to differ from Fluids.

While ſuch Motion goes on, therefore, and the Propulſion is continued, there will, of neceſſity, happen theſe two things: Firſt, the outmoſt Particles of the minuteſt Tubes being torn off, will again be converted into a kind of Humour, what part of the Body ſoever they ſtick in. Secondly, the ſmalleſt Particles, which by their Union compoſed the ſlendereſt *Fibrillæ*, will be ſo ſeparated from each other, as to leave open Interſtices in thoſe Places, where, before, they cohered. Both theſe Effects will be produced at all times, and in all parts of the Body, ſo long as Life continues; eſpecially where Nature is ſtrong, and the Actions of the Body violent. But the ſame Humour whereby theſe Effects are produced, containing abundance of Particles ſimilar to thoſe thus ſeparated and loſt, conveys and applies them to thoſe Interſtices, by that very *Impetus* whereby it en-

endeavours to diſtend the Canals; and thus intercepted, at length, it forms, adapts, and faſtens them, ſo as to adhere in the ſame manner as the former.

The Matter, Preparation, Application, Energy of Motion, ſtill remaining the ſame; what from time to time is loſt, is thus preſently reſtored; and the Solids continue in the ſame State as before, *i. e.* they are perpetually *nouriſh'd*, and ſupply'd, and preſerv'd.

In this the Creator's Wiſdom is very conſpicuous; in that the ſame Power which inevitably deſtroys, does repair again at the ſame time, and by the ſame Action; and that the greater the Loſs is, the more copious is the Supply: and laſtly, that thoſe Parts, firſt ſpent in the Action of the Body, are the firſt reſtored.

Further, 'tis evident that the newer, the more tender, and the nearer the moving Cauſe theſe Veſſels are, the more eaſily will they be lengthen'd, diſtended, deſtroy'd and repair'd: Our Bodies, therefore, the nearer to their Origin, the more do they grow. For, the Action ſtill continuing, the greater Veſſels become more extended by their Fluid; and at the ſame time the ſmaller, whereof the Membranes or Coats of the larger are compoſed, are compreſs'd, dried, and at laſt concreted, and grow up; whence ariſes a Firmneſs, indeed, of the Fibres, but a Loſs of the Veſicles.

Thus what were, formerly, Veſſels, commence mere hard Ligaments; and thus the Fluids once fix'd, the ſeveral Veſſels coaleſce: from the Concurrence of theſe Cauſes ariſe the Strength, Hardneſs, Rigidity, and Thickneſs of the ſolid Parts.

Hence, the Number of Veſſels is greateſt in Embryo's, and as Age comes on, ſenſibly diminiſhes; and hence it is that their Weakneſs conſtantly declines, and their Strength and Firmneſs increaſes. In young People, therefore, the Quantity of Humours is redundant, and greatly exceeds the Solids: In old Men, the Solids exceed the Fluids. And hence we ſee the Reaſon, Manner, and Appearance of Growth, State, Declenſion, and at length of Death from pure old Age. See DEATH.

A Perſon who conſiders this Account, and compares it with what is actually obſervable in the Body, will find every Circumſtance to obtain: Thus the whole *Cuticula* is every where, and at all times, conſtantly deſquammating, peeling off, and again renewing; and thus the Hair, Nails, Teeth, continually rubb'd, torn, and wore off, come again; Parts taken off from the Veſſels, and the Bones, ſoon grow again. And the Sordes, or Filth, rubb'd off from the Extremities of the Veſſels, when examin'd by a Microſcope, or diluted and view'd in Water, appear plainly to conſiſt both of ſolid and fluid Parts; and thoſe carry'd off by Waſhing, Shaving, *&c.* are the ſame.

Hence, too, we ſee that a general Increaſe of the Bulk of the Body, with regard to Habit, as in fat, fleſhy, brawny Perſons, does not ariſe from any Increaſe of the Solids, but by their Extenſion into larger Cavities, crowded with ſtagnant Humours. And hence Fatneſs becomes hurtful, as it loads, weakens, and ſuffocates. See FATNESS.

Whence ariſes a very conſiderable Diſtinction between *Nutrition* and *Repletion*; to which a Phyſician muſt have eſpecial regard: the one ſtrengthening and condenſing the Veſſels, the other weakening, looſening, and extending the ſame. See PLENITUDE.

Hence, laſtly, we ſee why the Fabric of the Solids is not deſtroy'd by the contain'd Fluids; how our Machine comes to ſubſiſt ſo long; why, when a Nerve is corrupted, the *Nutrition* of that part it belongs to, ceaſes; and why the ſame obtains in an Artery: Why in an Embryo there are no Solids, in a *Fœtus* very few, in old Men a great deal; and why even the Nerves, Tendons, Arteries, and Receptacles, become firſt Cartilaginous, then Bony.

NUTRITION *of Plants.* See VEGETATION, SAP, CIRCULATION, *&c.*

NUTRITION, in Pharmacy, a kind of Preparation, conſiſting in the gradual Mixture of Liquors of different Natures, by ſtirring them together till they have acquired a thick Conſiſtence; as in making *Butter of Saturn*, or *Unguentum Nutritum.*

NUTRITIOUS *Juice.* See NUTRITION.

NUTRITIVE *Faculty.* See FACULTY.

NUTRITUM, a deſiccative, cooling, Unguent, prepared by the Agitation and *Nutrition* of ſome Preparation of Lead, with Oil and Vinegar, or the Juice of *Solanum*, in a Mortar. See UNGUENT.

NUX *Vomica*, the Fruit, or, as ſome will have it, the Stone of the Fruit of a Tree, growing in ſeveral Parts of *Egypt*, or in the Iſlands *Timor* and *Ceylon.*

It is round and flat, of a grey Mouſe-colour without, and various Colours within; ſometimes yellow, ſometimes white, ſometimes brown. The largeſt, whiteſt, neweſt, and cleaneſt, are the beſt.

This Drug is an aſſured Poiſon for all Animals except Men. See POISON.

On the contrary, *Hermannus*, *Botanic* Profeſſor at *Leyden*, who has wrote expreſly on it, ſays that thoſe of *Timor* and *Ceylon* are excellent Sudorifics, and to be rank'd among Diuretic Medicines.

NUX *Galla.* See GALLS.

NUX *Indica*, the Fruit of the Tree call'd *Cacao.* See CACAO.

NYCTAGES, a Religious Sect, diſtinguiſh'd by their inveighing againſt the Practice of waking in the Night to ſing the Praiſes of God; in regard, ſaid they, the Night was made for Reſt.

The Word comes from the *Greek* νύξ, *Night.*

NYCTALOPIA, or *Nocturna Cæcitas*, a Diſeaſe of the Eyes, which prevents their ſeeing, when the Sun is ſet, and the Light begins to diminiſh. See BLINDNESS. *Celſus* calls it *Imbecilitas Oculorum.*

Others will have the *Nyctalopia* to be properly a Diſeaſe, that prevents the ſeeing by Day, not by Night: which is the ſenſe *Hippocrates* uſes it in; and in which ſenſe it is ſuppos'd owing to the Spirits being too much diſſipated in the Day, but collected by Night. See SIGHT.

However, in the general, any Diſeaſe which prevents the ſeeing at any particular time, when others ſee, is call'd *Nyctalopia.*

Boerhaave ſays, the *Nyctalopia* conſiſts in this, that the *Uvea* is immovable, and at the ſame time very open.

The Word comes from the *Greek* νυξ, *Night*, and αλοπηξ, *Fox*; this Animal being ſaid to ſee leſs by Day than Night.

In the *Philoſophical Tranſactions*, we have an Inſtance of a *Nyctalopia*, or *Nocturna Cæcitas*, in a Youth of twenty Years of Age; who had been affected with it as long as he could remember. Dr. *Parham* aſſures us, he had a good Sight all Day, and diſtinguiſh'd Objects at all Diſtances as well as any body; but when Twilight once came, he was quite blind, and ſaw nothing at all; nor could make ſcarce any uſe either of Fire, Candle, or Glaſſes. Yet his Eyes, upon Examination, ſhew'd nothing at all amiſs; nor had he any Vertigo, or other Diſeaſe of the Head. The Cloudineſs, as he himſelf told the Doctor, uſed to come gradually on him like a Miſt, as Day-light declined. He always ſaw alike in all Aſpects of the Moon, felt no Pain by Fire or Candle-light, and was the ſame in Summer as Winter.

Dr. *Briggs* accounts for the Caſe thus: "As Vapours are "raiſed in great quantity during the Day-time; which being condenſed by the Coldneſs of the Evening, fall again, and render the Air, near the Earth, the thicker: "So, perhaps, the Humours in the Eyes of this Youth may "be affected; and, in the Evening, rendred groſſer, and "more turbid. As we ſee in Urines, which frequently "grow clear, or turbid, as Heat or Cold is apply'd to "them. By ſuch Thickneſs or Spiſſitude of the Humours, "the Rays being either reflected, or too much refracted, do "not reach the *Retina*, or at leaſt ſtrike it too feebly."

NYCTELIA, *Orgya*, or Feaſts in honour of *Bacchus*; ſo call'd, becauſe held in the Night time. See ORGYA.

A great part of the Ceremony conſiſted in running thro' the Streets, with Bottle and Glaſs in hand, drinking: but there was no Impurity unpractis'd in them.

The *Athenians* celebrated the *Nyctelia* every three Years, at the beginning of the Spring.

NYMPH, NYMPHA, in Mythology, a ſort of Heathen Divinity, ſuppoſed to preſide over Waters, Rivers, and Fountains. See GODDESS.

Some extend the Word further, and comprize under it the Goddeſſes of the Fountains, Foreſts, and Trees; call'd particularly *Oreades*, *Dryades*, and *Hamadryades.*

Meurſius is of opinion, the *Greeks* borrow'd their Notion of theſe Divinities from the *Phœnicians*; for *Nymphæ* in their Language ſignifying *Soul*, the *Greeks* imagin'd, that the Souls of the antient Inhabitants of *Greece* were become *Nymphs.* Particularly the Souls of thoſe who had inhabited the Woods, were call'd *Dryades*; thoſe who had inhabited the Mountains, *Oreades*; thoſe who had dwelt on the Sea-Coaſts, *Nereades*; and laſtly, thoſe who had their Place of Abode near Rivers, or Fountains, *Naides.* See DRYADES, OREADES, *&c.*

The Word *Nymph*, according to ſome other Authors, comes from the *Greek* νυμφη, a *Bride*, or Woman newly marry'd; and was apply'd to theſe Deities, becauſe repreſented under the Figure of young Maids.

Others derive *Nymph* from *Lympha*, Water; in regard of their inhabiting near the Waters.

NYMPHA, among Naturaliſts, a Term ſometimes uſed for the little Skin wherewith Inſects are encloſed, both while they are in the Egg, and after they have undergone an apparent Transformation. See INSECT.

Others uſe the Word *Nympha* for the Change itſelf of the *Eruca*, or Worm, into a flying Animal, after having laid aſide its former Skin; which, as *Swammerdam* ſhews, is not effected by any proper Transformation, but by ſimple Accretion, or Growth of the Parts, whence the Skin is by degrees ſtretched, and at laſt burſts; as is the Caſe, likewiſe, in Chickens and Frogs. But the generality of Authors uſe *Nymphæ* for the Inſects themſelves, while they have yet only the Form of Worms or Maggots.

The Word properly ſignifies *Bride*, or *new-married Woman*; it being now, when it has laid aſide its former Skin, that it begins to ſhew all its Parts diſtinctly. In this Change it loſes its Motion for a while, as when in the Egg; ſo that theſe Inſects are twice in their *Nympha* State; firſt, in the Egg, which is their firſt *Nympha*; and again in this Change, which is their ſecond.

The only difference between them conſiſts in this, that in the latter the Members appear more diſtinctly. *Swammerdam* calls this latter *Nympha Aurea* or *Aurelia*, and *Chryſalis*; and the other ſimply *Nympha*. The *Nymphæ* are otherwiſe diſtinguiſh'd into *Nympha Animal Vermiformis*, and *Vermiculus Oviformis*.

The Eggs of Bees firſt change into Maggots; theſe Maggots, incloſ'd in their *Alveoli* or Cells, are tranſform'd into *Aureliæ* or *Nymphæ*, and twelve Days afterwards come out Bees.

NYMPHÆ, or ALÆ, in Anatomy, are two ſoft, ſpongy, red Bodies, deſcending from the Top of the *Clitoris* to the Sides of the urinary Paſſage; thus reaching to about the middle of the Orifice of the *Vagina*: where they grow leſs and leſs, till they diſappear. See CLITORIS, *&c.*

Their Breadth is uncertain, uſually in Maids half a finger: ſometimes they are larger, and are capable of being diſtended to a great degree; ſo as to hang a good way out of the Body: whence, in ſome, theſe, as well as the *Clitoris*, have been forced to be cut. See NYMPHOTOMIA.

The Uſe of the *Nymphæ* is, by ſwelling in the Act of Coition, to embrace the *Penis*, and by their Senſibility to affect the Woman, and mutually invite to Procreation. See GENERATION.

Their Subſtance is very ſpongy, compos'd of Membranes, and Veſſels looſely cohering, and therefore diſtendible.

NYMPHÆUM, among the Antients, a public Hall, or Building, magnificently adorn'd and diſpos'd for Banqueting and Entertainment; where thoſe who wanted Conveniencies at home, held their Marriage-Feaſts, *&c.*

Some Authors rather take the antient *Nymphæum* for a Grotto, adorn'd with Statues, Jets, and other Ornaments; and that it had its Name, by Corruption, from *Lymphæum*, of *Lympha*, Water: In which ſenſe it muſt have been a public Bath.

The Word comes from the *Greek* *νυμφη*, *Spouſe*.

NYMPHOMANIA, in Medicine, the ſame with *Furor Uterinus*. See UTERINUS.

NYMPHOTOMIA, in Chirurgery, a Retrenchment or Cutting off part of the *Nymphæ*, when they are ſo large and tumid, as to prevent the Conſummation of Marriage, or render it very difficult. See NYMPHÆ.

The *Egyptians*, *Galen* obſerves, frequently practis'd the *Nymphotomia*; but in our Parts of the World, it is rarely found neceſſary.

When it happens to be ſo, the Caſuiſts give their Judgment, that the Woman is oblig'd to undergo it.

The *Nymphotomia* is properly the Circumciſion of Women. See CIRCUMCISION.

O.

O, The fourteenth Letter of the Alphabet; and the fourth Vowel. See LETTER and VOWEL. The Grammarians call it a cloſe Vowel; becauſe pronounced in ſhutting the Mouth.

Among the *Latins*, the *O* bore ſo great an Affinity with the *U*, that they frequently confounded them; writing *Conſol*, and pronouncing *Conſul*. See *Gruter's Inſcript.*

Thus, alſo, they wrote *Aequom* for *Æquum*, *Aorelius* for *Aurelius*, *Compaſcuos*, *Duomvir*, *&c.*

The *Greeks* had two *O's*, *viz.* *Omicron*, ο, and *Omega* ω; the firſt pronounced on the tip of the Lips, with a ſharper Sound; the ſecond in the middle of the Mouth, with a fuller Sound, equal to *oo* in our Language. The long and ſhort Pronunciation of our *O* are an Equivalent to the two *Greek* ones; the firſt as in *o*bey; the ſecond as in ſuppoſe.

O, among the Antients, was a Numerical Letter, ſignifying Eleven; as in the Verſe,

O Numerum geſtat qui nunc undecimus extat.

When a Daſh was added at top, as Ō, it ſignify'd eleven Millions.

Among the *Iriſh*, the Letter *O* at the beginning of the Name of a Family, is a Character of Dignity, annexed to great Houſes. Thus in the Hiſtory of *Ireland*, we frequently meet with the *O Neals*, *O Carrols*, *&c.* conſiderable Houſes in that Iſland.

Cambden obſerves, that 'tis the Cuſtom of the Lords of *Ireland*, to prefix an *O* to their Names, to diſtinguiſh them from the Commonalty.

A Majuſcule *O*, in Muſic, is a Note call'd by us *Semibreve*; by the *Italians*, *Circulo*; making what they call *Tempo perfetto*. See NOTE.

The Antients uſed *O* as a Mark of triple Time; from a Notion that the Ternary, or Number 3, was the moſt perfect of Numbers, and therefore properly expreſs'd by a Circle, the moſt perfect of Figures.

O *Ni.* in the Exchequer. As ſoon as a Sheriff enters a Perſon into his Account for Iſſues, Amerciaments, and mean Profits; the Practice is to mark on his Head *O Ni*, which ſignifies, *Oneratur niſi habeat ſufficiemem Exonerationem*: and immediately he becomes the King's Debtor, and a *Debet* is ſet on his Head.

Upon this the Parties become Debtors to the Sheriff, and are diſcharg'd to the King. See SHERIFF.

OAK-*Balls*, OAK-*Apples*, or OAK-*Cones*, in Natural Hiſtory, a kind of *Galls*, or Excreſcencies ariſing out of the *Oak*.

For their *Generation* and *Uſe*, ſee GALLS.

OAKHAM, OAKAM, or OAKUM, in the Sea-Language, denotes the Matter of old Ropes untwiſted, and pull'd out again into looſe Hemp, like Hurds of Flax, to be uſed in the Calking of Ships. See CALKING.

OAR, or rather ORE, in Natural Hiſtory, the Mineral Glebe, or Earth dug out of Mines, to be purify'd, and the Metalline Parts procured, and ſeparated from the ſame. See MINE and METAL.

The *Oar* is frequently call'd the *Mineral*; and among the Antients, *Marchaſite*; tho' the Moderns affix another Idea to that Name. See MINERAL and MARCHASITE.

OAR, in Navigation, an Inſtrument whereby a Boat, Barge, Galley, *&c.* is row'd, or advanc'd along the Water. See ROWING; ſee alſo BOAT, GALLEY, *&c.*

In a Veſſel with *Oars*, the Water is to be conſider'd as the Point of Support, or *Fulcrum*; the *Oar* as a Lever; the Boat as the Burden to be moved, and the Rower's Hand the moving Power. See LEVER.

The Burden is to be conſider'd as apply'd to that Point of the Lever, where the *Oar* reſts on the Boat: The greater therefore the Diſtance of the Hand from that Point, and the leſs the Diſtance of the Water from that Point, the greater Effect will the *Oar* have.

OARISTUS, or OARYSTUS, a Term in the *Greek* Poetry, ſignifying a Dialogue betwixt a Husband and his Wife; ſuch as that in the VIth Book of the *Iliad*, between *Hector* and *Andromache*.

Scaliger obſerves, that the *Oariſtus*, properly, is not any particular little Poem, or any entire Piece of Poetry; but a part of a great one. He adds, that the Paſſage now cited in *Homer*, is the only proper *Oariſtus* extant in the antient Poets.

OATH, *Juſ-jurandum*, is uſually defined a Religious Aſſertion, or Aſſeveration; wherein a Perſon invokes the Almighty, renounces all Claim to his Mercy, or even calls for the Divine Vengeance upon himſelf, if he ſpeak falſely.

Some Civilians look on this Definition as too lax, ſince it may agree to Perjury; and would have this eſſential to an Oath, that the thing affirm'd be true. But this is arbitrary. See PERJURY.

An *Oath* is eſteem'd a kind of Civil Medium, between the Perſon that gives it, and him to whom it is given; whereby ſome Controverſy, or other Matter, which could not otherwiſe be determin'd, is brought to an Iſſue.

Its Form, and the Ceremonies it is attended withal, are arbitrary, and various, in various Countries.

The *Oaths* we make to God are call'd *Vows*, and in ſome Caſes *Sacraments*. See VOW and SACRAMENT.

OATH, in a Legal Senſe, is a ſolemn Action, whereby God is call'd to witneſs the Truth of an Affirmation given before one or more Perſons, impower'd to receive the ſame.

Legal Oaths end with, *So help me God*; antiently with, *So help me God at his Holy Dome*, i.e. *Judgment*. See DOMESDAY.

Our Law-Books ſay, this *Oath* is call'd a *Corporal Oath*; becauſe the Party, when he ſwears, touches the Goſpels with his right Hand. But in ſome old Cuſtoms of *Anjou* and *Main*, it appears that Corporal *Oath* was a ſimple Affirmation, or Vow of Faith and Fidelity, made by a Vaſſal who was no Liege, by lifting up his Hand; in contradiſtinction to that made by a Liege Vaſſal, by laying his Hand on the Goſpel. See HOMAGE, FEALTY, VASSAL, *&c.*

An *Oath* is call'd *Canonica Purgatio*, becauſe allow'd by the Canons; to diſtinguiſh it from *Vulgares Purgationes*, *viz.* by Battle, Fire Ordeal, *&c.* which the Church always diſallow'd. See PURGATION, ORDEAL, COMBAT, DUEL, CHAMPION, *&c.*

In ſmall Matters, which the Plaintiff could not prove, or if he could, if his Proof were ſet aſide, the Defendant might purge himſelf by his own *Oath*; which was call'd *Jurare propria Manu.*

But in Matters of more weight, he was to bring other credible Perſons, uſually of the ſame Quality with the Plaintiff, to ſwear that they believed the Defendant had ſwore the Truth.

Theſe were call'd *Sacramentales*; and their Number was greater or leſs, according to the Quality of the Defendant, and the Nature of the Thing in queſtion. Hence, *Jurare duodecima* Manu.

OATH is alſo uſed for a ſolemn Promiſe faithfully to execute or obſerve ſomething. Tryals in Common Law depend on Twelve, or Twenty-four Men, who take their *Oaths* to declare the Truth, as it ſhall appear to them. See JURY.

In this ſenſe we ſay *State Oaths*; the *Oath of Supremacy*, *Oath of Allegiance*, *Oath of Abjuration*. See ALLEGIANCE, SUPREMACY, *&c.*

At the meeting of a new Parliament, the Commons, all, take the *Oaths* of Allegiance, Supremacy, and Abjuration. See PARLIAMENT.

Kings and Princes ſwear to the Performance of the Treaties they make: Tho, antiently, they did not ſwear of themſelves; but others ſware in their Name.

Thus in a Treaty in 1177, between the Emperor *Frederic Barberoſa*, *Roger* King of *Sicily*, Pope *Alexander* III. and the Cities of *Lombardy*; the Count *de Dieſſe*, by the Emperor's Order, ſwore, upon the Soul of that Monarch, that he would faithfully obſerve the Peace; and, at the ſame time, *Romuald* Archbiſhop of *Salerna*, and Count *Roger*, ſwore, on the Goſpel, that when the Emperor's Meſſengers ſhould arrive in *Sicily*, King *Roger* ſhould procure ſome of his Lords to ſwear for him.

OAZY, or OARY *Ground*; ſo the Seamen call ſoft, ſlimy, or muddy Ground.

OBEDIENCE, OBEDIENTIA, *Canonical* OBEDIENCE. See CANONICAL.

Obedientia, in our antient Cuſtoms, was uſed in the general, for every thing that was enjoyn'd the Monks by the Abbot.

In a more reſtrain'd ſenſe, *Obedientia* was uſed for the Farms which belong'd to the Abbey, to which the Monks were ſent *vi ejuſdem Obedientiæ*, either to look after the Farms, or collect the Rents.

Hence, alſo, thoſe Rents themſelves were call'd *Obedientiæ*.

OBELISK, OBELISCUS, a quadrangular Pyramid, very ſlender, and high; rais'd as an Ornament, inſome public Place, to ſhew ſome Stone of enormous Size, and frequently charg'd with Inſcriptions and Hieroglyphics. See MONUMENT.

The difference between *Obelisks* and Pyramids, according to ſome, conſiſts in this, that the latter have large Baſes, and the former very ſmall ones.

Tho *Cardan* makes the difference to conſiſt in this, that *Obelisks* are to be all of a piece, or conſiſt of a ſingle Stone, and Pyramids of ſeveral. See PYRAMID.

The Proportions of the Heighth and Thickneſs are nearly the ſame in all *Obelisks*; that is, their Height is nine, or nine and a half, ſometimes ten times their Thickneſs; and their Thickneſs, or Diameter a-top is never leſs than half, nor greater than three fourths of that at bottom.

This kind of Monument appears very antient; and we are told was firſt made uſe of to tranſmit to Poſterity the principal Precepts of Philoſophy, which were engraven in hieroglyphical Characters hereon.

In After-times they were uſed to immortalize the Actions of Heroes, and the Memory of Perſons beloved.

The firſt *Obelisk* we know of, was that raiſed by *Ramiſes*, King of *Egypt*, in the time of the *Trojan* War. It was 40 Cubits high, and, according to *Herodotus*, employ'd 20000 Men in the Building. *Phius*, another King of *Egypt*, raiſed one of 45 Cubits; and *Ptolemy Philadelphus* another of 88 Cubits, in memory of *Arſinoe*.

Auguſtus erected one at *Rome* in the *Campus Martius*, which ſerv'd to mark the Hours on a horizontal Dial drawn on the Pavement. See DIAL.

F. *Kircher* reckons up 14 *Obelisks* celebrated above the reſt, *viz.* that of *Alexandria*, that of the *Barberins*, thoſe of *Conſtantinople*, of the *Mons Eſquilinus*, of the *Campus Flaminius*, of *Florence*, of *Heliopolis*, of *Ludoviſio*, of S. *Mahut*, of the *Medici*, of the *Vatican*, of M. *Cælius*, and that of *Pamphila*.

The *Egyptian* Prieſts call'd *Obelisks* the *Sun's Fingers*, becauſe ſerving as Styles, or Gnomons to mark the Hours on the Ground. The *Arabs* ſtill call them *Pharaoh's Needles*: whence the *Italians* call them *Aguglia*; and the *French*, *Aiguilles*.

Borel derives the Word from the *Greek* ὀβελὸς, a Broach, Spindle, Point, or a kind of long Javelin.

Pliny ſays, the *Egyptians* cut their *Obelisks* in form of Sun-Beams; and that in the *Phœnician* Language, the word *Obelisk* ſignifies *Ray*.

OBELISK, in Grammar, is a Character, in form of a Dagger (†) ſerving to refer the Reader to ſome Note, or other Matter in the Margin. See CHARACTER.

OBELUS, in Antiquity, is a little Line, or Stroke, like a Needle; whence its Name, οβελος, *Needle*.

The Word is chiefly uſed in ſpeaking of *Origen's Hexapla*; wherein he diſtinguiſhes, with an Aſteriſk, or Star, the Supplements he makes to the Text of the *Septuagint*, where it falls ſhort of the *Hebrew* meaning; and with an *Obelus*, or little Line (—) thoſe Places where the *Septuagint* had any thing not in the *Hebrew*. See HEXAPLA.

St. *Jerom* ſays, the *Obelus* was only uſed in thoſe Places where ſomething was to be retrench'd from the *Septuagint*, as ſuperfluous; and the Aſteriſk in thoſe that were defective.

Theſe Marks frequently occur in antient Manuſcripts. Uſually the *Obelus* is accompanied with two Dots; the one above, the other underneath, as (÷); and the Aſteriſk, a St. *Andrew's* Croſs, canton'd with four Points.

OBESITY, Fatneſs, in Medicine, the State of a Perſon too much charged with Fat, and Fleſh; otherwiſe call'd *Corpulency*. See FAT.

Etmuller defines it to be ſuch an increaſe both of the Venter and Limbs, as impedes the Actions of the Body, eſpecially Motion and Reſpiration.

Obeſity, *Boerhaave* obſerves, does not conſiſt in the Solids of the Body being increaſed, but by their being diſtended to a greater Pitch by the abundance of Humours collected in them. See SOLID, &c.

Hence, *Obeſity* occaſions ſeveral Diſeaſes; uſually Apoplexies.

It was held Infamous among the *Lacedemonians*. Hiſtory tells us of a *Spaniard* who had been ſo exceedingly Fat, that when he became lean again, his Skin would make ſeveral turns or folds quite around him. *Sennertus* mentions a Man that weigh'd 600 Pounds.

Etmuller affirms, that there is no better Remedy againſt *Obeſity* than *Acetum Scilliticum*. *Borel* recommends the Chewing of Tobacco; which *Etmuller* diſſuades, leſt it induce a Conſumption.

OBJECT, in Philoſophy, ſomething apprehended, or preſented to the Mind, by Senſation, or by Imagination. See SENSATION and IMAGINATION.

Or, OBJECT is ſomething that affects us by its Preſence; or ſomething that moves the Eye, Ear, or ſome of the other Organs of Senſe; or, at leaſt, is repreſented to us by the Imagination.

Thus, Ideas are the immediate *Objects* of the Mind in thinking: Bodies, their Relations, Attributes, &c. the mediate.

The word *Object* is derived from the *Latin*, *Objicere*, to preſent to, to ſet before; which is compoſed of *ob* and *jacio*, I lie againſt. Whence the School-Philoſophers define it to be that about which a Power, Act, or Habit, is employ'd. Thus, Good is the *Object* of the Will; Truth of the Underſtanding: So, Colour is the *Object* of Sight; Sound of Hearing, &c. See OBJECTIVE.

There are ſeveral Conditions requiſite to an *Object of Senſe*; as, that it be *Material*; that it be within a certain *diſtance*, of a competent *extent*, its ſenſible Qualities ſufficiently *intenſe*, &c.

'Tis the *Object* that reflects or emits the Rays of Light which occaſion Viſion. *Objects* of themſelves are inviſible; we only ſeem to perceive them becauſe the different Texture of their Surface, diſpoſing them to reflect differently colour'd Rays, occaſion in us ſeveral Senſations of Colour, &c. which we attribute to them. See COLOUR, VISION, &c.

The *Objects* of the Eye, or of Viſion, are painted on the Retina; tho not erect, but inverted, according to the Laws of Optics This is eaſily ſhewn from *Cartes's* Experiment of laying bare the vitreous Humour on the back part of the Eye; and clapping over it a bit of white Paper, or the Skin of an Egg, and then placing the fore-part of the Eye to the Hole of a darkned Room.

By this means is had a pretty Landskip of the *Objects* abroad, painted invertedly on the back of the Eye. See RETINA.

How, in this Caſe, the *Objects* which are painted inverted ſhould be ſeen erect, is matter of Controverſy. See SEEING.

The Schoolmen diſtinguiſh *Objects* into *next*, *proxima*, which are thoſe the Power, or Habit is immediately employ'd on; in which ſenſe, Colour is the next *Object* of Sight: And *remote*, which are thoſe only perceiv'd by means of the former; in which ſenſe, the Wall is the remote Object of Sight, ſince we only ſee it by means of its Colour, &c.

Hence it appears that there is a ſort of ſubordination of *Objects*. But, note, that a *next Object*, with regard to a *remote* one, is properly a Subject, not an *Object*. See SUBJECT.

They alſo diſtinguiſh OBJECTS *per ſe*, which are what properly move or affect our Senſes; and theſe are the ſenſible Qualities: And *Objects per Accidens*, which are *Subſtances*, and only affect us by being inveſted with ſenſible Qualities. See QUALITY and SUBSTANCE.

Again, they diſtinguiſh between *Common* OBJECTS, which are ſuch as affect divers Senſes, as are Motion, Figure, &c. And *Proper* OBJECTS, which only affect one. See SENSE.

OBJECT-*Glaſs* of a Teleſcope, or Microſcope, is the Glaſs placed at that end of the Tube which is next the *Object*. See TELESCOPE, MICROSCOPE, and GLASS.

To prove the Regularity and Goodneſs of an OBJECT-*Glaſs.*

Strike two concentric Lines on a Paper, the one having its diameter the ſame with the Breadth of the *Object-Glaſs*; the other half that Diameter: Divide the inner Circumference into ſix equal parts, and making ſix fine ſmall Holes therein with a Needle; cover one ſide of the Glaſs with this Paper. Then expoſing it to the Sun, receive the Rays that paſs thro theſe ſix Holes, on a Plane, at a juſt diſtance from the Glaſs; and by withdrawing or approaching this Plane, from or to the Glaſs, we ſhall find whether the Rays that paſs thro theſe ſix Holes, unite exactly together at any diſtance from the Glaſs; if they do, we may be aſſured of the Regularity of the Glaſs; that is, of its juſt Form; and at the ſame time we obtain exactly the Glaſs's Focal Length.

Indeed, there is ſcarce any better way of proving the Excellency of an *Object-Glaſs*, than by placing it in a Tube, and trying it with ſmall Eye-Glaſſes at ſeveral diſtant Objects; for that *Object-Glaſs* that repreſents Objects the brighteſt, and moſt diſtinct, that bears the greateſt Aperture, and moſt convex, and concave Eye-Glaſs, without colouring or hazineſs, is the beſt.

To prove whether Object-Glaſſes *be well center'd.*

Hold the Glaſs at a due diſtance from the Eye; and obſerve the two reflected Images of a Candle; where thoſe Images unite or coaleſce, there is the true Centre. If this be in the middle, or Central-Point of the Glaſs, 'tis truly centred.

OBJECT is alſo uſed for the Matter of an Art or Science; or that about which it is employ'd: in which Senſe, the Word coincides with *Subject*. See SUBJECT, &c.

The School-Philoſophers diſtinguiſh divers kinds of *Objects* in the ſame Science, *viz.*

Material OBJECT, which is the thing itſelf that is conſider'd, or treated of: And thus it is the human Body is the *Object* of Medicine.

Formal OBJECT, is the manner of conſidering it: And thus the ſame human Body conſider'd with a view to the healing it, is the *Formal Object* of Medicine.

OBJECTUM *quod complexum*, of an Art, is the aggregative Whole; or a Collection of all the objective Concluſions, or Conſequences found in the Science. *Objectum quod incomplexum*, is a Collection of all the Subjects of the objective Concluſions. Thus, *Therefore Air is elaſtic*, is the complex Object of one Branch of Phyſics; and *Air* itſelf, or the Subject of the Concluſion, the incomplex Object of the ſame Branch.

OBJECTUM *quo Complexum*, is a Collection of all the objective Antecedents of the Science. *Objectum quo incomplexum*, is a Collection of all the Mediums, or Arguments contain'd in thoſe Antecedents, and whereby thoſe Concluſions are proved.

In theſe Caſes the *Object* is ſaid to be *complex*, inaſmuch as it includes both an Affirmation and Negation; and *incomplex*, as it includes neither: *Quod*, as being that which (*quod*) is ſhewn in the Science; and *quo*, as being that whereby (*quo*), the Concluſions therein are proved.

They have here, alſo, an *Object per ſe*, and *per accidens*; *Objectum adæquatum*, and *inadæquatum*; *Attributionis*, and *Attributum*.

OBJECTION, in Reaſoning, ſomething urged to overthrow an Opinion; or, a Difficulty raiſed againſt an Allegation, or Propoſition of a Perſon we are diſputing withall.

The anſwering of *Objections* comes under that Branch of Oratory, or that Part of an Oration call'd the *Confirmation*, or *Confutation*. See CONFIRMATION and CONFUTATION.

OBJECTIVE, *Objectivus*, is uſed in the Schools in ſpeaking of a thing which exiſts no otherwiſe than as an Object known. The *Eſſe*, or Exiſtence of ſuch thing is ſaid to be *Objective*. Others call it *Ratio Objectiva*. See OBJECT.

The Word is alſo uſed for the Power or Faculty by which any thing becomes intelligible; and for the Act itſelf, whereby any thing is preſented to the Mind, and known.

Hence a thing is ſaid *to exiſt* OBJECTIVELY, *Objective*, when it exiſts no otherwiſe than in being known; or in being an Object of the Mind. See EXISTENCE.

This, ſome will have to be a real *Eſſe*; others deny it. See ESSE.

OBIT, in our antient Cuſtoms, was a funeral Solemnity, or an Office for the Dead; commonly performed when the Corps lay uninterr'd in the Church.

OBIT is alſo an Anniverſary-Office, or Maſs, held yearly in the *Romiſh* Church, on a certain day, in Memory of a Perſon deceaſed. See MASS and ANNIVERSARY.

One of the moſt antient *Obits* in *Europe*, is that of King *Childebert*, founded in the Abby of *St. Germains Deſprez*; and ſaid on the Eve of St. *Thomas*'s Day.

The Tenure of *Obit*, or Chauntry Lands held of the Subjects, is decreed to be extinct with us, by *Stat.* 1 *Edw.* 6. See TENURE, SERVICE, &c.

OBITUARY, a Regiſter, wherein are wrote the Names of the Dead, and the Days of their Burial. See REGISTER.

Theſe in ſome Places are call'd *Mortuaries*. See MORTUARY.

The Term is ſometimes alſo uſed for a Book containing the Foundation, or Inſtitution of the ſeveral *Obits*; but this is more frequently call'd *Martyrology*. See MARTYROLOGY.

OBLATA properly ſignifies things given, or offer'd, particularly to the King, by any of his Subjects. See OFFERING.

In the Exchequer, *Oblata* ſignifies old Debts; brought, as it were, together, from preceding Years, and put to the preſent Sheriffs Charge.

Theſe are thus call'd, by reaſon the *Oblata*, or Offerings were ſo ſtrictly look'd to in the Reigns of King *John* and *Henry* III. that they were enter'd into the Fine-Roll, under the Term *Oblata*, and if not paid, put in charge to the Sheriff.

OBLATI, antiently, were ſecular Perſons, who reſign'd themſelves, and their Eſtates to ſome Monaſtery, and were admitted as Lay-Brothers. See LAY-BROTHER.

There were ſome of theſe *Oblati*, properly call'd *Donati*, who gave their Perſons, their Families, and Effects; and even enter'd into a kind of Servitude themſelves and their Deſcendants. They were admitted by putting the Bell-Ropes of the Church around their Necks, and, as a Mark of Servitude, a few Pence on their Heads.

Theſe *Donati* took Religious Habits, but thoſe different from the Monks.

In the Archives of the Abby of St. *Paul de Verdun*, is a Permiſſion given in 1360, to a Man of that Abby to marry a Wife, on condition, that of the Children ariſing from the Marriage, one half ſhould belong to the Abby in quality of *Oblati*; the other half to the Biſhop. This kind of *Oblati* are ſaid to have taken their firſt Riſe in the Eleventh Century.

In the earlier Times, thoſe only were call'd *Oblati* whom their Parents engaged from their Infancy to the Monaſtic Life. Thoſe who embraced it themſelves, when at an Age capable of Choice, were call'd *Converts*.

The *Oblati* made no Profeſſion, yet kept the Celibate, lived in Obedience to the Superiors, and did the drudgery of the Monaſtery; yet they differ'd from Servants, who were allow'd to marry. The *Oblati* and *Donati* were Servants of Devotion, as the others were of Condition.

Helyot ſays, the *Oblati* differ'd from Converts, inaſmuch as the latter made the Profeſſion, and wore the Habit.

OBLATI were alſo in *France* a kind of Lay-Monks, antiently placed by the King in all the Abbeys and Priories in his Nomination; to whom the Religious were obliged to give a Monk's Allowance, on account of their ringing the Bells, and ſweeping the Church and the Court.

Theſe Places were uſually fill'd with lame Soldiers and Invalids, ſome of whom had Penſions or Benefices without any Duty; but theſe *Oblati*, with their Penſions, have ſince been all removed to the Hotel of the Invalids at *Paris*.

OBLATIONS, OFFERINGS, properly denote *Sacrifices*, or things offer'd to God. See SACRIFICE.

In the Canon Law, *Oblations* are defined to be any thing offer'd, by godly Chriſtians, to God and the Church, *i.e.* to the Prieſts, whether they be moveable or immoveable.

Oblations were antiently of various kinds, *viz. Oblationes Altaris*, which the Prieſts had for ſaying Maſs; *Oblationes Defunctorum*, given by the laſt Wills of the Faithful to the Church; *Oblationes Mortuorum*, thoſe given by the Relations of the Dead, at Burials; *Oblationes Pœnitentium*, thoſe given by Penitents; and *Obligationes Penticoſtales*. See PENTICOSTALES.

Till the fourth Century, the Church had no other fixed Revenues, nor any other means of Subſiſtence, but *Oblations*. See TYTHE.

OBLIGATION, an Act whereby a Perſon engages, or binds himſelf, or is bound by another, to do ſomething; as to pay a Sum of Money, to be Surety for any one, &c.

The Acceptance of a Bill of Exchange is a kind of *Obligation*. See BILL.

The exacting of Intereſt on a Sum due by a ſimple *Obligation*, is accounted *Uſury*. See USURY.

All *Obligations* ariſe from Contracts, or *quaſi* Contracts; from Crimes, or *quaſi* Crimes; and in the *Roman* Law, were either *Civil*, or *Prætorian*; *i.e.* either approved by the Civil Law, or introduced by the Prætor.

There are three kinds of *Obligations*; *Natural*, *Civil*, and *Mixed*.

Natural OBLIGATIONS are founded on the mere Bond of natural Equity, without any Civil Neceſſity, and without producing any Action of Conſtraint: Such is the *Obligation* of a Minor.

Civil OBLIGATION, is that ſupported on Civil Authority alone, and which induces a Conſtraint, without any Principle or Foundation in natural Equity: Such is the *Obligation* of a Man condemn'd unjuſtly.

Laſtly, *a mixed* OBLIGATION, or an *Obligation* both Natural and Civil, is that which being founded in natural Equity, is further confirm'd and enforced by Civil Authority.

There are Perſonal *Obligations*, Hypothecary *Obligations*, *Obligations* of Goods, others by Body, *Obligations* ſolidary, others for a Part or Portion.

OBLIGATION, in a more ſtrict Senſe, is an Inſtrument, or Bond, containing a Penalty with a Condition annexed, for payment of Money at a certain time; or for Performance of Covenants, &c.

A Bill is commonly without a Penalty, and without Condition; yet a Bill may be *obligatory*. *Coke on Littl.*

Till the Conqueſt, Writings were render'd *Obligatory* by certain Marks of Gold Croſſes, &c. The *Normans* firſt introduced the Cuſtom of making Bills and *Obligations* with a Print or Seal in Wax ſet to every one's Signet, atteſted by three Witneſſes. See SIGNATURE, SEAL, &c.

OBLIQUATION, in Catoptricks. *Cathetus of Obliquation*, is a right Line drawn perpendicular to a Mirror, in the Point of Incidence, or Reflexion of a Ray. See CATHETUS, MIRROR, &c.

OBLIQUE, in Geometry, ſomething *a-ſlant*, *in-direct*; or that deviates from the Perpendicular. See PERPENDICULAR.

OBLIQUE *Angle*, in Geometry, is an Angle that is either acute, or obtuſe; *i.e.* any Angle, except a right Angle. See ANGLE.

OBLIQUE-*angled Triangle*, is that whoſe Angles are *Oblique*, *i.e.* either obtuſe or acute. See TRIANGLE.

OBLIQUE *Line*, a Line which falling on another, makes an *oblique* Angle. See LINE.

A Line falling *obliquely* on another, makes the Angle on one ſide obtuſe, and that on the other, acute.

Oblique *Plains*, in Dialling, are ſuch as decline from the Zenith, or incline toward the Horizon. See Dial-*Plain*.

The Obliquity, or Quantity, of this Inclination, or Reclination, is eaſily found by a Quadrant; it being an Arch of ſome Azimuth, or vertical Circle, intercepted between the Vertex of the Place and of that Plane.

This Azimuth, or vertical Circle, is always perpendicular to the Plane. See Dialling.

Oblique *Percuſſion*, is that wherein the Direction of the ſtriking Body, is not perpendicular to the Body ſtruck; or is not in a Line with its Center of Gravity. See Percussion.

The Ratio an *oblique* Stroke bears to a perpendicular one, is demonſtrated to be as the Sine of the Angle of Incidence to the Radius.

Oblique *Powers*. See Powers.

Oblique *Projection*, in Mechanicks, is that where a Body is impell'd in a Line of Direction, which makes an *oblique* Angle with the Horizontal Line. See Projection.

Oblique *Sphere*, in Geometry, is that whoſe Horizon cuts the Equator *obliquely*; and one of whoſe Poles is rais'd above the Horizon, equal to the Latitude of the Place. See Sphere.

'Tis this Obliquity that occaſions the Inequality of Days and Nights. See Night and Day.

Thoſe who live under an *oblique* Sphere (as we, and all thoſe in the temperate Zone, do) never have their Days and Nights equal; except in the Equinoxes. See Equinox.

Oblique *Aſcenſion*, in Aſtronomy, an Arch of the Equator intercepted between the firſt Point of *Aries*, and that Point of the Equator which riſes together with a Star, &c. in an *oblique* Sphere. See Ascension.

The *oblique* Aſcenſion is numbred from Weſt to Eaſt; and is more or leſs according to the different Obliquity of the Sphere.

Oblique *Deſcenſion*, an Arch of the Equator, intercepted between the firſt Point of *Aries*, and that Point of the Equator, which ſets with a Star, &c. in an *oblique* Sphere; and reckon'd from Weſt to Eaſt. See Descension.

The Difference between the right and *oblique* Aſcenſion, is call'd the *Aſcenſional Difference*. See Ascensional.

To find the Oblique *Aſcenſion and Deſcenſion by the Globe.* See Globe.

Oblique *Sailing*, in Navigation, is when the Ship is in ſome intermediate Rhumb, between the four Cardinal Points; and thus makes an *oblique* Angle with the Meridian, and continually changes both its Latitude and Longitude. See Rhumb.

Oblique Sailing is of three Kinds; *viz. Plain Sailing, Mercator's Sailing*, and *Great Circle Sailing*. See Sailing.

The Seamen alſo call the Application of the Method of calculating the Parts of *oblique* plane Triangles, in order to find the Diſtance of a Ship from any Cape, Head-Land, &c. *Oblique Sailing*.

Oblique, *Obliquus*, in Anatomy, is uſed, ſubſtantively, for ſeveral Muſcles of the Head and Eye; particularly, the

Obliquus *Capitis Major*, or *Par* Obliquum *Inferius*, the ſixth Muſcle of the Head; ſo call'd, becauſe ſerving to turn the Head aſide: tho' it has neither its Origin nor Inſertion in the Head. See Head.

It riſes fleſhy from the external Parts of the Spine of the ſecond *Vertebra* of the Neck, and ſwelling into a fleſhy Belly, runs *obliquely* to the tranſverſe Proceſs of the firſt *Vertebra*.

This ſome rank among the Muſcles of the Neck. See Neck.

Obliquus *Capitis Superior*, or *Minor*, the ſeventh Muſcle of the Head, which ſpringing fleſhy from the tranverſe Proceſſes of the ſecond *Vertebra* of the Neck, and aſcending *obliquely*, is inſerted laterally into the *Occiput*.

Others will have its Origin to be in the *Occiput*, where the common Opinion places its Inſertion; its Inſertion they make in the tranſverſe Proceſſes of the firſt *Vertebra*, near that of the ſame Side.

The two *oblique* Muſcles, by pulling the tranſverſe Proceſs, give the Head a ſemi-circular Motion. See Vertebra.

Obliquus *Oculi Superior*, or *Major*, the fifth Muſcle of the Eye. See Eye.

It has its Origin in the upper part of the Orbit; whence tending upwards towards the inward *Canthus* of the Eye, it paſſes thro' a Cartilage on the Bone of the Forehead, call'd *Trochlea*; whence alſo the Muſcle itſelf is call'd *Trochlearis*; thence it is reflected to its Termination in the *Sclerotica*, on the back part of the Ball of the Eye.

When this Muſcle acts, that part of the Ball of the Eye is drawn downwards towards the *Trochlea*, whereby the Pupil is directed downwards, towards the leſſer *Canthus*, and at the ſame time the whole Ball of the Eye ſomewhat outwards.

Obliquus *Oculi Inferior*, or *Minor*, riſes from the external Margin of the lower part of the Orbit, near the inner *Canthus*; whence riſing towards the outward *Canthus*, it terminates near the other.

It draws the Ball of the Eye outwards, and turns its Pupil upward, contrary to the former.

Obliquus *Deſcendens*, or *Declivis*, a very broad Pair of Muſcles of the Abdomen, each covering one half thereof, and part of the Thorax; ſo call'd from the *oblique* Courſe of its Fibres. It ariſes from the two laſt true Ribs and five ſpurious ones; and is indented with the *Serratus Major Anticus* by five or ſix Digitations, each whereof receives a Nerve from the Interſtices of the Rib: It ſprings likewiſe from the Margin of the *Ilium*; and ends in a broad Tendon in the *Linea Alba*.

Beſides the ordinary Uſe aſcribed to it by all Anatomiſts, which is to compreſs the Inteſtines and Bladder; *Cowper* and *Gliſſon* attribute to it another, which is to turn the Trunk of the Body without moving the Feet.

Obliquus *Aſcendens*, or *Acclivis*, lies under the lower part of the former; running with a Courſe juſt contrary, from the lower part upwards. Its fleſhy Fibres have their Origin from the Edge of the *Ilium*, and end at the ſpurious Ribs. It terminates with a large double Tendon in the *Linea Alba*; the upper part whereof creeping over the *Muſculus Rectus*; and the other creeping under it, and joining together at the *Linea Alba*; do, as it were, ſheath the *Rectus*.

Its Uſe is to ſhut and compreſs the Belly, as alſo the Cavity of the *Thorax* in Reſpiration; and it aſſiſts, with its Antagoniſts, the *Deſcendents*, in turning the Body without moving the Legs.

Obliquus *Auris*, lies in the external Part of the Canal of the Aqueduct; whence paſſing upwards and backwards, it enters the *Tympanum*, by a very *oblique* Sinuoſity immediately above the Bony Circle, to which the *Tympanum* is fix'd; and is inſerted into the ſlender Proceſs of the *Malleus*.

Oblique *Caſes*, in Grammar, are all the Caſes of the Declenſions of Nouns, beſides the Nominative. See Case.

OBLIQUITY, that which denominates a Thing *oblique*. See Oblique.

The *Obliquity of the Sphere*, is the Cauſe of the Inequality of Seaſons, of Nights and Days. See Season, &c.

Obliquity *of the Ecliptic*, is the Angle which the Ecliptic makes with the Equator. See Ecliptic.

Meſſ. *Caſſini* and *de la Hire*, make the *Obliquity* of the Ecliptic, by their Obſervations, 23°, 29′. M. *le Chevalier de Louville*, from later Obſervations, makes it 23°, 28′, 41″.

The ſame Author, giving the Hiſtory of the ſeveral Determinations of this *Obliquity*, by all Aſtronomers in all Ages, obſerves, that it conſtantly diminiſhes; and thence takes occaſion to ſuſpect, that the real *Obliquity* of the Ecliptic itſelf may have been diminiſh'd ſince the time of the antient Aſtronomers.

He goes ſo far, as even to fix the Proportion of the Diminution, which he makes to be at the rate of half a Minute in fifty Years. According to an antient Tradition among the *Egyptians*, mention'd by *Herodotus*, the Ecliptic was formerly perpendicular to the Equator.

The Libration of the Sphere makes ſome Alterations in the *Obliquity* of the Ecliptic; ſo that *Wolfius* reckons a great *Obliquity* of 23°, 53′; a mean *Obliquity* of 23°, 41′; and a ſmall one of 23°, 30′.

OBLONG, in Geometry, a Figure longer than it is broad. See Figure.

Thus, a Rectangle, or Parallelogram, is an *Oblong*; ſee Parallelogram: and an Ellipſis an *Oblong*; ſee Ellipsis.

OBOLATA *Terræ*, in our antient Law-Books, is a certain Quantity of Land, which ſome Authors fix at half an Acre; tho' others make it but half a Perch. *Thomaſius* ſays, that *Obolum Terræ* contains ten Feet in length, and five in breadth. See Fardingdeal.

OBOLUS, an antient Silver Money, of *Athens*, the ſixth part of a Drachma; worth ſomewhat more than our Penny. See Drachma; ſee alſo Coin.

The Word comes from the *Greek* οβολος, of ὀβελὸς, *Needle*; either becauſe it bore the Impreſſion of a Needle; or becauſe, according to *Euſtachius*, it was in form thereof. But thoſe now in the Cabinets of Antiquaries, are round.

Obolus was alſo uſed among our Anceſtors for half a Noble, or Florin; where the Noble was eſteem'd as the Penny; and its quarter part a Farthing.

In effect, in the old Hiſtories and Accounts of Coins, we are to underſtand, by the Word *Denarius*, the whole Coin, be it Angel, Rial, *&c.* by the *Obolus* its half; and by *Quadrans* its fourth Part. See MONEY.

OBOLUS, in Medicine, is uſed for a Weight of ten Grains; or half a Scruple. *Du Cange* ſays it weighs three Carats, or four Grains of Wheat: Others divide the *Obolus* into ſix Areolæ; and the Areola into ſeven Minutes. Others divide it into three Siliquæ, each Siliqua into four Grains, and each Grain into a Lentil and half. See GRAIN, *&c.*

Among the *Sicilians*, *Obolus* was the Weight of a Pound.

OBREPTITIOUS, a Quality of a Letter Patent, or other Inſtrument bearing ſome Favour, Title, or Conceſſion; denoting it obtain'd of a Superior by Surprize, or by concealing from him the Truth, which was neceſſary to have been expreſs'd, to render it valid.

In this ſenſe the Word ſtands oppoſed to *Surreptitious*, where ſome Falſhood has been expreſs'd, in order to procure it the more eaſily.

Obreption annuls the Grant, wherever found.

By the Canon Law, a Perſon demanding a Benefice, without expreſſing thoſe he is already poſſeſs'd of, forfeits, *&c.* by the *Obreption*.

OBRINES, an Order of Knights inſtituted in the XIIIth Century, by *Conrade* Duke of *Mazovia* and *Cujavia*; whom ſome Authors alſo call Duke of *Poland*.

He firſt gave them the Name of *Knights of Jeſus Chriſt*. Their firſt Grand Maſter was *Bruno*. Their chief End was to defend the Country from the *Pruſſians*, who were yet Idolaters, and committed great Cruelties.

Duke *Conrade* putting them in poſſeſſion of Fort *Obrin*; they hence took a new Name: and it was agreed between them, that whatever Lands they conquer'd from the *Pruſſians*, ſhould be equally divided with him.

But the *Pruſſians* blocking up the Fort, ſo that none of the Knights could get out; the Order became uſeleſs, and was ſoon ſuppreſs'd. Upon this, *Conrade* call'd in the *Teutonic* Knights. See TEUTONIC *Order*.

OBSCURA *Camera*. See CAMERA *obſcura*.

OBSCURA *Clare*. See CLARO *obſcura*.

OBSCURE, ſomething that is *dark*, or that only admits a little Light. See LIGHT and SHADOW.

OBSCURE is alſo uſed in a figurative ſenſe, for a thing that is not clear, expreſs, and intelligible; that one does not fully apprehend; or that may be conſtrued in divers Senſes.

CLEAR *Notion*, or *Idea*. See NOTION and IDEA.

OBSCURITY, that which denominates a Thing *obſcure*.

Obſcurity is a Fault that may either be in the Perception, or Diction.

Obſcurity in the Perception, ariſes chiefly hence, that we do not conceive Things as they are, or as we find them; but as we judge them to be, e'er we know them: ſo that our Judgment precedes our Knowledge, and is made the Rule, or Standard, of our Conceptions. Whereas Nature and Reaſon direct, that Things ſhould be judged of according as they are known; and that they are to be known, not as they are in themſelves, but only in ſuch manner as God was pleas'd to have them known.

Obſcurity in the Diction, may ariſe, firſt, from the Ambiguity of the Senſe; ſecondly, from the Figures or Ornaments of Rhetoric; thirdly, from the Novelty, or Obſoleteneſs of the Words.

OBSECRATION, in Rhetoric, a Figure whereby the Orator implores the Aſſiſtance of ſome God, or Man. See FIGURE.

This Figure *Cicero* makes admirable uſe of, for K. *Deiotarus*; to *Cæſar*——*Per Dexteram te iſtam oro, quam Regi Deiotaro hoſpes, hoſpiti porrexiſti: Iſtam inquam dexteram non tam in bellis & in præliis, quam in promiſſis & fidem firmiorem.* ——Thus *Virgil*:

Quod te per Cœli jucundum lumen & Auras
Per Genitorem oro, per Spem ſurgentis Iuli
Eripe me his invicte malis ——

OBSEQUIES, *Funeral Solemnities*, or Ceremonies performed at the Burials of eminent Perſonages. See FUNERAL.

The Word is derived from the *Latin Obſequium*, Obedience; theſe *Obſequies* being the laſt Devoirs we can render to the Deceaſed.

OBSERVANCE, literally denotes the Act of *obſerving* a Rule, Law, or Ceremony.

Hence the Term is ſometimes alſo uſed for a Rule, Statute, or Ordonnance to be *obſerv'd*.

OBSERVANCE, OBSERVANTIA, is particularly underſtood, in a Monaſtic Senſe, of a Community of Religious, who are tied to the perpetual Obſervation of the ſame Rule. In which ſenſe the Word coincides with *Congregatiom*, or *Order*. See ORDER, *&c.*

The Cordeliers denominate themſelves the *Religious of the Obſervance*; the *great* and the *leſſer Obſervance*. See CORDELIERS.

Among the *Bernardines*, there are Monks of the *ſtrict Obſervance*, who eat nothing but Fiſh. See BERNARDINE.

OBSERVANTINES, Religious Cordeliers of the *Obſervance*. In *Spain*, there are bare-footed *Obſervantines*.

OBSERVATION, in the Sea-language: The Seamen call an *Obſervation* the taking the Sun's, or any Star's Meridian Altitude, in order thereby to find their Latitude. See MERIDIAN-*Altitude*.

For the Method of making an *Obſervation*, ſee LATITUDE.

The finding of a Latitude from the Meridian-Altitude obſerved, they call *working of an Obſervation*.

OBSERVATIONS in Aſtronomy, ſee CELESTIAL *Obſervations*.

OBSERVATORY, a Place deſtined for *obſerving* the Heavenly Bodies; or, a Building uſually in form of a Tower, raiſed on ſome Eminence, for making of Aſtronomical Obſervations.

The more celebrated *Obſervatories*, are, 1. The *Greenwich Obſervatory*, built in 1676, by Order of King *Charles* II. at the ſolicitation of Sir *Jonas Moor* and Sir *Chriſtopher Wren*; and furniſhed with the moſt accurate Inſtruments by the ſame; particularly a noble Sextant of 7 Feet Radius, with Teleſcope-Sights.

The Perſon to whom the Province of Obſerving was firſt committed, was Mr. *J. Flamſtead*; a Man, who, as Dr. *Halley* expreſſes it, ſeem'd born for the Employment. For the ſpace of fourteen Years, with unwearied Pains he watch'd the Motions of the Planets; chiefly thoſe of the Moon, as was given him in charge; that a new Theory of that Planet, exhibiting all her Irregularities, being found, the Longitude might thence be determined.

In the Year 1690, having provided himſelf of a Mural-Arch of 7 feet Diameter, well fix'd in the Plane of the Meridian, he began to verify his Catalogue of the fixed Stars, which hitherto depended altogether on the Diſtances meaſured with the Sextant, after a new and very different Manner, *viz.* by taking the Meridian-Altitudes, and the Moments of Culmination, or the right Aſcenſion and Declination.

This Inſtrument he was ſo pleas'd with, that he laid the uſe of the Sextant almoſt wholly aſide. Thus was the Aſtronomer Royal employ'd for thirty Years; in the Courſe of which Time, nothing had appear'd in public, worthy ſo much Expence and Preparation: So that the Obſerver ſeem'd rather to have been employ'd for his own ſake, and that of a few Friends, than for the Public; tho it was notorious, the Obſervations that had been made were very numerous, and the Papers ſwell'd to a great Bulk.

This occaſion'd Prince *George* of *Denmark*, in the Year 1704, to appoint certain Members of the *Royal Society*, viz. the Honourable *Fr. Roberts*, Sir *C. Wren*, Sir *I. Newton*, Dr. *Gregory*, and Dr. *Arbuthnot*, to inſpect *Flamſtead*'s Papers, and chuſe out of them ſuch as they ſhould think fit for the Preſs; purpoſing to print them at his own Expence: But the Patron of the Work dying, e'er the Impreſſion was half finiſhed, it lay ſtill for ſome time; till at length it was reſum'd by order of Queen *Anne*; and the Care of the Preſs committed to Dr. *Arbuthnot*; and that of Correcting, and ſupplying the Copy, to Dr. *Halley*.

Such was the Riſe and Progreſs of the *Hiſtoria Cœleſtis*; the principal Part whereof is the Catalogue of fixed Stars, call'd alſo the *Greenwich Catalogue*. See CATALOGUE.

The *Greenwich Obſervatory* is found by very accurate Obſervation to lie in 51°, 28′, 30″, North Latitude.

2. The *Paris Obſervatory* built by the late *Louis* XIV. in the *Fauxbourg St. Jaques*.

It is a very ſingular, but withall a very magnificent Building; the Deſign of M. *Perrault*. 'Tis 80 feet high, and a-top is a Terras. 'Tis here M. *de la Hire* has been employ'd.

The Difference in Longitude between this and the *Greenwich Obſervatory* is 2°, 20′ Weſt.

In it is a Cave, or Cellar, 170 feet deſcent, for Experiments that are to be made far from the Sun, *&c.* particularly ſuch as relate to Congelations, Refrigerations, Indurations, Conſervations, *&c.*

3. *Tycho Brahe's* Obſervatory was in the little Iſland *Ween*, or *Scarlet Iſland*; between the Coaſts of *Schonen* and *Zeland*, in the *Baltic*.

It was erected and furniſhed with Inſtruments at his own Expence; and call'd by him *Uraniburg*.

Here he ſpent twenty Years in obſerving the Stars. The Reſult is his Catalogue. See CATALOGUE.

Mr. *Gordon*, in *Phil. Tranſ.* obſerves, that this was none of the fitteſt Places for ſome kind of Obſervations, particularly the Riſings and Settings; as lying too low, and being land-lock'd on all the Points of the Compaſs but three; and the Land-Horizon exceedingly rugged and uneven.

4. *Pekin Obſervatory.* Father *Le Compte* deſcribes a very magnificent *Obſervatory* erected and furniſhed by the late Emperor of *China*, in his Capital, at the Interceſſion of ſome Jeſuit Miſſionaries, chiefly Father *Venbieſt*, whom he made his chief Obſerver.

The Inſtruments are exceedingly large; but the Diviſions leſs Accurate, and the Contrivance, in ſome reſpects, leſs Commodious than thoſe of the *Europeans*. The chief are an Armillary, Zodiacal Sphere of 6 *Paris* feet Diameter, an Equinoctial Sphere 6 feet Diameter, an Azimuthal Horizon 6 feet Diameter, a large Quadrant 6 feet Radius, a Sextant 8 feet Radius, and a Celeſtial Globe 6 feet Diameter.

OBSESSION, the Action of being beſet by an Evil Spirit; which, without entring the Body, torments, and, as it were, beſieges the Perſon without: In which it differs from *Poſſeſſion*. See POSSESSION.

The Marks of *Obſeſſion*, according to ſome, are a being hoiſted into the Air, and thrown violently down without being hurt; ſpeaking Languages never learnt; having an Averſion to all Acts and Offices of Religion, &c.

Some Phyſicians look on all Caſes of *Obſeſſion* as Natural, and curable by natural Medicines, particularly an Unguent call'd *Unguentum Carriobteri*, with Purgatives, or Vomitives.

Of this Opinion is Doctor *Gabriel Clauder*, Member of the *Leopoldine* Academy; which he ſtrengthens with the Teſtimony of *Fromannus*, in his Treatiſe *de Faſcinationibus*; *Ganſius de Corallis*, who obſerves, that it has been confeſs'd by many Witches and Sorcerers, that the Plant *Millepertius*, *Hypericon*, and other Simples, &c. incommode them terribly, and prevent their Operations,

He confirms this Sentiment hence, that the Devil in thoſe he thus beſets, makes uſe of the Melancholic Humour or the *atra Bilis*, and the groſſer Impurities of the Blood, without always acting immediately of himſelf. For which he refers to the Books of *Melchior Sebizius* and *Jerom Jordan*, *de Divino in homine*; and gives the Proceſs of a Cure of a manifeſt *Obſeſſion* of a Child of a Year old at *Delitſchebourg*, three Leagues from *Leipſic*.

OBSIDIONALIS, an Epithet the *Romans* gave to a ſort of Crown wherewith they honour'd ſuch of their Generals as had delivered a *Roman* Army beſieged by the Enemy, and had obliged them to decamp. See CROWN.

It was alſo call'd *Graminea*, becauſe made of Graſs, or Herbs found on the Spot, or Soil.

'Twas the Soldiery who beſtow'd this Crown; which, doubtleſs, was the reaſon of its not being of a more precious Matter.

The Word comes from the *Latin Obſidio*, Siege.

OBSTRUCTION, in Medicine, a lett or ſtoppage of the Paſſage of the Humours in the Body of an Animal. See DISEASE.

Obſtructions are ſuppoſed to ariſe from the groſs Parts of the Blood, detain'd in the Extremities of the Veſſels, and thus blocking them up.

Some Phyſicians doubt whether there be any ſuch thing as *Obſtructions* in the Viſcera; and rather attribute the Inconveniencies uſually aſcribed to *Obſtructions*, to the Acrimonies and Crudities of the Stomach: But their Reaſons are not convincing. 'Tis true, *Obſtructions* may not perhaps be ſo frequent as is uſually ſuppoſed; and many of the Symptoms aſcribed to them, are doubtleſs owing to Diſorders of the Stomach; but then there's no denying that there are any *Obſtructions* at all in the Viſcera, &c. Schirrus's, and other kinds of Tumours are inconteſtable Proofs hereof. See TUMOUR, SCHIRRUS, &c.

Obſtructions frequently prove the Cauſes of Dropſies. See DROPSY.

OBTURATOR, in Anatomy, a Name given to two Muſcles of the Thigh; by reaſon of their ſhutting, or covering up the Foramen or Aperture between the *Os Pubis*, and the Hip-Bone.

The *Obturator internus* and *marſupialis* are the two Parts, or Diviſions that make the *Gemini*. See GEMINI and MARSUPIALIS.

The *Obturator externus* ariſes fleſhy from the exterior Margin of the *Os Pubis* and *Iſchium*, and is inſerted tendinous at the Root of the great Trochanter.

OBTUSE literally imports *blunt*, *dull*, &c. in oppoſition to *acute*, *ſharp*, *briſk*, &c. See ACUTE, &c.

OBTUSE *Angle*, in Geometry, an Angle of more than 90 Degrees, *i.e.* more than a Quadrant of a Circle; or an Angle greater than a right Angle. See ANGLE.

OBTUSE-ANGLED *Triangle*, is a Triangle one of whoſe Angles is *obtuſe*. See TRIANGLE.

OBVENTIONS, OBVENTIONES, in our antient Law-Books, ſignify *Offerings*.

Sometimes the Word alſo ſignifies Rents, and Revenues properly of Spiritual Livings.

OCCASIO, in our antient Law-writers, is taken for a Tribute which the Lord impoſes on his Vaſſals or Tenants, *Propter occaſiones bellorum & aliarum Neceſſitatum.*

And hence *Occaſionari* ſignifies to be charged or loaded with Payments.

OCCASIONAL *Cauſe*, &c. ſee CAUSE, &c.

OCCIDENTAL, a Term uſed chiefly in reſpect of Commerce, to diſtinguiſh Commodities brought from the *Weſt-Indies*, i. e. *America*, from thoſe brought from the *Eaſt-Indies*; which are ſaid to be *Oriental*. See ORIENTAL.

In this ſenſe we ſay, *Occidental Bezoard*; ſee BEZOARD, *Occidental Pearl*; ſee PEARL.

OCCIPITAL, in Anatomy, a Term applied to the Parts of the *Occiput*, or of the hinder Part of the Head. See OCCIPUT.

OCCIPITAL *Bone*, ſee OCCIPITIS *Os*.

OCCIPITALES, or OCCIPITAL *Muſcles*, are a Pair of Muſcles of the Head, whoſe Origin is in the ſame Place with that of the *Frontales*, *i.e.* in the upper Part of the Head near the Vertex, but which go a quite oppoſite Courſe, *viz.* from before, hindwards, and are inſerted into the lower Part of the hairy Scalp, or Skin of the *Occiput*, which they ſerve to draw upwards.

Dr. *Drake* obſerves, that the *Occipitalis* and *Frontalis* are one continued digaſtric Muſcle on each ſide; that Part call'd the *Occipitalis*, after a ſmall Aſcent, becomes a thin Tendon, and marches over the whole *Bregma*, where it divides; the one Part going on to the *Os Jugale*, the other, growing fleſhy, acquires the Name *Frontalis*. See FRONTALIS.

OCCIPITIS *Os*, or *Os proræ*, in Anatomy, the fourth Bone of the *Cranium*; ſo call'd from its ſituation in the *Occiput*. See OCCIPUT.

'Tis the hardeſt and thickeſt of all the Bones of the *Cranium*. Its Figure is triangular. In new-born Children it is divided into four; but grows up, and becomes one in time.

It is join'd to the Bones of the *Sinciput*, at the *Lambdoidal Suture*; as likewiſe to the *Petroſa*, and *Os Sphenoides* at the *Sphenoidal Suture*.

The Parts of this Bone are either ſolid, or hollow, *i.e.* empty. The ſolid are two Proceſſes, call'd *Coronæ*. The hollow Parts are either *Foramina*, or *Sinus's*.

The *Foramina* are either Common, or Proper: The Common are two, one on each ſide common with the *Oſſa Petroſa*, affording a Paſſage to the Nerves, *Par Vagum*, and to the internal Jugular Veins.

The proper *Foramina* are five: The firſt is very large, and thro this it is that the ſpinal Marrow paſſes. Two others give paſſage to the Nerves of the Tongue, and the two laſt an entrance to the cervical Arteries. See NERVE, &c.

It has two large *Sinus's* within-ſide, for the reception of the two Hemiſpheres of the *Cerebellum*. See CEREBELLUM.

On each ſide the *Foramina* which give Paſſage to the ſpinal Marrow, is uſually a Proceſs lined with a Cartilage, articulated with the firſt *Vertebra* of the Neck. In lieu of this, is ſometimes only a Prominence of the Bone; which, or the Proceſs where 'tis found, receives the Inſertions of the Muſcles of the Head, whereof there are ten, *viz.* the *Par ſplenium*, *Par complexum*, *Par rectum majus externum*, *Par rectum minus externum*, *Par obliquum ſuperius*, *Obliquum interius*, *Par Maſtoideum*, *Rectum internum majus*, *Rectum internum minus*, and *Rectum laterale*; each of which ſee in its proper Place.

OCCIPUT, the hinder Part of the Head, or Skull; or the Part wherein is the *Os Occipitis*. See HEAD, CRANIUM, &c.

Scultetus obſerves, that the Cauterization of the *Occiput* is very frequent in many Places.

OCCULT, ſomething ſecret, hidden, or inviſible.

The *Occult Sciences* are Magic, Necromancy, Cabbala, &c. See MAGIC, &c.

Agrippa has ſeveral Books of *Occult Philoſophy*, full of the vaineſt, wildeſt Dreams; and *Fludd* nine Volumes of the *Cabbala*, or *Occult Science*, wrapt up under Figures, or *Hebrew* Characters.

Weak Philoſophers, when unable to diſcover the Cauſe of an Effect, and unwilling to own their Ignorance, ſay it ariſes from an *occult* Virtue, an *occult* Cauſe, an *occult Quality*. See QUALITY, &c.

OCCULT, in Geometry, is uſed for a Line that is ſcarce perceivable, drawn with the Point of the Compaſſes, or a black-lead Pencil. See LINE.

Occult, or dry Lines, are uſed in ſeveral Operations; as the raiſing of Plans, Deſigns of Building, Pieces of Perſpective, &c. They are to be effaced when the Work is finiſhed.

GLI OCCULTI, of *Breſcia*, in *Italy*, are the Academiſts of that City. See ACADEMY.

OCCULTATION, in Aſtronomy, the Time a Star, or Planet, is hid from our Sight in an Eclipſe. See ECLIPSE.

Circle of perpetual OCCULTATION, is a Parallel in an oblique Sphere, as far diſtant from the depreſſed Pole, as the Pole is from the Equator.

Between this Line and the Pole, all the Stars contain'd, do never riſe; but lie conſtantly hid under the Horizon of the Place.

OCCUPANCY, in the Civil Law, is the Poſſeſſion of ſuch things as at preſent belong to no private Perſons, but, however, are capable to be made ſo; as by ſeizing or taking of Spoils in War; of things wild by Nature, as Birds, and Beaſts for Game, &c. or by finding things before undiſcovered, or truly loſt, or loſt by their proper Owners.

OCCUPANT, in Law. If a Tenant hold Lands, &c. for the Term of another's Life; and ſuch Tenant die firſt, leaving that other to ſurvive; he that firſt enters to hold that Term out, is call'd an *Occupant*, by reaſon his Title comes by the firſt Occupation.

So if a Tenant for his own Life, grant over his Eſtate to another; if the Grantee dies, there ſhall be an *Occupant*.

OCCUPATION, in Law, the putting a Man out of his Freehold in time of War.

This is all one with the *Diſſeiſin* in time of Peace; only that the former is deem'd not ſo great an Offence. See DISSEISIN.

The Word is alſo uſed for the Holding, Tenure, or Poſſeſſion; as when it is ſaid, ſuch Land is in the Tenure or *Occupation* of ſuch a Man, that is, in his Poſſeſſion. See POSSESSION.

OCCUPATIONS, in the Statute *de Bigamis*, are taken for Uſurpations upon the King, by uſing Liberties or Franchiſes a Perſon is not entitled to.

As an unjuſt Entry upon the King into Lands and Tenements, is call'd an *Intruſion*; ſo an unlawful uſing of Franchiſes, is call'd an *Occupation*.

OCCUPAVIT, in Law, a Writ that lies for him who is ejected out of his Land, or Tenement in time of War; as a *Novel Diſſeiſin* lies for one ejected in time of Peace. See DISSEISIN.

OCEAN, the grand Sea, which encompaſſes or inveſts the whole Earth. See EARTH and SEA.

The *Ocean* is that vaſt Sea wherein the two grand Continents known to us, the new and old, are incloſed like Iſlands. See CONTINENT, &c.

By Computation it appears, that the *Ocean* takes up conſiderably more of what we know of the terreſtrial Globe, than the dry Land. See TERRAQUEOUS-*Globe*.

Dr. *Keill* computes the Surface of the whole *Ocean* to be 85490506 Square Miles; ſo that ſuppoſing the Depth of the *Ocean* at a Medium to be ¼ of a Mile, the Quantity of Water in the whole will be 21372626 ½ Cubic Miles.

Yet Dr. *Burnet* computes that all the Waters in the Ocean were not ſufficient to drown or overflow the dry Land ſo high as the Scriptures ſay it was at the Deluge: Seven or eight *Oceans*, according to him, would ſcarce have ſufficed. See DELUGE.

The *Ocean* penetrating the Land at ſeveral Streights, quits its Name of *Ocean*, and aſſumes that of *Sea*, or Gulf; to which are uſually added ſome Epithet to diſtinguiſh it; as *Mediterranean-Sea*, *Perſian-Gulf*, &c. See SEA and GULF.

In very narrow Places it is call'd Streights, *Sinus*. See STREIGHT.

The *Ocean* takes different Names according to the divers Countreys it borders on; as the *Britiſh Ocean*, *German Ocean*, &c.

According to *Maty*, the *Ocean* may be commodiouſly divided into *Superior*, or Upper; and *Inferior*, or Lower.

The *Upper* OCEAN, which the Antients call'd the *Exterior*, as environing all the known Parts of the World, he ſubdivides, according to the four Cardinal Points, into the *Northern*, *Southern*, *Eaſtern*, and *Weſtern*.

The *Northern Ocean*, call'd alſo *Glacial*, *Frozen*, and *Scythian*, is that Part of the *Upper Ocean* next the North-Pole, bounded on the South with the Arctic-Circle, and the Northern Coaſts of *Europe* and *Aſia*, and on the North with the unknown Lands about the Pole.

'Tis call'd the *Icy*, or *Frozen Ocean*, becauſe thoſe who have attempted a Paſſage thro it to *China*, &c. have always been ſtop'd with the Ice; and *Scythian*, becauſe waſhing the Coaſts of *Scythia*.

The *Weſtern*, or *Atlantic Ocean*, is that Part of the *Grand Ocean* which waſhes the Weſtern Coaſts of *Europe* and *Africa*, extending from the Arctic Circle to the Equinoctial.

Southern, or *European Ocean* is that Part reaching from the Equinoctial to the unknown Antarctic Lands.

Eaſtern, or *Indian Ocean*, has its firſt Name from its Situation to the Eaſt; as its latter from *India*, the chief Country it waſhes.

It reaches from the Coaſt of *Ajan* to the Iſle *Aux Larrons*, i.e. of Thieves.

The *Inferior*, or *American* OCEAN, is that vaſt Part of the *Grand Ocean* which waſhes the Coaſts of *America*; unknown, in great meaſure at leaſt, to the Antients. It is divided into three Parts, *viz.*

1. The *North Sea*, which waſhes the Eaſtern Coaſts of *America*, from the Arctic-Circle to the Tropic of *Capricorn*.

2. The *Magellanic-Sea*, extending from the Tropic of *Capricorn* to the *Terra Auſtralis Incognita*.

3. The *South-Sea*, or *Pacific*, which waſhes the Weſtern Coaſts of *America* to the Eaſt, as far as the Iſle of *Thieves*; and from South to North from the Tropic of *Capricorn* to the Land of *Jeſſo*.

For the Saltneſs of the OCEAN, ſee SALTNESS.

For the Tides obſerved in the OCEAN, ſee TIDES.

Phil. Sachſius, in 1664, printed a Diſſertation entitled, *Oceanus Microcoſmicus*, dedicated to *Bartholin*; wherein he ſhews that there is a circular Motion in the Waters, like that of the Blood in the human Body: That they all come from the *Ocean*, and return thither again. The Thought is *Solomon's*, *Eccleſ.* ch. 7. See VAPOUR, SPRING, &c.

The word *Ocean* comes from the *Latin Oceanus*, of the *Greek* ὠκεανὸς, which *Euſtathius* fetches from ὠκέως ναειν, to ſlide ſwiftly. Others ſay, the *Greeks* borrow'd it from the *Phœnicians*, who call'd the Circumference of the *Ocean Og*, from the *Hebrew* חוג *Hhog*, Circuit, Ambit.

OCHLOCRATIA, a Form of Government, wherein the Populace has the whole Power and Adminiſtration in its own hand.

The Word comes from the *Greek* ὄχλος, Multitude, and κράτος, Power.

OCTAGON, in Geometry, a Figure of eight Sides and eight Angles. See FIGURE and POLYGON.

When all the Sides and Angles are equal, it is call'd a *Regular Octagon*, or an *Octagon* that may be inſcribed in a Circle.

OCTAGON, in Fortification, is a Place that has eight Baſtions. See BASTION.

OCTAHEDRON, in Geometry, one of the five Regular Bodies, conſiſting of eight equal Faces, or eight Equilateral Triangles. See REGULAR *Body*.

The *Octahedron* may be conceiv'd as conſiſting of two Pyramids put together at their Baſes. See PYRAMID.

Its Solidity therefore is had by multiplying the quadrangular Baſe of either, by one third of the perpendicular Height of one of them; and then doubling the Product. See SOLIDITY.

The Square of the Side of an *Octahedron* is in a ſubduple Ratio of the Diameter of the circumſcribing Sphere.

OCTAHETERIDES, in Chronology, &c. the Space, or Duration of eight Years.

The Word is form'd from the *Greek* ὀκταετηρὶς, compoſed of ὀκτω, Eight, and ἔτος, Year.

OCTANT, or OCTILE, in Aſtronomy, an Aſpect, or Poſition of two Planets, &c. wherein their Places are diſtant an eighth Part of a Circle, or 45 Degrees, from one another. See ASPECT.

OCTAPLA, a Term in the ſacred Learning, uſed for a kind of *Polyglot* Bibles, conſiſting of eight Columns. See BIBLE and POLYGLOT.

In the 1ſt Column was the *Hebrew* Text in *Hebrew* Characters; in the 2*d*, the ſame Text in *Greek* Characters; in the 3*d* the *Greek* Verſion of *Aquila*; in the 4*th* that of *Symmachus*; in the 5*th*, the *Septuagint*; in the 6*th*, that of *Theodotion*; in the 7*th*, that call'd the fifth; the laſt was that call'd the ſixth.

Origen was the Author of the *Octapla*, as well as of the *Tetrapla*, and *Hexapla*. See HEXAPLA, &c.

The Word implies ſomething with eight Rows, or Columns.

OCTATEUCH, in the ſacred Literature, is uſed for the eight firſt Books of the Old Teſtament; viz. *Geneſis*, *Exodus*, *Leviticus*, *Numbers*, *Deuteronomy*, *Joſhuah*, and *Judges*.

Procopius of *Gaza*, has ten Commentaries on the *Octateuch*.

OCTAVE, in Muſic, an harmonical Interval conſiſting of 8 Tones, or Degrees of Sound. See INTERVAL and DEGREE.

The moſt ſimple Perception the Soul can have of true Sounds, is that of *Uniſon*; in regard the Vibrations there begin and end together. The next to this is the *Octave*; wherein the more acute Sound makes preciſely two Vibrations, while the graver or deeper makes one; and wherein, by conſequence, the Vibrations of the two meet at every Vibration of the more grave. See TUNE, GRAVITY, &c.

Hence Uniſon and *Octave* paſs almoſt for the ſame Concord. See UNISON.

Hence alſo the Proportion of the Sounds that form the *Octave* are in Numbers, or in Lines, as 2 to 1: ſo that two Chords or Strings of the ſame Matter, Thickneſs, and

Tenſion, one whereof is double the length of the other, produce the *Octave*. See Chord.

The *Octave* is call'd by the Antients *Diapaſan*, becauſe containing all the ſimple Tones and Concords; all of which derive their Sweetneſs from it, as they ariſe more or leſs directly out of it. See Concord.

To be juſt, it muſt contain diatonically 7 Degrees, or Intervals; and conſequently 8 Terms, or Sounds, whence its Name, *Octave*.

The *Octave* containing in it all the other ſimple Concords, and the Degrees being the Differences of theſe Concords; it is evident the Diviſion of the *Octave* comprehends the Diviſion of all the reſt. See System.

By joining, therefore, all the ſimple Concords to a common Fundamental, we have the following Series:

$$1 : \tfrac{5}{6} : \tfrac{4}{5} : \tfrac{3}{4} : \tfrac{2}{3} : \tfrac{5}{8} : \tfrac{3}{5} : \tfrac{1}{2}.$$

Fund. 3*d* l, 3*d* g, 4*th*, 5*th*, 6*th* l, 6*th* g, 8*ve*.

Again, the Syſtem of *Octave* containing all the original Concords; and the compound Concords being the Sum of *Octave*, and ſome leſſer Concord; in order to have a Series to reach beyond an *Octave*, we muſt continue them in the ſame Order thro a ſecond *Octave*, as in the firſt; and ſo on thro a third and fourth *Octave*. Such a Series is call'd the Scale of Music. See Scale.

Tho the Compoſition of *Octaves* may be carried on infinitely, yet three or four *Octaves* is the greateſt length we go in ordinary Practice. The old Scales went no further than two, or at moſt three *Octaves*, which is the full compaſs of an ordinary Voice. And, notwithſtanding the Perfection of the *Octave*, yet after the third, the Agreement diminiſhes very faſt; nor do they ever go ſo far at one Movement, as from one extreme to the other of a double or triple *Octave*; ſeldom beyond a ſingle *Octave*: Nor is either Voice or Inſtrument well able to go beyond. To form a fourth *Octave*, if the acuter String be half a Foot, which is but a ſmall Length to give a clear Sound; the longer muſt be eight Feet. If then we go beyond the fourth *Octave*, either the acute Term will be too ſhort, or the grave one too long.

The *Octave* is not only the greateſt Interval of the ſeven original Concords, but the firſt in degree of Perfection. As it is the greateſt Interval, all the leſs are contain'd in it: Indeed, the manner wherein the leſs Concords are found in the *Octave*, is ſomewhat extraordinary; *viz.* by taking both an harmonical and arithmetical Mean between the Extremes of the *Octave*, and then both an arithmetical and harmonical Mean between each Extreme, and the moſt diſtant of the two Means laſt found; *i. e.* between the leſs Extreme and the firſt arithmetical, and between the greater Extreme and the firſt harmonical Mean, we have all the leſſer Concords. See Concord.

Mr. *Malcolm* obſerves, that any Wind-Inſtrument being over-blown, the Sound will riſe to an *Octave*, and no other Concord; which he aſcribes to the Perfection of the *Octave*, and its being next to Uniſon.

From this ſimple and perfect Form of the *Octave*, ariſes this peculiar Property, that it may be doubled, tripled, &c. and ſtill be Concord; *i. e.* the Sum of two or more *Octaves* are Concord; tho the more Compound, gradually, the leſs agreeable. He adds, there is that Agreement between its Extremes, that whatever Sound is Concord to one Extreme of the *Octave*, is ſo to the other.

Des Cartes, from an Obſervation of the like kind, *viz.* that the Sound of a Whiſtle or Organ-Pipe, will riſe to an *Octave*, if forcibly blown; concludes, that no Sound is heard, but its acute *Octave* ſeems ſomeway to echo or reſound in the Ear.

Octave, or Octabis, in Law, the 8th day after any Feaſt, incluſively.

Among the *Romaniſts*, *Octave* is uſed for the Space, or Period of 8 Days allow'd for the Celebration of a Feaſt, or Service in commemoration of ſome Saint, or on other ſolemn Occaſions.

Eaſter, *Whitſontide*, *S. John Baptiſt*, *S. Lawrence*, *Epiphany*, the *Dedication*, &c. are celebrated with *Octaves*.

The Office in the *Octave* is ſemi-double.

OCTIL, or Octant, in Aſtrology, an Aſpect of two Planets when diſtant from each other by an 8th of the Zodiac, *i. e.* a Sign and half, or 45°.

OCTOBER, is the 8th Month of the Year, in *Romulus*'s Calendar; tho the 10th in that of *Numa*, *Julius Cæſar*, &c. See Month, Calendar, &c.

It hath always retain'd its firſt Name, in ſpight of all the different Names the Senate and *Roman* Emperors would have given it: For the Senate order'd this Month ſhould be call'd *Fauſtinus*, in honour of *Fauſtina* the Wife of *Antoninus* the Emperor. *Commodus* would have had it bear the Name of *Invictus*; and *Domitian* made it be call'd *Domitianus* according to his own Name.

OCTOSTYLE, in the antient Architecture, the Face of a Building or Ordonnance, containing 8 Columns.

The 8 Columns of the *Octoſtyle* may either be diſpoſed in a right Line, as in the *Pſeudodiptere* Temple of *Vitruvius*, and in the *Pantheon*; or in a Circle, as in the round *Monoptere* Temple of *Apollo Pythius* at *Delphi*, &c.

OCTO *Tales*, ſee Tales.

OCULARES *Dentes*, or *Cynodentes*, the *Eye-Teeth*; ſee Teeth.

OCULI *Cancri*, ſee Crabs-*Eyes*.

OCULI, *Eyes*, in Botany, the *Gemmæ*, or Buds of a Plant juſt putting forth, or the Knots out of which the Buds ariſe. See Bud and Germ; ſee alſo Pruning, Engrafting, &c.

OCULUS, in Anatomy, ſee Eye.

ODA, in the *Turkiſh Seraglio*, ſignifies a *Claſs*, *Chamber*, or *Order*. See Seraglio.

The Grand Signor's Pages are divided into five Claſſes or Chambers, call'd *Oda*. See Page.

The firſt, which is the loweſt in Dignity, is call'd the *Great*, from the Number of Perſons that compoſe it.

Theſe are the Juniors, who are taught to read, write, and ſpeak the Languages; which are the *Turkiſh* for this World; the *Arabic* for Paradiſe; and the *Perſian* for Hell, by reaſon of the Hereſy of the People who ſpeak it.

The ſecond is call'd *Little*; where, from the Age of 14 or 15 Years, the Youth are train'd up to Arms, and the Study of ſuch polite Learning as the *Turks* are acquainted withall; *viz.* Logic, Arithmetic, Geometry, and a little Aſtrology.

In each of theſe Chambers, is a Page of the Privy-Chamber who commands them, as the Prefects in the Colleges of the Jeſuits.

The third Chamber call'd *Kilar-Oda*, comprehends two hundred Pages; which, beſide their other Exerciſes, are commanded by the *Kilerdgi Bachi*, for the ſervice of the Buttery and Fruitery.

The fourth only conſiſt of twenty-four, which, under the *Khazineda-Bachi*, take care of the Treaſure in the Grand Signor's Apartment, where they never enter with any Clothes on that have Pockets.

The fifth is call'd *Khas-Oda*, *i. e.* Privy-Chamber, and conſiſts of forty Pages, which attend the Emperor's Bed-Chamber. The firſt of this Chamber is call'd *Oda-Bachi*, the ſecond *Siliktar*, &c.

Eight of theſe Pages keep conſtant Guard every Night in the Emperor's Bed-Chamber. They are poſted in ſeveral Places, ſome nearer him, others farther off, according to their degrees in the Chamber. They are to take care the Light kept conſtantly in the Chamber, don't glare in his Eyes, and awake him; and if they find him diſturb'd with any troubleſome Dream, to take care he be awaked by one of the Aga's.

ODABACHI, or Oddobassi, an Officer in the *Turkiſh* Soldiery, equivalent to a Sergeant, or Corporal among us.

The common Soldiers, and *Janizaries* call'd *Oldachis*, after having ſerv'd a certain Term of Years, are preferr'd, and made *Biquelars*; and of *Biquelars* in time become *Odabachi's*, *i. e.* Corporals of Companies, or Chiefs of certain Diviſions, whoſe Number is not fix'd, being ſometimes ten, and ſometimes twenty.

Their Pay is 6 Doubles *per* Month, and they are diſtinguiſh'd by a large Felt, a foot broad, and above a foot long, hanging on the Back with two long Oſtrich Feathers.

ODE, in the antient Poetry, a *Song*; or Compoſition proper to be ſung, and compoſed for that purpoſe; the ſinging uſually accompanied with ſome muſical Inſtrument, chiefly the Lyre; whence the *Ode* became denominated *Lyric*. See Song and Lyric.

Ode, in the modern Poetry, is a Lyric Poem, conſiſting of long and ſhort Verſes, diſtinguiſh'd into *Stanza's*, or *Strophes*, wherein the ſame meaſure is preſerved throughout.

The Word comes from the *Greek* ᾠδὴ, *Singing*.

The *Odes* of the Antients, *Voſſius* obſerves, had a regular Return of the ſame kind of Verſe, and the ſame Quantity of Syllables in the ſame Place of every ſimilar Verſe: "But there is nothing (ſays he) but confuſion of Quanti-
" ties in the modern *Odes*; ſo that to follow the natural
" Quantity of our Syllables, every Stanza will be a different
" Song."

He ſhould have obſerv'd, however, that all the antient *Odes* were not of ſuch kind. But he proceeds: "The
" Moderns have no regard to the natural Quantity of the
" Syllables, and have introduced an unnatural and barba-
" rous Variety of long and ſhort Notes, which they apply
" without any regard to the natural Quantity of the Syl-
" lables: ſo that it is no wonder our vocal Muſic has no
" effect." *de Poem. Cantu.* See Verse, Vocal *Muſic*, Quantity, &c.

Among the Antients, *Ode* ſignified no more than a *Song*; with us, they are different things. Their *Odes* were generally in honour of their Gods; as many of thoſe of *Pindar* ar and *Horace*: ſometimes on other Subjects; as thoſe of *Anacreon*, *Sapho*, &c.

The *Engliſh Odes* are generally compoſed in praiſe of Hero's and great Exploits; as thoſe of *Prior*, of *Welſted*, &c.

The diſtinguiſhing Character of the *Ode* is *Sweetneſs*: The Poet is to ſooth the Minds of his Readers by the variety of the Verſe, and the delicacy of Words, the beauty of Numbers, and the deſcription of things moſt delightful in themſelves. Variety of Numbers is eſſential to the *Ode*.

At firſt, indeed, the Verſe of the *Ode* was but of one kind; but for the ſake of Pleaſure, and the Muſic to which they were ſung, they by degrees ſo varied the Numbers and Feet, that their Kinds are now almoſt innumerable. One of the moſt conſiderable is the *Pindaric*, diſtinguiſh'd by the Boldneſs and Rapidity of its Flights. See PINDARIC.

The antient *Ode* had originally but one *Stanza*, or *Strophe*; but was at laſt divided into three Parts: The *Strophe*, *Antiſtrophe*, and *Epode*; the Prieſts going round the Altar, ſinging the Praiſe of the Gods, call'd their firſt Entrance *Strophe*, *i. e.* turning to the left; the ſecond, turning to the right, they call'd *Antiſtrophe*; *i. e.* returning. And accordingly, the Song, in thoſe different Places, was call'd *Ode* and *Epode*. See STROPHE and ANTISTROPHE.

Laſtly, ſtanding ſtill before the Altar, they ſung the remainder; which they alſo call'd *Epode*. See EPODE.

ODEUM, among the Antients, was a Place deſtined for the Rehearſal of the Muſic to be ſung on the Theatre.

ODEUM was alſo uſed for other Buildings that had no relation to the Theatre: *Pericles* built an *Odeum* at *Athens*, where muſical Prizes were contended for. *Pauſanias* ſays, that *Herod* the *Athenian* built a magnificent *Odeum* for the Sepulchre of his Wife.

The *Latin* Writers alſo uſe the Word *Odeum* for the Choir of a Church. Grammarians are exceedingly in the dark about the ſignification of the Word among the Antients.

ODIO & *Atia*, antiently call'd *Breve de bono & malo*, is a Writ ſent to the Under-Sheriff, to enquire whether a Man, being committed to Priſon on ſuſpicion of Murder, be committed on *Malice*, or *Ill Will*, or upon juſt ſuſpicion.

ODONTALGIA, in Medicine, the *Tooth-Ach*; one of the moſt common, yet moſt cruel Pains the Body is ſubject to. See TOOTH.

Its Cauſe is a ſharp Seroſity, thrown on the Membrane that lines the Sockets, or *Alveoli* of the Teeth. The Liquor is ſometimes ſo very ſharp and corroſive, that it eats away the Teeth by little and little, and makes 'em fall piece-meal.

Its more remote Cauſes are Sugars, very hot things, and very cold Acids, &c.

The Diſeaſe is frequently attended with an Inflammation, or *œdematous* Tumor of the Jaw. It is ſometimes alſo owing to a Worm found in the Root of the Tooth.

The *Curioſi Naturæ*, Decad II. mention an *Odontalgy* cured by a Box on the Ear given the Patient; and add an Inſtance of Blindneſs and *Odontalgy* cauſed by ſhaving a Man's Beard. The very ſight of a Remedy frequently drives away the Pain.

The Word is form'd from the *Greek* ὀδὸς, Tooth, and ἄλγος, Pain.

ODONTOIDES, in Anatomy, an *Apophyſis* in the middle of the ſecond *Vertebra*; ſo call'd from its reſemblance to a Tooth. See VERTEBRA.

Its Surface is ſomewhat unequal, that the Ligament which comes out of it and binds it to the *Occiput*, may take the better hold.

It is alſo encompaſſed with a ſolid Ligament, contriv'd on purpoſe to prevent the ſpinal Marrow from being compreſs'd by this *Apophyſis*.

The Word is form'd from the *Greek* ὀδὸς, Tooth, and εἶδος, Form.

ODOR, or ODOUR, ſee SMELL.

ODORAMENTUM, in Pharmacy, a Medicine apply'd for the benefit of its ſmell, whether it be fetid, or agreeable. See SUFFIMENTUM.

Such are frequently uſed in Hyſteric and Hypocondriac Diſorders; *e. gr.* *Aſſa fœtida*, *Camphor*, &c.

ODORATION, ſee SMELLING.

ODOROUS and ODORIFEROUS *Things*, are ſuch as exhale a briſk, agreeable Smell, ſenſible at a diſtance.

Such are the *Jeſſamin*, *Roſe*, *Tube-Roſe*, &c.

ODYSSEE, an Epic Poem of *Homer*; wherein he relates the Adventures that befel *Ulyſſes* in his Return to *Italy* from the Siege of *Troy*. See EPIC.

The Deſign of the *Iliad*, F. *Boſſu* obſerves, is to inſtruct the States of *Greece* conſider'd as united in one Body, or as Parts of the Whole; and that of the *Odyſſee*, to inſtruct thoſe ſame States, conſider'd in their private Capacities. See ILIAD.

A State conſiſts of two Parts: The Head which commands, is the firſt; and the Members that obey, the ſecond. Now, Inſtructions are required both for the one and the other; but it is poſſible to have them both convey'd under the ſame Perſon.

The Fable, then, of the *Odyſſee* is as follows: A Prince had been obliged to quit his Country, and lead an Army of his Subjects upon a foreign Expedition: after having glorioully executed this, he was upon his Return home; but in ſpite of all his Endeavours, was detained for ſeveral Years by Tempeſts which threw him on ſeveral Countreys very different from one another as to Manners, Cuſtoms, Polity, &c.

In the Dangers he had to ſtruggle withall, his Companions, neglecting his Advice, all periſh, thro their own default. In the mean time, the great Men of his Country, abuſing his Abſence, commit ſtrange Diſorders in his Palace, ſquander his Treaſure, lay Snares for his Son, and will needs force his Wife to chuſe a Husband among them; all this from an Opinion he was entirely loſt. But at length he returns; and having diſcover'd himſelf to his Son, and ſome others of his Friends who had perſiſted in their Allegiance, he becomes an Eye-Witneſs of their Inſolence; puniſhes them as they deſerv'd, and reſtores that Peace and Tranquillity to his Iſland, which had been baniſhed during his Abſence. See FABLE.

The Truth or Moral whereon this Fable is founded, is, that a Perſon's Abſence from home, ſo as that he cannot have an Eye to his Affairs, occaſions great Diſorders. Accordingly, the Hero's Abſence is the principal and moſt eſſential Action of the Piece; and takes up the greateſt Part of the Poem.

This Poem, *Boſſu* adds, is more calculated for the People, than the *Iliad* is, where the Subjects are rather ill uſed out of the ill Conduct of the Princes, than by their own fault. The great Names of Hero's, *Ulyſſes*, &c. don't here repreſent the pooreſt Peaſants leſs than Princes, *Cæſars*, *Alexanders*, &c. The meaneſt People are as liable to ruin their Eſtates and Families by Negligence, &c. as the greateſt; and accordingly have as much need of *Homer*'s Lectures, and are as capable of profiting by them, as Kings themſelves. See ÆNEID.

Gerard Croeſus, a Dutchman, in a Book intitled ΟΜΗΡΟΣ·ΕΒΡΑΙΟΣ, printed at *Dort* in 1704, endeavours to prove that the Subjects of *Homer*'s two Poems are taken from the Scriptures; and that that of the *Odyſſee*, in particular, is nothing elſe but the Adventures of the *Iſraelites* till the Death of *Moſes*; and that the *Odyſſee* was compoſed before the *Iliad*, the Subject whereof is the taking of *Jericho*. What Fancies!

The Word is form'd from the *Greek* ὀδυσσεια, of ὀδυσσεὺς, *Ulyſſes*.

OECONOMICS, that Part of Moral Philoſophy which teaches how to manage the Affairs of a Family, or Community. See MORALITY and OECONOMY.

OECONOMUS, a Perſon appointed to direct, and manage a vacant Church Revenue, or that of an Hoſpital or Community.

OECONOMUS was alſo antiently uſed for a Protector, or Advocate, who defended the Rights and Effects of Churches, Monaſteries, &c. See ADVOCATE and AVOUEE.

The Name was alſo given to a Church Officer who took care of the Buildings and Repairs of the Church, and received and diſtributed Alms according to the Directions of the Biſhop.

In this ſenſe, the ſixth Council appoints that every Church have its *Oeconomus*.

OECONOMY, the prudent Conduct, or diſcrete, frugal Management of a Man's Eſtate, or that of another

To recommend *Oeconomy*, a modern Author obſerves, that Land as good as moſt in *England* is let at 20 *s.* an Acre *per Annum*; and ſold at 20 Years Purchaſe, or for 20 Pounds. Now, in an Acre of Land are 43560 ſquare feet, and in 20 Pounds are 4800 Pence: by which dividing 43560, the Quotient will be 9, and 360 remaining; which ſhews that one Penny will Purchaſe 9 ſquare feet and almoſt 13 Inches of Land, *viz.* a Piece 3 feet long and 3 broad, and ſomething more.

Whence it follows, that two Shillings purchaſes a Piece of Ground of 216 Feet; *viz.* 18 feet long, and 12 feet broad; enough to build a pretty Houſe upon, and room for a little Garden.

Animal OECONOMY, the firſt Branch of the Theory of Medicine; or that which explains the Parts of the human Body, their Structure and Uſe; the Nature and Cauſes of Life and Health, and the Effects or Phænomena ariſing from them. See MEDICINE.

This is otherwiſe call'd *Phyſiology*; and its Objects juſt enumerated are call'd Naturals, or *res ſecundum Naturam*. See NATURALS.

Legal, or *Jewiſh* OECONOMY or *Diſpenſation*, is the manner wherein God thought good to guide and govern his People under the Miniſtry of *Moſes*.

This included not only the Political and Ceremonial Laws; but alſo the Moral Law, inaſmuch as it pronounced a Curſe on all thoſe who did not fulfil it perfectly.

Evangelical, or *Chriſtian* OECONOMY or *Diſpenſation*, is uſed in oppoſition to the Legal; and comprehends all that relates to the Covenant of Grace, which God has made with Men by Jeſus Chriſt.

OECUMENICAL, ſignifies as much as *General*, or *Univerſal*,

The Word is form'd of the *Greek* οἰκυμενικὸς, of οἰκυμένη, the habitable Earth; or, the whole Earth.

In this ſenſe we ſay, an *Oecumenical* Council, or Synod; meaning one at which the whole Chriſtian Church aſſiſted, or were invited to. See COUNCIL.

Du Cange obſerves, that many of the Patriarchs of *Conſtantinople*, aſſumed to themſelves the Quality and Denomination of *Oecumenical* Patriarchs; particularly *John the Faſter* in 590, and *Cyril* his Succeſſor.

Gregory the Great of *Rome*, was exceedingly enraged at it; pretending it was a Title of Pride, and a Character of Antichriſt; as ſuppoſing the Title *Oecumenic* to imply Univerſal Biſhop, or Biſhop of all the World; whereas, in effect, it imply'd no more, than the Quality of Chief of the Eaſtern Church; in like manner as the firſt Doctor of the Church of *Conſtantinople* was call'd *Doctor Oecumenicus*.

The Title *Oecumenical* Biſhop was firſt offer'd *Leo* I. but he refuſed it; nor did his Succeſſors accept of it for a long time. The 5th Council of *Conſtantinople* gave it to *John*, Patriarch of the City; tho ſome of the *Romaniſts* pretend that the Emperor *Phocas* gave it, by way of Preference, to the Biſhop of *Rome*.

But thoſe of *Conſtantinople* have preſerv'd it; and ſo late as the Council of *Baſil*, that Patriarch uſed the Title. But *Oecumenical* here is only to be underſtood as of the Extent of each Patriarch. See PATRIARCH.

OEDEMA, or OEDEMATOUS *Tumor*, a Tumor which appears whitiſh, ſoft, and lax, without any notable change of Colour, Heat, Pain, or Pulſation; and which yields to the Preſſure of the Finger ſo as for ſome time to retain the Dent or Impreſſion thereof. See TUMOR.

The general Cauſe of *Oedematous Tumors*, is vulgarly ſuppoſed to be a *Pituita*, as it is call'd, or a phlegmy Humour in the Body. Contuſions, Fractures, Luxations, &c. when of long ſtanding, often give riſe to *Oedemas*, eſpecially in Dropſical and Aged Perſons; ſo do irregular Living, want of Exerciſe, Ruptures, Diſorders of the Lymphatics, Defluxions of Humours, Weakneſs of the Joints, &c.

Its chief Seat is the Legs: In a *Leucophlegmatia*, the whole Body is *Oedamatous*. It frequently comes upon other Diſeaſes, eſpecially *Clinics*; and is familiar to Women with Child. 'Tis dangerous when it tends to an *Abceſs*; when it hardens, it becomes ſchirrous. See OEDEMATOUS.

Hippocrates uſes the word *Oedema* for any Tumor in general.

There are alſo *Spurious Oedema's*; in which caſe the pituitous Humour is mix'd with other Humours; whence the Tumor becomes *Eryſipelatous*, *Schirrous*, and ſometimes *Gypſous*; and hence Wens, &c.

The Word comes from the *Greek* οἰδεῖν, whence οἴδημα, a Tumor contrary to Nature.

OEDEMATOUS, in Medicine, ſomething that is of the nature of an *Oedema*; ſeiz'd, or afflicted with an *Oedema*.

Thus we ſay an *Oedematous Arm*, *Oedematous Legs*, &c.

The Phyſicians divide Tumours into *Inflammatory*, *Oedematous*, *Schirrous*, *Scrophulous*, *Cancerous*, c. See TUMOR.

Oedematous Tumors ſeldom, of themſelves, prove dangerous, or mortal; but when they are of long continuance, the effect of old Age, or a dropſical Habit; when they grow hard, ſchirrous, painful, or come to ſuppurate, the Cure is generally tedious and uncertain. Thoſe which attend Wounds, Fractures, or the like, are leſs difficult to cure. See OEDEMA.

They are eaſily diſcuſs'd in their firſt Formation by the external Application of Solutions of Bay-Salt, Nitre, crude Sal Armoniac, &c. in *Spaniſh* Wine, Urine, Lime-Water, or other lixivious Fluids; while the Patient ſubmits to a Courſe of Purgatives, to diſcharge the Matter repell'd by ſuch Applications.

Under the Claſs of *Oedemato us Tumors*, are ranked *Condylomata*, *Criſtæ*, *Rhagades*, *Thymi*, *Talpæ* and *Nates*, the *Ganglio* and *Pſydracium*. See each under its proper Article, CONDYLOMA, CRISTA, &c.

OENELÆUM, in Pharmacy, a Mixture compoſed of thick black Wine and Oil of Roſes.

In Fractures with Wounds, where the Bone is not bare, *Scultetus* orders that the Compreſſes, to make them ſtick, be drench'd with *Oenelæum*, to ſooth the Pain, and prevent an Inflammation; and the Bandages to be every day moiſten'd with the ſame, till the Inflammation be out of all danger.

The Word is form'd from the *Greek* οἶνος, Wine, and ἔλαιον, Oil.

OENESTERIA, in Antiquity, Sacrifices, held by the Youth of *Athens*, before the firſt time of cutting the Hair, and ſhaving the Beard.

Theſe Sacrifices were offer'd to *Hercules*; and the Quantity of what was offer'd was regulated by Law.

The Etymology of the Word, which comes from οἶνος, Wine, ſhews that the Matter thus offer'd was Wine.

OENOPTES, a kind of Officer or Cenſor at *Athens*, who attended at their Feaſts, regulated the number of Cups each was to drink, and took care that none drank too much or too little.

Thoſe who would not be kept within the bounds of Temperance, were preſented by the *Oenoptes* to the *Areopagus*. They were alſo call'd *Eyes*, *Oculi*.

OESOPHAGÆUS, in Anatomy, one of the Muſcles of the *Pharynx*, which it encompaſſes round like a Ring. See PHARYNX.

'Tis ſingle, and ſerves to ſqueeze the Aliment down, by cloſing the *Pharynx* after the manner of a *Sphincter*; whence ſome call it the *Sphincter Gulæ*; others call it the *Deglutitor*, or Swallower. See SPHINCTER, DEGLUTITION, &c.

Dr. *Drake* will have it no more than a Production of the *Pterygopharingæus*, whoſe Fibres ſurround the *Pharynx* from a tendinous Line on the back part of it: Tho *Verbeyen* makes it a diſtinct Pair.

OESOPHAGUS, in Anatomy, the *Gula*, or Gullet; a membranous Pipe or Paſſage, whereby our Food and Drink is convey'd to the Stomach. See FOOD, &c.

The *Oeſophagus* deſcends from the Mouth to the Stomach, between the *Aſpera Arteria* and the *Vertebræ* of the Neck and Back, in a ſtrait Line, excepting for a little deflection about the fifth *Vertebra* of the *Thorax*, where it turns a little to the right, to make way for the great Artery, which runs along with it to the ninth; where turning again towards the laſt, it croſſes the Artery, and piercing the Diaphragm, ends at the left Orifice of the Stomach. See STOMACH.

It conſiſts of ſeveral Coats or Membranes, uſually reckoned three; tho ſome make four, others five or ſix, allowing the *Cruſta Villoſa* to be one: Which laſt diviſion, Dr. *Drake* follows as moſt accurate.

The firſt Coat is *membranous*, and only deſign'd for a Covering for the reſt; and ſeems only a continuation of the outward Membrane of the Stomach, derived from the *Peritonæum*, tho ſome derive it from the Pleura, and others from the Diaphragm.

The ſecond is *Muſcular*, conſiſting of ſtrong, fleſhy Fibres, like other Muſcles; ſo that it ſeems to make the Gullet a hollow fiſtulous Muſcle. According to *Steno* and *Willis*, it conſiſts of two Orders of Fibres, going from top to bottom in ſpiral Lines, contrary to and decuſſating each other. Which Deſcription is very exact of the Gullet of Ruminants, but not ſo of that of Men. In Men it conſiſts of two fleſhy *Lamellæ*, like two diſtinct Muſcles: The outward compoſed of ſtrait longitudinal Fibres; the inner of annular Fibres, without any obſervable Angles. The uſe of this Coat is to promote Deglutition: The longitudinal Fibres, when in contraction, ſhortning the *Oeſophagus*, and making its Capacity larger to admit of the Matter to be ſwallow'd; and the annular, on the contrary, contracting the Capacity, and cloſing behind the deſcending Aliment, preſs it downward. So that the two Orders of Fibres ſeem to act as Antagoniſt-Muſcles to each other. See DEGLUTITION.

The next Coat, call'd the *Vaſcular*, conſiſts of a double Membrane; the outer form'd of irregular Fibres and innumerable Veſſels interwoven; the inner, of ſtrait longitudinal Fibres mix'd with little Glands; whence ſome call it the *Glandulous*. This Membrane adheres cloſely to another within, call'd the *Nervous-Coat*, which is exceedingly fine, and made up of exceſſively ſlender Fibres, variouſly diſpoſed. It is continued to that which covers the Fauces, Mouth, and Lips; whence it happens, that tickling the bottom of the Fauces by vellicating this Membrane, provokes a retching to Vomit. See VOMITING.

This Membrane is the Organ of Senſation; and in this Part, as ſome think, is the Seat of Thirſt, or the Organ whereby the Appetite of Drinking is excited. See THIRST. It is lined inwardly with a villous Cruſt, which Dr. *Drake* takes to be the excretory Ducts of the Glands, and not unlike the *Cuticula* of the *Cutis*, to defend the ſubjacent Membrane. In Excoriations, this is ſometimes caſt out at the Mouth.

The upper opening of the *Oeſophagus*, ſituated at the bottom of the Fauces, is call'd the *Pharynx*. See PHARYNX.

OESYPON, a kind of fatty Mucilage, of the conſiſtence of an Unguent; of a greyiſh Colour, and a ſickiſh diſgreeable ſmell, drawn from the greaſy Wool growing on he Throats and between the Buttocks of Sheep.

This Wool they waſh, boil it in Water to ſcower, let the Lotions or Decoctions ſtand for ſome time, and from the top skim off a fatty Subſtance, which being ſtrain'd thro' a linen Cloth, and ſet to cool, makes the *Oeſypon*, much uſed externally to reſolve, ſoften, and appeaſe Pain.

The Word is form'd from the *Greek* ὄϊς, Sheep; and σήπεσθαι, to be corrupted; the *Oeſypon* being a filthy, and, as it were, corrupted Matter, drawn from Sheep.

OFFA *Alba*, a Name *Van Helmont* gives to the white Coagulum ariſing from a mixture of the rectify'd Spirit of Wine with Spirit of Urine.

Note, The Spirit of Urine muſt be diſtill'd from well fermented Wine; and that muſt be well dephlegmated, elſe no *Offa* will ariſe.

OFFERTORY, an Anthem ſung, or play'd on the Organ, at the time the People are making an Offering. See ANTHEM and OFFERING.

Antiently the *Offertory* conſiſted of a Pſalm ſung with its Anthem; tho it is ſomewhat dubious whether the Pſalm was ſung entire; St. *Gregory* mentioning, that when it was time, the Pope looking at the Choir who ſung it, gave the Sign when they ſhould end.

The Name *Offertory* was alſo given to the Linen whereon the Offerings were laid. Dr. *Harris* ſays, 'twas properly a Piece of Silk or fine Linen wherein the Offerings of each Church were wrapp'd up.

OFFICE, OFFICIUM, in a moral Senſe, *Duty*; or that which Virtue and right Reaſon directs us to do.

Virtue, according to *Chauvin*, is the *Purpoſe* of doing well; the thing which immediately follows, or ariſes from this Purpoſe, is *Obedience*; which ſame is alſo denominated *Officium*; ſo that an *Office* is the Object of an Obedience to Virtue. See VIRTUE.

Cicero, in his Diſcourſe of *Offices*, cenſures *Panætius*, who had wrote before him on the ſame, for omitting to define the Thing or Subject on which he wrote; yet does he himſelf fall under the ſame Cenſure. He inſiſts much on the Diviſion of *Offices*; but forgets the Definition. In other of his Pieces we find him defining an *Office* to be an Action which Reaſon requires to be done: *Quod autem ratione actum ſit, id* Officium *appellamus*. De Finib.

The *Greeks*, he obſerves, made two Species of *Offices*; *Perfect*, call'd by them κατόρθωμα; and *Common*, or indifferent, call'd καθῆκον; which they define ſo, as, that what is abſolutely right, makes a *perfect Office*; and what we can only give a probable Reaſon for, an *intermediate Office*. See REASON.

OFFICE, in a Civil Senſe, is the mutual Aid, and Aſſiſtance which Men owe to one another.

Benevolence inſpires a Man with an Endeavour to do good *Offices* to all Mankind. See COMMON *Place*.

OFFICE is alſo a particular Charge, or Truſt, whereby a Man is authoriz'd to do ſomething. See OFFICER.

Loyſeau defines it a Dignity attended with a public Function.

The Word is primarily uſed for thoſe of Judicature and Policy; as the *Office* of a Secretary of State, of a Juſtice of Peace, of a Sheriff, &c.

Offices are either Venal, or not Venal: *Venal Offices* are thoſe bought with Money. Venal *Offices* are alſo diſtinguiſh'd into two kinds; *viz. Dominial* and *Caſual*; *Dominial*, or *Offices in Fee*, are thoſe abſolutely torn off and ſeparated from the King's Prerogative, ſo as not to become Vacant by death, but paſſing in the nature of a Fee, or Inheritance. See FEE.

Of theſe we have but few Inſtances among us, which go beyond a firſt Reverſion.

Caſual Offices are thoſe given for Life, by Patent, Commiſſion, &c. and which become vacant, by the Officer's death, to the King's profit; unleſs the Officer have before reſign'd, or diſpoſed of it.

The Venality of *Offices* is of no long ſtanding. See VENALITY.

OFFICE is alſo uſed for a Place, Apartment, or Board, appointed for the Officers to attend in, for the diſcharge of their reſpective *Offices*, or Employments.

Such are the *Secretary's Office*, the *Six Clerks Office*, the *Paper-Office*, *Signet-Office*, the *Prothonotor's Office*, *Pipe-Office*, *King's Silver-Office*, *Exciſe-Office*, *Office of the Ordnance*, &c. See each in its Place, SECRETARY, SIX CLERK, PAPER, SIGNET, EXCISE, ORDNANCE, &c.

Of ſuch *Offices*, ſome are diſtinguiſh'd by the Name of Boards, and others of Chambers; as the *Board of Green Cloth*, &c. See GREEN *Cloth*, CHAMBER, &c.

Where the Inquiſition obtains, the Tribunal thereof is call'd the *Holy-Office*. See INQUISITION.

In the Canon-Law, *Office* is uſed for a Benefice which has no Juriſdiction annex'd to it. See BENEFICE.

OFFICE is alſo uſed, in Law, for an Inquiſition made to the King's Uſe of any thing found by Inquiſition made *ex Officio*. Thus to traverſe an *Office*, is to traverſe an Inquiſition taken of *Office* before an Eſcheator.

To return an *Office*, is to return that which is found by virtue of the *Office*.

In this ſenſe there are two ſorts of *Offices* iſſuing out of the Exchequer by Commiſſion; *viz.* an *Office* to intitle the King in the thing inquir'd into; and an *Office* of Inſtruction.

OFFICE is alſo uſed for Divine Service celebrated in public. See LITURGY.

St. *Jerom* is the Perſon, who, at the Requeſt of Pope *Damaſus*, is ſaid to have firſt diſtributed the Pſalms, Epiſtles, and Goſpels in the Order they are now found in the *Romiſh Office*. The Popes *Gregory* and *Gelaſus* added the Prayers, Reſponſes, and Verſes; and St. *Ambroſe* the Graduals, Hallelujahs, &c.

In the *Romiſh* Church, *Office* is particularly uſed for the manner of performing the *Office*; which varies every Day. Thus they ſay the *Office* of Sunday; of ſuch a Saint, &c. The *Office* is either ſingle, half double, or double.

Again, *Office* is apply'd to the particular Prayer which is prefer'd in honour of a Saint. When any Perſon is Canoniz'd, a particular *Office* is at the ſame time aſſign'd him out of the common *Office* of the Confeſſors, the Virgin, or the like. See SAINT and CANONIZATION.

Thus we ſay, the *Office* of the Virgin; of the Holy Spirit; of the Paſſion; the Holy Sacrament, &c. The *Office* of the Dead is rehears'd every day, excepting Feaſt-days, among the *Carthuſians*. The *Office* of the Holy Virgin is alſo added to the *Office* of the Day, in the Order of *Bernardines*.

OFFICES, with regard to Architecture, are all the Lodges and Apartments that ſerve for the neceſſary Services and Occaſions of a Great Houſe or Palace; particularly thoſe which have a relation to Eating; as Kitchens, Parterres, Brew-Houſes, Confectionaries, Fruiteries, Granaries, &c. as alſo Wood-houſes, Equeries, &c. See HOUSE, BUILDING, &c.

The *Offices* are commonly in the Baſſecours; ſometimes they are ſunk under-ground, and well vaulted, &c.

OFFICER, a Perſon provided of a Charge, or Office. See OFFICE.

Great OFFICERS *of the Crown, or State*, are the Lord High Steward, the Lord Chancellor, the Lord High Treaſurer, the Lord Preſident of the Council, the Lord Privy-Seal, the Lord Great Chamberlain, the Lord High Conſtable, the Earl Marſhal, and Lord High Admiral. See each under its proper Article, CHANCELLOR, TREASURER, MARSHAL, &c.

OFFICERS *of Juſtice*, are thoſe who are charg'd with the Adminiſtration of Equity and Juſtice in the Courts thereof. See COURT.

Royal OFFICERS are thoſe who adminiſter Juſtice in the King's Name; as the *Judges*, &c. See JUDGE.

Subaltern OFFICERS, thoſe who adminiſter Juſtice in the name of Subjects; ſuch are thoſe who act under the Earl-Marſhal, Admiral, &c.

OFFICERS *of Policy*, are thoſe in whom the Government and Direction of the Affairs of a Community are inveſted; as Mayors, Sheriffs, &c. See POLICY.

OFFICERS *of War*, are thoſe who have Command in the Forces.

Theſe are either General, Field, or Subaltern *Officers*.

General Officers are ſuch whoſe Command is not limited to a ſingle Troop, Company, or Regiment; but extends to a whole Body of Forces; ſuch are the General, Lieutenant-Generals, Major-Generals, and Brigadiers. See GENERAL, &c.

Field Officers are ſuch as have Command over a whole Regiment; ſuch are the *Maitres de Camp*, Colonels, and Majors.

Subaltern Officers, are the Lieutenants, Cornets, Enſigns, Sergeants, and Corporals. See each *Officer* under his proper Article, CAPTAIN, COLONEL, &c.

Commiſſion OFFICERS are ſuch as are appointed by the King's Commiſſion; thus call'd in contradiſtinction to *Half Officers*, or *Warrant Officers*, who are appointed by the Colonel's, or Captain's Warrant.

Sea-OFFICERS, or *Officers of the Marine*, are thoſe who have Command in Ships of War.

Flag-OFFICERS are the Admirals, Vice-Admirals, and Rear-Admirals. See FLAG, ADMIRAL, &c.

OFFICERS *of the Houſhold*, are the Lord Steward, Treaſurer of the Houſhold, Comptroller, Cofferer, Maſter, Clerks of the Green-Cloth, &c. The Lord Chamberlain, Vice-Chamberlain, Gentlemen of the Privy and Bed-Chamber, Gentlemen-Uſhers, Grooms, Pages, Maſter of the Wardrobe, of the Ceremonies, &c. The Maſter of the Horſe, Avenor, Equeries, Surveyors, &c. See HOUSHOLD, ſee alſo each *Officer* in his proper Article.

Staff OFFICERS are ſuch as in the King's Preſence bear a white Staff; and at other times, going abroad, have a white Staff borne before them by a Footman bare-headed.

Such are the Lord Steward, Lord Chamberlain, Lord Treaſurer, *&c.*

The white Staff is taken for a Commiſſion; and at the Death of the King, the *Officers* break their Staff over the Hearſe made for the King's Body, and thereby diſcharge their inferior *Officers*.

OFFICIAL, in the Canon-Law, the Biſhop's Deputy, or Lieutenant; or an Eccleſiaſtical Judge appointed by a Biſhop, Chapter, Abbot, *&c.* See COURT.

Of theſe there are two Kinds; the one, as it were, Vicar-General of the Church; exerciſing Juriſdiction throughout the whole Dioceſe, call'd by the Canoniſts *Officialis Principalis*; in our Statute-Law the Biſhop's Chancellor. See CHANCELLOR.

There is no Appeal from his Court to the Biſhop; his being eſteem'd the Biſhop's Court. See BISHOP'S *Court.*

The other kind, call'd *Officialis Foraneus*, as having his Juriſdiction *foris, & extra Civitatem*, is erected by the Biſhop when the Dioceſe is very large; having a certain Extent of Territory aſſign'd him, wherein he reſides.

This *Official* has but a limited Juriſdiction, tho he have *univerſitatem Cauſarum*, and exerciſe it in the Biſhop's Name. Our Statute Laws call him Commiſſary. See COMMISSARY.

The Biſhops, eſpecially thoſe of large Sees, finding themſelves oppreſs'd with a multiplicity of Buſineſs; at firſt, diſcharg'd a part of it upon their Archdeacons and Prieſts; to whom they gave Commiſſions revocable at pleaſure. Theſe they call'd *Vicarii*, or *Officiales*.

As we don't meet with this Term any where before the Conſtitutions of *Sextus*, 'tis pretty apparent the Cuſtom had not its Riſe till the End of the 13th Century.

In proceſs of Time, the Function was divided into two; and the Title *Official* given to thoſe with whom the Biſhop entruſted the Exerciſe of litigious Juſtice; and that of Vicars General, or Grand Vicars, to thoſe who had the voluntary Juriſdictions.

The Number of *Officials* was ſoon exceſſively multiply'd; and not only Biſhops, but Chapters and Archdeacons would have their *Officials*.

The *Officials*, by degrees, had drawn to their Cognizance and Juriſdiction, moſt of the Civil Cauſes; till they were taken out of their hands by Appeals, *&c.*

OFFICIAL, in Common Law, is a Deputy appointed by an Archdeacon for the executing of his Juriſdiction.

OFFICIALTY, the Court, or Juriſdiction, whereof the *Official* is Head.

The Practice of *Officialties* is now reduced into a little Compaſs; and Actions of Promiſes, and Diſſolutions of Marriages, are the principal things tranſacted therein.

OFFICINAL, in Pharmacy, a Term apply'd to ſuch Medicines, whether Simple or Compound, as the College of Phyſicians requires to be conſtantly kept in the Apothecarys Shops, ready to be made up in extemporaneous Preſcription. See PRESCRIPTION.

The *officinal Simples* are appointed, among us, by the College of Phyſicians; and the manner of making the Compoſitions directed in their Diſpenſatory. See DISPENSATORY, COMPOSITION, *&c.*

The Word is form'd of the *Latin Officina*, Shop.

OFFING, in the Sea-Language, that part of the Sea a good diſtance from Shore; where there is deep Water, and no need of a Pilot to conduct the Ship into Port.

Thus if a Ship from Shore be ſeen ſailing out to Seaward, they ſay ſhe ſtands for the *Offing*; and if a Ship having the Shore near her, have another a good way without her, or towards the Sea, they ſay, that Ship is in the *Offing*.

OFF-SETS, in Gardening, *&c.* are young Shoots that ſpring, and grow from Roots that are round, tuberous, or bulbous.

The Word is alſo uſed for the looſe, outer, brown Skins in Tulips, Onions, *&c.*

OFF-SETS, in Surveying, are Perpendiculars let fall, and meaſur'd from the Stationary-Lines, or the Lines between one Station and another, to the Hedge, Fence, or Extremity of the Incloſure. See SURVEYING.

OGEE, or **O G**, as it is frequently wrote, or **OGIVE**, in Architecture, a Moulding, conſiſting of two Members, the one concave, and the other convex; the ſame with *Cymatium*. See CYMATIUM.

Vitruvius makes each Member a Quadrant of a Circle; *Scamozzi*, and ſome others, make them ſomewhat flatter, and ſtrike them from two equilateral Triangles.

Its Form bears ſome reſemblance to that of an S.

OGIVE is alſo uſed for an Arch, or Branch of a *Gothic* Vault, which, in lieu of being Circular, paſſes diagonally from one Angle to another, and forms a Croſs between the other Arches which makes the ſide of the Square, whereof the Arches are Diagonals. See ARCH and VAULT.

The middle, where the *Ogives* cut or croſs each other, is call'd the Key, which is ſometimes cut in form of a Roſe, or a *Cul de Lampe*. The Members or Mouldings of the *Ogives* are call'd Nerves, Branches, or Reins; and the Arches which ſeparate the *Ogives*, double Arches. See VAULT.

OGRESSES, or AGRESSES, in Heraldry, ſee PELLETS.

OIL, a fatty, unctuous, inflammable Matter, drawn from ſeveral natural Bodies. See FAT.

The word *Oil* is ſometimes apply'd to the Juices which diſtil naturally from Plants and Trees; as Balm, *&c.* but more ſtrictly to thoſe Juices drawn by Expreſſion from Plants, Fruits, Grains, or Seeds; as *Oil of Olive*, *Nut-Oil*, &c. See EXPRESSION.

The Word is form'd from the *Latin Oleum*, of *Olea*, Olive-Tree, the Fruit whereof abounds in ſuch Juice. See OLIVE.

The Kinds of *Oils*, their Properties, Manners of Expreſſion, *&c.* are almoſt infinite: For the generality of them, the Reader is refer'd to the proper Articles; ſuch as could not be more conveniently inſerted, are as follow.

OIL *of Olives*, is the moſt popular, and moſt univerſal of all others; being that chiefly uſed in Medicine, in Foods, Salads, and in the Manufactures. See SALAD, *&c.*

It is drawn from Olives by Preſſes or Mills made for the purpoſe. The Fruit is gather'd when at its utmoſt Maturity in *December* and *January*, as it begins to redden; when 'tis put under the Mill, as ſoon as gather'd, it yields that *Oil* ſo very ſweet, and of ſo charming an Odour, call'd *Virgin-Oil*. But, as the Olives newly gather'd yield but little *Oil*, thoſe who rather regard Quantity than Goodneſs, leave them on the Ground for ſome time, e'er they preſs them.

Neither the Smell nor Taſte of this ſecond *Oil* is very agreeable; tho there is a third Kind ſtill worſe, which is the common *Oil* procured by throwing boiling Water on the Preſſings, and repreſſing them more ſtrongly.

The conſumption of this *Oil* is incredible; the South Parts of *France*, *Provence*, *Languedoc*, &c. as alſo *Candia*, ſome Parts of *Italy*, &c. yield vaſt Quantities. Its uſe every body knows; it being reputed one of the moſt univerſally uſeful things in the whole World.

OIL *of ſweet Almonds*, cold drawn, or without Fire, is prepared various ways. Some peel the Almonds as they pound 'em; others pound 'em without peeling. Some warm 'em in luke-warm Water; others *in balneo Mariæ*; ſome only bruiſe 'em; others beat 'em into a Paſte. In effect there are as many different ways of preparing this *Oil*, as there are Perſons who make it their buſineſs to prepare it.

In this diverſity, *Pomet* gives us a Method eaſier and leſs expenſive than any of the reſt; which, it ſhould ſeem, we cannot do better than follow.

Method of procuring Oil of ſweet Almonds *by Expreſſion, without Fire.*

Take a Pound and a half of peel'd ſweet Almonds, new and dry; after pounding 'em in a Mortar, paſs 'em thro' a coarſe Sieve, lay 'em in a Hair-Cloth, and put 'em under the Preſs between two Plates of Copper, Steel, or the like; preſs 'em gently; and when all the unctuous and fluid Part is expreſs'd, you will have a ſweet *Oil* without any Sediments, which is ſcarce avoidable in any of the other manners.

Palm OIL, or *Oil of Senegal*, a thick unctuous Liquor, of a yellow Colour, and a Violet-ſmell; ſo call'd becauſe drawn, by Ebullition or by Expreſſion, from the Fruit of a kind of Palm-Tree, growing in ſeveral Places of *Africa*, eſpecially in *Senegal*.

The *Africans* uſe this *Oil* as we do Butter; and burn it when old. In *Europe* 'tis eſteem'd a ſovereign Remedy againſt cold Humours; and even ſaid to give eaſe in the Gout. 'Tis ſometimes counterfeited with Wax, *Oil* of Olives, *Iris*, and Turmeric; but the Trick is found out either by Air or Fire. The Air alters the Colour of the Genuine, and leaves the Counterfeit unchanged; and on the contrary, Fire changes the Counterfeit, not the Genuine.

OIL *of Camomile*, an *Oil* made with the Flowers of this Plant ſteep'd in *Oil* of Olives, and expoſed to the Sun in the heat of Summer: Its Colour is blueiſh; ſome add fine Turpentine. It is the moſt eſteem'd when old. 'Tis uſed for the cure of ſeveral kinds of Wounds; and is reputed a kind of Balm.

OIL *of Petrol*, ſee NAPHTA.

OIL *of Amber*, ſee AMBER.

OIL *of Antimony*, or *Butter of Antimony*, ſee ANTIMONY.

OIL *of Arſenic*, or *Butter of Arſenic*, ſee ARSENIC.

OIL *of Aſpic*, or *Spike*, an *Oil* drawn from the Flowers or little Leaves of a Plant of the ſame Name, growing in the South Parts of *France*, reſembling our Lavender. 'Tis of a white Colour, and an aromatic Smell; and is the only *Oil* diſſolvable in *Sandarach*; whence the genuine *Oil* is eaſily diſtinguiſhed from the counterfeit, which is *Oil* of Turpentine mix'd with a little *Petrol*. It is uſed by Painters and Farriers; and is of ſome uſe in Medicine, where it makes a part in ſeveral *Galenical* Compoſitions.

OIL *of Balm*, ſee BALM.

OIL *of Ben*, ſee BEN.

OIL *of Cacao*, ſee CACAO.

OIL *of Camphor*, ſee CAMPHOR.

OIL *of Cinnamon*, ſee CINNAMON.

OIL *of Caſtor*, ſee CASTOREUM.

OIL *of Wax*, ſee WAX.

OIL *of Cumin*, ſee CUMIN.

OIL *of Fennel*, ſee FENNEL.

OIL *of Nutmeg*, ſee NUTMEG.

OIL *of Guaiacum*, ſee GUAIACUM.

OIL *of Cloves*, ſee CLOVES.

OIL *of Lavender*, ſee LAVENDER.

OIL *of Lentiſc*, ſee LENTISCUS.

OIL *of Lime*, ſee LIME.

OIL *of liquid Amber*, ſee BALM.

OIL *of Mace*, ſee NUTMEG.

OIL *of Millepertuis*, ſee MILLPERTUIS.

OIL *of Mathiolus*, ſee SCORPION.

OIL *of Neroli*, ſee ORANGE.

OIL *of Nuts*, ſee NUT.

OIL *of Orange*, ſee ORANGE.

OIL *of black Pitch*, ſee PITCH.

OIL *of Roſemary*, ſee ROSEMARY.

OIL *of Sardine*, ſee SARDINE.

OIL *of Sage*, ſee SAGE.

OIL *of Cotton*, ſee COTTON.

OIL *of Sulphur*, ſee SULPHUR.

OIL *of Turpentine*, ſee TURPENTINE.

OIL *of Thyme*, ſee THYME.

OIL *of Tortoiſe*, ſee TORTOISE.

Virgin OIL, is underſtood of *Oils* expreſs'd from Olives, Nuts, &c. freſh gather'd, without being heated, too much preſs'd, &c. See OIL *of Olives*.

Granulated OIL is that fix'd in little Grains; this is the beſt, and moſt eſteem'd, eſpecially of *Oils* of Olives.

Oil frequently takes new Names from the Drugs mix'd with it; as *Oil of Roſes*, which is that mix'd with Roſes; *Oil of Jaſmin*, that perfum'd with Jaſmin.

Plato obſerves, that *Oil* is deſtructive to all Plants; and he adds too, to the Life of all Animals, except thoſe of Man, to which it is agreeable, as alſo to the reſt of his Body. He adds further, that 'tis very uſeful to the external parts of the Body, but hurtful to the internal. *Fernelius* obſerves that *Oil* ſoftens, moiſtens, and lubricates the Body, and takes off the ſenſe of Wearineſs; for which reaſon the *Greeks* call it *Acopum*; and renders the Body prompt and agile. *Dioſcorides* ſays it cures Leproſies, &c.

OIL, among the Chymiſts, is the ſecond of the Elements, or Hypoſtatical Principles; otherwiſe call'd *Sulphur*. See ELEMENT, PRINCIPLE, and SULPHUR.

All natural Bodies yield *Oil*, either by Diſtillation; Putrifaction; or Liquation call'd *per Deliquium*: And hence the Chymiſts will have it a neceſſary Ingredient in the Compoſition of all Bodies. They make it the Principle of Odours; and to the Diverſities thereof, aſcribe all the differences of Bodies in reſpect of Smells. See SMELL.

All Plants yield a fetid *Oil* at the end of Diſtillation; but Aromatic ones beſide this yield another *Oil*, which riſes after the Phlegm, and at the beginning of the Diſtillation: This they call an *Eſſential Oil*, becauſe it retains the natural ſmell of the Plant; whereas the ſecond *Oil*, even that of Aromatic Plants, ſtinks intolerably. See ESSENTIAL.

M. *Homberg*, from an Obſervation that Plants which yield the moſt Acid, yield likewiſe the moſt *Oil*; took occaſion to think that the Acid might aſſiſt the *Oil* to diſengage itſelf from the Body, and to riſe in Diſtillation; which he found to anſwer in the Experiment. Mineral Acids prov'd to have more force on the *Oils* of Plants, and put 'em in a condition of riſing in Diſtillation, and in greater Quantity by the Action of Fire, than Vegetable ones. Accordingly, whereas the Perfumers find a deal of difficulty in raiſing eſſential *Oil* of Roſes; and ſcarce get an Ounce out of an hundred Pounds of the Flower: M. *Homberg*, on his Principle, got at leaſt one third more; *viz.* by laying the Roſes fifteen days in Water impregnated with Spirit of Vitriol, before Diſtillation.

The Chymiſts Doctrine of Principles, Mr. *Boyle* ſhews to be very deficient in the Article *Oils*: For the Characteriſtic of a Sulphur, or that which denominates a thing ſuch, is Inflammability: Now, there are at leaſt three Subſtances manifeſtly different in Conſiſtence, Texture, or both; which, according to that Notion, ought to be referr'd to Sulphurs: For ſometimes the inflammable Subſtance obtain'd from a mix'd Body by means of Fire, appears in form of an *Oil* that will not mix with Water; ſometimes in form of an inflammable Spirit, which will readily unite with that Liquor; and ſometimes alſo in form of a conſiſtent Body almoſt like common Sulphur. *Producib. of Chym. Prin.*

Dr. *Slare* in *Philoſ. Tranſact.* gives us a Scheme, or Analyſis of *Oils*. He diſtinguiſhes *Oils* into Vegetable, Animal, and Mineral.

The Vegetable he divides into *Eſſential*, and not *Eſſential*.

The *Eſſential* again, are either perfect Stillations made by the Analyſis of the Chymiſt's Fire; where the oleaginous Particles are truly ſeparated from all other; as thoſe from the Seeds of Cummin, Fennel, and Dill: or light and etherial, uſually drawn from the Tops of Plants, and ſpecifically lighter than Water, ſome of 'em than Spirit of Wine; as thoſe from Thyme, Wormwood, Hyſop, Lavender, Roſemary, Penny-royal, Rue, Sage, Savin, &c. Or ponderous, which commonly ſink in Water.

Thoſe *not Eſſential*, are imperfect, or made by Expreſſion; which are decompounded of ſeveral parts of the Plants; as of Almonds, Olives, Wallnuts, Lime, Rape, &c.

The *Animal* OILS are either thoſe of the ſolid Parts, as Harts-horn, Human-Skull, Hoofs, &c. Or thoſe of the Fluids, as of Human-Blood.

Laſtly, the *Mineral* OILS are thoſe of Amber, Petroleum, *Barbadoes* Tar, and Bees-Wax.

Of theſe *Oils*, there are twelve that by a Mixture of compound Spirit of Nitre, make an Ebullition, Exploſion, and Flame. Eighteen that make an Ebullition and Exploſion without Flame: And four that produce neither. See EBULLITION, FLAME, &c.

OIL-*Bag*, a Veſſel in Birds, replete with an unctuous Subſtance, ſecreted by one, ſometimes two, Glands for the purpoſe, diſpoſed among the Feathers; which being preſs'd by the Bill or Head, emits its *oily* Matter, for the Dreſſing and Preening the Feathers. See FEATHER and PREENING.

OINTMENT, in Pharmacy and Surgery, &c. See UNGUENT.

OKER, or OCHER, in Natural Hiſtory, a yellow, dry, fat, ſoft, foſſil Earth; found in Copper and Lead Mines, ſometimes in thoſe of Silver, and ſometimes in Mines of its own. See EARTH.

Others ſeem more rightly to refer *Oker* to the Claſs of Semi-metals, than of Earths. It conſiſts, according to them, of Earth and a Metal, particularly Iron, combined. See SEMI-METAL.

Mr. *Boyle* aſſures us he has ſeen a Piece of *Oker* richer in Metal than moſt Iron-Ores; and which was even render'd magnetical by heating and then cooling it in a perpendicular poſition. See MAGNET and MAGNETISM.

Some Authors eſteem *Oker* proper to promote the melting of Metals, when they are too harſh and brittle; but its chief Uſe is in Painting.

'Tis only the yellow *Oker* is natural; the red is prepared from the yellow by calcining it in the Fire till it have acquir'd its redneſs.

The Beds are uſually from one hundred fifty to two hundred foot deep; and their thickneſs from four to eight Inches, between a white Sand which covers them a-top, and a yellow argillous Earth underneath.

The beſt *Oker* is that of *Berry* in *France*. There are ſeveral Kinds dug up in *England*, all bordering on the red; ſome of them uſed in poliſhing Looking-Glaſſes.

The Word comes from the *Greek* ὤχρα, yellow Earth.

Oker, in effect, is always impregnated with Iron, and is what generally gives to the Chalybeat Springs their medicinal Virtues; many of which we ſee, upon ſtanding of the Water, will depoſite the *Oker* at the bottom of the Veſſel.

OLD *Age*, ſee LONGÆVITY.

OLEAGINOUS, ſomething that partakes of the nature of *Oil*; or out of which Oil may be expreſs'd. See OIL.

Thus Olives, Nuts, Almonds, &c. are *oleaginous* Fruits, or Fruits out of which *Oil* is expreſs'd. See FRUIT. Pines, Firs, &c. are *oleaginous* Woods, yielding Roſin, Turpentine, &c. See ROSIN, &c.

Of all Woods, *oleaginous* ones burn the beſt. See FUEL.

An *oleaginous* Urine in malignant Fevers is a ſign of Death. See URINE.

OLECRANUM, in Anatomy, an Eminence behind the Bend of the Elbow; being the Part whereon the Arm bears when we reſt on the Elbow. See ARM.

This Eminence is nothing elſe but the poſterior *Apophyſis* of the Head of the Ulna, which ſtays that Bone, and prevents its ſlipping back; ſo as to form an acute Angle when the Arm is bent. See ULNA.

The *Olecranum* is received into the hind Sinus of the lower end of the Humerus; and with the fore Protuberance of the Ulna, which is received into the fore Sinus of the Humerus, forms a perfect Ginglymus, whereby the two Bones move as on a Hinge.

OLERON-*Laws*, or the *Sea-Laws of* Oleron, are a Set of antient Laws, relating to Maritime Affairs, made by K. *Richard* I. See Law.

They are thus call'd, becauſe made in the *Oleron*, an Iſland in the Bay of *Aquitaine*, at the Mouth of the River *Charent*.

OLFACTORY *Nerves*, in Anatomy, the firſt Pair of Nerves ſpringing out of the *Medulla oblongata*; ſo call'd as being the immediate Inſtruments of Smelling. See Smelling.

The Antients call'd them *Proceſſus Papillares*; which Dr. *Drake* thinks a more ſuitable Name, till their arrival at the *Os Cribroſum*; in regard they rather appear Productions of the *Medulla oblongata*, than diſtinct Nerves; againſt which, their manifeſt Cavities, and their Communication with the Ventricles, argue. See Medulla *oblongata*.

The *Olfactory* Nerves have their Riſe juſt below the *Os frontis*, and are diſtributed in the Membranes of the Noſe. See Nerve.

OLIBANUM, in Pharmacy, a kind of Gum, or Reſin, uſually call'd male *Frankincenſe*. See Incense.

It has its name *Olibanum*, *quaſi oleum Libani*; becauſe diſtilling in form of an Oil, from a Tree on Mount *Libanon*.

It is brought to us in large white Tears, bordering a little on the yellow; very heavy, of a ſharp bitter Taſte, and a briſk Smell.

'Tis diſtinguiſh'd from the female, or common Incenſe, by the largeneſs of the Drops. 'Tis very glutinous, conſequently ſtrengthening; and partakes enough of the Turpentine to render it ſomewhat detergent; 'tis more uſed in compound ſtrengthening Plaiſters, than in inward Compoſitions.

OLIGARCHY, a Form of Government, wherein the Adminiſtration is in a few Perſons; ſuch are the States of *Venice* and *Genoa*.

The *Oligarchy* amounts to the ſame thing with an Ariſtocracy. See Aristocracy.

The Word is form'd from the *Greek* ὀλίγος, few; and ἀρχὴ, Command, Government.

OLIO, or Oglio, a ſavoury Diſh, or Food, compoſed of a great variety of Ingredients.

The Forms of *Olio's* are various; to give a Notion of the ſtrange Aſſemblage, we ſhall here add one from an approved Author.

Take Rump of Beef, Neat's Tongues boil'd and dry'd, and *Bolonia* Sauſages; boil 'em together, and after boiling two Hours, add Mutton, Pork, Veniſon, and Bacon, cut in bits; as alſo Turnips, Carrots, Onions, and Cabbage, Borage, Endive, Marigolds, Sorrel, and Spinage; then Spices, as Saffron, Cloves, Mace, Nutmeg, *&c.* This done, in another Pot put a Turkey or Gooſe, with Capons, Pheaſants, Widgeons, and Ducks, Partridges, Teals, and Stock-doves, Snipes, Quails, and Larks, and boil them in Water and Salt. In a third Veſſel, prepare a Sauce of white Wine, ſtrong Broth, Butter, Bottoms of Artichokes and Cheſnuts, with Colliflowers, Bread, Marrow, Yolks of Eggs, Mace and Saffron. Laſtly, diſh the *Olio*, by firſt laying out the Beef and Veal, then the Veniſon, Mutton, Tongues, and Sauſages, and Roots over all; then the largeſt Fowls, then the ſmalleſt, and laſtly pour on the Sauce.

OLITORY, a Kitchen-Garden, or a Garden of Herbs, Roots, *&c.* for Food. See Garden.

OLIVARIA *Corpora*, in Anatomy, are two Protuberances in the under part of the Brain, placed on each ſide the *Corpora Pyramidalia*, towards the lower end; having their Name from their Figure, which reſembles that of an Olive. See Brain.

OLIVE, a Stone-Fruit, which yields plenty of Oil; the Produce of the Olive-Tree. See Oil.

There are three Kinds of *Olives*, frequently ſold; different in Size and Goodneſs; *viz.* thoſe of *Verona*, which are the beſt; thoſe of *Spain*; and thoſe of *Provence*.

The *Olives*, while on the Tree, are intolerably bitter, without any thing of that delicious Taſte which procures them admittance at the richeſt Tables. To fit 'em for that, they muſt be prepared as follows.

Manner of Preparing, or Pickling Olives.

In the Month of *June* and *July*, long e'er the *Olives* are fit to yield their Oil, they are gather'd, and laid to ſteep ſome days in freſh Water; when taken out, they are put in another Water prepared with Barillia, or Kali, with Aſhes of *Olive*-Stones calcined; or at leaſt with Lime.

They are next laid in a Liquor of Water and Salt, with which they are put in thoſe little Barrels, wherein they are brought to us. To give 'em the Flavour, they throw over 'em an Eſſence uſually compoſed of Cloves, Cinnamon, Coriander, and Fennel. This Eſſence is a kind of Secret among thoſe who deal herein; and, in effect, 'tis in this that all the difficulty of the Preparation lies.

Manner of Drawing Oil of Olives.

The *Olives* being gather'd, are laid for ſome time on the Ground to drain, and to ripen further; they are then ground into a Paſte with a Mill-ſtone: The Paſte is put in large Frails, and boiling Water poured over them. Laſtly, the whole is preſs'd; by means whereof the Oil is eaſily ſeparated, and ſwims a-top of the Water.

Olive-*Colour*, is a yellow, mingled with black. The Term is chiefly uſed in ſpeaking of the Teint of the Complexion. The *Spaniards* and *Indians* are rarely white; generally *Olive*-complexion'd,

OESTRUM *Veneris*, Extaſy of Deſire, or Love; a Term ſometimes given the *Clitoris*, from the laſcivious Titillation it is capable of. See *Clitoris*.

OLYMPIAD, in Chronology, a Space, or Period of four Years; whereby the *Greeks* reckon'd their Time. See Epocha.

This Method of Computation had its Riſe from the *Olympic Games*, which were celebrated every fourth Year, near the City *Piſa*, or *Olympia*, in *Peloponneſus*. See Olympic.

The firſt *Olympiad* commenced, according to ſome, in the Year 3938 of the *Julian* Period; the Year from the Creation 3208; the Year before Chriſt 776; and 23 Years before the Foundation of *Rome*: Or rather, as others will have it, in the Year of the World, 3251; the Year of the *Julian* Period, 3941; and 23 Years before the Building of *Rome*.

The *Peloponneſian* War begun on the firſt Year of the 87th *Olympiad*. *Alexander the Great* died the firſt Year of the 114th; and Jeſus Chriſt was born the firſt Year of the 195th *Olympiad*.

The *Olympiads* were alſo call'd *Anni Iphiti*, from *Iphitus*, who inſtituted, or at leaſt renewed the Solemnity of the *Olympic Games*.

We don't find any Computation by *Olympiads* after the 364th, which ended with the Year of Chriſt 440.

In a Charter of our K. *Ethelbert*, the Years of his Reign are reckoned by *Olympiads*.

OLYMPICS, or Olympic *Games*, were ſolemn Games, famous among the antient *Greeks*; inſtituted, according to ſome, by *Hercules* in honour of *Jupiter*; and held every 4th Year, or every 49th Month, on the Banks of the *Alpheus*, near *Olympia* a City of *Elis*; to exerciſe their Youth in five Kinds of Combats. See Games.

Theſe *Games* became ſo conſiderable, that the *Greeks* made 'em their Epocha; diſtinguiſhing their Years by the Returns of the *Olympics*. See Olympiad.

Thoſe who were Conquerors in them, were ſo honour'd by their Country-men, that at their Return, a piece of the Wall of the City was pull'd down to give paſſage to their Chariot. The Prize contended for, was a Crown of Laurel. See Olympionics.

Olympic *Fire*, is ſometimes uſed for the Fire ariſing from the Sun's Rays collected in the Focus of a Burning-Glaſs. See Fire and Burning-*Glaſs*.

Gli OLYMPICI, the Title of the Academiſts of *Vicenza*, in *Italy*. See Academy.

OLYMPIONICI, *Olympionics*, in Antiquity, an Appellation given to thoſe who came off Victorious in the *Olympic Games*. See Olympic.

The *Olympionics* were infinitely honour'd in their Country, as being eſteem'd to have done it immortal Honour. The *Athenians* particularly, were ſo laviſh in their Preſents to the *Olympionics* their Country-men, that *Solon* found it neceſſary to reſtrain their Liberality by a ſpecial Law, which imported that the City ſhould give 500 Drachma's to the *Olympionics*; which amounted to about 58 Ounces of Silver, our Weight. No very conſiderable Sum.

OMBRE, a celebrated Court-Game at Cards; play'd by two, by three, or by five Perſons; but generally by three.

In *Ombre* by three, nine Cards are dealt to each Party; the whole *Ombre* Pack being only 40; by reaſon the Eights, Nines, and Tens are thrown aſide: He that wins, muſt take five Tricks, or four when the other five are divided, ſo as one have two, and the other three.

The Game of *Ombre* is borrow'd from the *Spaniards*; and requires all the Phlegm and Gravity of that People in the playing. The Name ſignifies as much as the *Game of Man*; *Ombre*, or *Hombra*, in *Spaniſh*, ſignifying Man, in alluſion to the Thought, and Attention requir'd herein. We ſhall here give an Idea of the Oeconomy thereof.

In *Ombre by three*; after the Cards are dealt, if none of the Parties think their hand ſtrong enough to attempt for the Stake or Game, they all *paſs*; and, after ſomething put down to the former Stake, deal over again. If any will attempt for it, he henceforth is call'd the *Ombre*; and the other two become leagued together, like two Partners at Whisk, to defend it againſt him. Note, each has the refuſal of being *Ombre*, according to his Order of Seniority.

There are two ways of his undertaking for the Game: In the firſt, which is the moſt uſual, after chuſing what he will have Trumps, he *diſcards*, or lays aſide what number of his Cards he pleaſes, and in their lieu takes an equal Number from the remainder of the Pack; the like do the other two. The other way is, when he dare truſt to his own Hand, and therefore declines to diſcard, or change any Cards, but leaves that to the others; which is call'd playing *ſans prendre*: If he gains the Point in this latter Caſe, he reaps ſomewhat extraordinary, more than in the firſt.

If he fail, he is ſaid to be *beaſted*; and the Failure is call'd a *Remiſe*, or *Repueſte*; and if one of the Defenders of the Stake win more Tricks than he, he is ſaid to win *Codille*, and takes up the Stake the *Ombre* play'd for: And in both caſes, the *Ombre* is to forfeit the Value of the Stake play'd for to the Board.

If the *Ombre* win all the nine Tricks; it is call'd winning the *Vole*, and he reaps doubly; and if he attempt it, and miſcarry, he ſuffers proportionably. The Overſights, and Irregularities committed in the courſe of the Game, are call'd *Beaſtes*, and ſubject the Perſons chargeable therewith to Forfeitures.

Laſtly, as to the Order and Value of the Cards at *Ombre*, it is to be obſerv'd, that the Ace of Spades, call'd *Spadille*, is always the firſt or higheſt Trump, in whatever Suit the Trump be; the Duce of Trumps, when Trumps is of either of the black Colours; or the Seven, if of the black, is the ſecond Trump, and call'd *Manille*; the Ace of Clubs, call'd *Baſto*, the third; and if either of the red Suits be Trump, the Ace of that Suit, call'd *Punto*, the fourth. The reſt in the black Suits are valued according to the following Order, *viz.* King, Queen, Knave, Seven, Six, Five, Four, and Three. In the red Suits they follow thus; King, Queen, Knave, Duce, Three, Four, Five, and Six.

The three firſt, or principal Trumps, are call'd *Matadores*; which have this Privilege, that they are not obliged to attend an inferior Trump when it leads; but for want of another ſmall Trump, the Perſon may renounce Trumps, and play any other Card. Add, that if the three *Matadores* be in the hands of the *Ombre*, in caſe he be beaſted, he is to forfeit for 'em; or, if he gain his Point, he is to have a conſideration for 'em; but for nothing leſs than three. And it muſt be further noted, that the Trumps immediately ſucceeding theſe, *viz.* Punto, King, Queen, *&c.* if they be found in the ſame hand with the former, are alſo reputed as *Matadores*, and to be allowed, or forfeited for like the reſt: And this as low as the Sequence reaches without interruption.

There are ſome Varieties in the manner of playing the Game of *Ombre*: Sometimes he who has *Spadille*, is oblig'd to play, let his Game be ever ſo bad; which is call'd *Force Spadille*. Sometimes, when all have paſs'd, a Perſon undertakes the Game on condition of diſcarding, and making up his hand e'er he names Trump; which is call'd *Gaſcarille*.

In *Ombre by five*, which ſome even prefer to that *by three*, as not requiring ſo much Attention; only eight Cards apiece are dealt; and five Tricks muſt be won, otherwiſe the *Ombre* is *beaſted*.

Here the Perſon who undertakes the Game, after naming the Trump, calls a King to his Aſſiſtance; upon which, the Perſon in whoſe hand the King is, without diſcovering himſelf, is to aſſiſt him as a Partner, and to ſhare his Fate. If between both, they can make five Tricks, the *Ombre* wins; and then the auxiliary King ſhares the Spoil; and *vice verſa*.

If the *Ombre* venture the Game without calling in any King; this too is call'd playing *ſans prendre*; in which caſe the other four are all againſt him, and he muſt win five Tricks alone, or be *beaſted*. The reſt is much the ſame as *by three*; *mutatis mutandis*.

Ombre *de Soleil*, in Heraldry, *Shadow of the Sun*, is when the Sun is borne in Armoury, ſo, as that the Eyes, Noſe, and Mouth, which at other times are repreſented, do not appear.

OMELET, a Fricaſſee, or Preparation of Eggs, with other Ingredients in a Pan; very uſual in *Spain*.

Menage derives the Word from the *Italian Ammella*, little Soul; which, he ſays, that People uſe for the nice Bits among the Entrails of Fowls, *&c.* uſed for Fricaſſees, as Livers, Hearts, Kidneys, Gizzards, *&c.* From whence, by reſemblance, is form'd *Amelette*, a Fricaſſee of Eggs: Tho *Tripod* derives the Word from ἅμα, together, and λύειν, to dilute, moiſten, mix; and M. *de la Motte le Vayer* from the *French Oeuf*, Egg, and *melez*, mingled.

The Forms of *Omelets* are various: A noted Author in this way, prefers the following one. The Eggs being beaten, are to be ſeaſon'd with Salt and Pepper, and then fried in Butter made boiling hot: This done, Gravy to be poured on, and the whole ſtrew'd with Chives and Parſley ſhred ſmall. When one ſide is fried enough, it is to be turn'd on the other.

There are alſo *Omelets with Sugar*; *Farced Omelets*; *Omelets* the *Turkiſh* way, *&c.*

OMEN, a Sign, or Indication of ſomething Future, taken from the Mouth of a Perſon ſpeaking.

Feſtus derives the Word *Omen* from *Oremen*, *quod fit ore.* See Augury.

Omen *Prærogativum*, among the *Romans*, was the Vote of the firſt Tribe or Century, in their *Comitia*.

When a Law, *&c.* was propoſed, or an Election to be made, an Urn was brought in to the Prieſts there preſent, into which were caſt the Names of the Tribes, or Centuries, or *Curiæ*; as the *Comitia* were either *Tributa*, or *Centuriata*, or *Curiata*. And the Lots being drawn, that Tribe, Century, *&c.* whoſe Name came up firſt, was call'd *Tribus*, or *Centuria Prærogativa*, becauſe their Voices were ask'd firſt. And ſo much did the *Romans* depend on this Prerogative Century, that the reſt generally follow'd them. Hence a Perſon who had the Voices of the Prerogative, was ſaid to have the *Prerogative Omen*.

OMENTUM, in Anatomy, the *Caul*, *Epiploon*, *Rete*, or *Reticulum*, a fat, thin Membrane ſpread over the Inteſtines, and following them in all their Sinuoſities. See Intestines.

It reaches from the bottom of the Stomach (to which it is connected) to the Navel, at which it ordinarily terminates; tho in ſome Subjects it goes further, ſo as upon a Rupture of the *Peritonæum*, to fall into the *Scrotum*. Beſides the Stomach, it is faſten'd to the concave Part of the Liver, the back-ſide of the *Duodenum*, part of the *Colon*, the Back, and the Spleen; its other Extremity to the ſmall Guts.

Its Form reſembles that of a Pouch, or Sachel, which may be inflated with a Blow-pipe to the Capacity of a Gallon.

Its Subſtance is membranous, conſiſting of two Leaves, or Coats, between which, and on the Surfaces of which, are innumerable Veins, Arteries, Nerves, and *Vaſa Adipoſa*, or Fat Veſſels, variouſly interwove, and by their Interſections dividing the Part into a Multitude of little *Areolæ*, reſembling the Maſhes of a fine Net; whence its Name, *Rete*.

The Fat, in its proper Ducts, running along with the other Veſſels, renders theſe *Areolæ* very obſcure; while the intermediate Spaces are fill'd with a tranſparent Membrane, full of ſmall Holes; ſo that the whole appears a beautiful kind of Net. Its Arteries come from the *Cæliac* and *Meſenterics*, and its Veins run to the *Porta*, and are call'd *Epiploicæ*; its Nerves from the Intercoſtals.

The Fat, here, as in the *Membrana Adipoſa*, is either brought by the Ducts into the *Adipoſe* Cells, or deliver'd from the Cells into the Ducts; for the Fineneſs of the Veſſels, *&c.* renders their Courſe exceeding difficult to trace: 'Tis even doubted whether or no they be hollow. *Malpighi*, and many others, incline to the former Opinion; and take the *Omentum* to be nothing elſe but a large Pouch, full of innumerable little ones, fill'd with Fat; they add, that the *Ductus Adipoſi* are real Veſſels ariſing out of the *Omentum*, and ſpreading themſelves, by means of the *Membrana Adipoſa*, throughout the whole Body; diſtributing Fat to every Part, in the ſame manner as the Arteries diſtribute Blood. See Fat and Ductus *Adipoſi*.

The particular Uſe of the *Omentum* is to promote the Periſtaltic Motion of the Guts, by lubricating them with its oily Subſtance, which tranſudes thro' its Pores; and by following them in their Doublings and Windings, to ſerve as a Bolſter to ſlide upon; and by filling up their Hollows, preventing their being too much diſtended with Flatulencies, yet giving way to them when replete with Aliment.

The *Omentum* is ſingle in all Animals, excepting Monkeys, in which it is triple or quadruple.

OMOPHORIUM, a little Cloak, antiently wore by the Biſhops, over their Shoulders; thereby to repreſent the good Shepherd who brings home the ſtray'd Sheep on his Shoulders.

For this reaſon it was put off at the opening of the Goſpels, becauſe then the true Shepherd Jeſus Chriſt, was ſuppoſed preſent in Perſon.

Some confound the *Omophorium* with the *Pallium* wore by the Patriarchs; but there was this difference, that the *Pallium* was a long Cloak, of Purple, and was peculiarly reſerved for Patriarchs; tho ſince given to ſome Biſhops by way of diſtinction. See Pallium.

The Word is pure *Greek*, form'd from ὦμος, Shoulder, and φέρω, I carry.

OMOPLATE, in Anatomy, is uſed in the general for the Shoulder; but, particularly for two Bones ſituate on the hind part of the upper Ribs, one on each ſide.

Theſe Bones are broad, and eſpecially in the middle; thick in their *Apophyſes*; of a triangular Form, concave within, and convex without; and are join'd to the Clavicles and Arms.

The Word comes from the *Greek* ὦμος, Shoulder, and πλατὺς, broad.

OMPANORATE, the Title bore by the Prieſts of the Iſland of *Madagaſcar*.

Theſe are the School-Maſters of the Country, and teach *Arabic* and Writing. They have ſeveral Books, but none of them contain more than ſome Chapter of the *Alcoran*, and a few phyſical Recipes.

They are divided into ſeveral Orders, bearing ſome Reſemblance to our Eccleſiaſtical Dignities: As *Ombiaſſe*, Secretary, or Phyſician; *Tibon*, Subdeacon; *Mouladzi*, Deacon; *Faquibi*, Prieſt; *Catibon*, Biſhop; *Lamlamaba*, Archbiſhop; *Ompitſiquili*, Prophets or Diviners; *Sababa Calif*, or Chief of the Religion.

The *Ompanorates* deal much in Taliſmans, and other Charms, which they call *Hitidzi*, and which they ſell to the Grandees of the Place. They alſo make little Statues or Images, call'd *Auli*, which they conſult as Oracles; and to which they aſcribe various Powers; as the making rich, deſtroying Enemies, &c. They have public Schools, where they teach their Superſtitions and Sortileges. The *Ompitſiquili* practiſe Neomancy, and are moſtly conſulted on Diſeaſes, and the Succeſs of Affairs; reſolving all Queſtions by Figures drawn on a little Table, cover'd with Sand.

OMPHACIN, in Pharmacy, a kind of Oil, pretended to be drawn from Olives while yet green, and ſour; but *Pomet* charges it as an Impoſture; adding, that Olives yield no Oil at all till perfectly ripe. See OIL and OLIVE.

The Word is derived from the *Greek* ομφαξ, unripe Grape.

OMPHALOCELE, in Medicine, a kind of *Hernia*, or Tumor, in the Navel; ariſing like other Hernia's from a Relaxation or Rupture of the *Peritonæum*. See HERNIA.

Its remoter Cauſes are violent Strains, loud Cries, abundance of ſerous Humour, difficult Delivery, &c.

The Word is form'd from the *Greek* ὄμφαλον, Navel, and κέλη, Tumor. 'Tis otherwiſe call'd *Exomphalus*. See EXOMPHALUS.

OMPHALO-*Meſenteric*, in Anatomy. All *Fœtus's* are wrap'd in at leaſt two Coats, or Membranes; moſt of them have a third, call'd *Allantoides*, or Urinary. Some, as the Dog, Cat, Hare, &c. have a fourth, which has two Blood-Veſſels, *viz.* a Vein and an Artery, call'd *Omphalo-Meſenterics*, becauſe paſſing along the String to the Navel, and terminating in the *Meſentery*. See FOETUS, SECUNDINE, &c.

OMPHALOPTIC, in Optics, a Glaſs that is convex on both ſides, popularly call'd a Convex-Lens. See CONVEX-*Lens*.

ONANIA, and ONANISM, Terms ſome late Emperics have framed to denote the Crime of Self-pollution; mentioned in Scripture to have been practiſed by *Onan*, and puniſhed in him with Death. 'Tis the ſame with what in other places of Scripture, particularly *Levit.* ch. xx. is call'd *giving of Seed to Moloch*; for which the Puniſhment allotted is ſtoning to Death. See POLLUTION.

ONDEE, in Heraldry, ſee WAVY.

ONERANDO *pro rata Portionis*, a Writ which lies for a Joint-Tenant, or Tenant in Common, when diſtrain'd for more Rent than the Proportion of his Land comes to.

ONGLEE, is uſed by the *French* Heralds to denote the Talons or Claws of Beaſts or Birds, when of Colours different from the Body.

ONIROCRATIA, in Divination, the Art of Expounding Dreams. See DREAM, DIVINATION, &c.

It appears from ſeveral Paſſages of Scripture, that there was, under the *Jewiſh* Diſpenſation, ſuch a thing as foretelling future Events by Dreams; but then there was a particular Gift, or Revelation required for that purpoſe.

It ſhould ſeem hence, that Dreams are really ſignificative, and do forebode ſomething to come; and all that is wanting among us is the *Onirocratia*, the Art of knowing what: yet 'tis the Opinion of many, that Dreams are mere Chimera's; bearing, indeed, ſome Relation to what has paſs'd, but none to what is to come. As to the Caſe of *Joſeph*, 'twas poſſible for God, who knew all things, to diſcover to him what was in the Womb of Fate; and to introduce that, he might take the occaſion of a Dream: Not but that he might as well have foretold it from any other Accident or Circumſtance whatever. Unleſs God, to give the Matter more weight, ſhould purpoſely communicate ſuch a Dream to *Pharaoh*, in order to fall in with the popular Notions of Dreams and Divination, which then prevail'd among the *Egyptians*.

The word *Onirocratia* is form'd from the *Greek* ὀνέιρος, Dream, and κρατέω, I poſſeſs.

ONIROCRITIC, a Title given to Interpreters of Dreams, or thoſe who judge of Events from the Circumſtances of Dreams.

The Word is form'd from the *Greek* ὄνειρος, *Dream*, and κρισις, *Judgment*.

There is no great regard to be had to thoſe *Greek* Books call'd *Onirocritics*; nor do we know why the Patriarch of *Conſtantinople* and others ſhould amuſe themſelves with writing on ſo pitiful a Subject.

Rigault has given us a Collection of the *Greek* and *Latin* Works of this kind; one attributed to *Aſtrampſichus*, another to *Nicephorus* Patriarch of *Conſtantinople*; to which are added the Treatiſes of *Artemidorus*, and *Achmet*. But the Books themſelves are little elſe but Reveries; a kind of waking Dreams, to explain and account for ſleeping ones.

The Secret of *Onirocriticiſm*, according to them all, conſiſts in the Relation ſuppoſed to be between the Dream, and the Thing ſignify'd; but they are far from keeping to the Relations of Agreement and Similitude; and frequently have recourſe to others of Diſſimilitude, and Contrariety.

ONIX, or ONYX, in Natural Hiſtory, a precious Stone, accounted a Species of Opake Agat. See PRECIOUS *Stone*, AGAT, &c.

Its Colours are uſually white and black, which appear as diſtinct as if laid on by Art. There are ſome brought from *Arabia*, mix'd with a greyiſh Hue; which, after taking off one Lay or Zone, ſhew another underneath, of a different Colour. Whence it takes the Name *Memphites* or *Camebuia*, q. d. *another Stone*. White Zones or Girdles are eſſential to an *Onix*.

The Word *Onix*, in the *Greek* Language, ſignifies *Nail*; the Poets making this Stone to have been form'd by the *Parcæ*, from a Piece of *Venus's* Nails, cut off by *Cupid* with one of his Arrows.

Dioſcorides and *Galen* rank Alabaſter among the number of *Onix's*; tho' this is very remote from the Sentiment of the Moderns. See ALABASTER.

ONKOTOMY, in Chirurgery, the Operation of opening a Tumor, or Abſceſs; from the *Greek* ὄγκος, *Tumor*, and τέμνω, *I cut*. See TUMOR, &c.

ONOMANCY, or NOMANCY, the Art of divining the good or evil Fortune to befall a Man, from the Letters of which is his Name. See NAME.

Onomantia was a very popular and reputable Practice among the Antients: The *Pythagoreans* taught, that the Minds, Actions and Succeſſes of Men, were according to their Fate, Genius, and Name; and *Plato* himſelf ſeems ſomewhat inclinable to the ſame Opinion. *Auſonius* expreſſes it to *Probus*, thus:

> *Qualem creavit Moribus,*
> *Juſſit vocari* Nomine,
> *Mundi ſupremus Arbiter.*

Thus he plays with tippling *Meroe*, as tho' her Name told ſhe would drink mere Wine, without Water, or, as he calls it, *Merum Merum*. Thus *Hippolitus* was obſerved to be torn in pieces by his Coach-Horſes, as his Name imported; and thus *Agamemnon* ſignify'd he ſhould linger long before *Troy*. *Priam*, that he ſhould be redeem'd out of Bondage in his Childhood. Hitherto may be alſo referred that of *Claudius Rutilius*:

> *Nominibus certis credam decurrere Mores?*
> *Moribus aut potius Nomina certa dari?*

'Tis a frequent Obſervation in Hiſtory, that the greateſt Empires and States have been founded and deſtroy'd by Men of the ſame Name. Thus *Cyrus*, the Son of *Cambyſes*, begun the *Perſian* Monarchy; and *Cyrus*, the Son of *Darius*, ruin'd it. *Darius*, Son of *Hyſtaſpes*, reſtored it; and again, *Darius*, Son of *Arcanus*, utterly overthrew it. *Philip*, Son of *Amintas*, exceedingly enlarged the Kingdom of *Macedonia*; and *Philip*, Son of *Antigonus*, wholly loſt it. *Auguſtus* was the firſt Emperor of *Rome*, *Auguſtulus* the laſt. *Conſtantine* firſt ſettled the Empire of *Conſtantinople*; and *Conſtantine* loſt it wholly to the *Turks*.

'Tis an Obſervation of the like kind, that ſome Names are conſtantly unfortunate to Princes: As *Caius* among the *Romans*; *John* in *France*, *England*, and *Scotland*; and *Henry* in *France*.

One of the great Rules of *Onomancy* among the *Pythagoreans*, was, That an even Number of Vowels in a Name ſignify'd an Imperfection in the left Side of the Man; and an odd Number, in the right. Another Rule was, that thoſe Perſons were the moſt happy, in whoſe Names the Numeral Letters, added together, made the greateſt Sum; for which reaſon, ſay they, it was that *Achilles* vanquiſh'd *Hector*; the Numeral Letters in the former Name amounting, forſooth, to a greater Number than in the latter.

And it was doubtleſs from a Principle much of the ſame kind, that the young *Romans* toaſted their Miſtreſſes at their Meetings, as often as there were Letters in their Names. Thus *Martial*,

Nevia ſex Cyathis, ſeptem Juſtina libatur.

Rhodeginus deſcribes a ſingular kind of *Onomantia*: Thus *Theodotus*, King of the *Goths*, being curious to know the Succeſs of his Wars againſt the *Romans*; an *Onomantical Jew* order'd him to ſhut up a Number of Swine in little Styes, and to give ſome of them *Roman*, to others, *Gothic* Names, with different Marks to diſtinguiſh them; and there to keep them to a certain Day: which being come, upon inſpecting the Styes, they found thoſe dead, to whom the *Gothic*, and thoſe alive, to whom the *Roman* Names were given: Upon which the *Jew* foretold the Defeat of the *Goths*.

The Word *Onomantia* is form'd from the *Greek* ὄνομα, *Name*, and μαντεία, *Divination*. Indeed there is ſomething ſingular in the Etymology: for, in ſtrictneſs, *Onomancy* ſhould ſignify *Divination by Aſſes*; from ὄνος, *Aſinus*, and μαντεία. And to ſignify *Divination by Names*, it ſhould be *Onomatamancy*.

ONOMATOPÆA, in Grammar, *&c.* a Figure of Speech, whereby Names and Words are form'd to the Reſemblance of the Din or Sound made by the Thing ſignify'd; as *Tricque-Track*, from the Noiſe the Ladies make at this Game: And from the ſame Source ariſes the *Buzzing* of Bees, the *Grunting* of Hogs, the *Cackling* of Hens, the *Snoring* of People aſleep, the *Claſhing* of Arms, *&c.*

The ſureſt Etymologies are thoſe deduced by the *Onomatopæia*. See ETYMOLOGY.

The Word is form'd from the *Greek* ὄνομα, *Name*, and ποιῶ, *fingo*, I make, feign.

ONONYCHITES, ſomething that has the *Hoofs*, that is, the *Feet of an Aſs*: A Name the Heathens, in the firſt Century, gave the God of the Chriſtians, becauſe they owned and adored the ſame God with the *Jews*. Now 'twas a Notion, (howſoever it had its Riſe) as appears from *Cor. Tacitus*, *Hiſt. lib.* 5. *c.* 16. That the *Iſraelites*, much aſflicted with Thirſt, were led to a Spring by an Aſs going to drink; and that in gratitude for the Benefit, they worſhipped an Aſs; and that the Chriſtians did ſo likewiſe. See *Tertull. Apol.*

The Word is form'd from the *Greek* ὄνος, *Aſs*, and ὄνυξ, *Hoof*.

ONTOLOGY, or ONTOSOPHY, the Doctrine, or Knowledge *de Ente*, of Being, in the General, or Abſtract. See ENS.

Ontology coincides with what in the Schools we more uſually call *Metaphyſicks*. See METAPHYSICKS.

ONYCOMANCY, or as ſome have it, ONYMANCY, a kind of Divination by means of the Nails of the Fingers. See NAIL.

The antient Practice was to rub the Nails of a Youth with Oil and Soot, or Wax; and to hold up the Nails thus rubbed againſt the Sun. Upon them were ſuppoſed to appear Figures or Characters, which ſhew'd the Thing requir'd.

Hence, our modern Chiromancers call that Branch of their Art, which relates to the Inſpection of Nails, *Onycomancy*.

The Word is form'd from the *Greek* ὄνυξ, *Nail*, and μαντεία, *Divination*.

OPACITY, in Philoſophy, a Quality of ſome Bodies, which renders them *Opake*, *i. e.* impervious to the Rays of Light. See LIGHT.

The Term *Opacity* is uſed in oppoſition to Tranſparency. See TRANSPARENCY.

Opacity, according to the *Carteſians*, conſiſts in this, that the Pores of the Body are not all ſtrait, or directly before each other; or rather, not pervious every way.

But this Doctrine is deficient; for tho' it muſt be allow'd that to have a Body tranſparent, its Pores muſt be ſtraight, or rather, open every way: Yet how it ſhould happen, that not only Glaſs and Diamonds, but even Water, whoſe Parts are ſo very moveable, ſhould have all their Pores open and pervious every way; and at the ſame time, the fineſt Paper, or the thinneſt Gold Plate, ſhould exclude the Light for want of ſuch Pores, is inconceivable. So that another Cauſe of *Opacity* muſt be found.

Now, all Bodies have vaſtly more Pores or Vacuities, than are neceſſary for an infinite Number of Rays to find a free Paſſage thro them in right Lines, without ſtriking on any of the Parts themſelves. For ſince Water is nineteen times lighter, *i. e.* rarer, than Gold; and yet Gold itſelf is ſo very rare, that Magnetic Effluvia paſs freely thro' it without any oppoſition; and Quickſilver is readily receiv'd within its Parts, and even Water itſelf by Compreſſion, it muſt have much more Pores than ſolid Parts: Conſequently, Water muſt have at leaſt forty times as much Vacuity as Solidity. See PORE.

The Cauſe therefore why ſome Bodies are *opake*, does not conſiſt in the want of rectilinear Pores, pervious every way; but, either in the unequal Denſity of the Parts; or in the Magnitude of the Pores, and being either empty, or fill'd with a different Matter; by means whereof the Rays of Light, in their Paſſage, are arreſted by innumerable Refractions and Reflexions; till, falling at length on ſome ſolid Part, they become quite extinct, and are utterly abſorb'd. See RAY and REFRACTION.

Hence Cork, Paper, Wood, *&c.* are opake; while Glaſs, Diamonds, *&c.* are pellucid. For in the Confines, or joining of Parts alike in Denſity, ſuch as thoſe of Glaſs, Water, Diamonds, *&c.* among themſelves; there ariſes no Refraction or Reflection, by reaſon of the equal Attraction every way. So that ſuch of the Rays of Light as enter the firſt Surface, paſs ſtraight thro' the Body; excepting ſuch as are loſt and abſorb'd, by ſtriking on ſolid Parts. But in the bordering of Parts unequal in Denſity; ſuch as thoſe of Wood and Paper, both with regard to themſelves, and with regard to the Air or empty Space in their larger Pores, the Attraction being unequal, the Reflections and Refractions will be very great; thus the Rays will be unable to paſs thro' ſuch Bodies, being continually bandied about, till they become extinct. See ATTRACTION, *&c.*

That this Interruption, or Diſcontinuity of Parts, is the chief Cauſe of *Opacity*, Sir *Iſaac Newton* argues to appear hence, that all opake Bodies immediately begin to be tranſparent, when their Pores become fill'd with a Subſtance of equal, or almoſt equal Denſity with their Parts: Thus Paper dipt in Water or Oil, the Stone call'd *Oculus Mundi* ſteep'd in Water, Linnen Cloth dipt in Oil or Vinegar, and other Subſtances ſoak'd in ſuch Fluids as will intimately pervade their little Pores, become more tranſparent than before. On the contrary, the moſt tranſparent Subſtances, by emptying their Pores, or ſeparating their Parts, may be render'd very opake: Thus Salts, or wet Paper, or *Oculus Mundi*, by drying; Horn, by ſcraping; Glaſs, by pulverizing or flawing; and Water itſelf, by being beat into Bubbles or Froth, are render'd *Opake*.

Indeed, to render Bodies opake and colour'd, their Interſtices muſt not be leſs than of ſome determinate Size: For the moſt opake Bodies that are, if their Parts be very minutely divided, as when Metals are divided in Acid Menſtruums, become perfectly tranſparent. See COLOUR, TRANSPARENCY, *&c.*

OPAL, a precious Stone, of various Colours. See PRECIOUS *Stone*.

In it are ſeen the Red of the Ruby, the Purple of the Amethyſt, the Green of the Emerald; beſides Yellow, and ſometimes Black and White.

When the Stone is broke, moſt of theſe Colours diſappear; which ſhews that they ariſe by Reflection from one or two principal ones.

Its Form is always either round or oval; its prevailing Colour white. Its Diverſity of Colours makes it almoſt of equal Value with a Saphir or Ruby.

Tavernier ſays, perhaps ſomewhat too poſitively, that there are Mines of *Opal* in *Turkey*. Other Authors, antient and modern, ſay, *Cyprus*, *Arabia*, *Egypt*, *Bohemia*, and *Hungary*, produce it; whence it is diſtinguiſh'd into two kinds, *Oriental* and *Occidental*. 'Tis too ſoft to bear poliſhing with Pewter or Lead; ſo that they are obliged to poliſh it with *Tripoli*.

Pliny among the Antients, and *Porta* and *Albertus Magnus* among the Moderns, are very copious on the Virtues of the *Opal*; forſooth, becauſe it has the Colours of all the other precious Stones, it muſt have all their Virtues too. The Antients call'd it *Paideros*, from its promoting Love and Good-Will. *Pliny* and *Solinus* mention a Species of *Opal*, call'd *Execontalitha*, which had ſixty Colours.

Artificial OPAL. In the *Philoſoph. Tranſact.* Mr. *Colepreſſe* gives us an account of the manner of counterfeiting *Opal*, as practiſed at *Harlem*. He ſays, the Counterfeit is very lively, and thinks it only perform'd by the Degrees of Heat, which produce the Colours. When the Compoſition is melted, they take out ſome on the Point of an Iron Rod, which being cool'd either in the Air or Water, is colourleſs and pellucid; but being put into the Mouth of the Furnace on the ſame Rod, and there turn'd by the Hand for a little ſpace, hath its little Bodies ſo variouſly poſited in various Parts of the ſame Piece, that the Light falling on them, being variouſly modify'd thereby, repreſents the ſeveral Colours ſeen in the natural *Opal*. He adds, the Colours may be deſtroy'd and reſtored, according to the various Motions of its Particles by Heat.

OPALIA, or OPICONSIVA, Feaſts celebrated at *Rome*, in honour of the Goddeſs *Ops*. *Varro* ſays, they were held three days after the Expiration of the *Saturnalia*.

According to *Macrobius*, they were held the nineteenth of *December*, which was one of the Days of the *Saturnalia*. He adds, that theſe two Feaſts were celebrated in the ſame Month, becauſe *Saturn* and *Ops* were Huſband and Wife; and that it was to them we owe the Invention of Corn and Fruits: for which reaſon, the Feaſt was not held till the Harveſt and Fruit-time were intirely over.

Laſtly, he obſerves, that the Vows offer'd to the Goddeſs, were made ſitting on the Ground; to ſhew that ſhe was Earth, the Mother of all things.

OPENING *a Vein*, ſee Bleeding.

Opening *Flank*, in Fortification, is that part of the Flank which is cover'd by the Orillon. See Flank.

Opening *of Trenches*, is the firſt Breaking of Ground by the Beſiegers, in order to carry on their Approaches towards a Place. See Trench.

Opening *of Gates*, in Aſtrology, is, when one Planet ſeparates from another, and preſently applies to a third bearing Rule in a Sign oppoſite to that ruled by the Planet with which it was join'd.

OPERA, a Dramatic Compoſition ſet to Muſic, and ſung on the Stage; accompanied with muſical Inſtruments; and enrich'd with magnificent Dreſſings, Machines, and other Decorations.

Bruyere ſays, that 'tis eſſential to the *Opera* to keep the Mind, the Eyes, and Ears in an Enchantment: *S. Evremond* calls the *Opera* a chimerical Aſſemblage of Poetry and Muſic; where the Poet and Muſician each cramp the other.

The *Opera* we derive from the *Venetians*, among whom 'tis held one of the principal Glories of their Carneval. See Comedy.

While the *Engliſh* and *French* Comic and Tragic Theatres were forming, the *Venetians* invented the *Opera*: The Abbot *Perrin*, Introductor of Embaſſadors to *Gaſton* Duke of *Orleans*, was the firſt who form'd the Deſign of introducing 'em into *Paris*; and he obtain'd the King's Privilege for the ſame in *1669*. And it was not long e'er it paſs'd thence into *England*. The Spectator obſerves, that the *French* Muſic agrees with their Accent and Pronunciation, much better than the *Engliſh*; and are at the ſame time better calculated for the gay Humour of that People. See Recitative.

At *Rome* they have a kind of *Spiritual Opera's*, frequent in Lent; conſiſting of Dialogues, Duos, Trios, Ritornella's, Chorus's, *&c.* The Subject whereof is taken out of the Scripture, the Life of ſome Saint, or the like. The *Italians* call 'em *Oratorio*: The Words are frequently *Latin*; and ſometimes *Italian*.

OPERATION, in the general, the Act of exerting, or exerciſing ſome Power, or Faculty, upon which an Effect follows. See Power.

The nobleſt *Operation* of Man, is that by the Schoolmen call'd Vital, or Immanent, *viz.* the *Operation* of the Mind; which, with regard to the Underſtanding, is threefold; Apprehenſion or Perception, Diſcretion or Judgment, and Reaſoning or Diſcourſe. See Apprehension, Judgment, and Discourse. The directing of theſe makes the Object of Logic. See Logic.

With regard to the Will, the immanent *Operations* are Willing and Nilling; to which are refer'd Loving and Hating. See Will.

Operation, in Medicine, a methodical Action of the Hand, on the human Body; to re-eſtabliſh Health. See Chirurgery.

Bleeding is a very common, but at the ſame time a dangerous *Operation*. See Phlebotomy and Bleeding.

Trepanning is one of the fineſt *Operations* in Chirurgery. See Trepanning. The *Cæſarian Operation* is the cutting a Woman with Child, and drawing out the Child through one ſide. See Cæsarian.

The other Chirurgical *Operations*, are *Sutures*, *Tapping*, *Caſtrating*, *Cutting* for the Fiſtula, *Amputation*, *Extirpation*, *Cupping*, &c. See each in its Place in this Work.

Operation is particularly uſed in Medicine, for the Manner wherein any Remedy produces its ſalutary Effect; or that Series of Actions, mediate and immediate, whereby the remote End is effected. See Medicine.

See *the Operations of each Kind of Medicines under the proper Heads*, Specifics, Purgatives, Emetics, Opiates, *&c.*

Operations, in Chymiſtry, are the Proceſſes, or Experiments, by means whereof the proper Changes are produced in Bodies, and the Effects of the Art procured. See Chymistry.

Now, the Changes Chymiſtry produces in Bodies are reducible to two Kinds, *viz.* an Union of Parts, and a Separation thereof: Thus Chymiſtry either ſeparates Spirits, Salts, Oils, *&c.* or compounds 'em together.

A Chymical *Operation*, then, conſiſts in changing the Situation of the Parts; particularly, either in moving ſome Parts, but not the Whole, which is call'd *ſeparating*; or in adding new Parts, which is call'd *uniting*.

All Chymical *Operations*, therefore, are reducible to two Kinds, *viz.* ſuch whereby the Parts of Bodies before join'd or united, are ſeparated, which the antient Chymiſts call'd *Solution*; and ſuch whereby the Parts before diſ-joined are combined, or united, call'd *Coagulation*. See Solution and Coagulation.

Some, however, object Digeſtion as a third Species of *Operation*, not reducible to either of 'em: But *Boerhaave* ſhews, that it is a Compoſition of both. See Digestion.

Moſt Chymiſts, however, look on this Diviſion as ſcarce accurate and minute enough, and ſubdivide it into a number of particular, or ſubordinate *Operations*; as *Calcination*, *Vitrification*, *Diſtillation*, *Sublimation*, *Cobobation*, *Amalgamation*, *Fermentation*, *Putrefaction*, &c. See each in its Place, Calcination, Vitrification, Sublimation, Distilation, Fermentation, *&c.*

Operation, in Theology, is uſed for the Actions both of the Word, and the Man, in Jeſus Chriſt.

The Orthodox teach, that there are two *Operations* in Jeſus Chriſt, the one divine, the other human; and not one *Theandric Operation*, as was the Doctrine of the *Monothelites* and *Monophyſites*. See Theandric, *&c.*

OPERATOR, in Medicine, *&c.* a Perſon who *operates*, or works with the Hand, on the human Body, to preſerve, or reſtore, its Health.

Thus we ſay *Operator for the Stone*, meaning a *Lithotomiſt*, or a Perſon who cuts. See Lithotomy. *Operator for the Eyes*, a Perſon who couches Cataracts, *&c.* See Cataract. *Operator for the Teeth*, a Tooth-Drawer. See Tooth.

OPHITES, in Natural Hiſtory, a ſort of variegated Marble; otherwiſe call'd *Serpentine*. See Marble and Serpentine.

It is thus call'd from the *Greek* οφις, *Serpent*; by reaſon its Spots reſemble thoſe of that Animal.

Ophites is alſo a Sect of antient Heretics, who ſprung out of the *Gnoſtics*; ſo call'd from their worſhipping the Serpent that ſeduced *Eve*.

This Serpent, they taught, was inſtructed thoroughly in all Knowledge; and make it the Father and Author of all the Sciences. On which Principle they built a thouſand Chimera's; part of which may be ſeen in St. *Epiphanius*. See Gnostic.

They ſaid this Serpent was the Chriſt; that he was very different from Jeſus born of the Virgin, into whom, ſaid they, the Chriſt deſcended; and that 'twas this Jeſus, not the Chriſt, that ſuffered. Accordingly, they made all thoſe of their Sect renounce Jeſus.

The *Sethians*, or *Sethites*, mentioned by *Theodoret*, were either the ſame with the *Ophites*, or very little different from them.

OPHIUCHUS, in Aſtronomy, a Conſtellation of the Northern Hemiſphere; call'd alſo *Serpentarius*. See Serpentarius.

OPHTHALMIA, or Opthalmia, in Medicine, a Diſeaſe of the Eyes; properly, an Inflammation of the *Tunica Adnata*, or *Conjunctiva*; accompanied with a redneſs, heat, and pain. See Eye.

The *Ophthalmia* is either moiſt, or dry: In the firſt, there is a ſhedding of Tears; in the ſecond, none at all.

It ſometimes happens in the *Ophthalmia*, that the two Eye-lids are ſo diſtorted, that the Eye continues conſtantly open, without being able to ſhut; which is call'd χήμωσις; ſometimes the Eye-lids are ſo faſten'd together, that the Eye cannot be open'd, which is call'd φημωσις, *q. d.* cloſure of things that ſhould be open.

The immediate Cauſe of the *Ophthalmia*, is the Blood flowing in too great abundance in the little Veſſels of the *Adnata*, ſo as to ſtagnate therein, and diſtend them. The remote Cauſes are the ſame with thoſe of other Inflammations.

Celſus calls the *Ophthalmia*, *Lippitudo*, by reaſon of a Gum ſticking to the Eye-lids in this Diſeaſe, which the *Latins* call *Lippa*.

In Summer 'tis frequent to have Epidemic *Ophthalmia's*.

Snow apply'd to the afflicted Eye, is reputed a good Remedy for the *Ophthalmia*: The *Ephemerides* of the *Leopoldine* Academy mention an *Ophthalmia* cured by applying Cows-dung, while hot, between two linnen Clothes, to the Eye. A Fox's Tongue, and the Fat and Gall of a Viper, are emperical Preſervatives againſt the *Ophthalmia*.

The Word is form'd from the *Greek* ὀφθαλμος, Eye.

Pitcairn, and ſome others, diſtinguiſh an external and internal *Ophthalmia*; the firſt in the *Adnata*, which is that hitherto ſpoke of; the ſecond in the *Retina*. The Symptoms or Indications of the latter, are *Muſcæ volitantes*, Duſt ſeeming to fly in the Air, *&c.* See Muscæ, *&c.*

This, when inveterate, degenerates, or ends in a *Gutta Serena*, or *Amauroſis*. See Gutta *Serena*, &c.

The Cure of *Ophthalmia's*, according to the modern Practice, depends chiefly on the due repetition of Purgatives. If theſe fail, recourſe is had to Veſicataries, Iſſues, Setons, *&c.* Tho' *Pitcairn* prefers Bleeding; it being his Obſervation,

tion, that no Diſeaſe requires copious bleeding ſo much as the *Ophthalmia*.

OPHTHALMICS, Medicines proper for Diſeaſes of the Eyes; as *Ophthalmic* Waters, *Ophthalmic* Powders, Ointments, *&c.* See EYES.

There is an excellent *Ophthalmic* prepared of Sugar of *Saturn*.

The fifth Pair of Nerves of the Brain, dividing into three Branches; the firſt is call'd *Ophthalmic*, becauſe it goes to the Eye: This again ſubdivides into two Branches, after ſending out ſeveral Twigs which encompaſs the Optic Nerves, and are diſtributed in the *Choroides*. See NERVE.

OPHTHALMOGRAPHIA, that Branch of Anatomy which conſiders the Structure and Compoſition of the Eye; the Uſe of its Parts, and the principal Effects of Viſion. See EYE.

Our Countryman, Dr. *William Briggs*, has publiſhed an excellent *Ophthalmographia*, and *Plempius* another.

The Word is form'd from the *Greek* οφθαλμος, Eye; and γραφη, Deſcription.

OPHTHALMOSCOPIA, that Branch of Phyſiognomy which conſiders a Perſon's Eyes; to deduce thence the Knowledge of his Temperament, Humour, and Manners. See PHYSIOGNOMY.

OPIATE, in Medicine, any Compoſition wherein Opium is an Ingredient. See OPIUM.

The Word is frequently alſo apply'd to Confections, Antidotes, and Electuaries; tho ſome ſay 'tis only properly applicable to ſoft Compoſitions: In which ſenſe it is defined an internal Remedy, variouſly compoſed of Powders, Pulps, Liquors, Sugar, or Honey, reduced into a ſoft Conſiſtence. See CONFECTION, ELECTUARY, *&c.*

The *Opiate* of *Solomon* is a Compoſition of great Fame, ſo call'd from one *Solomon*, a Phyſician, its Inventor; and firſt publiſhed by *Laurence Joubert*.

There are a particular kind of *Opiates*, call'd *Incarnatives*, for the Teeth and Gums, made of Alum, Sumach, Lignum Aloes, Myrrh, Maſtic, *&c.* reduced into Powder.

OPIATES is alſo uſed in the general for all Medicines given with an Intention to procure Sleep; in which ſenſe the Word is of the ſame Import with Narcotics, Hypnotics, Soporifics, and Pacifics. See SLEEP, NARCOTIC, HYPNOTIC, *&c.*

The Operation of *Opiates*, or the manner wherein they produce their Effect in the Body, Dr. *Quincy* thus lays down:

All Pain is a Stimulus on the Part affected, and is attended with Contractions of the pained Membranes, which occaſion a greater Afflux than ordinary of the nervous Juice that way: On the other hand, Pleaſure, or a delightful Senſation in any part, is accompanied with a ſmooth Undulation, and eaſy Reflux of the nervous Juice towards the Brain. This is, as it were, the Entertainment of the Mind; with which being taken up, it doth not determine the Spirits to the Organs of Motion: that is, there is ſuch a Relaxation of the muſcular Fibres, and ſuch a Diſpoſition of the nervous Fluid, as is neceſſary to Sleep. See PAIN, *&c.*

Now, 'tis ſhewn that an agreeable Senſation produced in the Stomach, together with a diſtention of its Membranes, is the immediate Cauſe of that Sleepineſs, to which we are inclinable after Eating; the one engaging the Mind, the other acting on the Body. For Pleaſure amuſes the Soul, and the Fulneſs of the Veſſels in the Brain, checks and hinders, in ſome meaſure, the derivation of the nervous Juice into the Organs.

Now, to apply this; a moderate Doſe of an *Opiate*, uſually tranſports People with a pleaſing Senſation, to that degree, that, as they often expreſs themſelves, they are in Heaven; and tho they do not always ſleep, (which proceeds from the preſentation of pleaſing Images to the Mind ſo ſtrongly, that, like Dreams, they do over-engage the Fancy, and ſo interrupt the State of Reſt) yet they enjoy ſo perfect an Indolence and Quiet, that no Happineſs in the World can ſurpaſs the Charms of ſo agreeable an Extaſy.

Thus we have from theſe Medicines, but in a far more eminent degree, all thoſe Effects which are obſerved to follow upon that grateful Senſe in the Stomach, which a moderate Fulneſs produceth. For no Bodies are ſo fit and able pleaſingly to affect our ſenſible Membranes, as thoſe which conſiſt of volatile Parts, whoſe Activity is tempered and allay'd by the Smoothneſs of ſome which are lubricating and oily; for they lightly rarify the Juices of the Stomach, and cauſe a pleaſant Titillation of its nervous Coat, whereby there is induced an agreeable Plenitude, and the Mind is entertained with Ideas of Satisfaction and Delight.

And thus, we eaſily ſee upon what Mechaniſm the other Virtues of *Opiates* depend; for their eaſing Pains, checking Evacuations, *&c.* proceed not only from the Mind's being taken up with a pleaſing Senſe, whereby it is diverted from a diſagreeable one; but all Pain being attended with a Contraction of the Part, the Relaxation of the Fibres, which they cauſe, eludes and deſtroys the Force of the Stimulus.

Opiates are found to abate immoderate Secretions and Evacuations, which they do by removing that Irritation of the Organs, whereby they are occaſion'd. And herein lies the incraſſating Quality of thoſe Medicines, in that the twitching Senſe upon the Membranes of the Lungs, Bowels, *&c.* being leſſen'd, the ſharp Humour is ſuffer'd to lodge there in a greater Quantity, before it is ſo troubleſome as to be thrown off and expell'd; it being all one as if there were no Irritation of the Part, if the uneaſy Senſe thereof be not regarded by the Mind. And theſe Effects will all be heightned by the Mixture of the *Opiate* Particles with the Blood; which is hereupon rarify'd, and diſtends its Veſſels, eſpecially thoſe of the Brain; and this does ſtill, to a greater degree, leſſen the Influx of the nervous Fluid to the Parts, by preſſing upon the *Tubuli*, or little Canals, through which it is derived. Whence the reaſon of that Difficulty of breathing, which *Opiates* occaſion; this Symptom being inſeparable from the Rarefaction of the Blood in the Lungs.

OPINION, a probable Belief; or a doubtful, and uncertain Judgment of the Mind. See BELIEF.

Opinion may be ſtrictly defined the Aſſent of the Mind to Propoſitions not evidently true at firſt ſight; nor deduced, by neceſſary Conſequence, from others that are ſo; but ſuch as carry the Face of Truth. See TRUTH, and ERROR, alſo FAITH, *&c.*

The Schools define it, *Aſſenſus Intellectus cum formidine de oppoſito*; An Aſſent of the Underſtanding, with ſome fear or diſtruſt on the contrary part. Thus the Logicians ſay, that Demonſtration begets *Science*, or Knowledge; and probable Arguments beget *Opinion*. See KNOWLEDGE and PROBABILITY.

Wherever the Mind's Acquieſcence in a Truth propoſed to it, is accompanied with any Doubt, this is what we call an *Opinion*. See DOUBTING.

Plato makes *Opinion* a Medium between Knowledge and Ignorance; clearer and more expreſs than Ignorance; yet more obſcure and unſatisfying than Knowledge. See IGNORANCE.

OPISTHOTONOS, in Medicine, a kind of Convulſion, wherein the Body is bent backwards, ſo as to form, as it were, a Bow; in which ſenſe the Word is uſed in oppoſition to *Emproſthotonos*, wherein the Body is bent forwards. See CONVULSION.

The *Opiſthotonos* ariſes from a tonic Motion of the Muſcles of the poſterior Parts of the Body; eſpecially thoſe on the back of the Head.

The Word is compounded of the *Greek* οπισω, backward, behind, and τεινειν, *tendere*, to ſtretch, bend.

OPIUM, in Pharmacy, *&c.* a Juice drawn from the Head of the black Poppy, and afterwards inſpiſſated. See POPPY.

When the Juice flows of itſelf, thro' Inciſions made in the Poppy Heads, it is properly call'd *Opium*; when drawn by Expreſſion, it aſſumes the Name of *Meconium*. See MECONIUM.

The difference between the Qualities and Virtues of the two Juices, is very conſiderable: The former is preferable on all accounts; but it is exceeding rare; the *Turks*, among whom it is produced, and who make great uſe of it, never allowing it to be exported; ſo that it is the latter that is ordinarily uſed among us, and ſold for *Opium*.

'Tis moſtly brought from the *Levant* and *Cairo*; generally very impure; the *Levantines*, to ſhorten their Labour, and to have the more Juice, drawing it equally from the Heads and the Leaves of Poppies, by Expreſſion, and then reducing it to the thickneſs of an Extract by Fire.

It muſt be choſen dry, the ſmootheſt, and blackeſt poſſible, of a drowſy ſmell, and neither rugged, nor ſticky, nor all in a Maſs.

'Tis a popular Error, that there is any ſuch thing as *white Opium*; for tho' the Juice as it runs from the Heads of the Poppies be of a Milk-colour, it always becomes of a very deep brown as it thickens. Wherever it is found yellowiſh or ſoft, 'tis a ſign the Juice has not had Fire enough.

Prepared Opium is call'd *Laudanum*; of which there are two Kinds: the one, *Simple*; extracted by means of Rain-Water, and Spirit of Wine: The other *Compound*, call'd *Laudanum Opiatum*; wherein there enter ſeveral other Ingredients. See LAUDANUM.

The Uſes of *Opium* are to ſooth Pain, to excite Sleep, to ſtop Vomiting and Looſeneſſes. Its Doſe is from half a Grain to two Grains. Some Perſons, who have much habituated themſelves to it, can take 50 or 60 Grains. *Charas* ſays, he has taken 12 Grains himſelf; and adds, he knew one who made no ſcruple of 36. And in the *Philoſ. Tranſ.* we have an inſtance of one Mrs. *Lovelock*, who, in a Fever, in three days time, took 102 Grains.

It raiſes the Spirits, occaſions agreeable Senſations, and has much the ſame effect with Wine or ſtrong Spirits. The *Turks* ordinarily take to the quantity of a Drachm when they go to Battel, or undertake any Affair that requires Vigour and Force.

Opium ſtops, for a time, all Overflowings of Humours, Fluxes, Hemorrhages, &c. probably from the ſmoothneſs and roundneſs of its Parts, which by a kind of Titillation, oblige the Inteſtines, and other Veſſels to contract themſelves. See Opiates.

Willis, ~~*Sylvius*~~, and *Muller* look on *Opium* as a coagulating Poiſon, which fixes the Spirits in the Nerves. *Wepfer* and *Pitcairn*, on the contrary, maintain it to be a hot diſſolving Poiſon, which ſubtilizes the Blood, exalts and reduces it into Vapours, which bloat up the Arteries; and the bloated Arteries compreſſing the Veins and Nerves, ſhut up the Paſſage of the Spirits. See Poison.

By Analyſis, it is found to contain a great deal of volatile Salt.

The Word is form'd from the *Greek* ὀπὸς, Juice.

OPOBALSAMUM, in Pharmacy, a whitiſh Juice, Gum, or Reſin, diſtilling from the Branches of a Tree call'd *Balſamum*, or the *Balm-Tree*. See Balm.

'Tis whitiſh, pretty thick, tranſparent, of a Smell approaching Turpentine, but much more agreeable.

'Tis the ſame with the celebrated *Balſamum verum*, or Balm of the *Levant*; at leaſt the difference is not viſible, nor can Authors fix it. See Balm.

It obtains a Place among the Alexipharmics, and is a good Ingredient in the *Theriaca Andromachi*, and Mithridate; very ill ſupply'd with the expreſſed Oil of Mace for a Succedaneum, which does not at all come up to the ſubtilty and activity of its Parts, but is of a much heavier Texture.

This, as all other Balſams, is Suppurative, Deterſive, and Incarnating, apply'd outwardly to Tumors, Ulcers, or green Wounds. See Balsam.

OPOPANAX, or Opoponax, in Pharmacy, a Gum, yellow without-ſide, white within, fat, brittle, of an agreeable Taſte, and a very ſtrong Smell. See Gum.

The *Latins* call it *Panaces Herculeum*, from *Hercules*, who is ſuppos'd to have invented it, or rather who firſt diſcover'd its ſpecific Virtues. 'Tis one of the three celebrated *Panacea*, or univerſal Medicines, they attributed ſuch wonderful Virtues to. The two others are the *Aſclepium* and *Chironium*; the firſt found by *Eſculapius*, the ſecond by *Chiron*. See Panacea.

The Gum *Opoponax* flows by Inciſion from a Plant growing abundantly in *Achaia*, *Beotia*, *Phocis*, and *Macedonia*: while 'tis liquid, 'tis white; but as it dries and hardens, it aſſumes a beautiful golden yellow.

There are three Kinds imported; that in Tears; that in the Maſs; and that counterfeited, or flatted.

The firſt is the beſt, and the ſecond is the better, as it has the more Tears; the third is a rank Sophiſtication, and good for little.

It is little uſed internally; tho' *Etmuller* ranks it among Cathartics. Its chief Uſe is in the Cure of Wounds; whence it enters the Compoſition of the *Unguentum Divinum*, with the *Galbanum*, *Ammoniac*, and *Bdellium*.

The Word is form'd from the *Greek* ὀπὸς, *Juice*, and πάναξ, the Name of the Tree which yields it.

OPPILATION, in Medicine, the Act of obſtructing, or ſtopping up the Ducts, or Paſſages of the Body, by evil or peccant Humours. See Obstruction.

The Word is chiefly uſed for Obſtructions of the lower Belly.

Viſcid, heavy Foods, difficult of Digeſtion, are *oppilative*; don't paſs off well, but ſtop in the Mouths of the Veſſels.

OPPONENT, a Perſon who withſtands, or oppoſes another. See Opposition.

The Term is chiefly uſed in ſpeaking of Scholaſtic or Academic Diſputes or Exerciſes, where a Perſon who oppoſes a Theſis, or impugns it by his Objections, is call'd *Opponens*, Opponent.

OPPOSITES, *Oppoſita*, *ſimply*, among Logicians, are ſuch Things as differ among themſelves; ſo, as not to differ in like manner with ſome third. By which Circumſtance, *Oppoſites* differ from *Diſparates*.

The Schoolmen reckon four Kinds of *Oppoſites*; viz. *relatively*, *contrarily*, *privatively*, and *contradictorily Oppoſites*. For either, ſay they, the Oppoſition is between *Ens* and *Ens*, or between *Ens* and *Non Ens*: If the former, it is either with a dependant *Ens*, which makes a *relative* Oppoſition, the loweſt of all; or an independent one, which is a *contrary* one: If with a *Non Ens*, it is either with a *Non Ens ſecundum quid*, which is *privative*; or with a *Non Ens* ſimply, which is the higheſt Oppoſition. See Relative, Contrary, Privative, and Contradictory.

Opposites, *Oppoſita*, *complexly*, are Propoſitions that claſh with each other: As, Man is an Animal; and Man is not an Animal. See Opposition.

Opposite *Angles*. If a Line S T (Tab. Geometry, Fig. 46.) meet two other Lines, A P and B R, in different Points A and B, but in the ſame Direction; the Angles *u* and *y*, as alſo *z* and *y*, hereby form'd, are call'd *oppoſite Angles*; particularly, *u* the external *oppoſite Angle*, and *z* the internal *oppoſite Angle* of *y*.

Opposite *Cones*, or a *double Cone*, two ſimilar Cones, vertically *oppoſite*, and having the ſame common Axis. See Cone.

Opposite *Sections*, are the two Hyperbola's made by a Plane cutting both thoſe Cones.

If a Cone be cut by a Plane through its Vertex, and afterwards by a ſecond Plane parallel to the former; this latter Plane produced thro the *oppoſite Cone* will there make the *oppoſite Sections*. See Sections.

OPPOSITION, in Geometry, the Relation of two Things, between which a Line may be drawn perpendicular to both.

Opposition, in Logic, a Quality of Diſagreement, between Propoſitions that have the ſame Subject, and the ſame Attribute. See Proposition.

Oppoſition, is ſaid by Logicians to be either Complex, or Incomplex.

Incomplex, or *Simple* Opposition, is the Diſagreement of two things, which will not ſuffer each other to be in the ſame Subject: Thus Heat is oppoſed to Cold; Sight to Blindneſs, &c. Which *Oppoſition* has already been obſerved to be of four Kinds. See Opposite.

Complex Opposition, is defined by *Ariſtotle* to be the affirming, and denying the ſame Predicate of the ſame Subject, not taken equivocally for the ſame, according to the ſame, in the ſame manner, and at the ſame time: As *Socrates* is learned; and *Socrates* is not learned.

The later Schoolmen, deviating from their Maſter, define *Oppoſition* an Affection of the Enunciation, whereby two abſolute Propoſitions, the ſame Extremes being ſuppoſed in the ſame Order, and Number, and underſtood, without any ambiguity, of the ſame thing, oppoſe each other, either in reſpect of Quantity, or of Quality; or of both.

According to the former Definition, there are three Species of *Oppoſition*; *Contrary*, *Subcontrary*, and *Contradictory*: According to the ſecond, a fourth Species is admitted, *viz.* *Subaltern*.

To know how and wherein, Propoſitions are oppoſite, they muſt be compared in Quantity and Quality, all the ways they can be compared in. If they be oppoſite in Quality and Quantity; *i. e.* if the one be Affirmative, and the other Negative; the one Univerſal, the other Particular, they are ſaid to be *contradictory*; *v. gr.* No Pleaſure is allow'd; ſome Pleaſure is allow'd. See Contradictory.

If they be only oppoſite in Quality, and not in Quantity, they are call'd *Contraries*, if Univerſal; and *Sub-contraries*, if Particular; *v. gr.* All uſe of Wine is Evil; no uſe of Wine is Evil. Some Means of preſerving Reputation are allow'd; ſome Means of preſerving Reputation are not allow'd. See Contrary, &c.

If the Propoſitions be only oppoſite in Quantity, they are call'd *Subalterns*; *v. gr.* Every Man is liable to Sin; ſome Man is liable to Sin. But this laſt is no proper *Oppoſition*; inaſmuch as the univerſal Propoſition always includes the particular one.

Singular Propoſitions, which can only be oppoſed in Quality, are reducible to contradictory ones.

The eſſential Properties of Propoſitions conſider'd with regard to their *Oppoſition*; are, 1. That of two contradictory Propoſitions, there is one always true, and another falſe. 2. Two contrary Propoſitions can never be both true; but may be both falſe. 3. Sub-contrary Propoſitions may be all true at the ſame time; as happens when the Attribute is accidental to the Subject; but when it is eſſential to it, the one is true, the other falſe. 4. Subalterns may be either true or falſe at the ſame time; or the one may be true, the other falſe. If the Attribute be eſſential to the Subject, the ſubaltern Affirmatives are true, and the Negatives falſe; but if the Negatives deny the Subject an Attribute incompatible with the Subject, they will be both true. When the Attribute is accidental to the Subject, the univerſal Subaltern is ordinarily falſe, and the particular one true.

Opposition, in Rhetoric, a Figure, whereby two things are aſſembled together, which appeared incompatible; as when *Horace* ſays, a *wiſe Folly*.

In *Boubours*'s Notion, this Figure, which ſeems to deny what it eſtabliſhes, and contradicts itſelf in Appearance, is very Elegant.

Opposition, in Aſtronomy, is that Aſpect, or Situation of two Stars, or Planets, wherein they are diametrically oppoſite to each other, or 180° a-part. See Conjunction.

When the Moon is diametrically *oppoſite* to the Sun, ſo that ſhe ſhews her whole illumined Face; ſhe is ſaid, with regard to the Sun, to be in *Oppoſition*; and ſhe is then ſaid to be in her *Full*, and ſhines all Night long. See Phasis.

Eclip-

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Tab. OPTICKS.

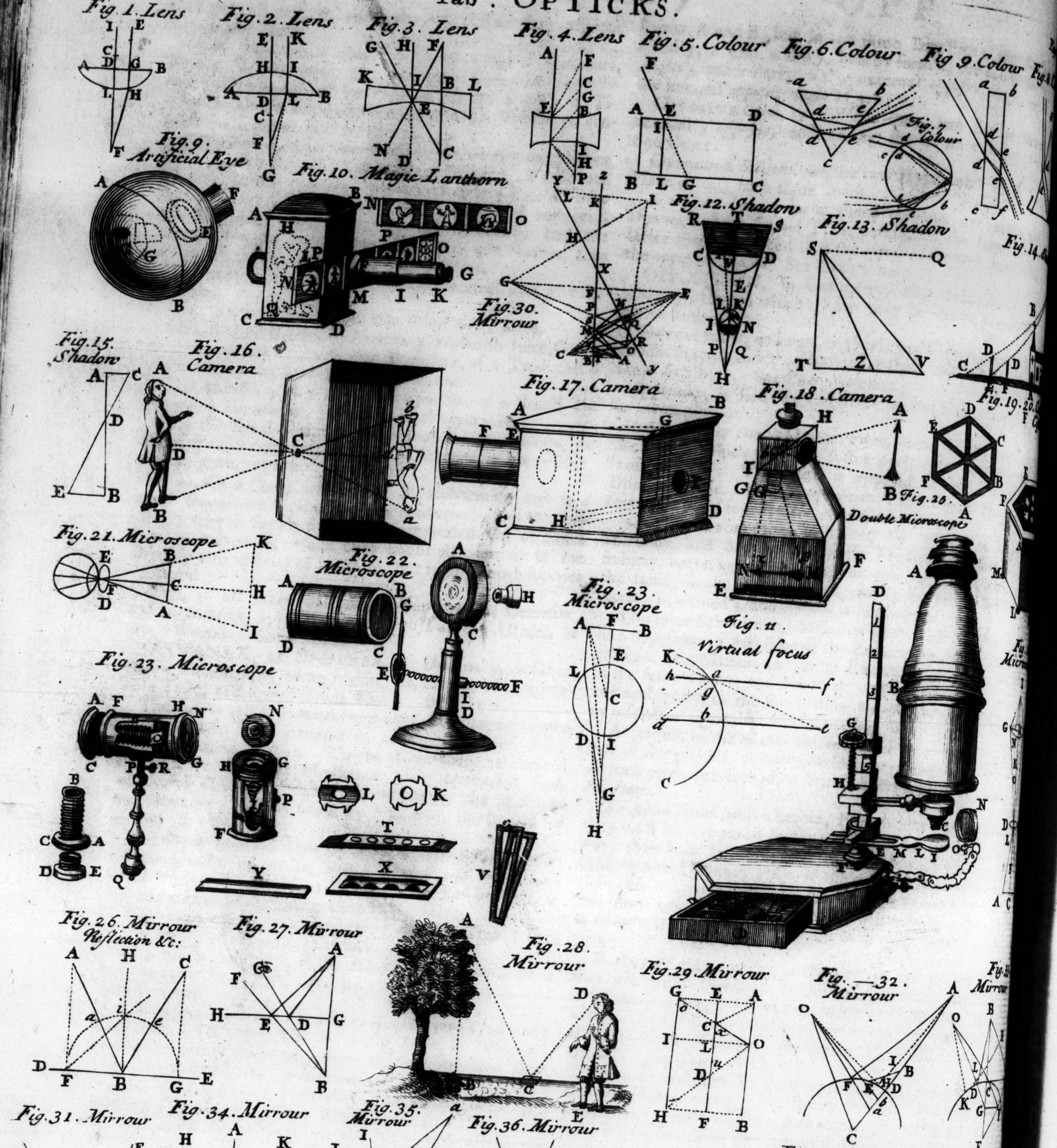

Fig. 1. Lens
Fig. 2. Lens
Fig. 3. Lens
Fig. 4. Lens
Fig. 5. Colour
Fig. 6. Colour
Fig. 9. Colour
Fig. 7. Colour
Fig. 9. Artificial Eye
Fig. 10. Magic Lanthorn
Fig. 30. Mirrour
Fig. 12. Shadow
Fig. 13. Shadow
Fig. 14.
Fig. 15. Shadow
Fig. 16. Camera
Fig. 17. Camera
Fig. 18. Camera
Fig. 19. 20.
Fig. 25.
Double Microscope
Fig. 21. Microscope
Fig. 22. Microscope
Fig. 23. Microscope
Fig. 11. Virtual focus
Fig. 23. Microscope
Fig. 26. Mirrour Reflection &c.
Fig. 27. Mirrour
Fig. 28. Mirrour
Fig. 29. Mirrour
Fig. 32. Mirrour
Fig. 31. Mirrour
Fig. 34. Mirrour
Fig. 35. Mirrour
Fig. 36. Mirrour
Fig. 37. Mirrour
Fig. 38. Mirrour
Fig. 38.
Fig. 40. Optical Inequality
Fig. 43. Telescope
Fig. 44. Telescope
Fig. 41. Telescope
Fig. 42. Telescope
Fig 34 Mirrour
Fig. 39. Pencil of Ra
Fig. 45. Rainbow
Fig. 46. Rainbow.
Fig. 45. Telescope

Fig.47 Rain-bow

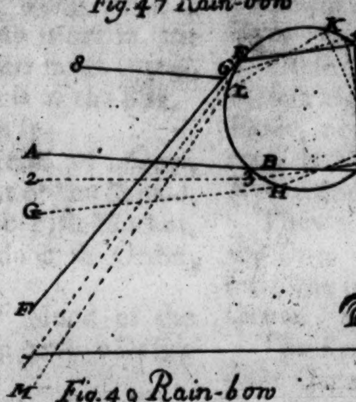
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Fig.48 Rain-bow

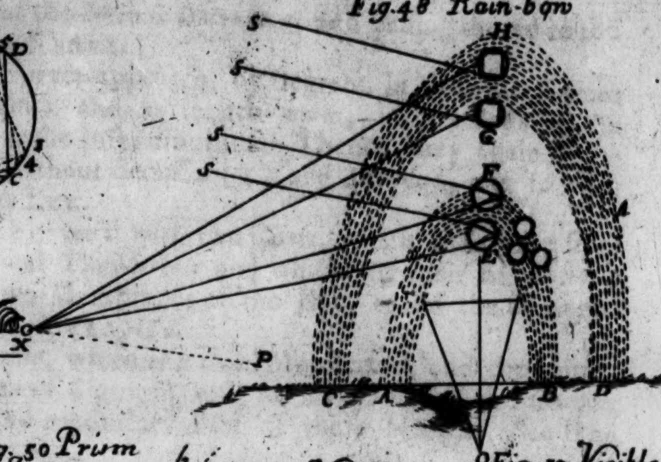
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Fig.49 Rain-bow

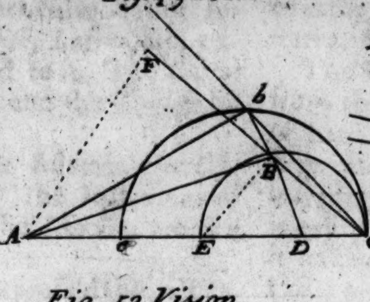

Fig.50 Prism

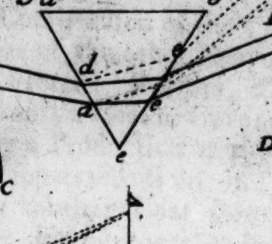

Fig.51 Visible

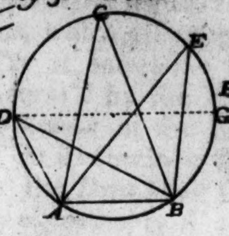

Fig.52 Visible

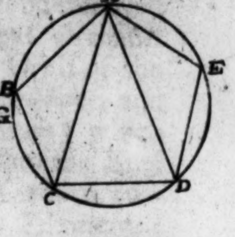

Fig.53 Vision.

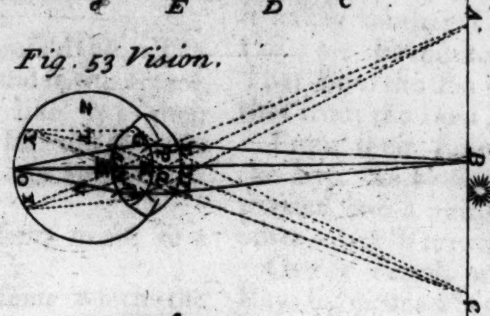

Fig.54 Reflection

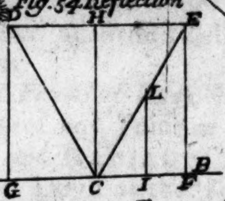

Fig.55 Reflexibility

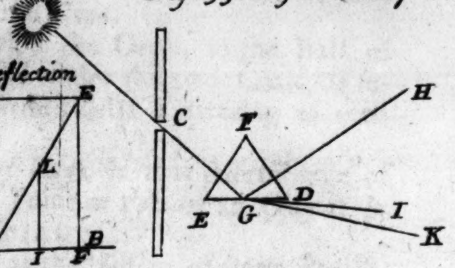

Fig.56 Refraction

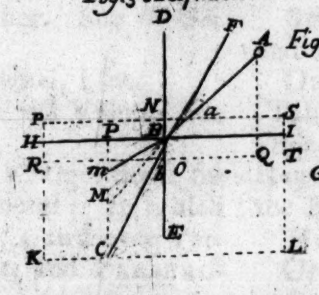
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Fig.57 Refraction

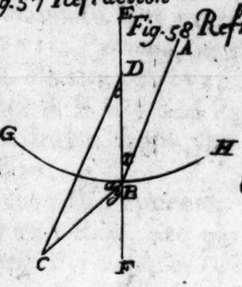

Fig.58 Refraction

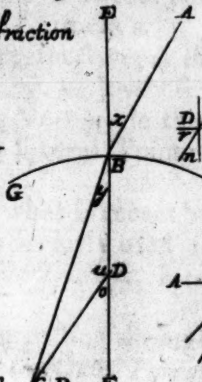

Fig.59 Refraction

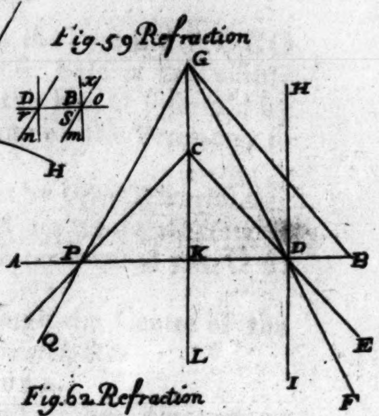
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Fig.60 Refraction

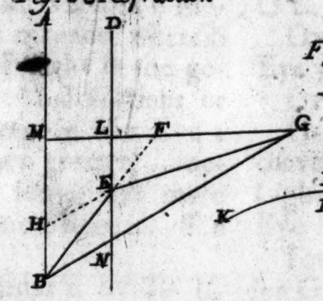
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Fig.61 Refraction

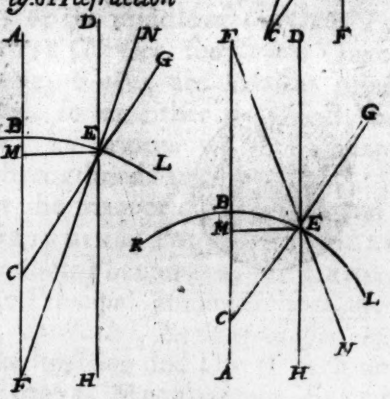
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Fig.62 Refraction

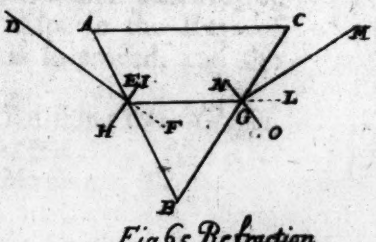
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Fig.63 Refraction

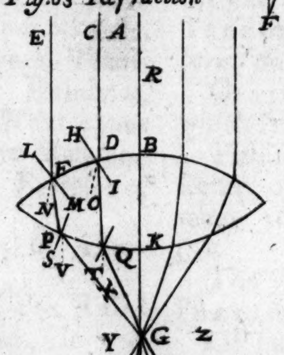
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Fig.64 Refraction

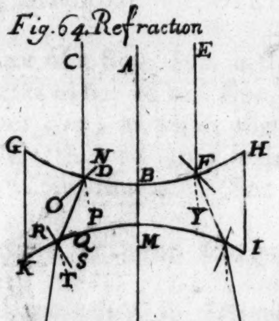
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Fig.65 Refraction

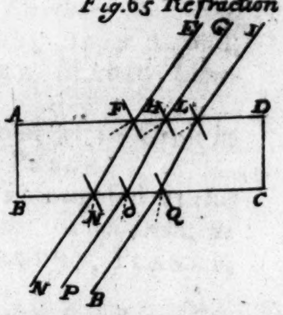
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Fig.66 Refrangibility

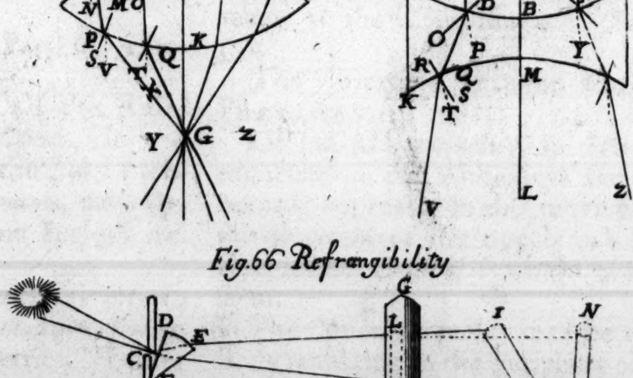
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Fig.67 Horopter

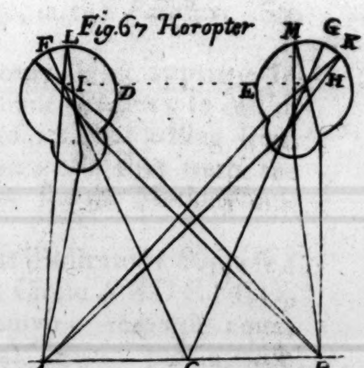
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Fig.68 Opticplace

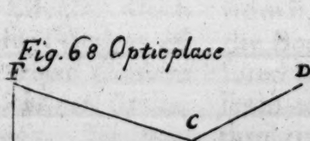


Fig.69 Optic Angle & apparent Magnitude

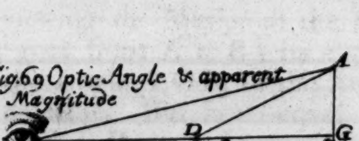


Fig.70 Polemoscope

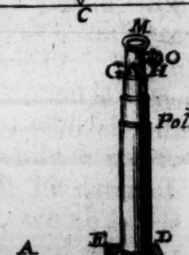


Fig.72 Polyhedron

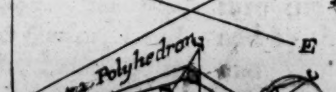
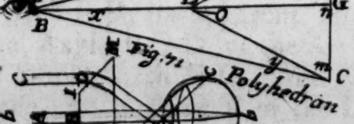


Fig.71 Polyhedron



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Eclipſes of the Moon never happen but when ſhe is in *Oppoſition* with the Sun, and when they both meet in the Nodes of the Ecliptic. See ECLIPSE. *Mars* in his *Oppoſition* to the Sun, is nearer the Earth than he is to the Sun.

OPPROBRII *Lapis*, ſee *Lapis* VITUPERII.

OPSONOMUS, in Antiquity, a Magiſtrate of *Athens*, whereof there were two, or three; choſen out of the Senate, or Council. Their Office was to inſpect the Fiſh-Market, and to take care that every thing were done in Order, and according to the Laws.

OPTATIVE, in Grammar, the third Mood of the Conjugations of Verbs, ſerving to expreſs an ardent Deſire or Wiſh for any thing. See MOOD.

Inſtead of a particular Mood, or a particular Set of Inflexions to expreſs this Deſire, the *Engliſh*, *Latins*, &c. expreſs it by an Adverb of Wiſhing prefix'd to it. The *Latins* by *Utinam*; the *French* by *Plût a Dieu*; and the *Engliſh* by *Would to God*, &c.

In theſe Languages, ſetting aſide the Adverb, the *Optative* is the ſame with the Subjunctive; the Inflexions of the Verb, which make what we call the Moods, are the ſame in both.

Indeed, in the *Greek*, the Wiſh is expreſs'd by a particular Inflexion, thence call'd *Optative*; and in the *French*, *Spaniſh*, and *Italian*, there is ſomething like it; their triple Tenſes ſerving the ſame purpoſes. But the *Optative* Mood may be ſafely retrench'd from the *Latin* and *Engliſh*. See SUBJUNCTIVE.

OPTERIA, among the Antients, Preſents made to a Child, the firſt time a Perſon ſaw it.

The Word was alſo uſed for the Preſents which the Bridegroom made his Bride when ſhe was conducted to him; this being the firſt time he ſaw her. See *Barthol. de Puerp. Vet.*

The Word is form'd from the *Greek* ὀφτομαι, I ſee.

OPTICS, is properly the Science of direct Viſion. See VISION.

Tho', ſometimes, the Word is uſed in a larger Senſe for the Science of Viſion, or Viſibles in general: In which Senſe it includes Catoptrics, and Dioptrics; and even Perſpective. See CATOPTRICS, DIOPTRICS, and PERSPECTIVE.

Optics in its more extenſive Acceptation, is a mix'd Mathematical Science, which explains the manner wherein Viſion is perform'd in the Eye; treats of Sight in the general; gives the Reaſons of the ſeveral Modifications or Alterations which the Rays of Light undergo in the Eye; and ſhews why Objects appear ſometimes greater, ſometimes ſmaller, ſometimes more diſtinct, ſometimes more confuſed, ſometimes nearer, ſometimes more remote. See LIGHT, EYE, &c.

In this extenſive Signification, it is conſider'd by Sir *Iſ. Newton* in his admirable Work call'd *Optics*.

Optics makes a conſiderable Branch of Natural Philoſophy; both as it explains the Laws of Nature, according to which Viſion is perform'd; and as it accounts for abundance of Phyſical Phenomena, otherwiſe inexplicable. For what can be determined about Light, Colours, Tranſparency, Opacity, Brightneſs, Meteors, the Rainbow, Parrhelia, &c. but on Principles of *Optics*? What about the Nature of the Stars? The Structure of the Mundane Syſtem? The Motions of the Planets? The Eclipſes of the Luminaries? &c.

Optics, therefore, make a conſiderable Part of Aſtronomy. See ASTRONOMY.

From *Optics* likewiſe ariſes *Perſpective*; all the Rules whereof have their Reaſon or Foundation in *Optics*. Indeed *Tacquet* makes Perſpective a part of *Optics*; tho' *John* Archbiſhop of *Canterbury*, in his *Perſpectiva Communis*, calls *Optics*, Catoptrics, and Dioptrics by the Name Perſpective. See PERSPECTIVE.

Euclid has wrote on the antient *Optics* and Catoptrics: Dioptrics were unknown to them. F. *Honorat. Fabri* has an Abridgment of *Optics*, Catoptrics, and Dioptrics. Father *Eſchinard* a Century of Problems in *Optics*. *Vitellio*, and *Albazon* have done well on the Principles of *Optics*. Father *Kircher* has a large Volume on the Secrets of *Optics*, of Light, and Shadow; and its ſurprizing Effects, which paſs on the People for Magic. We have alſo *l'Optique & Catoptrique* of F. *Merſenne*, *Paris* 1651. *Dioptrique Oculaire* of Fath. *Cherubin*, *Paris* 1671, Fol. *Chriſt. Scheineri Optica*, *Lond.* 1652. *Jacobi Gregorii Optica*, *Lond.* 1663. *Joh. Bap. Porta de Refractione Optices*. *Barrovii Lectiones Opticæ*, *Lond.* 1669. *Principe Generale de l'Optique*, by Mr. *Leibnitz*, in the *Leipſic* Acts, 1682. *L'Occhiale all' Occhio*, or *Dioptrica Practica*, *Carol. Ant. Mancini*, *Boulogne* 1660, 4°. *Phyſico-Matheſi, de Lumine, Coloribus & Iridi*, per F. *Mar. Grimaldi*, *Bononiæ* 1665, 4°. *Cogitationes Phyſico-Mechanicæ de Natura Viſionis*, per *Johan. Ott. Scaphuſam*, *Heidel.* 1670, 4°. And, who ought to have been named firſt, the great Sir *I. Newton*, in his *Optics*, *Engliſh* and *Latin*, 4°.

OPTIC-*Nerves*, the ſecond Pair of Nerves, ſpringing from the *Crura* of the *Medulla Oblongata*, and paſſing thence to the Eye. See NERVE.

Theſe Nerves approach, by degrees, in their receſs from their Origin; and at length meet, in the Baſis of the Brain, near the Infundibulum. Thence they again ſeparate, but without decuſſating; and proceed, one to each Eye. See EYE.

They are cover'd with two Coats, which they take from the *Dura* and *Pia Mater*; and which, by their Expanſions, form the two Membranes of the Eye, call'd the *Uvea* and *Cornea*. See UVEA, &c.

The *Retina*, which is a third Membrane, and the immediate Organ of Sight, is only an Expanſion of the fibrous, or inner, and medullary Part of theſe Nerves. See RETINA.

The Construction of the *Optic-Nerve* ſeems to be different from that of the other Nerves, which all appear to conſiſt of hard Fibres: For this, e'er it enters the Orbit of the Eye, is only a Coat or Cover form'd by the *Pia Mater*, and including a Production of the *Medulla* of the Brain; which is eaſily ſeparated from it. At its entrance into the Eye, it takes another Coat from the *Dura Mater*; which two Coats are bound together by exceedingly fine Filaments: That from the *Pia Mater* is continued in the *Choroides*, and that from the *Dura Mater* in the *Uvea*.

From their Entrance within the Orbit, to the Ball of the Eye, the *Medulla*, encloſed under the two Coats, is ſeparated into a number of little Cells anſwering to each other. See VISION.

OPTIC-*Pencil*, or *Pencil of Rays*, is that Aſſemblage of Rays by means whereof any Point or Part of an Object is ſeen. See PENCIL and RADIANT.

Some *Optic* Writers laugh at the Notion of *Optic-Pencils*, and maintain 'em mere Chimera's.

OPTIC-*Pyramid*, in Perſpective, is the Pyramid A B C O (Tab. PERSPECTIVE, *Fig.* 12.) whoſe Baſe is the viſible Object A B C; and its Vertex, in the Eye O; form'd by Rays drawn from the ſeveral Points of the Perimeter to the Eye.

Hence alſo appears, what is meant by *Optic Triangle*.

OPTIC *Rays*, are particularly uſed for thoſe wherewith an *Optic-Pyramid*, or *Optic-Triangle*, is terminated; as O A, O C, O B.

OPTIC *Axis*, is a Ray paſſing through the Centre of the Eye; or the middle of the *Optic-Pyramid*, &c.

OPTIC *Chamber*, ſee *Camera* OBSCURA.

OPTIC-*Glaſſes*, are Glaſſes ground either concave, or convex, ſo as either to collect, or diſperſe the Rays of Light; by means whereof Viſion is improved, and the Eye ſtrengthned, preſerved, &c.

For the manner of Grinding and Poliſhing *Optic-Glaſſes*, ſee GRINDING, POLISHING, GLASS, &c.

For their Phenomena, ſee LENS, MIRROR, &c.

The Principal among *Optic-Glaſſes*, are *Teleſcopes*, *Microſcopes*, *Spectacles*, *Reading-Glaſſes*, *Magic Lanthorns*, &c. See the Construction and Uſe of each under its proper Article, TELESCOPE, MICROSCOPE, SPECTACLE, MAGIC *Lanthorn*, &c.

OPTIC *Place* of a Star, &c. is that Point of its Orbit in which it appears to be, to our Eye. See PLACE.

This is either *true*; as when the Eye is ſuppoſed at the Centre of the Earth, or Planet it inhabits; or *apparent*, as when at the Circumference. See APPARENT, PLANET, &c.

The difference between the two, is the *Parallax*. See PARALLAX.

OPTICAL *Inequality*, in Aſtronomy, is an apparent Irregularity in the Motions of far diſtant Bodies; ſo call'd, becauſe not really in the moving Bodies, but ariſing from the Situation of the Spectator's Eye: So that were the Eye in the Centre, it would always ſee the Motions uniform.

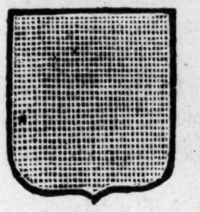
The *Optical Inequality* may be thus illuſtrated: Suppoſe a Body revolving in the Periphery of a Circle A B D E F G Q, (Tab. OPTICS, *Fig.* 40.) and moving through equal Arches AB, BD, DE, EF, in equal Times; and ſuppoſe the Eye in the Plane of the ſame Circle, but at a diſtance from it, viewing the Motion of the Body from O: When the Body goes from A to B; its apparent Motion is meaſured by the Angle A O B, or the Arch H L, which it will ſeem to deſcribe. But in an equal time, while it moves thro' the Arch B D, its apparent Motion will be determined by the Angle B O D, or the Arch L M, which is leſs than the former Arch H L. And when arrived at D, it will be ſeen at the Point M of the Line N L M. But it ſpends the ſame time in deſcribing D E, which is equal to A B or B D; and when arrived at E, is ſtill ſeen at M; appearing Stationary in all the Space from D to E. When it arrives at E, the Eye will ſee it in L; and at G, will appear at H; ſo that it will ſeem to have gone retrograde: And, laſtly, from Q to P, it will again appear Stationary.

OPTIMATES, in Antiquity. One of the Diviſions of the *Roman* People, was into *Optimates* and *Populares*.

According to *Tully*'s Deſcription, the *Optimates* were the beſt Citizens; or thoſe who deſir'd their Actions might be approved by the better Sort; and the *Populares* thoſe, who, out of a Thirſt of Vain-glory, did not ſo much conſider what was right, as what would pleaſe the Populace, and get an Intereſt in them. But others rather make the *Optimates* to be the vigorous Aſſertors of the Dignity of the Chief Magiſtrate, and the Sticklers for the Grandeur of the State; who cared not if the inferior Members ſuffer'd, if it were for the Advancement of the Commanding Powers: And the *Populares* thoſe who courted the Favour of the Populace, and encouraged them to demand larger Privileges, to bring Matters nearer to a Level.

OPTION, the Power, or Faculty of Wiſhing, or Chuſing; or the Choice a Perſon makes of any thing.

When a new Suffragan Biſhop is conſecrated, the Archbiſhop of the Province, by a cuſtomary Prerogative, claims the Collation of the firſt vacant Benefice, or Dignity, in that See, according as he ſhall chuſe; which Choice is call'd the Archbiſhop's *Option*.



OR, in Heraldry, *Yellow*, or the Colour of Gold. See COLOUR and METAL.

Without this, or Argent, there can be no good Armory.

In the Coats of Nobles, it is call'd *Topaz*; and in thoſe of Sovereign Princes, *Sol*. It is repreſented in Engraving by ſmall Points, or Dots, all over the Field, or Bearing; as in the Figure.

It is accounted the Symbol of Wiſdom, Temperance, Faith, Force, Conſtancy, *&c.*

ORACLE, an Anſwer, uſually couch'd in very dark and ambiguous Terms, ſuppos'd to be given by Dæmons of old; either by the Mouth of their Idols, or by thoſe of their Prieſts, to the People who conſulted them on Things to come.

In this ſenſe we ſay, the Prieſteſs was ever in a Rage when ſhe gave Oracles. *Ablancourt* obſerves, that the Study or Reſearch of the Meaning of *Oracles*, was but a heartleſs Thing; and that they were never underſtood till after the Accompliſhment. Hiſtorians relate, that *Cræſus* was trick'd by the Ambiguity and Equivocation of the *Oracle*:

Ibis redibis nunquam in bello peribis.

ORACLE is particularly uſed for the Dæmon who gave the Anſwer, and the Place where it was given. See DÆMON.

The principal *Oracles* of Antiquity are, that of *Aba*, mention'd by *Herodotus*; that of *Amphiaraus*; that of the *Branchydes* at *Didymus*; that of the Camps at *Lacedemon*; that of *Dodona*; that of *Jupiter Ammon*; that of *Nabarea*, in the City *Anarlaca*, near the *Caſpian* Sea; that of *Trophonius*, mention'd by *Herodotus*; that of *Chyſopolis*; that of *Claros* in *Ionia*; that of *Miletus*; that of *Mallos*; that of *Patarea*; that of *Pella* in *Macedonia*; that of *Phaſelides* in *Cilicia*; that of *Sinope* in *Paphlagonia*; that of *Orpheus*'s Head, mention'd by *Philoſtratus* in his Life of *Apollonius*.

But of all others, the *Oracle* of *Apollo Pythius* at *Delphos*, was the moſt celebrated; this was conſulted, *en dernier reſſort*, by moſt of the Princes of thoſe Ages. See PYTHIUS.

M. *Bayle* obſerves, that at firſt it gave its Anſwers in Verſe; and that it fell at length to Proſe, upon the People's beginning to laugh at the Poorneſs of its Verſification.

'Tis a pretty general Opinion among the more Learned, that *Oracles* were all meer Cheats and Impoſtures; either calculated to ſerve the avaritious Ends of the Heathen Prieſts, or the political Views of the Princes.

M. *Bayle* ſays poſitively, they were meer human Artifices, in which the Devil had no hand. He is ſtrongly back'd by *Van Dale*, and M. *Fontenelle*, who have wrote expreſly on the Subject.

There are two Points in diſpute on the Subject of *Oracles*, *viz.* whether they were human, or diabolical Machines: and whether or no they ceaſed upon the Publication or Preaching of the Goſpel.

Plutarch has a Treatiſe on the ceaſing of ſome *Oracles*; and *Van Dale*, a *Dutch* Phyſician, has a Volume to prove they did not ceaſe at the Coming of Chriſt; but that many of them ceaſed long before; and that others held till the fall of *Paganiſm*, under the Empire of *Theodoſius the Great*; when *Paganiſm* being diſſipated, theſe Inſtitutions could no longer ſubſiſt.

Van Dale was anſwer'd by a *German*, one *Mœbius*, Profeſſor of Theology at *Leipſic*, in 1685. M. *Fontenelle* eſpouſed *Van Dale*'s Syſtem, and improved upon it in his *Hiſtory of Oracles*; and ſhew'd the Weakneſs of the Argument uſed by many Writers in behalf of Chriſtianity, drawn from the ceaſing of *Oracles*.

F. *Malthus*, a learned Jeſuit, has anſwer'd both *Van Dale* and *Fontenelle*. He labours to prove that there were real *Oracles*, and ſuch as can never be attributed to any Artifices of the Prieſts or Prieſteſſes; and that ſeveral of theſe became ſilent in the firſt Ages of the Church, either by the Coming of Jeſus Chriſt, or by the Prayers of the Saints.

This Doctrine is confirm'd by a Letter from Father *Bouchet*, Miſſionary, to Father *Malthus*; wherein 'tis declared, that what Father *Malthus* ſays of the antient *Oracles*, is experimented every day in the *Indies*.

It ſeems, according to the Miſſionary, that the Devil ſtill gives *Oracles* in the *Indies*; and that, not by Idols, which would be liable to Impoſture; but by the Mouths of the Prieſts, and ſometimes of the By-ſtanders: 'tis added, that theſe *Oracles*, too, ceaſe, and the Devil becomes mute, in proportion as the Goſpel is preach'd among them.

'Twas *Euſebius* who firſt endeavour'd to perſuade the Chriſtians, that the Coming of Jeſus Chriſt had ſtruck the *Oracles* dumb; tho' it appears from the Laws of *Theodoſius*, *Gratian*, and *Valentinian*, that the *Oracles* were ſtill conſulted as low as the Year 385. *Cicero* ſays, the *Oracles* became dumb, in proportion as People, growing leſs credulous, began to ſuſpect them for Frauds.

Plutarch alledges two Reaſons for the ceaſing of *Oracles*: The one was *Apollo*'s Chagrin; who, it ſeems, took it in dudgeon to be interrogated about ſo many Trifles. The other was, that in proportion as the *Genii*, or Demons, who had the Management of the *Oracles*, died, and became extinct, the *Oracles* muſt neceſſarily ceaſe. He adds a third, and more natural Cauſe of the ceaſing of *Oracles*, *viz.* the forlorn State of *Greece*, ruin'd and deſolated by Wars. For, hence, the Smallneſs of the Gains, let the Prieſts ſink into a Poverty and Contempt, too bare to cover the Fraud.

Moſt of the Fathers of the Church took it to be the Devil that gave *Oracles*; and look'd on it as a pleaſure he took to give dubious and equivocal Anſwers; to have a handle to laugh at them. *Voſſius* allows, that 'twas the Devil who ſpoke in *Oracles*; but thinks that the Obſcurity of his Anſwers, was owing to his Ignorance as to the preciſe Circumſtances of Events. That artful and ſtudied Obſcurity, wherein the Anſwers were couch'd, ſhew'd the Embarraſs the Devil was under; as thoſe double Meanings they uſually bore, provided for their Accompliſhment. Where the Thing foretold, did not happen accordingly, the *Oracle*, forſooth, was miſunderſtood.

Euſebius has preſerv'd ſome Fragments of a Philoſopher, call'd *Oenemaus*; who, out of Reſentment for his having been ſo often fool'd by them, wrote an ample Confutation of all their Impertinences: "When we come to conſult
" thee, ſays he to *Apollo*, if thou ſeeſt what is in Futurity,
" why doeſt thou uſe Expreſſions that won't be underſtood?
" Doeſt thou not know that they won't be underſtood?
" If thou doeſt, thou takeſt pleaſure in abuſing us; if thou
" doeſt not, be inform'd of us, and learn to ſpeak more clearly.
" I tell thee, that if thou intendedſt an Equivoque, the
" *Greek* Word whereby thou affirm'd that *Cræſus* ſhould
" overthrow a great Empire, was ill choſen; and that it
" could ſignify nothing but *Cræſus*'s conquering *Cyrus*. If
" Things muſt neceſſarily come to paſs, why doeſt thou
" amuſe us with thy Ambiguities; what doeſt thou, Wretch
" as thou art, at *Delphos*; employ'd in muttering idle Prophecies!"

But *Oenemaus* is ſtill more out of humour with the *Oracle*, for the Anſwer which *Apollo* gave the *Athenians*, when *Xerxes* was about to attack *Greece* with all the Strength of *Aſia*. The *Pythian* declar'd, that *Minerva*, the Protectreſs of *Athens*, had endeavour'd in vain to appeaſe the Wrath of *Jupiter*; yet that *Jupiter*, in complaiſance to his Daughter, was willing the *Athenians* ſhould ſave themſelves in wooden Walls; and that *Salamine* ſhould behold the Loſs of a great many Children, dear to their Mothers, either when *Ceres* was ſpread abroad, or gather'd together.

Here *Oenemaus* loſes all patience with the God of *Delphos*: "This Conteſt, ſays he, between Father and Daughter,
" is very becoming the Gods. 'Tis excellent, that
" there ſhould be contrary Inclinations and Intereſts in Heaven.
"——Pure Wizzard, thou art ignorant whoſe the Children
" are, that *Salamine* ſhall ſee periſh; whether *Greeks*
" or *Perſians*. 'Tis certain, they muſt be either one or the
" other; but thou neededſt not have told ſo openly, that
" thou kneweſt not which. Thou concealeſt the Time
" of the Battle under thoſe fine poetical Expreſſions,
" *Either when* Ceres *is ſpread abroad, or gather'd together*:
" And wouldſt thou bambouzle us with ſuch pompous Language?
" Who knows not that if there be a Sea-fight, it
" muſt either be in Seed-time or Harveſt? 'tis certain it
" cannot be in Winter. Let Things go how they will,
" thou wilt ſecure thyſelf by this *Jupiter*, whom *Minerva* is
" endeavouring to appeaſe. If the *Greeks* loſe the Battle,

Jupiter prov'd inexorable to the laſt; if they gain it, why then *Minerva* at length prevail'd."——

ORACLES *of the Sibyls*, ſee SIBYLLINE *Oracles*.

ORAL, ſomething deliver'd by the Mouth or Voice.

In this ſenſe we ſay, *Oral Tradition*, &c. See TRADITION.

ORANGE, a Fruit, too well known to need a particular Deſcription; yet yielding too many Kinds of Merchandize, o be paſs'd over.

The *Latins* call it *Aurantium* or *Malum aureum*, Golden Apple, from its Colour.

Oranges are ordinarily brought from *Nice*, *Ciouta*, the Iſles of the *Hieres*, *Genoa*, *Provence*, *Portugal*, the *American* Iſlands, and even *China* and the Coaſts of *India*.

They were firſt brought into *Europe* from *China*, by the *Portugueſe*; and 'tis ſaid the very Tree, whence all the *European Orange*-Trees were produc'd, is ſtill preſerv'd at *Liſbon*, in the Houſe of the Count *S. Laurent*.

Thoſe moſt eſteem'd, and that are made Preſents of as Rarities, in the *Indies*, are no bigger than a Billiard-Ball; when ſweeten'd with a little Sugar, they are eſteem'd excellent for Diſorders of the Breaſt.

Oranges are ordinarily comfited in Halfs and Quarters. They are firſt peel'd, then ſcoop'd and dry'd in a Stove.

Orangeat is the *Orange*-Peel cut in pieces and candied. *Italy* furniſhes a great deal of Flower of *Oranges*, either dry or liquid.

The Water of Flower of *Oranges*, call'd *Water of Napha*, comes moſtly from *Provence*. To be good, it muſt be very bitter, and not above a Year old.

There are various Oils drawn from *Oranges*: The Oil of *Neroli* is the Produce of the Flowers by Diſtillation. That drawn from the Skin by Water and an Alembic, is altogether as good. There is alſo an Oil drawn from little *Oranges*, or *Orangelettes*, by ſteeping them five or ſix Days in common Water, and diſtilling them with the ſame Water in an Alembic. Theſe Oils are all eſteem'd good for deſtroying of Worms in Children; but are very apt to be ſophiſticated with Oil of Ben, or that of ſweet Almonds.

ORANGEADE, a Drink made of *Orange*-Juice, Water, and Sugar.

Lemery ſays, it may be given to People in the height of a Fever.

ORANGE *Colour*, is a Colour that partakes equally of Red and Yellow; or is a Medium between the two. See COLOUR.

In Heraldry, the Term *Orange* is given in Blazon to all Roundles that are *Tenne* or *Tawney*.

ORANGERY, a Gallery in a Garden, or Parterre; expos'd to the South; but well cloſed with a Glaſs Window, to preſerve the Oranges in, during the Winter Seaſon.

Orangery is alſo uſed for the Parterre, where the *Oranges* are expos'd in kindly Weather. The *Orangery* of *Verſailles* is the moſt magnificent that ever was built.

ORATION, a Speech, or Harangue, framed according to the Rules of Oratory; and ſpoke in public. See ORATORY.

All the Kinds of *Orations* may be reduc'd to three Heads: *viz.* the *Demonſtrative*, the *Deliberative*, and the *Judicial*.

To the demonſtrative Kind belong, *Panegyrics*, *Genethliaca*, *Epithalamia*, *Epicedia*, *Euchariſtiæ*, *Epinecia*, and *Congratulations*. See PANEGYRIC, GENETHLIAC, *&c.*

To the deliberative Kind belong, *Perſuaſion*, *Diſſuaſion*, *Exhortation*, and *Commendation*.

To the judicial Kind belong, *Accuſation*, *Confirmation*, *Confutation*, &c. *See each under its proper Article*, CONFIRMATION, *&c.*

ORATORY, the Art of ſpeaking well; the ſame with Rhetoric: the difference between the two being only in the Names; the firſt of which is *Latin*, the other *Greek*. See RHETORIC.

ORATORY is alſo uſed among the *Romaniſts*, for a Cloſet, or little Apartment, in a large Houſe, near a Bed-Chamber, furniſh'd with a little Altar, or an Image, for private Devotion.

The antient *Oratories* were little Chappels, adjoining to Monaſteries, wherein the Monks ſaid their Prayers e'er they had any Churches. Several little Councils and Synods have condemn'd the Uſe of private *Oratories*. See CHAPPEL.

In the VIth and VIIth Centuries, *Oratories* were little Churches, frequently built in Church-yards; without either Baptiſtery, Cardinal Prieſt, or any public Office; the Biſhop ſending a Prieſt to officiate occaſionally.

ORATORY is alſo uſed for a ſort of Society, or Congregation of devout Perſons; who form a kind of Monaſtery, and live in Community; but without being oblig'd to make any Vows: Thus,

Prieſts of the ORATORY, are a Community of Secular Prieſts, who live together in a Monaſtic Manner, but without any Vows; firſt eſtabliſh'd at *Rome*, about the Year 1590, by S. *Philip Neri*, a *Florentine*, under the Title of *Oratory* of *Sancta Maria in the Valicella*.

On the Model of this, the Cardinal *Berulle* eſtabliſh'd a Congregation of the *Oratory of Jeſus* in 1612, in *France*; which has ſince increas'd: ſo that there are now 60 Houſes of *Prieſts of the Oratory*.

There is ſome difference, however, between the *Italian*, and *French* Inſtitutions: S. *Philip Neri*, to prevent the Confuſion which the great Number of Houſes uſually occaſion in Congregations; would have his to be a ſingle Houſe. And tho' others were at liberty to form the like Congregations, yet they ſhould have no Dependance on one another.

For this reaſon, the Houſes of the *Oratory* in *Italy* and *Flanders* are all Independent; whereas thoſe in *France* have a Relation to each other, and all depend on the ſame Chief, who has the Quality of Superior General; and, with three Aſſiſtants, governs the whole Congregation. See CONGREGATION.

ORB, ORBIS, in Aſtronomy, a Spherical Body, or Space, contain'd under two Superficies; the one Concave, the other Convex. See SPHERE.

The antient Aſtronomers conceiv'd the Heavens, as conſiſting of ſeveral vaſt, azure, tranſparent *Orbs*, incloſ'd in one another: Or vaſt Circles, which in their Area include the Bodies of the Planets; the Radii whereof are compriz'd between the Centre of the Earth, and the higheſt Point to which the Planet riſes; ſuppoſing the Earth to be in the Centre. See HEAVENS.

There are *Orbs Concentric*, *i. e.* having the ſame Centre; and *Orbs Excentric*. See CONCENTRIC, *&c.*

The *Magnus Orbis*, or *Great Orb*, is that wherein the Sun is ſuppos'd to revolve; or rather that wherein the Earth makes its annual Circuit. See ORBIT.

ORB, in Aſtrology. An *Orb* of Light is a certain Sphere or Extent of Light, which the Aſtrologers allow a Planet beyond its Centre.

They ſay, that provided the Aſpects do but fall within this *Orb*, they have almoſt the ſame effect, as if they pointed directly againſt the Centre of the Planet. See ASPECT.

The *Orb* of *Saturn*'s Light they make to be 10 Degrees; that of *Jupiter* 12. that of *Mars* 7°, 30′. that of the *Sun* 17°. that of *Venus* 8°. that of *Mercury* 7°. that of the *Moon* 12°, 30′.

ORBICULARE *Os*, *Orbicular Bone*, in Anatomy, is one of the Bones of the inward Ear; tied by a ſlender Ligament to the Sides of the Lobes of the Ear; and named from its Figure, which is round. See EAR.

It was firſt diſcover'd by *Fran. Sylvius*: Its Uſe is in the Extenſion and Relaxation of the Tympanum. See TYMPANUM.

ORBICULARIS, or *Conſtrictor Labiorum*, in Anatomy, is one of the Muſcles of the Lips. See CONSTRICTOR.

The *Orbicularis* is ſingle; its Fibres make a Ring about the Mouth, and ſerve to conſtringe and draw up the Lips, and by that means to ſhut the Mouth, *&c.* It alſo ſerves to advance, or ſtretch them outwards; and has the chief part in the Action of Kiſſing. Whence it is alſo call'd *Oſculatorius*, or the Kiſſing Muſcle.

Verheyen will not have it one Muſcle, but a Pair, whoſe Fibres meet, and join at both Corners of the Mouth; tho' other Authors are unanimous in making it ſingle, and call it a *Sphincter*. See SPHINCTER.

ORBICULARIS, or *Deprimens Palpebrarum*, is a Muſcle ſpringing from each Corner of the Eye, and anſwer'd by another of like Figure and Structure in the lower Eye-lid; which are thereſore often conſider'd as one *Orbicular* Muſcle. See EYE-LID.

Its Fibres inviron the Eye-lids, and are inſerted into 'em, not unlike the Sphincters of other Parts. It is faſten'd to that part of the Margin of the Orbit, towards the Noſe, made by the fourth Bone of the upper Jaw.

ORBIT, in Aſtronomy, the *Path* of a Planet or Comet; or the Line deſcrib'd by its Centre in its proper Motion in the Heavens. See PLANET, *&c.*

The Sun's, or rather the Earth's *Orbit*, is the Curve which it paſſes along in its annual Revolution; call'd the *Ecliptic*. See ECLIPTIC.

The *Orbit* of the Earth, and that of all the primary Planets, is an Ellipſis; in one of whoſe Foci, the Sun is placed; in which Ellipſis they move according to this Law, that a Radius drawn from the Centre of the Sun to the Centre of the Planet, always deſcribes Areas proportional to the Times. See EARTH, SUN, *&c.*

The antient Aſtronomers made the Planets deſcribe circular *Orbits*, with an uniform Velocity. *Copernicus* himſelf could not believe they ſhould do otherwiſe; *Fieri nequit*, ſays he, *ut Cæleſte corpus ſimplex uno Orbe inequaliter moveatur.* So that to account for their Inequalities, they were obliged to have recourſe to Eccentrics and Epicycles; from the embarraſs whereof, *Copernicus* himſelf could not entirely diſintangle himſelf. See EPICYCLE, *&c.*

But after him came Aſtronomers, who, with a little more Phyſics, have made no difficulty of changing theſe circular *Orbits* into Elliptic ones; and of making 'em move with different Velocities in different Parts thereof.

Of theſe Elliptic *Orbits*, there have been two kinds aſſign'd: The firſt, that of *Kepler*, which is the common Ellipſis; to which *Seth Ward*, tho' he himſelf keeps to it, thinks one might venture to ſubſtitute circular *Orbits*, by uſing two Points taken at equal Diſtances from the Centre on one of their Diameters, as they do in the Foci of the Ellipſis. The ſecond is that of M. *Caſſini*; whoſe Character is this, that the Products of the right Lines drawn from each Point of its Circumference are every where equal; whereas in the common Ellipſis, 'tis the Sum of thoſe right Lines that is always the ſame. See ELLIPSIS.

M. *Varignon* ſhews how inconſiſtent *Copernicus*'s Sentiment is with the Mechaniſm of the Heavens: Since the Forces which Planets have to retain 'em in their *Orbits*, muſt almoſt always conſpire to make 'em move with really different Velocities; and that among an infinity of Caſes, there is but one wherein they can move uniformly.

The Semi-diameter of the Earth's *Orbit*, Dr. *Gregory* makes 94,696,969 Miles *Engliſh*; and the Semi-diameter of *Saturn's Orbit* about 10 times as great.

The *Orbits* of the Planets are not all in the ſame Plane as the Ecliptic, or the Earth's *Orbit* round the Sun; but variouſly inclined to it, and to one another. But ſtill the Plane of the Ecliptic interſects the Plane of the *Orbit* of every Planet in a right Line, which paſſes through the Sun. See INCLINATION.

The Quantities of the Inclinations of the Planes of the *Orbits* of the primary Planets to that of the Ecliptic, are as follow: That of *Saturn*, is an Angle of 2 Degrees $\frac{1}{2}$: That of *Jupiter*, an Angle of 1 Deg. 20 Min. That of *Mars* is almoſt 2 Deg. *Venus* is a little more than 3 Deg. 20 Min. And that of *Mercury* a little more than 7 Degr. See SATURN, MARS, VENUS, &c.

The *Orbits of Comets*, *Caſſini* takes to be Rectilinear; but Dr. *Halley*, from Sir *Iſaac Newton*'s Theory, ſhews them to be parabolical, having the Sun in one of their Foci. See COMET.

ORBITS, in Anatomy, the two large Cavities, wherein the Eyes are plac'd. See EYE.

Their Figure is pyramidal: They are form'd of ſix ſeveral Bones; and are perforated at bottom, to give paſſage to the Optic Nerves.

ORBITER, in Anatomy, a Name ſometimes given to two Holes or Cavities, either from their Reſemblance of, or Nearneſs to, the Orbits of the Eyes.

The *Orbiter Externus*, is the Hole in the Cheek-Bone below the Orbit.

The *Orbiter Internus*, is a Hole in the Coronal-Bone of of the Scull, within the Orbit. See CORONAL.

ORCHARD, a Seminary or Plantation of Fruit-Trees, chiefly Apples. See FRUIT-*Tree*.

'Tis a Rule among Gardeners, that thoſe *Orchards*, *cæteris paribus*, thrive beſt, which lie open to the South, South-Weſt, and South-Eaſt; and are ſcreen'd from the North: the Soil dry, and deep.

Orchards are ſtock'd by Tranſplantation; ſeldom by Semination. See PLANTING, NURSERY, &c.

The Seaſon for tranſplanting Apple-Trees into *Orchards*, is in the Months *October* and *November*. If the Leaves be not all off at the time they are remov'd, they muſt be pull'd off. They are likewiſe to be prun'd. Trees may be tranſplanted into *Orchards* after three Years Grafting; and ought not to be ſet at a leſs diſtance than eight Yards, nor greater than fourteen: And the richer the Land, the greater the Diſtance.

The Trees are tranſplanted to beſt purpoſe, when young; for Trees ten or twelve Years old, a narrow Trench muſt be dug the *November* before, deep enough to meet the ſpreading Roots, at ſuch a diſtance all around the Tree, as the Roots are to be cut off at. In making the Trench, the Roots to be cut off clean, and without ſplitting or bruiſing the Bark, and the Trench fill'd up again. This will enable the Tree, upon Removal, to draw more Nouriſhment than otherwiſe it would, and ſo thrive better in its new Manſion. See TRANSPLANTATION, INOCULATION, ENGRAFTING, &c.

The Side-Branches of all tall *Orchard Fruit-Trees*, are to be cut off till the Tree be arriv'd at the height deſir'd. If the Tree be to ſpread low, ſome are to be left on each Side; ſo as to form a kind of Balance. For the firſt three Years, at leaſt, they muſt not grow thick and buſhy-headed; this muſt be prevented, by cutting off ſome of the inſide Shoots, and ſuch as grow croſs each other, or pendant. See PRUNING.

The Soil, if not rich enough, is to be amended in two or three Years; by opening it around the Tree, and on the outſide the Ground firſt dug, when the Tree was ſet; and in a Month's time filling it up again with a proper Compoſt or Manure. See MANURE; ſee alſo PRUNING and COMPOST.

ORCHESTRA, in the Drama, the lower part of the antient Theatre; made in form of a Semi-Circle, and ſurrounded by the Seats. See THEATRE.

It was ſo call'd, becauſe in the *Grecian* Theatres it was a Place where they kept their Balls; from ὀρχεῖσθαι, which ſignifies *to dance*.

The *Orcheſtra* among the *Greeks* made a part of the Scene; but on the *Roman* Theatres, none of the Actors went down to the *Orcheſtra*, which was taken up with Seats for the Senators; anſwering nearly to the *Pit* in our Theatre. See SCENE, &c.

ORDEAL, or ORDAEL, or ORDEL *Purgation*, a Form of Tryal, *i. e.* of evincing Innocence or Guilt; practis'd in *England* in the time of *Edward the Confeſſor*, and ſince, as low as King *John* and King *Henry* III. See TRYAL.

It was call'd *Purgatio Vulgaris*, or *Judicium*, in oppoſition to *Bellum*, or *Combat*, the other Form of Purgation. See PURGATION and COMBAT.

The Practice of *Ordeals* did not only obtain in *England*, but alſo in *France* and *Germany*: It was condemn'd by Pope *Stephen* II. and aboliſh'd by a Declaration of *Henry* III.

The *Ordeal* was of various Kinds, *viz.* that of Fire, that of red-hot Iron, that of cold Water, that of judicial Pottage, that of hallow'd Cheeſe, that of boiling Water, that of the green Croſs, and that of Dice laid on Relicks, cover'd with a woollen Cloth.

But the more popular Kinds were thoſe of red-hot Iron and Water: the firſt for Freemen, and People of faſhion; the ſecond for Peaſants. See JUDICIUM, FIRE, WATER, &c.

'Tis a popular Story in our Hiſtories, that *Emma*, Mother of *Edward the Confeſſor*, being accus'd of too much Familiarity with the Biſhop of *Leiceſter*, demanded the *Ordeal* of red-hot Iron; and paſs'd bare-footed, and hood-wink'd, over nine red-hot Plough-ſhares, without touching any of them.

The Word, in the original *Saxon*, ſignifies *a great Judgment*. There were particular Maſſes for theſe *Ordeals*.

ORDEFF, or OREDEFF, a Word frequently uſed in Charters of Privileges, for a Liberty whereby a Man claims the Ore found in his own Ground. See ORE.

It properly ſignifies Ore lying under ground; as, *a Delf of Coal*, is Coal lying in Veins under ground.

ORDER, in Architecture, a Syſtem of the ſeveral Members, Ornaments, and Proportions of Columns, and Pilaſters: Or, a regular Arrangement of the projecting Parts of a Building; eſpecially thoſe of a Column: ſo as to form one beautiful Whole. See COLUMN.

Perrault defines an *Order* to be what is regulated by the Ordonnance, when it preſcribes the Proportions of entire Columns, and determines the Figure of certain Parts proper to them, according to the different Characters their different Uſes and Ends require. See ORDONNANCE.

M. *le Clerc* defines an *Order* to be a Column charg'd with an Entablature, and ſupported on a Pedeſtal.

The Definitions *Vitruvius*, *Barbaro*, *Scamozzi*, &c. give of *Order*, are ſo obſcure, that it were vain to repeat them: without dwelling, therefore, on the Definition of a Word, which Cuſtom has eſtabliſh'd; 'tis ſufficient to obſerve, that there are five *Orders* of Columns; three whereof are *Greek*, *viz.* the *Doric*, *Ionic*, and *Corinthian*; and two *Italic*, *viz.* the *Tuſcan*, and *Compoſite*.

The three *Greek Orders* repreſent the three different Manners of Building, *viz.* the *Solid*, *Delicate*, and *Mean*; the two *Italic* ones are imperfect Productions thereof. The little regard the *Romans* had for theſe laſt, appears hence, that we don't meet with one Inſtance in the Antique, where they are intermix'd. That Abuſe the Moderns have introduc'd, by the Mixture of the *Greek* and *Latin Orders*, *Daviler* obſerves, ariſes from their want of Reflection on the Uſe made thereof by the Antients.

The Origin of *Orders* is almoſt as antient as human Society: The Rigour of the Seaſons firſt led Men to make little Cabins, to retire into; at firſt, half under ground, and the half above, cover'd with Stubble: At length growing more expert, they planted Trunks of Trees an-end, laying others a-croſs, to ſuſtain the Covering. See ARCHITECTURE.

Hence they took the Hint of a more regular Architecture; for the Trunks of Trees, upright, repreſent Columns: the Girts, or Bands, which ſerv'd to keep the Trunks from burſting, expreſs'd Baſes and Capitals; and the Summers laid a-croſs, gave the Hint of Entablatures; as the Coverings, ending in Points, did of Pediments. This is *Vitruvius*'s Hypotheſis; which we find very well illuſtrated by M. *Blondel*. See CAPITAL, PEDESTAL, &c.

Others take it, that Columns took their Riſe from Pyramids, which the Antients erected over their Tombs; and that the Urns, wherein they enclos'd their Aſhes, repreſented the Capitals, whoſe Abacus was a Brick, laid thereon o cover the Urns: But *Vitruvius*'s Account appears the more natural.

At length, the *Greeks* regulated the Height of their Columns on the foot of the Proportions of the human Body: The *Doric* repreſented a Man of a ſtrong, robuſt Make; the *Ionic* that of a Woman; and the *Corinthian* that of a Girl: Their Baſes and Capitals were their Head-Dreſs, their Shoes, &c. See Base, &c.

Theſe *Orders* took their Names from the People, among whom they were invented: *Scamozzi* uſes ſignificative Terms to expreſs their Character; when he calls the *Tuſcan*, the *Gigantic*; the *Doric*, the *Herculean*; the *Ionic*, the *Matronal*; the *Compoſite*, the *Heroic*; and the *Corinthian*, the *Virginal*. *See each Order under its proper Article*, Tuscan, &c.

To give a general Idea of the *Orders*; it muſt be obſerv'd, that the whole is compos'd of two parts at the leaſt, *viz.* the *Column*, and *Entablature*; and of four parts at the moſt; when there is a *Pedeſtal* under the Column, and one *Acroter*, or little Pedeſtal, a-top of the Entablature: That the Column has three parts, *viz.* the *Baſe*, the *Shaft*, and the *Capital*; the Entablature has three likewiſe, *viz.* the *Architrave*, the *Friſe*, and *Cornich*: Which Parts are all different in the ſeveral Orders. *See each Part under its proper Article.*

Tuſcan **Order** is the firſt, moſt ſimple, and ſolid; its Column is ſeven Diameters high; and its Capital, Baſe, and Entablature, have but few Mouldings for Ornaments. See Tuscan.

Doric **Order**, is the ſecond, and the moſt agreeable to Nature. It has no Ornament on its Baſe, or on its Capital. Its height is eight Diameters. Its Friſe is diſtinguiſh'd by Triglyphs and Metopes. See Doric.

Ionic **Order**, is the third; and a kind of mean Proportional between the ſolid and delicate Manner. Its Capital is adorn'd with Volutes, and its Cornich with Denticles. See Ionic.

Mich. Angelo, contrary to all other Authors, gives the *Ionic* a ſingle Row of Leaves at the bottom of the Capital.

Corinthian **Order**, invented by *Callimachus*, is the fourth, the richeſt, and moſt delicate. Its Capital is adorn'd with two Rows of Leaves, and eight Volutes, which ſuſtain the Abacus. Its Column is ten Diameters high, and its Cornich has Modillions. See Corinthian.

Compoſite **Order**, the fifth and laſt, (tho' *Scamozzi* and *le Clerc* make it the fourth) is ſo call'd, becauſe its Capital is compos'd out of thoſe of the other *Orders*; having the two Rows of Leaves of the *Corinthian*, and the Volutes of the *Ionic*. It is alſo call'd the *Roman*, becauſe invented among that People. Its Column is ten Diameters high; and its Cornich has Denticles, or ſimple Modillions. See Composite.

Ruſtic **Order**, is that adorn'd with Ruſtic Quoins, Boſſages, &c. See Rustic.

Attic **Order**, is a little *Order* of low Pilaſters, with an architrav'd Cornich for its Entablature; as that of the Caſtle of *Verſailles* over the *Ionic* on the ſide of the Garden. See Attic.

M. *Blondel* calls the little Pilaſters of Attics and Mezzanines, *falſe Orders*.

Perſian **Order**, is that which has Figures of *Perſian* Slaves, inſtead of Columns, to ſupport the Entablature. See Persian.

Caryatic **Order**, is that whoſe Entablature is ſupported with Figures of Women, inſtead of Columns. See Caryatides.

Gothic **Order**, that which deviates from the Ornaments and Proportions of the Antique; and whoſe Columns are either too maſſive, in manner of Pillars; or too ſlender, like Poles: its Capitals out of all meaſure; and carv'd with Leaves of wild Acanthus, Thiſtles, Cabbage, or the like. See Gothic.

French **Order**, is a new contriv'd *Order*, wherein the Capital conſiſts of Attributes agreeing to that People; as Cocks-Heads, Flowers-de-Lys, &c.

Its Proportions are *Corinthian*: Such is that of M. *le Brun*, in the Grand Gallery of *Verſailles*; and that of M. *le Clerc*.

M. *le Clerc* gives a ſecond *Tuſcan Order*, and a *Spaniſh Order*, beſides his *French Order*. The *Tuſcan* he ranks between the firſt *Tuſcan* and *Doric*. Its height he makes 23 Semi-diameters, 22 Minutes. The Column to have 15, the Pedeſtal 5, and the Entablature 3, and 22 Minutes: And he propoſes its Friſe to be adorn'd with Turtles, which are the Arms of *Tuſcany*.

The *Spaniſh Order* he places between the *Corinthian* and *Compoſite*. The whole *Order* he makes 30 Semi-diameters, 28 Minutes; whereof the Column has 19, and 25 Min. the Pedeſtal 16, and 18 Min. and the Entablature 4, and 15 Min. The Horns of the Abacus he ſuſtains with little Volutes; the middle, in lieu of a Roſe, has a Lion's Snout: that Animal being the Symbol of *Spain*, and expreſſing the Strength, Gravity, and Prudence of that Nation.

Order, is alſo uſed for a Claſs or Diſtinction of the Members of the Body of a State; with regard to Aſſemblies, Precedence, &c.

In this ſenſe, *Order* is a kind of Dignity, or honourable Quality, which, under the ſame Name, is common to ſeveral Perſons; and which, of itſelf, does not give them any particular public Authority, but only Rank, and a Capacity of arriving at Honours and Employments.

To abridge this Definition; *Order* is a Dignity, with an Aptitude for a public Employ; by which it is diſtinguiſh'd from an *Office*, which has the Exerciſe and Function of a public Truſt. See Office.

In this ſenſe, Nobility is an *Order*, &c. Clericature an *Order*, &c. See Nobility, &c.

Order is alſo the Title of certain antient Books, containing the Divine Office, with the *Order* and Manner of its Performance.

Roman Order, that wherein are laid down the Ceremonies which obtain in the *Roman* Church.

Order, in Aſtronomy. A Planet is ſaid to go according to the *Order* of the Signs, when it is direct; proceeding from *Aries* to *Taurus*, thence to *Gemini*, &c. It goes contrary to the *Order* or Succeſſion of the Signs, when retrograde, *i.e.* when it goes back from *Piſces* to *Aquarius*. See Direction, Retrogradation, &c.

Order, in War, an Arrangement of the Parts of an Army, either by Land or Sea; or a Diſpoſition of the Battalions, and Squadrons, of Men, or Veſſels, for marching or engaging.

An *Order of Battel*, conſiſts of one, two, or three Lines.

An *Order of March*, is diſpos'd in two or three Columns, according to the Ground. The *Orders* and Evolutions make the Science of Tactics. See Tactics.

Order is particularly uſed for the equal Diſtance of one Rank or File from another. The uſual *Order* in Files is three Foot; in Ranks ſix Foot. The open *Order* is twice as much.

Orders, by way of Eminency, or *Holy* **Orders**; a Character peculiar to Eccleſiaſtics, whereby they are ſet a-part for the Miniſtry. See Ordination.

This the *Romaniſts* make their ſixth Sacrament. See Sacrament.

In the Reformed *Churches*, there are but three *Orders*; *viz.* Biſhops, Prieſts, and Deacons: In the *Romiſh* Church there are ſeven, excluſive of the Epiſcopate: All which the Council of *Trent* enjoins to be received and believ'd on pain of *Anathema*.

They are diſtinguiſh'd into *Petty*, or *Secular Orders*; and *Major*, or *Sacred Orders*.

The *Petty*, or *Minor Orders*, are four; *viz.* thoſe of Porter, of Exorciſt, of Reader, and of Acolythes. Thoſe in *Petty Orders* may marry without any Diſpenſation. In effect, theſe *Petty Orders* are only look'd on as Formalities, and as Degrees neceſſary to arrive at the higher *Orders*; yet the Council of *Trent* is very ſerious about them; enjoins that none be admitted into them, without underſtanding *Latin*; and recommends it to the Biſhops to obſerve the Intervals of conferring them, that the Perſons may have a ſufficient time to exerciſe the Functions of each *Order*: Yet it leaves the Biſhops a Power of diſpenſing with thoſe Rules; ſo that the four *Orders* are uſually conferr'd the ſame day, and only make the firſt part of the Ceremony of Ordination.

The *Greeks*, as well as the Reform'd, diſavow theſe *Petty Orders*, and paſs immediately to the Sub-diaconate.

Their firſt Riſe, *Fleury* dates in the time of the Emperor *Juſtinian*. There is no Call nor Benefice requir'd for the four *Petty Orders*; and a Baſtard may even enjoy them without any Diſpenſation; nor does Bigamy diſqualify.

The *Sacred*, or *Major Orders*, we have already obſerv'd, are three; *viz.* thoſe of Deacon, Prieſt, and Biſhop. See Deacon, Priest, and Bishop.

The Council of *Trent*, retrieving the antient Diſcipline, forbids any Perſon being admitted to the *Major Orders*, unleſs he be in peaceable poſſeſſion of a Benefice ſufficient for a decent Subſiſtence; allowing no Ordinations on Patrimonies or Penſions; except where the Biſhop judges it for the Service of the Church.

A Perſon is ſaid to be promoted to *Orders per ſaltum*, when he has not before paſs'd the inferior *Orders*. The Council of *Conſtantinople* forbids any Biſhop being ordain'd without paſſing all the Degrees; yet Church-Hiſtory furniſhes us with Inſtances of Biſhops conſecrated, without having paſſed the *Order* of Prieſthood: and *Panormus* ſtill thinks ſuch an Ordination valid.

Military **Orders**, are certain Companies of Knights, inſtituted by Kings and Princes; either in defence of the Faith, or on other Occaſions, as to confer Marks of Honour, and make diſtinctions among their Subjects. See KNIGHT.

There have been five *Orders* purely Military in *England*; *viz.* thoſe of Knights of the Garter, Knights Bannerets, Knights of the Bath, Knights Batchelors, and Knights Baronets. See the Inſtitution of each under its proper Article, GARTER, BATH, BARONET, *&c.*

The *French* have had five Military *Orders*, *viz.* that of the *Genette*, inſtituted by *Charles Martel*; but which ſoon fell. The *Order of the Virgin* Mary, ſince call'd the *Order of the Star*, inſtituted by King *John* in 1352. The *Order* of St. *Michael*, inſtituted in 1469, by *Lewis* IX. The *Order of the Holy Spirit*, or the *blue Ribbon*; the Knights of the Holy Spirit are firſt to be Knights of St. *Michael*. *Order of St.* Louis, inſtituted by *Louis* XIV. in 1693.

The Princes of the Blood, Marſhals of *France*, Admiral, and General, become Knights of St. *Louis* by their Office.

Religious Military Orders, are thoſe inſtituted in defence of the Faith, and privileged to ſay Maſs; and withal prohibited Marriage, *&c.*

Of this kind are the Knights of *Malta*, or of St. *John of Jeruſalem*; ſuch alſo were the Knights *Templars*, the Knights of *Calatrava*, Knights of St. *Lazarus*, *Teutonic* Knights, *&c.* See each under its proper Article, MALTA, TEMPLAR, *&c.*

Father *Putignani* accounts thoſe *Military Orders* where Marriage is not allow'd, real *Religious Orders*. F. *Papebroch* ſays, it is in vain to ſearch for *Military Orders* before the XIIth Century.

Religious ORDERS, are Congregations or Societies of Religious, living under the ſame Superior, in the ſame Manner, and wearing the ſame Habit. See RELIGIOUS and CONGREGATION.

Religious Orders may be reduced to five kinds, viz. *Monks*, *Canons*, *Knights Mendicants*, and *Regular Clerks*. See each under its proper Article, MONK, CANON, *&c.*

Father *Mabillon* ſhews, that till the IXth Century, almoſt all the Monaſteries in *Europe* follow'd the Rule of St. *Benedict*; and that the diſtinction of *Orders* did not commence till upon the Reunion of ſeveral Monaſteries into one Congregation. That S. *Odo*, Abbot of *Cluny*, began firſt this Reunion, bringing ſeveral under the Dependence of *Cluny*: That, a little afterwards, in the XIth Century, the *Camaldules* aroſe; then, by degrees, the Congregation of *Vallambroſa*; the *Ciſtercians*, *Carthuſians*, *Auguſtines*; and at laſt, in the XIIIth Century, the *Mendicants*. He adds, that *Lupus Servatus*, Abbot of *Ferrieres*, in the IXth Century, is the firſt that ſeems to diſtinguiſh the *Order* of St. *Benedict* from the reſt, and to ſpeak of it as a particular *Order*. See BENEDICTINE.

White Order is the *Order* of Regular Canons of St. *Auguſtine*. See AUGUSTINE.

Black Order, the *Order* of *Benedictines*. Theſe Names were firſt given theſe two *Orders* from the Colour of their Habit; but are diſuſed ſince the Inſtitution of ſeveral other *Orders*, who wear the ſame Colours.

Grey Order, the antient Name of the *Ciſtercians*; but ſince the change of the Habit, the Name ſuits 'em no more. See CISTERCIANS.

ORDER, in the Geometry of Curves, ſee LINE and CURVE.

ORDINAL, ORDINALE, in our Law-Books, a Book containing the *Order*, or Manner of performing Divine Offices: *In quo ordinatur Modus*, &c.

ORDINAL, in Grammar, an Epithet given to ſuch Numbers as mark the *Order* of things, or in what Rank they are placed. See NUMBER.

Thus, Firſt, Second, Tenth, Hundredth, *&c.* are *Ordinal Numbers*.

ORDINANCE, or ORDONNANCE, a Law, Statute, or Command of a Sovereign, or Superior. See LAW, *&c.*

Ordinance of Parliament, is ordinarily uſed in the ſame Senſe as *Statute*, or Act of Parliament. See STATUTE.

In the Parliament Rolls, Acts are often call'd *Ordinances of Parliament*: Tho' in ſome Caſes we find a difference made between the two; *Ordinances* being only temporary things, and capable of being alter'd by the Commons alone; whereas an Act is a perpetual Law, and cannot be alter'd but by King, Lords, and Commons. See ACT.

Sir *Edward Coke*, however, aſſerts, That an *Ordinance of Parliament* is to be diſtinguiſh'd from an Act, inaſmuch as the latter can be only made by the King, and the threefold Conſent of the Eſtates; whereas the former is ordained with or by two of them.

Ordinance of the Foreſt, is a Statute made in the 34th Year of *Hen.* I. relating to Foreſt Matters. See ASSISE.

In the *French* Juriſprudence, *Ordonnances* are ſuch Laws as are eſtabliſhed by the King's Authority alone. All *Ordonnances* begin with *a tous Preſens & a venir Salut.*

ORDINANCE, or ORDNANCE, is alſo a general Term for all ſorts of Great Guns, or Cannon, uſed in War. See GUN and CANNON.

The ſeveral Parts of a Piece of *Ordnance* are thus nam'd, *viz.* The Outſide, round about the Piece, is call'd the *Superficies of her Metal*. The Subſtance, or whole Maſs of Metal is call'd her *Body*. The Part next us, when ſhe ſtands ready to fire, the *Breech* or *Coyle*; and the Pummel, or round Knob at the end of it, the *Caſcabell*; by ſome the *Caſcabell-Dock*. The *Trunnions* are the two Knobs, Spindles, or Ears, which hold the Piece in the Carriage. *Maniglions* or *Dolphins* in the *German* Guns, are two Handles placed on the Back of the Piece near the Trunnions, and near the Centre of Gravity, to mount and diſmount 'em more eaſily. The Rings about it are four: The *Baſe-Ring* is that which is next below the Touch-hole: The next above the Touch-hole is call'd the *Reinforced-Ring*: The next to that forward, the *Trunnion-Ring*: The next to that the *Cornice-Ring*: That at the Mouth, the *Muzzle-Ring*, or the Freeze: All the Rings near the Mouth are ſometimes call'd the *Freezes*. As to the internal Parts; the whole Cavity or Bore of the Piece is call'd her *Chaſe*. That part of the Cavity between the Trunnions and the Muzzle or Mouth, the *vacant Cylinder*: The part from the Trunnions to the end of the Cavity, or ſo much of it as containeth (or is loaded with) the Powder and Shot, is call'd the *Chamber*. The Diameter of the Mouth, the *Calibre*. The Space between the Shot, and the hollow Superficies of the Piece within, is call'd the *Vent*; being the difference between the Diameter of the Shot, and of the Mouth of the Piece.

Ordnance in *England* is diſtinguiſh'd into two kinds, *viz.* *Field-Pieces*, which are from the ſmalleſt to twelve Pounders; and *Cannon of Battery*, which are from a Culverin to a whole Cannon.

Each of theſe Diviſions is again ſubdivided; the firſt into Baſe, Rabinet, Falconet, Falcon, Minion ordinary, Minion largeſt, Saker leaſt, Saker ordinary, Demi-culverin leaſt, and Demi-culverin ordinary. The ſecond into Culverin leaſt, Culverin ordinary, Culverin largeſt, Demi-cannon leaſt, Demi-cannon ordinary, Demi-cannon large, and Royal whole Cannon.

The Lengths and Weights of each whereof, as alſo the Weights of the Bullets they carry; ſee expreſs'd in a particular Table *under the Article* CANNON. See alſo each Piece under its proper Head, CANNON, DEMICANNON, CULVERIN, SAKER, *&c.*

The Strength and Serviceableneſs of a Piece of *Ordnance* depends very much on the thickneſs of the Metal, eſpecially about its Chamber and Breech, which is call'd its Fortification.

Of this there are three Degrees both for Cannons and Culverins: Such as are ordinarily fortify'd, are call'd *Legitimate Pieces*. Thoſe whoſe Fortification is leſſen'd, are call'd *Baſtard Pieces*. Thoſe doubly-fortify'd, are call'd *Extraordinary Pieces*. The Fortification of a Gun is reckoned from the thickneſs of the Metal at the Touch-hole, at the Trunnions, and at the Muzzle, in proportion to the Diameter of the Bore. The doubly-fortify'd Pieces are a full Diameter of the Bore in thickneſs at the Touch-hole, $\frac{11}{16}$ of it at the Trunnions, and $\frac{7}{16}$ at the Muzzle: The leſſen'd Cannons have but $\frac{3}{4}$, or $\frac{12}{16}$ of the Diameter of their Bore, in thickneſs at the Touch-hole, $\frac{9}{16}$ at the Trunnions, and $\frac{5}{16}$ at the Muzzle. All the double-fortify'd Culverins, and all the leſſer Pieces of that kind, have a Diameter and $\frac{1}{8}$ at the Touch-hole, $\frac{15}{16}$ at the Trunnions, and $\frac{9}{16}$ at the Muzzle. And the ordinary fortify'd Culverins, are every way as the double-fortify'd Cannon; and the leſſen'd Culverins as the ordinary Cannon, in all reſpects. The ordinary-fortify'd Cannons have $\frac{7}{8}$ at the Touch-hole, $\frac{5}{8}$ at the Trunnions, and $\frac{3}{8}$ at the Muzzle.

ORDINANCE, in Painting, ſee ORDONNANCE.

ORDINARY, ſomething that happens, or paſſes frequently, uſually. See EXTRAORDINARY.

Thus we ſay, the *Ordinary* Courſe of Things: Whatever is done without Miracles, is done by *ordinary* Agents.

Embaſſador, or *Envoy in* ORDINARY, he who is ſent to reſide ſtatedly, and for a number of Years, in the Court of ſome Prince or State, to keep up a good Underſtanding, and ſee to the Intereſts of his Nation. See EMBASSADOR, ENVOY, RESIDENT, *&c.*

ORDINARY is alſo apply'd to ſeveral Officers and Servants belonging to the Houſhold, who attend on common Occaſions.

Thus we ſay, Phyſician in *Ordinary*, &c.

ORDINARY, in the Civil Law, is any Judge veſted with Authority to take cognizance of Cauſes, in his own Right, as he is a Magiſtrate; and not by Deputation. See JUDGE.

ORDINARY, in Common and Canon Law, is the Biſhop of the Dioceſe; or he who has *Ordinary* Eccleſiaſtical Juriſdiction within that Territory; and the Collation to Benefices therein. See BISHOP, COURT, ECCLESIASTICAL, *&c.*

There are ſeveral Chappels, Chapters, Abbeys, &c. exempted from the Juriſdiction of the *Ordinary*. See CHAPPEL, ABBEY, &c.

The *Romiſh* Canoniſts call the Pope *Ordinary of Ordinaries*, ſince by the *Lateran* Council he has uſurped the Right of Collating, by Prevention, to all Benefices; in excluſion of the *Ordinary* Collators. See COLLATION.

ORDINARY *of Aſſizes and Seſſions*, was a Deputy of the Biſhop of the Dioceſe, antiently appointed to give Malefactors their Neck-Verſes, and judge whether they read or not; alſo to perform Divine Service for 'em, and aſſiſt in preparing them for Death.

ORDINARY, or *Honourable* ORDINARY, in Heraldry, a Denomination given to certain Charges properly belonging to that Art. See CHARGE.

The *Honourable Ordinaries* are ten in Number, *viz.* the *Chief*, *Pale*, *Bend*, *Feſſe*, *Bar*, *Croſs*, *Saltier*, *Chevron*, *Bordure*, and *Orle*. See each in its Place, CHIEF, PALE, &c.

The Heralds give ſeveral Reaſons for their being call'd *Honourable*; *viz.* 1. Their great Antiquity, as having been uſed ever ſince Armoury was ſet on foot. And, 2. for that they denote the Ornaments moſt neceſſary for noble and generous Men: Thus the Chief repreſents the Helmet, Wreath, or Crown, covering the Head: The Pale repreſents his Lance or Spear: The Bend and Bar, his Belt: The Feſſe his Scarf: The Croſs and Saltier, his Sword: The Chevron, his Boots and Spurs: And the Bordure and Orle, his Coat of Mail.

As to the allotting or diſtributing of theſe *Ordinaries*, ſome Authors write, that when a Gentleman having behav'd himſelf gallantly in Fight, was preſented to the Prince or General, and a ſuitable Coat-Armour ordered him; if he were wounded on the Head, they gave him a Chief; if in the Legs, he had a Chevron; and if his Sword and Armour were diſcoloured with the Blood of Enemies, a Croſs or Bordure.

Some Authors have attempted to increaſe the Number of *honourable Ordinaries* to twenty; adding to thoſe abovementioned, the plain *Quarter*, the *Giron*, the *Eſcutcheon*, *Cappe* dexter and ſiniſter, *Emmanch* dexter and ſiniſter, *Chauſſe* dexter and ſiniſter, and the *Point*. But theſe are not yet authorized.

ORDINARII, in Antiquity, a ſort of Gladiators; being thoſe appointed to exhibit Combats on certain ſtated days, &c. See GLADIATOR.

ORDINATES, in Geometry, and Conics, are Lines drawn from any Point of the Circumference of an Ellipſis, or other conic Section, perpendicularly a-croſs the Axis, to the other ſide. See CONIC *Section*.

The *Latins* call 'em *Ordinatim applicatæ*: Such are the Lines M M, (Tab. CONICS, *Fig.* 26.) half of each of theſe, as the Lines E M, are properly only *Semi-ordinates*, tho' popularly call'd *Ordinates*. See SEMI-*Ordinate*.

In Curves of the ſecond Order; if any two parallel right Lines be drawn ſo as to meet the Curve in three Points: a right Line which cuts theſe Parallels ſo, as that the Sum of two Parts terminating at the Curve on one ſide the Secant, is equal to the third part terminated at the Curve on the other ſide; will cut all other right Lines parallel to theſe, and that meet the Curve in three Points, after the ſame manner; *i. e.* ſo as that the Sum of the two Parts on one ſide will be always equal to the third Part on the other ſide; and theſe three Parts equal on either ſide, Sir *Iſaac Newton* calls *Ordinatim applicatæ*, or *Ordinates of Curves of the ſecond Order*. See CURVE.

ORDINATE *in a Parabola*,	See	PARABOLA.
ORDINATE *in an Hyperbola*,		HYPERBOLA.
ORDINATE *in an Ellipſis*,		ELLIPSIS.

ORDINATE *Ratio*, is that wherein the Antecedent of the firſt Ratio is to its Conſequent as the Antecedent of the ſecond is to its Conſequent. See RATIO.

ORDINATION, the Action of conferring Holy Orders; or of initiating a Candidate into the Diaconate, or Prieſthood. See ORDERS.

The *Ordination* of Biſhops is properly call'd *Conſecration*. See BISHOP and CONSECRATION.

Ordination has always been eſteem'd the principal Prerogative of Biſhops; and they ſtill retain the Function as a Mark of Sovereignty in their Dioceſe. In the antient Diſcipline, there was no ſuch thing as a vague and abſolute *Ordination*; but every one was to have a Church, whereof he was to be *ordained* Clerk or Prieſt.

In the 12th Century, they grew more remiſs, and *ordained* without any Title or Benefice. See BENEFICE.

The Council of *Trent* reſtored the antient Diſcipline, and appointed that none ſhould be *ordained* but thoſe who were provided of a Benefice ſufficient to ſubſiſt 'em. The Shadow of which Practice ſtill obtains among us.

The Reformed hold the Call of the People the only thing eſſential to the Validity of the Miniſtry; and teach, that *Ordination* is only a Ceremony which renders the Call more Auguſt and Authentic. The Council of *Rome* in 744, orders that no *Ordinations* ſhall be held except on the firſt, fourth, ſeventh, and tenth Months.

With us, *Ordination-Days* are the ſecond Sunday in *Lent*, *Trinity*-Sunday, and the Sunday following the firſt Wedneſday after *September* the 14th, and *December* the 13th.

Pope *Alexander* II. condemns *Ordination per ſaltum*, as they call it; *i. e.* the Paſſage to a ſuperior Order without having paſs'd the inferior.

ORDNANCE, or **ORDINANCE** *Office*, is the ſtanding, grand Magazine of Arms, Habiliments, Inſtruments, and Utenſils of War, as well by Sea as Land; not only for thoſe lodged in the Tower, but in all the Gariſons, Caſtles, Forts, &c. in *Great Britain*, from whence, as occaſion requires, his Majeſty's Armies, &c. are ſupply'd. See OFFICE and ORDINANCE.

The Officers of the *Ordnance* are, the *Maſter-General*, from whom are derived all Orders and Diſpatches relating to the ſame, as the Service ſhall beſt require. This Poſt has of late been annexed to the Office of General and Commander in Chief. See MASTER.

Under him is a *Lieutenant-General of the Ordnance*, who receives Orders from the Maſter-General, and the reſt of the Prime Officers at the Board; ſees 'em duly executed; orders the firing of the Guns on Days of Rejoicing, and ſees the Train of Artillery fitted out, when order'd to the Field. See LIEUTENANT.

Next to him is the *Surveyor-General*, who has the Inſpection of the *Ordnance*, Stores, and Proviſions of War, in the Cuſtody of the Store-keepers; he allows all Bills of Debt, keeps a Checque on Labourers, &c. See SURVEYOR.

Under theſe is a *Clerk of the Ordnance*, who records all Orders and Inſtructions given for the Government of the Office; with all Patents, Grants, Names of Officers, &c. draws all Eſtimates for Proviſions, and ſupplies all Letters, Inſtructions, Commiſſions, Deputations, Contracts, &c. ſerves as a Checque between the two Accomptants of the Office, the one for Money, the other for Stores.

This Office hath alſo a *Store-Keeper*, who takes into his Cuſtody all *Ordnance*, Ammunition, Stores, &c. thereto belonging; and indents, and gives in legal Security for the ſafe keeping thereof; and renders an exact Account from time to time.

Here is alſo a *Clerk of the Deliveries*, whoſe Duty is to draw up all Proviſions, either at the Tower, or any other of his Majeſty's Magazines, to ſee them duly executed, &c. And a *Treaſurer*, thro' whoſe hands paſſes the Money of the whole Office, as well for payment of Salaries, as Debentures.

ORDONNANCE, or ORDINANCE, in Painting, the Diſpoſition of the Parts of a Painting, either with regard to the whole Piece, or to the ſeveral Parts; as the Groups, Maſſes, Contraſts, Aſpects, &c. See PAINTING.

The Doctrine of ORDONNANCE *is compriz'd in the following Rules.*

In the *Ordonnance* there are three things regarded, *viz.* the Place, or Scene, where; the Diſtribution, how; and the Contraſt.

In the firſt, regard is to be had to the *Diſpoſition* of things to ſerve as a Ground-Work; and to the *Plan*, or Poſition of Bodies: Under the former whereof, come, 1. The *Landſkip*; whether an uninhabited Place, where there is a full liberty of repreſenting all the Extravagancies of Nature; or inhabited, where the Marks of Cultivation, &c. muſt be exhibited. See LANDSKIP.

2. The *Building*, whether Ruſtic; wherein the Painter's Fancy is at liberty: Or *Regular*; wherein a nice Attention is required to the Orders. See ORDER.

3. The *Mixture* of both; wherein 'tis a Maxim to compoſe in great Pieces, and make the Ground-Plot big enough; to neglect ſome little Places, in order to beſtow more on the whole Maſs; and to ſhew the more conſiderable Places with the more advantage; and to make ſome Agitation in all the things that move.

As to the *Plan* of Bodies; they are either ſolid; which again, are either ſo by Nature, and which muſt be proportion'd to their Places; or Artificial, where regard muſt be had to the Rules of Geometry, Perſpective, Architecture, &c. Or they move; which they do, either by a voluntary Motion, wherein care muſt be had to proportion 'em to their Situation, and to ſtrengthen 'em by the regarding Equilibrium; or by ſome extraordinary Power, as Machines, &c. where the Cauſes of their Motions muſt appear. Or they are things at a diſtance. In all which, an even Plane muſt ſtill be propoſed to find their preciſe Situation, and ſettle their Place by ſudden breaks and diſtances agreeable to their Perſpective. See EQUILIBRIUM, PERSPECTIVE, &c.

In placing the Figures, regard muſt be had, 1. To the *Group*, which connects the Subject, and ſtays the Sight. In this are to be conſider'd the Knot, or *Nodus*, which binds the Group; and the Nearneſs of Figures, which we may call the Chain, as it holds 'em together; that the Group be ſuſtain'd by ſomething looſe and diſtinct from it; and by the ſame join'd and continued to the other Groups: And that the Lights and Shadows be ſo diſpoſed, as that we may at once ſee the Effects of all the Parts of the Compoſition. See GROUP.

2. To the *Actions*, wherein forced Attitudes are to be avoided; and ſimple Nature ſhewn in her moſt advantageous Poſtures. In weak and lean Figures, the Nudities not to be ſhewn; but occaſions of covering 'em ſought. In all human Figures, ſpecial Care to be taken, the Head be well placed between the Shoulders; the Trunk on the Haunches, and the whole on the Feet. See ATTITUDE.

3. To the *Drapery*; which is to be adjuſted ſo, as it may appear real Garments, and not Stuffs looſely thrown on. The Folds to be ſo diſpoſed, as to leave the great parts wherein the Nudity may appear, free; ranging the little Folds about the Joints, and avoiding 'em on the Relievo of the Members. And, laſtly, to diſpoſe the Draperies, by raiſing the Stuff, and letting it fall lightly, that the Air ſuſtaining the Folds, may let 'em fall ſoft. See DRAPERY.

Laſtly, in the *Contraſt*, are to be conſider'd the Actions, which vary infinitely: The Aſpects, which, in Actions of the ſame kind, may, by their difference, make a Contraſt: The Situation, according as they meet above or under the Sight, far or near. And, laſtly, the Cuſtom; which extends, indeed, to all parts of Painting, but is particularly to be regarded in the *Ordonnance*; to be managed diſcretely, however, and ſtiffneſs and formality avoided. See CONTRAST.

ORDONNANCE, in Architecture, is nearly the ſame as in Painting; *viz.* the Diſpoſition of the Parts of a Building, both with regard to the whole, and to one another. See BUILDING.

Vitruvius defines *Ordonnance* to be that which regulates the Size of all the Parts of a Building with reſpect to their Uſe.

This Definition is cenſur'd by M. *Perrault*, who takes the *Ordonnance* to conſiſt in the Diviſion of the Plan or Spot of Ground whereon the Building is to be rais'd; *i. e.* in the apportioning or laying it out, agreeable with the intended Dimenſions of the whole Fabric; which Mr. *Evelyn* expreſſes in fewer Words by the determining of the Meaſures of what is aſſign'd to compoſe the ſeveral Apartments.

On this Foundation, *Ordonnance* is the judicious Contrivance of the Plan or Model; as when the Court, Hall, Lodgings, &c. are neither too large nor too little: But the Court, *v. gr.* affords convenient Light to the Apartments about it, and is large enough for uſual Acceſs. The Hall of fit Capacity to receive Company; the Bed-Chambers accordingly, &c. When theſe Diviſions are either too great or too ſmall with reſpect to the Place, as a large Court to a little Houſe, or a little Chamber in a magnificent Palace; the fault is in the *Ordonnance*.

This the Antients call'd *Taxis*; and diſtinguiſhed it from *Diatheſis*, Diſpoſition; which is, where all the Parts and Members of a Building are aſſign'd their juſt Place and Situation with regard to their Quality, Office, Rank, &c. without any regard to the Dimenſions or Quantity: As, that the Veſtible or Porch precede the Hall, the Hall the Parlor, that the Withdrawing Room, &c. The Bed-Chambers, again, to the Sun-riſing; Libraries, Galleries of Paintings, and Cabinets of Curioſities, &c. to the North.

ORE, ſee OAR.

ORGAL, the Lees of Wine dried, and uſed by Dyers to prepare the Cloth for more readily taking their ſeveral Colours. See DYING, COLOUR, TARTAR, &c.

ORGAN, in Muſic, the largeſt and moſt harmonious of all Wind-Inſtruments. See MUSIC.

The Invention of the *Organ* is very antient, tho' it is agreed it was very little uſed till the VIIIth Century. It ſeems to have been borrow'd from the *Greeks*. *Vitruvius* deſcribes one in his tenth Book. The Emperor *Julian* has an Epigram in its praiſe. St. *Jerom* mentions one with twelve Pair of Bellows, which might be heard a thouſand Paces, or a Mile; and another at *Jeruſalem*, which might be heard to the Mount of Olives. The Structure of the modern *Organ* may be conceiv'd as follows.

The *Organ* is a Buffet containing ſeveral Rows of Pipes. The Size of the *Organ* is uſually expreſs'd by the length of its largeſt Pipe: Thus we ſay an *Organ* of 32 Feet, of 16 Feet, of 8 Feet, and of 2 Feet. Church *Organs* conſiſt of two Parts, *viz.* the main Body of the *Organ*, call'd the *great Organ*; and the *Poſitive*, or *little Organ*, which is a ſmall Buffet uſually placed before the great *Organ*.

The *Organ* has at leaſt one Set of Keys, when it has only one Body; and two or three, when it has a Poſitive. The large *Organs* have four, ſometimes five Sets. Beſides, the Pedals or largeſt Pipes have their Key, the Stops or Touches whereof are play'd by the Feet. The Keys of an *Organ* are uſually divided into four Octaves; *viz.* the ſecond Sub-Octave, firſt Sub-Octave, middle Octave, and firſt Octave. Each Octave is divided into twelve Stops or Frets; whereof the ſeven black mark the natural Sounds, and the five white the artificial Sounds; *i. e.* the Flats and Sharps. So that the Keys uſually contain 48 Stops, or Touches. Some Organiſts add to this Number one or more Stops in the third Sub-Octave, as well as in the ſecond. Note, in Harpſichords and Spinets, the natural Stops or Keys are uſually mark'd white, the artificial ones black. The Pedals have about two or three Octaves at the pleaſure of the Organiſt: So that the number of Stops is undeterminate.

Each Key or Stop preſs'd down, opens a Valve or Plug, which correſponds, lengthwiſe, to as many Holes as there are Rows of Pipes on the Sound-Board. The Holes of each Row are open'd and ſhut by a Regiſter or Ruler pierced with 48 Holes. By drawing the Regiſter, the Holes of one Row are open'd, becauſe the Holes of the Regiſter correſpond to thoſe of the Sound-board. So that by opening a Valve, the Wind brought into the Sound-board by a large Pair of Bellows, finds a Paſſage into the Pipe which correſponds to the open Hole of the Sound-board. But by puſhing the Regiſter, the 48 Holes of the Regiſter, not anſwering to any of thoſe of the Sound-Board, that Row of Pipes anſwering to the puſh'd Regiſter are ſhut. Whence it follows, that by drawing ſeveral Regiſters, ſeveral Rows of Pipes are open'd; and the ſame thing happens, if the ſame Regiſter correſpond to ſeveral Rows. Hence the Rows of Pipes become either Simple, or Compound; *Simple*, when only one Row anſwers to one Regiſter; *Compound*, where ſeveral. The Organiſts ſay, a Row is *Compound*, when ſeveral Pipes play upon preſſing one Stop.

The Pipes of the *Organ* are of two kinds; the one with Mouths, like our Flutes; the other with Reeds. The firſt call'd *Pipes of Mutation*, conſiſt,

1. Of a Foot A A B B, (Tab. MUSIC, *Fig.* 1.) which is a hollow Cone, and which receives the Wind that is to ſound the Pipe. 2. To this Foot is faſten'd the Body of the Pipe B B D D. Between the Foot and the Body of the Pipe is a Diaphragm, or Partition E E F, which has a little, long, narrow Aperture to let out the Wind. Over this Aperture is the Mouth B B C C; whoſe upper Lip C C, being level, cuts the Wind as it comes out at the Aperture.

The Pipes are of Pewter, Lead mix'd with a twelfth Part of Tin, and of Wood. Thoſe of Tin are always open at their Extremities; their Diameter is very ſmall, their Sound very clear and ſhrill. Thoſe of Lead mix'd, are larger; the ſhorteſt open, the longeſt are quite ſtop'd; the mean ones partly ſtop'd, and having beſides a little Ear on each ſide the Mouth, to be drawn cloſer, or ſet further aſunder, in order to raiſe or lower the Sound. The wooden Pipes are made ſquare, and their Extremity ſtop'd with a Valve or Tampion of Leather. The Sound of the wooden and leaden Pipes is very ſoft; the large ones ſtop'd, are uſually of Wood; the ſmall ones of Lead. The longeſt Pipes give the greateſt Sound; and the ſhorteſt the moſt acute: Their Lengths and Widths are made in the reciprocal Ratio's of their Sounds; and the Diviſions regulated by their Rule, which they call *Diapaſan*. But the Pipes that are ſhut only have the Length of thoſe that are open, and which yield the ſame Sound. Uſually, the longeſt Pipe is 16 Feet; tho' in extraordinary *Organs* 'tis 32. The pedal Tubes are always open, tho' made of Wood and of Lead.

A *Reed-Pipe* conſiſts of a Foot A A B B, (Tab. MUSIC, Fig. 2.) which carries the Wind into the Shalot, or Reed C D, which is a hollow Demi-cylinder, fitted at its Extremity D, into a kind of Mould I I, by a wooden Tampion F G. The Shalot is cover'd with a Plate of Copper E E F F, fitted at its Extremity F F into the Mould by the ſame wooden Tampion: Its other Extremity E E is at liberty; ſo that the Air entring the Shalot, makes it tremble or ſhake againſt the Reed; and the longer that part of the Tongue which is at liberty F L, is made, the deeper is the Sound. The Mould I I, which ſerves to fix the Shalot or Reed, the Tongue, Tampion, &c. ſerves alſo to ſtop the Foot of the Pipe, and to oblige the Wind to go out wholly at the Reed. Laſtly, in the Mould is ſolder'd the part H H K K, call'd the Tube, whoſe inward opening is a continuation of that of the Reed. The Form of this Tube is different in the different Ranks of Pipes.

The degree of Acuteneſs and Gravity in the Sound of a Reed-Pipe, depends on the Length of the Tongue, and that of the Pipe C K, taken from the Extremity C of the Shalot, to the Extremity K of the Tube.

The Quality of the Sound depends on the Width of the Reed, the Tongue, and the Tube; as alſo on the Thickneſs of the Tongue, the Figure of the Tube, and the Quantity of Wind.

To diverſify the Sounds of the Pipes, they add a Valve to the Port-vent, which lets the Wind go in Fits or Shakes.

Hydraulic ORGAN, a Muſical Machine that plays by means of Water.

Of theſe there are ſeveral in *Italy* in the Grotto's of Vineyards. *Cteſebes* of *Alexandria*, who lived in the Reign of *Ptolemy Evergetes*, is ſaid to have firſt invented *Organs* that plaid by compreſſing the Air with Water, as is ſtill practiſed. *Archimedes* and *Vitruvius* have left us Deſcriptions of the *Hydraulic Organ*. *Felibien, de la Vie des Archit.*

In the Cabinet of Q. *Chriſtina*, is a beautiful and large Medallion of *Valentinian*, on the reverſe whereof is ſeen one of theſe *Hydraulic Organs*; with two Men, one on the right, the other on the left, ſeeming to pump the Water which plays it, and to liſten to its Sound. It has only eight Pipes, placed on a round Pedeſtal. The Inſcription is PLACEA SPETRI.

ORGAN, or ORGUES, in War, is a Machine compoſed of ſeveral Harquebuſs or Musket-barrels, bound together; by means whereof ſeveral Exploſions are made at the ſame time; uſed to defend Breaches, and other Places attack'd.

ORGAN is alſo uſed in the general for any thing framed, and deſtined for ſome certain Action, Uſe, or Operation. See FUNCTION.

Hence, ORGAN, or ORGANICAL *Part*, in Phyſiology, is ſuch a Part of the Body as is capable of the performance of ſome perfect Act, or Operation. In which ſenſe, all the Parts, even the moſt ſimple, might be denominated *Organical*.

Theſe *Organs* are divided into *Primary*, and *Secondary*. The *firſt* are thoſe compoſed of ſimilar Parts, and appointed for ſome one ſingle Function: Such as conſiſt of ſeveral of theſe, tho' appropriated to one ſingle Action, are eſteemed of the *ſecondary* kind.

Thus the Veins, Arteries, Nerves, and Muſcles, are *Primary Organs*; and Hands, Fingers, *&c. Secondary Organs.*

ORGAN *of Senſe*, is that part of an animal Body by means whereof it perceives external Objects. See SENSE.

Theſe, ſome divide into *Internal*, which is the Brain; and *External*, *viz.* the Eye, Ear, Noſe, *&c.* See BRAIN, EYE, EAR, NOSE, *&c.*

ORGANICAL, in the antient Muſic, was that Part performed with Inſtruments. See MUSIC.

The *Organical* comprehended three Kinds of Inſtruments; *viz. Wind Inſtruments*, as the Trumpet, Flute, *&c.* *Stringed Inſtruments*, as the Lute, Lyre, *&c.* And *Pulſatile Inſtruments*, or thoſe play'd on by beating, as Drums, *&c.* See each in its place, TRUMPET, *&c.*

ORGANICAL *Part*, is that Part of an Animal or Plant deſtined for the performance of ſome particular Function. See ORGAN and PART.

ORGANICAL *Diſeaſe*, a Diſeaſe in an *organical* Part of the Body, whereby its Function is impeded, ſuſpended, or deſtroy'd. See BODY, DISEASE, *&c.*

ORGANICAL *Deſcription* of Curves, is the Method of deſcribing them on a Plane, by the regular Motion of a Point. See CURVE.

ORGASM, *Orgaſmus*, in Medicine, an Impetus, or too quick Motion of the Blood, or Spirits; whereby the Muſcles are convulſed or moved with uncommon Force. See SPIRIT, CONVULSION, *&c.*

The Word is *Greek*, οργασμος, denoting violence, force, onſet.

ORGIA, in Antiquity, Feaſts, and Sacrifices in honour of *Bacchus*, inſtituted by *Orpheus*, and chiefly celebrated on the Mountains by wild, diſtracted Women, call'd *Bacchantes*. See BACCHANALIA.

Euſebius derives the Word απὸ τῆς οργῆς, fury, madneſs. Others from ὄρος, Mountain; becauſe *Orpheus* removed from *Thrace* to Mount *Citheron*. Others from οργας, a Place conſecrated to ſome Divinity. Others from ειργαν, to remove, repulſe; in regard the Prophane were to be driven away.

Servius ſays, that at firſt *Orgia* was a common Name for all kinds of Sacrifices among the *Greeks*; of the ſame import with the word *Ceremonies* among the *Romans*.

The *Orgia* were alſo call'd *Orphica*, from their Inſtitutor.

ORGUES, or ORGAN, in War, ſee ORGAN.

ORGYIA, an antient *Greek* Meaſure, ſee MEASURE.

ORIENT, *Oriens*, in Geography and Aſtronomy, the *Eaſt*, or Eaſt-point of the Horizon. See EAST.

It is thus call'd from the *Latin Orire*, to ariſe; becauſe it is in this Point the Sun riſes. See RISING.

ORIENT *Equinoctial*, is particularly uſed for that Point of the Horizon wherein the Sun riſes when it enters the Signs *Aries* and *Libra*. See SPRING and AUTUMN.

Northward of this is denominated *Orient Æſtival*; and Southward, *Orient Hybernal*.

ORIENTAL, ſomething ſituated toward the *Eaſt* with regard to us; in oppoſition to *Occidental*.

In this ſenſe we ſay, *Oriental Pearls*, *q. d.* ſuch as are found in the *Eaſt-Indies*. See PEARL.

ORIENTAL *Languages*, meaning the *Hebrew*, *Syriac*, *Chaldee*, and *Cophtic*. See LANGUAGE.

ORIENTAL *Bezoard*, ſee BEZOARD.

In Aſtronomy, a Planet is ſaid to be *Oriental*, when it riſes in the Morning before the Sun. See RISING.

Hence *Orienting*, the turning a thing towards the Eaſt, or diſpoſing it ſo as it may look towards the Eaſt.

In moſt Religions, particular Care has been taken to have their Temples *oriented*. St. *Gregory Thaumaturgus* is ſaid to have made a Mountain give way, becauſe it prevented the *orienting* of a Church he was building.

ORIFICE, the Mouth or Aperture of a Tube, or Pipe, or other Cavity. See TUBE.

In Anatomy, ORIFICE is particularly uſed for the Mouths of the ſeveral Ducts, Veſſels, and other Cavities; as of the Bladder, Uterus, Stomach, *&c.*

The upper *Orifice* of the Stomach is the part where Hunger is felt; the lower *Orifice* is call'd the *Pylorus*. See HUNGER and PYLORUS.

There are ſome Operations in Chymiſtry, where the *Orifices* of the Veſſel muſt be ſeal'd hermetically. See HEMETICALLY.

The word *Orifice* is alſo uſed by Extenſion for the Aperture of a Wound, or Ulcer. See WOUND and ULCER.

ORIGENIANS, a Sect of antient Heretics, who even ſurpaſs'd the Abominations of the *Gnoſtics*.

St. *Epiphanius* ſpeaks of 'em as ſtill ſubſiſting in his time; but in very ſmall Number. He ſeems to fix their Riſe about the time of the great *Origen*; but does not ſay they took their Name from him. He diſtinguiſhes 'em from the *Origeniſts*, whom he derives from *Origen Adamantus*; adding, indeed, that they firſt took their Name from one *Origen*; by which he intimates, that it was not the Great. And St. *Auguſtine* ſays expreſly it was another.

As to their Doctrine, all that Modeſty will allow to be ſaid, is, that they rejected Marriage; that they uſed ſeveral Apocryphal Books, as the Acts of St. *Andrew*, &c. and that to excuſe their open Crimes, they accuſed the Catholics of doing the ſame in private.

ORIGENISTS, Followers of the Errors of *Origen*. St. *Epiphanius* inſiſts very largely on the Errors of this Father; but as he declares himſelf too warmly againſt him, there may be ſomewhat of Exaggeration in what he ſays. Nor do St. *Jerom*, or *Theophilus* of *Alexandria*, ſeem to have kept their Zeal within the proper bounds in ſpeaking of *Origen*. For which Reaſon, no doubt, it was that St. *Chryſoſtom* himſelf was accuſed of being an *Origeniſt*, becauſe not ſo vehemently bent againſt him. *Origeniſm* ſpread itſelf chiefly among the Monks of *Egypt*.

ORIGINAL, a firſt Draught, Deſign, or Autograph of any thing; ſerving as a Model, or Exemplar, to be imitated, or copied. See DESIGN, MODEL, *&c.*

Scarce any of the antient Titles, Tenures, *&c.* are now found in the *Originals*. They are only Vidimus's, or Copies collated with the *Originals*.

ORIGINAL *Sin*, is that Crime we become guilty of at our Birth; by the Imputation of *Adam*'s Diſobedience. See SIN.

Father *Mallebranch* accounts for *Original Sin* from Natural Cauſes, thus: Men at this day retain, in the Brain, all the Traces and Impreſſions of their firſt Parents. For as Animals produce their like, and with like Traces in the Brain; whence it is that Animals of the ſame kind have the ſame Sympathies and Antipathies, and do the ſame things on the ſame Occaſions: So our firſt Parents, after their Tranſgreſſion, received ſuch deep Traces in their Brain, by the Impreſſion of ſenſible Objects, that 'twas very poſſible they might communicate 'em to their Children.

Now, as 'tis neceſſary, according to the Order eſtabliſhed by Nature, that the Thoughts of the Soul be conformable to the Traces in the Brain; it may be ſaid that as ſoon as we are form'd in the Womb, we are infected with the Corruption of our Parents: For having Traces in the Brain like thoſe of the Perſons who gave us being; 'tis neceſſary we have the ſame Thoughts, and the ſame Inclinations with regard to ſenſible Objects.

Thus, of courſe, we muſt be born with Concupiſcence, and *Original Sin*. With Concupiſcence, if that be nothing but the natural Effort the Traces of the Brain make on the Mind to attach it to ſenſible things; and with *Original Sin*, if that be nothing but the Prevalency of Concupiſcence; nothing in effect, but theſe Effects conſider'd as Victorious and as Maſters of the Mind and Heart of the Child.

ORIGINALIA, in the Exchequer, are Records, or Tranſcripts ſent to the Remembrancer's Office, out of Chancery; and differ from *Recorda*, which contain the Judgments and Pleadings in Suits tried before the Barons.

ORILLON, in Fortification, a ſmall rounding of Earth, lined with a Wall; raiſed on the Shoulder of thoſe Baſtions that have Caſements; to cover the Cannon in the retired Flank, and prevent their being diſmounted by the Enemy.

There are other ſorts of *Orillons*, properly call'd *Shoulderings*, or *Epaulements*, almoſt of a ſquare Figure. See Epaulement.

ORION, in Aſtronomy, one of the Conſtellations of the Southern Hemiſphere. See Constellation.

The Word is form'd from the *Greek* ὕειν, to rain; the Antients ſuppoſing that it rais'd Tempeſts at its riſing and ſetting.

Stars in the Conſtellation Orion, *in Ptolemy*'s Catalogue are 37, in *Tycho*'s 62, in the *Britannic* Catalogue 80. The Names, Situations, Magnitudes, Longitudes, and Latitudes whereof are as follow:

Stars in the Conſtellation Orion.

Names and Situations of the Stars.	Signs.	Longitude			Latitude South.			Magn.
		°	'	"	°	'	"	
Preced. and 6th the Lion's Skin.	♊	7	32	39	15	25	30	4
5th in the Lion's Skin.		8	00	53	13	31	20	4
7th in the Lion's Skin.		7	46	00	16	48	55	4
1ſt and North in the Lion's Skin.		9	09	15	8	16	07	4 5
3d in the Lion's Skin.		9	22	11	11	09	17	6
5								
4th in the Lion's Skin.		9	14	57	12	24	01	4
8th in the Lion's Skin.		8	09	36	20	02	56	4
2d in the Lion's Skin.		10	00	34	9	06	31	4 5
Laſt and South in the Lion's Skin.		9	11	42	20	53	51	4 5
Prec. of 2 Inform. towards the Horn of ♉		12	12	00	7	25	06	5
10								
North in the preced. Arm.		12	20	45	14	22	37	6
South and ſubſeq. in the Arm.		12	40	11	13	04	00	6
Subſ. of the Inform. tow. the Horn of ♉		13	27	34	7	21	32	5
That againſt the preced. ſide.		13	13	48	20	07	24	4 5
That againſt the preced. Arm.		14	36	24	11	45	55	6
15								
Bright one in prec. Foot call'd *Regal.*		12	30	00	31	10	11	1
More North over the Heel.		13	30	26	29	52	52	4
		14	46	42	20	30	01	6
North in the prec. ſide und. the Girdle.		15	13	46	23	31	19	5
Preced. and North in the ſide.		15	48	42	19	37	39	6
20								
In the preced. Shoulder.		16	37	33	16	51	30	2
Preced. and South in the Back.		16	12	26	21	21	07	5
S. in the prec. ſide under the Girdle.		15	55	49	24	05	24	6
In the Hilt of the Sword.		15	49	47	25	34	47	3
In the Calf of the preced Leg.		15	13	47	30	57	44	5
25								
Preced. of 4 in the Back, as it were,		16	50	50	20	08	18	5
in a right Line.)		17	23	22	24	21	29	6
That foll. the Shoulder to the South.		18	02	50	17	20	25	5
2d of four in the Back.		18	01	10	20	00	09	6
Preced. in the Girdle.	♊	18	01	38	23	36	07	2
30								
Under the Point of the Sword.	♊	17	34	05	30	35	12	4
Preced. in the Head.		19	15	51	13	51	19	5
In the Back the 3d.		18	51	06	19	34	10	6
In the Head the North of three.		19	22	18	13	25	02	4
South and ſubſeq. of the Head.		19	46	28	14	02	58	5
35								
Prec. of the contig. in the middle of the Sword.		18	38	58	28	43	24	3 4
Preced of the North of the contig. in the middle of the Sword.		18	42	11	28	10	17	5
Subſeq. in the middle of the Sword.		18	40	14	28	45	02	4
South in the Sword.		18	39	1	29	14	37	3 4
Laſt of the North in the Sword.		18	46	48	28	11	45	5
40								
Middle of three in the Girdle.		19	07	44	24	33	23	2
Laſt of 4 in the Line of the Back.		20	09	56	19	16	03	5
That under the third of the Girdle.		19	45	41	25	58	47	4
Subſ. under the Point of the Sword.		19	35	25	30	34	50	5
Third and laſt in the Girdle.		20	21	45	25	20	17	2
45								
Preced. in the hind-ſide.		20	57	34	21	56	08	5
		22	32	37	16	59	55	6
In the hind Knee.		22	03	41	33	07	06	3
Preced. of two in the Club.		24	22	23	3	11	44	5
Latter of two in the hind-ſide.		23	38	23	21	37	10	6
50								
		24	29	13	3	44	01	6
Glittering Star in the hind Shoulder.		24	25	00	16	04	26	1
		25	14	10	21	38	50	6
That following the ſide out of form.		25	20	41	22	56	04	6
Preced. of thoſe following the Knee.		25	23	32	33	02	04	6
55								
		26	29	13	3	47	31	5 6
In the lower part of the hind Arm.		26	16	05	13	50	01	4
Subſeq. in the Club.		26	36	07	3	20	37	5
		26	21	38	18	01	56	6
Laſt of the two ſubſeq. of the Knee.		26	12	07	34	04	58	5 6
60								
		26	59	00	19	19	18	6
Prec. of the South in □ of hind Hand.		27	31	17	8	42	16	4 5
		28	30	25	3	39	59	6
Preced. of the North in the Square.		28	34	14	7	19	30	6
Laſt of the South in the ſame.		28	34	01	9	14	49	4 5
65								
		29	12	10	4	16	02	6
Laſt of the North.		29	24	09	7	17	31	6
		29	34	49	10	53	13	6
North in the hind Ulna.		29	45	12	11	10	30	6
	♊	29	53	42	29	42	05	4 5
70								
South in the hind Ulna.	♋	0	00	00	13	28	25	6
		1	56	47	18	45	41	4
		3	33	13	28	03	05	5
		3	55	48	30	18	32	4
Informes following *Orion* between *Gemini* and *Canis major.*		4	09	30	18	23	14	4
75								
		4	09	13	15	54	21	4
		6	02	11	13	13	14	4
		7	48	51	14	56	54	5
		8	27	11	20	32	38	4
	♋	15	11	48	22	46	00	4
80								

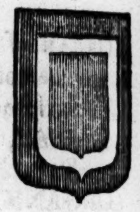
ORION's *River*, in Aſtronomy, a Conſtellation call'd *Eridanus*. See Eridanus.

ORLE, Orlet, or Orlo, in Architecture, a Fillet under the *Ovolo*, or Quarter-round of a Capital. See Fillet.

When 'tis at the Top or Bottom of the Shaft, 'tis call'd *Cincture*. See Cincture.

Palladio alſo uſes the Word for the Plinth of the Baſes of Columns and Pedeſtals. See Plinth.

The Word is *French*; form'd from the *Latin*, *Orletum*, or *Orlum*; of *Ora*, a Border, or Liſt.



ORLE, in Heraldry, an Ordinary in form of a Fillet, drawn round the Shield, near the Edge or Extremity thereof.

Its Breadth is but half that of the Bordure, which contains a ſixth part of the Shield; the *Orle* only a twelfth: Add, that the *Orle* is its own breadth diſtant from the Edge of the Shield; whereas the Bordure comes to the Edge itſelf. See Bordure.

There is ſometimes one *Orle*, ſometimes two, and ſometimes three: When there are three or more, they take up the whole Shield.

The form of the *Orle* is the ſame with that of the Shield; whence it reſembles an Ineſcutcheon: as in the Figure adjoining.

When an *Orle* is flower'd, 'tis call'd a *Treſſure*. If a Round of Martlets, Cinque-foils, *&c.* be placed about any Ordinary, in manner of an *Orle*, they are ſaid to be *en Orle*, &c.

ORLOPE, in the Sea Language, the uppermoſt Space or Deck in a great Ship, from the Main-Maſt to the Mizen.

ORNAMENTS, in Architecture, expreſs all the Sculpture, or Carved Work, wherewith a Piece of Architecture is enrich'd. See Sculpture and Enrichment.

Vitruvius and *Vignola* alſo uſe the Word to ſignify the *Entablature*. See Entablature.

Ornaments, in Relievo, are thoſe cut in the Contours of Mouldings; as *Leaves*, *Shells*, *Scrolls*, *Flowers*, &c. *Ornaments, in Creux*, thoſe cut within the Mouldings; as *Eggs*, *Flutes*, &c. See Moulding.

ORNITHOLOGY, that Branch of Natural Hiſtory, which conſiders and deſcribes *Birds*, their Natures, Kinds, *&c.* See Bird.

We have an excellent *Ornithology* of *Fr. Willoughby* Eſq; and another of Mr. *Ray*, a Poſthumous Work, which is only an Abridgment of the former, with the Addition of his *Ichtyology*; and ſeveral Kinds wanting in the other.

Willoughby, herein, ſpeaks with aſſurance of a Swan that lived 300 Years; and a Gooſe that they were obliged to kill at 80, by reaſon of its Miſchievouſneſs.

The Word is form'd from the *Greek* ὄρνις, *Bird*, and λόγος, *Diſcourſe*.

ORNITHOMANCY, a kind of Divination, or of arriving at the Knowledge of Futurity, by means of Birds. See Divination.

Ornithomancy, among the *Greeks*, was the ſame with Augury among the *Romans*. See Augury.

ORPHAN, a Child, or Minor, deſtitute of Father; or that has neither Father, nor Mother.

Hence the *Taborites*, or Followers of *Ziſcha*, finding themſelves, at his Death, without Chief or Conductor, took the Appellation of *Orphans*.

Orphans *Money*, or *Tax*. See Duty.

ORPIMENT, or **ORPIN**, by the *Latins*, *Auripigmentum*, a Mineral, or Semi-Metal, uſually found in Copper Mines; and ſuppoſed to contain Particles of Gold; which may be extracted by Chymiſtry, but which were never found to countervail the Expence. See MINERAL and SEMI-METAL.

Orpiment is found in Stones, or Glebes, of ſeveral Sizes, and Figures: Its Colour is always yellow, intermixed with other Shades; as green, red, orange, &c.

Sometimes 'tis found almoſt quite red; which is the proper *Sandarach* of the Antients. See SANDARACH.

But that uſually call'd *red Orpiment*, or *red Arſenic*, is only the yellow *Orpiment* heated to a great degree, and put in a Crucible, with Oil of Hemp-Seed, Olives, or Nuts.

Painters, Farriers, &c. make a great Conſumption of this Mineral; but as it is found a violent Corroſive, and a dangerous Poiſon, it muſt be uſed with a great deal of Precaution.

Orpiment muſt be choſen of a Golden Yellow, eaſy to ſcale, and the Scales very thin, ſmall, and ſhining like Gold.

Some make three Kinds of *Orpiment*; *White*, which is the ſame with Arſenic: See ARSENIC. *Yellow*, which is the proper *Orpiment*; and *Red*, which is *Sandarach* or *Realgal*. See REALGAL.

The *Indians* uſe *Orpiment*, corrected with Juice of Lemons, with good Succeſs againſt Fevers.

ORTEIL, in Fortification. See BERME.

ORTHODORON, an antient *Greek* Meaſure. See MEASURE.

ORTHODOXY, a Soundneſs of Doctrine, or Opinion, with regard to all the Points and Articles of Faith.

Orthodoxy is uſed in oppoſition to *Heterodoxy*, or *Hereſy*. See HERESY.

The Word is form'd from the *Greek* ορθος, *Right*, and δοξα, *Opinion*, *Judgment*.

ORTHODOXY, or *Feaſt of* ORTHODOXY, is alſo a ſolemn Feaſt in the *Greek* Church, inſtituted by the Empreſs *Theodora*; ſtill held on the firſt Sunday of *Lent*, in memory of the Reſtoration of Images in Churches, which had been taken down by the *Iconoclaſtes*. See ICONOCLASTES.

ORTHOGONIAL, in Geometry, *Right-angled*. When the Term is referred to a plain Figure, it ſuppoſeth one Leg or Side to ſtand perpendicular to the other: When ſpoken of Solids, it ſuppoſeth their Axis to be perpendicular to the Plane of the Horizon.

ORTHOGRAPHY, in Grammar, the Art of Writing, or Spelling juſtly, and with all the neceſſary Letters. See WRITING and SPELLING.

The Word is form'd from the *Greek* γραφη, and ορθος, *recta ſcriptio*.

That Diverſity found in moſt of the modern Languages, eſpecially the *French*, between the Pronunciation and *Orthography*, makes one of the principal Difficulties in acquiring 'em; yet does it ariſe from the ſame Source as the Languages themſelves. See LANGUAGE.

The *Gauls*, *e. gr.* forming a new Language from the antient *Latin*, took the Liberty to model the Words to their Fancy: At firſt, indeed, 'tis probable they wrote as they pronounced; but, by degrees, finding that Words pronounced with all their Letters ſounded harſh, they began to pronounce more ſmoothly. Thus, in ſpeaking, they thought fit to ſoften that Harſhneſs reſulting from the concurrence and claſhing of Conſonants; but as the *Orthography*, or Writing, did not offend the Ear, it ſtill continued on its former footing.

Attempts have been ſince made to reduce the Writing to the Pronunciation, or to make us write as we ſpeak; which has occaſion'd great Diſputes. *Pelletier* of *Mans* was the firſt who pleaded for the Change of the *Orthography*; and after him *Maigret*, *Peter Ramus*, *de Bois*, *Menage*, and others; but in vain.

They have, however, occaſion'd a Schiſm among Writers, which has done more harm than the evil they intended to reform: The *French* Writers being now divided into two Parties; one of which retains to the *old*, and the other to the *new Orthography*. The latter, F. *Buffier* obſerves, is the more conſiderable Body, yet are theſe divided among themſelves; ſome being for carrying the Reformation much farther than others.

The chief Matters urged in behalf of the antient *Orthography*, are, that by changing it, we ſhould loſe ſight of the Origin and Etymology of Words borrow'd from the *Greek* and *Latin*, &c. That it does not matter what Characters are uſed to expreſs Sounds in writing, provided one know the relation between thoſe Characters and the Sounds they repreſent: That by a neceſſary conſequence of ſuch Change, the Language would in time be all alter'd, and we ſhould loſe the Uſe of our old Authors; as ours, in their turn, would likewiſe become unintelligible.

What is alledged for the new *Orthography*, is, its being more commodious, natural, eaſy, ſhort, &c.

Some Authors take a middle Courſe between the two Extremes; retrenching the Letters where they are abſolutely uſeleſs, as the *s* in an infinity of Words; and yet ſtudiouſly retaining all the Letters whereon the Etymology has any dependance.

In the *Engliſh*, the *Orthography* is more vague, and unaſcertain'd, than in any other Language we know of. Every Author, nay almoſt every Printer, has his particular Syſtem. Nay, 'tis ſcarce ſo well with us as that: We not only differ from one another; but there is ſcarce any that conſiſts with himſelf. The ſame Word ſhall frequently appear with two or three different Faces in the ſame Work. See ENGLISH.

The Antients who have wrote Treatiſes of *Orthography*, are *Velius Longus*, *Marius Victorinus*, *Flavius Caper*, *Caſſiodorus*, and *Beda*. Among the Moderns, *Torelli*, *Lipſius*, *Dauſquius*, *Scioppia*, *Valla*, and *Manutius* the younger, have wrote on the ſame Subject.

Orthography makes one of the great Diviſions, or Branches of Grammar. See GRAMMAR.

ORTHOGRAPHY, in Geometry, the Art of Drawing, or delineating the fore-right Plan of any Object, and of expreſſing the Heights or Elevations of each Part.

It is call'd *Orthography* from its determining things by perpendicular Lines falling on the Geometrical Plane.

ORTHOGRAPHY, in Architecture, is the Elevation of a Building. See ELEVATION.

The *Orthography* is either External, or Internal.

External Orthography is a Delineation of the external Face or Front of a Building; exhibiting the principal Wall, with its Apertures, Roof, Ornaments, and every thing viſible to an Eye placed before the Building.

Internal Orthography, call'd alſo a *Section*, is a Delineation, or Draught of a Building, ſuch as it would appear, were the external Wall removed. See SECTION.

To lay down the ORTHOGRAHPY *of a Building.*

Draw a right Line for a Baſis or ground Line, (Tab. PERSPECTIVE, *Fig.* 13.) A B, and at one end erect a Perpendicular A D. Upon A B ſet off the widths and diſtances of the Gates, Windows, &c. On the right Line A D, ſet off the Heights of the ſeveral Parts viſible in the Face of the Building, *v. gr.* of the Doors, Windows, the Roof, Chimneys, &c. and apply a Ruler to each Point of Diviſion. The common Interſections of the right Lines drawn from three Points parallel to the Lines A B and A D, determine the external *Orthography* of the Building: And after the ſame manner is the internal *Orthography* laid down. See PERSPECTIVE.

ORTHOGRAPHY, in Fortification, is the Profile, or Repreſentation of a fortify'd Place; or a Draught ſo conducted, as that the length, breadth, height, and thickneſs, of the ſeveral Parts are expreſs'd; ſuch as they would appear, if it were perpendicularly cut from Top to Bottom. See PROFILE and FORTIFICATION.

ORTHOGRAPHY, in Perſpective, a Delineation of the fore-right Plane of any Object. See PERSPECTIVE.

ORTHOGRAPHIC *Projection of the Sphere*, is a Repreſentation of the ſeveral Points of the Surface of the Sphere, as they would appear to the Eye, placed at an infinite diſtance; ſo call'd, becauſe the Perpendiculars from any Point of the Sphere, will all fall in the common Interſection of the Sphere with the Plane of the Projection. See PROJECTION.

ORTHOPNÆA, in Medicine, a great difficulty of Reſpiration, wherein the Patient is obliged to ſit, or ſtand, to be able to breathe. See RESPIRATION.

An *Orthopnæa*, is a Species, or Degree of an Aſthma. See ASTHMA.

It may be cauſed from Pus, thick, or mucilaginous Juices or Polypus's in the *Bronchia*; mercurial, and other Fumes, hindering the playing of the Lungs; Stoppage of Evacuations; Cachexies, ill Digeſtions, or whatever affords viſcid Chyle, or occaſions the Blood to run ſlower through the Lungs, either by ſtraitening the Canals, or thickening the Blood, or hindering the Motion of the Animal Spirits, ſo that they cannot elevate the Breaſt; or that cauſes the Blood to be more rarefy'd, or more in Quantity, ſo that there is not ſufficient room to receive it into the Veſſels of the Lungs.

The Word is compounded of ορθος, right, and πνεειν, to reſpire, breathe.

ORTIVE, *Ortivus*, in Aſtronomy. *Ortive* or Eaſtern Amplitude, is an Arch of the Horizon intercepted between the Point where a Star riſes, and the Eaſt Point of the Horizon, or the Point where the Horizon and Equator interſect. See AMPLITUDE.

ORVIETAN, an Antidote, or Counter-poiſon; ſo call'd, becauſe invented and propagated by an Operator from *Orvieta* in *Italy*; who made Experiments thereof in his own Perſon, on the public Stage, after taking ſeveral Doſes of Poiſons. See ANTIDOTE and POISON.

In *Charras's Pharmacopœia* is a Method of making *Orvietan*; where it appears that Treacle is one of the principal Ingredients. See THERIACA.

OS, in Anatomy, ſee BONE.

Os *Pubis*,		PUBIS.
Os *Sacrum*,		SACRUM.
Os *Iſchium*,	See	ISCHIUM.
Os *Hyoides*,		HYOIDES.
Os *Femoris*, &c.		FEMUR, &c.

OSCHEOCELE, in Medicine, a kind of *Hernia*, wherein the Inteſtines deſcend into the *Scrotum*. See HERNIA.

The Word is form'd from the *Greek* ὄσχεον, Scrotum, and κήλη, Tumor.

OSCHOPHORIA, in Antiquity, Feaſts inſtituted by *Theſeus*, in acknowledgment for his having deſtroy'd the *Minotaur*, and by that means freed his Country, *Athens*, from the Tribute of ſeven young Men, which were to be ſent every Year into *Crete*, to be devoured by that Monſter. See MINOTAUR.

Some ſay the *Oſchophoria* were inſtituted in honour of *Minerva* and *Bacchus*, who had aſſiſted *Theſeus* in his Enterprize. Others, that they were in honour of *Bacchus* and *Ariadne*.

To celebrate the *Oſchophoria*, the young People who had Fathers and Mothers alive, run to the Temple of *Bacchus* and that of *Minerva*, with Grapes in their Hands. He who arrived there firſt, was the Conqueror; and was to perform the Sacrifice by pouring out of a Phial a Mixture of Wine, Honey, Cheeſe, Flower, and Oil.

The Word is form'd from the *Greek* ὄσχη, Branch of a Vine loaden with Grapes, and φερω, I bear. . *Plutarch* ſays, the *Oſchophoria* were ſo named, becauſe inſtituted by *Theſeus* when on his Return to *Athens*; and the Feaſt celebrated after the Vintage.

OSCILLATION, in Mechanics, *Vibration*; or the reciprocal Aſcent, and Deſcent of a Pendulum. See PENDULUM.

Axis of OSCILLATION, is a right Line, perpendicular to the apparent horizontal one, and paſſing thro' the Centre of the Earth; about which the Pendulum *oſcillates*. See AXIS.

If a ſimple Pendulum be ſuſpended between two Semicycloids, whoſe generating Circles have their Diameter equal to half the Length of the Thread; all the *Oſcillations*, howſoever unequal, will be Iſochronal, or Equi-diurnal. See ISOCHRONAL.

The Time of the entire *Oſcillation* thro' any Arch of a Cycloid, is to the Time of the perpendicular Deſcent thro' the Diameter of the generating Circle, as the Periphery of the Circle to the Diameter. See CYCLOID.

If two Pendulums move in ſimilar Arches, the Times of *Oſcillations* are in a ſubduplicate Ratio of their Lengths.

The Numbers of Iſochronal *Oſcillations*, perform'd by two Pendulums in the ſame Time, are reciprocally as the Times wherein the ſeveral *Oſcillations* are perform'd. See CLOCK.

M. *Huygens*'s whole Doctrine of *Oſcillation*, is founded on this Hypotheſis; That the common Centre of Gravity of ſeveral Bodies, connected together, muſt return preciſely to the ſame height whence it fell; whether thoſe Weights return conjointly, or, whether after their Fall, they return ſeparately; each with the Velocity it had then acquired. See CENTRE *of Gravity*.

This Suppoſition was oppos'd by ſeveral, and very much ſuſpected by others. And others who inclined to believe it true, yet thought it too daring to be admitted into a Science, which demonſtrates every thing.

At length M. *Bernoulli* demonſtrated it by ſtrict Geometry; by referring the Weights to a Lever. After his Death, a more eaſy and natural Demonſtration of the Centre of *Oſcillation* was advanc'd by his Brother. The Subſtance whereof may be conceiv'd as follows.

A ſimple Pendulum of a determinate Length and Weight, raiſed to a determinate Height, whence it is to fall till it recover its vertical Line; employs, in that Fall or Demi-Vibration, a determinate Space of Time, which cannot be either greater or leſs. Which Time is neceſſarily ſuch, becauſe the agitative Force, *i. e.* the Force which produces the Motion of the Pendulum, is determined in every thing that concurs to the Formation thereof: ſo that it can only cauſe one certain Effect.

The agitative Force of the Pendulum is form'd of three Things: 1°. Of the Power or Moment of the Weight. 2°. Of the Maſs or Body tied to the end of the inflexible Rod. 3°. Of the Diſtance of that Body from the Point of Suſpenſion, or, which is the ſame, of the Length of the Rod or the Pendulum.

Now, 1°, The Power of the Weight, be the Cauſe what it will, is that Power which makes a Body fall, and that, *v. gr.* at the rate of fourteen Foot, in the firſt Second of Time. 'Tis viſible, then, that this Force is the Effect of a Quantity which determines thoſe fourteen Feet; and that a heavy Body would paſs more or leſs Space in that ſame firſt Second, if the Force of the Weight were greater or leſs.

2°. As that Force is apply'd to each Point, or infinitely ſmall Part of a Body, the greater this Body is, or the larger its Maſs, the greater Quantity of Motion or Force it has.

3°. The Diſtance of the moving Body from the Point of Suſpenſion, or the Rod, is always the Radius of a Circle, whereof the moving Body deſcribes an Arch: And of conſequence the greater the Radius is, *cæteris paribus*, the larger Arch the Body deſcribes. And at the ſame time, the greater Height it falls from, the greater Velocity it acquires.

Now, the agitative Force of the Pendulum, is only that of the Body faſten'd to the End of the Rod. So that it is the Product of the Force of the Weight, of the Maſs of the Body, and of its Diſtance from the Point of Suſpenſion. The Force of the Weight therefore being always the ſame; and a Body or Weight faſten'd to the End of the Rod, always the ſame; 'tis impoſſible that two ſimple Pendulums of a different Length ſhould be Iſochronal, or ſhould make their Vibrations in the ſame time: for by virtue of thoſe different Lengths, the Velocities will be unequal, and of conſequence, the Times of their Vibrations.

But if it be ſuppos'd that there are in Nature different Forces of Weight; it will then be poſſible that two ſimple Pendulums of different Lengths, ſhould be Iſochronal; the one animated by the natural Weight, the other by the imaginary one. If the imaginary Weight be greater than the natural one, the Pendulum imagin'd Iſochronal to the natural one, will neceſſarily deſcribe a larger Space or Arch in the ſame time; and of conſequence the Weight will be faſten'd at a greater Diſtance from the Point of Suſpenſion. Tho, to have an Iſochroniſm, the two agitative Forces of the two Pendulums muſt be equal; yet of the three Things which compoſe theſe Forces, there are already two greater in the imaginary, than the real Pendulum: the third, therefore, *i. e.* the Maſs of its Weight, muſt be diminiſh'd in the neceſſary Proportion. As the Space or Arch deſcrib'd by the imaginary Pendulum, is greater than that by the natural Pendulum, in the ſame Ratio as the imaginary Weight is greater than the natural one; and a Radius of that Arch, greater in the ſame Ratio, are two Things inſeparable: the two Weights will be always to one another, as thoſe two Radii, or the two Lengths of the two Pendulums; which always gives the Expreſſion of the imaginary Weight, and by a neceſſary Conſequence, that of the diminiſh'd Maſs of the Weight of the imaginary Pendulum. If the Weight be imagin'd leſs than that of the natural one, 'tis eaſy to obſerve how it is to be taken; but that were needleſs in our Deſign.

If now there be a compound Pendulum, charg'd with two Weights faſten'd to the ſame Rod; M. *Bernoulli* conceives each of thoſe Weights removed to a greater Diſtance from the Point of Suſpenſion, than it was before; but both to the ſame; and, diminiſh'd in Maſs, in a due Proportion: ſo as that both together only make one ſimple Pendulum, animated with one Weight the Expreſſion whereof is had, and Iſochronal to the natural compound Pendulum.

Thus we ſhall have one ſimple natural Pendulum Iſochronal to the compound natural one, by having a ſimple natural Pendulum Iſochronal to the ſimple imaginary Pendulum before found; which is very eaſy: ſince as the imaginary Weight is to the natural, ſo is the Length of the ſimple imaginary Pendulum, to the Length of the ſimple natural Pendulum; and 'tis there is the Centre of *Oſcillation* requir'd.

Centre of OSCILLATION, in a ſuſpended Body, is a certain Point therein, each Vibration whereof is perform'd in the ſame manner, as if that Point alone were ſuſpended at that Diſtance from the Point of Suſpenſion.

Or, it is a Point, wherein, if the whole Length of a compound Pendulum be collected; the ſeveral *Oſcillations* will be perform'd in the ſame time as before. See PENDULUM.

Its Diſtance, therefore, from the Point of Suſpenſion, is equal to the Length of a ſingle Pendulum, whoſe *Oſcillations* are Iſochronal with thoſe of the compound one. See CENTRE *of Oſcillation*.

OSCITATION, the Act popularly call'd *Yawning*.

It is perform'd by expanding almoſt all the Muſcles of voluntary Motion at the ſame time; but moſt conſiderably thoſe of the Lungs: by inſpiring a great Quantity of Air, very ſlowly, and after retaining it ſome time, and rarifying it, by ex-

expelling it again ſlowly, and reſtoring the Muſcles to their natural State.

Hence, its Effects are to move, accelerate, and diſtribute all the Humours of the Body, equably thro' all the Veſſels; thereby diſpoſing the Organs of Senſation, and all the Muſcles of the Body, for the Performance of their reſpective Functions.

OSCULA, in Anatomy, a Term uſed for the Orifices, or Openings of the leſſer Veſſels. See ORIFICE, VESSEL, *&c.*

OSCULUM, in the new Analyſis. A Circle deſcribed on the Point C, as a Centre (Tab. ANALYSIS, fig. 12.) with the Radius of the Evolute M C, is ſaid to *oſculate*, kiſs, the Curve deſcribed by Evolution in M; which Point M is call'd by the Inventor *Huygens*, the *Oſculum of the Curve.* See EVOLUTE.

The Line M C, is alſo call'd the *Radius of the Oſculum.* See RADIUS.

The Evolute B C E, is the Place of the Centres of all the Circles that *oſculate* the Curve A M I, deſcribed by Evolution. See EVOLUTION.

The Doctrine of the *Oſcula of Curves*, is owing to Monſ. *Leibnitz*, who firſt ſhew'd the Uſe of *Huygens*'s Evolute in meaſuring the Curvatures of Curves. See CURVE.

OSCULUM *Pacis.* Antiently it was a Cuſtom in the Church, that in the Celebration of Maſs, after the Prieſt had conſecrated the Wafer, and ſpoke the Words, *Pax Domini vobiſcum*, the People kiſs'd each other, which was called *Oſculum Pacis.* When this Cuſtom was abrogated, another aroſe; and while the Prieſts ſpoke the Words, a Deacon or Sub-Deacon offer'd the People an Image to kiſs; which they call'd, *Pacem.*

OSIANDRIANS, the Name of a Sect among the Reformed; ſo call'd from *Andrew Oſiander*, Father of *Luke.*

Their diſtinguiſhing Doctrine was, That Man is juſtify'd formally, not by the Faith and the Apprehenſion of the Juſtice of Jeſus Chriſt, or the Imputation of our Saviour's Juſtice, according to the Opinion of *Luther*, and *Calvin*; but by the eſſential Juſtice of God.

Demi-Oſiandrians, were ſuch among the *Oſiandrians*, as held the Opinion of *Luther* and *Calvin* with regard to this Life; and that of *Oſiander* with regard to the other: aſſerting, That Man is juſtify'd here by Imputation, and hereafter by the eſſential Juſtice of God.

OSSA, in Anatomy. See BONES.

OSSICLE, *little Bone*; a Diminutive of *Os*, Bone. See BONE.

In this ſenſe, the Term is uſed among Anatomiſts.

Botaniſts alſo uſe it for the Stone of a Cherry, Plumb, Apricot, or other Stone-Fruit. See STONE-*Fruit.*

OSSIFICATION, in the Animal Oeconomy, the Formation of the Bones. See BONE.

Bones, Dr. *Drake* argues, are form'd out of the moſt comminuted or broken part of the Blood; ſince we ſee that the Blood of old Men, which by a long Courſe of Circulation, becomes in a manner unfit for the common Office of Nutrition, will however *oſſify*, and convert into Bones, many of the Tendons and Ligaments, and even the Coats of the Veſſels themſelves; whoſe Subſtance being next to the Bones the moſt compact, admits only of the ſmalleſt Particles of the Blood; which therefore ſooneſt become *oſſeous*, as they are frequently found. See NUTRITION, *&c.*

OSTENSIO, was a Tax antiently paid by Merchants, *&c.* for leave to ſhew or expoſe their Goods to Sale in Markets.

OSTENSIVE *Demonſtrations*, in Logic, ſuch as plainly and directly demonſtrate the Truth of any Propoſition; in which they are diſtinguiſhed from Apogogical ones, or Deductions *ad abſurdum*, or *ad impoſſibile*, which prove the Truth propos'd, by demonſtrating the Abſurdity or Impoſſibility of the contrary. See DEMONSTRATION.

Theſe *Oſtenſive Demonſtrations* are of two ſorts; ſome of which, barely, but directly, prove the thing to be; which they call ὅτι; and others demonſtrate the Thing from its Cauſe, Nature, or eſſential Properties, and theſe are call'd in the Schools διότι.

OSTEOCOLLA, in Natural Hiſtory, *q. d. glue-bone*, a white, or aſh-colour'd Stone, ſhaped like a Bone, and by ſome ſuppoſed to have a quality of uniting broken Bones; on which account it is order'd in ſome Plaiſters; but the preſent Practice has no ſuch Dependance on it.

OSTEOCOPE, an acute Pain, wherein the Patient is affected as if his Bones were breaking.

It ariſes from a ſharp Humour vellicating the *Perioſtium*, or Membrane wherewith the Bones are inveſted.

It is particularly incident to ſcorbutic and pocky Perſons.

The Word is form'd from the *Greek* ὀςέον, Bone, and κόπτειν, to break.

OSTEOLOGY, that Part of Anatomy which teaches the nature of the Bones of the human Body; their Form, Diſpoſition, Articulation, Uſe, *&c.* See BONE.

Dr. *Clopton Havers* has given us an *Oſteology*; in good repute

The Word is form'd from the *Greek* ὀςέον, Bone, and λόγος, Diſcourſe.

OSTIA, in Anatomy, a Term uſed indifferently with *Oſcula*, *Orifices*, &c. for the Mouths or Apertures of the Veſſels of the Body; as the *Oſtia Vaginæ*, &c. See VAGINA.

OSTRACISM, a kind of popular Judgment or Condemnation among the *Athenians*; or a Sentence of Baniſhment againſt Perſons whoſe too great Power render'd them ſuſpected to the People; or, whoſe Merit and Credit gave Umbrage leſt they ſhould attempt ſomething againſt the public Liberty, and their Power degenerate into Tyranny. See BANISHMENT.

It had its name *Oſtraciſm*, in regard the People gave their Votes, by writing the Name of the Perſon to be baniſh'd in a Shell ὄςρακον, and caſting the Shells into an Urn.

This kind of Baniſhment had nothing infamous in it, as not being for any Crime; but, on the contrary, was held very honourable, as it was a Mark of Popularity.

It laſted for ten Years, but the baniſh'd Perſon had the full enjoyment of his Eſtate all the time.

Oſtraciſm was null, unleſs there were 6000 Citizens in the Aſſembly of the People.

OSTRACITES, in Natural Hiſtory, a kind of cruſty Stone, reddiſh, and in form of an Oiſter-ſhell, and, like that, ſeparable into *Laminæ*; found in ſeveral Places in *Germany*; and held of good Service in the Gravel.

Dr. *Home*, in the *Philoſ. Tranſact.* ſays, it rather diſſolves the little Stones than forces 'em out, as not being remarkably Diuretic. He adds, that he preſcribes it in Powder with a third part of *Flores Chamomeli.* The Doſe is from half a Drachm to a whole one in white Wine.

OSTRACITES is alſo the Name of a kind of *Cadmia* found at the bottom of the Furnaces wher Coppere is purify'd. 'Tis very heavy, and reſembles an Oiſter-ſhell, whence its Name. It is eſteemed aſtringent and deterſive; and is an Ingredient in ſeveral Unguents. See CADMIA.

OTACOUSTIC, a Term apply'd to Inſtruments which aid or improve the Senſe of Hearing. See HEARING.

The Word is form'd from the *Greek* οὖς ὠτὸς, Ear, and ἀκούω, I hear. See ACOUSTIC.

OTALGIA, in Medicine, a Pain in the Ear.

The *Otalgia* uſually ariſes from an Inflammation; ſometimes from a ſharp ſerous Humour, which vellicates the Membrane wherewith the Canal of the Ear is lined. It is ſometimes alſo occaſion'd by a Wound or Ulcer in that Part, or from ſome pungent Matter gather'd within the Ear.

The Word is form'd from the *Greek* οὖς ὠτὸς, Ear, and ἄλγος, Pain.

The Smoke of Tobacco convey'd into the Ear through a Pipe, *Etmuller* recommends as good to aſſuage this Pain; as alſo Millepedes in a proper Vehicle of Oil.

The *Otalgia* ſometimes ariſes from a Worm in the Ear; which is to be drawn out alive, or kill'd within. Warm Milk tempts the Worm to come forth; Wormwood Juice deſtroys it within. See WORMS.

OTIOSI, in the *Hebrew* Cuſtoms. The Learned are exceedingly divided about the *Decem Otioſi*, ten idle Perſons in the *Jewiſh* Synagogues.

Some ſay, they were the three Preſidents and the ſeven Readers; others that they were ten Perſons hired to attend conſtantly at the Synagogue, becauſe, without the Number Ten, it could be no regular Synagogue, nor legal Aſſembly; ſo that the *Decem Otioſi* were ten idle Folks kept in pay, to form, by their Preſence, a legal Synagogue. See SYNAGOGUE.

Vitringa in his *Archi-Synagogue*, refutes this Opinion; and will have them to be ten Directors, or Officers in the Synagogue. He ſhews that each Synagogue had its Directors; and that the Number was greater or leſs according to the Dignity of the Synagogue; that the ſmalleſt had at leaſt two; that, from the firſt times, each Synagogue had its Chief, call'd *Archi-Synagogus*, who had two Colleagues, to be preſent at the Ceremonies, and other Acts of Religion, and to take care every thing were done with decency; but that the *Archi-Synagogus* reſerv'd to himſelf the Power of Teaching: That beſides theſe three, the *Archi-Synagogus* nam'd ſeveral Readers, who read in the Synagogue every *Saturday*; and that theſe made the *Decem Otioſi* of the Synagogue; ſo call'd, becauſe being diſengaged from all other Employment, their whole Attendance was on Divine Service.

OVA, *Eggs*, in Natural Hiſtory, ſee EGG.

OVA, in Anatomy, *&c.* are little ſpherical Bodies, in form of Bladders, or Bubbles; conſiſting of two concentric Membranulæ, replete with a limpid Humour like the White of an Egg; found under the external Membrane of the *Ovaries* of Women, and connected to the minute Orifices of the Veſicles that compoſe the Subſtance of the *Ovaries* themſelves by a Calix. See OVARY.

After the uſe of Venery, they ſwell ſenſibly, become more and more pellucid, their Membranes grow thicker, and at length raiſe that of the *Ovary*, in form of *Papillæ*; at laſt, breaking the Membrane of the *Ovary*, they are detach'd from their Calix, taken into the Cavities of the *Fallopian* Tubes, and thence convey'd into the Womb; where, being cheriſh'd and impregnated with the Male Seed, they commence Embrio's; or, for want of that, are again ejected. See CONCEPTION, FALLOPIAN *Tube*, MATRIX, EMBRIO, *&c.*

OVA, in Architecture, are Ornaments in form of Eggs, carved on the Contour of the *Ovolo*, or Quarter-round; and ſeparated from each other by Anchors or Arrows Heads. See OVOLO and QUARTER-*round*.

The *Engliſh* uſually call theſe Ornaments *Eggs and Anchors*.

Inſtead of Eggs, the Antients ſometimes uſed *Hearts*; on which Foundation it was, that they introduced Arrows; to ſymbolize with Love.

OVAL, or *Ellipſis*, is an oblong curvilinear Figure, with two unequal Diameters; or, a Figure incloſed with a ſingle curve Line, imperfectly round, its length being greater than its breadth; like an Egg, whence its Name. See OBLONG.

The proper *Oval*, or Egg-ſhape, is an irregular Figure, being narrower at one end than the other; in which it differs from an *Ellipſis*, which is the Mathematical *Oval*, and equally broad at each end.

The common People confound the two together; the Geometricians alſo call the *Oval*, a *falſe Ellipſis*. See ELLIPSIS.

The Method of deſcribing an *Oval* chiefly uſed among Workmen, is, by a Cord, or String, as F M E, (Tab. GEOMETRY, *Fig.* 48.) whoſe length is equal to the greater Diameter of the *Oval*, and which is faſten'd by its Extremes to two Points or Nails E, *f*, planted in its longer Diameter; by which means the *Oval* is made as much longer, as the two Points or Nails are further a-part.

OVALE *Foramen*, in Anatomy, ſee FORAMEN *Ovale*.

OVALE *Centrum*, ſee CENTRUM *Ovale*.

OVOLO, *Ovum*, in Architecture, a round Moulding, whoſe Profile, or Sweep, in the *Ionic* and *Compoſite* Capitals, is uſually a Quadrant of a Circle; whence it is alſo popularly call'd the *Quarter-Round*. See QUARTER *Round*.

It is uſually enrich'd with Sculptures among the Antients, in form of Cheſnut-Shells; whence *Vitruvius*, and others of the Antients, call it *Echinus*, *Cheſnut-Shell*. See ECHINUS.

Among us, it is uſually cut with the Repreſentation of Eggs, and Anchors, or Arrows-Heads, placed alternately; whence its *Italian* Name *Ovolo*, Latin *Ovum*, and French *Oeuf*. See OVA.

OVARY, in Anatomy, that Part of an Animal wherein the *Ova* or Eggs are form'd and lodg'd. See OVA.

The *Ovaries* in Women, are alſo call'd *Teſtes Muliebres*, Female Teſticles; from their Uſe, which the Antients ſuppoſed analogous to that of the *Teſtes* in Men. See TESTES.

They are two in Number; lying near the ends of the *Fallopian* Tubes, two Fingers diſtance from the *Uterus*, to which they are connected by a ſtrong Ligament, call'd *Vas deferens*, and in ſome meaſure by the *Fallopian* Tubes, and the broad Ligament about the Region of the *Ilium*. They are faſten'd to the *Peritonæum* by the Spermatic Veſſels, by which means they are kept ſuſpended about the ſame Height with the *Fundus Uteri*. See UTERUS.

Their Figure is Semi-oval; their Surface ſomewhat uneven; their Size different in the different Stages of Liſe. At the time of Puberty, when largeſt, they uſually weigh a Drachm and half.

They are cover'd with a common Membrane from the *Peritonæum*; their Subſtance is whitiſh, compoſ'd of a number of little thin membranous and ſlender Fibres, interwoven with Arteries, Veins, and Nerves.

Among theſe Fibres and Veſſels are interſperſed a number of little round Bodies, like Bladders; full of a limpid Subſtance, and call'd *Ova*, or Eggs, of great Uſe in Generation. See GENERATION.

OVATION, in the *Roman* Hiſtory, a leſſer Triumph allow'd to Commanders, for Victories won without the Effuſion of much Blood; or for the defeating Rebels, Slaves, Pyrates, or other unworthy Enemies of the Republick. See TRIUMPH.

Their Entry was on foot, ſometimes on horſeback; but never in a Chariot: and they wore Crowns of Myrtle, call'd *Ovales*, having all the Senate attending in their Retinue.

The Word *Ovatio*, according to *Servius*, is deriv'd from *Ovis*, Sheep; becauſe the Conqueror ſacrific'd a Sheep on this occaſion to *Jupiter*; whereas in the great Triumph, they ſacrific'd a Bull. Others derive it from the Sound or Din of the Acclamations and Shouts of Joy made by the People in honour of the Solemnity; the People and Soldiery, on this occaſion, redoubling the Letter O, as in the greater Triumph they did the Words *Io Triomphe*.

The *Ovation* was firſt eſtabliſh'd in the Year of *Rome* 250, or 251; in honour of the Conſul *Poſthumius Tubertus*, after his defeating the *Sabines*.

OVELTY *of Services*, in our Law-Books, an Equality of Services; as when the Tenant Paravail owes as much to the Meſn, as the Meſn does to the Lord Paramount.

OVER-RAKE, in the Sea-Language. When a Ship riding at Anchor, doth ſo over-beat herſelf into an Head-Sea, that ſhe is waſh'd by the Waves breaking in upon her; they ſay, the Waves do *Over-rake* her.

OVER-REACH, in the Manage, is when a Horſe ſtrikes his hind Feet againſt his fore Legs.

The Word is alſo uſed for a Strain, or painful Swelling of the Maſter-Sinew of an Horſe; occaſion'd by ſuch *Over-reach*.

OVER-FLOWING. See INUNDATION.

The *Over-flowing of Lands*, uſed by our Husbandmen, is chiefly effected by diverting the Streams of Rivers, Brooks, Land-Floods, or Springs, or ſome part of them, out of their natural Channel.

When the Streams lie too low for this, they are made uſe of to turn ſuch Engines as may raiſe a ſufficient Quantity of Water to do it. The moſt uſual Engine, on this occaſion, is the *Perſian* Wheel. See PERSIAN *Wheel*.

OVER-RULING *an Objection*, in Law, is the rejecting, or ſetting it aſide.

OVER-RUNNING *a Page*, among Printers, is the running it over again, and diſpoſing the Lines in a different manner. See PRINTING, CORRECTING, *&c.*

OVERSAMESSA, an antient Fine or Penalty, impos'd, before the Statute of *Hue and Cry*, on ſuch Perſons, as hearing of a Murder or Robbery, did not purſue the Malefactor.

OVERT-ACT, a Term in Law ſignifying an *open Act*; or an Act capable of being manifeſted and proved: in which ſenſe it is diſtinguiſh'd from an intentional Act.

So an *Overt* Word, is a plain, *open* Word; from the *French*, *Ouvert*.

OVICULUM, in the antient Architecture, a little *Ovum*, or Egg.

Baldus will have this to be the *Lesbian Aſtragal* of *Vitruvius*. See ASTRAGAL.

Some uſe the Word *Oviculum* for *Ovolo*. See OVOLO.

OVILIA, or SEPTA, in antient *Rome*, a Place in the *Campus Martius*, at firſt rail'd in, like a Sheep's Pen; whence its Name. Afterwards it was mounted with Marble, beautify'd with Walks and Galleries; as alſo with a Tribunal, or Seat of Juſtice: within which Precinct the People frequently aſſembled, to give their Suffrages for the Election of Magiſtrates. See CAMPUS.

The Aſcent into the *Ovilia* was not by Stairs, but by Bridges made for the time; every Pariſh, Tribe, and Century, as the Aſſembly was Centurate or Tribute, *&c.* having its proper Bridge. Whence the Proverb, *de Ponte dejiciendus*, where a Perſon is to be barred from giving his Vote. See COMITIA.

OVIPAROUS, in Natural Hiſtory, a Term apply'd to ſuch Animals, as produce their Young *ab Ovo*, from Eggs; as Birds, Inſects, *&c.* See EGG, INSECT, ANIMAL, *&c.*

The *Oviparous* Kind ſtands in oppoſition to thoſe which bring forth their Young alive, call'd *Viviparous* Animals; as Man, Brutes, Reptiles, *&c.* See GENERATION, *&c.*

Oviparous Animals, may be defined to be ſuch as conceive Eggs, which they afterwards bring forth; and from which, by the Incubation of the Parent, or ſome other Principle of Warmth and Fermentation, at length ariſe Animals; which after they have ſpent the Moiſture or Humour they were ſurrounded withal, and are grown to a ſufficient Bulk, Firmneſs, and Force; break their Shell, and come forth.

The *Oviparous* Kind, beſide Birds, includes divers Species of Terreſtrial Animals; as Serpents, Lizzards, Tortoiſes; Crabs, Lobſters, Frogs, *&c.* See OVARY.

OUNCE, *Uncia*, a little Weight, the ſixteenth part of a Pound *Avoirdupois*; and the twelfth of a Pound *Troy*. See WEIGHT and POUND.

The *Ounce Avoirdupois* is divided into eight Drachms, nd the Drachm into three Scruples. The *Ounce Troy* to twenty Penny Weights, and the Penny Weight into wenty-four Grains. See DRACHM, PENNY-WEIGHT, *&c.*

The *Ounce* makes the eighth Part of the *French* Mark, nd is divided into three Gros, or Drachms; the Drachm to three Penny Weights, or Scruples; and the Scrule into twenty-four Grains: each Grain computed to eigh a Grain of Wheat. See GRAIN, *&c.*

All precious Merchandizes, as Gold, Silver, Silk, *&c.* are ſold by the Ounce. See GOLD, SILVER, STANDARD, *&c.*

Ounce Pearls, are thoſe too ſmall to be ſold by Tale; uſually call'd *Seeds of Pearl*. See PEARL.

Ounce Cottons, are certain Cottons brought from *Damaſcus*, of a Quality ſuperior to the reſt. See COTTON.

The Word *Ounce* is deriv'd from the *Latin Uncia*, the twelfth Part of any Whole; particularly in Geometrical Meaſures, an Inch, or the twelfth Part of a Foot. See INCH.

Whence, UNCIAL *Letters*, large Letters uſed in Inſcriptions, ſuppoſed to be an Inch high. See UNCIAL.

OURAN, or OURAN SOANGUES; the Title of a Sect of Magicians, in the Iſland *Gromboccanore*, in the *Eaſt-Indies*.

The Word implies *Men-Devils*; theſe People, it ſeems, having the Art of rendring themſelves inviſible, and paſſing where they pleaſe, and by that means, doing infinite miſchief: for which reaſon the People hate and fear them mortally, and always kill them on the ſpot, when they can take them.

In the *Portugueſe* Hiſtory, printed 1581, *Folio*; mention is made of a Preſent made by the King of the Iſland, to *Brittio*, a *Portugueſe* Officer, conſiſting of twelve of theſe *Ourans*; with whom he made Incurſions on the People of *Tidore*, kill'd great Numbers, *&c.*

To try whether, in effect, they had the Faculty aſcribed to them, one of them was tied by the Neck with a Rope, without any poſſibility of diſengaging himſelf by natural means; yet in the Morning 'twas found he had ſlipp'd his Collar.

That the King of *Tidore* might not complain, *Brittio* made war on him with Devils, he diſmiſs'd them at length into their own Iſland.

OUSTED, in our antient Law-Books, a being removed, or put out of poſſeſſion. From the *French Oſter*, to remove, take away.

OUSTER *le Main*, or OTER *le Main*, *to remove or take off the Hand*, in Law, denotes a Livery of Lands out of the King's Hands; or a Judgment given for him that traverſed or ſued a *Monſtrans le Droit*. See MONSTRANS *le Droit*.

When it appear'd upon the Matter diſcuſs'd, that the King had no Right or Title to the Land he had ſeiz'd; Judgment was given in Chancery, that the King's *Hands be amoved*. And hereupon, *Amoveas Manum* was awarded to the Eſcheator to reſtore the Land, *&c.*

But now all Wardſhips, Liveries, *Ouſter le Mains*, *&c.* are taken away and diſcharg'd by Statute 12 *Car.* 2.

OUSTER *le Mer*, in Law, a Cauſe of Excuſe or Eſſoin; where a Man not appearing in Court upon Summons, it is alledg'd that he was then beyond the Seas.

The Term is compounded of the *French Oultre*, and *le Mer*, q. d. *beyond the Sea*.

OUTFANGTHEF, a Privilege whereby a Lord is enabled to call any Man (dwelling in his Fee, and taken for Felony in another place) to Judgment in his own Court.

The Word is form'd from the *Saxon ut*, *extra*, without; *fang*, *capio vel captus*; and *deof*, *Thief*: q. d. *Fur extra-captus*.

OUT-LAW, *Utlegatus*, one depriv'd of the Benefit of the Law; and left out of the King's Protection. See OUT-LAWRY.

Bracton ſays, an *Out-Law* forfeits every thing he has; and that from the time of his *Outlawry*, he wears a Wolf's Head; and any body may kill him *Impunè*: eſpecially if he defend himſelf, or fly. But in the beginning of King *Edward* the Third's Reign, it was reſolv'd by the Judges, that it ſhould not be lawful for any Man, but the Sheriff alone (having lawful Warrant therefore) to put to death a Man *out-lawed*.

OUTLAWRY, or UTLAWRY, the Puniſhment of him, who being call'd into Law, and lawfully ſought, does (after an Original Writ with a *Nihil habet*, three Writs of *Capias*, *alias & pluries*, return'd by the Sheriff, with a *Non eſt Inventus*, and an Exigent with a Proclamation awarded thereupon) contemptuouſly refuſe to appear.

He muſt alſo be call'd at five County-Court-Days, a Month between each one; and if he appear not in that time, *Pro Ex-lege tenebitur, cum Principi non obediat, nec Legi, & extunc exlegabitur*; *i. e.* he ſhall be pronounced to be out of the King's Protection, and deprived of the Benefit of the Law.

The Effect of which is, if he be *out-law'd* at the Suit of another, in a Civil Cauſe, he ſhall forfeit all his Goods and Chattels to the King: If on Felony, all his Lands and Tenements, which he has in Fee, or for Life, and all his Goods and Chattels. And then, according to *Bracton*, he may periſh without Law, *&c.* A Minor, or a Woman, cannot be *out-law'd*. A Woman is ſaid to be *waiv'd*, where a Man is *out-law'd*.

OUT-WORKS, in Fortification, thoſe Works made without ſide the Ditch of a fortify'd Place, to cover and defend it. See WORKS and FORTIFICATION.

The moſt ordinary of theſe are Ravelins, or Half-Moons, form'd between the two Baſtions, on the flanquant Angle of the Counterſcarp, and before the Curtain, to cover the Gates and Bridges. See RAVELIN.

OUT-RIDERS, are Bailiffs Errant, employ'd by Sheriffs, or their Deputies, to ſummons People in the remoteſt Parts of their Hundreds, to the County or Hundred Courts. See BAILIFF.

OUT-PARTERS, in our antient Writers, were a ſort of Thieves, or Highway-men, on the Frontiers of *Scotland*, who rode about to fetch in ſuch things as they could lay hold on. See INTAKERS.

OUVERTURE, or OVERTURE, *Opening*, or *Preluding*; a Term uſed for the Solemnities at the beginning of a public Act, or Ceremony; as of an Opera, Tragedy, Concert of Muſic, *&c.*

The *Overture* of the Theatre, or Scene, is a piece of Muſic, uſually ending with a Fugue.

The *Overture* of the Jubilee is a general Proceſſion, *&c.*

OVUM *Philoſophicum*, or *Chymicum*, is a glaſs Body, of an oval Form, and reſembling an Egg. See BODY.

OWLER, a Maſter of a Ship, or other Perſon, that conveys Wool, or other prohibited Goods in the Night, to the Sea-ſide, in order to ſhip them off, contrary to Law.

The Name is derived hence, that, like *Owls*, they only ſtir abroad in the Night-time.

OWSE, among Tanners, is Oaken Bark beaten, or ground ſmall; to ſerve in the Preparation of Leather. See BARK and TANNING.

OXGANG *of Land*, is ordinarily taken, in our old Law-books, for fifteen Acres; in *Latin*, *Bovatus Terræ*, q. d. *quantum ſufficit ad iter vel actum unius Bovis*; as much as an Ox will plow. In *Lincolnſhire* they ſtill corruptly call it *Oskin* of Land.

OXYCRATE, in Pharmacy, *&c.* a Mixture of Water and Vinegar.

The uſual Proportion is one Spoonful of Vinegar to five or ſix of Water.

Oxycrate is proper to aſſuage and refreſh. They make Fomentations of *Oxycrate*, Clyſters of *Oxycrate*, &c.

The Word is form'd from the *Greek* ὀξὺς, ſharp, ſour, and κεραννυμαι, I mix.

OXYCROCEUM, in Pharmacy, a Preparation much uſed in Plaiſters, for Fractures, and to form Callus's; compoſed chiefly of Saffron, with Gums diſſolved in Vinegar.

The Word is form'd from the *Greek* ὄξυς, ſharp, ſour, and κρόκος, Saffron.

OXYGALA, *Sour-Milk*. The *Turks* uſe this as a popular Drink, and call it *Igur*. *Vigenere* ſays, they drink ſour Milk diluted with Water, which is found to cool and nouriſh, much better than the Milk alone.

The Word is form'd from the *Greek* ὀξυς and γαλα.

OXYGONOUS, in Geometry, *acute-angled*; ſomething with an Angle leſs than 90 Degrees. See ACUTE.

The Word is chiefly apply'd to Triangles, where the three Angles are all acute, or leſs than 90 Degrees each. See TRIANGLE.

OXYMEL, in Pharmacy, a Mixture of Honey and Vinegar.

There are two kinds of *Oxymels*; the one ſimple, the other compound.

The *ſimple Oxymel* is compoſed of two parts of good Honey, and one of White-Wine Vinegar, boil'd into the conſiſtence of a Syrup; proper to incide and ſcour any Phlegm adhering to the Throat and Breaſt.

Compound Oxymel only differs from the ſimple, in that to the Honey and Vinegar, they add the Decoction of the five major aperitive Roots, with the Seeds of Smallage, Parſley, and Fennel. It is uſed to open Obſtructions of the Liver and Spleen.

The Word is form'd from the *Greek* ὀξὺς, ſour, and μέλι, *Mel*, Honey.

OXYREGMIA, in Medicine, a Sourneſs or Acidity of the Stomach-Liquor, occaſioning Belches. From ὀξυς and ερευγω, *ructo*. See RUCTATION.

OXYRRHODON, a Mixture of two Parts of Oil of Roſes, and one part of Vinegar of Roſes, ſtirr'd together for ſome time.

To theſe are ſometimes added diſtill'd Waters. It is uſed for Inflammations, and to dry up Tetters.

Scultet preſcribes it as follows; Two Whites of Eggs beaten, one Ounce and half of Vinegar of Roſes, four Ounces of Roſe-Water, and two Ounces of Oil of Roſes.

The Word is compoſed of the *Greek* ὀξὺς, ſour, and ῥοδον, Roſe.

OXYSACCHARUM, a Syrup prepared with Vinegar, the Juice of ſour Pomegranuts, and Sugar; uſed to cool, refreſh, and reſiſt the malignity of peccant Humours. From ὀξὺς, ſour, and σακχαρον, Sugar.

OYER, ſeems to have been antiently uſed for what we call *Aſſize*. See ASSIZE *of Novel Diſſeiſin*.

OYER *and Terminer*, is a Commiſſion eſpecially granted to ſome eminent Perſons, for the hearing and determining one or more Cauſes.

It is the firſt and largeſt of the five Commiſſions, by which our Judges of Aſſize do ſit in their ſeveral Circuits. See JUSTICE.

Antiently it was only in uſe upon ſome ſudden Outrage or Inſurrection in any Place. See ASSIZE.

The Term is *French*, and literally denotes to *hear and determine*. In our Statutes it is ſometimes wrote *Oyer and Determiner*.

OYER *de Record*, is a Petition made in Court, praying that the Judges, for better Proof ſake, will be pleaſed to hear, or look upon any Record.

In the like Senſe one may demand *Oyer* of Bond, Deed, or Covenant.

OYES, a Corruption of the *French Oyez*, hear ye; being a Term, or Formula whereby the Cryers, in our Courts, enjoin Silence, or Attention e'er they make Proclamation of any thing.

OZÆNA, in Medicine, a fetid Ulcer, in one or both Noſtrils; wherein the Humour is very acrid or corroſive, ſanious, and ſometimes mixed with a bloody Mucus. See ULCER.

It ſometimes proceeds from neglected or ill-managed Wounds, Contuſions, &c. in the Noſtrils; eſpecially in Scorbutic, Scrophulous, or Venereal Habits; and ſometimes follows the Small-Pox.

It often ſpreads and eats thro' the *Alæ*; and at other times preys into the *Septum Naſi*, *Cartilage*, and *Os Palati*; eſpecially in Venereal Caſes. Whence the great danger of the Noſe in that Diſtemper. See VENEREAL.

The Word is *Greek*, ὀζαινα, which ſignifies the ſame thing.

P, A Conſonant, and the fifteenth Letter in the *Engliſh* Alphabet. See LETTER, CONSONANT, &c.

When the *P* is follow'd with an *H* in the ſame Word, it has the Sound of an *F*; thus, *Philoſophy* is pronounced *Filoſophy*.

P and *B* are ſo like each other, that *Quintilian* declares, that in the Word *obtinuit*, his Reaſon required him to put a *b*, but that his Ears could hear nothing but a *p*, *optinuit*: Hence in ancient Inſcriptions, and old Gloſſaries, it appears, theſe two Letters have been often confounded. See *B*.

Several Nations ſtill pronounce one for the other, the *Germans* particularly, who ſay, *ponum vinum* for *bonum vinum*.

Plutarch obſerves, it was uſual for thoſe of *Delphos* to ſay βατεῖν for πατεῖν, βικρὸν for πικρὸν; and among the *Latins*, as often as an *s* followed, the *b* was changed into a *p*, as *ſcribo*, *ſcripſi*.

P in the *Italian* Muſic frequently repreſents *piano*; which is what in our Muſic we call *ſoft*, i. e. the Force of Voice, or Inſtrument, are to be diminiſh'd, ſo as to make a Kind of Eccho.

P P ſignifies *piu piano*, i. e. *more ſoft*, or a ſecond Eccho weaker or more remote than the former: and *P P P* ſignifies *pianiſſimo* ſofteſt of all, or a third Eccho, the Voice being, as it were, loſt in the Air.

P. M. among Aſtronomers is frequently uſed for *poſt meridiem*, or Afternoon; and ſometimes for *poſt mane*, after the Morning, *i. e.* after Midnight. See MORNING.

P was alſo uſed among the Ancients as a Numeral Letter, ſignifying the ſame with the *G*, *viz.* an *hundred*; according to the Verſe of *Ugution*.

> *P ſimilem cum G numerum monſtratur habere.*

Tho' *Baronius* thinks it rather ſtood for *ſeven*. See what has been obſerv'd, with reſpect to theſe Numeral Letters in general, under the Letter A.

When a Daſh was added a-top *p*, $\overline{P}$, it ſtood for four hundred Thouſand.

St. *Jerom* obſerves, on *Daniel*, that the *Hebrews* had no *P*, but that the *ph* ſerv'd 'em inſtead thereof. Adding, that there is but one Word in the whole Bible read with a *P*, viz. *apaduo*.

P, in Preſcription, is uſed for *Pugil*, or the eighth Part of a Handful. See PUGIL.

P. E. ſignify *Partes Equales*, equal Parts of any Ingredients; otherwiſe denoted by $\bar{a}$ or *ana*. See ANA.

P P ſignify *Pulvis Patrum*, i. e. *Jeſuit's Powder*, or the *Cortex* in Powder; which is ſo called, becauſe firſt brought into *Europe* by thoſe Fathers. See CORTEX.

PABULUM is ſometimes uſed among Naturaliſts for *Fuel*; or that Part in combuſtible Bodies, which the Fire immediately feeds on, or is ſupported by. See FIRE.

The oily or ſulphurous Part of Fuels is the only proper *Pabulum*. 'Tis that alone, wherein Fire can inhere. See FUEL, SULPHUR, &c.

PACALIA, a Feaſt held among the ancient *Romans*, in Honour of the Goddeſs *Pax*, Peace.

Aldhelmus, *de Laud. Virgin.* and *Bibl. Patrum*, ſpeaking of the impure Feſtivals and Ceremonies of the *Heathens*, calls one of 'em *Pœnalia*, which Paſſage *Gronovius* charges as faulty, alledging, that there was no Feaſt of that Name, but that it ſhould have been *Pacalia*.

The Ancients, who perſonified, and even deified every Thing, were not forgetful of Peace. She had an Altar at *Rome*, and a ſtately Temple, and religious Rites were paid her with great Solemnity.

PACE, *Paſſus*, *Step*, a Meaſure, taken from the Space between the two Feet of a Man, in walking. See MEASURE.

The ordinary *Pace* of a Man is two Foot and a Half. The *Geometrical* or *German Pace* is five Feet. See FOOT.

The Ancient, Roman, and modern Italic Mile conſiſts of a *thouſand Paces*, *Mille Paſſus*. The *French* League is 3000 Paces, the *German* 4000. See MILE, LEAGUE, &c.

PACE, in the Manage, is a certain Manner of Motion or Progreſſion of a Horſe.

The *Natural Paces* of a Horſe are three, *viz.* the *Walk*, *Trot*, and *Gallop*, to which may be added an *Amble*; becauſe ſome Horſes have it naturally. See each under its proper Article, TROT, GALLOP, &c.

For the artificial *Paces*, ſee AIRS.

Horſes that mix their Paces, *i. e.* ſhuffle betwixt a Walk and Amble, &c. are ſeldom of any Value. The Defect proceeds from their fretful, fiery Temper; and ſometimes from a Weakneſs either in their Reins or Legs.

PACE is more particularly underſtood of that eaſy low Motion wherein the Horſe raiſes the two Feet diametrically oppoſite at the ſame time; call'd alſo *Amble*. See AMBLE.

PACIFIC, ſomething *peaceful*, or free from Troubles, Tumults, &c. See PEACEABLE.

Geographers call the South Sea, *Mare Pacificum*, the Pacific Ocean; as being leſs infeſted with Storms than the Atlantic. M. *Frezier* affirms, it does not deſerve that Appellation, and that he has ſeen as violent Tempeſts therein as in any other Sea: But *Magellan*, happening to have a very favourable Wind, and not meeting with any thing to ruffle him, when he firſt traverſed this vaſt Ocean in 1520. gave it the Name, which it has retained ever ſince. *Maty*, however, adds, that the Wind is ſo regular, that the Veſſels wou'd frequently go from *Acapulco* to the *Philippine* Iſlands, without ſhifting a Sail.

In the ancient Church, they gave the Name *Pacific Letters* to all Sorts of Letters Teſtimonial, given by the Biſhop or Chorepiſcopus to their Prieſts when they had occaſion to travel abroad, certifying that the Bearer was a Catholic, and in Communion with the Church. The Life of Pope *Sextus* I. taken from the Pontifical of Pope *Damaſus*, mentions that Pope as the firſt who introduced thoſe Letters call'd *Formatæ* or *Canonicæ*, *Commendatitiæ*, *Communicatoriæ*, *Eccleſiaſticæ*, & *Pacificæ*.

PACIFICATION the Act of Re-eſtabliſhing the public Peace and Tranquillity.

The Word is particularly appropriated to the Periods put to the Religious Broils rais'd in *France*, in the Year 1562, by the Edict of *Nantz*; and the Civil Commotions, between the *Engliſh* and *Scots*, ended in 1636. See EDICT.

PACIFICATOR is commonly underſtood in the ſame Senſe with *Mediator*: But *Wicquefort* makes a Difference.

The Peace being concluded between *France* and *England*, in 1621. the Inſtruments on each Side were put in the Hands of certain Embaſſadors, who had been employed as *Pacificators*, not as Mediators; to be kept till ſuch Time as the Ratifications had been exchanged. So, the Archbiſhop of *Piſa*, the Duke of *Tuſcany*'s Embaſſador at *Madrid*, was never eſteemed a Mediator, tho' the *French* Embaſſadors allow'd him to be preſent at the Conferences held with the Commiſſioners of *Spain*, to act as a *Pacificator* of the Differences between 'em. The Grand Duke had not offer'd his Mediation; nor wou'd *France* have accepted it. *Wicquefort*. p. 2. Sect. 2.

PACK in Commerce. *A Pack of Wool* is a Horſe's Load, containing 17 Stone, and 2 Pounds, or 240 Pound Weight. See SARPLAR and WOOL.

PACT, PACTUM, or PACTION in Law, a Treaty, Covenant or Convention between divers Parties. See COVENANT.

The Word is form'd of the Latin *paciſci*, to bargain, agree, &c.

The Lawyers ſay, *Ex nudo pacto non oritur Lex*. See CONTRACT.

PACTUM, PACTIO, PACT is particularly uſed in the Civil Law, for the Conſent of two or more Parties to the ſame Thing.

Duorum aut plurium in idem conſenſus. L. III. §. 2. *ff de pactis.*

There are two Species of Conventions, *viz.* the *Pact* and *Contract*. A *Pact* againſt good Manners, againſt publick or natural Equity, is null.

PACTA *Conventa*, in *Poland*, are the Articles agreed on between the King and the Republic; and which they mutually oblige each other to obſerve.

PADDOCK or *Paddock-Courſe*, a Piece of Ground, conveniently taken out of a Park, ordinarily a Mile long, and a Quarter of a Mile broad, encompaſſed with Pales, or a Wall, for the exhibiting of Races with Greyhounds for Wagers, Plates, or the like. See PARK.

At one End of the *Paddock* is a little Houſe, where the Dogs are to be enter'd, and whence they are ſlipp'd, near which are Penns to incloſe two or three Deer for the Sport.

The Deer, when turn'd looſe, run all along by the Pale; and the Spectators are placed on the other Side.

Along the Courſe are ſeveral Poſts, *viz.* the *Law-poſt*, 160 Yards from the Dog-houſe and Penns. The *Quarter of Mile Poſt*, *Half Mile Poſt*, *Pinching-poſt*; and the *Ditch*, a Place made to receive the Deer, and preſerve 'em from further Purſuit.

Near the Ditch, are placed Judges or Triers. The Keeper, to ſlip the Dogs fairly, puts a *falling Collar* upon each, to ſlip thro' a Ring, and the Deer being turned looſe and put forward by a Teazer, as ſoon as it is arrived at the Law-poſt, the Dog-houſe Door is thrown open and the Dogs ſlipp'd.

If, now, the Deer ſwerve ſo much, as that his Head is judg'd nearer the Dog-houſe than the Ditch, before he arrive at the Pinching-poſt; it is no Match; but muſt be run over again three Days after. If there be no ſuch Swerve, but the Deer runs ſtraight as far as the Pinching-poſt, then the Dog neareſt him, if he chance to ſwerve, or by any Accident, be blanch'd; or if there be no ſuch Swerve, &c. the Dog that leaps the Ditch firſt, wins the Match.

PADUAN, among Medalliſts, a Modern Medal in Imitation of the Antique; or a new Medal ſtruck with all the Marks and Characters of Antiquity. See MEDAL.

The Name is taken from *Paduan*, a famous *Italian* Painter, who ſucceeded ſo well in the Impoſture, if it may be ſo called, that the beſt Judges are at a Loſs to diſtinguiſh 'em.

Paduan is, properly, applicable to thoſe Medals only, which are ſtruck on the Matrices of the *Paduan*; which are ſtill preſerv'd; tho' it is frequently uſed in the general for all Medals of this Kind.

Jobert obſerves, that there have been a *Paduan* and *Parmeſan* in *Italy*, and a *Carteron* in *Holland*, who had the Knack of imitating the Antique in Perfection.

This *Paduan* was thus called, from the Place of his Birth, *Padua*: His proper Name was *Lewis Leo*; he flouriſh'd in the Beginning of the XVIIth Century. His Son *Octavian*, tho' born at *Rome*, was alſo called the *Paduan*.

PÆAN, in Antiquity, a Hymn in Honour of *Apollo*, or ſome of the other Gods; chiefly uſed on Occaſions of Victory and Triumph. See HYMN.

The *Pæan* took its Name from *Apollo* himſelf; who was denominated *Pæan*, becauſe, in his Combat with the Serpent *Python*, his Mother *Latona* incouraged him to make uſe of his Arrows, by crying frequently ιω παίαν *Io Pæan*, i. e. *ſmite*, *ſhoot*.

Thus *Feſtus*, but *Heſychius* rather takes *Apollo* to have been denominated *Pæan* from παίω, θεραπεύω, I *heal*; in Alluſion to his being the Deity of Medicine.

PÆAN or PÆON was alſo the Name of a Foot in the ancient Poetry; ſo called, as commonly ſuppoſed, becauſe appropriated to the Hymn *Pæan*; tho' *Quintilian* derives the Name from its Inventor *Pæon*, a Phyſician. See FOOT.

It conſiſted of four Syllables, the firſt long, the reſt ſhort; as *continuus*, *facillimus*, *ſceleratus*, &c.

PÆDO-*Baptiſm*, Infant-Baptiſm, or that conferr'd on Children. See BAPTISM.

The Word is a Compound of the *Greek* παῖς παιδὸς Infant, and βαπτισμὸς, Baptiſm.

PAGAN, a *Heathen*, *Gentile*, or *Idolater*; one who adores the falſe Gods of Antiquity. See IDOLATER, GENTILE, *&c.*

The Word comes from the Latin *Paganus*, *a Pagis*, Villages. For when the Chriſtians firſt became Maſters of the Cities, they obliged the Heathens to go and live in the Country, where they might ſerve their falſe Gods in Safety.

The Abbot *Fleury* gives another Etymology of the Word *Pagan*. He obſerves that the Emperor *Conſtantine*, going from *Antioch* againſt *Maxentius* in 350. aſſembled all his Troops, and adviſ'd ſuch as had not receiv'd Baptiſm to receive it immediately; declaring withal, that ſuch as ſhou'd be found unbaptiz'd ſhou'd quit the Service, and go Home.

Hence, perhaps, ſays the Abbot, the Name *Pagan* might be given to thoſe who choſe the latter: The *Latin* Word, *Paganus*, properly ſignifying a Perſon who does not bear Arms; in Oppoſition to *Miles*.

And hence it might, in Time, extend to all Heathens. Or, continues he, the Word might come from *Pagus*, Village, whence the *French Pais* Country, in regard the Peaſants were thoſe who ſtuck longeſt to the Idolatry of the Heathens.

PAGANISM, the Religious Worſhip and Diſcipline of *Pagans*; or the Adoration of Idols and falſe Gods.

The Gods of *Paganiſm* were either Men, as *Jupiter*, *Hercules*, *Bacchus*, &c. or fictitious Perſons, as *Victory*, *Fame*, *Fever*, &c. or Beaſts, as in *Egypt*, *Crocodiles*, *Cats*, &c. or inanimate Things, as *Onions*, *Fire*, *Water*, &c. See GOD.

Baronius derives the Word *Paganus a Pagis* Villages, becauſe, when the Chriſtians became Maſters of the Cities, the Heathens were obliged by the Edicts of *Conſtantine* and his Children, to go and live in the Country Villages, *&c.* *Salmaſius* will have the Word from *Pagus*, conſidered as originally ſignifying *Gens* or Nation: Whence we ſay indifferently, *Paganiſm* or *Gentiliſm*.

PAGANALIA, an ancient rural Feaſt, thus call'd, becauſe celebrated in the Villages, in *Pagis*. See PAGAN.

In the *Paganalia*, the Peaſants went in ſolemn Proceſſion all around the Village, making Luſtrations to purify it. They had alſo their Sacrifices, wherein they offer'd Cakes on the Altars of the Gods. See FEAST.

Halicarnaſſæus and St. *Jerom* refer the Inſtitution of the *Paganalia* to *Servius Tullus*. They were held in the Month of *February*.

PAGARCHUS, among the Ancients, a petty Magiſtrate of a *Pagus* or little Diſtrict, in the Country; ſeveral Times mentioned in the Novels.

The Word is form'd from *Pagus* Village, and ἀρχὴ Command.

PAGE, a Youth of State, retain'd in the Family of a Prince, or great Perſonage, as an honourable Servant to attend in Viſits of Ceremony, do Meſſages, bear up Trains, Robes, *&c.* and at the ſame Time to have a genteel Education, and learn his Exerciſes.

The *Pages*, in the King's Houſhold, are various and have various Provinces aſſign'd 'em: As

Pages of Honour, *Pages* of the Preſence-Chamber, *Pages* of the Back-Stairs.

Pages were anciently diſtinguiſh'd from the other Servants in Livery, by their wearing Drawers in lieu of Breeches; and Sleeves turn'd up with Velvet.

The Word is found from the *Greek*, παῖς Child.

Cujas and *Gothefrid* obſerve, that *Pages*, in the Emperor's Families, were called *Pedagogiani Pueri*. *Fauchet* ſays, the Word *Page* was firſt given to the little Boys who attend Tilers to bring 'em their Tiles, *&c.* That till the Time of *Charles* VI. or VII. the Name was common to the baſeſt Servants, and that 'tis ſince then, that *Page* is become a Term of Honour; and the meaner Servants diſtinguiſh'd from 'em by the Name of *Lacqueys*, &c.

PAGE is particularly uſed in the Seraglio, for the Children of Tribute; or, Slaves who wait on the Grand Signor. They are commanded by the firſt *Aga*; and conſtitute four Claſſes, call'd *Oda*'s. See ODA.

PAGE *of a Book*. See PRINTING.

PAGEANT, a Triumphal Car, Chariot, Arch, or other the like pompous Decoration, variouſly adorn'd with Colours, Flags, *&c.* carried about in public Shews, Proceſſions, *&c.* See DECORATION, PROCESSION, *&c.*

PAGOD, a Name the *Portugueſe* have given to all the Temples of the *Indians*, and Idolaters of the Eaſt. See TEMPLE.

The *Pagods* of the *Chineſe* and *Siameſe* are exceedingly magnificent. Among others, there is one at *Golconda*, whoſe *Niche*, that they pray in, conſiſts of a ſingle Stone, of ſuch prodigious Bulk, that they were five Years in bringing it to to the Place; 600 Men being conſtantly employ'd at it all that Time; and the Machine, that brought it, drawn by 1400 Oxen.

The Revenues of the *Pagod* of the *Janigrate* are ſo great as to ſubſiſt, every Day, from fifteen totwenty Thouſand Pilgrims.

PAGOD is alſo uſed for the Idol adored in the Temple. See IDOL.

Hence the Curious give the Name to thoſe little purcelain Images brought from *China*.

PAGOD is alſo the Name of a Gold Coin current in ſeveral Parts of the *Indies*; on the footing of the Piece of Eight. See COIN, *&c.*

The *Engliſh* coin *Pagods* at Fort St. *George*; and the *Dutch* at *Palicate*.

There are alſo ſilver *Pagods* ſtruck at *Narſingua*, *Biſnagarg*, &c. which uſually bear the Figure of ſome monſtrous Idol, whence their Names. They are of various Values.

PAIN, an uneaſy Senſation, ariſing from a ſudden and violent Solution of Continuity in the Nerves, Membranes, Veſſels, Muſcles, *&c.* of the Body. See PLEASURE.

Pain, according to ſome, reſides in a Motion in the Organs of Senſe; according to others, it is an Emotion of the Soul, occaſioned by thoſe Organs. See SENSE.

If it be inquired, what it is occaſions the *Pain* of a Puncture? One may anſwer, that the Puncture cannot ſeparate the Fibres of the Fleſh, without ſhaking the Nerves which proceed thence to the Brain. If it be further asked, why we feel Pain upon a ſhaking of that Part of the Brain? we are at a Stand; there being no neceſſary Connection between Concuſſions of the Brain, and the Senſation of Pain wherewith the Soul is affected.

To account, therefore, for Pain; *F. Mallebranch* obſerves, we muſt have Recourſe to a ſuperior Being, who forms an arbitrary Connection between the Shakes of the Brain, and the Senſations of Pain. See SENSATION.

From the Phyſical Definition of Pain, it follows, that whatever may diſtract the Parts of the Nerves or Membranes from one another may cauſe Pain; but there is nothing in the Compaſs of Nature, which may not do that, with whatever Figures, or Properties, it be endued: For ſince ſomewhat may always be apply'd or added to any other Body, ſuch Body may at length increaſe into a Bulk too big to flow through a Canal of a given Diameter, and will therefore require more Room: Wherefore, while the Sides of a Canal are thruſt outward, beyond what they are uſed to be, that is, the Parts compoſing thoſe Sides, before contiguous, become looſened and moved away from one another; if that Body ſtrike upon thoſe Sides with a brisk *Impetus*, and that *Impetus* be continually renew'd, the Solution will be conſiderable, or the *Niſus* towards a Solution violent, or there will be *Pain*. Wherefore the conſtituent Parts of Fluids being ſufficiently augmented in Dimenſion, and propell'd with a continually repeated *Impetus* againſt any Canal of our Body, may occaſion that Solution, in which conſiſts the Eſſence of Pain.

For it comes to the ſame Thing, whether ſome Parts are added to a Body; or the Parts of that Body are, by any Cauſe whatſoever, ſeparated to ſo great an Interval, near the Sides of a Canal, as to conſtitute a Dimenſion equal to that which aroſe from the Addition of a new Part; for the Bulk may ſo far increaſe both Ways, as that the natural Capacity of the Canal ſhall not be big enough to contain it, without ſome violent Dilatation, and a Diſtraction of the Fibres it is compoſed of: And conſequently Pain muſt enſue.

Farther, as there may be always ſomewhat added to another Body; ſo from any Body may ſomewhat be always taken away; a Body ſo diminiſhed in Dimenſion, and impelled with a conſiderable *Impetus* will break thro' the Interſtices of the Fibres, where it is leſs than the Capacity of ſuch Interſtices, and moved obliquely: And becauſe the Superficies of the Fibres are not wont to be contained under Geometrical Right Lines, but to have Particles ſtanding out and prominent; theſe it divides from one another. And thus any Body, of whatſoever Figure, may occaſion in us Pain, ſo it be big enough to diſtend the Veſſels beyond their wonted Meaſure, or ſmall enough to enter the Pores in the Sides of a Canal, with an *Impetus* in the Manner intimated.

And what is thus advanced, with relation to Things within the Veſſels, may be eaſily apply'd to others out of the Veſſels.

PAIN, in Medicine, conſider'd as a Symptom of a Diſeaſe, makes a conſiderable Article in a Palliative Cure. See Palliative.

Pain is mitigated or aſſwaged divers Ways; as 1. by diluting and ſoftening of Acrimonies, with warm Water mix'd with Flower apply'd by way of Drink, Fomentation, Clyſter or Bath. 2. By reſolving and waſhing away Obſtructions, by the ſame Means and Reſolvents. 3. By relaxing the nervous Veſſels, with Drinks, Fomentations, Baths, the Species of Relaxants, Anodynes and Aperients. 4. By correcting the Acrimony itſelf with proper Remedies. 5. By freeing the obſtruent, obſtructed, and acrimonious Parts from the too much Preſſure of the vital Humour; and by ſoftening, and ſuppurating, and depurating 'em. 6. By rebating or deadening the Senſe by Narcoticks, either internally or externally. See Narcotick, &c.

PAIN *fort, & dure*, in Law, an eſpecial Puniſhment for one, who being arraigned of Felony, refuſes to put himſelf upon the ordinary Trial of God and his Country, and thereby ſtands mute by the Interpretation of Law. See Mute.

This is vulgarly called *Preſſing to Death.* The Proceſs whereof is thus preſcribed:

“ He ſhall be ſent back to the Priſon, whence he came,
“ and be laid in ſome low dark Houſe; where he ſhall lie naked
“ on the Earth, without any Litter, Ruſhes, or other Cloathing,
“ and without any Raiment about him, but only ſomething to
“ cover his Privy-Members; and he ſhall lie upon his Back
“ with his Head covered, and his Feet; and one Arm ſhall
“ be drawn to one Quarter of the Houſe, with a Cord, and
“ the other Arm to another Quarter, and his Legs in the ſame
“ Manner: Let there be laid upon his Body Iron, or Stone, as
“ much as he may bear, or more; and the next Day following,
“ he ſhall have three Morſels of Barley-Bread without Drink;
“ and the ſecond Day he ſhall have Drink three Times, as
“ much at each Time as he can drink, of the Water next un-
“ to the Priſon, except it be running Water; without any
“ Bread: And this ſhall be his Diet, till he dies.

PAINIM, the ſame with *Pagan.* See Pagan.

PAINTING, the Art of repreſenting natural Bodies, and giving 'em a Kind of Life, by the Turn of Lines, and the Degrees of Colours.

Painting is ſaid to have had its Riſe among the *Egyptians:* And the *Greeks*, who learn'd it of 'em, carried it to its Perfection; if we may believe the Stories related of their *Apelles*, and *Zeuxis.*

The *Romans* were not without conſiderable Maſters in this Art, in the later Times of the Republic, and under the firſt Emperors; but the Inundation of *Barbarians*, who ruin'd *Italy*, proved fatal to Painting, and almoſt reduced it to its firſt Elements. It was in *Italy*, however, that the Art returned to its ancient Honour, and in the Beginning of the XVth Century; when *Cimabue*, betaking himſelf to the Pencil, tranſlated the poor Remains of the Art, from a *Greek* Painter or two, into his own Country.

He was ſeconded by ſome *Florentines*: The firſt who got any Reputation was *Ghirlandaio*, *Michael Angelo*'s Maſter; *Pietro Perugino*, *Raphael Urbin*'s Maſter; and *Andrea Verocchio*, *Leonardo Da Vinci*'s Maſter.

But the Scholars far ſurpaſſed the Maſters; they not only effaced all that had been done before 'em, but carried Painting to a Pitch from which it has ever ſince been declining.

'Twas not by their own noble Works alone that they advanc'd Painting; but by the Number of Pupils they bred up, and the Schools they form'd.

Angelo, in particular, founded the School of *Florence*; *Raphael*, the School of *Rome*; and *Leonardo*, the School of *Milan*; to which muſt be added, the *Lumbard* School, eſtabliſh'd about the ſame time, and which became very conſiderable under *Georgian* and *Titian.* See School.

Beſides the *Italian* Maſters, there were others on this Side the *Alps*, who had no Communication with thoſe of *Italy*; ſuch were *Albert Durer*, in *Germany*; *Holbens*, in *Switzerland*; *Lucas*, in *Holland*; and others in *France* and *Flanders*: but *Italy*, and particularly *Rome*, was the Place where the Art was practis'd with the greateſt Succeſs; and where, from Time to Time, the greateſt Maſters were produced.

To *Raphael*'s School, ſucceeded that of the *Caraches*, which has laſted, in its Scholars, almoſt to the preſent Time; wherein the *French* Painters, by the Munificence of the late *Louis* XIV. ſeem almoſt in Condition to vie with thoſe of *Greece* or *Italy*.

In *Paris* they have two conſiderable Bodies of Painters, the one, the *Royal Academy of Painting and Sculpture*, the other the *Community of Maſters in Painting, Sculpture*, &c. See Academy.

The Art of *Painting* is divided, by *Freſnoy*, into three principal Parts, *Invention*, *Deſign*, and *Colouring*; to which ſome add a fourth, *viz. Diſpoſition.*

Felibien divides Painting into the *Compoſition*, the *Deſign*, and *Colouring.*

Monſ. *Teſtling*, Painter to the late King, divides it, ſomewhat more accurately, into the *Deſign* or *Draught*, the *Proportion*, the *Expreſſion*, the *Clair-obſcure*, the *Ordonnance*, and the *Colouring*; to which his *Engliſh* Tranſlator adds the *Perſpective.* Under each of theſe Heads, he gives us the Rules and Sentiments of the beſt Maſters, which ſee under their proper Articles in this Dictionary, Design, Proportion, Expression, Clair-Obscure, Ordonnance, Colouring, &c.

Painting is of various Kinds, with regard to the Materials us'd; the Matter whereon they are applied; and the Manner of applying 'em.

Hence come *Painting* in Oil; *Painting* in Water-Colours, or *Limning*; *Painting* in *Freſco*; *Painting* on *Glaſs*; *Painting* in *Enamel*; and *Painting* in *Miniature.*

Painting *in Oil.* The Art of Painting in Oil was unknown to the Ancients; and it was a *Flemiſh* Painter, one *John van Eyck*, or *John de Bruges*, who firſt diſcover'd and put it in practice in the Beginning of the XIVth Century: 'Till him, all the Painters wrought in *Freſco*, or in Water-Colours.

This was an Invention of the utmoſt Advantage to the Art; ſince, by means hereof, the Colours of a Painting are preſerv'd much longer and better, and receive a Luſtre and Sweetneſs which the Ancients cou'd never attain to, what Varniſh ſoever they made uſe of to cover their Pieces.

The whole Secret only conſiſts in grinding the Colours with Nut-Oil or Linſeed Oil: But it muſt be own'd, the Manner of Working is very different from that in *Freſco*, or in Water; by reaſon the Oil does not dry near ſo faſt; which gives the Painter an Opportunity of touching and retouching all the Parts of his Figures, as often as he pleaſes: Which, in the other Kinds, is a Thing impracticable.

The Figures too are here capable of more Force and Boldneſs; in as much as the Black becomes blacker, when ground with Oil than with Water; beſides that, all the Colours, mixing better together, make the Colouring ſweeter, more delicate and agreeable, and give an Union and Tenderneſs to the whole Work, inimitable in any of the other Manners.

Painting in Oil is perform'd on *Walls*, on *Wood*, *Canvas Stones* and all Sorts of *Metals.*

To Paint *on a Wall*: when well dry, they give it two or three Waſhes of boiling Oil; till the Plaſter remain quite greaſy, and will imbibe no more. Over this they apply deſſiccative or drying Colours, *viz.* white Chalk, red Oker, or other Chalks beaten pretty ſtiff. This Couch or Lay being well dry, they ſketch out, and deſign their Subject; and at laſt paint it over, mixing a little Varniſh with their Colours; to ſave the Varniſhing afterwards.

Others, to fortify their Wall the better againſt Moiſture, cover it with a Plaſter of Lime, Marble-Duſt, or a Cement made of beaten Tiles ſoak'd with Linſeed Oil; and at laſt prepare a Compoſition of *Greek* Pitch, Maſtic and thick Varniſh boil'd together, which they apply hot over the former Plaſter: When dry, they lay on their Colours as before.

Others, in fine, make their Plaſter with Lime-Mortar, Tile-Cement, and Sand; and this dry, apply another of Lime, Cement, and Machefer or Iron Scum; which being well beaten and incorporated with Whites of Eggs and Linſeed Oil, makes an excellent Couch or Plaſter. When dry, the Colours are applied as before.

To Paint *on Wood*; they uſually give their Ground a Couch or Lay of White temper'd with Size; or they apply the Oil abovementioned: The reſt, as in Painting on Walls.

To Paint *on Linnen or Canvas*; the Canvas being ſtretch'd on a Frame, they give it a Couch or Lay of Size: When dry, they go over it with a Pumice-Stone, to ſmooth off the Knots. By means of the Size the little Threads and Hairs are all laid cloſe on the Cloth, and the little Holes ſtopp'd up, ſo as no Colour can paſs thro'.

When the Cloth is dry, they lay on Oker, which is a natural Earth, and bears a Body; ſometimes, mixing with it a little white Lead to make it dry the ſooner. When dry, they go over it with the Pumice-Stone to make it ſmooth.

After this, they ſometimes add a ſecond Lay compoſed of white Lead, and a little Charcoal Black, to render the Ground of an Aſh-Colour, obſerving in each Manner to lay on as little Colour as poſſible, that the Cloth may not break, and that the Colours, when they come to be painted over, may preſerve the better.

In ſome Paintings of *Titian* and *Paolo Veroneſe* we find they made their Ground with Water, and painted over it with Oil; which contributed much to the Vivacity and Freſhneſs of their Works: For the Water Ground, by imbibing the Oil of the Colours, leaves them the more beautiful; the Oil itſelf taking away a deal of their Vivacity.

As little Oil therefore is to be uſed as poſſible, if 'tis deſired to have the Colours keep freſh: For this Reaſon ſome mix 'em up with Oil of Aſpic, which evaporates immediately, yet ſerves to make 'em manageable with the Pencil.

To PAINT *on Stones or Metals*, 'tis not neceſſary to apply Size, as on Cloth; it ſuffices to add a ſlight Couch of Colours, before you draw your Deſign; nor is even this done, on Stones where 'tis deſired the Ground ſhou'd appear, as in certain Marbles of extraordinary Colours.

All the Colours uſed in *Freſco* are good in *Oil*, except White of Lime and Marble-Duſt. See COLOUR.

Thoſe chiefly uſed are *White Lead* or *Ceruſs*, yellow and white *Maſſicot*, *Orpiment*, *Black Lead*, *Cinnaber* or Vermillion, *Lacca*, blue and green *Aſhes*, *Indigo*, *Lamp-Black*, Burnt *Ivory*, and *Verdigreaſe*, *&c.* See the Preparation, *&c.* of each under its proper Article, CERUSS, ORPIMENT, VERMILLION, LACCA, INDIGO, *&c.*

As to Oils, the beſt are thoſe of Walnuts, of Linſeed, Aſpic, and Turpentine. The deſſiccative or drying Oils, are a Nut-Oil boil'd with Litharge and Sandarac, others with Spirit of Wine, Maſtic and Gum-Lacca. See VARNISH.

To have a Varniſh that ſhall dry readily, they mix Spirit of Wine with Turpentine.

PAINTING *in Water-Colours.* See LIMNING.

PAINTING *in Freſco.* See FRESCO.

PAINTING *in Miniature.* See MINIATURE.

PAINTING *on Glaſs.* See GLASS.

PAINTING *in Enamel*, See ENAMEL.

PAINTING *in Moſaic.* See MOSAIC-WORK.

PAIR, a Collective Term, uſed for two equal and ſimilar Things ordinarily joined together; tho' more frequently for artificial Things, than for natural Ones.

As a *Pair* of Gloves, of Stockings, of Shoes, *&c.*

It is alſo uſed in compound Things, for two Parts alike each other, tho' they only make one Whole; as a *Pair* of Sciſſars, *&c.*

And for a Set or Syſtem of ſeveral Things join'd to make another compleat, as a *Pair* of Bag-pipes, *&c.* and laſtly, by Extenſion, for a Thing that is ſingle, as a *Pair* of Tables, *&c.*

PAIR, *Par*, in Anatomy, an Aſſemblage or Conjugation of two Nerves, having their Origin together in the Brain or Spine, and thence diſtributed into the ſeveral Parts of the Body, one on the one Side, and the other on the other. See NERVE.

Thus we ſay the *firſt Pair*, *ſecond Pair*, *&c.* the *Par vaſum*, *Par quintum*, &c. and ſometimes the *Olfactory Pair*, *Ophthalmic Pair*, *&c.* See VAGUM.

PALACE, *Royal-Houſe*, a Name generally given to the Dwelling-Houſes of Kings, and Princes. See HOUSE.

In Courſe of Time the Name has alſo been applied to the Houſes of other Perſons; taking different Epithets, according to the Quality of the Inhabitants; as *Imperial Palace*, *Royal Palace*, *Pontifical*, *Cardinal*, *Epiſcopal*, *Ducal Palace*, &c.

Procopius derives the Origin of the Word *Palace* from a *Greek*, called *Pallas*, who gave his own Name to a magnificent Houſe he had built: Adding, that *Auguſtus* after him, gave the Name *Palatium* to the Houſe of the *Roman* Emperors on the Hill; which, for that Reaſon, was called the *Palatine* Mount. Others take it the contrary Way; and ſay, that *Romulus*'s Houſe, wherein *Auguſtus* lived, was properly called *Palatium*, becauſe ſituate on the *Palatine* Mount. See PALATINE.

Be this as it will, 'tis certain, *Palatium*, from a proper Name, in Time, became common to all Houſes of Kings.

And as the Kings uſually heard and determined Cauſes in their Houſes, in what Part of the Realms ſoever ſituate; hence alſo *Palatium* became a Name for a Court of Juſtice; thus the *French* have their *Palais*, &c. See COURT.

PALANQUIN, a Kind of Chaiſe, or Chair bore by Men on the Shoulder; much uſed by the People of *China* and the Eaſt, as a Vehicle for their Conveyance from Place to Place.

PALATE, *Palatum*, in Anatomy, the Fleſh that compoſes the *Roof*, *i.e.* the upper and inner Part of the Mouth. See MOUTH.

The *Palate* is lined with a glandulous Coat, under which are great Numbers of pretty conſpicuous Glands, ſcatter'd in the Fore-part of it like Grains of Millet, with many Interſtices, whoſe excretory Ducts, piercing the Membrane, open into the Mouth; but towards the Hind-part, they lie much thicker; and about the Root of the *Uvula* are gathered ſo cloſe together, that they appear to form one pretty large conglomerate Gland, called by *Verheyen*, *Glandula Conglomerata Palatina.*

Towards the Bottom of the Palate, behind the *Uvula*, is a pretty large Perforation, which, a little from its Orifice, divides into two, each whereof goes to one of the Noſtrils.

Many take the Palate to be the Organ of Taſting. See TASTE.

Du Laurener ſays, the Palate has its Name from the Latin *Pali*; becauſe encloſed with two Rows of Teeth, reſembling little Stakes which the *Latins* call *Pali.*

PALATI *Os*, a ſmall ſquare Bone, forming the Hind-part of the *Palate*, and join'd to that Part of the *Os Maxillare* which forms the Fore-part of the Palate. See PALATI Os, MAXILLA *ſuperior.*

PALATINATE, a Province or Signory, poſſeſs'd by a *Palatine*; and from which he takes his Title, and Dignity. See PALATINE.

The *Palatinates*, now ſubſiſting, are either thoſe of *Germany* or *Poland.*

Thoſe of *Germany* are the Principalities of the Upper and Lower *Rhine*, *i. e.* of *Bavaria* and the *Rhine.* The *Palatinates*, in *Poland*, are the Provinces and Diſtricts of the *Poliſh* Grandees or Senators, who are the Governors thereof.

PALATINE, *Count Palatine*, or *Comes Palatinus* in the ancient Cuſtoms, was a Title given to all Perſons who had any Office or Employment in the Prince's *Palace.* See COUNT.

Mathæus ſays, that *Palatines* were originally thoſe who had the Super-intendance of the *Palace*; the ſame with what the *Greeks* call'd *Curopolatæ*, and the *French*, *Maitres De palais*; tho', in Time, the Name became more general.

The only *Palatine* of this Kind, now ſubſiſting, is the *Palatine* of the *Rhine.*

The Title *Palatine* was afterwards conferr'd on thoſe delegated by the Prince to hold a Court of Juſtice in ſome Province; and to ſuch among the Lords as had a *Palace*, *i. e.* a Court of Juſtice in their own Houſes.

The *French* Writers make the *Palatinates* of *Champagne* to be the firſt, who bore the Title; which, they will have it, the *Germans* and other People borrowed from them; not they from the *Germans.*

At preſent the Word *Palatine* is reſtrained to a Prince of *Germany*, or a Lord of *Poland* poſſeſs'd of a *Palatinate.* See PALATINATE.

The Word is derived hence, that anciently the Emperors ſent the Judges of their *Palace*, whom they call'd *Comites Palatini*, or *Paltz-graves*, to correct the Abuſes of the other Judges in the Provinces of *Saxony*, *Bavaria*, *Franconia*, and the *Rhine.* See PALSGRAVE.

In the Codes we find a Title, *De Palatinis Sacrarum Largitionum*, who were a Kind of Treaſurers of the Empire.

PALATINI *Ludi*, among the *Romans*, were Games inſtituted in Honour of *Julius Cæſar*, as ſome will have it, or as others, of *Auguſtus.* See GAMES.

'Tis pretended that *Dion* calls 'em *Auguſtales*; which ſhould ſeem to confirm the ſecond Sentiment. Indeed, 'tis certain, that he ſays *Livia* inſtituted particular Games on the *Palatine* Mount, in Honour of that Prince; but he apparently diſtinguiſhes them from thoſe called *Auguſtales.* See AUGUSTALES.

The *Romans* had alſo their *Apollo Palatinus*, a Surname of that Deity, given him in reſpect of the Temple erected to him by *Auguſtus* on the *Palatine* Mount, in Conſequence of a Report of the *Aruſpices*, which required it to be done: *Auguſtus* enrich'd it with a noble Library, as is intimated by *Horace*, Lib. I. Epiſt. III. v. 23.

The *Palatine Tribe* was one of the four Tribes, into which *Rome* was anciently divided by *Servius Tullus.* See TRIBE.

PALATO *Salpingæus*, called alſo *Muſculus Tubæ novus Valſalvæ*, and *Pterygoſtaphilinus Externus*, A Muſcle ariſing broad and tendinous from the Edge of the lunated Part of the *Os Palati*, ſeveral of its Fibres being ſpread on the Membrane that covers the *Foramen Narium*; whence growing into a ſmall thin Tendon, it is reflected about the Hook like the Proceſs of the inner Wing of the *Proceſſus Pterigoidæus internus*, and is inſerted carnous, into all the membranous, fleſhy, and cartilaginous Parts of the Tube which leads from the Palate to the Ear.

It is uſed to dilate and keep open this Tube.

PALATO-STAPHILINUS, in Anatomy, a Muſcle call'd alſo *Pterygoſtaphilinus internus.* See PTERIGOSTAPHILINUS.

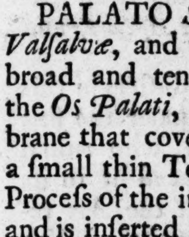
PALE a little pointed Stake, or Piece of Wood, uſed in making Incloſures, Separations, *&c.* See PALISSADE.

The *Pale* was an Inſtrument of Puniſhment and Execution among the ancient *Romans*, &c. ſtill continues ſo among the *Turks.* Hence *Empaling*; the paſſing a ſharp Pale tho' the Fundament up the Body. See EMPALING.

The Word comes from the Latin *Palus*, which ſignifies the ſame Thing; whence *Paliſſade*, *&c.*

PALES, or *Piles*, in Carpentry, are Rows or Files of Stakes drove deep into the Ground, to make wooden Bridges over Rivers. See PALLIFICATION.

They ſerve to ſupport the Beams which are laid a-croſs them, from one Row to another; and are ſtrongly bound together with Croſs-Pieces.



PALE, in Heraldry, one of the Honourable Ordinaries of an Eſcutcheon. See ORDINARY.

The *Pale* is a Repreſentation of a Pale or Stake, placed upright, and comprehending the whole Height of the Coat, from the Top of the Chief to the Point.

When ſingle, it is to contain one Third of the Breadth of the Shield. When there are ſeveral they are proportioned ſo, as that two take up two Fifths of the Shield; and three take up three Sevenths: and in thoſe Caſes, the Number r of Pieces is ſpecified as well as that of thoſe they are charged ithal, &c.

Pales are bore various Ways, as *Wavy*, *Crenelle*, *Faillis*, ndented, *Ingrailed*, &c. There are alſo *Cometed* and *Flaming* ales, which are Pointed, ſometimes Waved, &c.

The *Pale* in an Armoury is a Mark of Juriſdiction. See the djoining Figure; He bears *Gules a Pale Or.*

A Coat is ſaid to be *Paled*, when it is equally charg'd with ales of Metal and Colour.

It is *Counter Paled* when it is cut and the two Demi-Pales f the Chief, tho' of Colours the ſame with thoſe of the Point, et differ in the Place where they meet; ſo as if the firſt of he Chief be Metal, that correſponding to it, underneath, is of Colour.

The Coat is ſaid to be *Paliſſe*, when the *Pales* are pointed ike thoſe uſed in the Defence of Places.

Du Cange derives the Word from the Latin Name *Pallea*; Piece of Tapiſtry. He adds, that the Ancients gave the Name *Pales* to the Hangings of Walls. Thus, a Chamber was ſaid o be *Paled* with Cloth of Gold, with Silk, &c. as conſiſting of Bands or Stuffs of two Colours. Hence the Origin of the Word Pale a Stake, &c. The Arms of *Arragon* are *Paled* with *Gold* nd *Gules.*

Tertullian obſerves, that the *Romans* planted Pales to ſerve s Boundaries of Inheritances; and that they conſecrated them o the God *Terminus*, under the Name of *Pali Terminales*. *Ovid* tells us, they were crowned and adorned with *Flowers*, *Feſtons*, &c. The God was worſhipped before theſe *Pales*.

In PALE, is applied to Things born one above another, in Manner of a *Pale*.

Party per PALE is where the Shield is divided by a ſingle Line thro' the Middle, from Top to Bottom. See PARTY and PALY.

PALED *Flowers*, in Botany, are thoſe that have Leaves ſet about, or ſurrounding a Head, or Thrum; as in Marigolds, &c.

PALÆSTRA, among the antient *Greeks*, a publick Building, where the Youth exerciſed themſelves in Wreſtling, Running, Quoits, &c. See GYMNASIUM.

Some ſay it conſiſted of a College, and an Academy; the one for Exerciſes of the Mind, the other of the Body. But moſt Authors rather take *Palæſtra* to be a *Xyſtus* or mere Academy for Bodily Exerciſes, according to the Etymology of the Word πάλαι, Wreſtling, one of the chief Exerciſes amongſt the Ancients. See XYSTUS.

The Length of the *Palæſtra* was mark'd out into *Stadia*, each equal to 125 Geometrical Paces; and the Name *Stadium* was given to the *Arena* whereon they ran. See STADIUM.

PALÆSTROPHYLAX, among the Ancients, was the Governor of the *Palæſtra*; and of the Exerciſes perform'd therein. See PALÆSTRA.

This Officer was alſo called *Xyſtarcha*. See XYSTARCH.

The Word is form'd from the *Greek* παλαίϛρα, & φύλαξ *Guardian.*

PALILIA, a Feaſt among the ancient *Romans* in Honour of the Goddeſs *Pales*. Some call 'em *Parilia*. See FEAST.

They were celebrated by the Shepherds on the firſt of *May*; to beſeech that Goddeſs to take care of their Flocks, and preſerve 'em from Wolves, and Diſeaſes.

Part of the Ceremony conſiſted in lighting Heaps of Straw, and jumping over them.

PALILICIUM, in Aſtronomy, a fix'd Star of the firſt Magnitude, in the *Bull's-Eye*; called alſo *Aldebaran*.

Its Longitude in Mr. *Flamſtead*'s Catalogue is 5°. 27'. 00''. Its Latitude 5°. 29'. 49''. South.

Pliny gives the Name *Palilicium* to the *Hyades*. See HYADES.

PALINDROME, a Verſe, or Sentence, which runs the ſame, read either backwards, or forwards.

The Word is *Greek*, παλίνδρομος, *retro currens*, running backwards: Such is the Verſe

Roma tibi ſubito motibus ibit amor.

Some People of Leiſure have refined upon the *Palindrome*, and compoſed Verſes, each Word whereof is the ſame backwards as forwards. As that Inſtance in *Cambden*.

Odo tenet mulum, madidam mappam tenet Anna.
Anna tenet mappam madidam, mulum tenet Odo.

PALING, in Agriculture, &c. a Kind of Fence-work, for Fruit-Trees, &c. planted in Fields, &c. See FENCE.

It conſiſts of three ſmall Poſts driven into the Ground at a Foot and a Half Diſtance; with Croſs-Bars nail'd to each other, near the Top.

In fixing the *Pales* in Form of a Triangle, Room is to be left for the Tree to play and bow by the high Winds without galling.

The Trees to be bound to a Stake for a Year or two; after which, Fern or Straw may be ſtuffed in betwixt the Tree and uppermoſt Rails to keep it upright.

If the Place be open to Deer, Rabbets, or the like, a Poſt to be nailed to the Bar between every two Pales.

PALINGENESIA, a Term ſignifying *New Birth*; or the Paſſage of the Soul of a Defunct into another Body.

The *Palingeneſia* is almoſt the ſame thing with the *Metempſychoſis* taught by *Pythagoras*, and ſtill believed by the *Brachmans*, *Banians* and other Philoſophers of the Eaſt. See METEMPSYCHOSIS.

The Word is *Greek*, form'd of πάλιν over-again, a-new, and γένεσις *Geneſis*.

PALINODY, a Diſcourſe contrary to a preceding one.

Hence the Phraſe *Palinodiam Canere*, to ſing *Palinody*; to make a Recantation.

The Word, in the original *Greek*, ſignifies to *ſing a-freſh*. Hence it has paſſed as a general Name for Poems, &c. which contain a Retractation in Favour of a Perſon the Poet had before offended.

The Poet *Steſichorus* is ſaid to be the firſt Author of the *Palinody*. The fixth Ode of the I. Book of *Horace* beginning, *O Matre pulchra*, is a true *Palinody*.

PALINTOCIA, in Antiquity, a Term uſed in two Senſes. 1. For the Delivery of a Child a ſecond Time: Thus the ſecond Birth of *Bacchus*, proceeding out of *Jupiter*'s Thigh, was a *Palintocia*.

2. *Palintocia* was alſo uſed for the Repetition of Uſury, or the refunding of Intereſts. The *Megarians*, having expell'd their Tyrant, ordained the *Palintocia*; that is, they made a Law, that all the Creditors ſhould return to their Debtors the Intereſts they had received for Monies lent.

The Word is form'd from the *Greek* πάλιν a-freſh, a-new, and τόκος of τίκτω, I bring forth.

PALISSADE or PALISSADO, in Fortification, an Incloſure with Stakes or *Pales* driven into the Ground, eight or nine Inches thick; and nine Foot long, three whereof are hid under Ground.

It is uſed to fortify the Avenues of open Forts, Gorges, Half-moons, the Bottoms of Ditches, and the Parapets of Covert-ways; on the Talut of Ramparts; the Top of the Outworks, &c.

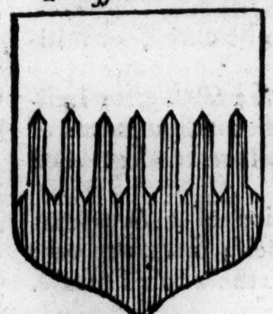
There are *Paliſſadoes* made perpendicular; others are made inclining to the Ground, that the Ropes caſt over 'em, to tear 'em up, may ſlip.

PALISSADES *turning*, are an Invention of Mr. *Coehornes*, in order to preſerve the *Paliſades* of the Parapet from the Beſiegers Shot.

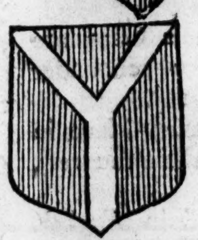
He orders them ſo, that as many of them, as ſtand in the Length of a Rod, or in about ten Foot, turn up and down like Traps; ſo as not to be in Sight of the Enemy till they juſt bring on their Attack; and yet are always ready to do the proper Service of *Palliſades*.

PALISSADE, in Gardening, an Ornament in the Allies of Gardens, wherein Trees are planted, which bear Branches from the Bottom, and which are ſpread in ſuch a Manner, as to appear like a Wall covered with Leaves.

Paliſſades are made of Jeſſamin, Filarea, &c.



PALISSE, in Heraldry, a Range of *Paliſſades* before a Fortification, repreſented on a *Feſſe*, riſing up a conſiderable Height; with the Field appearing thro' them. As in the Figure adjoining.



PALL, in Heraldry, a Kind of Croſs, after the Manner of the adjoining Figure; blazoned thus: He beareth *Gules*, a *Croſs Pall Argent*.

PALLA, among the old *Romans*, a Mantle which Women wore over the Gown, call'd *Stola*. See STOLA.

It was bore on the left Shoulder, whence paſſing to the other Side, under the right Arm, the two Ends were bound under the left Arm, leaving the Breaſt and Arm quite bare.

It made abundance of Plaites or Wrinkles; whence, according to *Varro*, it had its Name, *viz.* from πάλλω, *Vibro*, I ſhake, I am very moveable.

Among the *Gauls* there was alſo a Kind of *Palla* wore by the Men, call'd *Gallica Palla*.

PALLADIUM, in Antiquity, a Statue of the Goddeſs *Pallas*, preſerv'd in *Troy*; whereon the Fate of the City depended.

The Tradition was, that in building a Cittadel, in Honour of *Pallas*, and a Temple in the moſt elevated Part thereof; the *Palladium* dropp'd from Heaven, and mark'd out the Place, which the Goddeſs was pleas'd to poſſeſs. After this, *Apollo* gave an Oracle, importing, that *Troy* ſhould never be taken while the *Palladium* was found within its Walls: Which occaſioned *Diomed* and *Ulyſſes* to undertake the ſtealing thereof.

'Tis ſaid, there was anciently a Statue of *Pallas* preſerv'd at *Rome*, in the Temple of *Veſta*: which ſome pretended to be the true *Palladium* of *Troy*, brought into *Italy* by *Æneas*: It was kept among the ſacred Things of the Temple, only known to the Prieſts and Veſtals.

This Statue was eſteem'd the Deſtiny of *Rome*; and there were ſeveral others made perfectly like it, to ſecure it from being ſtollen. See Ancyle.

There was alſo a *Palladium* in the Citadel of *Athens*, plac'd there by *Nicias*.

Theſe *Palladiums*, in all Probability, were no other than a Kind of *Taliſmans*. See Talisman.

PALLET, among Painters, a little oval Table, of Wood, or Ivory, very thin and ſmooth on; and around which the Painters place the ſeveral Colours they have occaſion for, ready for the Pencil. See Colour.

The Middle ſerves to mix the Colours on, and to make the Teints requir'd in the Work. It has no Handle, but in Lieu thereof, a Hole at one End, to put the Thumb through to hold it.

The Word comes from the Latin *Paleta*.

Pallet, among Potters, Crucible-Makers, &c. is a wooden Inſtrument, almoſt the only one they uſe, for forming, beating, and rounding their Works. See Potter.

They have ſeveral Kinds; the largeſt are oval, with a Handle; others are round, or hollow'd triangularly; others, in fine, in manner of large Knives, ſerving to cut off what is ſuperfluous on the Moulds of their Works.

Pallet, in Gilding, is an Inſtrument made of a Squirrel's Tail; uſed to take up the Gold Leaves from the Pillow, to apply and extend 'em on the Matter to be gilt. See Gilding.

Pallet, in Heraldry, is the Moiety or Half of the *Pale*; or a ſmall *Pale*, half the Breadth of the uſual one. See Pale.

The *Pallet* muſt never be charg'd with any thing, either Quick or Dead; neither can it be divided into two equal Parts, but it may be into four, for one fourth Part of the *Pallet*, or $\frac{2}{8}$ Part of the *Pale*, is called an *Endorſe*. See Endorse.

If the *Pale* be upon any Beaſt, they ſay, the Beaſt is *Debruiſed* with the *Pale*: But if the Beaſt be upon the *Pale*, they ſay, he is *ſupported* by the *Pale*.

Pallet is alſo a Part belonging to the Ballance of a Watch or Movement. See Watch and Movement.

PALLIATION, the Action of mitigating, ſoothing, or diſguiſing a Thing.

Hence, in Medicine, *Palliation* is uſed for the quieting and aſſuaging of Pain, and providing againſt the ſeverer Symptoms of a Diſeaſe, when nothing can be directly levell'd againſt the Cauſe. See Palliative.

PALLIATIVE *Indication*, is where the Symptoms of a Diſeaſe give too much Trouble, and Danger, to have their Cure deferr'd till the Diſeaſe, whereon they depend, is removed. See Indication.

Here, the Symptoms, themſelves, are to be cured, or mitigated a-part; And hence,

Palliative *Cure*, is the Anſwering of a *Palliative* Indication; or the Removal, or Mitigation of the Symptoms of a Diſeaſe; the Cauſe of the Diſeaſe ſtill remaining. See Cure.

Boerhaave obſerves, that every Mitigation of a Symptom takes away ſomewhat from the Diſeaſe itſelf; ſo that to cure all the Symptoms together, is almoſt to cure the whole Diſeaſe. See Symptom.

The principal Symptoms which call for ſuch a Cure are Thirſt, Pain, too much Waking, and Faintings. See each under its proper Article. Pain, Thirst, Waking, &c.

PALLIER, or *Paillier*, in Building, a Landing-Place in a Stair-Caſe; or a Step, which, being broader than the reſt, ſerves to reſt upon. See Stair-case.

The Term is pure *French*, and not much uſed in *Engliſh*. In Perrons, or large Stair-caſes, where there are ſometimes ſeveral *Palliers* in the ſame Range, or Line, they ought to have at leaſt the Width of two Steps.

Thoſe in the Turns of Stair-caſes ought to be as broad as long. *Vitruvius* calls the *Palliers* or Landing-Places of Theatres *Diazomata*.

PALLIFICATION, in Architecture, is the piling of the Ground-work; or ſtrengthening it with Piles, or Timber driven into the Ground; which is practiſed, when they build upon a moiſt or marſhy Soil. See Foundation.

PALLIO *cooperire*. It was an ancient Cuſtom, where Children were born out of lawful Wedlock, and their Parents afterwards intermarried; that thoſe Children, together with the Father and Mother, ſhou'd ſtand *Pallio cooperti* under a Cloath ſpread over them, while the Marriage was a ſolemnizing; which was a Kind of Adoption, and had the Effect of a Legitimation.

Thus *Robert Groſthead*, the famous Biſhop of *Lincoln*, in one of his Letters, *In ſignum legitimationis nati ante Matrimonium conſueverunt poni* ſub pallio *ſuper Parentes eorum extento, in Matrimonii ſolemnizatione*.

Selden, in his Notes on *Fleta*, adds, that the Children of *John of Gaunt*, Duke of *Lancaſter*, by *Catherine Swinford*, tho' legitimated by Act of Parliament; yet were cover'd with the Pall at the Time of the Marriage of their Parents.

PALLIUM or PALL, a Pontifical Ornament wore by Popes, Patriarchs, Primates and Metropolitans of the *Romiſh* Church over their other Garments, as a Sign of their Juriſdiction. See Pontificalia, Episcopalia, &c.

'Tis in Form of a Band, or Fillet, three Fingers broad, and incompaſſes the Shoulder; whence by ſome Authors it is called *Superhumerale*. It has Pendants, about a Palm long, both before and behind; with little *Laminæ* of Lead rounded at the Extremes, and covered with black Silk, with four red Croſſes.

The *Pallium* is made of white Wool, ſhore from off two Lambs, which the Nuns of St. *Agnes* offer every Year, on the Day of her Feaſt, at the ſinging of the Maſs, *Agnus Dei*.

The Lambs are received by the two Canons of the Church of St. *John de Lateran*; who deliver 'em into the Hands of the Apoſtolical Sub-deacons, to whom belongs the feeding and ſhearing of 'em in Seaſon, and who alone have the Right of making theſe *Palliums*; which, when made, they lay over the Bodies of St. *Peter* and St. *Paul* in the Grand Altar of their Church, making Prayers over 'em all Night, according to the Form preſcrib'd for that Purpoſe in the *Roman* Ceremonial.

Some, with *Euſebius*, will have the *Pallium* to have been introduced by Pope *Linus*; adding, that as the *Ephod* was the Mark of the Pontifical Authority in the *Jewiſh* Synagogue, ſo is the *Pallium* in the *Chriſtian* Church. See Ephod.

Others have obſerv'd, that there is no Mention made hereof before the Year 336.

Laſtly, others will have it firſt granted by *Conſtantine* the Great, to Pope *Silveſter*; from whence it paſs'd to the other Patriarchs and Archbiſhops.

The Pope pretends to the ſole Right of Conferring the *Pallium*; tho' ſome Patriarchs have granted it to their Suffragans, having firſt receiv'd it themſelves from the *Roman* See.

Antiently the Pope uſed to ſend the *Pallium*, to certain of his Dioceſan Biſhops, on whom he laid a good Part of his Authority, and who were a Kind of a Collaterals to him, as the *Patricii* were to the Emperors.

The firſt, who receiv'd it in *France*, was *Vigilius*, Archbiſhop of *Arles*, in order, as *Paſquier* obſerves, to give him the Precedence over the other Biſhops.

Antiently they went to *Rome* to ſeek it in Perſon; afterwards, it was ſent by the Pope's Legates. At laſt the Cuſtom was introduced of ſending Perſons expreſs to demand it, with this Form, *Inſtanter, Inſtantius, Inſtantiſſime*.

A Metropolitan, till he have received the *Pallium*, cannot conſecrate Biſhops, or Churches, may not be call'd Archbiſhop, &c. Upon a Tranſlation he muſt have the *Pallium* afreſh; and till then cannot hold a Synod, nor perform any of his Archiepiſcopal Functions.

The *Pallium* was antiently interr'd with the Perſon.

The Uſe of the *Pallium* is reſtrain'd to certain Seaſons and Occaſions; none but the Pope having the Right of wearing it always and in all Places. The Pope ſometimes ſends it to Biſhops on his own Accord; and has ſometimes given the Right hereof to particular Churches. Among the *Greeks* all the Biſhops wear the *Pallium*.

In ancient Titles, &c. we find mention made of another *Pallium*, which was a long Garment ſpread over with Croſſes. *Tertullian* ſays, it was a diſtinguiſhing Garment of the Chriſtians; that of the Heathens being called *Toga*.

PALM, *Palma*, *Span*, an ancient *Roman* long Meaſure, taken from the Extent of the Hand. See Measure.

The antient *Roman Palma* was of two Kinds: The *Great Palm*, taken from the Length of the Hand, contained 12 Fingers, Digits, or Finger's-Breadths; equal, according to *Maggi*, to ſeven *Engliſh* Inches, and eight Tenths. See Digit.

The *Small Palm*, taken from the Breadth of the Hand, contained 4 Digits or Fingers, equal to two *Engliſh* Inches, and two Thirds.

Yet *Daviler* makes the ancient *Roman Palma* to be equal to 9 *French* Inches, equivalent to eight *Engliſh* Inches $\frac{5}{17}$.

The *Greek Palm* or *Spitha* was of two Kinds. The *Small* contained four Fingers, equal to 2 Inches $\frac{2}{3}$. The *Great* contained 5 Fingers. The double *Greek Palm*, call'd *Dichas*, contained 8 Fingers.

The modern *Palm* is different in different Places where it obtains.

At *Rome* it contains 7 Inches $\frac{5}{10}$: At *Naples*, according to *Riccioli*, 8 Inches: At *Genoa*, according to M. *Petit*, 8 Inches $\frac{8}{10}$: At *Morocco* and *Fez*, 7 Inches $\frac{2}{10}$: In *Languedoc*, and ſome other Parts of *France*, the *Palm* is 8 Inches $\frac{5}{3}$.

At *Leghorn* there are two Kinds of *Palms*, the one for Woollens, the other for Silks. The firſt one Third ſhorter than the latter.

PALMA, in Anatomy, the Inſide of the Hand. See Hand.

PALMS, among Botaniſts, white Buds, ſhooting out of Willows, or Sallows, before the Leaf; of the Expanſions whereof, the Leaves themſelves are form'd. See BUD and GERMINATION.

PALM-SUNDAY, the Sunday next before *Eaſter*-Sunday; or the laſt Sunday in *Lent*. See LENT.

It has been thus called from the primitive Days, on Account of a pious Ceremony then in uſe, of bearing *Palms* in Memory of the Triumphant Entry of *Jeſus Chriſt* into *Jeruſalem*, eight Days before the Feaſt of the Paſſover, deſcribed by St. *Matthew* Chap. XXI, St. *Mark* Chap. XI. and St. *Luke*, Chap. XIX.

The Ancients had alſo other Names for this Day. For 1. they called it *Dominica Competentium*, i. e. *Sunday of the Competents*; becauſe on that Day the Catechumens came to ask the Biſhop Leave to be admitted to Baptiſm, which was conferr'd the Saturday following. See BAPTISM and CATECHUMEN.

They had alſo, then, given 'em the *Symbol* or *Credo* to get off by Heart, to be repeated to the Biſhop in the Ceremony of Baptiſm. See SYMBOL.

2. They called it *Capitilivium*, the *Sunday of waſhing the Head*; by reaſon thoſe, who were to be baptized the following Sunday, were prepared by waſhing their Head this Sunday.

Some Time afterwards they called it *Indulgence Sunday*; by reaſon the Emperors and Patriarchs uſed to diſtribute Gifts on that Day. See INDULGENCE.

PALMARIS, in Anatomy, a Muſcle ſerving to contract the *Palm* of the Hand, in graſping.

It ariſes from the internal Protuberance of the *Humerus*, and by a long and ſlender Tendon, paſſes above the annular Ligament to the Palm of the Hand; where it expands itſelf into a large Aponeuroſis, which cleaves cloſe to the Skin above, and to the Sides of the *Metacarpus* below, and to the firſt Phalanx of the Fingers; by which means it makes four Caſes for the Tendons of the Fingers to paſs thro'.

This Muſcle is ſometimes wanting, but the Aponeuroſis is always there.

PALMARIS *brevis* or *Quadratus*, a Muſcle that lies under the Aponeuroſis of the firſt. It ariſes from the Bone of the *Metacarpus* that ſuſtains the little Finger, and from that Bone of the *Carpus* which lies above the reſt. It goes tranſverſly, and is inſerted into the eighth Bone of the *Carpus*.

It ſerves to draw the Palm of the Hand into a concave Figure.

PALMER, in our antient Writers, is uſed for a *Pilgrim*; and ſometimes for a *Croiſe*, on Account of a Staff made of the *Palm*-Tree which they ever afterwards bore as a Badge of their Devotion. See PILGRIM, CROISE, CROISADE, *&c.*

PALMISTRY, a Kind of Divination, perform'd by inſpecting the *Palm* of the Hand; call'd alſo *Chiromancy*. See CHIROMANCY.

PALMULARII, more properly call'd PARMULARII, in Antiquity, a Sort of Gladiators, who fought, arm'd with a Sort of a little Buckler, call'd *Parma*. See GLADIATOR and PARMA.

PALPABLE, ſomething that may be perceiv'd by the Senſes, eſpecially the Senſe of Feeling.

Hence Impalpable-Powder. See POWDER.

PALPEBRÆ, in Anatomy, the *Eye-Lids*; or thoſe moveable Covers which ſerve to ſcreen, and defend the Eyes. See EYE.

They conſiſt of a thin muſcular Membrane, covered withoutſide with a ſtrong, yet flexible Skin; and lined within-ſide with a Production, as ſome think, of the *Pericranium*. Their Edges are fortify'd with a ſoft Cartilage, by Means whereof, they are enabled to cloſe the better.

Out of theſe Cartilages grow a Paliſſade of ſtiff Hairs call'd *Cilia*; of great Uſe to warn the Eye of the Approach of Danger, either in ſleeping or waking; to keep off Motes, Flies, *&c.* in the Air, and break the too fierce Impreſſion of the Rays of Light. See CILIA.

Theſe Hairs, it is obſerv'd, only grow to a certain convenient Length, and never need cutting, as moſt others do; add to this, that their Points ſtand out of the way; thoſe of the upper Eyelid being bent upwards, as thoſe of the lower downwards; ſo nice was Nature, in ſuch ſmall Matters.

At the Commiſſure, or Joining of the upper and under Eyelids are formed two Angles call'd *Canthi*. See CANTHUS.

In the Inner of theſe is a Gland call'd *Glandula Lachrymalis*, from which proceed two or three Ducts, which, opening on the inner Surface of the Eye-lid, ſerve to moiſten the Ball of the Eye, and keep its Membranes from growing harſh and dry. See GLANDULA LACHRYMALIS.

Near the other Angle, is a Gland call'd *Innominata*; which helping by ſeveral Branches to irrigate the Eye, the Over-plus is carried to the greater Angle and tranſmitted to the Noſe thro' the *Puncta Lachrymalia*. See LACHRYMALIA PUNCTA.

By theſe Glands it is, that the Humour, call'd Tears, is ſecern'd. See TEARS.

The Eye-lids are both moveable, eſpecially the upper, which has two Muſcles to raiſe and depreſs it, call'd *Attollens*, and *Deprimens* or *Orbicularis*. See ATTOLLENS, DEPRIMENS, *&c.*

In Quadrupeds the lower *Palpebra* is moveable, and the ſmaller; in Birds, on the contrary, the lower is immoveable, and the greater. Animals that have hard Eyes, as Lobſters, and the Generality of Fiſhes have no *Palpebræ*; as being ſufficiently ſecured without.

In the Generality of Brutes is a Kind of third Eye-lid, which is drawn, like a Curtain, to wipe off the Humidity which might incommode the Eyes; it is called the *Nictitating Membrane*. See NICTITANS.

The Monkey is almoſt the only one that wants it; as being furniſh'd, like Man, with Hands to wipe the Eye on Occaſion.

PALPITATION, in Medicine, a preternatural Beating, or Pulſation of the Heart. See PULSE, *&c.*

The *Palpitation* of the Heart, is an Irregularity in the Motions of that *Viſcus*, whereby it is driven with Violence towards the Ribs, in its Contraction, attended with a great Feebleneſs of Pulſe. See HEART.

There are ſeveral Degrees of *Palpitation*: Sometimes 'tis great, ſometimes moderate, ſometimes ſmall; 'tis ſometimes ſo impetuous, as to be heard and ſeen.

The *Trepidation* or Trembling of the Heart differs from the *Palpitation*. In the former the Pulſations are faint, ſlow, and faltering; in the latter the Shakes are immoderate, violent, and convulſive. See TREPIDATION.

The Cauſe of the *Palpitation*, according to *Boerhaave*, is uſually an inordinate and violent *Impetus* of the vital Spirits into the *Villi* of the Heart; as in violent Paſſions, ſudden Fear, hyſteric Affections, violent and ſudden Motions. Sometimes it is owing to an Irritation of the Fibres of the Heart, occaſion'd by ſome ſharp *Stimulus*; as an Inflammation of the Heart or *Pericardium*, or ſome other Diſorder thereof from a Stone, Worms, Hairs, an *Aneuriſma*, &c.

Sometimes it ariſes from a thick, copious, polypous Blood: and ſometimes from the Arteries, being become cartilaginous or bony; or their Extremities obſtructed therewith.

In the *Diction. de Trevoux*, an Author, himſelf afflicted with this Diſeaſe, makes a particular Diſquiſition into its Nature, and Cauſe.

Anatomy, he obſerves, ſhews us a great Number of occaſional Cauſes of this Diſeaſe: But Phyſicians are ſtill at a Loſs to determine the efficient Cauſe.

The Moderns, with better Reaſon than the Antients, ſeek for it in the Blood of the Pulmonary Artery, which is ſuppoſed to rebound impetuouſly towards the right Ventricle of the Heart; by being prevented from purſuing its Courſe towards the other Veſſels of the Lungs, ſtopp'd by ſome Obſtruction, or compreſſed from various Cauſes.

In opening the Carcaſſes of People dead of this Diſeaſe, or ſubject to it while living, Worms or *Polypus's* have been found in the Ventricles of the Heart, and Dropſies or Abſceſſes in the *Pericardium*.

In ſome the Heart is extraordinarily big, and the Pulmonary Artery dilated to double, or quadruple its ordinary Capacity, with Obſtructions of the Pulmonary Vein, conſiſting of cartilaginous Matters which cram its Cavity ſo cloſe, that as *Blanchard* tells us, in his Anatomy, 'tis ſometimes difficult even to get a Pin in.

From theſe Obſervations, ſome have concluded, that the Capillary, *&c.* Veſſels of the Lungs, oppoſing an impaſſable Dike to the Courſe of the thickeſt Part of the Blood, driven thither by the Contraction of the Heart, ſo as only a ſmall Quantity can find a Paſſage through them; the firſt muſt make an Effort againſt their Sides, and oblige them to give way and ſtretch them out, in Proportion to the Quantity of Blood impelled againſt them by the Contraction of the Heart.

But becauſe the Pulmonary Artery cannot ſtretch wide enough to receive all the Blood of the right Ventricle driven thither at a Contraction; and ſince the Blood, by reaſon of Obſtructions, cannot continue its progreſſive Motion, in Proportion to the Velocity wherewith it is impelled, by the Contraction of the Heart; the Heart at each Contraction fails to expreſs into the Pulmonary Artery, all the Blood it contain'd in its right Ventricle.

Thus that Part of the Blood which remains, receiving the whole Shock impreſſed by the Contraction, returns it again to the Heart by Reflection, ſtriking impetuouſly againſt its Sides, and making it bound and ſhoot towards the Ribs.

The ſame Conſequences will ariſe from Obſtructions of the *Aorta*, preventing the entire Evacuation of the left Ventricle; and generally, from all Obſtructions or Compreſſions of the Veſſels, as *Polypus's*, Abſceſſes, and Dropſies in the Parts near the Heart. As to Worms, their biting, and gnawing of the fibrous Parts of the Heart, muſt occaſion violent Refluxes of Spirits towards the Brain, follow'd with a copious Effuſion of other Spirits into the Nerves of the Lungs, by the Conſent of Parts. And by ſuch Means violent and convulſive Contractions will be occaſion'd throughout the whole Texture of the Lungs, which oppoſing the free Paſſage of the Blood may occaſion a *Palpitation of the Heart*.

The ſame Diſeaſe may ariſe from a Compreſſion of the Lungs, occaſioned by the extraordinary Rarefaction of vicious and fermentative Juices, ſojourning in the Stomach and Inteſtines; which dilate thoſe Parts to that Degree, that the Diaphragm and Lungs, being extremely ſtraightened, the Blood cannot circulate without Abundance of Difficulty; a *Palpitation* therefore muſt enſue; which will laſt as long as that Rarefaction in the firſt Paſſages.

Such, according to modern Phyſicians, are the immediate Cauſes of the *Palpitation* of the Heart: The remote or occaſional Cauſes are whatever may occaſion ſuch Obſtruction of the Pulmonary Artery, *&c.*

In the ſame Work, another Phyſician lays down Winds or *Flatus*'s, as a Cauſe of the *Palpitation*; he adds, that the Ancients, to a Man, look'd on that as the moſt ordinary Occaſion thereof: In Effect, ſays he, from this Source may be deduced a Multitude of Cauſes of ſympathetic *Palpitation*, by Means of the Ventricle, the Diaphragm, Mediaſtin, *&c.*

Others will have the ſole Cauſe of *Palpitation* to be a viſcid Blood; which, by its extraordinary Rarefaction, dilating the Pulmonary Artery, and, by that means, opening the Cavity of its Capillary Veſſels towards their Extremes; or, by this Dilatation, compreſſing the other little Veſſels of the Lungs, prevents the Blood from continuing its circulating Motion with Freedom: and, by that means, opening the Cavity of its Capillary Veſſels towards their Extremes; or, by this Dilatation, compreſſing the other little Veſſels of the Lungs, prevents the Blood from continuing its circulating Motion with Freedom; and thus occaſions a *Palpitation of the Heart.*

All theſe Authors hold the *Palpitation* a dangerous Diſeaſe, and *Galen* obſerves, that thoſe troubled with it, when young, never live to grow old.

According to M. *Piſon*, a Doctor of the Faculty of *Paris*, the *Palpitation* of the Heart may ariſe, either from a too abundant Seroſity, ſwelling the proper Membrance of the Heart; as *Galen* found to be the Caſe in opening a Monkey; or from too great a Quantity of Water contained in the *Pericardium*; by which means, the Heart being ſtraighten'd, and diſabled from moving with its uſual Freedom, is obliged to make ſeveral Jerks or half Beats, inſtead of the regular Motions it had before; or, again, from a Seroſity thrown into the Ventricles of the Heart, either from the grand Veſſels which furniſh the Blood, or from the Lungs, or from the Brain.

Of theſe three Cauſes, the moſt ordinary ſeems to be the two great Extenſion of the *Pericardium*, by Water, as it is found to be in the Bodies of moſt of thoſe open'd after this Diſeaſe. See PERICARDIUM.

The different Cauſes have their different Symptoms. The boiling Seroſity, thrown out of the Blood-Veſſels into the Heart, ſhews itſelf by ſudden Beatings of the Temples, Whizzings in the Ear, dim Sight, wandering Pains in various Parts of the Body.

In that produced by the Abundance of Water in the *Pericardium*, or from the Humour ſwelling the proper Membrane of the Heart; the Heart ſeems as if ſuffocated in Water; the Pulſe weak, the *Palpitation* continual, or nearly ſo, together with a Feveriſhneſs, and a Difficulty of breathing. To which may be added, that the Diſeaſe comes by little and little.

The *Palpitation* ariſing from the Seroſity is cured by bleeding, the other by purging.

PALSGRAVE, a Term uſed among the *Germans*, of the ſame Import with *Palatine.* See PALATINE.

It is compounded of the Latin, *Palatium*, and the Dutch, *Grave*, Governor, *i. e.* Governor or Superintendant of a Prince's Palace. See GRAVE.

PALSY, *Paralyſis*, in Medicine, a Diſeaſe, wherein the Body or ſome of its Parts, loſe their Motion, and ſometimes their Senſation.

The Cauſes of the *Palſy* are an impeded Influx of nervous Spirits into the *Villi* of the Muſcles; or of the arterious Blood into their Veſſels, which may happen from ſome Fault, either in the Brain, the Nerves, Muſcles or their Veſſels.

The *Palſy* is ſaid to be *perfect* or *compleat*, when there is a Privation of Motion and Senſation at the ſame Time.

Imperfect, when one of the two is deſtroy'd, the other remaining,

The *Palſy* is either Univerſal, Lateral, or Particular.

The firſt, call'd *Paraplegia* or *Paraplexia*, is a general Immobility of all the Muſcles that receive Nerves from the *Cerebrum* or *Cerebellum*, except thoſe of the Head: Its Cauſe is uſually ſuppoſed to reſide in the Ventricles of the Brain, or in the Root of the ſpinal Marrow.

Etmuller makes this a different Diſeaſe from the *Paralyſis*, which he ſuppoſes to conſiſt in a Relaxation of the Ligaments and Membranes ſerving for Motion; but the *Paraplegia* in a mere Obſtruction of the Nerves.

The *Paraplegia* is ſeldom a primary Diſeaſe, uſually a ſecondary one, attending or following an Apoplexy, *Scorbutus*, *Carus*, *Arthritis.* See PARAPLEGIA.

The ſecond, call'd *Hemiplegia* is the ſame Diſeaſe with the *Paraplegia*; only that it affects but one Side of the Body: Its Cauſe is the ſame, only reſtrained to one Side of the Brain or ſpinal Marrow.

The third, call'd *particular Paralyſis* or *Palſy*, is where ſome particular Part or Member alone is affected; *E.g.* where the Motion of the Arm or Leg is deſtroy'd.

Dr. *Quincy* obſerves, that a *Paralyſis* where Motion is deſtroy'd, Senſation remaining, may be produced, firſt, by too much Humidity, ſtretching the muſcular Fibres in Length. Secondly, from cold Things, which thicken the Juices. Thirdly, from external Compreſſion. Fourthly, from hot Things, which ſtraighten the ſupple Membranes and Veſſels. All theſe Cauſes affect either the Blood, or Muſcles; the former, by thickening that Tumour ſo that it cannot ſuddenly rarify; and the latter, by relaxing the Muſcles into too great a Length, by too much Moiſture, or contracting them into too narrow Dimenſions by too much Heat. But the Senſation may yet be preſerv'd, becauſe, notwithſtanding all theſe Hindrances, the animal Spirits and Nerves may not be at all affected.

The Cauſes of the *Paralyſis* where Senſation is deſtroy'd, Motion remaining, he obſerves, may be all thoſe Things which ſo far thicken the animal Spirits in the Nerves, ariſing below the *Cerebellum*, that tho' indeed they may flow into the Muſcles thro' the Nerves, and there, by the Occurſion of ſome Liquor ſecreted from the Blood, rarify; yet they cannot alone flow in ſuch Quantities into the Nerves, as from a very ſlight Cauſe to be made to undulate; whence Senſation will ceaſe without loſing the Motion of the Part.

The Cauſes of this Kind are alſo whatſoever render thoſe Nerves more lax and moiſt, and ſo leſs apt for lively Vibrations; the animal Spirits flowing in the mean time into the Muſcles, from whence Motion is perform'd without Senſation.

The Cure of the *Palſy*, according to *Waldſchmid*, does not differ much from that of the Venereal Diſeaſe. Internally, Mercurials, Sudorifics, and Decoctions of the Woods are good: Externally, Unctions, particularly of ſpirituous and penetrating Things, not on the Part affected, but on the *Spina Dorſi.*

PALUDAMENTUM, in Antiquity, a Garment wore by the *Romans* in Time of War; being the Coat of Arms of their principal Men, eſpecially the General; who, for that Reaſon, were diſtinguiſh'd by the Name *Paludati.*

The Soldiers, having only ſhort Coats, were therefore named *Sagati.* See SAGA.

This Garment was open on the Sides, with ſhort Sleeves, like Angels Wings, and came down no lower than the Navel.

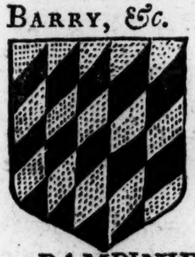
It was either white or red; and *Valerius Maximus* remarks it was an ill Omen to *Craſſus*, that they gave him a black *Paludamentum*: *Pullum ei traditum eſt* Paludamentum, *cum in prælium euntibus album aut purpureum dari ſoleret.*

Cornutus ſays they wore the *Toga* in Peace, and the *Paludamentum* in War. Hence *Togam Paludamento mutavit.*

PALY; when an Eſcutcheon is divided into ſix, eight, or ten even Diviſions *Pale-wiſe*, *i. e.* by perpendicular Lines drawn from the Top to the Bottom: It is blazoned *Paly*, of ſix, eight, or ten *&c.* Pieces. See PALE.

If the Number be odd, then the Field is firſt named, and the Number of the *Pales* ſpecified.

The like is to be underſtood alſo of *Barry* and *Bendy.* See BARRY, *&c.*



PALY-BENDY is, when a Coat is divided, both *Pale* and *Bend-wiſe*; as here: The Field *Paly-Bendy*, *Topaz* and *Diamond.*

PAMPINIFORME *Corpus*, in Anatomy, a Sort of *Plexus*, or Knot of Blood-Veſſels, form'd by the Spermatic Veins; which, in their Progreſs through the *Teſtes*, conſtitute a Body, call'd *Corpus Varicoſum Pampiniforme*, or *Pyramidale.* See PYRAMIDALE CORPUS. See alſo TESTICLE, SPERMATIC VEIN, *&c.*

PANACEA, an univerſal Medicine; or a Remedy for all Diſeaſes. See ELIXIR, *&c.*

The Word is form'd from the *Greek* πᾶν all, ἀκέομαι, I cure.

The accurate *Boerhaave* overturns the Notion of *Panacea*'s; and ſhews, from the different Cauſes, Natures, Effects, Seats, *&c.* of Diſeaſes, that ſeveral may be cured by one Medicine; but, all, by none.

He obſerves, that the moſt univerſal Remedies known are *Water*, *Fire*, *Mercury* and *Opium*; and adds, that by theſe alone, cautiouſly diſguiſed, ſome have acquir'd the Reputation of univerſal Phyſicians. See MERCURY, OPIUM, *&c.*

PANACES, or PANACEOUS, a Name applied to ſeveral Plants, by reaſon of the extraordinary Virtues aſcribed to them.

There are three of theſe *Panaces*; the *Heraclean*, *Aſclepean*, and *Chironian*; ſo called from their Inventors, *Hercules*, *Aſclepias*, and *Chiron.*

The firſt is the *Sphondilium majus* of *J. Bauhin*; from the Root and Stem of this is drawn, by Inciſion, the Gum *Opoponax.* See OPOPONAX.

The *Aſclepian*, according to ſome Botaniſts, is a Kind of *Ferula*, which *Gaſ. Baukin.* calls *Libanotis Ferulæ folio & ſemine.*

The *Chironian*, according to ſome is a Kind of *Helianthemum.*

PANADA, or *Panatella*, a Diet, conſiſting of Bread boil'd in Water, to the Conſiſtence of a Pulp; given to ſick Perſons whoſe Digeſtion is weak, or to whom ſtronger Foods would be improper. See DIET.

'Tis ſometimes made thin; to ſerve as a Drink; and ſometimes likewiſe ſweetened, &c. to render it more palatable.

The Word is form'd from the principal Ingredient *Panis* Bread.

PANAGE or PANNAGE in our ancient Cuſtoms. See PANNAGE.

PANARIS or PAYORYCHIA, in Medicine, a painful Tumour or Inflammation, ariſing on the Extremities of the Fingers or Toes, popularly called, among us, *Whitloe.*

It is occaſion'd by a ſharp or ſaline Humour, lodg'd between the Bone and *Perioſteum*, and the Nerves and Tendons.

An infallible Remedy for it, is to open it either with the Point of a Lancet, or with ſome Unguent, and then to dip the Finger in a *Lixivium* of Vine Aſhes.

The *Panaris* is exceedingly reſtleſs. Beſide the mild Kind call'd *Whitloe*, there is alſo a malignant Kind, called a *Fellon*. It ſometimes tends to an Impoſthume; but more uſually Gangrenes.

The Word is form'd from the Latin *Panaricium*, which we find in *Apuleius*; and that from the *Greek* παρωνυχία, *i.e.* an Abſceſs at the Root of the Nails.

For the *Panaris*, after bleeding, and the univerſal Remedies, Dr. *Burnet* orders the Patient to hold his Finger a good while in a rotten Egg, or a putrify'd Mouſe. *Helmont* adds, he has ſeen a Finger as big as an Arm, by means of a *Panaris*, cured by rubbing it with Blood, then wrapping it up in a Mole-Skin. *Riverius* adds, that to hold the Finger affected in a Cats Ear, cures a *Panaris* in two Hours. *Obſervat.* 63. *Cent.* 4.

PANATHENÆA, in Antiquity, a Feaſt celebrated at *Athens*, in Honour of *Minerva*, whom the *Greeks* call'd *Athenæ*.

Harpocration and *Suidas* refer their Inſtitution to *Erichtonius* IV. King of *Athens* who lived before *Theſeus*. *Theodoret*, alone, ſays the Feaſt was eſtabliſh'd by *Orpheus*.

Be this as it will, till *Theſeus*, this was a particular Feaſt of the City of *Athens*, and was called ſimply *Athenæa*: But that Prince uniting all the People of *Attica* into one Republic, they all aſſiſted at the Feaſt; whence the Name *Panathenæa*, i. e. Feaſt of all *Attica*.

In Effect all *Attiea* was preſent; and each People ſent a Bullock for the Sacrifices, and for the Entertainment of the vaſt Multitude of People aſſembled.

If they eat a great deal, it appears they did not drink leſs; witneſs the Veſſels they drunk out of, which were called *Panathenaica*, each of which held two Congius's and a half. See CONGIUS.

There were two Kinds of *Panathenæa*; the *Great*, celebrated every five Years; and the *Little*, every Year, or every three Years; if we may credit the Author of the Argument of *Demoſthenes*'s Oration againſt *Midias*.

In the *Panathenæa* was held one of the Proceſſions which the Antients call'd *Pompæ*, compoſed of the briſkeſt old Men, each whereof bore, in his Hand, an Olive-Branch; whence they were called *Thallophori*.

This was to do honour to *Minerva*, in Quality of Inventreſs of the Olive-Tree; on which Account they had likewiſe Combats, wherein the Victors were rewarded with Veſſels of Oil, and crown'd with Olive-Crowns. It was a Crime in any of the Spectators to be clad in black.

The Ceremonies were the ſame in the great, and the little *Panathenæa*; excepting a Banner wherein the Actions of the Goddeſs were repreſented in Embroidery perform'd by Maids, with the Names of thoſe who had diſtinguiſh'd themſelves in the Service of the Republic; which was only bore at the Greater.

PANCARPUS, in Antiquity, a Sort of Spectacle, or Show which the *Roman* Emperors frequently exhibited to the People. See SPECTACLE.

The *Pancarpus* was a Kind of Chace, or Hunt. For the Performance hereof, a Number of Beaſts, as Hares, Deer, Bullocks, &c. were ſhut up in the *Circus* or Amphitheatre; into which Trees were frequently tranſplanted, ſo as to form a Kind of Foreſt, wherein the Beaſts were let looſe; whence the *Pancarpus* was alſo called *Sylva.*

The Beaſts were thus abandon'd to the People, *i. e.* to all who were diſpoſed to ſhare in the Pleaſure of the Chace; who purſued, ſhot, killed and cut in Pieces all they could lay hold of.

Heliogabalus, the *Gordian*'s and *Probus*, gave this Diverſion very frequently.

Caſaubon, *Cujas*, *Pithou*, &c. make the *Pancarpus* and *Sylva* the ſame thing; *Salmaſius* will have them different. The *Sylva*, according to him, was a Diverſion, as that above deſcribed; but the *Pancarpus* a Combat, wherein robuſt People, hired for that Purpoſe, fought with wild Beaſts; which Opinion he confirms from *Caſſian*, *Juſtinian*, *Claudian*, *Firmicus*, *Manilius* and *Caſſiodorus.*

The Word is form'd from the *Greek* πᾶς all and καρπὸς Fruit.

Hence the Name was alſo given by the *Athenians* to a Sacrifice, wherein all Kinds of *Fruits* were offer'd.

PANCHREAS } See { PANCREAS.
PANCHREATIC } { PANCREATIC JUICE.

PANCHREST, *Panchreſtos*, in Medicine, a *Panacea*, or Remedy for all Diſtempers.

The Word is form'd of the *Greek* πᾶν all, χρηστὸς *Utilis*, uſeful.

PANCHYMAGOGUE, in Pharmacy, an Extract of Aloes, Rhubarb, Senna, Scammony, Jalap, Agaric, Coloquintida and Black Hellebore. See EXTRACT.

Its Name ariſes hence, that being a Compoſition of all the Kinds of Purgatives, it has the Virtue of purging all the Humours of the Body at once. See PURGATIVE.

The Word is form'd from the *Greek* πᾶν all, χυμὸς *Succus*; Juice; and ἀγεῖν *ducere*, to draw off.

PANCRATIUM, among the Antients, a Kind of intermix'd Exerciſe, conſiſting of the *Lucta* or Wreſtling, and Boxing or *Pugilata.*

The *Pancratium* was the third *Gymnaſtic* Exerciſe, and was not introduced till long after the former. See GYMNASTIC.

The People, who engaged in theſe Exerciſes, were called *Pancratiaſtes*; which Name was alſo given to ſuch as did not confine themſelves to one Exerciſe, but ſucceeded in ſeveral different ones.

The Word is compounded of πᾶν all, and κράτος Force.

PANCREAS, in Anatomy, popularly call'd the *Sweetbread*, a huge conglomerate Gland; or a Body compoſed of an infinite Number of little Glands, tied up in the ſame common Membrane; ſituate at the Bottom and Hind-part of the Stomach, and reaching from the *Duodenum* to the Spleen. See GLAND, STOMACH, &c.

The Glands it conſiſts of are bound together both by the Veſſels, and by a Membrane proper to each of them; and all together are looſely cloath'd with a thin Membrane, from the *Peritonæum.*

Its Colour is Carnation; its Form like that of a Dog's Tongue, 8 or 9 Fingers long, 2½ broad, and one thick; its Weight 4 or 5 Ounces.

Its Arteries come from the *Cæliac*; its Veins go to the *Porta*; its Nerves come from the *Hepatic plexus.*

Each little Gland has an excretory Duct, which uniting form one common excretory Duct, call'd *Ductus Pancreaticus Virtſungi*, from *Wirtſungus*, Profeſſor of Anatomy at *Padua*, the Diſcoverer thereof.

This Duct, running along the Middle of the *Pancreas*, opens into the Cavity of the *Duodenum*, generally by two Mouths, the one four or five Fingers below the *Pylorus*, ſometimes at the ſame Orifice with the *Ductus Cholidicus*; the other lower. 'Tis of the Bigneſs of a Raven's Quill, near the Inteſtines, but leſs, further off. *De Graaf* obſerves, that it is frequently double.

The *Pancreas* ſerves to ſeparate a peculiar Humour from the Blood, call'd the *Pancreatic Juice.* See PANCHREATIC JUICE.

The Word is form'd of the *Greek* πᾶν all, and κρέας *Caro*, Fleſh.

PANCREAS *Aſellii*, in Comparative Anatomy, is a large Gland in the Middle of the Meſentery of ſome Brutes, eſpecially Dogs; to which, moſt of the Lacteals reſort; and whence the Chyle is conveyed, by large Veſſels, that have their Riſe immediately from the Inteſtines, and call'd *Lactea ſecundi Generis.* See MESENTERY.

It has its Name from the Author who firſt took notice of it *Aſellius.* See LACTEAL.

M. *Perrault* obſerves, that the Fiſh, call'd *Place*, has 440 *Pancreas*'s; tho' it has but five Ducts opening into the Inteſtines, each of which correſpond to 80 *Panchreas*'s and 2 of them to 100 a-piece.

PANCREATIC *Juice*, an inſipid, limpid Juice, or Humour ſeparated from the Blood, and prepared in the *Pancreas*. See PANCREAS.

This Juice is not acid, as moſt Authors have ſuppoſed; nor alcaline, as ſome others; but, a little ſaline, and much reſembling the *Saliva* in its Origin, Veſſels, and Properties.

'Tis carried by the *Pancreatic* Duct into the *Duodenum*, where it ſerves to dilute the Chyle, to render it more fluid and fit to enter the Mouths of the Lacteals; and perhaps to temper and dilute the *Bile*, to change its Viſcidity, Bitterneſs, Colour, &c. and make it mix with the Chyle, in order to reduce the ſeveral Taſtes, Odours, and Properties of the ſeveral Foods into one homogeneous one. See BILE, CHYLE, and CHYLIFICATION.

Theo. Janſſen will have the *Pancreatic Juice* to have been known to *Hippocrates* and *Galen.*

De Graef, a *Dutch* Phyſician, has found Means of collecting a Quantity of it for Experiments; and has publiſh'd a Treatiſe expreſs *de Succo Pancreatico.*

Brunner relates, that the *Pancreatic* Duct, in ſeveral Dogs having been tied, and cut; they ſtill continued to eat, and drink, and perform all the other Functions of Life as uſual. One of them ſeemed only to have the better Stomach for it.

PANDECTS, PANDECTA, in Juriſ-prudence, the Digeſt, or Collection made by *Juſtinian*'s Order, of 534 Deciſions or Anſwers of the antient Lawyers, on ſo many Queſtions occurring in Law; to which that Emperor gave the Force and Authority of Laws by the Epiſtle prefixed to them. See DIGEST.

The Word is form'd from the *Greek* πανδέκται, *i. e.* Compilation, or a Book containing all Things. Others, as *Bartoli*, will have it form'd from πᾶν all; as if theſe Books contained the whole Doctrine of the Law.

The *Pandects* conſiſt of fifty Books, and make the firſt Part of the Body of the Civil Law. See CIVIL *Law*.

They were deſign'd by two ππ; but the Copiſts taking thoſe ππ for *ff*, the Cuſtom aroſe of quoting them by *ff*.

Papias extends the Signification of *Pandects*, to the Old and New Teſtament.

The *Florentine Pandects* are thoſe printed from a famous ancient Manuſcript at *Florence*.

PANDECTA *Medicinæ*. There are alſo *Pandects of Medicine*, a Kind of Dictionary of Things relating to Medicine, compiled by *Matt. Sylvaticus* of *Mantua*, who lived about the Year 1297.

Leunclavius has alſo publiſh'd *Pandects* of *Turkey*; and Biſhop *Beveridge Pandects of the Canons*.

PANDICULATION, that Reſtleſsneſs, Stretching, and Uneaſineſs, which uſually accompany the cold Fit of an Intermitting Fever. See INTERMITTING FEVER.

It is ſuppoſed to ariſe from a convulſive Dilatation of the Muſcles, whereby Nature endeavours to throw off ſomething that diſturbs her.

PANDORON, a muſical Inſtrument, uſed among the Antients; reſembling the Lute. See LUTE.

It has the ſame Number of Strings; but they are of Braſs, and of Conſequence give a more agreeable Sound.

Its Frets are of Copper, like thoſe of the Ciſtron; its Back flat, like that of the Guitarre; and the Rims of its Table, as well as its Ribs, cut in Semi-circles.

Du Cange obſerves, that *Varro*, *Iſidore*, and others of the Antients, mention it as having only three Strings.

The Word, according to ſome, is form'd from the *Greek* πᾶν and δῶρον, *i. e.* all Gift, or all Sorts of Gifts. *Iſidore* derives the Name from its Inventor *Pandorus*; others from *Pan*, to whom they attribute its Invention, as well as that of the Flute.

PANEGYRIC, an Oration in Praiſe of ſome extraordinary Perſon, or Virtue. See ORATION.

The *Panegyric* is rank'd among the demonſtrative Kinds of Orations. See DEMONSTRATIVE.

It has its Name from πᾶν all, and ἀγείρω I aſſemble, becauſe it was anciently held in public, and ſolemn Aſſemblies of the *Greeks*, either at their Games, their Feaſts, Fairs, or religious Meetings.

To make them the more ſolemn, they uſed to begin with the Praiſes of the Deity, in whoſe Honour the Games, *&c.* were celebrated; then they deſcended to the Praiſe of the People or Country where they were celebrated; then to the Princes or Magiſtrates who preſided at them; and at length, to the Champions, eſpecially the Conquerors who had gain'd the Prize.

F. de Colonia lays down two Methods, or Series's obſerv'd in *Panegyricks*.

The *Artificial*, where, without any Regard to the Order of Time, every Thing is reduc'd to certain Heads. Thus, *Tully* refers the whole Praiſe of *Pompey* to his Skill in War, his Virtue, Authority, and Felicity.

The other *Natural*, wherein the Order and Time of Hiſtory are obſerv'd. This Series he divides into three Periods, the Space before the Perſon's Birth, that wherein he lived, and if he be dead, that which follow'd his Death. This Natural Series requires much leſs Art, Genius, *&c.* than the other.

The Places or Sources of *Panegyric* are chiefly the Family, Country, *Auguries* at his Birth, his Virtues, the Talents of his Body and Mind, Honours, Riches, Manner of his Death, and the Conſequences thereof.

PANEGYRIC, is alſo the Name of a Church-Book, in uſe among the *Greeks*; ſo call'd, as conſiſting of *Panegyrics* or Diſcourſes in Praiſe of *Jeſus Chriſt* and the Saints. See GREEK.

'Tis found in MS. in moſt Churches; but is not the ſame in all; each Church having its particular Saints; and the Compilers of this Kind of Books, uſually ſuiting their Collections to the Taſte of their own Devotion.

They are diſpoſed according to the Order of Months, and frequently conſiſt of 12 Volumes, anſwering to the 12 Months of the Year.

PANEL or PANNEL, in Law, is deriv'd by *Spelman*, from *Pagella* a Schedule, or Page; in which Senſe we ſay a *Panel* of Parchment, a Counter-*Pane* of an Indenture, *&c.*

But it is more commonly uſed for a Schedule or Roll, containing the Names of ſuch Jurors, as the Sheriff returns to paſs upon the Trial.

Hence the *Empanelling* of a Jury is the Entering of their Names, by the Sheriff, into a *Panel*, or little Schedule of Parchment. See JURY. *In Panello Aſſizæ*, &c,

Coke on Littleton will have *Panel* to be an *Engliſh* Word, ſignifying a little Part; as being a Diminutive of the Word *Pane*, Part. But *Spelman* takes this for an Over-ſight.

PANEL, in Joinery, *&c.* See PANNEL.

PANES, in the antient Theology. See SATYR.

PANIC, or *Panic-Fear*, a Term uſed for a needleſs, or ill-grounded Fright.

Polyenus fetches the Origin of the Phraſe from *Pan*, one of the Captains of *Bacchus*, who, with a few Men, put a numerous Enemy to rout, by a Noiſe which his Soldiers raiſed in a rocky Valley, favour'd with a great Number of Eccho's. This Stratagem making their Number appear much greater than it really was, the Enemy quitted a very commodious Encampment, and fled.

Hence all ill-grounded Fears have been call'd *Panicks* or *Panic Fears*; and 'twas this gave Occaſion to the Fable of the Nymph Eccho's being belov'd by that God.

Others derive the Origin of the Expreſſion hence, that in the Wars of the *Titans* againſt the Gods, *Pan* was the firſt who ſtruck Terror into the Hearts of the Giants. *Theon* on *Aratus* ſays, he did it by means of a Sea-Shell which ſerv'd him for a Trumpet, whereof he was the Inventor.

PANICULA, PANICLE, in Botany, called alſo *Juba* a ſoft woolly Beard, or String, whereon the Seeds of ſome Plants hang, pendulous, as in Reeds, Millet, *&c.*

Such are hence called *Paniculated Plants*. See PLANT.

PANNAGE, PANAGE, or PAWNAGE, are uſed in our Law-Books, *&c.* for the Maſt of Woods; as of Beech, Acorns, *&c.*

As alſo for the running and feeding of Swine or other Cattel in Foreſts, and the Monies taken by Agiſtors for the ſame.

Pannagium liberum, or free *Pannage*, was a Liberty of free running of Swine in certain Foreſts and Woods; which was a Privilege, granted to certain private Perſons, and ſeveral religious Houſes. *Linwood* defines *Pannagium Paſtus Pecorum in Nemoribus, & in Silvis, ut pote de Glandibus & aliis fructus arborum ſylveſtrium, quarum fructus aliter nec ſolent colligi.*

It is alſo mentioned 20 *Car.* II. *Quiſque villanus habens decem Porcos, dat unum Porcum de Panagio*; by which it appears, that one Hog in 10 was given to *Pannage*.

PANNEL, in Law. See PANEL.

PANNEL, or PANEL, in Joinery, *&c.* a Tympanum or ſquare Piece of thin Wood, ſometimes carv'd, fram'd, or groov'd in a larger Piece between two Montants or upright Pieces, and two Traverſes or Croſs-Pieces.

Hence *Panels* or Panes of Glaſs, are Compartiments or Pieces of Glaſs of various Forms, Square, Hexagonal, *&c.*

PANNEL, in Maſonry, one of the Faces of a hewn Stone. See STONE.

Pannel of a Saddle, two Cuſhions full of Hair or Flocks, placed on each Side the Saddle to prevent the Bow from hurting the Horſe. See SADDLE.

The Word is form'd from the *French*, *Panneau* of *Pan*, *flat-ſide*.

PANNICULUS, in Anatomy, a Term frequently uſed for a Membrane. See MEMBRANE.

Hence, *Panniculus adipoſus*, &c. is the ſame with *Membrana adipoſa*, &c. See ADIPOSA, *&c.*

The Word is *Latin*, form'd by Diminution, from *Pannus*, Cloth, *q. d.* a little Cloth or fine Web.

PANNICULUS *Carnoſus*, is a fleſhy Membrane, which the antient Anatomiſts ſuppoſed to be common to the whole Body; and to be the fourth Integument or Covering thereof, after the *Epidermis*, *Cutis*, and the *Adipoſus*. See SKIN.

This fleſhy *Pannicle*, according to them, is a thick Membrane, which covers the whole Body; and even becomes muſculous in ſome Parts: But the lateſt Anatomiſts deny any ſuch Membrane in the human Body; maintaining, that what the Antients call'd the fleſhy *Pannicle*, is only the fat or adipoſe one. Dr. *Drake* makes it a double Membrane, one Half of which forms the *Membrana adipoſa*, the other Half the *Membrana communis* of the Muſcles. The Uſe the Antients aſcrib'd to the fleſhy *Pannicle* was to wrinkle and contract the Skin; but the Truth is, where-ever the Skin wrinkles, there are particular Muſcles for the Purpoſe, call'd *Cutaneous Muſcles*. See CUTANEOUS.

Theſe Muſcles the Antients own'd; but ſaid their Office was confined to particular Motions; adding, that there are Places where no Fat is found between the *Cutis* and the fleſhy *Pannicle*; which is falſe.

Further, even in Animals which do move the Skin; this *Pannicle* is no more than a cutaneous Muſcle, as well as the *Dartos*.

Some of the modern Anatomiſts, however, admit the fleſhy *Pannicle*, and deny the adipoſe one; ſuppoſing the latter, in reality, only a Part of the former. See FAT and FLESH.

PANNIER, in Architecture. See CORBEL.

PANNUS, in Medicine, *&c.* a Diſeaſe of the Eye, popularly call'd the *Web*; and by the *Arabs*, *Zebel*.

The *Pannus* is an Excreſcence ariſing on the *Adnata* or *Conjunctiva*; leſs hard and membranous than the *Unguis*; and repreſenting a Web, or Tiſſue of little Veins ſwell'd with Blood. See CONJUNCTIVA.

Its Cauſe is an Obſtruction of the Blood in the minute Veſſels of that Tunic. Its Cure is almoſt the ſame with that of the *Pterigium* or *Unguis*; between which, and the *Pannus*, there is a great Affinity. See PTERIGIUM.

The chief Difference is, that in the *Unguis*, the membranous Excreſcence only covers Part of the Eye, after the manner of a Nail; whereas in the *Pannus* it covers the whole.

PANTALOON or **PANTALON**, the Name of an antient Garment, frequent among our Fore-fathers, conſiſting of Breeches and Stockings all of a Piece.

The Word comes from the *Italians*, who firſt introduced this Habit, and who are called *Pantaloni* from St. *Pantaleon*, who was formerly their Patron.

PANTALOON, on the Theatre, is a Buffoon or Maſk who performs High and Groteſque Dances, and ſhews violent and extravagant Poſtures and Airs.

The Word is alſo uſed for the Habit or Dreſs theſe Buffoons uſually wear; which is made preciſely to the Form of their Body, and all of a-piece from Head to Foot. Hence thoſe who wear a Habit of this Kind, for Conveniency, under their other Cloaths are call'd *Pantaloons* of *Venice*.

PANTHEA, among the *Romans*, were ſingle Statues, compoſed of the Figures or Symbols of ſeveral different Divinities. See STATUE.

Father *Joubert*, who calls them *Pantheons*, and who has obſerved them on ſeveral Medals, ſays their Heads are moſt commonly adorn'd with Symbols belonging to ſeveral Gods.

An Inſtance hereof we have in a Medal of *Antoninus Pius*; which at the ſame time repreſents *Serapis*, by the Buſhel it bears; the *Sun*, by the Crown of Rays; *Jupiter Ammon*, by the Ram's Horns; *Pluto*, by the large Beard; and *Eſculapius*, by the Serpent twiſted in his Hand. See STATUE.

M. *Baudelot*, in a Diſſertation on the *Lares*, will have the *Pantheons* to have had their Riſe from the Superſtition of thoſe, who, taking ſeveral Gods for the Protectors of their Houſes, united them all in the ſame Statue, by adorning it with the ſeveral Symbols, proper to each of thoſe Deities. See LARES.

PANTHEON, in Architecture, is a Temple, or Church of a circular Form; dedicated to all the Gods, or all the Saints. See TEMPLE and CHURCH.

It is thus named from the *Greek* πᾶν all, and θεὸς God.

The *Pantheon* of antient *Rome*, is, of all others, the moſt celebrated, and that whence they all take their Name. It was built by *Agrippa*, Son-in-law of *Auguſtus*, in his third Conſulate, 25 Years before *Chriſt*. It was dedicated by him to *Jupiter Ultor*, *Jupiter* the Revenger; and had the Name *Pantheon*, by reaſon of the great Number of Statues of the Gods ranged in Niches all around; and becauſe built round, to repreſent Heaven, the Reſidence of all the Gods. It had but one Door, and one Window; receiving all its Light from the Top of its Dome.

The Pope, obtaining it of the Emperor *Phocas*, converted it into a Church, without any Alteration in the Building, and dedicated it to the Virgin and all the Martyrs. And it ſtill ſubſiſts at *Rome* under the Title of *Notre Dame della Rotonda*. See ROTONDA.

The *Pantheon of Niſmes*, was a Temple in that City, wherein were 12 Niches or Statues, ſuppoſed to have been deſtin'd for the 12 great Gods.

In the Eſcurial is a magnificent Chapel, call'd *Pantheon*, 35 Feet in Diameter, and 38 high, from the Pavement which is of Marble and Jaſper inlay'd. The whole Inſide of the Chapel is of black Marble, excepting the *Luthern* and ſome Ornaments of Jaſper and red Marble.

In this Chapel are depoſited the Bodies of the Kings and Queens: there are only Places made for 26; eight of which are already fill'd. See ESCURIAL.

PAPAL *Crown* is a deep Cap, or Mitre of Cloth of Gold, encompaſſed with three Coronets or Circles of Gold, adorn'd with Flowers; and the Whole enrich'd with precious Stones; having a Globe at top, finiſhed with a Croſs. See CROWN.

PAPILLA, in Anatomy, *Nipple* or *Teat*, a Prominence ariſing from the Middle of the Breaſt, or *Mamma*. See BREAST.

The Colour of the *Papillæ* is various; in different States, and Stages of Life, it is reddiſh, bluiſh, blackiſh. They are encompaſſed with a pale browniſh Circle, call'd the *Areola*.

The lacteal Tubes, coming from the ſeveral Parts of the Breaſts, terminate in the *Papillæ*, with ſeveral nervous, or ſpongious Emiſſaries which communicate with each other by *Anaſtomaſes*, thro' which, in ſucking, the Milk is drawn. See MILK.

PAPILLÆ *Pyramidales*, are little Emminences ariſing from the ſubcutaneous Nerves.

Under the *Cutis* lies a thick Congeries of Nerves, wove into a Kind of Membrane; together with Arteries, Veins, and Lymphaticks: Theſe Nerves ſtanding out above the Level form little *Papillæ*, which laying aſide the outer Coat given them by the *Dura Mater*, form the *Corpus reticulare*, firſt obſerv'd by *Malpighi* in the Feet, Hands, and Tongue; and ſince ſhewn by *Ruyſch*, throughout the whole Body. See RETICULARE.

Theſe *Papillæ* are ſtill moſt numerous and conſpicuous in the Places of acute Senſe, as the Tongue, Glans of the *Penis*, *Vaginæ*, *Labia*, *Oeſophagus*, Ventricle, ſmall Inteſtines, and Tips of the Fingers and Toes, where the *Cutis* they are covered withal is extremely thin. See CUTIS.

In the other Parts of the Body the *Cutis* is thicker, and the *Papillæ* much fewer, ſmaller, *&c.* See RETICULAR BODY.

Theſe *Papillæ* are ſuppoſed to be the immediate Organ of *Feeling*. See FEELING.

PAPILLÆ of the Tongue, are little Eminences of the Tongue; ſo called from their Reſemblance to the *Papillæ* of the Breaſt. See TONGUE.

From the papillary Tunic of the Tongue ariſe numerous nervous *Papillæ*; which, penetrating the viſcous Subſtance over them, terminate under the Surface of the Tongue. See PAPILLARY.

'Tis by means of theſe *Papillæ* that the Tongue is ſuppoſed to have its Faculty of *Taſting*. See TASTING.

PAPILLÆ, or *Carunculæ Papillares* of the Kidnies, are Bundles of little urinary Pipes, join'd together in the inner Subſtance of the Kidnies. See KIDNEY.

They end in ſhort tubulous Bodies, or larger Pipes, anſwering in Number to the *Papillæ*, which are uſually 12; and are called *Fiſtulæ Membranaceæ*; being only Productions of the membranous Cell, called the *Pelvis*. See PELVIS.

The *Papillæ* ſerve to diſtill the Urine ſeparated from the Arteries, and brought them by the urinary Pipes, into the *Pelvis*. See URINE.

PAPILLARY, in Anatomy, an Epithet given to a Tunic or Membrane of the Tongue, call'd *Papillary Tunic*, *Papillary Membrane*, or *Papillary Body*.

The *Papillary Tunic* or *Body* is the third Tegument, plac'd beneath the exterior Membrane which lines the Tongue, and the viſcous Subſtance next under the ſame. See TONGUE.

The *Papillary Tunic* is full of Nerves derived from the fifth and ninth Pair. From this Tunic ariſe little Eminences, call'd *Papillæ* or *Papillary Eminences*. See PAPILLA.

The Salts and Juices of Bodies, ſtriking againſt theſe Prominences, occaſion Undulations therein, which are immediately communicated to the Spirits contained in the Nerves, which carry them to the Brain, *&c.* See TASTING.

PAPILLARY *Proceſſes*, a Name the Antients gave to the Olfactory Nerves, from the Place of their Origin, to the *Os Cribroſum*. See NERVE.

Dr. *Drake* thinks this Name becomes them better in this Place than that of Nerves: in regard they rather appear Productions of the *Medulla Oblongata*: whence the Olfactory Nerves ariſe, than diſtinct Nerves; againſt which their manifeſt Cavities, and their Communication with the Ventricles, argue.

PAPILIONACEOUS, in Botany, the Flowers of ſome Plants are thus called, by Botaniſts, as repreſenting ſomething of the Figure of a *Papilio* or Butterfly, with its Wings diſplay'd. See PLANT.

They have four ſuch Leaves, joined together at the Extremities; one in the Middle of the Flower is larger than the reſt, and by ſome called *Vexillum*.

The Plants, that have this Flower, are of the leguminous Kind, as Peaſe, Vetches, *&c.*

PAPPUS, in Botany, that ſoft light Down, which grows out of the Seeds of ſome Plants, as Thiſtles, Dandelion, Hawkweed, *&c.* and which buoys them up ſo in the Air, that they may be blown any where about with the Wind. See SEMINATION.

This diſtinguiſhes a Claſs or Kind of Plants, which are hence denominated *Pappoſa*, or *Pappi Flore*.

PAR, in Commerce a Kind of Equality among Monies; or how much a Perſon muſt give of one Kind of Species, to render it juſt equivalent to a certain Quantity of another.

The *Par* differs from the *Courſe* of Exchange in this, that the *Par of Exchange* ſhews what other Nations ſhou'd allow in Exchange; which is certain and fix'd: But the *Courſe* ſhews what they will allow in Exchange; which is uncertain and contingent, ſometimes more, ſometimes leſs. See EXCHANGE.

The Par *of Exchange of the* French *Crown of 60 Sols or 4 s. 6 d. Sterl.* with *Foreign* Monies, both real and imaginary, of moſt of the Trading Cities of *Europe*, follows; whence alſo the Relation or *Parity* of thoſe other Monies among themſelves, appears.

The *French* Crowns of 60 Sols is equivalent to 54 Pence *Sterl.* of *England*; to 100 *Deniers* Groſs of *Holland*; and to 101, of thoſe of *Cologne*. To 48 *Sols-Lubs* of *Germany* and *Hambourg*. To 88 *Creuxs* of *Ausbourg* and 90 of *Francfort*, 83 of *Bolzam*, and 84 of *Switzerland*. To 8 *Julio's* and an half of *Rome*, and as many of *Ancona*; to three *Teſtons* of *Florence*, 58 *Soldi* of *Leghorn*, 83 of *Geneva*, 94 of *Milan*, 60 of *Nova*; to 5 *Lires* or *Livres* of *Genoa*, 4 *Lires* and 10 *Soldi* of *Lucca*, 8 *Lires* of *Bergama*, 3 *Lires* and 15 *Soldi* of *Savoy*; to 9 *Carlins* of *Naples*, and as many of *Sicily*; 21 *Groats* and three Fifths of *Venice*, 24 of *Neumbourg*; to 372 *Maravedes* of *Spain*, to 600 *Rays* of *Portugal*, to 4 *Tarins* and 15 *Grains* of *Malta*, to 120 *Aſpers* of *Conſtantinople*, to a *Demi-hongre* of Gold of *Hungary*, to 2 *Florins* of *Liege*, 3 of *Strasbourg* and 20 of *Raconis*, to 90 *Groats* or *Groch's* of *Poland*, and 24 of *Berlin*, to 80 *Marks* of Copper of *Sweden*, to 50 *Grives* or *Grifs* of Copper of *Muſcovy*, and laſtly to 4 *Hors* of *Denmark*.'

Par, in Anatomy. See Pair.

Par *Vagum, or the fourth Pair*, is a very notable Conjugation of Nerves, of the *Medulla oblongata*; thus call'd from their wide *vague* Diſtribution throughout the ſeveral Parts of the Body.

See the Origin, Courſe, Diſtribution, &c. of the *Par vagum* under Nerve.

Par, a Term of Nobility. See Peer.

PARABLE, a Fable, or Allegorical Inſtruction founded on ſomething real, or apparent in Nature or Hiſtory; from which ſome Moral is drawn, by comparing it with ſome other Thing, wherein the People are more immediately concerned.

Such are thoſe Parables of the *Ten Virgins*, of *Dives and Lazarus*, of the *Prodigal Son*, &c. in the New Teſtament. St. *Matthew* ſays our *Saviour* never ſpoke to the People but by *Parables*.

F. *de Colonia* calls the *Parable*, a *Rational Fable*. See Fable.

The Word is form'd from the *Greek* παραβάλλειν to compare. Whence *Ariſtotle* defines it a Similitude drawn from Form to Form. *Cicero* calls it a *Collation*, others a *Simile*.

In the New Teſtament it is uſed variouſly. In *Luke* IV. 23. for a *Proverb* or *Adage*. In *Matth*. XV. 15. for a Thing *darkly* and *figuratively expreſs'd*. In *Heb*. IX. 9. &c. for a *Type*. In *Luke* XIV. 7. &c. for a *ſpecial Inſtruction*. *Matth*. XXIV. 32. for a *Similitude* or *Compariſon*. The *Hebrews* call it משר from משר to predominate, to aſſimilate; whence the Proverbs of *Solomon* are call'd משר *Parables* or *Proverbs*.

Aquinas defines *Parable* a ſimilitudinary Diſcourſe; or a Speech which ſays one thing and means another. *Glaſſius* more accurately defines it a *Simile* wherein a fictitious Thing is related as real, and compared with ſome Spiritual Thing, or accommodated to ſignify it.

Some make *Parable* differ from *Fable*; *Grotius* and others will have them the ſame. *Kircher* derives the Uſe of *Parables* from the *Egyptians*.

PARABOLA, in Geometry, a Figure ariſing from the Section of a Cone, when cut by a Plane parallel to one of its Sides. See Section

From the ſame Point of a Curve, therefore, only one *Parabola* can be drawn: All the other Sections within thoſe Parallels being Ellipſes; and all without, Hyperbola's. See Cone.

Wolfius defines the *Parabola* to be a Curve wherein the Square of the Semi-ordinate is equal to the Rectangle of the Abſciſſe, and a given right Line call'd the *Parameter* of the Axis or *Latus rectum*.

Hence, a *Parabola* is a Curve of the firſt Order; and as the Abſciſſes increaſe, the Semi-ordinates increaſe likewiſe; conſequently the Curve never returns into itſelf. Hence alſo the Abſciſſe is a third Proportional to the Parameter and Semi-ordinate; and the Parameter a third Proportional to the Abſciſſe and Semi-ordinate; and the Semi-ordinate a mean Proportional between the Parameter and Abſciſſe.

To deſcribe a Parabola. The Parameter A B *Tab. Conicks. Fig*. 8. being given; continue it to C, and from B let fall a Perpendicular, to N. From Centres taken at Pleaſure, with the Compaſſes open to A, deſcribe Arches cutting the right Line B V in I, II, III, IV, V, &c. And the right Line B C in 1, 2, 3, 4, 5, &c. Then will B 1, B 2, B 3, B 4, B 5, &c. be Abſciſſes, B I, B II, B III, B IV, B V, &c. Semi-ordinates. Wherefore if the Lines B 1, B 2, B 3, &c. be transferr'd from the Line B C to that B N, and in the Points 1, 2, 3, 4, &c. Perpendiculars be raiſed, 1 I = B I, 2 II = B II, 3 III = B III, &c. The Curve paſſing thro' the Points I, II, III, &c. is a *Parabola*; and P N its Axis.

Every Point of the *Parabola* may alſo be determined geometrically. *E.gr*. If it is inquired whether the Point M be in the *Parabola* or not? From M to BN let fall a Perpendicular M P. And let P N be equal to the Parameter A B; upon B N deſcribe a Semicircle. For if that paſs thro' M, the Point M is in the *Parabola*.

In a *Parabola* the Diſtance of the *Focus* from the *Vertex* is to the Parameter in a ſubquadruple Ratio: And the Square of the Semi-ordinate is quadruple the Rectangle of the Diſtance of the *Focus* from the *Vertex*, into the Abſciſſe.

To deſcribe a Parabola *by a continued Motion*. Aſſuming a right Line for an Axis, let fA *Fig*. 9. $= AF = \frac{1}{4}a$. In A fix a Ruler D B cutting the Axis fD at right Angles. To the Extremity of another Ruler E C, faſten a Thread fix'd at its other Extreme in the *Focus* F which is to be $= AD + AF$. If then a Style or Point be fix'd to the Ruler E C, and the Ruler be carried firſt to the Right then to the Left, according to the Direction of the other D B; the Style will mark out a *Parabola*: For F M will be conſtantly $= EM = Pf = x + \frac{1}{4}a$, and conſequently the Point M is in a *Parabola*.

Properties of the Parabola.

The Squares of the Semi-ordinates are to each other as the Abſciſſes; and the Semi-ordinates, themſelves, in a ſubtriplicate Ratio of the Abſciſſes.

The Rectangle of the Sum of the two Semi-ordinates into their Differenee, is equal to the Rectangle of the Parameter into the Difference of the Abſciſſes: The Parameter therefore is to the Sum of the two Semi-ordinates, as their Difference to the Difference of the Abſciſſes.

In a *Parabola* the Rectangle of the Semi-ordinate into the Abſciſſe, is to the Square of the Abſciſſe, as the Parameter to the Semi-ordinate.

In a *Parabola* the Square of the Parameter is to the Square of one Semi-ordinate, as the Square of the other Semi-ordinate to the Rectangle of the Abſciſſes.

In a *Parabola* the Subtangent is double the Abſciſſe, and the Subternal ſubduple the Parameter.

Quadrature of the *Parabola*. See Quadrature.

Rectification of the *Parabola*. See Rectification.

Centre of Gravity of a *Parabola*. See Centre of Gravity.

Centre of Oſcillation of the *Parabola*. See Oscillation.

Parabola'*s of the higher Kinds* are Algebraic Curves, defin'd by $a^{m-1}x = y^m$. *E.gr*. by $a^2x = y^3$, $a^3x = y^4$, $a^4x = y^5$, $a^5x = y^6$, &c. See Curve.

Some call theſe *Paraboloides*: particularly, if $a^2x = y^3$; they call it a *Cubical Paraboloid*. If $a^3x = y^4$, &c. They call it a *Biquadratical Paraboloid*, or a *Surdeſolidal Paraboloid*. And in reſpect of theſe, the Parabola *of the firſt Kind*, above explained, they call the *Apollonian* or *Quadratic Parabola*.

Thoſe Curves are likewiſe uſed to be referred to *Parabola's* wherein $ax^{m-1} = y^m$. as *E. gr*. $ax^2 = y^3$, $ax^3 = y^4$, which ſome call *Semi-parabola*'s. They are all comprehended under one common Equation $a^m x^n y^r$, which alſo extends to other Curves, *v. g*. to thoſe wherein $a^2x^2 = y^4$ $a^2x^3 = y^5$, $a^3x^4 = y^7$.

Since in *Parabola*'s of the higher Kinds, $y^m = a^{m-1}x$; If any other Semi-ordinate be called v, the Abſciſſe correſponding to z, will be $v^m = a^{m-1}z$ conſequently $y^m : v^m :: a^{m-1}x : a^{m-1}z$. That is $x : z$. 'Tis a common Property, therefore, of theſe *Parabola*'s, that the Powers of the Ordinates are in the Ratio of the Abſciſſes.

But in *Semi-parabola*'s $y^m : v^m :: ax^{m-1} :: x^{m-1} : z^{m-1}$. Or the Powers of the Semi-ordinates are as the Powers of the Abſciſſes, one Degree lower. *E. gr*. In *Cubical Semi-parabola*'s, the Cubes of the Ordinates y^3 and v^3 are as the Squares of the Abſciſſes x^2 and z^2.

Apollonian Parabola, is the Common, or *Quadratic Parabola* or *Parabola* of the firſt Kind; ſo called by way of Diſtinction from *Parabola*'s of the higher Kinds: Which ſee.

Quadratic Parabola, is the ſame with the *Apollonian*: Which ſee.

PARABOLAN, PARABOLANUS, among the Antients, was a Sort of Gladiator; called alſo *Confector*. See Confector.

The Name was given them from the *Greek* παράβολος of βάλλω to throw, precipitate; in regard they threw themſelves on Danger and Death.

Parabolan is alſo uſed in Church-Hiſtory, for a Set of People, eſpecially in *Alexandria*, who devoted themſelves to the Service of Churches, and Hoſpitals. The *Parabolans* were not allowed to withdraw themſelves from their Function, which was the Service of the Sick. They made a Kind of Friary, amounting ſometimes to 600 Perſons; depending on the Biſhop.

The Deſign of their Inſtitution was, that the diſeaſed, eſpecially thoſe infected with the Plague, might not be without Atttendance.

PARABOLIC *Space*, the *Space* or *Area* contained between any entire Ordinate as V V *Tab. Conicks Fig*. 8. and the Curve of the incumbent *Parabola*.

The Parabolic Space is to the Rectangle of the Semi-ordinate into the Abſciſſe, as 2 to 3: to a Triangle inſcribed on the Ordinate as a Baſe, the *Parabolic Space* is as 4 to 3.

Every *Parabolical* and *Paraboloidical Space* is to the Rectangle of the Semi-ordinate into the Abſciſſe as $rxy : (m+r)$ to xy, that is, as r to $m+r$.

Segment of a Parabolic Space, is that Space included between two Ordinates. See Segment.

Quadrature of a Parabolical Segment. See Quadrature.

Parabolic *Pyramidoid*, a ſolid Figure, generated by ſuppoſing all the Squares of the ordinate Applicates in the *Parabola*, ſo placed, as that the Axis ſhall paſs thro' all their Centres at Right Angles; in which Caſe the Aggregate of the Planes will be arithmetically proportional.

The Solidity hereof is had by multiplying the Baſe, by half the Altitude; the Reaſon whereof is obvious: for the component Planes being a Series of Arithmetical Proportionals beginning from 0, their Sum will be equal to the Extremes multiply'd by half the Number of Terms, that is, in the preſent Caſe, equal to the Baſe multiply'd by half the Height.

Parabolic *Cuneus*, a ſolid Figure form'd by multiplying all the DB's *Tab. Conics Fig.* 10. into the DS's: or which amounts to the ſame, on the Baſe APB erect a Priſm, whoſe Altitude ſhall be AS or PS; this will be a *Parabolical Cuneus*; which of neceſſity will be equal to the *Parabolical Pyramidoid*; inaſmuch as the component Rectangles, in one, are ſeverally equal to all the component Squares in the other.

Parabolic *Conoid*, a ſolid Figure generated by the Rotation of a *Semi-parabola* about its Axis, and is $= \frac{1}{2}$ of its circumſcribing Cylinder.

The Circles conceived to be the Elements of this Figure, are in an arithmetical Proportion, decreaſing towards the *Vertex*.

A *Parabolic Conoid* is to a Cylinder of the ſame Baſe and Height, as 1 to 2; and to a Cone of the ſame Baſe and Height, as $1\frac{1}{2}$ to 1.

Parabolic *Spindle*. See Pyramidoid.

Parabolic *Speculum* or *Mirrour*. See Mirrour.

PARABOLOIDES, in Geometry, *Parabola*'s of the higher Kinds. See Parabola *of the higher Kinds*.

Quadrature of a Paraboloid. See Quadrature.

Rectification of a Paraboloid. See Rectification.

Centre of Gravity of a Paraboloid. See Centre.

Quadratic Paraboloid, *Cubical Paraboloid*, *Surſeſolidal Paraboloids*. See Parabola*'s of the higher Kinds*.

PARACENTESIS, in Chirurgery, an Operation in Chirurgery, popularly call'd *Tapping*.

It conſiſts in the opening a little Hole in the lower *Venter* or Belly, to let out Waters collected in the Capacity thereof, or between the Teguments, in an *Aſcites* or *Water-Dropſy*. See Dropsy.

The Antients cut the Aperture with a Lancet; but the Moderns punch it with a Kind of Stillet or Bodkin; clapping a *Cannula* or Tap into the Hole when made, to carry off the Water. See Cannula.

The Operation is uſually perform'd two or three Fingers Breadth on one Side the Navel, ſometimes a little lower, but always ſo as to avoid the *Linea Alba*.

The Water is uſually drawn off at ſeveral Times, as the Patient's Strength will allow; and a new Puncture is made, every Time the Belly is thus to be emptied.

The *Paracenteſis* does not often ſucceed, tho' often repeated; becauſe the Root of the Diſeaſe, notwithſtanding the carrying off the Water by this Means, is ſtill left behind.

The Word is form'd from the *Greek* παρὰ with, and κεντεῖν *pungere* to prick.

Some Authors give the Name *Paracenteſis* to all Operations either with the Lancet, the Needle, or Punch; not excepting the Operation of Couching for Cataracts; founded on the Etymology of the Word: others reſtrain it to Apertures made in the Head, Breaſt, Belly and *Scrotum*; and others to the ſingle Operation of *Tapping in Dropſies*.

PARACENTRICK *Motion of Impetus*, in Aſtronomy, a Term uſed for ſo much as a revolving Planet approaches nearer to, or recedes farther from the Sun, or Centre of Attraction. See Attraction.

Thus if a Planet in A *Tab. Aſtronomy Fig.* 25. move to B, then is $SBT - SA = bB$, the *Paracentric* Motion of that Planet.

Paracentric *Sollicitation of Gravity* or *Levity* amounts to the ſame with the *Vis Centripeta*, and, in Aſtronomy, is expreſſed by the Line AL *Fig.* 26. drawn from the Point A parallel to the Ray SB (infinitely near SA) till it interſect the Tangent BL.

PARACLET, a Name the Church has given to the Holy Spirit; from παράκλητος, *Comforter*, *Advocate*.

PARACYNANCHE, in Medicine. See Parasynanche.

PARADE, the Shew, or Expoſal of any Thing to view, in all its Advantages and Ornaments.

Bed of *Parade*, is that wherein a Perſon lies in State.

Parade, in War, is the Appearance of the Officers and Soldiery at a Poſt aſſign'd them, to put themſelves under Arms, in the beſt Order they can; either to mount, or break up the Guard; or to form a Battalion, or on ſome other Occaſion.

Parade, in Fencing, the Action of Parrying, or Turning off any Puſh, or Stroke.

There are as many Kinds of *Parades* as of Strokes and Attacks. *Parade* inward, outward, above, below, feign'd, &c.

PARADIGMA or PARADIGM, an Example, or Inſtance of ſomething ſaid, or done. See Example.

The Word is form'd of the *Greek* παράδειγμα Exemplar, of παρὰ and δείκνυμι *oſtendo*, q. d. *juxta oſtendo*.

PARADISE, a *Garden of Delights*; a Term primarily uſed for the Place wherein *Adam* was ſeated, during his Innocence; and from which he was expell'd for diſobeying God; call'd in a ſtricter manner, the *Terreſtrial Paradiſe*.

The Word is form'd of the *Greek* παράδεισος *Orchard*, a Place ſtored with Apples, and all Kinds of Fruit. *Moſes* calls it the *Garden of Eden*.

The Critics are in diſpute about the preciſe Place of *Paradiſe*. Some will have it in *Judea*, in the Place where now is the Lake *Geneſareth*; others, in *Syria*, toward the Springs of the *Orontes*, and *Chryſorrhoes*: But, in neither of thoſe Places do we diſcover any Track of the Rivers wherewith *Paradiſe*, in *Moſes*'s Deſcription, was water'd. Others place it in the greater *Armenia* near the Mountain *Ararat*, where *Noah*'s Ark was left; and imagine they there diſcover the Sources of the four Rivers which water'd the Garden of *Eden*, viz. *Euphrates*; *Hiddekel*, now the *Tigre*; *Gihon*, now *Araxes*; and *Piſon*, now *Phazzo*. But Sir *J. Chardin* aſſures us, in his Travels, that the *Phazzo* ſprings out of the Mountains of *Caucaſus*, Northward of the Kingdom of *Imereti*, and far enough from Mount *Ararat*: Beſide that in *Armenia*, we have no Signs of the Countries of *Havilah* and *Ethiopia*, which thoſe Rivers waſh'd after their departing from *Eden*.

There are various other Opinions, as to this Point: *Poſtellus* will have *Paradiſe* placed under the North-Pole; grounding his Notion upon an antient Tradition of the *Egyptians* and *Babylonians*, that the Ecliptic or Sun's Way was at firſt at Right Angles to the Equator; and ſo paſs'd directly over the North-Pole. Others are againſt limiting it to any one Place, and contend, that it included the whole Face of the Earth, which was, as it were, one continued Scene of Pleaſures, till alter'd upon *Adam*'s Tranſgreſſion.

But the moſt common, and withal, moſt probable Opinion is that of *Hopkinſon*, *Huet*, *Bochart*, &c. who place it between the Confluence of the *Euphrates*, and *Tyger*, and their Separation. Theſe Rivers are two of thoſe wherewith the Garden of *Eden* was water'd: *Piſon* was a Branch ariſing out of one of them after their Separation; and *Gihon* another Branch ariſing from the other, on the Side of *Armenia* or the Weſt: Accordingly *Ethiopia*, one of the Countries which theſe Rivers waſh'd was, inconteſtably, *Arabia Deſerta*, for *Moſes* calls his Wife, who was of this Country, an *Ethiopian*; and *Havilah*, the other Country, muſt be the *Chuſiſtan*, in *Perſia*; where there were anciently found *Gold*, *Bdellium*, the *Onyx*, &c. mentioned in *Moſes*'s Deſcription.

PARADISUS, among antient Church-Writers, was a ſquare Court, before Cathedrals, ſurrounded with Piazza's, or Portico's for walking under, ſupported by Pillars. *Matthew Paris* calls it *Parviſus*.

PARADOX, in Philoſophy, a Propoſition ſeemingly abſurd, becauſe contrary to the receiv'd Opinions; but yet true.

The *Copernican* Syſtem is a *Paradox* to the People; the Learned are all agreed of its Truth.

There are even *Paradoxes* in Geometry; a Number whereof are collected by the Jeſuit *Mario Betino*: among others is this, that the Contain'd is greater than the Containing.

The Word is form'd from the *Greek* παρὰ, *contra*, againſt, and δόξα Opinion.

PARADOXI, or PARADOXOLOGI, among the Antients, were a Kind of Mimes or Buffoons, who diverted the People with their Drolling. See Pantomime.

They were alſo call'd *Ordinarii* for this Reaſon apparently, that, as they ſpoke without Study or Preparation, they were always ready.

They had another Denomination, *viz.* *Nianicologi* q. d. Tellers of Children's Tales: And, beſide, were call'd *Aretalogi*, of ἀρετὴ, Virtue as talking much of their own rare Talents and Qualifications.

PARÆNESIS, παραίνεσις, a *Greek* Term, ſignifying Admonition, Inſtruction, Precept, or Exhortation.

The Word is form'd of παρὰ and αἰνέω, *Laudo*.

PARAGE, in Law, and Cuſtoms, an Equality of Name, Blood, or Dignity, but more eſpecially of Land, in the Partition of an Inheritance between Co-heirs. See Peerage.

Parage, *Paragium*, was particularly uſed in antient Cuſtoms, for an Equality of Condition among Nobles, or Perſons holding Nobly: Thus, when a Fief is divided among Brothers; in this Caſe, the younger hold their Part of the Elder by *Parage*, *i. e.* without any Homage or Service.

This ſtill obtains, in ſome Meaſure, in *Scotland*, where the Husbands of the younger Siſters are not obliged to any Faith or Homage to the Husband of the Elder; nor their Children, to the ſecond Degree.

This *Parage* being an Equality of Duty or Service among Brothers and Siſters, ſome have call'd it *Fratrage* and *Parentage*. The Cuſtomary of *Normandy* defines the *Tenure by Parage* to be, when, a noble Fief being divided among Daughters, the Eldeſt does Homage to the chief Lord for all the reſt, and the youngeſt hold their Parts of the Eldeſt by *Parage*, i. e. without any Homage or Fealty. *Parage* ceaſes at the ſixth Degree incluſively. It likewiſe ceaſes, when any of the Sharers ſell their Part. See Homage.

PARAGOGE, in Grammar, a Figure, whereby a Word is lengthen'd out, by adding a Syllable at the End thereof: as in *dicier* for *dici*. See Figure. Or

PARAGOGIC, in Grammar, ſomething added to a Word without adding any thing to the Senſe thereof. In the *Hebrew*, the ה is frequently *Paragogic*; as אברכה for אברך I will praiſe.

The Uſe of *Paragogic* Letters is only to give a more full and agreeable Sound to Words, either for the Sake of the Verſe, or the Period.

The Word is form'd of the *Greek* παράγω I add; compounded of παρα and ἄγω

PARAGORICKS, Medicines preſcrib'd with an Intention to aſſwage Pain. See Pain.

They are thus call'd, from the *Greek* παρηγορέω I mitigate, abate; but are more ordinarily denominated *Opiates.* See Opiate.

PARAGRAPH, a Term originally in Juriſ-prudence, ſignifying a Section, or Diviſion of the Text of a Law; otherwiſe call'd an *Article.*

Thus, ſuch a Law is ſaid to be divided into ſo many *Paragraphs.* The Character of a *Paragraph* in a Quotation is, §. See Character.

The *Greek* Poets alſo uſed *Paragraphs* to mark the Couplets, Strophes, and other Diviſions of Odes, and other poetical Works.

PARAGUAY, or PARAGOUE, in Nat. Hiſtory, a celebrated Plant, of the Shrub Kind, growing in ſome Provinces of *South America*, eſpecially at *Paraguay*, whence its Name; tho' better known, of late, among us, under the Denomination of *South-Sea Tea.*

This Plant, which does not riſe above a Foot and half high, has very ſlender Branches, and Leaves like thoſe of Senna; it may be look'd on as a Kind of Occidental Tea, which, like the Oriental, is taken infuſed in hot Water, to which it communicates a Colour and Smell nearly like thoſe of the beſt Tea ſeen in *Europe.*

There are two Kinds of *Paraguay*, the one call'd ſimply *Paraguay*; the other *Camini*, by the *Spaniards*, *Yerva-Camini*; which laſt is moſt eſteem'd, and ſold for a Third more than the other.

The firſt the *Spaniards* call *Yerva-Conpalos*, *i. e.* Herb with little Sticks, becauſe full of broken Branches, and is chiefly uſed by Domeſticks and Slaves: The latter is the Drink of the richeſt. But both are of ſo much Uſe, and eſteem'd of ſuch abſolute Neceſſity, that no body in that Part of *America* will live without 'em. The Works of the Mines of *Potoſi* wou'd ſtand ſtill, but that the Maſters take care to ſupply the poor Slaves that labour therein, with *Paraguay.* Nor will a Servant engage himſelf with any Maſter, but upon this among other Conditions, that he have nothing but *Paraguay* for Drink.

The *Paraguay* makes one of the moſt conſiderable Articles of the South *American* Commerce. At *Peru*, *Chilly*, and *Buenos Aires*, there are above two Millions Worth ſold *per Annum*; which paſſes almoſt altogether thro' the Hands of the Jeſuits. The Uſe of *Paraguay* began lately to obtain in *England*; where many People ſeem'd to like it as well as Tea. But Foreigners ſay, that their Approbation flow'd as much from their Intereſt as their Taſte; in regard they come ſo eaſily by it, by reaſon of their Commerce with the *Spaniards* of *S. America*, and *Buenos Aires*, ſince the Treaty of *Utrecht* in 1713.

The Preparation of the Plant, and the making it into a Drink is much the ſame with that of Tea, except that they infuſe both Leaves and Wood, that they drink it immediately out of the Veſſel 'tis made in; without letting it have Time to infuſe, by reaſon of the black Tincture it gives; and that, to prevent Leaves and all from coming, they ſuck it thro' a ſilver, or glaſs Pipe, which goes round the Company one after another. *Frezier.*

Beſide all the Virtues which the Eaſtern People aſcribe to their Tea; as to be good in Diſeaſes of the Head, Breaſt, Stomach, againſt Phlegm, and to reſtore Sleep; the *Americans* attribute to theirs this further of purifying all Kinds of Water, how foul and corrupted ſoever, by only infuſing it therein, either hot or cold. Thus, having always ſome of it with 'em, if they meet with none but the worſt Waters in the vaſt Deſarts to be croſs'd in going from *Buenos Aires* to *Peru* and *Chilly*, they are not afraid to drink it, after ſteeping ſome of the Plant a little while therein. It is alſo held ſovereign againſt the Scurvy, and putrid Fevers.

PARALEPSIS, in Rhetoric, a Feint, or Pretence of omitting or paſſing over a Thing, and yet expreſſing it. See Figure.

When the Imagination is warm'd, and Reaſons and Arguments preſent themſelves in abundance; the Orator wou'd willingly lay 'em all down, in Form; but, for Fear of wearying his Audience, only produces ſome of 'em *en paſſant*, and without dwelling on them: and this is call'd a *Paralepſis*; for Inſtance, *I paſs over in Silence the many Injuries I have receiv'd*, &c. *I wont inſiſt on his laſt Outrage.*

PARALIPOMENA, a Supplement of Things omitted, or forgot in ſome preceding Work, or Treatiſe.

In the Canon of Scripture, there are two Books of *Paralipomena*, call'd alſo *Chronicles*; being a Supplement to the four Books of Kings, the two firſt whereof are alſo called Books of *Samuel.*

Quintus Calaber has a Work entituled, the *Paralipomena of Homer.*

The Word is form'd from the *Greek* παραλείπω, *prætermitt*, I paſs by.

Some Authors uſe the Word *Subrelictorum* inſtead of *Paralipomenon.*

PARALLAX, in Aſtronomy, an Arch of the Heavens intercepted between the true Place of a Star, and its apparent Place. See Place.

The true Place of a Star is that Point of the Heavens, B, *Tab. Aſtronomy Fig.* 27. wherein it wou'd be ſeen by an Eye placed in the Centre of the Earth, as at T. The apparent Place is that Point of the Heavens C, wherein the Star appears to an Eye on the Surface of the Earth, as at E.

Now, as in Effect, we view the Celeſtial Bodies not from the Centre but from the Surface of our Earth, which is a Semi-diameter diſtant from the Centre; we ſee it by a viſual Ray, which paſſing thro' the Centre of the Star, and proceeding thence to the Surface of the Mundane Sphere, marks out another Point C, which is its apparent Place.

This Difference of Places, is what we call abſolutely the *Parallax*, παράλλαξις, or the *Parallax of Altitude*; by *Copernicus* call'd the *Commutation*; which, therefore, is an Angle form'd by two viſual Rays, drawn, the one from the Centre, the other from the Circumference of the Earth, and traverſing the Body of the Star; and is meaſured by an Arch of a great Circle intercepted between the two Points of true and apparent Place C and B.

Parallax is alſo uſed for the Angle made in the Centre of the Star, by two right Lines, drawn, the one from the Centre, the other from the Surface of the Earth.

The Angle is alſo call'd *Parallactic Angle.* See Parallactic *Angle.*

Hence the *Parallax* diminiſhes the Altitude of a Star, or increaſes its Diſtance from the Zenith, and has, therefore, a contrary Effect to the Refraction. See Refraction.

The *Parallax* of the Altitude, C B is, ſtrictly, the Difference between the true Diſtance from the Zenith C A, and the apparent Diſtance B A. See Parallactic *Angle.*

The *Parallax* is greateſt in the Horizon; in the Zenith, or Meridian, a Star has no *Parallax* at all, the true and apparent Places, then co-inciding.

The Horizontal *Parallax* is the ſame, whether the Star be in the true or apparent Horizon.

The fix'd Stars have no ſenſible *Parallax*, by reaſon of their immenſe Diſtance to which the Semi-diameter of the Earth is but a mere Point. See Star.

Hence alſo the nearer a Star is to the Earth, the greater is its *Parallax*, at an equal Elevation above the Horizon; *Saturn* is ſo high, that we have much ado to obſerve any *Parallax* at all.

The *Parallax* increaſes the right and oblique Aſcenſion, diminiſhes the Deſcenſion, diminiſhes the Northern Declination, and Latitude in the Eaſtern Part, increaſes it in the Weſtern; increaſes the Southern in the Eaſtern and Weſtern Part; diminiſhes the Longitude in the Weſtern Part, increaſes it in the Eaſtern. The *Parallax*, therefore, has juſt oppoſite Effects to the Refraction. See Refraction.

Parallax *of Declination*, is an Arch of a Circle of Declination S I. *Fig.* 28. whereby the *Parallax* of the Altitude increaſes or diminiſhes the Declination of a Star. See Declination.

Parallax *of Aſcenſion* and *Deſcenſion*, is an Arch of the Equator D *d*, *Fig.* 29. whereby the *Parallax* of the Altitude increaſes the Aſcenſion, and diminiſhes the Deſcenſion. See Ascension and Descension.

Parallax *of Longitude*, is an Arch of the Ecliptic T *t*, *Fig.* 28. whereby the *Parallax* of the Altitude increaſes or diminiſhes the Longitude. See Longitude.

Parallax *of Latitude*, is an Arch of a Circle of Latitude S I, whereby the *Parallax* of Altitude increaſes or diminiſhes the Latitude. See Latitude.

PARALLACTIC *Angle*, called alſo ſimply *Parallax*, is the Angle made in the Centre of the Star by two right Lines, drawn, the one from the Centre of the Earth T B, *Tab. Aſtronomy*, *Fig.* 27. the other from its Surface E B.

Or, which amounts to the ſame, the *Parallactic* Angle is the Difference of the Angles C E A, and B T A, under which the real and apparent Diſtances from the Zenith are ſeen. See Parallax.

The Sines of the *Parallactic* Angles A L T and A S T, *Tab. Aſtron. Fig.* 30. at the ſame or equal Diſtances from the Zenith S Z; are in a reciprocal Ratio of the Diſtances of the Stars from the Centre of Earth T L and T S. Hence the *Parallax* of the remoter Star S, is leſs than the *Parallax* of the nearer L, at the ſame Diſtance from the Zenith; as before obſerv'd.

The Sines of the *Parallactic* Angles M and S, of Stars equally diſtant from the Centre of the Earth T, are as the Sines of the Diſtances ſeen from the Vertex Z M and Z S.

Hence, as the Diſtances from the Vertex decreaſe, *i. e.* as the Altitudes decreaſe, the *Parallax* decreaſes; and hence, alſo, the *Parallax* affects the Altitude of the Star, from the Horizon to the Zenith.

The Doctrine of *Parallaxes* is of the utmoſt Importance in Aſtronomy; both for the determining of the Diſtances of the Planets, Comets, and other *Phænomena* of the Heavens; for the Calculation of Eclipſes; and for determining the Longitude. See PLANET, DISTANCE, LONGITUDE, and ECLIPSE.

Methods of finding the *Parallaxes* of the Celeſtial *Phænomena* are various: Some of the principal and eaſier follow.

To obſerve the Parallax *of a Celeſtial* Phænomenon.

Obſerve when the *Phænomenon* is in the ſame Vertical with a fix'd Star which is near it; and meaſure its apparent Diſtance from this Star. Obſerve, again, when the *Phænomenon* and *fix'd Star* are in equal Altitudes from the Horizon; and again meaſure their Diſtance: the Difference of thoſe Diſtances will be, very nearly, the *Parallax* of the Star.

The *Parallax* of a *Phænomenon* may be likewiſe found by obſerving its Azimuth and Altitude; and by marking the Time, between the Obſervation and its Arrival at the Meridian.

All, requir'd to find the *Parallax* of the Moon, is the *Parallax* of right Aſcenſion: *i. e.* to find the Effect of the Magnitude of the Semi-diameter of the Earth, with regard to the *Phænomena* of its Motion, 'tis ſufficient to know how far the Meridian, to which the Eye refers it, deviates from the true Meridian. This is what M. *Caſſini* found and practiſed, with regard to *Mars*; and which M. *Maraldi* has ſince practiſed, with regard to the Moon. The whole Myſtery here conſiſts in having the Moon's true Motion, which refers to the Centre of the Earth; and its apparent Motion, which refers to the Place of Obſervation. The Difference of theſe, which is greateſt in the Horizon, or Horary Circle of 6 o' Clock, gives the Horizontal *Parallax*, for that Latitude whence the general *Parallax*, or that under the Equator is eaſily found: The *Parallax* of any Parallel being to that of the Equator, as the Semi-diameter of this Parallel is to that of the Equator. See *the Practice of this Method exemplify'd in finding the* Parallax *of* Mars.

The popular Method for that *of the Moon*, *Wolfius* gives us as follows:

To obſerve the Moon's Parallax.

Obſerve the Moon's Meridian Altitude, with the greateſt Accuracy, (*See* ALTITUDE) and mark the Moment of Time: This Time being equated; (*See* EQUATION) compute her true Longitude and Latitude; and from theſe find her Declination, (*See* DECLINATION) and from her Declination and the Elevation of the Equator find her true Meridian Altitude. If the obſerv'd Altitude be not meridian, reduce it to the true Altitude for the Time of Obſervation. Take the Refraction from the obſerv'd Altitude, and ſubtract the Remainder from the true Altitude: the Remainder is the Moon's Parallax.

By this means *Tycho* in 1583. *Oct.* 12. *Hor.* 5′. 19″. from the Moon's Meridian Altitude obſerv'd, 13°. 38′ her *Parallax* 54 Minutes. See MOON.

To obſerve the Moon's Parallax *in an Eclipſe.*

In an Eclipſe of the Moon, obſerve when both Horns are in the ſame Vertical Circle; in that Moment take the Altitudes of both Horns; the Difference of the two being halved and added to the leaſt, or ſubtracted from the greateſt, gives nearly the viſible Altitude of the Moon's Centre. But the true Altitude is nearly equal to the Altitude of the Centre of the Shadow at that Time. Now we know the Altitude of the Centre of the Shadow; becauſe we know the Sun's Place in the Ecliptic, and its Depreſſion under the Horizon, which is equal to the Altitude of the oppoſite Point of the Ecliptic in which the Centre of the Shadow is. Thus have we both the true and apparent Altitude; the Difference whereof is the *Parallax.*

From the Moon's Parallax *A S T Fig.* 30. *and Altitude S R, to find her Diſtance from the Earth.*

By her apparent Altitude given, we have her apparent Diſtance from the Zenith, *i. e.* the Angle Z A S; or by her true Altitude the Angle A T S. Wherefore, ſince, at the ſame Time, we have the *Parallactic* Angle S; and the Semi-diameter of the Earth is reputed. By plain Trigonometry we ſhall have the Moon's Diſtance in Semi-diameters of the Earth; thus: as the Sine of the Angle S is to the oppoſite Side given, ſo is the Sine the other Angle T, to the Side required T S.

Hence, according to *Tycho*'s Obſervation, the Moon's Diſtance at that Time from the Earth was 62 Semi-diameters of the Earth. Hence alſo, ſince, from the Moon's Theory, we have the Ratio of her Diſtances from the Earth in the ſeveral Degrees of her Anomaly; thoſe Diſtances being found by the Rule of Three in Semi-diameters of the Earth, the *Parallax* is thence determined to the ſeveral Degrees of the true Anomaly.

De le Hire makes the greateſt Horizontal *Parallax* 1°. 1′. 25″. the ſmalleſt 54′ 5″. The Moon's Diſtance, therefore, when in her Perigee is $55\frac{97}{100}$ that is, almoſt 56 Semi-diameters; in her Apogee $63\frac{57}{100}$, that is, $63\frac{1}{2}$ Semi-diameters.

To obſerve the Parallax *of* Mars.

1. Suppoſe *Mars* in the Meridian and Equator, in H. *Tab. Aſtronomy Fig.* 31. and that the Obſerver under the Equator in A, obſerves him culminating with ſome fix'd Star. 2. If now the Obſerver were in the Centre of the Earth, he wou'd ſee *Mars* conſtantly in the ſame Point of the Heaven with the Star; and therefore, together with it in the Plane of the Horizon, or of the ſixth Horary. But ſince *Mars*, here, has ſome ſenſible *Parallax*, and the fix'd Star none, *Mars* will be ſeen in the Horizon, when in P, the Plane of the ſenſible Horizon; and the Star, when in the Plane of the true Horizon: obſerve, therefore, the Time between the Tranſits of *Mars* and of the Star thro' the Plane of the ſixth Hour. 3. Convert this Time into Minutes of the Equator; by this means we ſhall have the Arch P M, to which the Angle P A M, and conſequently the Angle AMD is nearly equal, which is the Horizontal *Parallax* of *Mars.*

If the Obſerver were not under the Equator, but in a Parallel, I Q, that Difference will be a leſs Arch Q M. Wherefore, ſince the little Arches, Q M and P M, are as their Sines A D and I D; and ſince A D G is equal to the Diſtance of the Place from the Equator, *i. e.* to the Elevation of the Pole; and therefore, A D to I D, as the whole Sine to the Co-ſine of the Elevation of the Pole; ſay, as the Co-ſine of the Elevation of the Pole I D is to the whole Sine A D; ſo is the *Parallax* obſerv'd in I, to the *Parallax* to be obſerv'd under the Equator.

Since *Mars* and the fix'd Star cannot be commodiouſly obſerv'd in the Horizon; let 'em be obſerv'd in the Circle of the third Hour: And ſince the *Parallax* there obſerv'd, T O, is to the Horizontal one, P M, as I S to I D; Say, as the Sine of the Angle I D S, or 45° (ſince the Plane D O is in the Middle between the Meridian D H and the true Horizon D M) to the whole Sine, ſo is the *Parallax* T O to the Horizontal *Parallax* P M.

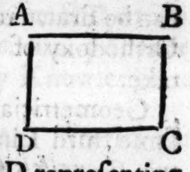
If *Mars* be likewiſe out of the Plane of the Equator; the *Parallax* found will be an Arch of a Parallel; which muſt, therefore, be reduced, as above, to an Arch of the Equator.

Laſtly, if *Mars* be not ſtationary, but either direct, or retrograde; by Obſervations for ſeveral Days, find out what his Motion is every Hour, that his true Place from the Centre may be aſſign'd for any given Time.

By this Method, *Caſſini*, to whom we owe this noble Invention, obſerv'd the greateſt Horizontal *Parallax* of *Mars* to be 25 Seconds, or a little leſs. By the ſame Method Mr. *Flamſtead* found it near thirty Seconds.

By the ſame Method the ſame Author *Caſſini* obſerv'd the *Parallax* of *Venus.*

It muſt be here noted, that the Obſervation is to be made with a Teleſcope, in whoſe *Focus* are ſtrain'd four Threads cutting each other at right Angles A, B, C, D. The Teleſcope to be turn'd about, till ſome Star near *Mars* be ſeen to paſs over ſome of the Threads; A B and C D being parallel to the Equator; and therefore, A C and B D repreſenting Circles of Declination. Thus, by means of the perpendicular Threads, the Situations of the Star, and of *Mars* in the Meridian, will be determined.



To find the Sun's Parallax.

The great Diſtance of the Sun renders its *Parallax* too ſmall to fall under even the niceſt immediate Obſervation: Indeed, many Attempts have been made both by the Antients and Moderns; and many Methods invented for that Purpoſe. The firſt, that of *Hipparchus*, follow'd by *Ptolomy*, &c. was founded on the Obſervation of Lunar Eclipſes; the ſecond, was that of *Ariſtarchus*, whereby the Angle ſubtended by the Semi-diameter of the Moon's Orbit, ſeen from the Sun, was ſought from the Lunar Phaſes: But, theſe both proving deficient, Aſtronomers are forced to have Recourſe to the *Parallaxes* of the Planets nearer us, as *Mars* and *Venus*; for from their *Parallaxes* known that of the Sun, which is inacceſſible by any direct Obſervation, is eaſily deduced.

For from the Theory of the Motions of the Earth and Planets, we know at any Time the Proportion of the Diſtances of the Sun and Planets from us; and the Horizontal *Parallaxes* are in a reciprocal Proportion to thoſe Diſtances: Knowing, therefore, the *Parallax* of a Planet, that of the Sun may be found from it.

Thus, *Mars*, when oppoſite to the Sun, is twice as near as the Sun is, his *Parallax*; therefore, will be twice as great as that of the Sun: and *Venus*, when in her inferior Conjunction with the Sun; is ſometimes nearer us than he is; her *Parallax*, therefore, is greater in the ſame Proportion.

Thus, from the *Parallaxes* of *Mars* and *Venus*, the ſame *Caſſini* found the Sun's *Parallax* to be ten Seconds, which implies his Diſtance to be 223062 Semi-diameters.

In an Obſervation of the Tranſit of *Venus* over the Sun, which will be ſeen in *May*, 1761. Dr. *Halley* has ſhewn a Method of finding the Sun's *Parallax* and Diſtance to a great Nicety, *viz.* to a five hundredth Part of the Whole. See SUN.

The Parallax *of the Stars, with regard to the Earth's annual Orbit.*

The Stars have no *Parallax*, with regard to the Earths Semi-diameter; yet, with regard to the Earth's annual Orbit, 'tis juſtly expected that ſome *Parallax* be found. See ORBIT.

The Axis of the Earth in its annual Morion deſcribes a Kind of Cylinder, which being prolong'd to the Heaven of the fix'd Stars, there forms a circular Circumference; each Point whereof is the Pole of the World for its reſpective Day: ſo that the Situation of the apparent Pole, with regard to any of the fix'd Stars changes very conſiderably in the Courſe of a Year.

Could this be found by Obſervation, it wou'd irrefragably evince the annual Motion of the Earth round the Sun, and remove that only Objection which lies againſt it, urg'd by *Ricciolns*, from no ſuch *Parallax* being obſerv'd. See Earth.

Accordingly Dr. *Hook* attempted to find it by obſerving the various Diſtance of a fix'd Star from the Zenith, in different Parts of the Earth's Orbit; and Mr. *Flamſtead*, from the Acceſs and Receſs of a fix'd Star from the Equator at different Times of the Year, and with Succeſs: The Reſult of his Obſervations being, that the Diſtance of a fix'd Star, near the Pole, was found 40 or 45 Seconds nearer it at the Winter Solſtice than at the Summer one, for ſeven Years ſucceſſively.

M. *Caſſini* the Younger allows the Obſervations of *Flamſtead* to agree with thoſe made at the Royal Obſervatory; but he denies the Conſequences: he ſays the Variations in the Diſtance of the Pole Star are not ſuch as they ſhou'd be, ſuppoſing the Motion of the Earth; and accounts for them from a Suppoſition that the Stars, like the Sun, turn or revolve on their Centres, and that ſome of 'em have their Hemiſpheres unequally luminous; Whence, when the more ſhining Hemiſphere is turn'd towards us, the Stars appears bigger, conſequently more remote than when the darker is towards us. See Star.

Parallax is alſo uſed in levelling, for the Angle contain'd between the Line of true Level, and that of apparent Level. See Levelling.

PARALLEL, in Geometry, from the *Greek* παράλληλος, equidiſtant; is a Term applied to Lines, Figures and Bodies, which, being prolong'd, are ſtill at equal Diſtance from one another.

Parallel *Right Lines*, are thoſe which, tho' infinitely produced, would never meet.

Thus, the Line O P, *Tab. Geometry*, *Fig.* 36. is parallel to Q R. See Line.

Parallel Line is uſed in Oppoſition to Lines converging and diverging. See Converging.

Some define an *inclining* or *converging Line*, that which will meet another at a finite Diſtance; and a *Parallel* that which wou'd only meet at an *infinite Diſtance*.

Others define a Perpendicular the ſhorteſt of all Lines that can be drawn to another; and a *Parallel* the longeſt. For the Orthodoxy of theſe Definitions of Paralleliſm we don't undertake.

Geometricians demonſtrate, that two Lines, *parallel* to the ſame third Line, are alſo *parallel* to one another; and that if two *Parallels* O P and Q R, *Tab. Geometry Fig.* 36. be cut by a tranſverſe Line S T. in A and B, 1. The alternate Angles *x* and *y* are equal. 2. The external Angle *u* is equal to the internal oppoſite one *y*; and thirdly, That the two internal oppoſite ones *z* and *y* are alſo equal to two right ones.

It is ſhewn on the Principles of Opticks, that if the Eye be placed between two *Parallel* Lines, they will appear to converge towards a Point oppoſite to the Eye. And if they run to ſuch a Length, as that the Diſtance between them be but as a Point thereto, they will there appear to co-incide.

Parallel Lines are deſcribed by letting fall equal Perpendiculars, and drawing Lines through their Extremes, by ſliding the Compaſſes open to the deſir'd Width along a Line, &c. or by a

Parallel *Ruler*, call'd alſo *Paralleliſm*, an Inſtrument conſiſting of two wooden, braſs, or ſteel Rulers A B, and C D; *Fig.* 37. equally broad every-where, and ſo join'd together by the Croſs-blades E F and G H, as to open to different Intervals, accede and recede, yet ſtill retain their *Paralleliſm*.

The Uſe of this Inſtrument is obvious; for one of the Rulers being applied to P S, and the other drawn to a given Point V; a right Line AB, drawn by its Edge, thro' V, is a *parallel* to R S.

Parallel *Rays*, in Opticks, are thoſe which keep at an equal Diſtance to each other, from the viſible Object to the Eye, which is ſuppoſed to be infinitely remote from the Object. See Ray.

Parallel *Planes* are thoſe Planes, which have all the Perpendiculars drawn betwixt them equal to each other. See Plane.

Parallels, or Parallel *Circles*, in Geography, call'd alſo *Parallels* of Latitude, and Circles of Latitude, are leſſer Circles of the Sphere, conceived to be drawn from Weſt to Eaſt thro' all the the Points of Meridian; commencing from the Equator, to which they are *parallel*, and ending with the Poles. See Circle.

They are call'd *Parallels of Latitude*, &c. becauſe all Places lying under the ſame *Parallel*, have the ſame Latitude. See Latitude.

Parallels *of Latitude*, in Aſtronomy, are leſſer Circles of the Sphere *parallel* to the Ecliptic, imagined to paſs thro' every Degree and Minute of the Colures. See Latitude.

They are repreſented on the Globe by the Diviſions of the Quadrant of Altitude, in its Motion round the Globe, when ſcrew'd over the Poles of the Ecliptic. See Globe.

Parallels *of Altitude* or *Almacanters*, are Circles *parallel* to the Horizon, imagined to paſs thro' every Degree and Minute of the Meridian between the Horizon, and Zenith; having their Poles in the Zenith. See Altitude.

On the Globes they are repreſented by the Diviſions on the Quadrant of Altitude, in its Motion about the Body of the Globe, when ſcrew'd to the Zenith. See Globe.

Parallels *of Declination*, in Aſtronomy, are the ſame with *Parallels* of Latitude in Aſtronomy. See Declination.

Parallel *Sphere*, that Situation of the Sphere, wherein the Equator co-incides with the Horizon, and the Poles with the Zenith and Nadir. See Sphere.

In this Sphere all the *Parallels* of the Equator become *Parallels* of the Horizon, conſequently no Stars ever riſe or ſet; but all turn round in Circles *parallel* to the Horizon; and the Sun, when in the Equinoctial, wheels round the Horizon the whole Day. After his riſing to the elevated Pole, he never ſets for ſix Months; and, after his retiring again to the other Side of the Line, never riſes for ſix Months longer.

This Poſition of the Sphere is theirs who live under the Poles; if any ſuch there be. Their Sun is never above 23°. 30′. high.

Parallel *Sailing*, in Navigation, is the Sailing under a Parallel of Latitude. See Sailing.

Of this there are but three Caſes. 1. Given, the Departure, and Diſtance; required the Latitude. The Canon is, As Difference of Longitude is to Radius : : So is Diſtance, to Co-ſine of the Latitude.

2. Given Diff. of Longitude between two Places under the ſame *Parallel*, required their Diſtance. The Canon is, As Rad. to Diff. of Longitude : : So is Co-ſine of Latitude to Diſtance.

3. Given the Diſtance between two Places in the ſame Latitude; required their Difference of Longitude. The Canon is, As the Co-ſine of Lat. to Diſtance : : So is Rad. to Diff. of Longitude.

PARALLELOPIPED, in Geometry, one of the regular Bodies, or Solids, comprehended under ſix Rectangular and Parallel Surfaces, the oppoſite ones whereof are equal: As in the Figure *Tab. Geometry Fig.* 38. See Regular.

Two Cubes, laid together, Side by Side, conſtitute a *Parallelopiped*: And the ſame may be ſaid of a ſquare Beam, whoſe two Extremes are ſquare, and Sides long Squares.

Properties of the Parallelipiped.

All *Parallelopipeds*, Priſms, and Cylinders, whoſe Baſes and Heights are equal, are, themſelves, equal.

A diagonal Plane divides the *Parallelopiped* into two equal Priſms: A Triangular Priſm, therefore, is half a *Parallelopiped* upon the ſame Baſe and of the ſame Altitude. See Prism.

All *Parallelopipeds*, Priſms, Cylinders, &c. are in a Ratio compounded of their Baſes and Altitudes: Wherefore, if their Baſes be equal, they are in Proportion to their Altitudes; and converſly.

All *Parallelopipeds*, Cylinders, Cones, &c. are in a triplicate Ratio of their homologous Sides; and alſo of their Altitudes.

Equal *Parallelopipeds*, Priſms, Cones, Cylinders, &c. reciprocate their Baſes and Altitudes.

To meaſure the Surface and Solidity of a Parallelopiped.

Find the Areas of the Parallelograms I L M K, L M O N. See Parallelogram. Add theſe into one Sum, and multiply that Sum by 2: The *factum* will be the Surface of the *Parallelopiped*. If then the Baſe I L M K be multiplied by the Altitude L N, the Product will be the Solidity.

Suppoſe *v. g.* L M = 36 M K = 15 M O = 12. Then,

```
      LM=36 LM=36 MK=15
      MK=15 MO=12 MO=12
      ------------------------
          180      72       30
          36       36       15
      ------------------------
      LIKM 540 LMON 432 MOKP 180
               LIKM 540
               MOKP 180
               ---------
        2304           1152
      MO 12               2
      ------          -----
       4608            2304 Superficies.
      2304
      ----
      27648 Solidity.
```

PARALLELISM, the Quality of a *Parallel*; or that which denominates it ſuch: Or it is that whereby two Things, *v. g.* Lines, or Rays become equi-diſtant from one another. See Parallel.

Thus, we ſay remote Objects are ſcarce perceptible, by reaſon of the *Paralleliſm* of the Rays.

Parallelism *of the Earth's Axis*, in Aſtronomy, or, *Motion of Paralleliſm*; is that Situation or Motion of the Earth's

Axis, in its Progreſs thro' its Orbit, whereby it ſtill looks to the ſame Point of the Heavens, *viz.* towards the Pole Star; ſo that f a Line be drawn parallel to its Axis, while in any one Poſition; the Axis, in all other Poſitions or Parts of the Orbit, will always be parallel to the ſame Line. See Axis.

This *Paralleliſm* is the neceſſary Reſult of the Earth's double Motion; the one round the Sun, the other round its own Axis. Nor is there any Neceſſity to imagine a third Motion, as ſome have done, to account for this *Paralleliſm*. See Earth.

'Tis to this *Paralleliſm* that we owe the Viciſſitude of Seaſons, and the Inequality of Day and Night. See Season. See alſo Day, *&c.*

Parallelism *of Rows of Trees.* The Eye placed at the End of an Alley of two Rows of Trees, planted in parallel Lines, never ſees 'em parallel, but always inclining to each other, towards the further Extreme.

Hence the Mathematicians have taken Occaſion to enquire in what Lines, the Trees muſt be diſpoſed, to correct this Effect of the Perſpective, and make the Rows ſtill appear parallel; parallel they muſt not be, but diverging; but according to what Law muſt they diverge: The two Rows muſt be ſuch, as that the unequal Intervals of any two oppoſite or correſponding Trees may be ſeen under equal viſual Angles.

On this Principle, *F. Fabry* has aſſerted, without any Demonſtration, and *F. Tacquet*, after him, demonſtrated by a long and intricate Syntheſis, that the two Rows of Trees muſt be two oppoſite Semi-Hyperbola's.

M. *Varignon* has ſince, in the Memoirs of the *French* Academy, *Anno* 1717, found the ſame Solution by an eaſy and ſimple Analyſis. But he renders the Problem much more general, and requires not only that the viſual Angles be equal, but to have them increaſe or decreaſe in any given Ratio; provided the greateſt do not exceed a right Angle. The Eye, he requires to be placed in any Point, either juſt at the Beginning of the Ranges, or beyond, or on this Side.

All this laid down, he ſuppoſes the firſt Row to be a right Line, and ſeeks what Line the other muſt be, which he calls the Curve of the Range. This he finds muſt be an Hyperbola, to have the viſual Angles equal. The ſtraight and hyperbolical Rows will be ſeen parallel to Infinity; and if the oppoſite Semi-hyperbola be added, we ſhall have three Rows of Trees, (the ſtraight one in the Middle) and all three parallel.

Nor is it required this ſecond Hyperbola be the Oppoſite of the firſt, *i. e.* of the ſame Kind, or have the ſame tranſverſe Axis: 'Tis enough if it have the ſame Centre, its Vertex in the ſame right Line, and the ſame conjugate Axis. Thus the two Hyperbola's may be of all the different Kinds poſſible; yet all have the ſame Effect.

Again, the ſtraight Row being laid down as before; if it be required to have the Trees appear under decreaſing Angles; M. *Varignon* ſhews, that if the Decreaſe be in a certain Ratio, which he determines; the other Line muſt be a parallel ſtraight Line. But he goes yet farther; and ſuppoſing the firſt Row any Curve whatever, he ſeeks for another that ſhall make the Rows have any Effect deſired, *i. e.* be ſeen under any Angles equal, increaſing, or decreaſing.

PARALLELOGRAM, in Geometry, a Quadrilateral Figure, whoſe oppoſite Sides are *parallel*, and conſequently equal to each other. See Quadrilateral.

A *Parallelogram* is generated by the equable Motion of a right Line always parallel to itſelf. See Figure.

When the *Parallelogram* has all its four Angles right, and only its oppoſite Sides equal, it is call'd a *Rectangle* or oblong. See Rectangle.

When the Angles are all right, and the Sides equal, it is called a *Square*. See Square. If all the Sides be equal, and the Angles unequal, it is call'd a *Rhombus* or *Lozange*. See Rhombus.

If both the Sides, and Angles be unequal, it is call'd a *Rhomboides*. See Rhomboides.

Properties of the Parallelogram.

In every *Parallelogram*, what Kind ſoever it be of, *E. gr.* that ABCD *Tab. Geometry Fig.* 39. A Diagonal DA divides it into two equal Parts; the Angles diagonally oppoſite BC, and AD, are equal, the oppoſite Angles of the ſame Side CD, and AB, *&c.* are, together, equal to two right Angles; and each two Sides, together, greater than the Diagonal.

Two *Parallelograms* ABCD, and ECDF on the ſame or equal Baſe CD, and of the ſame Height AC, or between the ſame Parallels AF, CH are equal. Hence two Triangles CDA and CDF on the ſame Baſe, and of the ſame Height, are alſo equal. Hence, alſo, every Triangle CFD is half a *Parallelogram* ACDB, upon the ſame or an equal Baſe CD, and of the ſame Altitude, or between the ſame Parallels. Hence alſo a Triangle is equal to a *Parallelogram*, having the ſame Baſe, and half the Altitude, or half the Baſe and the ſame Altitude. See Triangle.

Parallelograms, therefore, are in a given Ratio, compounded of their Baſes and Altitudes. If then the Altitudes be equal, they are as the Baſes, and converſly.

In ſimilar *Parallelograms* and Triangles, the Altitudes are proportional to the homologous Sides; and the Baſes are cut proportionably thereby. Hence, ſimilar *Parallelograms* and Triangles are in a duplicate Ratio of their homologous Sides, as alſo of their Altitudes, and the Segments of their Baſes: They are, therefore, as the Squares of the Sides, Altitudes, and homologous Segments of the Baſes.

In every Parallelogram, *the Sum of the Squares of the two Diagonals, is equal to the Sum of the Square of the four Sides.*

This Propoſition, M. *de Lagny*, takes to be one of the moſt important in all Geometry; he even ranks it with the celebrated 47th of *Euclid*, and with that of the Similitude of Triangles; and adds, that the whole firſt Book of *Euclid* is only a particular Caſe hereof. For, if the *Parallelogram* be not rectangular, it follows that the two Diagonals are equal; and, of conſequence, the Square of a Diagonal, or which comes to the ſame Thing, the Square of the Hypothenuſe of a right Angle, is equal to the Squares of the two Sides. If the *Parallelogram* be not rectangular, and, of conſequence, the two Diagonals be not equal; which is the moſt general Caſe; the Propoſition becomes of vaſt Extent. It may ſerve, for Inſtance, in the whole Theory of compound Motions, *&c.*

There are three Manners of demonſtrating this Problem; The firſt by Trigonometry, which requires 21 Operations; the ſecond Geometrical and Analytical; which requires 15. M. *de Lagny* gives a more conciſe one, in the *Memoirs, de l' Acad.* which only requires 7. See Diagonal.

To find the Area of a rectangled Parallelogram, ABCD.

Find the Length of the Sides AB, and AC; multiply AB into AC; the Produce will be the Area of the *Parallelogram.* Suppoſe *E. gr.* AB to be 345; AC 123. The Area will be 42435.

Hence 1. Rectangles are in a Ratio compounded of their Sides AB and AC. 2. If, therefore, there be three Lines continually proportional; the Square of the middle one is equal to the Rectangle of the two Extremes: and if there be four proportional Lines; the Rectangle under the two Extremes is equal to that under the two middle Terms. See Rectangle.

Other *Parallelograms*, not rectangular, have their Areas found by reſolving them, by Diagonals, into two Triangles; and adding the Areas of the ſeparate Triangles into one Sum. See Triangle.

Centre of Gravity of a Parallelogram. See Centre of Gravity. See alſo Centrobaryc *Method.*

Parallelogram, or Parallelism, or Parallelogramic *Protractor*, is a Machine uſed for the ready and exact Reduction or Copying of Deſigns, Schemes, Prints, *&c.* in any Proportion; which is done hereby without any any Knowledge or Habit of Deſigning.

The *Parallelogram* is alſo called *Pentagraph*. See its Deſcription and Uſe under the Article Pentagraph.

PARALOGISM, in Logic, a falſe Reaſoning; or a Fault committed in a Demonſtration, when a Conſequence is drawn from Principles that are falſe, or not proved; or when a Propoſition is paſs'd over, which ſhou'd have been proved by the Way.

A *Paralogiſm* differs from a *Sophiſm*, in this, that the *Sophiſm* is made out of Deſign and Subtlety; and the *Paralogiſm* out of Miſtake, and for Want of a ſufficient Light and Application. See Sophism.

Yet the Meſſieurs *de Port-Royal* don't ſeem to make any Difference between them. None of the Pretenders to the Quadrature of the Circle but have made *Paralogiſms*. See Quadrature.

PARALYSIS, in Medicine, a Diſeaſe popularly call'd *Palſy*. See Palsy.

The *Paralyſis* only differs from the *Pareſis* as the greater from the leſs. See Paresis.

Authors diſtinguiſh the *Paralyſis* into a *Paraplegia*, or *Paraplexia*, *Hemiplegia*, and, *particular Paralyſis.*

The firſt is a Palſy of the whole Body. See Paraplegia. The ſecond, of one Side of the Body. See Hemiplegia. The third of ſome particular Member, which is the proper *Palſy.*

The Word *Paralyſis* is form'd from the *Greek* παραλύω, I unbind; This Diſeaſe being ſuppoſed to unbend the Nerves, and Muſcles. Hence

PARALYTIC, a Perſon affected with the *Paralyſis* or *Palſy*. See Palsy, *&c.*

PARAMETER, in Geometry, a conſtant right Line, in ſeveral of the Conic Sections; call'd alſo *Latus rectum.* See Latus Rectum.

In a *Parabola* VBV *Tab. Conics Fig.* 9. the Rectangle of the *Parameter* AB, and any Abſciſſe, *E. gr.* B 3, and Semiordinate 3 III. See Parabola.

If all the Sides, and Angles of a Quadrilateral Figure be equal, it is called a Square; which ſome make a Species of *Parallelogram*, others not. See Square.

In an Ellipſis and Hyperbola, the *Parameter* is a third Proportional to to the conjugate and tranſverſe Axis. See Ellipsis, *&c.* Hyperbola.

PARAMOUNT, in our Law, ſignifies the ſupreme Lord of the Fee. See Lord and Fee.

There may be a Tenant to a Lord, that holdeth himſelf of another Lord; the former Lord is called Lord *Meſne*; and the other, Lord *Paramount*. But even the Term Lord *Paramount*, is only comparative: for as one Man may be great, compared to a leſs, and little, being compared with a greater; So none ſimply ſeems to be Lord *Paramount* but the King, who is Patron *Paramount* to all the Benefices in *England*. See KING. PATRON, &c.

PARAMESE, in the antient Muſic, the ninth Chord or Sound in the *Diagramma* or Scale of Muſic. See DIAGRAMMA.

The Word is *Greek*, and ſignifies *juxta mediam*, next to the Middle; its Situation in the firſt State of the Scales, being next the Meſe or middle Chord. See CHORD.

PARANYMPH, PARANYMPHUS, among the Antients, the Perſon who waited on the Bride, and directed the Nuptial Solemnities; called alſo *Auſpex*, becauſe the Ceremony begun with taking *Auſpices*.

In ſtrictneſs, however, the *Paranymph* only officiated on the Part of the Bridegroom; on the Part of the Bride, 'twas a Woman officiated, call'd the *Pronuba*.

The *Jews* had likewiſe a Kind of *Paranymphs*, which the *Talmud* and the *Rabbins* call שושבים *Schuſchebim*, *q. d.* Companions of the Spouſe. The IVth Council of *Carthage* appoints, that, when the married Couple come to ask the Prieſt's Bleſſing, they be preſented, either by their Fathers and Mothers, or by the *Paranymphs*.

PARAPET, in Fortification, a Defence or Skreen, on the Outſide of a Rampart, raiſed ſix or ſeven Foot high, to cover the Soldiers and the Cannon from the Enemy's Fire. See DEFENCE.

Parapets are raiſed on all Works, both within and without the Place; and even on the Approaches. See WORK.

The *Parapet Royal*, or that of the Rampart, is to be of Earth, Cannon-proof, from 18 to 20 Foot thick. See RAMPART. Before the *Parapet* is a *Banquette*, or little Eminence, a Foot and half high, for the Soldiers to ſtand on. See BANQUETTE.

The *Parapet* of the Wall is of Stone. The *Parapet* of the Trenches is either made of the Earth dug up, Gabions, Faſcines, Sacks of Earth, or the like.

The *Parapet* of the Corridor is the *Glacis* or *Eſplanade*. See ESPLANADE.

PARAPET, is alſo a little Wall, breaſt-high, rais'd on the Brinks of Bridges, Keys, or high Buildings; to ſerve as a Stay; and prevent People's tumbling over.

Borel gives us, from *Joſ. Maria Subreſius*, a curious Collection of Names, which the Antients and Moderns have given to this Kind of *Parapets*: The *Latins* called them *Subarræ*, and *Baſtiæ*, whence the Names *Baſtion* and *Baſtile*. They alſo called them *Pagineumata Loricæ*, and *Antemuralia*. The *Spaniards* called them *Barbacanes*; the *Italians*, *Parapetti*, becauſe of their defending the Breaſt, *petto*; whence our *Parapet*.

PARAPH, a particular Character, Knot, or Flouriſh, which People habituate themſelves to make always in the ſame Manner at the End of their Name, to prevent their Signature from being counterfeited. See CYPHER.

The *Paraph* of the Kings of *France* is a Grate, which the Secretaries always place before their own, in all Letters, &c. *Menage* derives the Word from *Paragraphus*.

PARAPHERNALIA, or PARAPHERNA, in the Civil Law, thoſe Goods which a Wife brought her Husband, beſides her Dower, and which were ſtill to remain at her Diſpoſal, excluſive of her Husband; unleſs there were ſome particular Proviſion made to the contrary, in the Marriage Contract. See DOWER.

In his *Rebus quas extra Dotem Mulier habet & quas Græci* παράφερνα *vocant*, *nullam*, *Uxore prohibente*, *Vir habeat communionem*. Cod. *de pactis*.

The grand Cuſtomary of *Normandy*, gives a different Senſe to the Word: It calls *Paraphernalia* the Moveables, Linnen, and other Female Neceſſaries, which are adjudged to the Wife, in prejudice of the Creditors, when ſhe renounces the Succeſſion of her Husband.

The Word is form'd from the *Greek* παρὰ beyond, or over, and φερνὴ *Dos*, Dower.

PARAPHIMOSIS, in Medicine, a Diſorder of the *Penis*, wherein the Prepuce is ſhrunk, and withdrawn behind the Glans, ſo as not to be capable of being brought to cover the ſame. See PREPUCE and GLANS.

This happens ofteneſt in venereal Diſorders, where the Humours of a Gleet frequently prove ſo ſharp, as to cauſe this Retraction. There ſometimes ariſes a Neceſſity in this Caſe to ſnip or cut the Prepuce open, otherwiſe the Humours will be pent up under it, and do a great deal of Miſchief. See PHIMOSIS.

PARAPHRASE, an Explication of ſome Text in clearer and more ample Terms, whereby we ſupply what the Author might have ſaid or thought on the Subject.

Colometius looks on *Eraſmus*'s *Paraphraſes* on the New Teſtament, as ſuch extraordinary Works, that he makes no ſcruple to declare, he thinks the Author to have been divinely inſpired, when he penn'd 'em.

Chaldee PARAPHRASE, is a Phraſe frequent among the Critics and Divines. There are three *Chaldee Paraphraſes* on the *Pentateuch*. That of *Onkelos*, which ſome take to be the ſame with *Aquila*: And which others take to have been that *Onkelos* which the Talmudiſts, in the Treatiſe *Gittin*, make a Nephew of the Emperor *Titus*. See PENTATEUCH.

The ſecond is a *Paraphraſe* of *Jonathan*; the third is called the *Targum* of *Jeruſalem*. See TARGUM.

The *Chaldee Paraphraſe* on the Prophets is of *Jonathan* Son of *Uziel*, whom ſome confound with *Theodotion*.

The Author of the *Chaldee Paraphraſe* on the Hagiographic Books is unknown. Some attribute it to one *Joſeph*, ſurnamed the *Squinter*; others to *Rabbi Akilas*. Others ſay, there is ſo much Difference in the Style, that no one Perſon can have been the Author.

PARAPHRENESIS, or PARAPHRENETIS, or PARAPHRENITIS, in Medicine, a Kind of Phrenzy, the Cauſe whereof was attributed, by the Antients, to an Inflammation of the Ventricle, the Liver, and eſpecially the Diaphragm. See PHRENZY.

They alſo called it a *Pſeudo Phreneſis*, falſe Phrenzy, to diſtinguiſh it from the true one, which they made to conſiſt in an Inflammation of the Brain and its *Meninges*.

The Moderns don't make any ſuch Diſtinction in Phrenzies: They all come from the ſame Cauſe; but that Cauſe is neither an Inflammation of the Brain, nor of the Diaphragm. See MANIA, MELANCHOLLY, &c.

Paraphrenitis, among the modern Phyſicians, is an Inflammation of the *Mediaſtinum*, or *Pleura*, about the Diaphragm, attended with a continual Fever, and exquiſite Pain in the Parts affected, on contracting the abdominal Veſſels, as alſo a *Delirium* and ariſing of the *Hypochondria*.

PARAPLEGIA, or PARAPLEXIA, in Medicine, a Species of *Paralyſis*, or Palſy, uſually ſucceeding an Apoplexy. See PALSY and APOPLEXY.

The *Paraplegia* is a general Palſy, affecting the whole Body, the Head alone excepted. *Boerhaave* defines it an Immobility of all the Muſcles below the Head, that have Nerves from the *Cerebrum* and *Cerebellum*.

Sometimes, Senſation as well as Motion are deſtroyed hereby; ſometimes only one of them.

Its Original is uſually ſuppoſed to be ſome Diſorder, or Obſtruction in the fourth Ventricle of the Brain, or in the Beginning of the ſpinal Marrow.

Etmuller diſtinguiſhes the *Paraplegia* from the *Paralyſis*. The *Paralyſis*, according to him, is a Relaxation and Reſolution of the Ligaments and Members miniſtring to Motion; not from any Obſtruction of the Nerves, but from a Reſolution of the nervous Parts: Whereas the *Paraplegia* ariſes from ſome Obſtruction of the Nerves.

The latter uſually ſucceeds an Apoplexy, Epilepſy, Convulſions, Vertigo's; the former, the *Scorbutus*, Hypochondrical Diſeaſe, Colic, &c.

The Word comes from the *Greek* παρὰ much, and πλήττειν to ſtrike.

PARAPLEXIA, in Medicine. See PARAPLEGIA.

PARASANG, an antient *Perſian* Meaſure, different at different Times, and in different Places; ſometimes it is 30, ſometimes 40, and ſometimes 50 *Stadia* or Furlongs. See MEASURE and STADIUM.

The Word, according to *Littleton*, has its Riſe from *Paraſch Angarius*, *q. d.* the Space a Poſt-man rides from one Station, *Angaria*, to another.

PARASCENIUM, or *Poſtſcenium*, among the *Romans*, was a Place behind the Theatre, whither the Actors withdrew to dreſs, undreſs, &c. See THEATRE.

PARASCEVE, the ſixth Day of the laſt Week of *Lent*, popularly, *Good-Friday*.

St. *John* ſays our Saviour was crucified on the *Paraſceve* of the Paſſover, *i. e.* on the Eve or *Day of Preparation* of the Paſſover: For *Iſidore* and *Papias* obſerve, that the Word in the original *Greek* ſignifies *Preparation*, and was applied among the *Jews* to *Friday*, becauſe on that Day they uſed to prepare what was neceſſary for the Celebration of the *Sabbath*. See PASSOVER.

Hence what our Tranſlation of the new Teſtament renders Preparation of the Sabbath, M. *Simon*, and ſome others call *Paraſceve*. See PREPARATION.

PARASELENE, in Phyſiology, *Mock-Moon*, a Meteor, or Phænomenon, encompaſſing the Moon, in form of a luminous Ring; wherein is ſometimes obſerv'd one, ſometimes two apparent Images of the Mooon.

The *Paraſelenes* are form'd after the ſame Manner as the *Parhelia*, or Mock-Suns. See PARHELION.

The Word is form'd from the *Greek* παρὰ near, and σελήνη Moon.

PARASITE, PARASITUS, among the *Greeks*, was originally a very reputable Title; the *Paraſites* being a King of Prieſts, or at leaſt Miniſters of the Gods; in the ſame manner, as at *Rome* were the *Epulones*. See EPULONES.

They took care of the *ſacred Corn*; or the Corn deſtined for the Service of the Temples and the Gods, *viz.* Sacrifices, Feaſts, &c. They had even the Intendance over Sacrifices, and took care they were duly performed.

At *Athens* there was a Kind of College of twelve *Paraſites*; each People of *Attica* furniſhing one; who was always choſen out of the beſt Families.

Polybius adds, that *Paraſite* was alſo an honourable Name among the antient *Gauls*; and was given to their Poets.

PARASITES, or PARASITAICAL Plants, in Botany, a Kind of diminutive Plants, growing on Trees, and ſo called from their Manner of living and feeding, which is altogether on others. See PLANT.

Such is Moſs, which was antiently ſuppoſed the Effect of a Derangement of the Texture of the Bark; or a Kind of Ruſt; or, at moſt, little Filaments ariſing from the Bark: But from many Obſervations of the Moderns, it appears, that Moſſes are real Plants, whoſe Seed is exceedingly fine, and incloſed in very little *Capſulæ*; which burſting of themſelves, the Seed is driven by the Wind, and, at length, detained in the Inequalities of the Barks of Trees; where it takes Root and is fed at the Expence thereof. See MOSS.

Of theſe Moſſes M. *Vaillant* reckons no leſs than 137 Species, all in the Neighbourhood of *Paris*; which, with the Lichens and Miſleto's, make the *Genus* of the *Paraſite* Plants. See MISLETO, &c.

The moſt pernicious of theſe *Paraſites*, to the Trees that ſupport 'em, are the Lichens; which appear on the Barks of Trees, in Form of a Cruſt, mix'd with Yellow and a dirty White. See DISEASE *of Plants*.

M. *de Reſſons* gives us a Remedy for this Diſeaſe, in the *French* Memoirs of the *Acad. Roy.* It conſiſts in making an Inciſion thro' the Bark to the very Wood, from the firſt Branches to the Earth; the Bark cloſes again in a little Time; and always preſerves itſelf clean and free from Moſſes for the future.

This Aperture renders the Courſe of the Sap more free, and prevents the Forming of thoſe Inequalities ſo favourable to the Production of Moſſes. The Inciſion, he adds, is to be made from *March* to the End of *April*; and on that Side turn'd moſt from the Sun.

PARASOL, a little Moveable, in manner of a Canopy, bore in the Hand to ſcreen the Head from the Sun, Rain, &c. more uſually called *Umbrella*.

'Tis made of Leather, Taffety, Oil-Cloth, &c. mounted on a Stick, and open'd or ſhut at Pleaſure, by Means of Pieces of Whale-bone that ſuſtain it.

The *Eaſt Indians* never ſtir out without a *Paraſol*.

The Word is *French*: that uſed againſt Rains is ſometimes called *Parapluie*.

PARASTATA, in the antient Architecture, an Impoſt, or Kind of Anta or Pilaſter, built for the Support of an Arch. See ANTA.

Mr. *Evelyn* makes the *Paraſtata* expreſly the ſame with Pilaſter. See PILASTER. *Daviler*, the ſame with *Impoſt*. See IMPOST.

PARASTATÆ, or *Epididymidæ*, in Anatomy, are two tuberous, varicoſe Bodies, lying upon, and adhering to, the upper Part of the Teſticles; whereof they properly appear to be a Part; tho' different from the reſt, in Form and Conſiſtence. See TESTICLE.

The *Paraſtatæ* conſiſt, like the Teſticles, of a Convolution of ſeminal *Tubuli*, mix'd with Blood-Veſſels; the Difference between 'em lying only in this, that, in the *Paraſtatæ*, the *Tubuli* are united into one; the various Convolutions of which, being more firmly bound together by a ſtrong Membrane, ariſing from the *Tunica Albuginea*, it feels more compact than the Teſticles. See SEED, SPERMATIC, &c.

The *Paraſtatæ* and Teſticles are ſaid to be encloſed in three proper Membranes; the firſt *Muſculous*, derived from the Cremaſter Muſcle; the ſecond, called the *Vaginalis*; the third, the *Albuginea*. See each under its proper Article.

PARASYNANCHE, in Medicine, a Kind of Angina or Squinancy, wherein the exterior Muſcles of the Throat are inflamed. See SQUINANCY.

The Word comes from ϖαρὰ, συν ἄγχειν to ſuffocate.

PARATHESIS, in the *Greek* Church, the Prayer which the Biſhop rehearſes over the Catechumens, ſtretching his Hands over 'em to give 'em Benediction; which they receive, bowing the Head under his Hands.

PARATHESIS, in Grammar, a Figure whereby two or more Subſtantives are put in the ſame Caſe. See FIGURE.

PARATILMUS, in the antient *Greek* Juriſprudence, a Name given to the Puniſhment impoſed on Adulterers who were poor and unable to ſtand the common Penalty.

It conſiſted either in making 'em run a Horſe-Radiſh up the *Anus*; which they called ἀπὸ ῥαφανίδωσις; or in tearing up the by Roots, the Hair about the Fundament, &c. which they called παρατιλμος of ϖαρατιλλᾶν, to tear, pluck up.

PARATITLES, PARATITLA, in Juriſprudence, ſhort Notes, or Summaries of the Titles of the Digeſt, and Code; which have been made by ſeveral Lawyers, in order to compare, and examine the Connection of the ſeveral Parts with one another.

We have *Paratitles* of *Cujas*, of *Maran*, &c. *Chaſſaneus* has a ſecond Comment on the *Paratitles* of *Cujas*.

PARAVAIL, in Law, the loweſt Tenant; or he that is immediate Tenant to the Land. See TENANT.

He is called *Tenant Paravail*; becauſe it is preſumed he hath Profit and *Avail* by the Land.

PARAZONIUM, or *Scipio*, among Medalliſts, a Scepter, rounded at the two Ends in Manner of a Truncheon or Commander's Staff; or a Kind of Poniard or ſhort Sword; repreſented as wore at the Girdle, on ſeveral antient Medals.

Antiquaries are much divided on the Explication of the *Parazonium*; as, indeed, the Form and Manner of bearing it are very different. It is ſometimes thrown a-croſs the Shoulders in Manner of a Quiver.

PARBOILING, in Pharmacy, &c. a Term applied to Fruits, Herbs, &c. which are boiled a little while, to draw out the firſt Juices, to be afterwards inſpiſſated or thickened. See BOILING.

PARCÆ, *Deſtinies*, Goddeſſes, who, according to the antient *Pagan* Theology, preſide over the Lives of Men.

Theſe the Antients frequently confounded with the *Fates*, or *Deſtinies*; and, in effect, the *Parcæ*, according to *Plato*, were the Daughters of *Neceſſity*, and *Deſtiny*. See FATE and DESTINY.

The *Parcæ* were three, *Clotho*, *Lacheſis*, and *Atropos*; becauſe, forſooth, all Things have their Beginning, Progreſs, and End.

Hence the Poets tell us, the *Parcæ* ſpun Men's Lives; that *Clotho* held the Diſtaff, and ſpun the Thread; *Lacheſis* turned the Wheel; and *Atropos* cut it.

The Antients repreſent the Deſtinies divers Ways: *Lucian*, in the Shape of three poor old Women, having large Locks of Wool, mix'd with Daffodils on their Heads; one of which holds a Diſtaff, the other a Wheel, and the third a Pair of Sciſſars, wherewith to cut off the Thread of Life. Others repreſent them otherwiſe; *Clotho* appearing in a long Robe of divers Colours, wearing a Crown upon her Head, adorned with ſeven Stars, and holding a Diſtaff in her Hand; *Lacheſis* in a Robe full of Stars, with ſeveral Spindles in her Hands; and *Atropos* clad in black, cutting the Thread with large Sciſſars.

The Antients imagined that the *Parcæ* uſed white Wool for a long and happy Life; and black, for a ſhort and unfortunate one.

PARCEL-MAKERS, two Officers in the Exchequer, that make the Parcels of the Eſcheator's Accounts, wherein, they charge them with every Thing they have levied for the King's Uſe, within the Time of their Office, and deliver the ſame to one of their Auditors of the Court to make an Accompt with the Eſcheator thereof. See ESCHEATOR.

PARCENERS, *quaſi Parcellers*. See CO-PARCENERS.

PARCHMENT, in Commerce, &c. Sheep's or Goat's Skin prepared after a peculiar Manner, which renders it proper for ſeveral Uſes; particularly for writing on and covering of Books, &c.

The Word comes from the *Latin Pergamenum*, the antient Title of this Manufacture; which 'tis ſaid to have took from the City *Pergamos*, to one of the Kings whereof its Invention is aſcribed.

Parchment is begun by the Skinner, and ended by the *Parchment*-Maker. It makes a very conſiderable Article in the *French* Commerce: 'Tis made in moſt of their Cities; and, beſides the Conſumption at Home, they ſend vaſt Quantities abroad; particularly to *England*, *Flanders*, *Holland*, *Spain*, and *Portugal*.

That call'd *Virgin Parchment*, and which ſuperſtitious People believe to be made of a Kind of Caul, wherein ſome Children are incloſed in the Womb; is nothing but a ſomewhat thinner and finer Sort than the reſt, proper for certain Purpoſes, as Fans, &c. and made of the Skin of an abortive Lamb, or Kid.

Manufacture of PARCHMENT.

The Skin having been ſtripp'd of its Wool, and paſs'd the Lime-Pit; (*after the Manner deſcribed under the Article* CHAMOIS.) The Skinner ſtretches it on a Kind of Frame, conſiſting of four Pieces of Wood, mortais'd into each other at the four Angles, and perforated lengthways from Diſtance to Diſtance, with Holes, furniſhed with wooden Pins that may be turned at Pleaſure, like thoſe of a Violin.

To ſtretch the Skin on this Frame, they make little Holes all around it, and thro' every two Holes draw a little Skewer; to this Skewer they tie a Piece of ſmall Packthread, and tie that over the Pins; ſo that coming to turn the Pins equally, the Skin is ſtrained tight every Way, like that of a Drum.

The Skin being thus ſufficiently ſtretch'd on the Frame; the Fleſh is par'd off with a ſharp Inſtrument for the Purpoſe; this done, 'tis moiſtened with a Rag, and a Kind of white Stone or Chalk, reduced to a fine Duſt, ſtrew'd over it; then with a large Pumice-Stone, flat at Bottom, much after the Manner of a Mullet for grinding Colours, they rub over the Skin as if about to grind the Chalk; and thus ſcower off the Remains of the Fleſh. They then go over it again with the iron Inſtrument; again moiſten it as before, and again rub it with the Pumice-Stone without any Chalk underneath; this ſmooths and ſoftens the Fleſh-Side very conſiderably. They drain it again, by paſſing over it the iron Inſtrument as before.

The Fleſh-Side thus drain'd, they paſs the Iron on the Wool, or Hair-Side; then, ſtretch it tight on the Frame by means of the Pins, and go over the Fleſh-Side again with the Iron; this finiſhes its draining; and the more the Skin is drained, the whiter it ever becomes.

They now throw on more Chalk, ſweeping it over with a a Piece of Lamb-ſkin that has the Wool on; this ſmooths it ſtill further, and gives it a white Down or Nap. 'Tis now left to dry, and when dried, taken off the Frame, by cutting it all round.

The Skin, thus far prepared by the Skinner, is taken out of his Hands by the Parchment-Maker; who firſt ſcrapes or pares it dry on the Summer, with an iron Inſtrument like that above-mentioned, only finer and ſharper; with this, work'd with the Arm from Top to Bottom of the Skin, he takes away about one Half of its Thickneſs. The Skin, thus, equally pared, on both Sides, they paſs the Pumice-Stone over both Sides, to ſmooth it. This laſt Preparation is perform'd on a Kind of Form or Bench cover'd with a Sack ſtuffed with Flocks, and leaves the Parchment in a Condition for writing on.

The paring of the Skin dry on the Summer, is the moſt difficult Preparation in the whole Proceſs of *Parchment*-making, for which Reaſon the Skinners ſeldom dare meddle with it; but uſually leave it to thoſe more experienced in it: The Summer, whereon it is performed, is a Calf-Skin well ſtretch'd on a Frame, ſerving as a Support to the Skin which is faſten'd a-top of it with a wooden Inſtrument, that has a Notch cut in it. Laſtly, that the iron Knife may paſs the eaſier, between the Summer and the Skin to be pared, they put another Skin which they call the Counter-Summer. The Parings thus taken off the Leather, are uſed in making Glue, Size, *&c.* See Glue, *&c.*

What we call *Vellom* is only *Parchment* made of the Skins of abortive Calves, or at leaſt of ſucking Calves; 'tis finer, whiter, and ſmoother than the common *Parchment*; but is prepared in the ſame manner as that, abating that 'tis not paſs'd thro' the Lime-Pit.

PARCO *fracto*, in Law, a Writ that lies againſt him who violently breaks open a Pound, and takes out Beaſts thence, which, for ſome Treſpaſs done, were lawfully impounded. See Pound.

PARDON, in Law, a Remiſſion, or Forgiveneſs of a felonious, or other Offence againſt the King.

This our Lawyers make twofold; the one, *ex Gratia Regis*, the other, *per Cours de Ley*. The firſt is that, which the King out of ſome ſpecial Regard to the Perſon, or ſome other Circumſtance, grants by his abſolute Perogative or Power. The other is that he grants, as the Law and Equity perſuades, for a ſlight Offence; as Homicide Caſual, *&c.*

Pardon, in the Canon Law, is an Indulgence which the Pope grants to ſuppoſed Penitents, for Remiſſion of the Pains of Purgatory, which they have merited for the Satisfaction of their Sins. See Indulgence.

The grand Time for the Diſpenſation of *Pardons* is the *Jubilee*. See Jubilee.

In this Senſe, *Pardon* is properly the Angelic Salutation, ſaid to the Virgin at the Sound of three little Strokes of a Bell, rung in the Morning, Noon, and Night, in order for the Perſon to be entitled to Indulgences.

PARDONERS, in our antient Cuſtoms, were Perſons who carried about the Pope's Indulgences, and ſold 'em to the higheſt Bidders. See Indulgence.

PAREGORICKS, in Medicine, Remedies which aſſwage Pain; the ſame with what we otherwiſe call *Anodynes*, and *Opiates*. See Anodyne and Opiate.

The Word is *Greek* παρηγορικα.

PARELCON, in Grammar, a Figure, whereby a Word, or Syllable, is added to the End of another.

PARELIA, or *Parhelia*, in Phyſiology. See Parhelia.

PAREIRA BRAVA, the Root of a Plant growing in the *Weſt-Indies*; chiefly *Mexico* and *Brazil*; eſteem'd a Specific for the Cure of the Stone and Gravel.

The Name, which in the original *Portugueze*, ſignifies *Wild-Vine*, or *Baſtard Vine*, bears a good deal of Analogy to the Plant, which bears Branches loaden with Leaves perfectly like thoſe of the Vine; and which, like them, creep along Walls and Trees.

The *Portugueze* value this Root on an equal footing with the *Ipecacuanha*. Some Druggiſts call it, by Corruption, *Parada Brava.*

M. *Geoffroy* attributes the Efficacy of this Root, in Nephritic Caſes, to its diſſolving the viſcid Matters, whereby the Particles of the Sand, *&c.* were cemented together: And hence, he gives it with the ſame Intention in Jaundices, Aſthma's, *&c.* It is given in Decoction.

The *Portugueze* hold it alſo a Remedy for Dyſenteries, Quinzies, Bites of venomous Beaſts, *&c.*

PARENCHYMA, or Parenchymous *Fleſh*, in Anatomy, a Term uſed for the peculiar Subſtance of ſeveral Parts of the Bodies of Animals, as the Heart, Lungs, Liver, Spleen, Kidnies, *&c.* thus called from the *Greek* παρέγχυμα, Effuſion, *q. d.* generated by a Collection and Condenſation of Juice. See Fleſh.

Eraſiſtratus firſt gave the Name; as imagining the Subſtance of theſe Parts not to be Vaſcular like the reſt, but to conſiſt of a Maſs or *Coagulum* of Blood, ſtagnated in the Veſſels of the Parts: But the Moderns reject this Opinion: The Obſervations made by Microſcopes, Injections, *&c.* clearly ſhewing, that the Heart is a true Muſcle, (*See* Heart) the Lungs and Spleen, Cluſters of membranous Veſicles, and Veſſels (*See* Lungs *and* Spleen) and the Liver and Kidnies, Compoſitions of Glands, thro' which the Bile and Urine are filtrated. See Liver and Kidnies.

Parenchyma *of a Plant*. Dr. *Grew* gives the Name *Parenchyma* to the *Pith* or *Pulp*; or that inner Part of the Plant, thro' which the Juice is ſuppoſed to be diſtributed. See Plant, Pith, *&c.*

This, when view'd with a Microſcope, appears to reſemble Marrow; or rather a Spunge; being a porous flexible dilatable Subſtance. See Medulla.

Its Pores are innumerable, and exceedingly ſmall; receiving as much Humour as is requiſite to fill and extend them; which Diſpoſition of Pores it is, that is ſuppoſed to fit the Plant for Vegetation and Growth. See Vegetation.

The *Parenchyma* is white, at firſt, but changes its Colour, in Proportion as the Root grows thicker. Thus it becomes yellow in the Root of the Baſtard Rhubarb, and red in that of the Snake-weed. See Plant.

PARENT, a Term of Relation, applicable to thoſe from whom we immediately receive our Being. See Father and Mother.

PARENTALE, *de Parentale ſe tollere*, in the antient Cuſtoms, ſignified a Renunciation of one's Kindred, and Family.

This was done in open Court, before the Judge, and in the Preſence of twelve Men, who made Oath, they believed it was done for a juſt Cauſe.

We read of it in the Laws of *Hen.* I. after ſuch Abjuration, the Perſon was incapable of inheriting any Thing from any of his Relations, *&c.*

PARENTALIA, in Antiquity, funeral Obſequies; or the laſt Duties paid by Children to their deceaſed Parents. See Obſequies.

PARENTHESIS, in Grammar, a Number of Intercalary Words, inſerted in a Diſcourſe; which interrupt the Senſe, or Thread, but which ſeem neceſſary for the fuller underſtanding of the Subject.

The Word is form'd of the *Greek* παρὰ *inter*, between, and ἔνθεσις Poſition, *q. d. put between.*

The politeſt of our modern Writers avoid all *Parentheſes*; as keeping the Mind in ſuſpence, embarraſſing it, and rendering the Diſcourſe leſs clean, uniform and agreeable: Long and frequent *Parentheſes* are intolerable; eſpecially in Verſe, which they ever render dull, and languid, and like to Proſe.

The proper Characteriſtic of a *Parentheſis*, is that it may be either taken in, or left out, the Senſe and Grammar remaining entire.

In Speaking, *Parentheſes* are to be pronounced with a different Tone; and in writing, are incloſed between ( ); to diſtinguiſh them from the reſt of the Diſcourſe.

The Character itſelf is alſo called a *Parentheſis*. See Character.

PARERE, in Commerce, an *Italian* Term which begins to be naturalized. It ſignifies the *Advice* or *Counſel* of a Merchant or Negotiant; for that ſuch a Perſon, being conſulted on any Point, introduces his Anſwer, in *Italian*, with *Mi pare*, i. e. *I think, it ſeems to me.*

The Method of Negotiating, eſpecially, that of Bills of Exchange, being borrowed from the *Italians*, moſt trading Cities, eſpecially *Lyons*, retain the Uſe of *Pareres*; which are the Advices or Opinions of Merchants and Negotiants; and which ſerve as Acts before Notaries, when given by Authority of a Judge-Converſator, or at a particular Conſultation, for maintaining the Right of the Conſulter.

M. *Savary* has an excellent Treatiſe, intitled, *Parere, ou Avis & Conſeils ſur les plus Importantes Matieres du Commerce*; Containing the Reſolution of the moſt difficult Queſtions relating to Bankrupts and Failures, Bills of Exchange, Orders without Dates or Expreſſion of Value, Blank-ſignings, Renewing of Bills of Exchange, thoſe drawn or accepted by Women in Behalf of their Huſbands, or during the Minority of the Drawer, *&c.*

PARERGA, a Term ſometimes uſed in Architecture, for Additions, or Appendages, made, by way of Ornament, to a principal Work.

It is ſometimes alſo uſed in Painting for little Pieces, or Compartiments on the Sides, or in the Corners of the principal Piece.

PARESIS, in Medicine, a Diſeaſe call'd alſo *Paralyſis* and *Palſy*. See Paralysis, *&c.*

PARGETING, in Building, is uſed for the Plaiſtering of Walls; ſometimes for the Plaiſter itſelf. See Plaister.

Pargeting is of various Kinds; as, 1. White Lime and Hair Mortar laid on bare Walls. 2. On bare Laths, as in partitioning and plain Cieling. 3. Rendring the Inſides of Walls or double Partition-Walls. 4. Rough-caſting on Hearth-Laths. 5. Plaiſtering on Brick-work, in Imitation of Stone-work; and the like upon Hearth-Laths.

PARHELIUM, PARHELION, or PARELION, in Phyſiology, *Mock-Sun*, a Meteor, in Form of a very bright Light, appearing a-ſide of the Sun; form'd by the Reflexion of his Beams in a Cloud properly poſited. See Meteor.

The *Parhelia* uſually accompany the *Coronæ*, or large Crowns; are placed in the ſame Circumference, and at the ſame Height. Their Colours reſemble thoſe of the Rain-bow; the Red and Yellow on the Side towards the Sun; and the Blue and Violet on the other. See Rainbow.

Tho' there are *Coronæ* ſometimes ſeen entire, without any *Parhelia*; and *Parhelia* without *Corona*. See Corona.

In the Year 1629. was ſeen at *Rome* a *Parhelion* of five Suns; and in 1666. another at *Arles* of ſix.

The Word is form'd from the *Greek* παρὰ *juxta*, near, and ἥλιος *Sol*, Sun.

M. *Mariotte* accounts for the Appearance of *Parhelia*, from an Infinity of little Parcels of Ice floating in the Air, which multiply the Image of the Sun, either by refracting and breaking his Rays, and thus making him appear where he is not; or by reflecting 'em, and ſerving as Mirrors. See Mirror, &c.

The known Laws of Reflexion and Refraction have given a Handle for Geometrizing on theſe *Phænomena*; and M. *Mariotte* has determined the preciſe Figure of the little Icicles, and their Situation in the Air, the Size of the *Coronæ* or Circles which accompany the *Parhelia*, and the Colours wherewith they are painted, by a Geometrical *Calculus*.

Mr. *Huygens* accounts for the Formation of a *Parhelion*, in the ſame Manner, as for thoſe of the *Halo*, *viz.* by ſuppoſing a Number of ſmall icy Cylinders, with opaque Kirnels, carried in the Air, neither in a perpendicular nor parallel Direction, but inclined to the Horizon in a certain Angle, nearly half a right one.

To make the Effect of theſe Cylinders manifeſt, M. *Huygens* produced to the Academy of *Paris*, a glaſs Cylinder a Foot long, with an opaque Cylinder of Wood in the Middle, and the ambient Space fill'd with Water and tranſparent Ice; which Cylinder being expoſed to the Sun, and the Eye put in the requiſite Situation, there were ſucceſſively ſeen all the Refractions and Reflections, neceſſary for the *Phænomena* of the *Parhelia*. See Halo.

PARIETALIA *Oſſa*, in Anatomy, the third, and fourth Bones of the *Cranium*; ſo called, becauſe they form the *Parietes*, or Sides of the Head. See Cranium.

Their Subſtance is finer and thinner than that of the *Coronal* and *Occipital*. Their Figure is ſquare; their Size ſurpaſſes that of the other Bones of the Head; and their Situation, in the lateral Parts, which they poſſeſs entirely.

The *Sagittal Suture* connects them at the upper Part; the *Coronal* joins their Fore-part to the *Os Frontis*; the *Lambdoidal* joins them by the Hind-part to the *Occipital* Bone; and, laſtly, the ſquammous *Suture* joins them by the Lower-part to the *Oſſa Petroſa*.

The outer Surface of theſe Bones is very ſmooth and poliſh'd; the inner, rough and uneven; full of Impreſſions, which the Arteries of the *Dura Mater* have made by their continual Pulſation before they were oſſified.

PARIETES, *Sides*, in Anatomy, a Term uſed for the *Incloſures*, or Membranes, that ſtop up or cloſe the hollow Parts of Bodies, eſpecially thoſe, of the Heart, the *Thorax*, and the *rus*. See Heart, Thorax, &c.

The *Parietes* of the two Ventricles of the Heart are of unequal Strength and Thickneſs, the left exceeding the right, becauſe of its Office, which is to force the Blood thro' all Parts of the Body; whereas the right only drives it thro' the Lungs. See Ventricle, &c.

PARISH, the Precinct or Territory of a *Pariſh* Church. See Church. See alſo Parochial.

In the antient Church, there was one large Building in each City, for the People to meet in; and this they call'd *Pariſh*. But the Signification of the Word was afterwards enlarged, and by *Pariſh* was meant a Dioceſe, or the Juriſdiction of a Biſhop, conſiſting of ſeveral Churches; unleſs we will ſuppoſe, as ſome do, that thoſe Biſhops were only Paſtors of ſingle Churches. See Diocese and Bishop.

At leaſt, the Word now retains its original Meaning.

Du-pin obſerves, that Country *Pariſhes* had not their Origin before the IVth Century; but thoſe of Cities are more antient. The City of *Alexandria* is ſaid to have been the firſt that was divided into *Pariſhes*. *Baronius* ſays, that in the Time of Pope *Cornelius*, there were 46 *Pariſhes* in *Rome*.

The Diviſion of *England* into *Pariſhes*, is attributed to *Honorius* Archbiſhop of *Canterbury*, in 636. *Cambden* reckons 9284 *Pariſhes* in *England*. *Chamberlayn* makes, at preſent, 9913.

The Word comes from the Latin *Parochia*, of the *Greek* παροικία.

Du Cange obſerves, that the Name παροικία was antiently given to the whole Territory of a Biſhop, and derives it from Neighbourhood; becauſe the Primitive Chriſtians, not daring to aſſemble openly in Cities, were forced to meet ſecretly in Neighbour-houſes.

Parish-*Prieſt*; the Parſon, or Miniſter who holds a *Pariſh* as a Benefice. See Parson.

If the predial Tythes be appropriated, the Parſon is called *Rector*. See Rector. If they be impropriated, he is call'd *Vicar*. See Vicar.

PARISIS, a Money of Account; formerly a real Money; ſtruck at *Paris*; at the ſame Time with the *Tournois*, ſtruck at *Tours*. See Money and Coin.

The *Pariſis* exceeded the *Tournois* by one Fourth; ſo that the *Livre* or Pound *Pariſis* was 25 *Sols*; and the *Livre Tournois* 20. The *Sols* and *Deniers*, *Pariſis*, &c. in Proportion. See Livre, Sol, &c.

PARK, an Incloſure ſtock'd with wild Beaſts, *tam Sylveſtres, quam Campeſtres*; ſay our old Lawyers.

Crompton obſerves, that a Subject may hold a *Park* by Preſcription, or the King's Grant, which he can't do a Foreſt. See Forest.

A *Park* differs from a *Chaſe* or *Warren*; for that a *Park* muſt be encloſed; if it lie open, it is a good Cauſe of ſeizing it into the King's Hand; as a free Chaſe may be, if it be encloſed. Nor can the Owner have any Action againſt ſuch as hunt in his *Park*, if it lie open. See Chase.

Du Cange refers the Invention of *Parks* to King *Henry* I. of *England*: But *Spelman* ſhews, 'tis much more antient; and was in uſe among the *Anglo Saxons*.

Zozimus aſſures us, the antient Kings of *Perſia* had *Parks*.

The Word is originally *Celtic*, where it ſignifies an Incloſure, or Place ſhut up with Walls.

Park is alſo uſed for a moveable Paliſſade ſet up in the Fields to incloſe Sheep in to feed, during the Night.

The Shepherds ſhift their *Park*, from Time to Time, to dung the Ground, one Part after another.

Park is alſo uſed for a very large Net, diſpoſed on the Brink of the Sea, with only one Hole which looks towards the Shore; and which becomes dry, after the Flood is gone off; ſo that the Fiſh has no Way left to eſcape.

Park, in War, or *Park of the Artillery*, a Poſt in a Camp, out of Cannon Shot; where the Cannon, artificial Fires, Powder, and other warlike Ammunition are kept, and guarded, by Pike-men only, to avoid all Caſualties that might happen by Fire. Every Attack, at a Siege, hath its *Park* of Artillery.

Park of Proviſions, is another Place in a Camp, on the Rear of every Regiment, which is taken up by the Sutlers, who follow the Army with all Sorts of Proviſions, and ſell them to the Soldiers.

PARLEY, a Conference with an Enemy, &c. of the *French Parler* to ſpeak, talk.

Hence to *beat* or *ſound a Parley*, is to give a Signal for the holding of ſuch a Conference by Beat of Drum, or Sound of Trumpet.

PARLIAMENT, a Grand Aſſembly, or Convocation, of the Three Eſtates of the Kingdom, *viz*, *Lords Spiritual*, *Lords Temporal*, and *Commons*, ſummoned to meet the King, to conſult of Matters relating to the Common-weal; and particularly to enact and repeal Laws. See Estate.

The two Houſes of *Parliament* are the King's Grand Council. See Council.

'Till the Conqueſt, the great Council, conſiſting only of the great Men of the Kingdom, was call'd *Magnatum Conventus*, and *Prelatorum procerumque Concilium*. The *Saxons*, in their own Tongue, call'd it *Wittenagemote*, *i. e.* Aſſembly of the Wiſe.

After the Conqueſt, about the Beginning of the Reign of K. *Edw.* I. Some ſay, in the Time of *Hen.* I. it was called *Parlementum*, q. d. *Speechment*, from the *French*, *Parler*, to ſpeak; tho' it ſtill only conſiſted of the great Men of the Nation: Till in the Reign of *Hen.* III. the Commons were alſo called to ſit in *Parliament*: The firſt Writs ſent out to ſummon them bore Date 49 *Hen.* III. *Anno* 1217.

Parliaments are to be ſummoned, prorogued, and diſſolved by the King alone: Nor can a *Parliament* begin without the King's Preſence. See King.

At firſt new *Parliaments* were call'd every Year: By degrees their Term grew longer. In the Time of King *Charles* II. they were held a long Time with long Interruptions between. Both which were found of ſo ill Conſequence, that in the Beginning of the Reign of K. *William*, an Act was paſſed, whereby the Term of all *Parliaments* was reſtrained to three Seſſions, or three Years; hence call'd the *Triennial Act*. Since that, from other Views, the Period of *Parliaments* is again, 3 *Georgii*, lengthen'd to ſeven Years.

A *Parliament* is call'd by the King's Writ, or Letter, directed to each *Lord*, commanding them to appear; and, by other Writs, directed to the Sheriffs of each County, to ſummon the People to elect two *Knights* for each County, and one or two *Burgeſſes* for each Borough, &c.

Antiently, all the People had Votes in the Elections; till it was enacted by *Hen.* VI. That none but Freeholders, reſiding in the County, and who had a yearly Revenue of 40 *s.* ſhould be admitted to vote; nor were any to be elected that were under 21 Years of Age.

That the Members might attend in *Parliament* with more Freedom, they, and all their menial Servants, were privileged from all Arreſts, Attachments, Impriſonments, *&c.* for Debts, Treſpaſſes, *&c. eundo, morando ad propria Redeundo*; but not from Arreſts for Treaſon, Felony, and Breach of Peace.

The Place where the *Parliament* meets, is wherever the King pleaſes; of late, it has been in the Palace of *Weſtminſter*; the Lords and Commons each in diſtinct Apartments. In the Lord's Houſe the Princes of the Blood are placed in diſtinct Seats; the great Officers of State, Dukes, Marquiſſes, and Biſhops on Forms; and the Viſcounts and Barons on others acroſs the Houſe; all according to their Order of Creation, Place, *&c.* See PRECEDENCY.

The Commons ſit promiſcuouſly; only the Speaker has a Chair at the upper End; and the Clerk and his Aſſiſtant a Table near him. Before any Matters be done, all the Members of the Houſe of Commons take the Oaths, and ſubſcribe their Opinions againſt Tranſubſtantiation, *&c.* which Teſt, the Lords too, tho' they don't take the Oaths, are obliged to take.

The Houſe of Lords is the ſovereign Court of Juſtice of the Realm, and the Dernier Reſort: The Houſe of Commons the grand Inqueſt, but no Court of Juſtice. See PEERS and COMMONS.

As to the Manner of debating and paſſing Bills in Parliament; Any Member may move to have a Bill brought in for any thing, which, upon a Queſtion put, being agreed to by a Majority, that Perſon with others are ordered to prepare and bring in the ſame. When ready, a Time is appointed for a Reading: after reading it by the Clerk, the Speaker reads the Abſtract thereof, and puts the Queſtion, whether or no it ſhall have a ſecond Reading? after a ſecond Reading, the Queſtion is, whether or no it ſhall be *committed*? which is either to a Committee of the whole Houſe, if it be of Importance; or to a private Committee, any Member naming the Perſons. See COMMITTEE.

The Committee appointed, and a Chairman choſen, the Chairman reads the Bill, Paragraph by Paragraph, puts every Clauſe to the Queſtion, fills up Blanks, and makes Amendments, according to the Opinion of the Majority. The Bill thus gone thro', the Chairman makes his Report at the Side-bar of the Houſe, reads all the Additions and Amendments, *&c.* and moves for Leave to bring up the Report to the Table; which granted, he delivers it to the Clerk, who reads the Amendments, *&c.*

The Speaker then puts the Queſtion, whether they ſhall be read a ſecond Time; and, if agreed to, reads them himſelf. To ſo many as the Houſe acquieſces in, the Queſtion is now put, whether the Bill, thus amended, ſhall be engroſs'd and writ fair in Parchment, and read a third Time? The Bill engroſs'd, the Speaker holds it in his Hand; and asks if it ſhall paſs? If the Majority be for it, the Clerk writes on it, *Soit baille aux Seigneurs.* Or, in the Houſe of Lords, *Soit baille aux Communes.*

If a Bill be rejected, it cannot be any more more propoſed during that Seſſion. See BILL.

Forty Members conſtitute a *Houſe of Commons*, and eight a *Committee.* A Member of the Commons, to ſpeak, ſtands up, uncovers, and directs his Speech to the Speaker only. If what he ſays be anſwered by another, he is not allowed to reply the ſame Day, unleſs perſonally reflected on. Nor may any Perſon ſpeak more than once to the ſame Bill in the ſame Day.

In the Lord's Houſe they vote, beginning at the Puiſn or loweſt Baron, and ſo up orderly to the higheſt, every one anſwering a-part, *Content* or *Not Content.* In the Houſe of Commons, they vote by *Yea*'s and *Nay*'s; and if it be dubious, which is the greater Number, the Houſe divides. If the Queſtion be about bringing any Thing into the Houſe, the *Ay*'s go out; if it be about any the Houſe already has, the *No*'s go out. In all Diviſions, the Speaker appoints four Tellers, two of each Opinion. In a Committee of the whole Houſe, they divide by changing Sides, the *Ay*'s taking the right, the *No*'s the left of the Chair, and then there are but two Tellers.

If a Bill paſs one Houſe, and the other demur at it, a Conference is demanded in the Painted Chamber, where certain Members are deputed from each Houſe; and here the Lords ſitting cover'd, the Commons ſtanding bare, the Caſe is debated. If they diſagree, the Affair is null; if they agree, this, with the other Bills that have paſſed both Houſes, is brought down to the King, in the Houſe of Lords, who comes thither cloath'd in the Royal Robes and with the Crown on, before whom the Clerk of the *Parliament* reads the Title of each Bill, and as he reads, the Clerk of the Crown pronounces the Royal Aſſent or Diſſent.

If it be a public Bill, the Royal Aſſent is given by theſe Words, *Le Roy le veut.* If a private one, by *Soit fait comme il eſt deſire.* If the King refuſes the Bill, the Anſwer is, *Le Roy s' aviſera.* If it be a Money Bill, the Anſwer is, *Le Roy remercie ſes Loyaux Sujets, accepte leur Benevolence & auſſi le Veut.*

The Bill for the King's general Pardon has but one Reading. The Number of Members in the Houſe of Lords is uncertain; as increaſing at the King's Pleaſure. The Members of the Houſe of Commons, when full, are 552, *viz.* 92 Knights of Shires; 52 Deputies for the 25 Cities, *London* having 4; 16 for the 8 Cinque Ports; 2 for each Univerſity; and, finally, 332 for 180 Boroughs, beſide 12 Boroughs for *Wales*, and 45 Members for *Scotland.*

PARLIAMENT is ſometimes alſo uſed for other Aſſemblies beſide thoſe of the States of the Realm. Thus we read that the Abbot of *Creyland* was uſed to call *Parliaments* of his Monks, to conſult of the Affairs of the Monaſtery: And, at this Day, an Aſſembly of the two Temples, called to conſult of their common Affairs, is called a *Parliament.* See TEMPLE.

PARDIAMENTS *of France*, are Courts or Aſſemblies eſtabliſh'd by the King, to judge of the Differences between particular Perſons, and to pronounce on Appeals from Sentences given by inferior Judges. See COURT.

There are ten of theſe Parliaments in *France.* That of *Thorlouſe*, eſtabliſh'd in 1303: That of *Diſon*, in 1476: That of *Grenoble*, in 1453: That of *Rouen*, in 1499: That of *Rennes* in *Bretagne*, in 1553: That of *Bourdeaux*, in 1502: That of *Aix*, in 1501: That of *Metz*, in 1633: That of *Pau* in *Bearn*, in 1519: And that of *Paris.*

The *Parliament* of *Paris* is the Principal, and that whoſe Juriſdiction is of the greateſt Extent. This is the chief Court of Juſtice throughout the Realm. It conſiſts of ſix Chambers: the grand Chamber, where Cauſes of Audience are pleaded; and five Chambers of Inqueſts, where Proceſſes are adjudged in Writing. See CHAMBER.

Under their ſecond Race of Kings, the *Parliament*, like that of *England*, was the King's Council; gave Audience to Ambaſſadors, and conſulted of the Affairs of War and Government.

The Kings, like ours, preſided in 'em, without being, at all, Maſters of their Reſolution. But, in after Times, their Authority has been abridg'd, the Kings having reſerv'd the Deciſion of the grand Affairs of the Public to their own Councils; leaving none but private ones to the *Parliaments.*

PARLIAMENTUM *Indoctorum*, a Denomination given to a *Parliament* held at *Coventry*, 6 *Hen.* IV. whereunto, by ſpecial Precept to the Sheriffs of the ſeveral Counties, no Perſon ſkill'd in the Law was to be called.

PARLIAMENTUM *Inſanum*, was a *Parliament* held at *Oxford*, *An.* 41 *Hen.* III. thus call'd, ſay our Chronicles, becauſe the Lords came with great Retinues of armed Men to it; and many Things were violently tranſacted therein, againſt the King's Prerogative.

PARLIAMENTUM *Diabolicum*, was a *Parliamentum* held at *Coventry*, 38 *Hen.* VI. wherein *Edward* Earl of *March* afterwards King, and ſeveral others, were attainted. The Acts paſs'd herein were annull'd by the ſucceeding *Parliament.*

PARLIAMENTUM *de la Bonde*, was a *Parliament* in *Edward* II'ds Time, whereto the Barons came armed againſt the two *Spencers*, with colour'd Bands on their Sleeves for Diſtinction.

PARLOIR, PARLOUR, in Nunneries, a little Room, or Cloſet, where People talk to the Nuns, thro' a Kind of grated Window.

The Word is formed from the *French Parler*, to talk; and hence alſo our *Parlour.*

Antiently, there were alſo *Parlours* in the Convents of Monks, where the Novices uſed to converſe together, at the Hours of Recreation; but there were liſtening Places over, from whence the Superiors cou'd hear what they ſaid; ſuch a one there ſtill ſubſiſts in the Abbey St. *Germain de Prez.*

In the Order of *Feuillans*, the *Parlour* is a little Room open on all Sides, placed at each End of the Dormitory, where the Monks talk together, it not being allow'd them to ſpeak in the Dormitory.

PARMA, among Antiquaries, a Kind of antient Buckler. See BUCKLER.

Polybius deſcribes the *Parma* as very ſtrong, round, three Foot in Diameter, and big enough to cover the whole Body; Yet *Servius*, on the *Æneid*, and even *Virgil* himſelf mention it as a light Piece of Armour, in Compariſon of the *Clypeus.* See SHIELD.

PARMESAN. See PADUAN.

PAROCHIAL, ſomething belonging to a *Pariſh.* See PARISH.

Every Church is either Cathedral, Collegiate, or *Parochial.* See CHURCH.

Cathedral is where there is a Biſhop's See, or Seat, call'd *Cathedra.* *Collegiate*, conſiſts either of regular Clerks, profeſſing ſome religious Order; or of Dean and Chapter. See CATHEDRAL, COLLEGIATE, *&c.*

Parochial Church is that inſtituted for the performing of divine Service to the People who dwell within a certain Compaſs of Ground.

PARODY, a popular Maxim, Adage or Proverb. See PROVERB.

The Word is form'd from the *Greek* παρὰ and ὁδὸς, *Via*, Way, as being trite, or paſſing among the People.

PARODY, is alſo a poetical Pleaſantry, conſiſting in applying the Verſes of ſome Perſon, by Way of Ridicule, to another; or in n turning a ſerious Work into Burleſque, by affecting to obſerve, as nearly as poſſible, the ſame Rhimes, Words, and Cadences. See BURLESQUE.

The *Parody* was firſt ſet on foot by the *Greeks*; from whom we borrow the Name. It comes near to what ſome of our late Writers call *Traveſty*. See TRAVESTY.

PARODICAL *Degrees*, in an Equation, the ſeveral regular Terms in a Quadratic, Cubic, or Biquadratic Equation, *&c.* The Indices of whoſe Powers aſcend or deſcend orderly in an arithmetical Progreſſion. See EQUATION.

Thus, $Z+{}^{3}Z^{2}M+Zr=S$ is a Cubic Equation where no Term is wanting, but having all its *Parodic* Degrees; the Indices of the Terms regularly deſcending thus 3, 2, 1, 0. *Harris.*

PAROL, in Law, is ſometimes uſed in antient Writers for a *Plea* in Court. See PLEA.

Leaſe-PAROL, or *per Parol*, is a Leaſe by Word of Mouth; thus call'd to diſtinguiſh it from one in Writing. See LEASE.

PAROLE, in War, *&c.* when a Priſoner of War is allow'd to go into his own Country, or to his own Party, upon his *Word* and Promiſe to return at a Time appointed, if not exchang'd, he is ſaid to be out upon *Parole*, *i. e.* upon his *Word*.

PAROLI, in Gaming, the double of what was laid at Stake before; hence, *to offer the Paroli*, &c.

PAROEMIA, a Proverb. See PROVERB.

The Word is form'd from the *Greek* ὄιμος Way; *quaſi* παρὰ οἴμω *juxta viam*, i. e. *tritam*; or from ὄιμη Word.

PARONOMASIA, in Rhetoric, a Figure whereby Words nearly alike in Sound, but of very different Senſes are affectedly uſed.

As, not *Friends* but *Fiends* were here: So *Tully* to *Anthony*, *cum in Gremio Mimarum* mentem *&* mentum *deponeres*: And to *Atticus*, *Conſul ipſe* parvo *Animo &* pravo, facie *magis quam* facetiis *ridiculus*. And that of *P. Chryſologus*; *Monachorum Cellulæ jam non* Eremeticæ *ſed* Aromaticæ. And in another Place, *Hoc agant in* Cellis *quod Angeli in* Cœlis.

Among the *Greeks* the *Paronomaſia* was very familiar. Thus *Herodotus* παθήματα, μαθήματα, *quæ nocent*, *docent*.

And thus that Inſcription of *Apolloaorus* a celebrated Painter, on one of his Pieces.

Μωμήσεται τὶς μᾶλλον ἢ μιμήσεται

'Twill be eaſier to deride, than to imitate.

The Word is form'd from the *Greek* παρὰ near, and ὄνομα Name, *q. d. Proximity* or Reſemblance of two *Names*.

PARONYCHIA, *Whitloe*, in Medicine, a painful Kind of Tumor, or Inflammation, ariſing on the Ends of the Fingers, and the Roots of the Nails; otherwiſe called *Panaris*. See PANARIS.

The Humour or Matter of the *Paronychia* is ſometimes ſo ſharp as to corrode the Tendons, Nerves, *Perioſteum*, and even the Bone itſelf.

It is lodged either between the Integuments, or between the *Perioſteum* and Bone. The deeper the more dangerous.

The Word is derived from the *Greek* παρὰ and ὀνύξ *Unguis*, Nail.

PAROTIDES, in Anatomy, two big Glands, ſituate behind the two Ears; and filling all the Space between the poſterior Angle of the under Jaw, and the maſtoidal *Apophyſis*. See GLAND and EAR.

They are of the Conglomerate Kind, and by divers excretory Ducts, which, at laſt, coaleſce into one Trunk, diſcharge a Humour ſeparated in 'em from the arterious Blood, called *Saliva*, into the Mouth, by two Veſſels formed of ſeveral Branches uniting at the Iſſue of theſe Glands, and which run along the Cheek to the third Grinder. See SALIVA & SALIVAL.

The Word is form'd from the *Greek* παρὰ near, and οὖς Ear.

PAROTIDES, in Medicine, Tumors or Inflammations ariſing behind the Ears, on the *Parotid* Glands.

Parotides are very frequent after malignant and peſtilential Fevers: Children are particularly liable to 'em. They are to be treated like *Bubo*'s. See BUBO.

PAROXYSM, in Medicine, the ſevere Fit of a Diſeaſe which grows higher, or exaſperates as the Gout, *&c.*

It is ſometimes alſo uſed for the Acceſs or Return of a Diſeaſe that intermits, as an Ague. See ACCESS.

The Word is form'd from the *Greek* παρὰ much, and ὀξύς acute.

PARRICIDE, in Strictneſs, is the Murther, or the Murtherer of a Father; as *Matricide* is of a Mother.

The Word *Parricide* is alſo ordinarily extended to both. See MURTHER.

The *Romans*, for a long Time, had no Law againſt *Parricides*; from an Opinion, nobody could be ſo wicked as to kill his Parents. *L. Oſtius* was the firſt, who killed his Father, 500 Years after *Numa*'s Death; and then the *Pompeian* Law was made, which ordain'd, that the Perſon, convicted of this Crime, after he had been firſt whipp'd till the Blood came, ſhould be tied up in a leathern Sack, together with a Dog, an Ape, a Cock, and a Viper, and ſo thrown into the Sea, or the next River.

PARRICIDE is alſo uſed in the General for the Murther of any near Relation, as a Huſband, Wife, Brother, Siſter, Child, Grandchild, *&c.* and even to that of great ſacred Perſons, tho' no Way allied in Blood, as a King, *&c.* See TREASON.

PARRYING in Fencing, the Action of defending a Man's ſelf, or of ſtaving off the Strokes, *&c.* offer'd him by another. See FENCING.

Good Fencers puſh and parry at the ſame Time. See GUARD.

The *Spaniards* parry with the Poniard. The Antients parried with their Bucklers. See PARADE.

PARSON, the Incumbent of a Pariſh Church. See PARISH.

He is ſaid, by ſome, to be thus called by Way of Eminence; the Revenues of a Church being deſtined to maintain *magnam Perſonam*; or, as ſome will have it, becauſe he is bound by Virtue of his Office, *in propria Perſona ſervire Deo*, whence *imperſonare*, in old Charters, is to put in Poſſeſſion of a Parſonage, *&c.*

Or as others, becauſe the original *Parſons*, *Perſonæ*, were, in reality, only Dignitaries, and poſſeſs'd Benefices which gave them ſome *Perſonal* Pre-eminence in the Church or Chapter, but no Power. See PARSONAGE.

Or, laſtly, as others, becauſe the *Parſon*, for his Time, repreſents his Church, and ſuſtaineth the *Perſon* thereof, as well in ſuing, as being ſued in any Action touching the ſame.

Some diſtinguiſh between a *Rector* and a *Parſon*: The *Rector*, ſay they, is where the Vicaridge is endow'd; and the *Parſon*, *Perſona*, where the Parſonage is without a Vicaridge: But the Diſtinction ſeems new and ſubtle; *Bracton* apparently uſes Rector and *Parſon*, as ſynonymous. See RECTOR.

Formerly he who had a Church by Inſtitution and Induction, only for his own Life, was call'd *Parſon Mortal*: But any Collegiate, or Conventual Body, to whom the Church was for ever appropriated, was call'd *Parſon Immortal*.

Some again make a Diſtinction between *Perſona*, *Parſon*, ſimply, and *Parſon*, *Imparſonee*, *imperſonated*: The *Parſon Imperſonee* is the Rector in Poſſeſſion of a Pariſh Church, whether Preſentative or Impropriate, and with whom the Church is full. *Parſon*, *Perſona*, ſimply, they contend, is properly the Patron, or he that has the Right of Preſentation; call'd *Parſon*, by reaſon, before the *Lateran* Council, he had a Right to the Tithes, in reſpect of his Liberality, in erecting or endowing the Church, *quaſi ſuſtineret Perſonam Eccleſiæ*.

But 'tis certain, that in the *Regiſter of Writs*, *Perſona imperſonate* is uſed for the Rector of a Benefice Preſentative: And in *Dyer*, a Dean and Chapter are ſaid to be *Parſons imperſonee's* of a Benefice appropriated to them. So that *Perſonata* ſeems only chang'd into *Imperſonata*, in reſpect of the Poſſeſſion of the Benefice. See [illegible]*ke on Litt. fol.* 300.

PARSONAGE, in its Original, among us, and at this Day, in other Countries, is a Benefice which gives ſome Prerogative or Pre-eminence in a Church or Chapter, but without any Juriſdiction. See BENEFICE.

The ancient *Parſonages* gave a little Honour and Dignity as to the Perſon, but no Power: Whence, apparently, the Name, intimating the Effect of the Dignity to be reſtrain'd to the Perſon, *Perſona*, *Parſon*. Such are ſtill the Chanteries in ſeveral Churches, and the Sub-Chanteries in others.

Some as *Olrade*, *&c.* extend the Word *Parſonage* to *Dignity*, and comprehend under it the Archdeacons, Deans, *&c.* in Cathedrals; but this ſeems ſtraining the Senſe of the Word.

In effect, the Doctors uſe the Term very differently: Some applying it to all who have any Prerogative in the Choir, or the Chapter, over the other Canons, either in Options, Suffrages, Elections, or barely in Place and Proceſſion; thus confounding it with Dignity; while others apply it to ſimple Rectors, *&c.* See DIGNITY.

PART, a Portion of ſome Whole, conſidered as divided, or as diviſible. See WHOLE and DIVISION.

Quantity is diviſible into an infinite Number of *Parts*: Not equal *Parts*, but proportional ones. See DIVISIBILITY.

Philoſophy is divided into four *Parts*, *viz.* Logicks, Ethicks, Phyſicks and Metaphyſicks. See PHILOSOPHY, *&c.*

The Schoolmen uſually diſtinguiſh *Parts* into *Logical* and *Phyſical*.

A *Logical Part*, is that referring to ſome univerſal as its Whole; in which Senſe the Species are the *Parts* of a *Genus*; and Individuals, or Singulars, *Parts* of the Species. See GENUS, *&c.*

A *Phyſical Part* is that, which, tho' it enter the Compoſition of a Whole, may yet be conſider'd a-part, and under its own diſtinct Idea: And, in this Senſe, a *Continuum* is ſaid to conſiſt of *Parts*.

'Tis controverted in the Schools, whether the *Parts* of a *Continuum* or Phyſical Whole, *E. gr.* Water, do exiſt actually before the Diviſion be made, or only potentially.

Phyſical Parts, again, are of two Kinds; *Homogeneous*, and *Heterogeneous*; the firſt are thoſe of the ſame Denomination with ſome other; the ſecond of a different one. See HOMOGENEOUS, *&c.*

Parts, again, are diſtinguiſh'd into *Subject*[illegible], *Eſſential*, and *Integrant*.

A *Subjective* or *Potential Part*, is the ſa[illegible] with a *Logical* one, *viz.* that contain'd in ſome univerſal Whole, not in Act, but only in Power; as Man and Horſe are in Animal; *Peter* and *Paul* in Man.

An *eſſential Part* is that, whereby, with the Concurrence of ſome other, an eſſential Whole is conſtituted. Thus Body and Soul are eſſential *Parts* of Man.

An *integrant* or *integral Part* is that which is neceſſary to the Integrity of the Whole; as a Head is of a Man, *&c.*

In Anatomy, we divide the *Parts* of the human Body into *Containing* and *Contained*; into *Similar* and *Diſſimilar*; the *Similar*, again, into *Spermatic* and *Sanguin*, *&c.* See SIMILAR, *&c.*

They alſo call *Noble* or *Eſſential Parts*, thoſe abſolutely neceſſary to Life, as the Heart, Lungs, Liver, Brain, *&c.*

The *Natural* or *Genital Parts*, popularly call'd *Privy Parts*, are thoſe miniſtring to Generation. See GENERATION.

The fineſt Books of Phyſicians are thoſe treating of the *Uſe of the Parts*. Nature, we ſay, always diſcharges itſelf on the *weak Part*, the *diſeaſed Part*, the *Part affected*, &c.

In Chymiſtry, Bodies are ſaid to be reſolved into their *minute Parts*, their *Component Parts*, &c. See CHYMISRTY, ANALYSIS, ELEMENT, *&c.*

That Art is ſaid to ſeparate the *Homogeneous Parts* from the *Heterogeneous*; Volatile, ſubtile, ſulphureous, mercurial *&c.* *Parts*, from the fix'd, craſs, earthy, viſcid *&c.* *Parts*. See VOLATILE, FIX'D.

In *Geometry* and *Aſtronomy*, *Part* is applied to the Diviſions of Lines, and Circles: The Semi-diameter of the Circle, call'd alſo the Radius and whole Sine is divided into an hundred thouſand *Parts*; the Circumference of the Circle into 360 *Parts*, or *Degrees*; on which two Diviſions all the Celeſtial Computations are made. See DEGREE, *&c.*

Aliquot PART, is a Quantity which, being repeated any Number of Times, becomes equal to an Integer; thus 6 is an *aliquot Part* of 24; and 5 an *aliquot Part* of 30, *&c.* See ALIQUOT. See alſo a Table of *Aliquot* and *Aliquant Parts*, under the Article MULTIPLICATION.

Aliquant PART, is a Quantity which, being repeated any Number of Times becomes always either greater or leſs, than the Whole. Thus 5 is an aliquant *Part* of 17; and 9 an aliquant *Part* of 10, *&c.* See ALIQUANT.

The aliquant *Part* is reſolvable into aliquot *Parts*. Thus 15, an aliquant *Part* of 20, is reſolvable into 10 a half and 5 a fourth *Part* of the ſame. See a Table of the *aliquant Parts* of a Pound under MULTIPLICATION.

Proportional PART is a *Part* or Number agreeable and analogous to ſome other *Part* or Number; or a *Medium* to find out ſome Number or *Part* unknown by Proportion and Equality of Reaſon. See PROPORTION.

Similar PARTS are thoſe which are to one another, as their Wholes are to one another. See SIMILITUDE.

PART, in Muſic, a Piece of the Score or Partition, wrote by itſelf, for the Convenience of the Muſician; or it is one or more of the Succeſſions of Sounds which make the Harmony, wrote *a-part*. See PARTITION.

Or, the *Parts* are the Sounds made by ſeveral Perſons ſinging, or playing in Concert. See CONCERT.

Muſic in *Parts* was unknown to the Antients; they had but one *Part*; all their Harmony conſiſted in the Succeſſion of Notes; none in the Conſonance. See MUSIC and SYMPHONY.

There are four principal *Parts*; the *Treble*, *Baſs*, *Tenor*, and *Counter-tenor*. See TREBLE, BASS, TENOR, *&c.*

Some compare the four *Parts* in Muſic, to the four Elements: The *Baſs* repreſents the Earth; the *Tenor*, Water; *Counter-tenor*, Air; and the *Treble*, Fire.

PART, in Trigonometry. In a rectangular ſpherical Triangle A B C. *Tab. Trigonometry Fig.* 22. that *Part* lying between two others, conſidered as Extremes, is call'd by ſome Authors, the *middle Part*.

Thus, if A B and B C be the extreme *Parts*, the Angle B will be the *middle Part*.

If the *Parts*, conſidered as Extremes, be contiguous to the middle *Part* and one of the Extremes; thoſe are call'd *conjunct Parts*.

Thus, if B be the middle *Part*, A B and B C will be the *conjunct Parts*.

If between the Extremes, and the middle *Part*, there lie another, beſide a Right Angle; then the *Parts* are ſaid to be *ſeparate* or a-part, *E. gr.* If B be the middle Term, A C and C will be *ſeparate Parts*; becauſe, between the middle *Part* B and the extreme C, there lies the Hypothenuſe B C; and between the middle *Part* B, and the other Extreme A C, beſide the Right Angle, there lies the Leg A B. See TRIANGLE.

Thoſe *Parts*, either join'd to the middle *Part* or ſeparated from it, are call'd *Lateral Parts*.

PARTS *of Speech*, in Grammar, are all the Sorts of Words which enter the Compoſition of a Diſcourſe. See WORD and SPEECH.

The Grammarians uſually admit of eight *Parts* of Speech, *viz. Noun*, *Pronoun*, *Verb*, *Participle*, *Adverb*, *Conjunction*, *Prepoſition* and *Interjection*. *See each in its proper Place*, NOUN, PRONOUN, *&c.*

PART *of Fortune*, in judiciary Aſtrology, is the Lunar Horoſcope; or the Point wherein the Moon is, at the Time when the Sun is in the aſcending Point of the Eaſt.

The Sun in the Aſcendant is ſuppoſed to give Life; and the Moon diſpoſes the radical Moiſture, and is one of the Cauſes of Fortune. In Horoſcopes, the *Part of Fortune* is repreſented by a Circle divided by a Croſs.

PARTERRE, in Gardening, that open Part of a Garden into which we enter, coming out of the Houſe; uſually, ſet with Flowers, or divided into Beds, incompaſſed with Platbands; *&c.* See GARDEN.

The *Parterre* is a level Diviſion of Ground, which, for the moſt Part, faces the South and beſt Front of a Houſe, and is generally furniſhed with Greens, Flowers, *&c.*

There are divers Kinds of *Parterres*, as *Bowling-Green* or *plain Parterres*; *Parterres of Embroidery*; *cut in Shell*, and *Scroll-work*, &c. with Sand-Allies between them.

An oblong, or long Square is accounted the moſt proper Figure for a *Parterre*; the Sides whereof, to be as two, or two and a half to one.

PARTI, PARTIE or PARTY or PARTED in Heraldry, is applied to a Shield, or Eſcutcheon, denoting it *divided*, or marked out into *Partitions*. See SHIELD.

The *French* Heralds, from whom we borrow the Word, have but one Kind of *Parti*, the ſame with our *Parti per Pale*, which they call ſimply *Parti*; but, with us, the Word is applied to all the Sorts of Partitioning; and is never uſed without ſome Addition to ſpecify the particular one intended.

Thus we have *Parti* or *Parted per Croſs*, *per Chief*, *per Pale*, *per Feſs*, *per Bend Dexter*, *per Bend Siniſter*, *per Chevron*, &c. See QUARTERING.

The Humour of our Anceſtors, *Colombiere* obſerves, turning much upon Exploits of Arms and Chivalry; they uſed to preſerve their batter'd and hack'd Armour as honourable Symbols of their hardy Deeds; and thoſe who, had been in the hotteſt Service, were diſtinguiſh'd by the many Cuts and Bruiſes that appear'd on their Shields. To perpetuate the Memory hereof, ſays the ſame Author, they cauſed them to be painted on their Shields, and thus handed down to Poſterity. And when Heraldry grew into an Art, and Officers were appointed to direct the Manner of Bearing, and Blazoning; they gave Names to thoſe Cuts, anſwerable to the Nature thereof; appointing four, from which all the others proceed: Theſe are *Parti* (in *Engliſh*, *Parti per Pale*) *Couppe* (in *Engliſh*, *Parti per Feſſe*) *Tranche* (in *Engliſh*, *Party per Bend Dexter*) and *Taille* (in *Engliſh Party per Bend Siniſter*). See COUPE, TRANCHE, *&c.*

PARTY *per Pale*, is when the Shield has received a perpendicular Cut in the Middle, from Top to Bottom. See PALE, *&c.*

PARTY *per Feſſe* is when the Cut is a-croſs the Middle, from Side to Side. See FESSE.

PARTY *per bend Dexter*, is when the Cut falls on the upper Corner of the Shield on the right Hand, and deſcends a-thwart to the oppoſite lower Corner. See BEND.

PARTY *per bend Siniſter*, is when the Cut, falling on the upper left Corner, deſcends a-croſs to the oppoſite lower one.

From theſe four Partitions have proceeded an infinite Number of others of various and extravagant Forms.

Spelman in his Aſpilogia obſerves, that the preſent Diviſions of Eſcutcheons were unknown in the Reign of the Emperor *Theodoſius*; were brought up in the Time of *Charlemaign*, or later; little uſed among the *Engliſh* in the Days of K. *Henry* II. but more frequently under *Edw.* III.

The erect or upright Section, he obſerves, is called, in Latin, *Palaris*, from its Reſemblance to a *Palus*, or Stake; and two Coats are often entire on the Sides, the Husbands on the Right, and the Wives on the Left. The direct Section a-croſs, being in the Place of a Belt, is call'd *Baltica*, &c.

When the Shield is *Parti*, and *Coupe*, it is ſaid to be *Ecartele*. See ECARTELE.

It is ſaid to be *Parti from the one to the other*, when the whole Shield is charg'd with ſome honourable Bearing divided by the ſame Line that parts the Shield; here, 'tis a Rule, that one Side be of Metal, and the other of Colour. Thus he bears *Sable Parti d' Argent*, *Spread Eagle Parti* from one to the other.

PARTICIPATION, that which gives us a Part, or Share in any thing, either of Right or of Grace.

In *Italy* they diſtinguiſh *Participation* Officers, as Prothonataries, *&c.* which have a real Function; from *honorary* ones; which have only a Title, without any Duty or Employ.

PARTICIPLE, in Grammar, an Adjective form'd of a Verb; ſo called, becauſe it participates of ſome of the Properties of the Verb; ſtill retaining the Regimen and Signification thereof: Whence moſt Authors confound 'em with *Verbs*. See VERB.

There are two Kinds of *Participles*, the one call'd *Active*, becauſe expreſſing the Subject which makes the Action of the Verb; as *legens*, *audiens*, reading, hearing: The other call'd *Paſſive*, becauſe expreſſing the Subject that receives the Action of the Verb, as *lectum*, *auditum*, read, heard.

As our Adjectives are not declined, the *Participles*, being real Adjectives, are not declined neither: In the *Latin*, *&c.* where the Adjectives are declined, the Pronouns Active are declined likewiſe; thus they ſay *audiens*, *audientis*, *audienti*, &c. and in the *French* the Pronouns Paſſive are declinable like their other Adjectives, as *J'ay lu*, *elle a lue*, *nous avons lus*, &c.

We take this Occaſion to obſerve, that Declenſion is a Thing perfectly accidental to the ſeveral Kinds of Words, *i. e.* the changing or not changing the Termination: The *Latins*, *E. gr.* have indeclinable Nouns, as *Cornu* and *Nequam*, yet both *Latins* and *Italians* decline their Adverbs as *fortiter*, *fortiſſime*; *bene*, *beniſſimo*, &c. and ſome Nations ſcarce conjugate their Verbs at all. Indeed the *Engliſh* do it very littlein Compariſon with the *Latins*, *Greeks*, *French*, &c.

In our Language the *Participle* and Gerunds, are not at all diſtinguiſhable. See GERUND.

PARTICLE, in Phyſicks, the minute Part of a Body; of an Aſſemblage or Coalition of ſeveral whereof Natural Bodies are compos'd. See BODY.

Particle in the new Philoſophy, is frequently uſed in the ſame Senſe with *Atom* in the antient *Epicurean* Philoſophy; and *Corpuſcle* in the later. See ATOM and CORPUSCLE.

Some of the more accurate Writers, however, diſtinguiſh 'em; making *Particle* an Aſſemblage or Compoſition, of two or more primitive, and phyſically indiviſible Corpuſcles or Atoms; and *Body*, an Aſſemblage or Maſs of ſeveral *Particles* or ſecondary Corpuſcles. See ELEMENT.

Indeed, the Diſtinction is of no great Moment; and, as to moſt Purpoſes of Phyſicks, *Particle* may be underſtood as ſynonymous with *Corpuſcle*. *Particles*, then, are, as it were, the Elements of Bodies: 'Tis the various Arrangement, and Texture of theſe, with the Difference of the Coheſion, *&c.* that conſtitute the various Kinds of Bodies, *hard*, *ſoft*, *liquid*, *dry*, *heavy*, *light*, &c.

The ſmalleſt *Particles* or Corpuſcles cohere with the ſtrongeſt Attractions, and compoſe bigger *Particles* of weaker Coheſion; and many of theſe cohering compoſe bigger *Particles* whoſe Vigour is ſtill weaker; and thus on for divers Succeſſions till the Progreſſion end in the biggeſt *Particles*, whereon the Operation in Chymiſtry, and the Colours of natural Bodies depend, and which, by cohering compoſe Bodies of ſenſible Bulks. See MATTER.

The Coheſion of the Particles *of Matter*, the *Epicureans* imagined was effected by Means of hooked Atoms; the *Ariſtotelians* by Reſt, that is, by nothing at all. But Sir *Iſaac Newton* ſhews it is done by means of a certain Power whereby the *Particles* mutually attract or tend to each other. See COHESION.

By this Attraction of the *Particles* he ſhews that moſt of the *Phænomena* of the leſſer Bodies are effected; as thoſe of the heavenly Bodies are by the Attraction of Gravity.

For the Laws of this Attraction of the Particles. See ATTRACTION.

All Bodies, the ſame great Author ſhews, conſiſt of the ſame ſolid perfectly hard *Particles* or Corpuſcles.

PARTICLE, in Grammar, a little indeclinable Word, conſiſting of one or two Syllables at the moſt. See WORD, *&c.*

Thoſe alone are properly *Particles* which are not declined nor conjugated. *Brightland* calls *Particles*, *Manners of Words*, becauſe rather ſerving to expreſs the Circumſtances and Manners, of other Ideas and Objects of the Mind, than to repreſent any diſtinct Objects of their own.

Particles may be reduced under three Heads: The firſt ſhew the Manners or Qualities of Words, by being added to them; call'd *Adverbs*. See ADVERB.

The ſecond denote ſome Circumſtances of Actions and join Words to Words, Sentence to Sentence, *&c.* See CONJUNCTION.

The third expreſs the Emotions of the Soul. See INTERJECTION.

'Tis in the right Uſe of *Particles*, Mr. *Locke* obſerves, that more particularly conſiſts the Clearneſs and Beauty of a good Style. To expreſs the Dependance of his Thoughts and Reaſonings one upon another, a Man muſt have Words to ſhew what Connection, Reſtriction, Diſtinction, Oppoſition, Emphaſis, *&c.* he gives to each reſpective Part of his Diſcourſe. This cannot be rightly underſtood, without a clear View of the Poſtures, Stands, Turns, Limitations, Exceptions, and ſeveral other Thoughts of the Mind. Of theſe there are a great Variety much exceeding the Number of *Particles*, that moſt Languages have to expreſs them by; for which Reaſon it happens that moſt of theſe *Particles* have divers, and ſometimes almoſt oppoſite Significations.

Thus the *Particle But* in *Engliſh*, has ſeveral very different Significations; as in, *But* to ſay no more; where it intimates a Stop of the Mind in the Courſe it was going, before it came to the End of it. I ſaw *but* two Planets: Here it ſhews that the Mind limits the Senſe to what is expreſs'd with a Negation of all other. You pray, *but* it is not that God would bring you to the true Religion, *but* that he would confirm you in your own. The former of theſe intimates a Suppoſition in the Mind, of ſomething otherwiſe, than it ſhould be; the latter ſhews that the Mind makes a direct Oppoſition between that and what goes before. All Animals have Senſe, *but* a Dog is an Animal: Here it ſignifies the Connection of the latter Propoſition with the former.

PARTICLES is alſo a Term uſed in Theology, and particularly in the *Greek* Church, where 'tis call'd μειδας. In the *Latin* Church the Name *Particles* is given to the Crums or little Pieces of Conſecrated Bread. In the *Greek* Church they have a particular Ceremony, call'd τῶν μειδων, *of the Particles*, wherein certain Crums of Bread not conſecrated, are offer'd up in Honour of the Virgin, St. *John Baptiſt*, and ſeveral other Saints. They alſo give the Name προσφορὰ, *Oblation*, to theſe *Particles*. *Gabriel*, Archbiſhop of *Philadelphia*, has a little Treatiſe expreſs περὶ τῶν μειδων, wherein he endeavours to ſhew the Antiquity of this Ceremony, in that it is mentioned in the Liturgies of St: *Chryſoſtom*, and *Baſil*.

There has been a conſiderable Diſpute on this Head, between the Reformed and the Catholick Divines. *Aubertin* and *Blondel* explain a Paſſage in the Theory of *Germain*, Patriarch of *Conſtantinople*, where he mentions the Ceremony of the *Particles* as in uſe in his Time; in Favour of the former: Meſſieurs *de port Royale* conteſt the Explanation: But M. *Simon* in his Notes on *Gabriel* of *Philadelphia*, endeavours to ſhew, that the Paſſage is an Interpolation; not being found in the antient Copies of *Germain*: And conſequently that the Diſpute is from the Purpoſe.

PARTICLE, *out of Share*, in Aſtronomy. See PARTICULA *exſors*.

PARTICULA *exſors*, in Aſtronomy, the Difference between the Æquatorial Triangle L A C, (*Tab. Aſtronom. Fig.* 32. and its Fellow, B L Z. See EQUATION.

To find the *Particula exſors*, the Menſtrual Eccentricity A C, and the Annual Augment of Longitude H A D, being given; from the *Data* in the Triangle B C A, find the Hypothenuſe A B to the Angle C; and to the Angle C A B find C B. Multiply C B into half the Menſtrual Eccentricity A C; the Product is the Area of the Triangle A C B. Find likewiſe the Area of a Circle deſcribed by the Radius of the Eccentric B L. Then as the Area of the Circle is to 360° or 129600″; ſo is the Area of the Triangle A C B to its Value in thoſe Seconds: which Value is the *Particula exſors*.

PARTICULAR, a relative Term, referring to Species, or Individual; and oppoſed to General, or Univerſal. See GENERAL, *&c.*

In the Schools, *Particular* is defined to be ſomething included under an Univerſal; as Man under Animal. Sometimes it is taken for an Individual, as *Peter*. See INDIVIDUAL.

There is this Difference between *Particular*, and *Singular*, that *Particular* denotes a Thing taken as a *Part*; as *Peter* in reſpect of Mankind: Whereas *Singular* denotes the Part taken after the Manner of a *Whole*; as *Peter* conſidered in himſelf.

PARTICULARIST, among Polemical Divines, a Perſon who holds for Particular Grace, *i. e.* who teaches or believes that *Chriſt* died for the Elect only, and not for Mankind in general. See GRACE.

PARTIES, in Law, are thoſe who are named in a Deed, or Fine, as *Parties* to it; as thoſe that levy the Fine, and to whom the Fine is levied. See FINE.

So thoſe that make any Deed, and they to whom it is made, are called *Parties in the Deed*. See DEED.

PARTILE *Aſpect*, in Aſtrology, the moſt exact and full Aſpect that can be. See ASPECT.

PARTING, or DEPARTING, a Method of ſeparating Gold and Silver by Means of *Aqua fortis*. See GOLD and SILVER.

The Method hereof, ſee under the Articles DEPART and REFINING.

PARTITION, the Act of parting, or dividing, or diſtributing a Thing. See DIVISION and DISTRIBUTION.

The Name *Partitiones Oratoriæ*, is alſo given to a Dialogue of *Cicero*'s between him and his Son; in regard the Diſcourſe is, as it were, parted or divided betweeen 'em.

PARTITION, in Law, a dividing of Lands, deſcended by the Common-Law, or Cuſtom, among Co-heirs, where there are two at leaſt.

This *Partition* is made four Ways, whereof three are by *Agreement*, the fourth by *Compulſion*.

The firſt *Partition* by Agreement is, when they divide the Land equally themſelves into ſo many Parts as there are Coheirs; the ſecond, when each chuſes ſome of their Friends to make Diviſion for them.

The third is by drawing Lots, thus: Having firſt divided the Land into as many Parts, as there are Perſons, they write every Part ſeverally in a diſtinct Scroll, and wrapping it up, throw each into a Hat, or ſuch like Thing; out of which each one draws according to his Superiority; and ſo the Land is ſeverally allotted.

The fourth *Partition*, which is by Compulſion is, when one or more of the Heirs, by Reaſon of the Refuſal of ſome other, ſues out a Writ of *Partitione facienda*; by Force whereof they ſhall be compelled to divide.

In *Kent*, where Land is of Gavel-kind Nature, they call their *Partition*, *Shifting*.

Partition alſo may be made by Joint-Tenants in common, by Aſſent, by Deed, or by Writ.

Partition, in Muſic, the Diſpoſition of the ſeveral Parts of a Song, ſet on the ſame Leaf; ſo as upon the uppermoſt Ranges of Lines are found the *Treble*; in another the *Baſs*; in another the *Tenor*, &c. that they may be all ſung or play'd jointly or ſeparately. See Part, Music, &c.

Partition, in Architecture, that which divides or ſeparates one Room or Apartment from another.

Partition, in Heraldry. See Quartering.

PARTNER, and PARTNERSHIP. See Parcener, and Co-partner.

PARTURITION, the Act of bringing forth, or being delivered of Young. See Delivery.

PARTUS, in Medicine and Law, the *Delivery* of a Woman, or the Birth of a Child. See Delivery and Birth.

Cæſareus Partus, is that where the Mother is cut open, and the Child taken out at one Side. See Cæsareus.

PARTY or PARTIE, a Faction, Intereſt, or Power, conſidered as oppoſite to another. See Faction.

The *French*, and *Spaniards* are always of oppoſite *Parties*: *England* has, for upwards of a Century, been divided into two *Parties*. See Whig and Tory.

Party, in Law. See Partie.

Party, in the military Senſe, is uſed for a Body of Men, whether Cavalry, Infantry, or both, commanded out on any Expedition. A *Party* of Cavalry carried off a great Number of Cattle. Thoſe who go out on *Parties* ſhould have an Order in writing from the commanding Officer, and be at leaſt twenty in Number, if Foot, or fifteen, if Horſe; otherwiſe they are reputed as Brigands.

Party *Jury*, in Law. See Medietas *Linguæ*.

Party, in Heraldry. See Parti.

PARULIS, in Medicine, an Inflammation of the Gums, attended with a violent Pain, and an Apoſthume; ſometimes ending in an Ulcer, and ſometimes in a Cancer, Fiſtula, Gangrene, &c.

Sennertus orders it to be cured by Revulſion, Derivation, and proper Gargariſms. Care is to be taken in the Beginning to prevent the Apoſthume.

The Word is *Greek*, form'd of παρὰ near, and οὖλον *Gingiva*, Gum.

PASCHAL, ſomething belonging to the *Jewiſh* Paſſover, or the Chriſtian *Eaſter*. See Passover. See alſo Easter.

The *Paſchal* Lamb is a Lamb the *Jews* eat with a deal of Ceremony, in Memory of their having been brought out of Slavery in *Egypt*. It ſhou'd be eaten ſtanding, their Loins girt, the Staff in the Hand, &c.

Paschal *Rents*, are Rents or annual Duties paid by the inferior Clergy to the Biſhop, or Arch-deacon, at their *Eaſter* Viſitations: They are alſo called *Synodals*. See Synodals.

Paschal *Letter*, in Church-Hiſtory, a Circular Letter, which the Patriarch of *Alexandria*, firſt, then the Pope, anciently wrote to all the Metropolitans, to inform 'em of the Day whereon the Feaſt of *Eaſter* was to be celebrated. See Easter.

PASQUIN, a mutilated Statue, ſeen at *Rome*, in a Corner of the Palace of the *Urſines*.

It takes its Name from a Cobler of that City, called *Paſquin*, famous for his Sneers and his Gibes; and whoſe Shop was the Reſort of a Number of idle People, who diverted themſelves with bantering Folks as they paſs'd by.

After *Paſquin*'s Death, as they were digging up the Pavement before his Shop, they found a Statue of an antient Gladiator, well cut, but maim'd and half ſpoil'd. This they ſet up, in the Place where 'twas found, at the Corner of the deceas'd Maſter *Paſquin*'s Shop; and, by common Conſent, call'd it by the Name of the Defunct.

From that Time all Satires, and Lampoons are aſcribed to this Figure, are put in its Mouth, or paſted againſt it; as if they came from *Paſquin redivivus*.

Paſquin uſually addreſſes himſelf to *Marforio*, another Statue in *Rome*; or *Marforio* to *Paſquin*, whom they make reply.

The Anſwers are uſually very ſhort, poignant, and unlucky: When *Marforio* is attack'd, *Paſquin* comes to his Aſſiſtance; and *Paſquin* is aſſiſted by *Marforio* in his Turn, *i. e.* the People make the two Statues ſpeak juſt what they pleaſe. See Marforio.

PASQUINADE, or PASQUIL, is, properly, a ſatyrical Libel faſtened to the Statue of *Paſquin*. See Pasquin.

Hence, by Extenſion, the Term becomes uſed for any Satire, Lampoon, or Sneer upon the Public, or the ruling Powers.

There is this Difference between a *Paſquinade* and a *Satire*; that the End of the latter is to correct and reform; whereas that of the former is only to ſcoff and expoſe.

The *Italians* have publiſh'd ſeveral Books which they call *Paſquino in eſtaſi*.

PASS, PASSADE, in Fencing, a Leap or Advance upon the Enemy.

Of theſe there are ſeveral Kinds; as *voluntary Paſſes*, commencing from the left Foot out of Meaſure of the firm Foot; as when the Enemy is not expected. Others *neceſſary*, made after a Puſh from the right Foot; where being ſo preſs'd by the Enemy, as not to have Time to retire, you endeavour to ſeize the Guard of his Sword.

The Meaſure of the *Paſs* is, when the two Smalls of the Swords are ſo near, as that they may touch one another. There are *Paſſes, within, above, beneath, to the right, the left*, *Paſſes* under the Sword, over the Line, &c.

Pass *of Arms*, in Chivalry, a Place which the antient Knights undertook to defend, *E. gr.* a Bridge Road, &c. not to be paſſed without fighting the Perſons who kept them.

The Knights who held the *Paſs* hung up their Arms on Trees, Pales, Columns, &c. erected for the Purpoſe; ſuch as were diſpoſed to diſpute the *Paſs*, touched one of theſe Armories with his Sword; which was a Challenge the other was obliged to accept. The Vanquiſh'd gave the Victor ſuch Prize as was before agreed on.

Pass-*Port*, a Licence, or Letter from a Prince, or Governor, granting Liberty and Safe-Conduct to travel, enter, and go out of his Territories, freely and without Moleſtation.

The *Paſs-Port* is, properly, given to Friends, and the Safe-Conduct to Enemies. See Safe-Conduct.

Paſquier takes *Paſſe-Port* to be uſed for *Paſſe-par-tout*. *Balſac* mentions a very honourable *Paſs-Port* given by an Emperor to a Philoſopher; in theſe Terms: *If there be any one on Land, or on Sea, hardy enough to moleſt* Artamon; *let him conſider whether he be ſtrong enough to wage War with* Cæſar.

Pass-*Port* is alſo uſed for a Licence granted by a Prince for the importing or exporting Merchandizes, Moveables, &c. without paying the Duties.

Merchants ſometimes procure ſuch *Paſs-Ports* for certain Kinds of Commodities; and they are always given to Embaſſadors and Miniſters, for their Baggage, Equipage, &c.

Pass-*Port* is alſo a Licence obtain'd for the importing or exporting of Merchandizes deem'd Contraband, and declared ſuch by Tariffs, &c. as Gold, Silver, pretious Stones, Ammunition of War, Horſes, Corn, Wool, &c. upon paying Duties.

Pass-*Parole*, a Command given in the Head of an Army, and thence communicated to the Rear; by paſſing it from Mouth to Mouth.

Pass-*par-tout*, a Maſter-key; or Key that opens indifferently ſeveral Locks belonging to the ſame Lodge or Apartment. See Key.

Pass-*Volant*, a Fagot, or a pretended Soldier, not enroll'd, whom the Captain or Colonel makes paſs in Review, or Muſter, to ſhew that his Company is compleat, or to receive the Pay thereof to his own Profit. See Fagot, &c.

In *France* the *Paſſe-volants* are condemn'd to be mark'd on the Cheek with a *Flour-de-lis*.

PASSA, or *Paſſa Uva*, in Pharmacy, a Term applied to thoſe dried Grapes, which we call *Raiſins*. See Raisin.

Uvæ Paſſæ is ſometimes alſo uſed, with leſs Propriety, for *Figs*. See Fig.

PASSADE, or PASSADO, in Fencing, a Thruſt or Paſs. See Pass.

Passade, is alſo a Benevolence or Alms given to poor Paſſengers.

In the Manage, it ſignifies a Turn, or Courſe of a Horſe backwards and forwards on the ſame Plot of Ground.

PASSAGE, in Commerce, *Right of Paſſage* is an Impoſition which ſome Princes exact by their Officers or Farmers, in certain narrow cloſe Places of their Territories, either at Land or Sea; on all Veſſels, Vehicles, and Carriages of all Kinds; and even ſometimes on Perſons, and Paſſengers coming in or going out of Ports, &c.

The *Paſſage* of the Sound, (that famous Streight which carries us out of the *German* into the *Baltic* Sea) is the moſt celebrated *Paſſage* in *Europe*. The Rights belong to the King of *Denmark*, and are paid at *Elſenore* or *Cronembourg*.

All Nations who traffic into this Part of the North, are ſubject to this Right; the *Swedes*, indeed, were exempted from it by the Treaty of 1658, by their ſeizing the other Side of the Streight; but by the Treaty of 1720, they are excluded the Privilege; and put on the ſame Footing with their Neighbours. *Cromwell* was bent on extorting this *Paſſage* from the *Danes*; and had, doubtleſs, effected it, but that 'ere the Fleet he ſent for the Purpoſe arriv'd there, he died.

Birds of Passage, are ſuch as only come at certain Seaſons, and then diſappear again; being ſuppoſed to *paſs* the Sea to ſome other Climate. See Migration.

The Birds of Paſſage are the Stork, Swallow, Nightingale, Martin, Woodcock, Quail, &c. There are alſo *Fiſhes of Paſſage*, as Herrings, Mackerel, &c.

Mr. *Derham* produces it as a remarkable Inſtance of Inſtinct, that, — *the ſtork in the heavens knoweth her appointed times, and the turtle, and the crane, and the ſwallow obſerve the time of their coming* — Jer. viii. 7. No doubt, the Temperature of the Air, and their natural Propenſity to breed their Young, are the great Incentives to this Migration: But how theſe untaught, unthinking Creatures, ſhould ſo exactly know the beſt and only y proper Seaſons to go and come from a Place that would ob- ruct their Generation, or not afford convenient Food for them nd their Young; or how they ſhou'd know which Way to ſteer heir Courſe, and whither to go; is a difficult Conſideration. *Phyſ. Theol.* L. VII. c. 3.

PASSAGE, or *Paſſege*, in the Manage, an Action wherein the Horſe raiſes two Legs together, a hind and a fore Leg, in Form of St. *Andrew*'s Croſs; when, ſetting thoſe two on the Ground again, he raiſes the other two; and thus alternately; never gaining above a Foot of Ground at a Time.

The Beauty of the *Paſſage* conſiſts in keeping the Legs a good while in the Air; ſetting that aſide, the Motion of the Legs in the *Paſſage* is the ſame as in pacing and trotting.

PASSAGE, in Muſic, a Portion of an Air, or Tune, conſiſting of ſeveral little Notes, as Quavers, Demi-quavers, *&c.* laſting one, two, or at moſt, three Meaſures.

Thus what the *Italians* call *contra punto d'un ſol paſſo*, is a Portion in the Beginning of the Song, conſiſting of one, two, or three Meaſures, which is to be imitated in other Notes; not with the ſame Strings or Tones, but only obſerving the ſame Motion, Number, and Figure as in the Notes of the firſt *Paſſage*; which is one of the Kinds of *contra punto perfidiato.*

PASSALORHYNCHITES, a Sect of Montaniſts in the ſecond Century; who made Profeſſion of perpetual Silence, and, the better to maintain it, kept the Thumb continually on their Lips; founding their Practice on that of the *Pſalmiſt. Set a guard, O Lord, on my Mouth.* St. *Jerom* mentions his having met with ſome of 'em in his Time. See MONTANISTS.

PASSANT, in Heraldry, a Term applied to an Animal in a Shield, appearing to *walk*; or, to the ordinary Poſture of terreſtrial Animals.

Thus we ſay, he bears *Gules* two *Lions Paſſants* over one another.

In moſt Beaſts, except *Lions*, they frequently uſe *Tripping*, inſtead of *Paſſant.*

PASSION, a Term underſtood of the different Motions, and Agitations of the Soul, according to the different Objects that preſent themſelves to the Senſes. See SOUL.

In Propriety, all thoſe Motions whereby the Soul is carried towards any Thing; as Love, Ambition, Revenge, *&c.* are rather Actions than *Paſſions*; and on the contrary, thoſe Motions whereby the Soul finds itſelf interrupted in its Action, as Grief, *&c.* are the only real *Paſſions.* See ACTION.

We find various Modifications and Impreſſions of Pleaſure and Pain, inſeparably annex'd by an eſtabliſh'd Law of Nature, to the ſeveral Judgments we form concerning Good and Evil: Theſe Judgments, with their reſpective Modifications of Pleaſure or Pain annex'd, according to the various Appearances and Relations of the Object conſidered, either as good or evil, preſent or abſent, certain or uncertain, probable or improbable, poſſible or impoſſible, and affecting the Machine in a certain Manner peculiar to the Modifications; make what we call the *Paſſions.*

How, or by what Means, this mutual Action and Communication between Soul and Body is effected, we are, in a great Meaſure, ignorant: We have but very obſcure and faint Notions of any Thing prior, or more ſimple to reſolve it into; except the immediate Will and Agency of the firſt Cauſe itſelf. See COMMUNICATION, CAUSE, *&c.*

Malebranch defines the *Paſſions* to be all thoſe Emotions naturally ariſing in the Soul, on occaſion of extraordinary Motions of the animal Spirits, and the Blood: In Oppoſition to thoſe Motions of the Soul which are common to us with pure Intelligences, and which he calls *Natural Inclinations.* See NATURAL *Inclination.*

Tho' the *Paſſions* be inſeparable from Inclinations; and tho' a Man be only capable of ſenſible Love or Hatred, becauſe he is capable of ſpiritual Ones; yet does it appear juſt in that Author to diſtinguiſh between them. *Paſſions* are much ſtronger and warmer than Inclinations; their Objects are different, and ſo are their Cauſes: *Paſſions* and Inclinations differ juſt as much as Senſe and Imagination.

In Effect, the *Paſſions* of the Soul are Impreſſions of the Author of Nature, which incline us to our Bodies, and all Things that may be of Uſe to their Preſervation: Natural Inclinations are Impreſſions of the Author of Nature, which determine us primarily to love him, as our ſupreme Good.

The Philoſophers are not agreed about the Number and Diviſion of the *Paſſions*: The ordinary Diviſion is thus; the *Paſſions* of the Concupiſcible Appetite, are *Pleaſure* and *Pain*, *Deſire* and *Averſion*, *Love* and *Hatred*: Thoſe of the Iraſcible Appetite, are *Anger*, *Courage*, *Fear*, *Hope*, and *Deſpair.* See the Authors on the Subject of the Paſſions; *Des Cartes*, who conſiders them phyſically; *Coetffeteau* who gives us the *Tableau*, Pictury of the *Paſſions*; *La Chambre*, the Characters of the *Paſſions*; and *Fath-Senault*, the Uſe of the *Paſſions.*

Dr. *Cheyne* conſiders the *Paſſions* as either *Spiritual* or *Animal*: The *Spiritual Paſſions* he defines to be thoſe Sentiments produced in the Soul by external Objects, either ſpiritual Ones immediately, or material Ones, by the Mediation of the Organs of the Body.

The *animal Paſſions* he defines by thoſe Effects produced by Spirits or Bodies, immediately on the Body.

Hence as outward Objects may be conſider'd either as Goods or Evils; the moſt natural Diviſion of the *Paſſions*, whether Spiritual, or Animal, as they regard thoſe Objects, is into *Pleaſurable* and *Painful.* And in this Senſe all the *Paſſions* may be reduced to *Love* and *Hatred*; of which *Joy*, and *Sorrow*, *Hope* and *Fear*, are only ſo many Modifications, or Complexions, according to the various Appearances, Poſitions, *&c.* of the Object.

In Effect, all the *Paſſions* may not only be reduced to two, *viz. Love* and *Hatred*; but, perhaps, to one, *Love*; and even that may be all reſolved into *Self-love*; and that into a Principle of *Self-preſervation*, or neceſſary invincible Deſire of Pleaſure or Happineſs. The Reſt are only Rivulets from this Source; or ſpecial Applications of this Principle to particular Occaſions.

Thus the Deſire of any Thing under the Appearance of its Goodneſs, Suitableneſs, or Neceſſity to our Happineſs conſtitutes the *Paſſion of Love*; the Deſire of eſchewing or avoiding any Thing apprehended to be miſchievous, hurtful, or deſtructive, conſtitutes *Hatred* or *Averſion*: The Deſire of a Good, which appears at the ſame Time probable, and in our Power conſtitutes *Hope*; but if the Good appear improbable, difficult, or impoſſible, it conſtitutes *Fear* or *Deſpair*: The unexpected Gratification of *Deſire* is *Joy*: The Deſire of Happineſs to another under Pain, or Suffering, is *Compaſſion*; and the Deſire of another's Puniſhment, *Revenge* or *Malice*, &c.

The ſingle Deſire of Happineſs, then, is the Spring or Motive of all our *Paſſions*; as thoſe are of all our Actions. Some wiſe and reaſonable Motive, or End of Action, ſays Dr. *Morgan*, is certainly neceſſary to all wiſe and reaſonable Action; to act without a Motive, wou'd be the ſame Thing as not to act at all, that is, ſuch an Action cou'd anſwer no farther or better End than not acting; and conſequently the Action, as well as the Agent, wou'd be ſo far inſignificant and uſeleſs. He who ſhou'd have no Object at all of his Love or Averſion, Hope or Fear, Joy or Grief, muſt be ſimply and purely indifferent to all Action; and conſequently muſt either be in a State of perfect Reſt and Inaction, or in a State, equivalent thereto; wherein the Actions of ſuch a Being cou'd be of no more Significancy, than the uncertain Fluctuation of an Atom, or the Whivering of a Feather in the Air.

The natural, or occaſional Cauſe of all the *Paſſions*, *Malebranch* makes to be the Motion of the animal Spirits, which are diffuſed thro' the Body to produce, and preſerve a Diſpoſition therein, ſuitable to the Object perceiv'd; to the End, the Body and Mind may mutually aſſiſt each other on this Occaſion; it being the Order of the Creator, that our Wills be followed by Motions of the Body proper to execute them; and that the Motions of the Body mechanically excited in us by the View of external Objects, be accompanied with a *Paſſion* of the Soul which inclines us to will or nill what appears ſerviceable or noxious to the Body.

'Tis a continual Impreſſion of the Will of the Creator, that unites us thus intimately to a Piece of Matter, and occaſions this Reciprocation of Motions and Senſations: Were this Impreſſion of the Creator's Will ſuſpended a Moment, we ſhould be delivered from all Dependance, all *Paſſions*, *&c.* For, what People uſually imagine of a neceſſary Connection between the Motions of the Spirits and Blood, and the Emotions of the Soul, is inconceivable.

Some little Parts of the Bile, ſay they, move with ſome Violence among the Fibres of the Brain: Therefore the Soul muſt neceſſarily be agitated with ſome *Paſſion*; and this *Paſſion* be Anger, rather than Love. What Relation can we conceive between the Faults of an Enemy, a *Paſſion* of Contempt or Hatred, and a bodily Motion of the Parts of the Blood, ſtriking againſt certain Parts of the Brain? How can the Union or Alliance of two Things ſo different as Spirit or Matter be effected, but by the omnipotent Will of the Author of Nature?

'Tis a Point, about which the Divines and Philoſophers can never agree; whether this Relation and Connection of Thoughts of the Mind, and Motions of the Body, be the Gift of Nature, or the Puniſhment of the firſt Sin? And whether the *Paſſions* be the Inſtitution of Nature, or the Corruption thereof. Indeed, conſidering the good and wiſe Purpoſes the *Paſſions* ſerve, and that abſolute Neceſſity they are of; 'tis ſurprizing it ſhou'd ever be doubted, that they are eſſential to human Nature.

This Union or Relation is found in all Men; but in different Degrees, and of different Extent, according to the different Temperaments, Conditions, Ages, Sexes, Occaſions, Objects, *&c. E. gr.* Thus, our Union or Relation to ſenſible Objects we have ſeen is ſtronger than that to Things we have only heard talk of. And thus the Great have a Relation to many more Things, than others, their Slavery is more extenſive. A General, *E. gr.* retains or has a Relation to all his Soldiers, as they all reſpect him; and 'tis this Slavery that uſually

ſually occaſions his Generoſity: The Deſire of being eſteem'd by all in whoſe Sight he is frequently, obliges him to ſacrifice more reaſonable Pleaſures.

'Tis thus throughout the World: Vanity animates Virtue, otherwiſe we ſhould never have ſuch Lengths gone. Again, Children don't mind the ſame Things with grown People. Women look no farther than their Families and Neighbourhood: But Men retain to their whole Country; 'tis for them to defend it; they mind Honours, Offices, *&c.* Nor is there a leſs Variety reſulting from the different Circumſtances and Employments of People.

The Diſpoſition of Mind in a married Man differs much from that of a Batchelor. The People in Monaſteries have both the Mind and Heart turn'd very differently from People who live in the World. They are united to much fewer Things; but then the Attachment is much cloſer and ſtronger. Their *Paſſions* move in a little Sphere; and like the Sun's Rays, in a convex Lens, are aſſembled, as it were, in a *Focus*.

In every *Paſſion* there may ſeven Things be diſtinguiſh'd: The *firſt*, the Judgement the Mind makes of an Object; or the View of the Relation the Objects bears to us. The *ſecond*, a new Determination of the Motion of the Will towards that Object; ſuppoſing it to appear a good. The *third*, the peculiar Senſations or Modifications which accompany them; as the Senſation of Love, Hatred, Deſire, or Joy; which Senſations are always different in the different Paſſions, and, as it were, the Characteriſticks thereof. The *fourth*, a new Determination of the Courſe of the Blood and Spirits, towards the ſeveral Parts of the Body: Before the Sight of the Object of the *Paſſion*, the animal Spirits were pretty equally diffuſed throughout the Body; but the Preſence of the new Object diſturbs the whole Œconomy; and the greateſt Part of the Spirits are ſent into the Muſcles of the Arms, Legs, Face, *&c.* The *fifth* is the ſenſible Emotion of the Soul, which finds itſelf ſhaken by this ſudden Over-flowing of Spirits. The *ſixth*, is the different Senſations of Love, Hatred, *&c.* caus'd, not by the intellectual View of Good or Evil, but by the different Shakes or Pulſes, the animal Spirits occaſion in the Brain. The laſt is a certain Senſation of Joy, or inward Satisfaction, which detains the Soul in its *Paſſion*, and atteſts its being in the State it ought to be with Regard to that Object.

Passions, in a View to Medicine, make one of the ſix *Non-naturals*, of the utmoſt Conſequence, with reſpect to Health or Diſeaſe. See Non-natural.

In Conſequence of the ſeveral Judgements we form concerning Objects, as either Good or Evil, the Organs of Senſation and Motion, *viz.* the *nervous Fibres*, are variouſly impreſs'd or ſtimulated; whence ariſe certain Senſations, and certain Modifications of Motion, which, 'tis apparent, are reciprocal, and follow mutually from each other, whether the Impreſſion be ſuppoſed firſt made on the Body, or on the Mind: that is, any ſtrong violent Motion made on the Organs, will excite a painful Senſation in the Mind; or any ſuch painful Senſation firſt excited in the Mind from the bare Conſideration of an Object will impreſs a violent Motion on the Organs. And, on the contrary, an eaſy and placid Undulation, impreſs'd originally by the actual Impulſe of Objects, will excite a pleaſurable Senſation in the Mind; or a pleaſurable Senſation excited in the Mind, from the mere Contemplation of an Object, will be follow'd with a like eaſy, placid Undulation of the Organs.

The painful *Paſſions*, then, as well as bodily Pain, impreſs the nervous Fibres with a violent Motion which brings 'em alternately into forcible Contractions, and Dilatations, or ſtrengthens and increaſes their muſcular Force, and Action. While then this Pain or Uneaſineſs of Deſire, annex'd to the Paſſions, and impreſs'd on the Nerves, is moderate and reſtrain'd within the Bounds of Nature; Such ſtimulating Deſires have a good Effect; as they ſtrengthen muſcular Motion, keep up the Circulation of the Blood, promote the natural Secretions, and excite a Man to ſuch Actions and Exerciſes, wherein animal Life, Health, and Vigour conſiſt. But where the Uneaſineſs annex'd to the Paſſion is too violent, ſuch a continual *Stimulus* will gradually derive a too great Proportion of Blood to the ſtimulated Organs, by which the Veſſels will be over-ſtretch'd, and diſtended, their muſcular Force gradually impair'd, and the *Equilibrium* of the Blood and Juices be interrupted. And hence, from a mere painful Senſation, will ariſe a complicated Train of bodily Illneſſes and Pains, in Conſequence of the eſtabliſh'd Laws of the Union and Communication of Soul and Body.

Again, while we are wearing off the Uneaſineſs of Deſire, annex'd to any *Paſſion*, we feel a ſenſible Pleaſure, or agreeable Emotion; and the Organs, hereupon falling into eaſy, uniform, placid Undulations, the too great Current of the Blood toward them is diverted, and the *Equilibrium* reſtored. As ſoon as the Uneaſineſs is all gone, the Pleaſure ceaſes, and terminates in meer Indolence, which diſpoſes the Perſon to Reſt and Inaction; till the Return of ſome freſh Deſire, ſtimulating to farther Action, renew the ſame Succeſſion, and interchangeable Series of Pains and Pleaſure.

And this is the Circle of animal Life: as the *Stimulus* of Deſire throws off the Indolence of Reſt, and excites to Action; So the Gratification moderates the Pain of Deſire, creates a Pleaſure at firſt, and then terminates in the former Indolence and Inaction; till freſh Deſires returning, ſtimulate to farther Action, and continue the ſame *Round*.

Dr. *Cheyne* divides the Paſſion, into *Acute* and *Chronical*; after the ſame Manner, and for the ſame Reaſon as Diſeaſes are ſo divided.

The *Acute Paſſions*, whether pleaſureable or painful, he obſerves, have much the ſame Effect, and operate after the ſame Manner as *Acute Diſeaſes* do. They effect a briſk Circulation of the Fluids, and conſtringe the Solids for ſome ſhort Time. Thus, ſudden guſts of Joy or Grief ſtimulate the Nervous Fibres, and the Coats of the Animal Tubes, and thereby give a greater Celerity to their included Fluids; and the Functions of the Heart and Lungs being involuntary, they have their more neceſſary and immediate Effects on them. Thus, both ſudden Joy and Grief make us Breath ſhort and quick, and render the Pulſe ſmall and frequent. Tho' retaining our Breath ſomtime to reflect more intenſely on any painful Object, forces at length a ſtrong Expiration, which becomes a *Sigh*. Thus a ſudden painful Idea, making a quick Circulation, and thereby throwing a great quantity of Blood upward, makes it appear in the ſuperficial Veſſels of the Face, Neck, and Breaſt, and ſo produces a *Bluſh*. The ſame Principles will account for the effects of Fear and Anger, which make us change Colour, and look *Red* or *Pale* as the Blood is accelerated or retarded in its Courſe. Sudden, and great Fear do ſo convulſe the Nervous Syſtem, that they ſometimes alter the Poſition of the Parts: Thus the Hair ſhall ſtand an end in a Fright, and the Nerves be render'd ſo ſtiff and rigid, as to ſtop at once the Animal Functions, whence Fainting, and ſometimes Death.

Chronical Paſſions, waſte the Nervous Syſtem gradually. Thoſe Nerves employ'd in conſidering, brooding over, and fixing ſuch a Set of Ideas in the Imagination, muſt be worn out and impair'd; and the reſt, by diſuſe, render'd reſty and unactive, lifeleſs and deſtitute of a ſufficient Flux of warm Blood and due Nouriſhment. Thus does long Grief, dark Melancholly, hopeleſs Love, over Weening, Pride, *&c.* impair the Habit; and ſometimes when long indulged, terminate in Madneſs; the Reaſon is, that a conſtant Habit of fixing one Thing in the Imagination, begets a ready Diſpoſition in the Nerves, to produce again the ſame Image, till the Thought of it become Spontaneous and Natural, like Breathing, or the Motion of the Heart. Thus the *Faquirs* in *India* fix one or both Hands by long holding 'em up, ſo as that they cannot bring them down again. *Eſſay of Health*, *&c.*

But Dr. *Morgan* ſeems to have gone almoſt beyond any Body in explaining the Orgin, and effects of the Paſſions.

From a Courſe of actual Obſervations of the ſeveral *Phænomena* in the Body, which attend the ſeveral *Paſſions*, *viz.* The State of the Pulſe, Reſpiration, Warmth, Digeſtion, *&c.* that ingenious Author theſe general Concluſions:

I. That all the grateful, or pleaſurable *Paſſions* raiſe the vital Tide, ſtrengthen and quicken the Pulſe, diffuſe the natural Heat, and take off any antecedent *Stimulus*, or Preſſure upon the Abdomen and inferior Organs: And, on the contrary, the painful *Paſſions* ſink and depreſs the Blood, weaken the Pulſe, recall and concenter the natural Heat, and fix a *Stimulus* or Compreſſion on the inferior Organs.

II. All the *Paſſions* impreſs their characteriſtick Senſations, or Modifications of Pleaſure and Pain, eſpecially upon the *Oeſophagus*, and upper Orifice of the Stomach.

III. That they impreſs their different Modifications on the Muſcles of the Larynx, and thus diſcover themſelves by the different Modulation and Tone of the Voice.

And hence he infers, that the Nerves of the eighth Conjugation, or *Par Vagum*, are the principal Inſtruments of the *Paſſions*; by means whereof, they are variouſly impreſs'd, modified, and organized: Theſe, therefore, which are diſperſed to all Parts of the Breaſt and Abdomen, particularly the Heart, Lungs, Stomach, Liver, *Oeſophagus*, Diaphragm, Inteſtines, the Organs of Generation, *&c.* he conſiders as *Patheticks of the firſt Order*; the *Intercoſtal*, which accompanies all the Diviſions of the *Par Vagum*, he calls *Patheticks of the ſecond Order*: The Nerves which ſerve the Muſcles employ'd in Reſpiration, and have the neareſt Communication with thoſe of the *Par Vagum*, by means of the Intercoſtal, he calls *Patheticks of the third Order*; and, the Nerves which immediately diſpenſe Senſe and Motion to the ſeveral Parts of the Head, and have a remoter Communication with the *Par Vagum*, the *Patheticks of the fourth Order*. See Nerve.

According to this Gradation, then, the Organs which are immediately ſupplied with Nerves from the *Par Vagum*, or *Patheticks of the firſt Order* will be firſt affected in the *Paſſions*, and with the ſmalleſt Degree of impreſs'd Motion, with which the Parts communicating immediately with the intercoſtal, or *ſecond Order of Patheticks*, keep Pace and are affected almoſt at the ſame Time, and with the ſame Motion: Then the Organs ſupplied with the *third Order of Patheticks*, or the Nerves employ'd in the Muſcles of Reſpiration, are affected. And laſtly, the Organs of Senſe and Motion in the Brain itſelf, by which Senſation and Imagination are performed, are put in a forcible Emotion; by which the ordinary Operations of Senſe, Judgement, &c. are much diſturbed.

This gradual Riſe and Progreſs of the *Paſſions* is confirm'd by Fact; Obſervation and Experience; but how they are generated, and by what Steps they make theſe Advances, requires ſome farther Conſideration.

It may be obſerv'd, then, that the Quantity of Motion impreſs'd on the pathetic Nerves in any *Paſſion*, is always proportional to the Strength of the Deſire; but ſuch impreſs'd Motion is not always uniform or equably diffuſed thro' the whole pathetic Syſtem; for as the largeſt and moſt numerous Branches of the Pathetick Nerves are ſpent on thoſe Parts which derive their Blood from the deſcending Trunk of the *Aorta*, *viz.* the Stomach, Spleen, Kidneys, &c. upon any Motion too forcibly impreſs'd or too long continued, theſe inferior Organs are the firſt and greateſt Sufferers; whence the Blood flowing impetuouſly and irregularly to the Parts thus ſtimulated, they become over-ſtretch'd; and hence a Senſe of Pain, Weight and Oppreſſion.

By this means the Head and ſuperior Parts being deprived of their due Share of Blood, the Pulſe muſt ſink, the natural Heat diminiſh and retire, and a Senſe of Cold and Conſtriction be felt about the *Oeſophagus*, where the Branches of the *Par Vagum* are very numerous: And hence the Patient will be excited to ſigh, groan, moan, cry out, and complain, and diſcover in the Tone of the Voice, and Modulation of the Muſcles of the Larynx, the Characteriſticks of the prevailing *Paſſion*.

Such is the State of Nature under the painful *Paſſions*, where the ſtrong Deſire of Good is attended with an Appearance of Difficulty, or Improbability: where the ſame Deſire is attended with a ſeeming Probability of obtaining, or effecting; this Appearance, by moderating the Intenſeneſs of the Pain of the Deſire, and taking off the too violent Action of the pathetic Nerves on the inferior Organs, puts the pathetic Syſtem in an eaſy, natural, uniform Undulation; by which the *Equilibrium* of the Blood being reſtored, the pleaſurable *Paſſions* of Love, Joy, Hope, &c. will be rais'd: And in this Caſe the Pulſe will riſe, and the natural Heat be diffuſed, and by the Action of the Pathetic Nerves on their proper Organs the ſeveral Symptoms be produced which diſcover their placid Emotions. Where the Deſire is very Keen, and Intenſe, we ſee what a prodigious Force it will impreſs on the Nerves, by the Actions of Mad-men, and Men in a Fright. In this Caſe, the Stimulus of Deſire being exceeding ſtrong, and the impreſſed Motion univerſal; the pathetic Nerves of the fourth or laſt Order come to be affected; that is, the Organs of Senſation and Imagination in the Brain are brought into ſuch violent Vibrations, as to diſturb the Operations of Reaſon.

And from this violent Perturbation of the pathetic Nerves in the Brain, Mad-men have their Imagination as ſtrong and vivid as Senſation itſelf. See IMAGINATION.

Hence, alſo, we may obſerve the Heights, or Extremes of the two contrary painful and pleaſureable *Paſſions*; the one riſing at length into a Mania or raving Madneſs, and the other ſinking into a hypocondriacal Melancholy. The principal Seat of the one is the Brain; and of the other, the Viſcera of the Abdomen, eſpecially the Spleen and Meſentery. The one inflames and over-heats, the other chills and freezes the Imagination: The one hangs over the Underſtanding like a glaring, dazling Light, which animates and leads us on with Zeal and Vehemence; the other like a thick, black, and diſmal Cloud, that ſinks all the Powers of Nature unto the Depths of Miſery and Diſpair. See MANIA and MELANCHOLLY.

PASSIONS in Poetry, the *paſſionate* Sentiments, Geſtures, Actions, &c. which the Poet gives his Perſons.

The *Paſſions* are, as it were, the Life and Spirit of the longer Poems. Their Neceſſity in Tragedy and Comedy is obvious; nor can the *Epopea* ſubſiſt without 'em. See TRAGEDY, COMEDY, &c.

'Tis not enough, the Epic Narration be ſurprizing; it muſt likewiſe be moving, and paſſionate; hurrying away the Reader's Mind, and filling it with Anxiety, Joy, Terror, or ſome other violent *Paſſion*, and this for Subjects it knows are feign'd. See NARRATION.

Tho' *Paſſions* be always neceſſary, yet, all are not equally neceſſary, or ſuitable to all. Comedy has Joy, and agreeable Surprizes for its part: Tragedy on the contrary, has Terror, and Compaſſion. The proper *Paſſion* of the Epopea is Admiration; tho' the Epopea, as a Medium between the two others, takes in both their Kinds of *Paſſions*; as we ſee in the Griefs of the fourth Book of the *Æneid*, and the Games and Diverſions of the fifth. Admiration in effect, is conſiſtent with each, we admire with Joy the Things that ſurprize us agreeably, and with Terror and Grief thoſe that amaze and afflict us.

Beſides the general *Paſſion*, which diſtinguiſhes the Epic from Dramatic Poems; each Epopea has its peculiar *Paſſion*, which diſtinguiſhes it from other Epic Poems. This peculiar *Paſſion* ſtill follows the Character of the Hero. Thus Wrath and Terror reign in the Iliad, becauſe *Achilles* is wrathful, and πάντων ἐκπαγλότατ᾽ ἀνδρῶν the moſt terrible of Men. The *Æneid* is all in the tender, ſofter *Paſſions*; ſuch being the Character of *Eneas*. The Prudence of *Ulyſſes*, not allowing theſe Exceſſes, we find none of 'em reign in the Odyſſee.

As to the conducting of the Paſſions, to make 'em have their Effect, there are two Things required, *viz.* that the Audience be prepared or diſpoſed to receive 'em; and that ſeveral incompatible *Paſſions* be not mix'd together.

The Neceſſity of diſpoſing the Audience, is founded on the natural Neceſſity of taking up Things where they are, in order to remove 'em elſewhere. The Application of this Maxim is eaſy; a Man is calm, and at Eaſe, and you wou'd put him in a *Paſſion* by a Diſcourſe made on purpoſe. You muſt begin, then, in a calm Manner; by this Means you join your ſelf to him; and afterwards, walking together, he wont fail to follow you in all the *Paſſions* to which you lead him inſenſibly.

If you ſhew your Anger at firſt, you'll be as ridiculous, and will have as little Effect, as *Ajax* in the Metamorphoſes; in whom the ingenious *Ovid* gives a fine Example of this failing. He begins his Harangue in the Height of *Paſſion*, and with the moſt violent Figures, before his Judges, in the deepeſt Tranquillity.

—————————— *Sigeia torvo,*
Littora proſpexit, claſſemque in Littore, vultu;
Protendenſq manus, Agimus proh Jupiter! inquit
Ante rates cauſam, & mecum confertur Ulyſſes.

The neceſſary Diſpoſitions ariſe from ſome preceeding Diſcourſe; or, at leaſt from ſome Action, which has already begun to raiſe the *Paſſions* 'ere they are mention'd. The Orators themſelves, ſometimes uſe this laſt Means: For tho', ordinarily, they don't raiſe the *Paſſions* till the End of their Diſcourſe; yet, when they find their Audience already moved, 'twou'd be ridiculous in 'em, by an unſeaſonable Tranquillity, to lay 'em again.

Thus, the laſt time *Catiline* came to the Senate, the Fathers were ſo ſhock'd at his Preſence, that thoſe near the Place where he ſat down, roſe up, retired, and left him alone. On this Occaſion, *Cicero* had too much Senſe to begin his Oration with the uſual Tranquillity and Coolneſs of Exordiums. By this Means he'd have palled and abated the Indignation of the Senators againſt *Catiline*; which it was his Buſineſs to ſpirit up, and inflame; and wou'd have eas'd the Parricide of that Conſternation, the Behaviour of the Senators had given him; and which it was his Deſign to aggravate. Omitting therefore, the firſt Part of his Oration, he takes his Auditors in the Condition he finds 'em; continues and augments their Paſſions. *Quouſque tandem abutere*, Catilina, *patientia noſtra? Quamdiu nos etiam furor iſte tuus eludet? Quem ad finem ſeſè effrenata jactabit audacia? Nihilnete nocturnum præſidium palatii, nihil urbis Vigiliæ, nihil timor populi, nihil*, &c.

The Poets are full of Inſtances of this Kind; where the *Paſſion* is prepar'd or kept up by Actions. *Dido* in *Virgil* begins a Diſcourſe like *Ajax*: *proh* Jupiter! *ibit hic, ait*, &c. But then the Motions are here well diſpoſed; *Dido* is before repreſented under terrible apprehenſions of *Æneas*'s quitting her, &c.

Seneca's Conduct, indeed, is quite oppoſite to this Rule. If he has a *Paſſion* to raiſe, he is ſure firſt to take from his Audience any Diſpoſition they might have to be affected. If they be in Grief, Fear, or the Expectation of ſomething horrible, &c. He'll begin with ſome fine Deſcription of the Place, &c. In the *Troades*, *Hecuba* and *Andromache*, being prepared to hear the violent and barbarous Death of their Son *Aſtyanax*, whom the *Greeks* precipitated from the Top of a Tower; what booted it to tell them, that of the Spectators who crouded from all Quarters to ſee the Execution, ſome placed themſelves on Stones, which the Ruins of the Walls occaſion'd to Project; that others ſhook their Legs, as being placed too high, &c. *Alta Rupes, cujus é Cacumine erecta ſummos turba libravit pedes.* &c.

The ſecond Thing required in the Management of the Paſſions, is, that they be found pure and diſengaged from any Thing that might prevent their Effect.

Polymythy, therefore, *i. e.* a Multiplicity of Fables, Actions, or Hiſtories, muſt be avoided: All Adventures much broken, and hard to be retain'd; and all Intrigues intricate and difficult to conceive, are at once excluded. Theſe embarraſs the Mind, and require ſo much Attention, that there is none to ſpare for the *Paſſions*. The Soul muſt be free and diſengaged to feel; and we divert our ſelves even from our real Sorrows, by an Application to other Things.

But of all others, the greateſt Enemies to the *Paſſions*, are the *Paſſions* them ſelves: They oppoſe and deſtroy one another; and if two oppoſite ones *E. gr.* Joy and Sorrow meet in the ſame Object; they will neither of 'em ſtand it. 'Tis the Nature of theſe Habitudes that impoſes this Law: The Blood and Spirits cannot move gently and equally, as in a State of Tranquillity, and at the ſame Time be ſtopp'd, and ſuſpended with ſome Violence, occaſioned by Admiration. Nor can they be in either of thoſe Situations, while Fear calls 'em from the outer Parts of the Body, to aſſemble 'em about the Heart; or Rage ſends 'em into the Muſcles, and makes 'em act there with Violences very oppoſite to the Operations of Fear.

The Cauſes and Effects, therefore, of the Paſſions in the Soul, are to be ſtudied, to be able to manage 'em with all their Force. *Virgil* furniſhes two Examples, of what we have ſaid about the Simplicity and Diſengagement of each Paſſion, in the Deaths of *Camilla* and *Pallas*. See the Æneid.

PASSION in Heraldry, or the *Croſs of Paſſion*, a Croſs thus called, becauſe, in Shape of that wherein our Saviour ſuffer'd, *i. e.* not croſs'd in the Middle, but nearer the Top; with Arms ſhort in proprotion to the Length of the Shaft. See Cross.

PASSION-WEEK, the Week next preceeding *Eaſter*. See Easter.

It is thus call'd from our Saviour's *Paſſion*, *i. e.* his Crucifixion, which happen'd on the *Friday* of this Week, now call'd *Good-Friday*.

Iliac PASSION. See Iliac *Paſſion*.

PASSIVE, a term of Relation, implying a Thing to ſuffer, or undergo the Action of ſome other; which in reſpect hereof is denominated *Active*. See Active.

In all Generations, the School Philoſophers conceive an active Power and a *Paſſive*. See Power.

In civil Life, we ſay ſuch a Perſon in ſuch an Election, has both an active Voice, and a *Paſſive*, i. e. he is both capable of Electing and being Elected. See Voice.

Some alſo uſe the term *Paſſive Debt*, for a Debt which we owe another; in contradiſtinction to an Active Debt, which is owing us. See Debt.

The Chymiſts divide their Principles or Elements into Active and *Paſſive*. The *Paſſive* are ſuch as have no active Force inherent in themſelves; and only act by being join'd with ſome of the other. See Principle.

Such are Phlegm, and Earth; ſome ſay alſo, Salt, and, in effect, all but Sulphur, or Fire, which they will have the only principle of Action and Motion in the Univerſe. See Earth, Sulphur, Fire, &c.

Paſſive Prayer, in the Language of the Myſtick Divines, is a total Suſpenſion or Ligature of the intellectual Faculties, in virtue whereof the Soul remains, of it ſelf and its own Power, impotent as to the producing of any Effects. The *Paſſive* State, ſays, *Fenelon*, is only *Paſſive* in the ſame Senſe as Contemplation is ſo, *i. e.* It does not exclude peaceable, diſintereſted Acts, but only unquiet ones, or ſuch as tend to our own Intereſt. In the *Paſſive* State, the Soul has not properly any Activity, any Situation of its own: 'Tis a mere infinite flexibility of the Soul, which the feebleſt impulſe of Grace gives Motion to. *Id.*

Passive in Grammar, is a ſecond Voice, or Inflexion of Verbs; which of Active become *Paſſive*, by aſſuming, in the modern Languages, new auxiliary Verbs; in the Ancient, by new Terminations. See Verb, Voice, &c.

The *Engliſh* Verbs become *Paſſive*, by taking the auxiliary Verb *I am*, in lieu of *I have*, wherewith the Active are conjugated: The *French* by *Je ſuis*, in lieu of *J'ay*; the *Italian*, by *Jo ſo*, for *Jo ho*, &c.

The *Latin* Verbs become *Paſſive*, by changing their Terminations; as *Amor* for *Amo*, &c. *Amari* for *Amare*, &c.

The *Engliſh Verbs Paſſive* are nothing elſe, in effect, but the Verb *I am*, in all its Inflections join'd to the Participle *Paſive*; as, *I am prais'd*; in Latin *laudor*, in French *Je ſuis loué*; I have been prais'd, *J'ay été loué*, *laudatus ſum*, &c.

Neuter PASSIVE, is a Verb that has a *Paſſive* Conjugation, but a Neuter Signification. See Neuter.

Of theſe, there are a very ſmall Number in *Latin*, more in *French*, fewer in *Engliſh*: As, I am enter'd, *ingreſſus ſum*, *je ſuis entré*, &c. But Grammarians are frequently Miſtaken here; taking Verbs for Neuters-*Paſſives*, which in effect are Actives, and only differ in that they act on themſelves, by adding the Pronoun Perſonal; and which on that footing ſhou'd rather be Neuters-Active, than Neuters-*Paſſive*.

Some admit of no genuine *Paſſive* Verbs in the modern Tongues; ſuch we mean as anſwer to the Notion of *Paſſives* in the Ancient, where all is done by different Terminations. On which footing, there ſhou'd be none but Actives *Paſſive* and Neuters *Paſſive*.

PASSOVER, a ſolemn Feaſt, celebrated among the *Jews*, on the fourteenth Day of the Moon next after the vernal Equinox. See Feast.

This Feaſt was call'd by the Ancient *Latins* and *Greeks* *Paſcha*; not from πάσχω I ſuffer, as *Lactantius* weakly imagines; but from the *Hebrew* פסח Peſahh, Paſſage, Leap; the Deſign of the Feaſt being to commemorate the deſtroying Angels *paſſing over* the Houſes of the *Iſraelites*, when he enter'd in, and deſtroy'd the firſt born in thoſe of the *Egyptians*.

Yet, many weakly imagine that it was in Memory of their *paſſing* the Red Sea, that this *Paſſover* was inſtituted; tho' 'tis certain the Feaſt was held, and had its Name before the *Iſralites* took a Step of their Way out of *Egypt*; and conſequently ſeveral Days before their paſſing the Red Sea.

Beſide the *Paſſover* celebrated on the fourteenth of the firſt Month; there was a ſecond *Paſſover* held on the fourteenth of the ſecond Month after the Equinox, inſtituted by God in favour of Travellers and Sick Perſons who cou'd not attend at the firſt; nor be at *Jeruſalem* on the Day.

The *Greeks*, and even ſome of the Catholic Doctors, from the XVIII Chapter of St. *John*, take occaſion to conclude that *Jeſus* anticipated the Day mark'd for the *Paſſover* in the Law; but the Authority of three Evangeliſts ſeems to evince the contrary.

F. Lamy, is of Opinion, he did not attend at the *Paſſover* the laſt Year of his Life; which Sentiment has drawn upon him Abundance of Oppoſers.

F. Hardouin maintains, that the *Galileans* celebrated the *Paſſover* on one Day, and the *Jews* on another. See Samaritan.

PAST-BOARD, a kind of thick Paper, form'd of ſeveral Sheets paſted together. See Paper.

There is alſo a coarſe kind of *Paſt-board*, made of old Paper and old *Paſt-board*, beaten in a Mortar with Water, and reduced into a kind of Pulp; to which is added a little Paſte, to give the Maſs a Conſiſtence; after which it is form'd in a Mould; and to finiſh it, laid in a Preſs, to ſqueeze out all the Water, and reduce it to its proper Thickneſs.

Each Kind is diſtinguiſh'd by Numero's, which expreſs its Fineneſs and Value: The fineſt is cover'd on both Sides with a very white ſmooth Paper, others only on one Side; and others on both Sides with common Paper.

The chief Uſe of *Paſt-board* is in the Binding of Books, Letter-Caſes, Hat-Caſes, Gloves, &c. See Book-Binding.

PASTE, in Cookery, a ſoft Compoſition of Flower, wrought up with proper Fluids, as Water, Milk, or the like, to ſerve as a Caſe or Coffin, therein to bake Meats, Fruits, &c.

Paſte, is the Baſis, or Foundation of Pyes, Tarts, Patties, Paſties, and other Works of Paſtry. See Pastry, &c.

Paste, is alſo us'd in Confectionry, &c. for a Preparation of ſome Fruit, made by beating the Pulp thereof, with ſome Fluid or other admixture, into a ſoft pappy Conſiſtence, ſpreading it into a Diſh, and drying it with Sugar, till it become as plyable as an ordinary Paſte. See Confect.

It is us'd occaſionally for making the Cruſts, and Bottoms of Pyes, &c.

Thus they make Almond Paſtes, Apple *Paſtes*, Apricock *Paſtes*, Cherry, Curran, Lemon, Plum, Peach, Pear *Paſtes*.

Paste, is alſo us'd for a Preparation of Wheaten Flower, boil'd up, and incorporated with Water; us'd by various Artificers, as Upholſterers, Sadlers, Bookbinders, &c. inſtead of Glue or Size, to faſten or cement their Cloths, Leathers, Papers, &c.

PASTERN of a Horſe, the Diſtance between the Joint next the Foot, and the *Coronet* of the Hoof.

This Part ſhould be ſhort, eſpecially in middle ſiz'd Horſes; becauſe long *Paſterns* are weak, and cannot ſo well endure Travel.

The *Paſtern*-Joint, after travelling, is apt to be crowned, *i. e.* to have a Swelling round it beneath the Skin, in form of a Circle ½ an Inch broad.

PASTIL, among Painters, &c. a Sort of Paſte, made of ſeveral Colours, ground up with Gum-Water, either together or ſeparately; in order to make Crayons to paint with on Paper or Parchment. See Crayon.

Pastil, is alſo us'd for a dry Compoſition, yielding a fragrant Smell when burnt in a perfuming Pan, to clear and ſcent the Air of a Chamber.

It is compoſed of odorous Reſins, mixt with Aromatic Woods, or Drugs pulveriz'd, and incorporated with Mucilages of Gum Tragacanth.

Some call 'em *Oſſelets of Cyprus*.

There are alſo *Paſtils* for the Mouth, eaten to procure a ſweat Breath.

Theſe have ſeveral Names, and conſiſt of ſeveral Preparations, as Muſcadines, Conſerves, &c.

Pastil, is ſometimes alſo us'd for the Plant otherwiſe call'd Woad or Glaſs-wort. See Woad.

Pastil in Confectionry, is a Preparation of Sugar with Lemon-Water, &c, boil'd up with Gum-Water, ſtrain'd, beat up, and by the Addition of more dry Sugar, work'd into a plyable Paſte, and thus form'd into round or oblong Figures, and dry'd in the Stove.

PASTINATION, a Term ſometimes us'd in Agriculture, for the Act of opening, looſening, and preparing the Earth for planting. See Earth and Planting.

PASTORAL, ſomething that relates to Shepherds, *Paſtores*. The Poets repreſent the *paſtoral* Life, and *paſtoral* Manners in the moſt agreeable Light. We muſt not imagine 'em ſo agreeable in Nature as in their Deſcriptions.

Pastoral, in Poetry, a poetical Piece, the Subject whereof is ſomething in the *Paſtoral*, at leaſt the rural Life, and the Perſons Shepherds, at leaſt Ruſticks. See Poem.

Moſt Authors, except the *Engliſh*, eſteem *Paſtoral* of the Dramatic Kind; and define it a Dramatic Piece, the Perſons whereof are clad like Nymphs and Shepherds, and act their own Amours.

The Scene is always in the Fields or the Woods; whence *Taſſo* calls Paſtoral, *Fable Bocagere.*

Such are the *Paſtor Fido* of *Guarini*, the *Aminta* of *Taſſo*, the *Sylvia* of *Maizet* the *French* Poet; the *Comus* of *Milton*, *&c.*

Taſſo aſſumes to himſelf the Honour of having invented *Paſtoral*; but the firſt Idea of this kind of *Drama* ſeems to be *Beccari*'s Due, who made the firſt Attempt of this Kind in 1552. But *Taſſo's Aminto*, which did not appear till the Year 1573, effacing what had been done by *Beccari*; the firſt Author was forgot, and *Taſſo* left the Inventor.

'Tis certain this Kind of *Paſtoral* Fable, compoſed according to the Rules of the Stage, was unknown among the Ancients. The *Greeks* and *Latins* have indeed introduced Shepherds in their Eclogues; but theſe Eclogues had nothing Theatrical in 'em; nor were the Shepherds ever brought upon the Stage. See ECLOGUE.

This Kind of Dramatic *Paſtoral* is ſtill but little known among us; nor have we any Thing conſiderable under the Title of *Paſtorals*, but Country-pieces after the manner of the Eclogues or Idyllions of the Ancients. See IDYLLION.

Every *Paſtoral*, however, even in this laſt View, ſhou'd have a little Plot, or Fable, which may deſerve the Title of a *Paſtoral Scene.* It muſt be Simple, and but one; yet, not ſo as to refuſe all Digreſſions, provided they be but ſmall. This Rule of the Plot is every where obſerv'd by *Virgil.*

PASTORAL-STAFF. See CROSIER.

PASTRY, the Branch of Cookery, which teaches the Preparation of *Paſte* with ſeveral ſavoury Ingredients of Fleſh, Fruits, Spices, Sugar, Butter, *&c.* See PASTE.

PASTRY, is chiefly converſant in the making of Pies, Paſties, Patties, Cakes, Biſcuits, *&c.* See PYE, PASTY.

PASTURA, in our Law-Books, is any Place where Cattle are occaſionally fed; by which it differs from *Paſcua*, which is a Place ſet wholly a-part for feeding, and never plough'd.

Paſtura, ſays *Lindewode*, *Omne Genus paſcendi ſignificat, ſive in pratis, ſive inſtipula, ſive in Agris, ſive in Campis: ſed* Paſcua *eſt locus principaliter deputatus pecoribus paſcendis ut puta in Montibus, Moris, Mariſcis & planis non cultis nec aratis.*

PASTURE *Ground* is that not cultivated; that is, neither Meadow, nor Arable; but reſerved for the feeding of Cattle.

The beſt Domains are thoſe conſiſting in *Paſture*, they need no Tilling. *Holland* is a Country abounding much in *Paſture.*

PASTUS, the Procuration, or Proviſion which the King's, or Lords Tenants, are bound to make for 'em at certain Days, or Seaſons, or as often as they make a Progreſs to their Lands.

This, in many Places, has been converted into a pecuniary Fee; as in the Procurations of the Clergy. See PROCURATION.

PASTY, in Cookery, a Work of Paſtry; being a Preparation of ſome proper Meat, as Beef, Veniſon, Lamb, or the like, well boned, beaten up to a Pulp, and highly ſeaſon'd; put up in a Paſte, and then baked in an Oven.

They alſo make Veal-*paſties*, Umble-*paſties*, Kidney-*paſties*, Marrow-*paſties*, *&c.*

PATAVINITY, PATIVINITAS, among Criticks and Philoſophers, a Fault objected to *Titus Livy*, which he derived from his Country *Padua*, *Patavium.*

Aſinius Pollio, as we are inform'd by *Quintillian*, tax'd *Livy* of *Patavinity*: What this *Patavinity* conſiſted in, has given the Criticks a World of Pain.

Paolo Beni, Profeſſor of Eloquence in the Univerſity of *Padua*, is of Opinion, it muſt be underſtood of the Inclination of that Hiſtorian to *Pompey*'s Party: But wou'd *Pollio* have reproach'd him with an Inclination from which he himſelf was not exempt?

Pignorius will have the *Patavinity* to conſiſt in *Livy*'s retaining the vicious Orthography of his Country-men of *Padua*; who wrote *ſibe* and *quaſe*, for *ſibi* and *quaſi*; which he proves from ſeveral ancient Inſcriptions.

Fa. Rapin, takes the *Patavinity* to be only a faulty Pronunciation, which ſhock'd the delicate Ears of the People in the Court of *Auguſtus*; and ſavour'd a little of that Country.

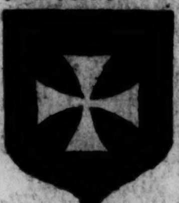
Morhofius believes it to be a certain Turn of Expreſſion, and ſome Phraſes peculiar to the *Paduese.*

All we know for certain, is, that it was a Fault in the Language of *Livy*, not in the Sentiments or Manners. In all probability, 'tis one of the Delicacies that are loſt in a dead Language. *M. Balzac* cou'd not ridicule his Dotard better than by ſuppoſing he valued himſelf on having diſcover'd the *Patavinity* objected by *Pollio* to *Livy.*

Dan. Georg. Morhofius, has an expreſs Treatiſe, *De patavinitate Liviana*, Printed at *Kiel* in 1685; where he explains, very learnedly, the Urbanity and Peregrinity of the *Latin Tongue.*

PATE in Fortification, a kind of Platform, like what they call an Horſe-ſhoe; not always regular, but generally Oval, encompaſſed only with a Parapet, and having nothing to flank it. See HORSE-SHOE.

It is uſually erected in Marſhy Grounds, to cover a Gate of a Town.



PATEE, or **PATTEE**, a Term in Heraldry for a Croſs, ſmall in the Centre, and widening towards the Extremes; as in the Figure adjoining. The Field is Sable, a Croſs *Pattee* Argent, by the Name of Croſs.

This Form of a Croſs is called alſo *Formee.* See FORMEE.

PATELLA, in Anatomy, a Bone which covers the Forepart of the Joynt of the Knee; call'd alſo *Mola*, *Rotula*, and popularly, the *Knee-Pan.* See MOLA.

The Patella is roundiſh on the Out-ſide, ſomewhat of the Figure of a Shield, cover'd with a ſmooth Cartilage, and about two Inches in Diameter; over it ſlide the Tendons of the Muſcles which extend the Leg, as on a Trochlea, or Pulley.

But its more immediate Uſe is to hinder the Leg from being bent forwards in Extenſion; which wou'd of neceſſity be the Caſe in this Articulation, did not this Bone, like a Bolſter, check its rolling forwards; as the Olecranum does the ſwing of the Cubitus backwards. See OLECRANUM.

In an erect Poſture, when one Foot is ſet forwards, the whole Weight of the Body bears on the *Patella*; which in this Situation, hinders the Knee from bending backwards, and ſtraining the Muſcles that inflect it behind.

Hence it was that *Galens* Wreſtler, who had diſlocated his *Patella*, found ſo much Pain in going down Hill.

PATENA, in the *Romiſh* Church, the Cover or Lid of the Chalice, made of the ſame Metal therewith, ſerving to hold the Particles of the Hoſt; and given the People to kiſs when they make an Offering. It has its Name *Patena*, *a Patendo*; and is a general Name in *Columella* for any broad flat Veſſel.

PATENT, or *Letters Patent*, in Law, the King's Letters, ſeal'd with the Great-Seal; ſerving to convey the Title or Property of ſome Grant, Favour, Privilege of a new Eſtabliſhment, or the like. See LETTERS *Patents.*

They have their Name in oppoſition to Letters *de Cachet*; becauſe deliver'd open, *ut pateant omnibus*; whereas the other are ſeal'd. It is to be noted, that *Patents* differ from Writs; and that a Coroner is made by *Writ*, not by *Patent.* See WRIT.

PATENTEE, is he, to whom the King grants his Letters *Patent.*

PATERA, among Antiquaries a *Goblet*, or Veſſel, uſed by the *Romans* in their Sacrifices; wherein they offer'd their conſecrated Meats to the Gods; and wherewith they made Libations. See SACRIFICE and LIBATION.

On Medals, the *Patera* is ſeen in the Hands of ſeveral Deities; and frequently in the Hands of Princes, to mark the Sacerdotal Authority, join'd with the Imperial, *&c.*

Hence, *F. Joubert* obſerves, that beſide the *Patera*, there is frequently an Altar upon which the *Patera* ſeems to be a pouring.

The *Patera* was of Gold, Silver, Marble, Braſs, Glaſs, or Earth; and they us'd to encloſe it in Urns with the Aſhes of the Deceas'd, after it had ſerv'd for the Libations of Wine and other Liquors at the Funeral.

The *Patera* is an Ornament in Architecture, frequently ſeen in the *Dorick Freeze*; and the Tympans of Arches.

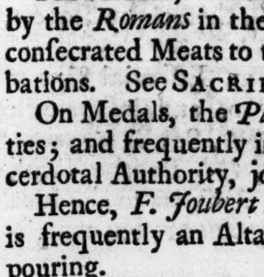
The Word is form'd from the *Latin Patera*, of *Pateo* I am open; *quod pateat*, becauſe it has a great Aperture; in contradiſtinction to Bottles, *&c.* which have only narrow Necks, or whoſe Aperture is leſs than the Body of the Veſſel.

PATER-NOSTER, the *Lord's Prayer*; a Form ſo call'd from the two Initial Words thereof.

PATER-NOSTER is alſo us'd for a Chapelet or ſtring of Beads; becauſe, ſerving to Number the Rehearſals of that Prayer. See CHAPLET.

PATER-NOSTERS, in Architecture, are certain Ornaments placed underneath Ovolos, cut in form of Beads, round, or Oval. See BEAD.

PATER-NOSTREE in Heraldry. *A Croſs Pater-noſtree*, is a Croſs, made up of Beads, as in the Figure adjoining. See CROSS.



Note, This Croſs is to be ſo ſhadowed in drawing, as that the, Sphericity of the Beads may appear; to diſtinguiſh 'em from Beſants, *&c.*

PATERNITY, the Quality of a *Father.* See FATHER.

There is an immediate Relation between the Paternity of the Father, and the Filiation of the Son, in the Myſtery of the Trinity, See TRINITY.

The Divines have a long Time diſputed, whether *Paternity* be a real and ſpecific Character, which abſolutely diſtinguiſhes the Father from the Son; or whether it be a mere Relation of Oeconomy and Subordination. On the one Hand, if *ternity* be ſuppoſed incommunicable to the Son, and if it conſtitute a real and poſitive Diſtinction; this amounts to *Tritheiſm.* See TRITHEISM.

On the other Hand, if *Paternity* be only regarded as a Mode, or a term of Order and Oeconomy; there is no eſſential and intrinſic Difference between the Father and Son; which is nothing leſs than Sabellianiſm. See SABELLIAN.

PATH *of the Vertex*, a Term frequently us'd by Mr. *Flamſtead*; ſignifying a Circle, deſcribed by any Point of the Earth's Surface, as the Earth turns round its Axis.

This Point is conſider'd as Vertical to the Earth's Centre; and is the ſame with what is call'd the *Vertex or Zenith* in the Ptolemaick Projection.

The Semi-Diameter of this Path of the *Vertex*, is always equal to the Complement of the Latitude of the Point or Place that deſcribes it; that is, to that Place's Diſtance from the Pole of the World.

PATHETIC, ſomething that relates to the *Paſſions*; and particularly, that is proper to awake, or excite them. See PASSION.

The *Pathetic*, and the *Sublime* have a near Affinity. See SUBLIME. See alſo STYLE.

The Word comes from the *Greek* πάθος *Paſſion.*

PATHETIC, in Muſic, ſomething very moving, expreſſive, paſſionate, capable of exciting Pity, Compaſſion, Anger, or the like Paſſion.

In this Senſe, we ſay a *Pathetic Fugue*, *Pathetic Song*, *&c.*

The Chromatic Genus, with its major and minor Semi-tones, either aſcending or deſcending is very proper for the *Pathetic*; as is alſo an artful Management of Diſcords; Variety of Motions, now briſk, now languiſhing, now ſwift, now ſlow.

Niewentiit, tells us of a Muſician at *Genoa*, who excell'd in the *Pathetic*; to that Degree, that he was able to play any of his Auditors into Diſtraction; he adds, that the great Means he made Uſe of, was the Variety of Motions, *&c.*

PATHETICI, in Anatomy, the fourth of the ten pair of Nerves, which ariſe out of the Medulla Oblongata. See NERVE.

The *Pathetici* are the ſmalleſt Nerves of the Brain; they have their Origin in the lower part of the Medulla Oblongata, behind the Nates and Teſtes.

They have their Name *Pathetici*, from their ſerving to move the Eyes in the various Paſſions; and are by ſome call'd *Amatorii*, from the great Uſe made thereof by Lovers, in Ogling, *&c.*

PATHOGNOMONIC, in Medicine, an Eſſential Sign or Characteriſtic; or a Symptom peculiar to, and inſeparable from ſome Diſeaſe; and every Stage thereof, See SYMPTOMS.

Thus *Blanchard*, and after him *Harris*, *&c.* But the Truth is, there is nothing in all Medicine that Anſwers to the Idea of a *Pathognomonic*; Diſeaſe and Symptoms are too complicated. See DIAGNOSTIC.

PATHOLOGY, that part of Medicine which conſiders *Diſeaſes*; both thoſe of the Body, and the Mind; their Natures, Cauſes, Symptoms, *&c.* See DISEASE.

The Word is form'd from the *Greek* πάθος Paſſion, Suffering, and λόγος, Diſcourſe.

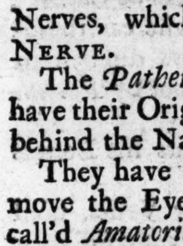
PATHOS, a *Greek* Word, πάθος, ſignifying *Paſſion*; us'd in ſpeaking of the Movements, which the Orator excites in his Audience.

There is a World of *Pathos* in his Diſcourſe.

We ſometimes alſo Uſe the Word for Energy or Streſs.

PATIENT, among Phyſicians, a Perſon under the Direction of a Phyſician, or Surgeon, to be cured of ſome Diſeaſe.

PATIENTIÆ *Muſculus*, in Anatomy. See LEVATOR SCAPULÆ.



PATONCE, in Heraldry, a *Croſs Patonce*, a Croſs of the Figure adjoining. He bears Gules, a Croſs *Patonce*, Argent, by the Name of *Latimer.* It comes near to the Croſs Flory, and only differs in ſome Circumſtances of the Ends. See FLORY.

PATRES *Conſcripti*, in Antiquity, a Denomination given the Senators of *Rome.* See SENATOR, PATRICIAN.

The firſt hundred Senators appointed by *Romulus*, were call'd ſimply *Patres*, Fathers; another hundred being added by *Romulus* and *Tatius*, upon the Union of the two People; theſe latter were call'd *Patres minorum Gentium*, and the former *Majorum Gentium.*

At length, *Tarquinius Priſcus* making up the Number 300, the two latter Claſſes were call'd *Patres Conſcripti*; becauſe, *Adſcripti* wrote down to the former.

Thoſe afterwards choſen from among the Knights, were call'd *Patres Allecti.*

PATRIARCH, one of thoſe firſt Fathers who liv'd towards the Beginning of the World; and who became famou by their long Lines of Deſcendants.

Abraham, *Iſaac*, *Jacob*, and his twelve Sons are the *Patriarchs* of the Old Teſtament: The Number of Children is the Benediction, and the Character of a *Patriarch.*

PATRIARCH, is alſo us'd in Chriſtendom for the Biſhops in Poſſeſſion of ſome of the grand Sees, independant of the papal Juriſdiction. See BISHOP.

The *Patriarchate* has been always eſteem'd the ſupreme Dignity in the Church: So that to riſe by Degrees, the Biſhop had only under him the Territory of the City, whereof he was Biſhop; the *Metropolitan* commanded a Province, and had for Suffragans the Biſhops of his Province; the Primate was the Chief of a Dioceſs, and had ſeveral *Metropolitans* under him; and the *Patriarch* had under him ſeveral Dioceſes, and Primates 'emſelves were under him. See METROPOLITAN.

But this Order was not always obſerv'd. See PRIMATE.

Uſher, *Pagi*, *de Marca* and *Morin*, attribute the Eſtabliſhment of the Grand *Patriarchs* to three Apoſtles. They ſuppoſe that the Apoſtles, acccording to the Deſcription of the World then given by Geographers, pitch'd on the three principal Cities in the three Parts of the known World, *viz.* *Rome* in *Europe*; *Antioch* in *Aſia*; and *Alexandria* in *Africa*; and thus form'd a Trinity of *Patriarchs.*

Others, far from attributing this Inſtitution to St. *Peter*, maintain that the Name *Patriarch* was unknown at the Time of the Council of *Nice*; and that for a long Time afterwards, *Patriarchs* and *Primates* were confounded together: as being all equally Chiefs of Dioceſes; and equally ſuperior to Metropolitans, who were only Chiefs of Provinces.

Hence it is that *Socrates* gave the Title *Patriarch* to all the Chiefs of Dioceſſes, and reckons ten of 'em.

In Effect, it does not appear that the Dignity of *Patriarch* was attach'd, and affected to the five grand Sees of *Rome*, *Conſtantinople*, *Alexandria*, *Antioch*, and *Jeruſalem*, till after the Council of *Calcedon* in 451. For when the Council of *Nice* regulated the Limits and Prerogatives of the three *Patriarchs* of *Rome*, *Antioch*, and *Alexandria*, it did not give 'em the Title of *Patriarchs*, tho' it allow'd 'em the Preeminence and Privileges thereof. Thus, when the Council of *Conſtantinople* adjudg'd the ſecond Place to the Biſhop of *Conſtantinople*, who, till then, was only a Suffragan of *Heraclea*; it ſaid nothing of his *Patriarchate.*

Nor is the Term *Patriarch* found in the Decree of the Council of *Calcedon* whereby the fifth Place is aſſign'd to the Biſhop of *Jeruſalem*; nor did theſe five *Patriarchs* govern all the Churches.

There were ſtill many Independant Chiefs of Dioceſſes, who, far from owning the Juriſdiction of the grand *Patriarchs*, call'd 'emſelves *Patriarchs*; ſuch as that of *Aquilea*; nor was *Carthage* ever ſubject to the *Patriarch* of *Alexandria.*

The Authority of the *Patriarchs* grew by inſenſible Degrees, till at length all Affairs of Moment, within the Compaſs of their *Patriarchate*, came before them; either at firſt hand, or by Appeal from the *Metropolitans.*

They conſecrated Biſhops, appointed the Time of *Eaſter*, *&c.* Nothing in ſhort was done without conſulting 'em; and their Decrees were executed with the ſame Reſpect as thoſe of Princes.

The *Latin* Church was unacquainted with *Patriarchs* till the VI. Century; and the Churches of *Gaul*, *Britain*, *&c.* were never ſubject to the Authority of the *Patriarch* of *Rome*, whoſe Authority only extended to the ſuburbicary Provinces.

There was no Primalty, no Exarch, or *Patriarch* own'd here; but the Biſhops, with the *Metropolitans*, governed the Church in Common.

Indeed, after the name *Patriarch* became popular in the Weſt; it was attributed to the Biſhops of *Bourges* and *Lions*; but it was only in the firſt ſignification: *viz.* as Chiefs of Dioceſes.

Du Cange adds, that there have been ſome Abbots, who have bore the Title of *Patriarchs.* See ABBOT.

PATRIARCH, is alſo us'd for the chiefs of ſeveral Churches in the Eaſt, who live out of Communion with the *Roman* Church: as the *Patriarch* of the *Armenians*, reſiding in a Monaſtery of St. *Gregory*; The *Patriarch* of the *Abyſſinians*, called *Abuna*; the *Patriarch* of the *Cophti*, the *Jacobin*, *&c.* See ARMENIANS, COPHTI, JACOBINS, *&c.*

PATRIARCHAL, in Heraldry. A *Croſs Patriarchal* is ſo call'd, becauſe the Shaft is twice croſs'd; the lower Arms being longer, and the Upper ſhorter.

Such a Croſs is ſaid to belong to *Patriarchs*, as the Triple Croſs does to the Pope.

PATRICIAN, in ancient *Rome*, a Title given to the Deſcendants of the Hundred, or according to others, of the two Hundred firſt Senators, choſen by *Romulus*, and by him call'd *Patres*, Fathers. See SENATOR, PATRES, *&c.*

Patricians, therefore, were then the ancient Nobility; in Oppoſition to the *Plebeians.* See PLEBEIAN.

But the Cognizance and Character of theſe ancient Families being almoſt loſt and extinguiſh'd, by a long Courſe of Years, and frequent changes in the Empire; a new Kind of *Patricians*

Patricians were ſet on Foot; who had no pretenſions from Birth; but their Title depended wholly on the Emperor's Favour.

This new *Patriciate*, *Zozimus* tells us, was erected by *Conſtantine*; who attributed the Quality to his Councellors; calling 'em *Patricii*, not becauſe deſcended from the ancient Fathers of the Senate, but becauſe they were the Fathers of the Republic, or of the Prince.

This Dignity in time, became the higheſt of the Empire. *Juſtinian* calls it *Summam dignitatem*, in effect, the *Patricians* had the Precedence of *Conſularii*, and took Place before 'em in the Senate.

This Dignity was only conferr'd on thoſe who had gone thro' the firſt Offices of the Empire; or had been Conſuls.

We frequently read of *Patricians* among the *Engliſh Saxons*.

Pope *Adrian* made *Charlemaign* take the Title of *Patrician* 'ere he took the Quality of Emperor; other Popes have given the Title to other Kings and Princes, by reaſon of its Eminence.

PATRICIANS, or PATERNIANS ancient Sectaries, who diſturbed the Church in the Beginning of the third Century.

They had their Name from their Founder *Patricius*, Preceptor of a Marcionite, call'd *Symmachus*.

His diſtinguiſhing Tenet, was that the Subſtance of the Fleſh is not the Work of God, but that of the Devil; on which Account, his Adherents bore an implacable Hatred to their own Fleſh; which ſometimes carried 'em ſo far as to kill 'emſelves.

They were alſo called *Tatiani*. See TATIAN.

PATRIMONY, a Right, or Eſtate, which a Perſon inherits from his Anceſtors.

The Name was alſo antiently given to the Effects, or Revenues wherewith a Church or religious Houſe was endowed. In this Senſe, we ſay the *Patrimony* of the Church of *Rimini*, of *Milan*, *&c.*

The Dutchies of *Urbino* and *Spoleto*, are called St. *Peter's Patrimony*. The Church of *Rome* had *Patrimonies* in ſeveral Countries, in *France*, *Africa*, the *Alps*, *Sicily*, *&c.*

To make what belong'd to the Churches the more reſpected, they uſually gave their *Patrimonies* the Name of the Saints they held in the higheſt Veneration.

Thus the Church of *Ravenna*, called its Inheritance the *Patrimony* of St. *Apollinarius*; that of *Milan* the *Patrimony* of St. *Ambroſe*, *&c.* as is obſerved by *Fra. Paolo*.

PATRIPASSIANS, a Name given to the *Sabellians*; becauſe they did not believe 'twas the Son, but the Father himſelf that was Crucified. See SABELLIAN.

The Council of *Antioch* held by the *Euſebians* in 345, ſays, that thoſe whom the *Romans* call *Patripaſſians*, the *Eaſtern* People call'd *Sabellians*; it adds the Reaſon of the Name *Patripaſſians* in their Condemnation; *viz.* ſuppoſing that by the Incarnation of the Father, they render'd him Comprehenſible and *Paſſible*.

PATROLL, or PATROUL, antiently *Patoul*, in War, a Round, or March made by the Guards, or Watch, in the Night-time; to obſerve what paſſes in the Streets, and to ſecure the Peace and Tranquillity of the City or Camp.

The *Patroll* conſiſts of a Body of five or ſix Men detach'd from a *Corps de Guard*, and commanded by a Serjeant.

PATRON, a Term us'd in various Acceptations, tho' all reducible to the Relation of a Protector and Guardian.

Particularly, in the Church of *Rome*, a Saint, whoſe Name a Perſon bears, or under whoſe Protection he is put, and whom he takes particular Care to invoke; or a Saint in whoſe Name a Church or Order is founded; or a Perſon who firſt eſtabliſh'd it, and who is choſen Protector, are call'd *Patrons* thereof.

St. *Peter* and St. *Paul* are the Patrons of the Church of St. *Genevieve*, St. *Denis* the Patron of the City *Paris*, St. George of *England*, St. *Benidict* the Patron of the *Benedictines*, St. *Michael* of the *Armorers*, St. *Ignatius* of the *Jeſuits*, *&c.*

PATRON, PATRONUS, among the *Romans*, was uſed for two different Perſons.

They call'd *Patron* the Maſter, who had freed his Slave. And hence, as the Right, and Relation of Maſter expir'd, that of *Patron* commenc'd.

For the *Romans*, in giving their Slaves their Freedom, did not deſpoil 'emſelves of all Rights and Privileges in 'em: The Law ſtill ſubjected the freed Men to conſiderable Services and Devoirs to their Patrons, the Neglect whereof was ſeverely puniſh'd. See SLAVE.

The principal Right which *Patrons* had, was that of being the legal Heirs of theeir freed Men, if they died without lawful Iſſue born after their Enfranchiſement and Inteſtate.

By the Papian Law it was further provided, that if the Eſtate of the freed Men were 100000 Seſterces, and he had three Children, the *Patron* ſhou'd have a Child's Portion. See FREED-MAN, LIBERTUS, ENFRANCHISEMENT, *&c.*

PATRON, was alſo a Name which the People of *Rome* gave to the Perſon, under whoſe Protection they put themſelves.

The common People uſually choſe ſome Perſon of Eminence and Authority to whom they paid all Kinds of Honour and Reſpect; denominating 'emſelves his *Clients*: And the *Patron* on his Side owed them his Credit and Protection.

By this reciprocal Relation was the *Patron* bound to his Client, and the Client to his *Patron*. See CLIENT.

PATRON, in Navigation, a Name given in the *Mediterranean*, to the Perſon who commands the Veſſel and Seamen; ſometimes to the Perſon who ſteers it; the former in other Places call'd *Maſter*, the ſecond *Pilot*. See MASTER and PILOT.

PATRON, in the Canon and Common Law, a Perſon who founds, or endows a Church or Benefice, and reſerves to himſelf the Right of Patronage. See PATRONAGE.

The King is *Patron Paramount* of all Eccleſiaſtical Benefices in *England*. See KING, PARAMOUNT, *&c.*

PATRONAGE, the Right belonging to the Founder of a Church or Benefice. This Right conſiſts in having the Nomination or Preſentation to the Benefice by him founded or endow'd; in having the honourable Rights of the Church, in being enterr'd in the Chancel, *&c.* See BENEFICE.

Of *Patronages*, ſome are *Lay*, others *Eccleſiaſtical*.

Lay-patronage is a Right attach'd to the Perſon, either as Founder, or as Heir of the Founder; or as Poſſeſſor of a Fee to which the *Patronage* is annex'd.

Eccleſiaſtical Patronage is that a Perſon is entitled to by Virtue of ſome Benefice which he holds.

If an Ecleſiaſtic have a Right of *Patronage* on his own Bottom, independant of his Eccleſiaſtic Capacity; this is ſtill *Lay-Patronage*.

Lay-Patronage is either *real* or *perſonal*: *Real* is that attach'd to the Glebe, or to a certain Inheritance.

Perſonal is that belonging immediately to the Founder of the Church, and tranſmittible to his Children and Family, without being annex'd to any Fee.

Perſonal *Patronage* cannot be alienated or ſold; *Real* may, together with the Glebe to which it is annex'd. There muſt ever be ſome Body or Matter to fix it to, in order to its being transfer'd to another.

The Origin of the Right of *Patronage*, we find in the 10th Canon of the Council of *Orange*; where it is expreſs'd that a Founder may preſent to the Dioceſan the Clerks he thinks proper for his Church. By a Law of *Juſtinian* it is ordain'd, that the Founders of Churches may not put Clerks in 'em on their own Authoriry; but only preſent them to the Biſhop.

Some Canoniſts look on the Right of *Patronage*, as a Kind of Eccleſiaſtic Servitude. See SERVICE.

The Right of *Patronage* ſleeps, but is not loſt, while a Perſon is out of the Communion of the Church.

Arms of Patronage, in Heraldry, are thoſe, a Top whereof are ſome Marks of Subjection and Dependance: Thus the City of *Paris* bears three *Flower-de-lis* in chief, to ſhew her Subjection to the King.

The Cardinals on the Top of their Arms bear thoſe of the Pope, who gave 'em the Hat, to ſhew that they are his Creatures.

PATTES, in Heraldry, the Paws of a Beaſt. See PAW.

PAVAGE, in our old Law-Books, Money pay'd towards the paving of Streets or High-ways. See PAVEMENT.

PATRONYMIC, a Term which Grammarians uſe; for thoſe Names, which the *Greeks* gave to the Race, or Lineage; and which were form'd from him who was Chief, or Founder thereof. See NAME.

Thus the Deſcendants of *Æacus*, were called *Æacides*; and thoſe of *Hercules*, *Heraclides*.

Theſe *Patronymic-Names* the *Romans* call'd *Gentilitia*, which amounts to our Sur-names. See SUR-NAME.

Thus, thoſe of the preſent reigning Family in *France*, we call the *Bourbons*; thoſe of the late in *England*, the *Stewarts*, *&c.* The Word is form'd from the *Greek* πατὴρ Father, and ὄνομα, Name.

PAVAN, or PAVANE, a Grave Dance, derived from the *Spaniards*; wherein the Dancers make a kind of Wheel, or Tail before each other, like that of a Peacock, whence the Name. See DANCE.

The *Pavane* was antiently in great repute; and was danced by Gentlemen with Cap and Sword; by thoſe of the Long Robe, with their Gowns; by Princes with their Mantles, and by the Ladies with their Gown-tails trailing on the Ground.

It was called the *Grand Ball*; from the Solemnity, wherewith it was perform'd.

To moderate its Gravity, 'twas uſual to introduce ſeveral Flouriſhes, Paſſades, Capers, *&c.* by way of *Epiſodes*.

Its Tablature or Score is given at large by *Thoinot Arbeau* in his *Orcheſographia*.

PAVEMENT, a Lay of Stone, or other Matter, ſerving to cover and ſtrengthen the Ground of divers Places, for the more commodious walking on, or the Paſſage of Carriages.

The Word is form'd from the *Latin Pavimentum*, of *Pa-*

vire, to beat down the Earth, in order to make it firm and ſtrong.

In *England*, the *Pavements* of the Grand Streets, &c. are uſually Flint, or Pebble; Courts, Equeries, Kitchins, Halls, Churches, &c. Tiles, Bricks, Flags, or Fire-Stone; ſometimes a Kind of Free-Stone; and Rag-Stone. See STONE.

In ſome Cities, *E. gr. Venice*, the Streets, &c. are paved with Brick; Churches ſometimes with Marble, and ſometimes with Moſaic-Work, as the Churches of St. *Mark* at *Venice*.

In *France*, the public Roads, Streets, Courts, &c. are paved with *Gres*, a Kind of Free-Stone.

In *Amſterdam*, and the chief Cities of *Holland*, they call their Brick *Pavement* the *Bourguer Maſters Pavement*, to diſtinguiſh it from the Stone or Flint *Pavement*, which uſually takes up the Middle of the Street, and which ſerves for Carriages; the Brick which borders it being deſtined for the Paſſage of People on Foot.

Pavements of Free-Stone, Flint, and Flags, in Streets, &c. are laid dry, *i. e.* are retained in a Bed of Sand; thoſe of Courts, Equeries, Ground Rooms, &c. are laid in a Mortar of Lime and Sand; or in Lime and Ciment, eſpecially if there be Vaults or Cellars underneath.

Some Maſons, after laying a Floor dry, eſpecially of Brick, ſpread a thin Mortar over it; ſweeping it backwards and forwards to fill up the Joints.

Thirty two Statute Bricks laid flat pave a Yard ſquare; 64 of Edge wiſe.

The Square Tiles us'd in Paving, call'd Paving-bricks, are of various Sizes, from 6 to 12 Inches Square. See BRICKS.

Pavements of Churches, &c. frequently conſiſt of Stones of ſeveral Colours; chiefly black and white, and in ſeveral forms, chiefly Square, and Lozange, artfully diſpoſed.

Indeed, there needs no great variety of Colours to make a ſurprizing variety of Figures and Arrangements. *M. Truchet*, in the Memoirs of the *French* Academy, has ſhewn by the Rules of Combination, that two Square-Stones divided diagonally into two Colours, may be join'd together Checquerwiſe 64 different Ways; which appears ſurpriſing enough; ſince two Letters or Figures are only combined two Ways.

The Reaſon is, that Letters only change their Situation with regard to firſt and ſecond; the Top and Bottom remaining the ſame: But in the Arrangement of theſe Stones, each admits of four ſeveral Situations, in each whereof the other Square may be chang'd 16 Times, which gives 64 Combinations.

Indeed, from a further Examination of theſe 64 Combinations, he found there were only 32 different Figures; each Figure being repeated twice in the ſame Situation, tho' in a different Combination; ſo that the two only differ'd from each other by the Tranſpoſition of the darker or higher Squares. See COMBINATION.

Pavement of a Terraſs, is that which ſerves for the covering of a Plat-form; whether it be over a Vault, or on a Wooden Floor. See TERRASS.

Thoſe over Vaults are uſually Stones ſquared, and bedded in Lead.

Thoſe on Wood, call'd by the *Latins Pavimenta contignata*, are either Stones with Beds for Bridges; Tiles for Ceilings in Rooms, or Lays of Mortar, made of Ciment and Lime, with Flints or Bricks laid flat, as is ſtill practis'd by the Eaſtern and Southern People a Top of their Houſes. See PLAT-FORM.

All thoſe *Pavements* which lye open, are call'd by the *Latins Pavimenta ſubdialia*.

Moſaic PAVEMENT. See MOSAIC *Work*.

Projection, or *Perſpective of a* PAVEMENT, See PERSPECTIVE.

PAVILLION, in Architecture, from the *Italian Padiglione*, Tent, of the *Latin Papilio*; ſignifies a Turret, or Building uſually inſulated, and under a ſingle Roof; ſometimes Square; and ſometimes in form of a Dome.

Pavillions are ſometimes alſo projecting Pieces, in the Facade of a Building, marking the Middle thereof; ſometimes the *Pavillion* flanks a Corner, in which Caſe 'tis call'd *Angular Pavillion*. The *'Louvre* is flank'd with four *Pavillions*. *Pavillions* are uſually higher than the reſt of the Building.

There are *Pavillions* built in Gardens; popularly call'd Summer-houſes, Pleaſure-houſes, &c.

There are Caſtles or Forts which only conſiſt in a ſingle *Pavillion*.

PAVILLION, in War, a Tent, rais'd on Poſts, to lodge under in the Summer-time. See TENT.

PAVILLION, is alſo us'd in the General, for Flags, Colours, Enſigns, Standards, Banners, &c. all which, Authors uſually confound with one another. See FLAG, ENSIGN, STANDARD, BANNER.

The Cuſtom of bearing pointed *Pavillions*, as at preſent, firſt came from the *Mahometan Arabs*, at the Time they firſt ſeiz'd on *Spain*.

Till then, all Colours were ſtretch'd on croſs Pieces like Thurch Banners; whence they were call'd in *Latin*, *Vexilla quaſi Velilla*, a Diminutive of *Vela*, *Sails*.

The Pirates all along the Coaſt of the *Atlantic* and *Barbary*, bear Hexagonal *Pavillions*. 'Tis Gules, charg'd with a little *Turk*, dreſs'd in his *Turban*; tho' contrary to their Law, which prohibits the making any Image of a Man; from an Opinion that thoſe who make the Figure here, will be oblig'd to furniſh a Soul to the Figure at the Day of Judgement, or in Default thereof be damn'd.

But this Portrait it ſeems is that of *Hali Sulficar*, *Mahomet*'s Son in-law, to whoſe Party the *Africans* adhere; and who appointed his Picture to be repreſented on their Banners; imagining himſelf ſo terrible to the Chriſtians, that a mere View of his Image wou'd put 'em to flight; as we are told by *Leunclavius*.

PAVILLION, in Heraldry, a Covering in form of a Tent, which inveſts, or wraps up the Armories of divers Kings and Soveraigns, depending only on God and their Sword. The *French* Heralds hold, that none but Soveraign Monarchs may bear the *Pavillion* intire, and in all its parts.

It conſiſts of two Parts, the Top, which is the Chapeau, or Coronet, and the Curtain which makes the Cloak. Thoſe who are Elective, or have any Dependance, ſay the Heralds, muſt take off the Head, and retain nothing but the Curtains.

The Uſe of *Pavillions* and Cloaks in Armories is derived from the ancient *Lambrequins*, which are ſometimes found ſtretch'd out in form of Coverings; and tuck'd back on either Side.

Others will have it derived from the ancient Tournaments, wherein were expoſed the Arms of the Knight in rich Tapeſtry Work, on Tents and *Pavillions*, which the Chiefs of the Quadrils rais'd to ſhelter 'emſelves, till the Time of entring the Liſts.

PAULIANISTS, a Sect of Hereticks, ſo call'd from their Founder *Paulus Samoſatenus*, a Native of *Samoſata*, elected Biſhop of *Antioch* in 262.

This Hereſiarch denied the Diſtinction of Perſons in the Trinity, with *Sabellius*; and taught with *Artemon* that the Word deſcended into Jeſus; and that after having perform'd by him what he deſir'd to do, he re-aſcended to his Father.

He deſtinguiſh'd two Perſons in *J. C.* the Word and the Chriſt: The latter, according to him, was only God in regard of his Holineſs; accordingly he did not baptize in the Name of the Father and Son, &c. For which Reaſon the Council of *Nice* order'd thoſe baptized by him to be re-baptized.

Being condemn'd by *Dionyſius Alexandrinus*, in a Council; he abjured his Errors to avoid Depoſition; but ſoon after reſum'd 'em, and was actually depos'd by another Council in 270.

PAULICIANS, a Branch of the ancient *Manichees*; ſo call'd from their Chieftain, one *Paulus* an *Armenian*, in the VIIth Century. See MANICHEE.

The *Paulicians* by their Number, and the Countenance of the Emperor *Nicephorus*, became formidable to all the Eaſt.

To the other Opinions of the *Manichees*, they are ſaid to have added an Abhorrence of the Croſs; and to have employ'd it in the moſt ſervile Offices, out of deſpight.

The Empreſs *Theodora*, Tutreſs of the Emperor *Michael* in 845, wou'd oblige 'em either to be converted, or to quit the Empire: Upon which ſeveral of 'em were put to Death, and more retired among the *Sarazens*; but they were not all exterminated.

Towards the End of the ninth Century, they were able to maintain War againſt the Emperor *Baſil*; and even preach'd long after this in *Bulgaria*; whence they ſpread into ſeveral other Parts of *Europe*.

The *Paulicians* were alſo call'd *Publicans*, and *Poplicans*. See PUBLICAN. &c.

PAVO, in Aſtronomy. See PEACOCK.

PAUPER, in Law, See FORMA *Pauperis*

PAUSARY, PAUSARIUS, in ancient *Rome*, an Officer, who in the ſolemn Pomps or Proceſſions of the Goddeſs *Iſis*, directed the Stops or *Pauſes*.

In theſe Ceremonies, there were frequent Stands at Places prepared for the Purpoſe; wherein the Statues of *Iſis* and *Anubis* were ſet down, much after the Manner of the reſting Places in the Proceſſion of the Holy Sacrament in the *Romiſh* Church.

Theſe Reſts were call'd *Manſiones*; the Regulation whereof was the Office of the *Pauſarii*.

From an Inſcription quoted by *Salmaſius*, it appears that the *Romans* had a kind of College or Corporation of *Pauſaries*. See COLLEGE.

The Name *Pauſary* was alſo given to an Officer in the *Roman* Gallies, who gave the Signal to the Rowers, and mark'd the Times and Pauſes; to the End they might act in concert, and row all together.

This was done with a Muſical Inſtrument. *Hyginus* ſays, that in the Ship *Argo*, *Orpheus* did the Office with his Lute.

PAUSE, a Stop, or Ceſſation of ſpeaking, ſinging, playing, &c.

The Uſe of Pointing in *Grammar*, is to make proper Pauſes in certain Places. See POINTING.

There is a Pauſe in the Middle of each Verſe; in a Hemiſtic, 'tis call'd the *Reſt* or *Repoſe*.

The Word is form'd from the *Latin Pauſa*, which we find in *Lucretius* and *Plautus* in the ſame Senſe.

PAUSE, in Muſic, a Character of Silence and Repoſe; call'd alſo by ſome, a *Mute figure*; becauſe it ſhews that ſome of the Parts are to be Silent, while the others continue the Song; either for the ſake of ſome Fugure of Imitation, or to give a breathing Time, or to give room for another Voice, to anſwer what this Part ſung, as in Dialogues, Echoes, *&c.* *&c.*

The Ancients had two kinds of Pauſes; the one call'd by the *Italians*, *Initial Pauſes*; becauſe, firſt placed at the Beginning of the Piece, tho' ſometimes after, and regularly before the Circle O, or the Semi-circle C.

They had alſo Pauſes after the Characters of the Meaſure, and in the Courſe of the Piece.

A *general Pauſe* is a general Ceſſation or Silence of all the Parts.

Demi-pauſe is a Ceſſation for the Time of half a Meaſure.

We alſo ſay *Pauſe of a Minim*, *Pauſe of a Semibreve*; *long Pauſe*, *Pauſes of Croma*, and *Semi-Croma*; which are Names given by the *Italians*, to expreſs the different values of Pauſes. For the Signs or Characters of Pauſes. See Character.

PAW, *Patte*, in Heraldry, the Fore-foot of a Beaſt cut of ſhort. If the whole Leg be retain'd, it is call'd *Gambe*.

Lyons-paws are much us'd in Armoury.

PAWN-*broker*. See Broker.

PAWNAGE. See Pannage.

PAX *Dei*. See Peace of God.

Pax *Eccleſiæ*. See Sanctuary.

Pax *Regis*, See Peace *of the King*. *Longe debet eſſe* Pax Regis *à parte ſua, ubi reſidens fuerit, à quatuor partibus loci illius, hoc eſt quatuor milliaria & tres Quarentenæ, & Novem acræ Latitudine, & novem pedes, & novem palmæ, & novem Grana hordei*, &c. See Edu. Confess.

Ad Pacem redire, to reſtore to the Peace, is to reverſe an Out-lawry; whereby a Perſon is reſtored to the Benefit of the King's Peace. See Out-lawry.

Rex poteſt dare quod ſuum eſt, hoc eſt pacem ſuam, quam utlegatus ami ſit. Bracton. Lib. 3.

PAYMENT, the Diſcharge of a Debt, either by Money really told, or by Bills of Exchange, *&c.* See Debt, *&c.*

Prompt Payment, a popular Term in *England* and *Amſterdam*, is, when a Debtor acquits what he owes before the Expiration of the Term granted by the Creditor.

The Diſcount for *Prompt Payment* on moſt Merchandices is uſually 1 *per Cent.* See Discount.

PAY, in the Sea Language. The Seamen, ſay, *pay more Cable*, *i. e.* let out more Cable; and *pay cheap* that is, at the turning the Anchor out of the Boat, to turn it out faſter.

PEACE, in its general Signification, ſtands in oppoſition to War. See War.

In our Law-Books, *&c.* *Peace* is reſtrain'd to a quiet, and inoffenſive Carriage towards the King, and his People. *Lamb. Eirenarch.*

Where any Man ſtands in danger of Harm from another, and makes Oath thereof before a Juſtice of the Peace; he muſt be ſecur'd by good Bond, which is call'd *binding to the Peace*, &c. See Frank-pledge, See alſo Conservator, and Justice *of the Peace*.

Time of Peace is when the Courts of Juſtice are open, and the Judge and Miniſters of the ſame may by Law protect Men from Wrong and Violence, and diſtribute Juſtice to all. See *Coke* on *Little*. See alſo Term.

Peace *of the King*, mention'd in the Stat. 6. *Rich.* 2d. &e. is that Security that the King promiſes his Subjects, and others taken into Protection; both for Life and Goods. See Suit *of the King's Peace*.

Peace *of God* and the Church, mention'd in our ancient Law Books, is that Reſt and Ceſſation which the King's Subjects had from Trouble and Suit of Law, between the Terms. See Vacation.

Peace of the Plough, that whereby the Plough, Plough-Tackle, and Plough-Cattle are ſecured from Diſtreſſes. See *Fitzh. Nat. Brev.*

Thus Fairs may be ſaid to have their *Peace*, becauſe no Man may be troubled in them, for any Debt contracted elſewhere.

Clerk of the PEACE. See Clerk *of the Peace*.

PEACOCK, *Pavo*, in Aſtronomy, a Conſtellation of the *Southern* Hemiſphere; unknown to the Ancients; not viſible in our *Northern* Parts of the World. See Constellation.

PEAN, in Heraldry, is when the Field of a Coat of Arms is Sable, and the Powderings, Or

PEARL, in natural Hiſtory, a hard, white, clear Subſtance, uſually roundiſh, found in a teſtaceous Fiſh, reſembling an Oiſter; and rank'd in the Number of *precious Stones*.

The Fiſh wherein the *Pearls* are found, is three or four times the Size of the common Oiſters; and is uſually call'd *Pearl*, or *Mother of Pearl*, by the Naturaliſts, *Pinna Marina*.

Each *Mother-Pearl* ordinarily yields ten or twelve of 'em; tho' an Author, who treats of their Production, pretends to have ſeen an hundred and fifty in the ſame Fiſh; but thoſe in different Degrees of Perfection. The moſt perfect ſtill drop firſt; the reſt remaining at the Bottom of the Shell. The Formation of *Pearls* has puzzled both the ancient and modern Naturaliſts; and given Occaſion to a great Number of Hypotheſes, many of 'em wild and extravagent enough: The Ancients, *Pliny*, *Solinus*, *&c.* will have 'em to be form'd of Dew. The Fiſh, ſay they, riſe every Morning to the Surface of the Water, and there open their Shells, to imbibe the Dew of Heaven; which, like a Liquid Pearl, inſinuating into the Body of the Oiſter, fixes its Salts, and their aſſumes the Colour Hardneſs and Form of *Pearl*; as ſome Liquors are converted into Cryſtals in the Earth; or the Juice of Flowers into Honey and Wax in the Bee-hive.

But this, how plauſible ſoever, is apparently falſe: For the Oiſters grow faſt to the Rocks, and no Body ever yet ſaw any of 'em appear on the Surface of the Water.

Others will have *Pearls* to be the Eggs of the Fiſhes they are found in: But neither does this conſiſt with the Phænomena. For *Pearls* are found throughout the whole Subſtance of the Oiſter, in the Head, the Coat that covers it, the circular Muſcles that terminate in it, the Ventricle, and in general in all the fleſhy and muſculous Parts; ſo that there is no Appearance that *Pearls* ſhou'd be in the Oiſters what the Eggs and Sperm are in Fowls and Fiſhes. For, beſide that there is no particular Place deſtined for their Formation; the Anatomiſts have not been able to find any Thing that bears any Relation to what paſſes in this Reſpect in other Animals.

This, indeed may be ſaid, that as in a Hen there is an Infinity of little Eggs, in form of Seed; ſome whereof grow and ripen, whilſt the Reſt continue nearly in the ſame State; ſo in each Oiſter is uſually found one *Pearl* much larger, and that ripens much faſter, than the Reſt. This *Pearl* ſometimes grows big enough to hinder the Oiſter from ſhutting, in which caſe the Fiſh rots and dies.

Others, with M. *Geoffroy* the younger, rank *Pearls* among the Bezoards; as comprehending under that Claſs all Stones form'd in Lays or Strata in the Bodies of Animals. See Bezoard.

M. *Reaumur*, has a very curious Piece on the Subject of the Formation both of the Shells and *Pearls*, in the Memoirs of the *French* Academy, *An.* 1717. He obſerves that *Pearls* are form'd like other Stones in Animals, as thoſe *E. gr.* in the Bladder, Kidneys, *&c.* and that they are apparently the Effects of a Diſeaſe of the Fiſh.

In Effect, they are all form'd of a Juice extravaſated out of ſome broken Veſſels, detain'd, and fix'd among the Membranes.

To evince the poſibility of this, he ſhews that the Shells of Sea-Fiſhes, as well as thoſe of Snails, &c. are wholly form'd of a glutinous, ſtony Matter, ouzing out of the Body of the Animal. (See shell.) Now 'tis no wonder that an Animal which has Veſſels wherein circulates a ſufficient Quantity of ſtony Juice to build, thicken, and extend a Shell; ſhou'd have enough to form Stones, in caſe the Juice deſtined for the Growth of the Shell ſhall chance to overflow, and burſt forth in any Cavity of the Body, or among the Membranes.

To confirm this Syſtem, he obſerves, that the inner Surface of the common *Pearl*-Muſcle, found on the Coaſts of Provence, is of a *Pearl, or Mother of Pearl* Colour, from one part of its Extent, which he determines, to another; after which it becomes reddiſh: Now there are *Pearls* of two Colours found in the Shell; and the Colours of the *Pearls* are preciſely the ſame with thoſe of the Shell; nay, more, each Kind of colour'd *Pearl* is found in the correſponding colour'd Part of the Shell, which ſhews, that in the ſame Place wherein the Tranſpiration of a certain Juice had form'd, and wou'd have continu'd to form a Couch, or Lay of Shell of a certain Colour; the Veſſels which convey'd that Juice being broke, there is made a little Maſs or Collection of the Juice, which hardening, becomes a *Pearl* of the ſame Colour with the part of the Shell to which it correſponds.

Add to this, that the Silver, or *Pearl*-colour'd part of the Shell is form'd of Strata or Lays over one another, like an Onion; and the reddiſh Part of little cylindrical, ſhort Fibres applied againſt one another. The *Pearls* of the two Colours have this Difference of Texture; not but they are both compos'd of concentric Couches; but thoſe of the reddiſh *Pearls* are much leſs ſenſible; and, beſides, have Threads, which like *Radii*, proceed from their Centre to their Circumference.

Theſe Circumſtances ſeem effectually to determine the Formation of *Pearls*, and to eſtabliſh the new Syſtem beyond Contradiction.

As to the Formation of the *Pearl*-Fiſh; tho' 'tis the moſt natural Opinion, that this Fiſh, like all others, produces Eggs or Spawn, whoſe exterior Surface at firſt is ſoft and viſcous, but changes and hardens by degrees into Shell; yet, we muſt not leave unmention'd the popular Hypotheſis of the *Paravas*, *viz.* that in rainy Weather the Brooks of the neighbouring Lands that empty 'emſelves all along the Coaſts, run near two Leagues on the Surface of the Sea without mixing therewith. For a While, the ſuſpended Water retains its natural Colour and Sweetneſs; but at length, the Heat of the Sun condenſing it, forms it into a Kind of light tranſparent Froth; this done, it preſently divides into an infinity of Parts, each whereof appears as if animated; moving this way and that, like little Inſects. The Fiſhes ſometimes catch at 'em as they paſs by: but ſoon abandon 'em. By degrees their Skin thickening and hardening, they at length become heavy enough to ſink to the Bottom, and aſſume the Figure of Oyſters.

The Perfection of *Pearls*, whether round, in form of Pears, or Olives, or irregular, conſiſts chiefly in the Luſtre and Clearneſs of the Colour; which they call the *Water*. There are ſome whoſe Water is white; which are thoſe moſt eſteem'd, in *Europe*. The Water of others borders on the Yellow, which ſome *Indians* and *Arabs* prefer to the White. Others are of a Lead-colour, others border on Black; and others are quite Black.

They are all liable to change with wearing; in 80 or 100 Years they uſually become of little value; eſpecially the white Ones, which turn Yellow, and ſpoil in 40 or 50 Years time.

The Difference of Colours doubtleſs ariſes from the different Parts of the Oiſter wherein they are form'd. When the Seed happens to be thrown into the Meſentery or Liver, or the Parts correſponding thereto, 'tis no wonder if the Impurities of the Blood change the Natural White.

In *Europe*, *Pearls* are ſold by the *Carat*-weight, the *Carat* containing four Grains.

In *Aſia*, the Weights us'd for *Pearls* are different, in different States. See CARAT.

The Term *Pearl* is only properly applied to what grows independant of the Shell. The Shell itſelf is call'd *Mother of Pearl*. See MOTHER *of Pearl*.

Thoſe Pieces which have grown thereto, and have been ſince ſeparated by the Addreſs of the Workman, are call'd *Wens of Pearls*; which are in effect nothing but roundiſh Excreſcencies, or Pieces of the Shell; tho' frequently us'd for real Shell. See WEN *of Pearl*.

Pearls, *F. Bouhours* obſerves, have this Advantage over precious Stones dug out of Rocks, &c. that the Latter owe their Luſtre to the Induſtry of Men; Nature only, as it were hews 'em out, and leaves the finiſhing of 'em to Art: But the Former are born with that beautiful Water which gives 'em their Value. They are found perfectly poliſh'd in the Abyſſes of the Sea; and Nature has put the laſt Hand to 'em 'ere they are ſeparated from the Mother.

Pearls of unuſual Figures, *i. e.* neither round, nor in the Pear-form, are call'd *Baroguas*, or *Scotch-Pearls*: Thoſe of unuſual Sizes, are call'd *Parangons*; as that of *Cleopatra* valued by *Pliny* at five hundred thouſand Crowns; that brought in 1574 to *Philip* II. of the Size of a Pigeons Egg, valued at 14400 Ducats; that of the Emperor *Rudolph*, mention'd by *Boethius*, called *La peregrina*, or the incomparable, of the Size of a Muſcade Pear, and weighing 30 *Carats*; and that mention'd by *Tavernier*, in the Hands of the Emperor of *Perſia*, in 1633, bought of an *Arab* for 32000 Tomans, which at 3 *l.* 9*s.* the Toman, amounts to 110400 *l. Sterling*.

Pearls, are of ſome Uſe in Medicine; but 'tis only the ſmalleſt Sort, call'd *Seed of Pearls* that is there uſed. The Quality required, is, that they be white, clear, and tranſparent; and truly oriental. They ſerve to make Cordial Potions, formerly much valued, but now fall'n much from their ancient Reputation; and ſcarce own'd by any but *Charletans*.

The Ladies alſo uſe certain Preparations of *Pearls*, as they are made to believe, for their Complexion; ſuch as the Whites of *Pearls*, Flowers, Eſſences, Spirits, Tinctures, &c. of *Pearl*; but they are all apparently Deceits.

PEARL *Fiſheries*.

Pearl is fiſh'd in the Seas of the *Eaſt-Indies*; in thoſe of *America*; and in ſome parts of *Europe*.

PEARL-*Fiſheries of the Eaſt*, are

I. The Iſland of *Bahren*, or *Baharem*, in the *Perſian* Gulph. This the *Portugueze* were Maſters of while they held *Ormus* and *Maſcata*; but it has been returned to the *Sophi* of *Perſia*, ſince the Time that Prince, with the Aſſiſtance of the *Engliſh*, took from 'em *Ormus*; and the *Arabs*, Maſcata.

II. The Fiſhery of *Catiſa*, on the Coaſt of *Arabia Felix*, over-againſt *Bahren*.

III. That of *Manar*, a Sea-port in the Iſle of *Ceylon*. The *Pearls* here fiſh'd, are the fineſt in all the Eaſt for their Water and Roundneſs; but they ſeldom exceed four *Carats*.

Laſtly, there are *Pearls* fiſh'd on the Coaſt of *Japan*: but they are coarſe and irregular, and little minded.

The *Pearls* of *Bahren* and *Catiſa* are thoſe commonly ſold in the *Indies*; they border a little on the Yellow, but the *Eaſtern* People don't value 'em the leſs for it; they eſteem it a Sign of their being Ripe and Mature, and are perſuaded, that thoſe which have this yellowiſh Tincture naturally, never change their Colour; and that on the contrary, the white Water does not hold above thirty Years, 'ere the *Pearl* aſſumes a filthy yellow Colour; by reaſon of the Heat of the Climate, and the Sweat of the Perſons who wear 'em.

American PEARL *Fiſheries*, are all in the great Gulph of *Mexico*, along the Coaſt of the *Terra-Firma*. There are five of 'em.

I. The Fiſhery of *Cubagna*, an Iſland five Leagues from new *Andaluſia*, in 10 *Deg.* $\frac{1}{2}$ N. *Lat*.

II. That of the Iſland *Marguerites*, or *Pearl* Iſland.

III. That of *Comogote* near the *Terra-Firma*.

IV. That of the River *de la Hach*, called *la Rencheria*.

V. That of St. *Martha* ſixty Leagues from the River *de Cattache*.

The *Pearls* of theſe three laſt Fiſheries are uſually of a good Weight; but ill form'd, and of a Livid-Water. Thoſe of *Cabagna* ſeldom exceed 5 *Carats*; but are found in abundance. But the greateſt Quantity, and the fineſt, both with regard to Weight and Water, are thoſe of the Iſland *Marguerite*.

PEARL *Fiſhery in Chineſe Tartary*, is near the City *Nipetroa*, ſituate on a Lake of the ſame Name: The *Pearls* here are leſs beautiful than thoſe of *Baharem*; and the Fiſhery leſs plentiful. 'Twas this Fiſhery that occaſioned the War between the *Chineſe* and *Muſcovites*, terminated towards the End of the laſt Century, by the *Jeſuites Pereira* and *Gerbillon*; and the Lake, which is of great Extent, divided between the two Nations; each whereof had pretended to the whole.

There are ſome *Pearl* Fiſheries in the *South-Sea*, but they are very inconſiderable.

PEARL *Fiſheries of Europe*, are in ſome Places on the Coaſts of *Scotland*, and in a River of *Bavaria*: But the *Pearls* found here are no ways comparable to thoſe of the *Eaſt-Indies*, or of *America*; tho' they ſerve for Necklaces, ſold ſometimes for a thouſand Crowns and upwards.

Manner of Fiſhing for PEARLS *in the* Eaſt-Indies.

There are two Seaſons of *Pearl*-Fiſhing in the Year; the firſt in *March* and *April*, the ſecond in *Auguſt* and *September*; the more Rain falls in the Year, the more plentiful are the Fiſheries.

In the Opening of the Seaſon, there are found ſometimes two hundred and fifty Barks on the Banks. In the larger Barks are two Divers, in the ſmaller, one. Each Bark puts off from Shore 'ere Sun-riſe, by a Land-breeze, which never fails; and returns again by a Sea-breeze, which ſucceeds it about Noon.

Aſſoon as the Barks are arrived, and have caſt Anchor; each Diver binds a Stone ſix Inches thick, and a Foot long under his Belly; which is to ſerve him as Ballaſt, and prevent his being driven away by the Motion of the Water; and to enable him to walk more ſteadily a-croſs the Waves.

Beſide this, they tye another very heavy Stone to one Foot, whereby they are ſunk to the Bottom of the Sea in a Moment. And as the Oyſters are uſually ſtrongly faſten'd to the Rocks, they arm their Fingers with Leathern Mittons, to prevent their being wounded in ſcraping 'em violently off; and ſome even carry an Iron Rake for the Purpoſe.

Laſtly, each Diver carries down with him a large Net, in manner of a Sack, tied to his Neck by a long Cord the other End whereof is faſten'd to the Side of the Bark. The Sack is deſtined for the Reception of the Oyſters gather'd from the Rock, and the Cord to pull up the Diver when his Bag is full, or he wants Air.

In this Equipage he precipitates himſelf, ſometimes above 60 Foot under Water. As he has no Time to loſe there, he has no ſooner arrived at the Bottom, than he begins to run from Side to Side, ſometimes on a Sand, ſometimes on a Clayey Earth, and ſometimes among the Points of Rocks; tearing off the Oyſters he meets withal, and cramming 'em into his Budget.

At whatever Depth they be, the Light is ſo great, that they eaſily ſee whatever paſſes in the Sea, with the ſame Clearneſs as on Land. And to their Conſternation, they ſometimes ſee monſtrous Fiſhes, from which, all their Addreſs in mudding the Water, &c. won't ſave 'em; but they become their Prey; and of all the Perils of the Fiſhery, this is one of the greateſt and muſt uſual.

The beſt Divers keep under Water for half an Hour, the reſt don't ſtay leſs than a Quarter. During which Time, they hold their Breath without the Uſe of Oils, or any other Liquors. See DIUING.

When they find 'emſelves ſtraiten'd, they pull the Roap to which the Bag is faſtened, and hold faſt by it with both Hand

Hands, when the People in the Bark, taking the Signal, heave 'em up into Air and unload 'em of their Fiſh, which is ſometimes five hundred Oyſters, ſometimes not above fifty.

Some of the Divers need a Moment's Reſpite to recover Breath; others jump in again inſtantly, continuing this violent Exerciſe without intermiſſion, for many Hours.

On the Shore they unload their Barks, and lay their Oyſters in an infinite Number of little Pitts, dug four or five Foot ſquare in the Sand; raiſing heaps of Sand over 'em to the Height of a Man, which, at a Diſtance, look like an Army rang'd in Battle.

In this Condition they are left, till the Rain, Wind, and Sun have oblig'd 'em to open, which ſoon kills 'em. Upon this the Fleſh rots and drys, and the *Pearls*, thus diſengaged, tumble into the Pit upon taking the Oyſters out.

The Fleſh of the Fiſh is excellent, and if what ſome Naturaliſts maintain be true, *viz.* that the *Pearls* are Stones, form'd there by the ill Conſtitution of the Body, as ſometimes happens in Men, and in the *Bezoard*; this Diſeaſe does not alter the Humours; at leaſt, the *Paravas*, who eat 'em, don't find any Difference between thoſe that have *Pearls* and thoſe that have none.

After clearing the Pitts of the groſſer Filth, they ſift the Sand ſeveral times, to ſeparate the *Pearls*. But what Care ſoever they take herein, they always loſe a great many. After cleaning and drying the *Pearls*, they are paſs'd thro' a Kind of Sieves, according to their Sizes. The ſmalleſt are ſold for Seed of *Pearls*; the reſt are put up by Auction, and ſold to the higheſt Bidder.

Manner of Fiſhing for Pearl *in the* Weſt-Indies.

The Seaſon for Fiſhing is uſually from *October* to *March*. In this Time there ſet out from *Carthagena* ten or twelve Barks, under the Convoy of a Man of War, call'd *Larmadella*. Each Bark has two or three Slaves, Divers.

Among the Barks, there is one call'd *Capitana*; to which all the reſt are oblig'd to bring at Night what they have caught in the Day, to prevent Frauds. The Divers never laſt long, by reaſon of the great Hardſhips they ſuſtain; continuing ſometimes under Water above a Quarter of an Hour.

The reſt is the ſame, as in the *Eaſt-India* Fiſheries.

The *Indians* knew the Value of their *Pearls* before the Diſcovery of *America*; and when the *Spaniards* arriv'd there, they found great Quantities ſtor'd up, which the *Americans* ſet great Value on. But they were almoſt all imperfect, and their Water yellow and ſmoaky; by reaſon they us'd Fire in opening the Fiſhes.

In the *Dictionaire de Commerce*, is a Table of the Value of *Pearls*, communicated to the Author by an able Hand. As *Pearls* make a very curious Article in Commerce, and as their Value is a Thing little known among us; we ſhall here give the Reader an Abridgement of the ſame, reduced to our Money, on the Foot of 1 *s.* 6*d.* *Sterling* the *French* Livre, or 4 *s*, 6*d.* the *French* Crown.

Value of all kinds of Pearls, with regard to their different Weight.

Seeds of PEARLS.

	l.	*s.*	*d. per Oz.*
Seeds of *Pearls* not perforated, fit for grinding, are worth	00	09	
Fine Seed of *Pearls* perforated for ſmall Necklace or Embroidery,	01	01	
Ditto a little larger,	01	16	

Ragged, or Irregular PEARLS.

Of 500 to the Ounce are worth	03	00
300	06	00
150	11	02
100	18	00
60	33	15
30	75	00

Regular ROUND PEARLS.

	l.	*s.*	*d. per Oz.*
One of ½ a Grain is worth	00	00	2½
Of a Grain	00	00	4½
Of a Grain and half	00	01	0
Of two Grains	00	02	0
Of 2 Grains and half	00	04	6
Of 3 Grains	00	07	6
Of 4 Grains, or 1 *Caract*	00	18	0
Of 5 Grains	01	10	0
Of 6 Grains	02	05	0
Of 7 Grains	03	01	0
Of 8 Grains, or two *Caracts*	04	10	0
Of 9 Grains	06	00	0
Of 10 Grains	08	05	0
Of 11 Grains	09	15	00
Of 13 Grains	13	05	00
Of 15 Grains	21	00	00
Of 17 Grains	27	10	00
Of 20 Grains, or 5 *Caracts*	37	10	00
Of 22 Grains	52	10	00
Of 24 Grains, or 6 *Caracts*	82	10	00
Of 26 Grains	99	00	00
Of 28 Grains, or 7 *Caracts*	150	00	00
Of 32 Grains, or 8 *Caracts*	225	00	00
Of 36 Grains, or 9 *Caracts*	262	10	00
Of 40 Grains, or 10 *Caracts*	300	00	00

As to *Pearls* in form of Pears, tho' equally perfect, and of equal Weight with the round Ones, their Value is much inferior: However, when two are found that match well, their Value is but leſs by one third.

Falſe PEARLS, are counterfeit, or factitious *Pearls*, reſembling the true Ones in Water or Colour. Theſe anciently were only made of Glaſs; with a Kind of Tincture of Quickſilver Withinſide, afterwards they us'd Wax, cover'd over with a fine Brillant Fiſh Glue.

There has ſince been invented in *France*, another manner of making 'em, ſo near the natural Ones in Luſtre and Water, that they deceive a good Eye. Theſe are what the Ladies now generally wear in defect of true *Pearl*; little Necklaces whereof they deſpiſe; and the great ones being generally too dear.

Method of making Falſe Pearls.

This curious Invention is owing to the *Sieur Janin*, and is the more to be valued, in that, 'tis not only very ſimple, but prevents the ill Effects of falſe *Pearls*, made with Quickſilver within, or Fiſh Glue without.

That ingenious Artiſt having obſerv'd, that the Shell of a little Fiſh call'd *Able*, found plentifully in the River *Marne*, had not only all the Luſtre of the real *Pearl*; but that after diſſolving it in Water, it return'd to its former Brilliant upon drying; he bethought himſelf of ſetting a Piece thereof in the Cavity of a Bead, or Grain of *Giraſol*, which is a kind of Opal or Glaſs, bordering much on the Colour of *Pearl*. The Difficulty was to get it in there, and when in, to ſpread it equally throughout the Bead.

A little Glaſs Tube ſix or ſeven Inches long, and a Line and half in Diameter, but very ſharp at one End, and a little crooked, ſerv'd for the introducing of the Matter, by blowing it with the Mouth, after having taken up a Drop with the pointed Extremity of the *Tube*; and to ſpread it throughout the inner Circumference, he contented himſelf to ſhake it gently a long Time, in a little Oſier-Basket lined with Paper.

The diſſolved Shell, faſten'd by this Motion in the Inſide of the Cryſtallin, reſumes 'its Luſtre as it dries. To increaſe this Luſtre, in Winter, they lay the Beads in a Hair Sieve, or a Bolting-cloath, which they ſuſpend to the Ceiling, and under it, at 6 Foot Diſtance, lay heaps of hot Aſhes. In Summer they ſuſpend 'em in the ſame Manner, but without any Fire.

The *Pearls*, thus well dried, become very Brilliant; and nothing remains but to ſtop up the Aperture, which is done by melted Wax, convey'd into it with a *Tube* like that us'd in introuducing the diſſolved Shell.

After clearing off the ſuperfluous Wax, they perforate the *Pearls* with a Needle, and ſtring 'em; and thus they commence *Necklace*.

Mother of PEARL, is the Shell of the *Pearl*-Oyſter, or Fiſh wherein the *Pearls* are form'd. See PEARL.

The Shell within-ſide is very ſmooth, and poliſh'd, and of the Whiteneſs and Water of *Pearl* itſelf; and it has the ſame Luſtre without-ſide, after the firſt *Laminæ*, or Leaves which make the outer Coat of this rich Shell Fiſh, have been cleared off with *Aqua fortis* and the Lapidaries Drill.

Mother of Pearl is us'd in inlay'd Works, in *China* Verniſh, and in ſeveral Toys, as Snuff-boxes, *&c.*

Wens of PEARL, are certain Excrecenſces, or prominent Places, in form of half *Pearls*; ſometimes found in the Bottom of the *Pearl* Shells.

The *Lapidaries* have the Addreſs to Saw off theſe Protuberances, to join 'em together, and to Uſe 'em in ſeveral Works of *Jewelry*, as if they were really *Pearls*.

PEARL, in Heraldry, is us'd by ſuch as *blazon* with precious Stones, inſtead of Colour and Metals, for *Argent*, or White. See ARGENT.

PEARL, *Pin*, or *Web* in Medicine, an unnatural Speck, or thick Film over the Eye. See PANNUS. See alſo UNGUIS.

PECCANT in Medicine, an Epithet given to the Humours of the Body, when they offend either in Quantity or Quality, *i. e.* when they are either Morbid, or in too great Abundance. See HUMOUR.

Moſt Diſeaſes ariſe from *Peccant* Humours, which are either to be corrected by Alteratives and Specificks, or evacuated. See DISEASE, *&c.*

PECK, a Meaſure, or Veſſel us'd in meaſuring Grains, Pulſe, and the like dry Matters. See MEASURE.

The Standard, or Wincheſter *Peck*, contains two Gallons; each Gallon weighing about eight Pound *Troy.* See GALLON.

Four *Pecks* make a Buſhel; four Buſhels a Comb or Carnock, *&c.* See BUSHEL.

Beſides the general, or Wincheſter *Peck*, there are *Local Pecks*, containing ſome more, ſome leſs, as the *Lancaſter Peck* containing ſix Gallons, *&c.*

PECQUETS *Duct*, in Anatomy, the *Thoracic Duct*; thus call'd from its Diſcoverer *Pecquet.* See THORACIC DUCT.

PECTEN *Arboris*, in Botany, is the Grain of the Wood of any Tree. See WOOD.

PECTEN, in Anatomy, is us'd by ſome Authors for the *Regio pubis*, or lower Part of the *Hypogaſtrium.* See HYPOGASTRIUM.

PECTINIS *Os* in Anatomy, the ſame with *Os Pubis.* See OS PUBIS.

PECTINEUS, in Anatomy, the third of the fifteen Muſcles of the Thigh; ſo call'd, becauſe it has its Origin in the Fore-part of the *Os Pectinis.*

'Its Inſertion is in the Thigh, under the left *Trochanter*: the *Pectineus*, with the *Pſoas* and *Iliacus*, draw the Thigh forwards, and of Conſequence bend it.

PECTORAL, ſomething ralating to the *Breaſt*, *Pectus.* See BREAST,

In the *Romiſh* Church, Biſhops and regular Abbots wear a *Pectoral* Croſs, *i. e.* a little Croſs of Gold, hanging from the Neck down the Breaſt.

PECTORAL *Medicines*, or ſimply *Pectorals*, are Remedies proper to ſtrengthen and relieve the Breaſt and Stomach; or againſt Diſeaſes of the Breaſt and Stomach.

Their ordinary Intentions are either to attenuate, or thicken the Humours of thoſe Parts, which cauſe Coughing, *&c.* and render 'em fit to be expectorated, or ſpit out.

PECTORALE, or PECTORAL, in the *Jewiſh* Law. See RATIONALE.

PECTORALIS, in Anatomy, a Muſcle which moves the Arm forwards. It ariſes by a fleſhy and ſemicircular Beginning, from the *Clavicula*, *Sternum*, and Cartilages of the ſix ſuperior Ribs; and covereth a great Part of the Breaſt, and is inſerted by a ſhort, but ſtrong and broad Tendon into the upper and inner Part of the *Humerus*, between the *Biceps* and *Deltoides.*

Its Fibres, near their Inſertion, decuſſate one another. Thoſe which come from the *Clavicle*, or firſt Ribs, are on the Lower-ſide of the Tendon, and thoſe from the inferior Ribs on the Upper-ſide of the Tendon.

Naturaliſts obſerve a ſpecial Mark of Providence in the Size and Strength of the *Pectoral* Muſcle in different Animals. 'Tis by the Action of this Muſcle, that the flying of Birds is chiefly perform'd: Accordingly it is much larger and ſtronger in Birds than in any Animals not made for flight.

Borelli obſerves, that in Men the *Pectoral* Muſcles are ſmall; ſcarce the 50th or 70th Part of all the other Muſcles: But in Birds they are vaſtly large, equalling, nay, exceeding in Bulk and Weight all the other Muſcles of the Birds together. See FLYING.

PECTORALIS *internus.* See TRIANGULARIS.

PECTORIS *os*, the ſame as *Sternum.* See STERNUM.

PECULATE, PECULATUS, in the Civil Law, the Crime of pilfering the Public Money, by a Perſon who is the Manager, Depoſitary, or Receiver thereof; ſo call'd, *quaſi pecuniæ ablatio.*

The Civil Lawyers uſe *Peculate* for any Theft of a Thing Sacred, Religious, Public, or Fiſcal. *Peculate* is proſecuted even on the Criminals Heir.

PECULIUM, the Stock which a Perſon in the Power of another, as a Slave, a Minor, *&c.* may acquire by his own Induſtry, without any Advance or Aſſiſtance from his Father or Maſter; but merely by their Permiſſion.

The *Romans* had a Civil and a Military *Peculium.*

The Word is uſually derived a *Pecunia & Pecoribus*, becauſe the whole Eſtate antiently conſiſted in Money and Cattle.

Hence *Peculium* comes to be us'd among the *Romaniſts*, for what each Monk or Religious reſerves and poſſeſſes to himſelf.

Some ſay that the *Peculium* of a Religious, when prefer'd to a Cure, does not ceaſe to belong to the Monaſtery; and that the Property thereof never abſolutely reſides in the Religious.

PECULIAR in the Canon Law, a particular Pariſh or Church, that hath Juriſdiction within it ſelf, for Probate of Wills, *&c.* Exempt from the Ordinary, and the Biſhops Courts, and *peculiarly* belonging to the Archbiſhop. See ARCH-BISHOP.

In the Province of *Canterbury* are 57 ſuch *Peculiars.*

The King's Chapel is a *Royal Peculiar*, exempt from all ſpiritual Juriſdiction, and reſerved to the Viſitation and immediate Government of the King himſelf, who is ſupreme Ordinary. See CHAPEL.

It is an ancient Privilege of the See of *Canterbury*, that whereſoever any Mannors or Advowſons do belong to it, they forthwith become exempt from the Ordinary, and are reputed *Peculiars.*

Court of PECULIARS, is a Court where the Affairs of *Peculiars* are tranſacted. See COURT.

PECUNIA, *Money*, in our old Law Books, *&c.* is ſometimes us'd for Cattle, and ſometimes for other Goods, as well as Money. See MONEY, *&c.*

In the Emendat. of the Laws of *Edward* the Confeſſor, by *Will.* the 1ſt, 'tis ordered that no *Viva Pecunia*, living *Pecunia*, *i. e. Chattle* be bought or ſold, except within Cities; and that before three ſufficient Witneſſes. See CHATTEL.

Again, *Qui habet 30 Denariatus vivæ Pecuniæ*, &c. In *Domeſday*, *pecunia* is frequently us'd, *pro pecude*; as, Paſture *ad pecuniam Villæ*; *& pecunia Eccleſiæ*, was antiently us'd for the Eſtate of the Church.

Pecunia Sepulchralis, was Money antiently paid to the Prieſt at the opening of the Grave, for the Good and Behoof of the deceaſed's Soul, and which our *Saxon* Anceſtors call'd *Soul-Scot*, and *Animæ Symbolum.*

PEDAGE, *Toll*, or a Local Right exacted on Perſons, Goods, and Carriages paſſing thro' certain Places. See TOLL.

Pedage is uſually levied for the Repairing of Roads, Bridges, Cauſeways, the Paving of Streets, *&c.*

Antiently, thoſe who had the Right of *Pedage*, were to keep the Roads ſecure, and Anſwer for all Robberies committed on Paſſengers between Sun and Sun; which is ſtill obſerved in ſome Parts of *England*, and in *Italy*, where there are Guards call'd *Stationaries*, eſtabliſh'd for the Security of Merchants, particularly at *Terracina*, on the Road between *Rome* and *Naples.*

PEDAGOGUE, a Term of Reproach, us'd for a Tutor, or Maſter, to whom is committed the Diſcipline and Direction of a Scholar; to be inſtructed in *Grammar* and other Arts.

The Word is form'd from the *Greek* παιδῶν ἀγωγὸς, *puerorum ductor*, leader of Boys. M. *Fleury* obſerves, that the *Greeks* gave the Name *Pedagogue* to their Slaves, appointed to attend their Children, lead 'em, and teach 'em to walk, *&c.*

PEDAGOGUES, among the *Romans* were likewiſe Slaves, to whom was committed the Care and Inſtruction of Children.

PEDALS, the large Pipes of an Organ, ſo call'd, becauſe play'd and ſtop'd with the Foot. See ORGAN.

The *Pedals* are the largeſt Pipes in the Machine, they are made Square, of Wood; uſually thirteen in Number.

They are of modern Invention, and ſerve to carry the Sounds an *Octave* deeper than the reſt.

PEDANEUS, in the Civil Law, a petty Judge; who has no formal Seat of juſtice, but hears Cauſes ſtanding, and without any Tribunal.

The Word is form'd from *Stans* in *Pedibus*; and is us'd among the Ancients in oppoſition to the *Roman* Magiſtrates, who were ſeated on Chariots, in *Sella Curuli*, or had a Tribunal or Bench rais'd on high.

The *Roman Pedanei*, therefore, were ſuch as had no Tribunal, nor *Pretorium*, but render'd Juſtice *de Plano*, or *Plano pede.*

From the 82 Novel, it appears that the Emperor *Zeno* eſtabliſh'd theſe *Pedanei*, in the See of every Province; and that *Juſtinian* erected ſeven of 'em at *Conſtantinople*, in manner of an Office; granting 'em Power to judge in any Sum as high as 300 Crowns.

PEDANT, a School-Maſter, or *Pedagogue*, who profeſſes to inſtruct and govern Youth, teach 'em the Humanities and the Arts. See PEDAGOGUE.

PEDANT is alſo us'd for a coarſe, unpoliſh'd, ſtiff, Man of Learning, who makes an impertinent Uſe of the Sciences, and abounds in vile, unſeaſonable Criticiſms and Obſervations. *Dacier* defines a *Pedant*, a Perſon who has more Reading than good Senſe.

Pedants, are People ever arm'd with Points and Syllogiſms; breathe nothing but Diſpute and Chicanery, and purſue a Propoſition to the laſt Limits of Logic: *Malbranche* deſcribes a *Pedant* as a Man full of falſe Erudition, who makes a Parade of his Knowledge, and is ever quoting ſome *Greek* or *Latin* Author, or hunting back to a remote Etymology.

St *Evremont* ſays, that to paint the Folly of a *Pedant*, we muſt repreſent him turning all Converſations to ſome one Science he is beſt acquainted withal.

There are *Pedants* of all Conditions, and of all Robes: and *Wicquefort* ſays, an Embaſſador always attentive to Formalities and Decorums, is nothing elſe but a *Political Pendant.*

PEDANTRY, or **PEDANTISM**, the Quality or Manner of a *Pedant*.

To ſwell up little and low Things, to make a vain Show of Science, to heap up *Greek* and *Latin* without Judgement, to pull and tear thoſe who differ from us about a Paſſage in *Suetonius*, or the Etymology of a Word, to ſtir up all the World againſt a Man for not admiring *Cicero* enough, to be intereſted for the Reputation of an Ancient as if he were our next of Kin, is what we properly call *Pedantry*.

PEDESTAL, in Architecture, the loweſt Part of an order of Columns; being that which ſuſtains the Column; and ſerves it as a Foot or Stand. See COLUMN.

The Word is form'd from the *Latin Pes Pedis*, Foot and ςυλ& *Column*.

The *Pedeſtal*, call'd by the *Greeks*, *Stylobates* and *Stereobates*, conſiſts of three principal Parts; *viz.* a ſquare Trunk or *Dye*, which makes the Body; a *Corniche*, the Head; and a *Baſe* the Foot of the Pedeſtal. See DYE, CORNICHE, and BASE.

The *Pedeſtal* is properly an Appendage to a Column; not an eſſential Part thereof; tho' *M. le Clerc* thinks 'tis Eſſential to a compleat Order. See ORDER.

The Proportions and Ornaments of the *Pedeſtal*, are different in the different Orders: *Vignola*, indeed, and moſt of the Moderns make the *Pedeſtal* and its Ornaments in all the Orders, one third of the Height of the Column, including the Baſe and Capital; but ſome deviate from this Rule.

M. *Perrault* makes the Proportions of the three conſtituent Parts of *Pedeſtals* the ſame in all the Orders, *viz.* the Baſe or Socle one fourth of the *Pedeſtal*; the Corniche an eighth Part; and the Socle or Plinth of the Baſe two thirds of the Baſe it ſelf. The Height of the Dye is what remains of the whole Height of the *Pedeſtal*.

Tuſcan PEDESTAL, is the ſimpleſt, and the loweſt:

Palladio and *Scamozzi*, make it three Modules high; *Vignola* 5. See PROPORTION.

Its Members in *Vignola*, are only a *Plinth* for a Baſe, the *Dye*, and a *Talon* crowned, for a Corniche.

The *Tuſcan* Column has rarely any Baſe. See TUSCAN.

Doric PEDESTAL, *Palladio* makes four Modules, five Minutes high, *Vignola* Modules four Minutes.

In the Antique, we not only don't meet with any *Pedeſtals*; but even, not with any Baſe in the *Doric* Order.

The Members in *Vignola*'s *Doric Pedeſtal*, are the ſame with thoſe in the *Tuſcan*, with the Addition of a Mouchette in its Corniche. See DORIC.

Jonic PEDESTAL, in *Vignola* and *Serlio*, is 6 Modules high; in *Scamozzi* 5; in the Temple of *Fortuna Virilis* 'tis 7 Mod. 12 Min.

Its Members and Ornaments are moſtly the ſame with thoſe of the *Doric*, only a little richer.

The *Pedeſtal* now uſually follow'd, is that of *Vitruvius*; tho' we don't find it in any Work of the Antique.

Some in lieu hereof Uſe the *Attic* Baſe, in imitation of the Ancients. See ATTIC.

Corinthian PEDESTAL is the richeſt and moſt delicate. In *Vignola* 'tis 7 Mod. high; in *Palladio* 5 Mod. 1 Min. in *Serlio* 6 Mod. 15 Min. in the *Coliſeum* 4 Mod. 2 Min.

Its Members in *Vignola* are as follows: in the Baſe are a *Plinth* for a Socle, over that a *Tore* carved; than a *Reglet*; a *Gula* inverted and inrich'd, and an *Aſtragal*.

In the *Dye* are a *Reglet*, with the *Conge* over it, and near the Corniche a *Reglet* with a *Conge* underneath.

In the Corniche is an *Aſtragal* a *Frieze*, *Fillet*, *Aſtragal*, *Gorge*, *Talon*, and a *Fillet*. *See each under its proper Article.*

Compoſite PEDESTAL, in *Vignola*, is of the ſame Height with the *Corinthan*, *viz.* 7 Mod. in *Scamozzi* 6 Mod. 2 Min. in *Palladio* 6 Mod. 7 Min. in the *Goldſmiths* Arch 7 Mod. 8 Min.

Its Members in *Vignola*, are the ſame with thoſe of the *Corinthian*; with this Difference, that whereas theſe are moſt of 'em enrich'd with Carvings in the *Corinthian*, they are all plain in the *Compoſite*.

Nor muſt it be omitted, that there is a Difference in the Profiles of the Baſe and Corniche in the two Orders.

The Generality of Architects, *Daviler* obſerves, uſe Tables or Pannels, either in *Relievo* or *Creux*, in the Dyes of *Pedeſtals*; without any regard to the Character of the Order. Thoſe in *Relievo*, he obſerves, only fit the *Tuſcan* and *Doric*; the three others muſt be indented; which he adds, is a Thing the Ancients never practis'd, as being contrary to the Rules of Solidity.

Square PEDESTAL, is that whoſe Height and Width are equal; as that of the Arch of the Lyons at *Verona*, of the *Corinthian* Order; and ſuch, ſome Followers of *Vitruvius*, as *Serlio*, *Philander*, &c. have given to their *Tuſcan* Orders.

Double PEDESTAL, is that which ſupports two Columns, and is more in Width than Height.

Continued PEDESTAL, that which ſupports a Row of Columns without any Break or Intterruption; ſuch is that which ſuſtains the fluted Ionic Columns of the Palace of the *Tuillieres* on the Side of the Garden.

PEDESTALS *of Statues*, are thoſe ſerving to ſupport Figures or Statues. See STATUE.

Vignola obſerves, there is no Part of Architecture more Arbitrary, and wherein more Liberty may be taken than in the *Pedeſtals* of Statues; there being no Laws preſcribed by Antiquity; nor any even ſettled by the Moderns.

There is no ſettled Proportion for theſe *Pedeſtals*; but the Height depends on the Situation, and the Figure they ſuſtain. Yet, when on the Ground, the *Pedeſtal* is uſually two thirds, or two fifths of that of the Statue: But the more Maſſive the Statue, the ſtronger the *Pedeſtal*.

Their Form, Character, &c. are to be Extraordinary and Ingenious, far from the Regularity and Simplicity of the *Pedeſtals* of Columns. The ſame Author gives us a great Variety of Forms, Oval, Triangular, Multangular, &c.

PEDICLE, in Botany, the little Stalk or Tail, whereby the Leaf, Fruit, or Flower is connected to its Branch or Stem. See FLOWER, LEAF, &c.

Flowers will keep freſh a long Time after gathering, by immerging their *Pedicles* in Water.

The great Secret of preſerving Fruits for the Winter, is to ſeal up their *Pedicles* with Wax.

Cherries with the ſhorteſt *Pedicles*, are eſteem'd the beſt.

The Piſtil of the Flower frequently becomes the *Pedicle* of the Fruit. See PISTIL.

The Word is a Dimmutive of the *Latin*, *Pes* Foot.

PEDIMENT, in Architecture, a Kind of low Pinnacle; ſerving to crown an Ordinance, or finiſh a Frontiſpiece; and placed as an Ornament over Gates, Doors, Windows, Niches, Altars, &c. See CROWNING, &c.

The Pinnacles of the plaineſt Houſes, *Vitruvius* obſerves, gave Architects the firſt Idea of this noble Part; which ſtill retains the Appearance of its Original. See PINNACLE.

The Parts of the *Pediment* are, the *Tympanum*, and its *Corniche*.

The firſt is the Pannel naked, or Area of the *Pediment*, enclos'd between the Corniche, which crowns it, and the Entablature, which ſerves it as a Baſe or Socle. See TYMPANUM, &c.

Architects have taken a deal of Liberty in the Form of this Member: Nor do they vary leſs as to the Proportion of the *Pediment*.

The moſt beautiful, according to *Daviler*, is that where its Height is about one fifth of the Length of its Baſe.

It is deſcribed thus: divide the Line *a b*, (Tab. Architecture Fig. II.) which is the Length of the Baſe, into two equal Parts, in the Point *c*, by means of the Perpendicular *f d*; in this Perpendicular, take the Part *e d*, equal to *a c*; and from the Point *d*, as a Centre, deſcribe the Arch *a e b*. The Point of the Perpendicular cut in *e*, will be the Top of the *Pediment a e b*; and the Corniche, and the Triangular Space included therein, the *Tympanum*.

Vitruvius calls the *Pediments*, *Faſtigia*; a Word which ſignifies a Roof rais'd, or pointed in the Middle, which Form among the *Romans* was peculiar to Temples. All their Dwelling-houſes are cover'd in the Plat-form manner; and *Salmaſius* on *Solin* obſerves, that *Cæſar* was the firſt who obtain'd leave to Roof his Houſe with a Ridge or Deſcent, after the manner of Temples. See PLAT-FORM.

Pliny tells us, that *Pediments* were Firſt made to place Statues upon, whence they were call'd *Plaſtæ*.

The *Pediment* is uſually Triangular, and ſometimes an equilateral Triangle, call'd alſo a *pointed Pediment*; ſometimes it is *Circular*; tho' *Felibien* obſerves, that we have no Inſtance of round *Pediments* in the Antique, beſide thoſe in the Chapels of the *Rotondo*.

Sometimes its upper Corniche is divided into three or four Sides, or right Lines. Sometimes the Corniche is cut, or open a Top; which is an Abuſe introduced by the Moderns, particularly *Michael Angelo*; for the Deſign of this Part, at leaſt over Doors, Windows, &c. being chiefly to ſhelte r thoſe underneath from the Rain; to leave it open in the Middle, is to fruſtrate its End.

Sometimes the *Pediment* is form'd of a couple of Rolls, or Wreathes, like two Conſoles join'd together. See CONSOLE.

Sometimes the *Pediment* is without Baſe, or its lower Corniche is cut out, all but what is beſtow'd on two Columns, or Pilaſters, and on theſe an Arch or Sweep rais'd, in lieu of an Entablature; of which *Serlio* gives an Inſtance in the Antique, in a *Corinthian* Gate at *Foligny*, in *Umbria*; and *Daviler*, a more Modern one, in the Church of St *Peter* at *Rome*.

Under this kind of *Pediments*, come thoſe little arch'd Corniches, which form *Pediments* over Doors and Windows, ſupported by two Conſoles, in lieu either of Entablature or Columns.

Sometimes the *Pediment* is made double, *i.e.* a leſs *Pediment* is made in the *Tympanum* of a larger, on account of ſome Projecture in the Middle; as in the Frontiſpiece of the Church of the Great *Jeſus* at *Rome*; but this Repetition is an abuſe in Architecture; tho' authoriz'd by very good Buildings; as the large Pavillion of the *Louvre*, where the *Caryatides* ſupport three *Pediments* one in another.

Sometimes the *Tympanum* of the *Pediment* is cut out, or left open, to let in light; as we ſee under the Portico of the Capitol at *Rome*.

Laſtly, this open *Pediment* is ſometimes triangular, and enrich'd with Sculpture, as Roſes, Leaves, *&c.* as we find it in moſt of the *Gothic* Churches.

M. le Clerc obſerves, that the Modillions in the Corniche of the *Pediment* ſhou'd always anſwer exactly over thoſe of the Entablature. Indeed, *Vitruvius* ſays, the Ancients did not allow any Modillions at all in *Pediments*. See MODILLION.

The ſame *M. le Clerc* obſerves, that the Corniche which ſerves the *Pediment* as a Baſe, ſhou'd have no *Cymatium*; by reaſon the *Cymatium* of the reſt of the Entablature, when it meets the *Pediment*, paſſes over it.

This Change of Determination occaſions a conſiderable Difficulty; the *Cymatium*, in this Caſe, appearing too broad in the Turn of the Angle. To remedy which, the Architects have recourſe to ſeveral Expedients.

A pointed Pediment may crown three Arches; but a *circular Pediment* can only crown one agreeably.

One wou'd never uſe above two *Tympana* over each other in the ſame Frontiſpiece; and even where there are two, 'twou'd be proper to have the lower Circular, the upper pointed.

The Word is form'd of the *French Pere* and *Degree*, *q. d.* Degree of Fathers or Anceſtors.

PEDIGREE, *Deſcent* or *Genealogy*. See DESCENT and GENEALOGY.

PEDICULARIS *Morbus*, in Medicine, the *louſy Diſtemper*; a Diſeaſe ariſing from ſome uncommon Corruption in the Body, which generates infinite Quantities of Lice on the Skin.

Herod died of the *pedicular* Diſeaſe

The Word comes from the *Latin Pediculus*, Louſe.

PEDIÆAN, in Antiquity. The City of *Athens* was antiently divided into three different Quarters; one on the Deſcent of a Hill; another on the Sea-ſhore; and a third in a Plain between the two.

The Inhabitants of the middle Region were call'd Πεδιεῖς *Pediæans*; or according to *Ariſtotle*, *Pediaci*; thoſe of the Hill, *Diacrians*; and thoſe of the ſhore, *Paralians*.

Theſe Quarters uſually compoſed ſo many different Factions: *Piſiſtratus* made uſe of the *Pediæans* againſt the *Diacrians*.

In the time of *Solon*, when a Form of Government was to be choſen, the *Diacrians* wou'd have it *Democratic*; the *Pediæans* demanded an *Ariſtocracy*; and the *Paralians* a mixt Government.

The Word is form'd from the *Greek* πεδίον plain, flat.

PEDIÆUS, in Anatomy, is the ſecond of the Extenſor Muſcles of the Foot, *Pes*; whence its Name. See FOOT.

It has its Origin in the lower Part of the *Peronæum*, and annular Ligament; and is divided into four Tendons, which are inſerted into the external Part of the firſt Articulation of the four Toes.

Its Uſe is to extend the Foot together with the firſt of the *Extenſors*, call'd *Extenſor Communis*. See EXTENSOR.

Pedo BAPTISM. See PÆDO *Baptiſm*.

PEDUNCULI, in Anatomy, two medullary Proceſſes of the *Cerebellum*, whereby that Part is join'd to the *Medulla oblongata*. See CEREBELLUM and MEDULLA.

Willis, who firſt gave 'em the Name, obſerved in 'em three diſtinct Proceſſes on either Side, the two firſt whereof go to the *Teſtes*, the ſecond directly from the *Cerebellum* to the *Medulla oblongata*, decuſſating the former, and faſtning the *Proceſſus Annularis*. And the third, ſpringing from the hind Proceſs of the *Cerebellum*, is inſerted into the *Medulla oblongata*; looking like an additional Chord to it.

PEDIS *Abſciſſio*, Cutting off a Foot; a Puniſhment antiently inflicted among us: as appears by the Laws of *William* the Conqueror, by *Ingulphus* and other Authors.

Interdicimus ne quis occidatur, vel ſuſpendatur, pro aliqua Culpa, ſed eruantur Oculi, Abſcindantur Pedes, *vel Teſticuli, vel manus*, &c. *Leg.* Will. *Cap.* 1.

So *Ingulphus, ſub pœna perditionis dextri ſui pedis*, &c.

PEDOMETER, or PODOMETER, or *Way-wiſer*, a Mechanical Inſtrument, in form of a Watch; conſiſting of various Wheels with Teeth, catching in one another; all diſpoſed in the ſame Plane; which by means of a Chain or String faſtned to a Man's Foot, or the Wheel of a Chariot, advance a Notch each Step, or each Revolution of the Wheel; ſo that the Number being mark'd on the Edge of each Wheel, one may number the Paces, or Meaſure exactly the Diſtance from one Place to another. See WAY-WISER.

The Word is form'd from the *Greek* πȣ̃ς, *Pes*, Foot; and μέτρον, Meaſure.

POMERETER, is ſometimes, alſo, us'd for a *Surveying Wheel*, an Inſtrument chiefly us'd in meaſuring Roads; popularly call'd the *Way-wiſer*. Which ſee

PEDRERO, or PETTERERO, a ſmall Piece of Ordnance, chiefly us'd on board Ships; for the diſcharging of Nails, broken Iron, or Partridge Shot on an Enemy attempting to board. See ORDNANCE and MORTAR.

They are generally open at the Breech, and their Chamber made to take out, to be loaded that Way, in lieu of the Muzzle. See CHAMBER.

PEEK, in the Sea Language, a Term us'd in various Senſes.

E. gr. an Anchor is ſaid to be *a-peek*, when the Ship being about to weigh, comes over her Anchor, ſo as the Cable hangs perpendicularly between the Hawſe and the Anchor; the bringing of a Ship into which Poſition they call *heaving a-peek*.

A Ship is ſaid to *ride a-peek* when ſhe lies with her Main and Fore-yards hoiſed up; having one End of her Yards brought down to the Shrouds, and the other rais'd up an End; which is chiefly done when ſhe lies at reſt in Rivers, leſt other Ships falling foul on her, ſhou'd break her Yards.

To ride a broad Peek, denotes the ſame, excepting that the Yards here are only rais'd to half the Height.

To Peek the Miſſen, is to put the Miſſen-yard perpendicular by the Maſt.

The Room in the Hold, from the Bitts forward to the Stem, where Men of War keep their Powder, and Merchant Men their Victuals, is alſo call'd *the Peek*.

PEER, *Par*, denotes an equal, or one of the ſame Rank and Condition.

Hence, in ſome Councils or Aſſemblies, we find, *with the Conſent of our Peers, Biſhops, Abbots*, &c.

Afterwards, *Peer* was applied to the Vaſſals or Tenants of the ſame Lord, who were oblig'd to ſerve and aſſiſt him in his Courts: They were call'd *Pares*, becauſe equal in Function, and *Peers in Fiefs* or *Fees*; becauſe, holding Fees of the Lord; or becauſe their Buſineſs in Court was to ſit and judge under their Lord of Diſputes ariſing on Fees. See VASSAL.

The Number of Peers required to ſit in Court, was at leaſt four; and when there happen'd to be too many Peers in the ſame Lordſhip, the Lord uſually choſe out 12 who had the Title of *Peers* by way of Diſtinction and Eminence. See VASSAL.

There are Inſtances of Women, who have aſſiſted at Judgements, on account of their Tenements, not of their being Wives of *Peers*.

The Origin of theſe *Peers* of Fees is as ancient as that of the Fees they were appointed to judge of; from theſe we derive our common *Juries*, and our Peers of the Realm. See JURY *and Peer of the Realm*.

PEER of the *Realm*, a noble Lord, or a Perſon who has a Seat, and Vote in the Upper-houſe of Parliament; hence call'd the *Houſe of Peers*. See NOBLE and PARLIAMENT.

There are five Degrees of Peerage, or Nobility, *viz.* That of a *Duke*, *Marqueſs*, *Earl*, *Viſcount*, and *Baron*. See each under its proper Article DUKE, MARQUESS, EARL, *&c.*

'Tis the King confers the *Peerage*, by honouring the Perſon with ſome of theſe Titles by Patent. See NOBILITY.

PEERS, PAIRS *of France*, are the twelve grand Lords of *France*

The Inſtitution of theſe *Peers* is very uncertain; ſome refer it to *Hugo Capet*, at the Time when the Dukes and Counts chang'd the Offices they then held of the King into perpetual Fiefs. But this is impoſſible; *Champagne* not being then erected into a County. Indeed *Paſquier* obſerves, that 'tis an old Tradition there has been 12 *Peers* in all Ages.

Of theſe *Peers*, ſix are Dukes, and ſix Counts, Comptes; of theſe again, ſix are Eccleſiaſticks, and ſix Lay-men. The Archbiſhops of *Rheims*, Biſhops of *Laon*, and *Langres* are *Dukes* and *Peers*; the Biſhops of *Noyons*, *Chalon* on the *Marn*, and *Beauvais*, are *Counts* and *Peers*.

The Dukes of *Burgundy*, *Normandy*, and *Aquitain* were Lay-peers and Dukes; and the Counts of *Flanders*, *Champaegn*, and *Tholouſe* Lay-peers and Counts.

Theſe Lay-peers ſtill aſſiſt at the Coronation of the Kings in Ceremony, and by way of Repreſentatives; where each performs the Functions attach'd to his reſpective Dignity: tho' the Peerſhips be in reality all, except *Flanders*, reunited to the Crown. Six Lords of the firſt Quality are choſe to repreſent 'em.

The Eccleſiaſtic *Peers* uſually aſſiſt in Perſon.

At preſent, the Title *Peer* in *France* is beſtowed as, in *England*, on every Lord or Perſon, whoſe Fee is erected into a Lordſhip or Peerſhip.

The Word according to *Paſquier*, is derived from *Patricius*, the firſt Dignity in the *Eaſtern* Empire, on the Model whereof he ſuppoſes theſe *Peers* to have been inſtituted.

But others with more probability derive the Title from the *Pares Curiæ*, or *of Fees*, becauſe of their being equal to each other.

Theſe *Pares Curiæ*, on whoſe Model they ſuppoſe 'em to have been erected, were a Kind of Vaſſals depending on the all ſame Lord, whom they were obliged to attend and aſſiſt in Court.

All Feodal Matters or Diſputes among Vaſſals relating to their Fees or Dependances, were terminated by the ſuperior Lord of the two contending Parties, and by their *Peers in Fee.*

If the Proceſs were between the Lord and the Vaſſal, the Lord took no Cognizance of it, and the *Peers* alone judg'd it. See PEER.

Hence, all Lords or Nobles being *Pares Nobilitate, i. e.* all equally entitled to the Privileges of Nobility, are denominated *Pares Regni, Peers of the Realm.*

Some Authors attribute the firſt Inſtitution of *Peers* of the Realm to *Charlemaign*; but with little probability; ſince moſt of the Fiefs which bear the Names of Dutchies, *&c.* or give Titles to the *Peers*, were not erected into Dutchies, *&c.* till long after. The Dukes, *&c.* in thoſe Days being no more than ſimple Governors of Provinces, without any other Title or Privileges. See DUKE.

The more probable Opinion is, that *Peers* were firſt inſtituted by *Philip* the young, of *France*, about the Year 1719; and that they firſt acted in Capacity of *Peers* at the Coronation of his Son.

PEERAGE, the Dignity of a *Peer*, attach'd to a Dutchy, Earldom, or the like. See PEER.

The Kings of *England* and *France* confer *Peerage* at Pleaſure. His preſent Majeſty of *England* offer'd his Parliament to reſign that Branch of his Prerogative, and to have the Number of *Peers* ſtinted.

The Reaſon inſiſted on, was the Inconveniences accruing to the State from an Arbitrary and immoderate Uſe thereof. The Prince having it hereby in his Power to throw what Number of his Creatures he pleaſes into the Upper-houſe of Parliament.

The twelve *Peers* created at once in the late Reign, was a main Argument in behalf of the *Peerage Bill*.

'Tis recorded as a popular Saying of King *Charles*, that if his Friends cou'd but ſecure him a Houſe of Commons, he'd throw his whole Troop of Guards into the Upper-houſe, but he'd have the *Peers*.

To hold Land in Peerage, in the ancient Cuſtoms, was a Tenure which obliged the Perſon to aſſiſt the Lord's Bailiff in his Judgements; as all the ancient Vaſſals, call'd *Peers* did. See PEER and VASSAL. See alſo TENURE.

PEER, or PIER, in Building, a Maſſive of Stone, *&c.* oppoſed, by way of Fortreſs, againſt the Force of the Sea, or a great River; for the Security of Ships, that lye at Harbour in any Haven.

Such is the *Peer of Dover* deſcribed by *Cambden, Brit.* The *Haven* and *Peer* of great *Yarmouth*, mention'd 22d. *Car.* II.

The Word in this Senſe, is form'd from the *French Pierre*, Stone. See PIEDROIT.

PEERS are alſo uſed in Architecture for a Kind of Pilaſters or Buttreſſes, raiſed for ſupport, ſtrength, and ſomething for Ornament.

PEGASUS, among the Poets, a Horſe imagin'd to have Wings; being that whereon *Bellerophon* was fabled to be mounted when he engaged the *Chimera*. See CHIMERA.

The opening of the Fountain *Hippocrene*, on Mount *Helicon*, is aſcribed to a blow of *Pegaſus*'s Hoof.

It was feign'd to have flown away to Heaven; where it became a Conſtellation. Hence

PEGASUS, in Aſtronomy, a Conſtellation of the Northern Hemiſphere, in form of a flying Horſe. See CONSTELLATION.

The Stars in this Conſtellation in *Ptolemy*'s Catalogue are 20, in *Tycho's* 19, in the *Britannic* Catalogue 93. The Longitudes, Latitudes, Magnitudes, *&c.* whereof are as follow.

Stars in the Conſtellation PEGASUS.

Names and Situation of the Stars.	Sign.	Longit.	Latitude. South.	Magnit.
		° ′ ″	° ′ ″	
Preceed } In the Triangle over *Pegaſus*'s Mouth.	♒	25 58 39	33 18 39	4
North. }		29 49 57	36 09 30	4 5
		24 43 41	19 38 14	6
		24 36 55	18 46 05	6
5		29 49 32	31 28 35	6 7
		23 37 56	15 21 40	6
		25 21 30	18 22 36	6
Pegaſus's Mouth		27 33 32	22 07 16	3
Poſter. and South. in the Triangle	♓	0 41 04	29 02 49	4 5
In the Heel of the Preced. Foot		4 37 10	36 39 05	4
		25 39 21	15 06 59	6
		3 34 17	34 05 10	6
		2 04 04	28 28 58	6
		8 25 13	40 15 40	6
15		8 19 10	38 46 07	6
		6 54 27	36 07 07	6
		1 35 20	23 01 46	6
		0 16 21	17 46 20	5
		1 06 39	19 06 36	7
20		3 01 42	23 37 20	6
		2 51 41	21 47 57	5
South. of two in the Head		0 58 06	15 42 01	5
		11 39 57	37 40 34	6
In the preced. Knee		10 04 09	34 16 48	4
25		8 31 30	30 51 42	6 7
North. in the Head		2 28 45	16 21 48	4
		15 04 15	41 03 45	8
		8 48 51	29 58 44	6 7
In the Heel of the hind Foot		15 15 13	40 59 52	4 5
30	♓	19 42 07	44 24 30	5
Small one againſt the Ear.	♓	4 48 30	15 01 47	6
North. in the Ear, or rather *inform.*		7 37 52	20 51 42	4 5
		15 10 56	35 34 03	5 6
		11 55 26	28 34 40	6 7
In the Top of the Main, preced. of little △) 35		5 42 45	13 09 56	6
North. of the Triangle		6 08 55	13 21 09	5
		8 11 58	17 18 50	6 7
Poſter. and South. in the ſame		6 33 16	12 53 28	6
		19 41 51	38 29 08	6
40		13 48 43	27 09 30	6 7
		15 0 29	25 54 02	6 7
Preced. of the Contig. Stars in the Neck)		15 17 33	25 56 59	6
		11 59 06	17 42 03	3
South. in the hind Knee		20 35 43	34 25 43	5 6
North. in the ſame Knee 45		21 24 12	35 07 01	3
		16 29 36	25 05 48	6
Laſt of the Contig. in the Neck		13 37 19	18 27 18	5
Preced. of two in the Breaſt		18 43 48	28 48 12	4
Subſeq.		20 03 20	29 23 32	4
North. of two in the Main 50		13 57 01	15 43 34	6
South. of the ſame		14 14 06	14 30 06	6
		19 56 37	25 11 47	6
		16 21 59	16 46 18	6
In the riſe of the hind Leg, *Scheat*		25 02 13	31 08 06	2
In the Shoulder of the Wing, *Markab* 55		19 09 13	19 24 37	2
Preced. of the North in the ſmall □		17 14 16	13 53 52	5
That under *Scheat* (of the Neck		24 28 48	28 28 30	5 6
Preced. of South. in □ of Neck		17 31 19	12 58 10	6
Laſt of North.		18 06 39	13 57 58	6
Laſt of South. 60		18 03 32	12 47 24	6 5
		26 16 35	29 13 44	6
		27 53 40	30 05 17	6
North. of two under the Wing in the Body)		26 44 08	25 33 57	6
	♈	0 10 38	31 31 39	6
Preced. of 5 in the Belly 65		1 11 12	32 39 01	6
	♓	25 50 08	22 44 22	6 7
Preced. of two behind *Markab*		22 10 23	14 57 25	6
Second and North. in the Belly	♈	02 09 28	32 52 21	6 7
South. of two under the Wing	♓	27 38 15	24 47 52	6
70		29 01 51	26 09 20	6 7
That behind *Markab*		23 45 06	14 45 25	5 6
That in a right Line with the 69th (and 63d.		29 04 02	23 10 09	6
	♈	03 35 42	31 01 57	6
Third and Middle in the Belly		4 56 31	32 53 00	6
75	♓	27 25 39	17 37 36	7
Preced. in middle of the Wing		28 12 34	19 0 48	6
		28 23 55	16 40 02	6
		26 00 19	11 07 40	6
Fourth in the Belly	♈	4 46 00	28 18 05	5 6
South. of five in the Belly 80		5 45 24	27 16 20	6
	♓	27 24 45	9 24 26	6 7
		2 57 24	20 32 38	7
Middle. in the mid. Wing		1 49 59	18 13 41	6
	♓	28 22 33	10 45 59	6
North. in the mid. Wing 85		3 03 01	20 35 0	6
North. in the Extrem. of the Wing		5 45 50	23 09 16	6
		7 37 33	24 34 42	6
		2 22 00	11 42 38	5 6
In the Navel, *Andromeda*'s Head		9 58 50	25 41 00	2
		5 09 17	15 46 15	6
90		2 25 18	9 13 22	5
Tip of the Wing, *Algenib*		4 49 50	12 35 12	2
South. in Extrem. of the Wing.	♈	7 17 42	17 01 40	6

PEGMATES, or PEGMARES, in Antiquity, a Name given to certain *Gladiators*, as well as Artificers, among the *Romans*.

The Ancients ſometimes exhibited Shews of certain Machines, call'd *Pegmata*. Theſe were a Kind of Scaffolds, variouſly adorn'd, ſomewhat after the Manner of thoſe now rais'd for Fire-works.

Theſe Scaffolds being made to play, either threw up into the Air the Matters wherewith they were charg'd; and among the reſt, Men, who were thus ſacrificed to afford the People Diverſion; or they precipitated 'em into Holes dug in the Ground, where they lighted their Funeral Piles; or into the Dens of wild Beaſts.

Now, both the miſerable People thus ſacrificed, and the Workmen that made and play'd the Machines, were call'd *Pegmates*,

According to *Caſaubon*, Fire was ſet to the Scaffold, and the *Pegmates* were to ſave 'emſelves thro' the Flames, and the Wrack of the Machine.

Lipſius ſays ſimply, that the *Pegmates* were ſuch *Gladiators* as fought on Scaffolds erected for that purpoſe.

They were alſo call'd *Petauriſtes*. See GLADIATOR.

PEIRCED, in Heraldry; when an ordinary, or Charge in Heraldry hath a Hole in it, ſo that the Field appears through; they ſay that ordinary, or charge, is *Peirced*. See PIERCED.

PELAGIANS, ancient Hereticks, well known in the Church by the Writings of St. *Auguſtin*. See HERETIC.

The Author of this Sect, *Pelagius*, properly call'd *Morgan*, was an *Iriſh* Monk, Cotemporary with St. *Jerom*, and St. *Auguſtin*. He quitted his Country to go and live in the Eaſt; according to the Cuſtom of the Monks of thoſe Days, who were not attach'd to particular Houſes like thoſe of our Days.

He abſolutely denied all original Sin, which he held to be the mere Invention of St. *Auguſtin*; and taught that Men are entire Maſters of their Actions, perfectly free Creatures, in oppoſition to all Predeſtination, Reprobation, Election, *&c.* See ORIGINAL *Sin*, PREDESTINATION.

He own'd indeed that the natural Power of Man needed to be aſſiſted by the Grace of God, to enable him to work out his own Salvation; but by this Grace, he only meant outward Aſſiſtance, *viz.* the Doctrines of the Law and of the Goſpel. See GRACE.

Tho', when preſs'd by thoſe Words of St. *Paul*, *Deus eſt enim qui operatur in nobis*, &c. he own'd that 'tis God, in effect, that makes us will what is good, when he warns and excites us by the Greatneſs of the Glory we are to obtain, and by the Promiſes of Rewards; when he makes us love him, by revealing his Wiſdom, *&c.*

Theſe are *Pelagius*'s own Words, as cited by St. *Auguſtin*; who confutes him, and ſhews that beſide theſe exterior Graces, there are required other real and interior ones.

Pelagius own'd further, that the Will of Man is indeed aided by a real Grace; but added that this Grace is not abſolutely neceſſary in order to live well; but only helps us to do well with the more eaſe.

Julian, one of his Adherents went further yet; and own'd that the Aſſiſtance of Grace was abſolutely neceſſary to enable us to do perfect Works.

In effect, the grand Doctrine of the *Pelagians*, was, that a Man might accompliſh all the Commands of God by the mere force of Nature; and that the Gifts of Grace were only neceſſary to enable him to act more eaſily, and more perfectly.

PELAGIÆ, in natural Hiſtory, a Term uſed to expreſs ſuch *Sea-Shells* and *Fiſhes*, as never, or very rarely, are found near the Shores; but always reſide in the Deep, or in thoſe parts of the Bottom of the Sea, which are moſt remote from Land. See SHELL.

The Word is form'd of the *Greek* πελάγιος, *Marine*, belonging to the Sea.

PELLS, *Clerk of the* PELLS. See CLERK *of the Pells*.

PELLICAN, among Chymiſts, a Kind of double Veſſel; ordinarily of Glaſs; uſed in diſtilling Liquors by Circulation. See DOUBLE *Veſſel*, and CIRCULATION.

PELLICAN, is alſo an Inſtrument uſed by Chirurgeons, *&c.* to draw Teeth.

PELLICAN, again, is the Name of an ancient Piece of Ordinance, equal to a Quarter-Culverin, and carrying a Ball of ſix Pounds. See CULVERIN.

PELLICLE, PELLICULA, a Diminutive of *Pellis*, Skin; a thin Film, or Fragment of a Membrane or Skin.

The *Epiderma* or *Cuticula*, is a little *Pellicle* covering the *Derma*, *Cutis*, or Skin. See CUTICLE.

The Valves of the Veins and Arteries are inſenſible *Pellicles*, which open and ſhut to promote the Circulation. See VALVE.

When any Chymical Solution is evaporated in a gentle Heat till a thin Skin or Film ariſe a Top, 'tis call'd an *Evaporation to a Pellicle*, wherein there is but juſt Liquor enough left to keep the Salts in fuſion. See EVAPORATION.

PELLETS, in Heraldry, a Name given thoſe Roundles which are Black; call'd alſo *Ogreſſes* and *Gun-ſtones*.

PELICOIDES, in Geometry, a Figure, in ſorm of a *Hatchet*; whence its Name; from the *Greek* πέλεκυς Hatchet and εἶδος form.

Such is the Figure *BCDA*, Tab. Geometry Fig 45. contained under the two inverted Quadrantal Arks *AB* and *AD*, and the Semi-circle *BCD*.

The Area of the *Pelicoides* is demonſtrated to be equal to the Square *AC*; and that, again, to the Rectangle *EB*: It is equal to the Square *AC* becauſe it wants of the Square on the left-hand, the two Segments *AB* and *AC*, which are equal to the two Segments *BC* and *CD*, by which it exceeds on the Right-hand.

PELLUCID, a Term of the ſame Import as *Diaphanous* or *Tranſparent*, See TRANSPARENT, *&c.*

Pellucid, ſtands oppoſed to *Opake*. See OPAKE.

The Word is form'd of the *Latin* *Pelluceo* or *Perluceo*, I *ſhine thro'*.

PELLUCIDITY, *Diaphaneity* or *Tranſparency*. See TRANSPARENCY, *&c.*

PELTA, in Antiquity, a kind of Buckler, uſed among the Ancients. See BUCKLER.

The *Pelta* was ſmall, light, and more manageable than the *Parma*. See PARMA.

It appears from *Virgil*, and other Authors, that the *Pelta* was the Buckler uſed by the *Amazons*: And *Xenophon* obſerves that the *Pelta* of the *Amazons* was like a Leaf of Ivy.

Pliny ſpeaking of the *Indian* Fig-tree, ſays its Leaves are the Width of the *Amazonian Pelta*. *Servius* on the *Æneid* ſays, the *Pelta* reſembled the Moon in her firſt Quarter.

PELVIS, in Anatomy, the lower-part of the Cavity of the *Abdomen*; thus call'd from its reſemblance to a Baſon or Ewer, call'd in *Latin*, *Pelvis*. See ABDOMEN.

The *Pelvis* is always much larger in Women than Men, to give Room for the Growth, *&c.* of the *Fœtus*.

'Tis well fortified with Bones, to ſkreen the Contents from external Injuries

PELVIS, *of the Kidneys*, a large Membranous Sinus, or Cell, in the concave Part of the Kidneys. See KIDNEY.

From the twelve *Papillæ* of the Kidneys, ariſe twelve Canals, call'd *Fiſtulæ Membranaceæ*. Theſe at length are collected into three large Branches, which being at laſt united into one, form the *Pelvis*; and this again, contracting it ſelf, terminates in a Membranaceous Pipe, call'd the *Ureter*. See PAPILLÆ and URETER.

The Urine, then, ſeparated from the Blood by the Urinary Pipes; conveyed by them into the *Papillæ*, and taken up by the *Fiſtulæ Membranaceæ*; is brought into the *Pelvis*, and thence diſcharg'd into the Ureter, thence into the Bladder, *&c.* See URINE.

PEN, according to *Cambden*, originally ſignifies a high Mountain; which was thus call'd among the ancient *Britains*, and even *Gauls*.

And hence that tall Range, which parts *Italy* and *France*, is call'd *Apennines*. See MOUNTAIN.

PEN, is alſo a little Inſtrument, uſually form'd of a Quill, and ſerving to write withal. See WRITING.

Dutch PENS, are thoſe made of Quills which have been paſſed thro' hot Aſhes, to take off the groſſer Fat and Moiſture thereof. See QUILL.

Fountain-PEN. See FOUNTAIN-PEN.

PEN-*Stock*, a ſort of *Sluice* or Flood-gate, placed in the Water of a Mill-pond, or the like, to retain or let go the Water at Pleaſure. See SLUICE.

PENANCE, is properly the Exerciſe of *Penitence*; and may be defined a Puniſhment, either voluntary, or impoſed by a legal Authority, for the Faults a Perſon has committed. See PUNISHMENT.

In this Senſe the *Romaniſts* define it a Sacrament, wherein a Perſon, who has the requiſite Diſpoſitions, receives Abſolution at the Hand of the Prieſt, of all Sins committed ſince Baptiſm. See SACRAMENT.

To a Legitimate *Penance* they require three Things, Contrition, Abſolution, and Satisfaction.

Their Prieſts receive a Power of adminiſtring the Sacrament of *Penance*, when they receive the Prieſthood; but to exerciſe this Power, 'tis required they have the Juriſdiction of an Ordinary, *i. e.* that they have a Benefice, either Original or Delegated; with the Approbation of the Biſhop to hear Confeſſions.

PENANCE, is particularly uſed in the *Romiſh* Church, for the Penalty which a Confeſſor impoſes, for the Satisfaction of the Sins whereof a Perſon is abſolved. See CONFESSION and ABSOLUTION.

The ancient Diſcipline, *Du-pin* obſerves, was very ſevere on the Head of *Penance*. For great Crimes People were excluded the Communion of the Church, expell'd the Aſſemblies of the Faithful, obliged to faſt, and to mortify 'emſelves publickly, even at the Church Door, cut their Hair, go always on Foot, *&c.*

He adds, that thoſe who had done publick *Penance*, were never admitted into the Clergy; and that public *Penance* was never granted more than once. Thoſe who fell a ſecond Time were never to be reconciled to the Church, and were to look for Pardon only at the Hands of God.

Penance, in our Canon-Law, is an Eccleſiaſtical Puniſhment, chiefly adjudg'd to the Sin of Fornication. The Puniſhment is thus preſcribed by the Canons: The Delinquent to ſtand in the Church Porch on ſome Sunday bare Head and bare Foot, in a white Sheet, with a white Wand in the Hand; here bewailing himſelf, and begging every one to pray for him. Then to enter the Church, falling down, and kiſſing the Ground; and at laſt, placed on an Eminence in the Middle of the Church, againſt the Miniſter, to declare the Foulneſs of the Crime, odious to God, and ſcandalous to the Congregation.

If the Crime be not notorious, the Canons allow the Puniſhment to be commuted at the Parties Requeſt, for a pecuniary Mulct, for the Benefit of the Poor, *&c.*

PENATES, in the ancient Mythology, a Term applied to all the Domeſtic Gods, whom the Ancients adored in their Houſes; whence they are ordinarily confounded with the *Lares.* See Lares.

Authors are not at all agreed about the Origin of the *Dii penates,* who were properly the Tutelary Gods of the *Trojans,* and were only adopted by the *Romans,* who gave 'em the Title of *Penates.*

De Meziriac, in his Notes on *Dido*'s Epiſtle to *Æneas,* relates at large what he has met withal in the ancient Writers on this Subject: *Dionyſius Halicarnaſſæus* tells us that *Æneas* firſt lodg'd theſe Gods in the City *Lavinium*; and that his Son *Aſcanius,* afterwards, upon building the City *Alba,* tranſlated 'em thither; but that they return'd twice miraculouſly to *Lavinium.* The ſame Author adds, that in *Rome* is ſtill ſeen a dark Temple, ſhaded by the adjacent Buildings, wherein are the Images of the *Trojan* Gods, with the Inſcription *Denas,* which ſignifies *Penates.* See Denates.

Theſe Images repreſent two young Men ſitting, each of which holds a Lance. I have ſeen, adds *Dionyſius,* ſeveral other Statues of the ſame Gods in ancient Temples; who all appear like young Men dreſs'd in a Habit of War.

Varro fetches theſe *Penates* from *Samothrace* to *Phrygia,* to be afterwards tranſported by *Æneas* into *Italy.*

Macrobius, who relates this from *Varro,* adds, that they were call'd *Penates* from the *Latin* Words *Per quos penitus ſpiramus,* which ſeems a mere Subtilty. The real Etymology muſt be ſought in the *Phrygian,* not the *Latin* Tongue.

Roſinus diſtinguiſhes among the *Penates:* He makes an Order of *Penates of the Heavens*; ſuch as *Pallas* in the Etherial Region, *Jupiter* in the middle Region, and *Juno* in the loweſt; *Penates of Cities, Penates of private Families,* &c.

So that in effect, the *Dii penates* were the Guardian or tutelary Gods of every Thing. See God.

Cicero, in *Aulus Gellius,* derives the Word hence, *quod penes nos nati ſunt.* Yet, in his Book *de Nat. Deor.* he ſays 'tis form'd from *Penus,* Proviſion; or, perhaps, adds he, *quod penitus inſident.* Others ſay, *quia coluntur in penetralibus.*

'Tis a popular Queſtion among the Learned, who were the *Penates* of *Rome*? Some ſay *Veſta,* others *Neptune* and *Apollo*; *Vives* ſays *Caſtor* and *Pollux,* with whom agrees *Voſſius,* who adds that the Reaſon of their chuſing *Caſtor* and *Pollux* in quality of *Penates,* might be the important Service they did the *Romans* in the War againſt the *Latins.*

Nor are Authors more unanimous on the Subject of the *Penates,* which *Æneas* brought into *Italy.* Some ſay they were *Neptune* and *Apollo* who built the Walls of *Troy*; others *Jupiter, Juno,* and *Minerva*; others *Cœlus* and *Terra,*

PENCIL, an Inſtrument uſed by Painters, for the Application of their Colours. See Colour.

There are *Pencils* of various kinds, and made of various Matters: The moſt uſual are of Badgers and Squirrels Hair, thoſe of Swans-down, and thoſe of Boars Briſtles; which laſt are bound on to a Stick bigger, or leſs, according to the Uſes they are deſtined for; and when large are call'd *Bruſhes.*

The others are inclos'd in the Barrel of a Quill.

The Word comes from the *Latin, Penicillum,* which ſignifies the ſame Thing. The Ancients, M. *Felibien* obſerves, had *Pencils* made of little Pieces of Spunge; whence doubtleſs, the Story of the Painter, who not able to expreſs the Foam of a Dog, ſucceeded by throwing his *Spunge* at the Picture.

Pencil-*Caſe.* See Porte-*Craion.*

Pencil *of Rays,* in Opticks, is a double Cone of Rays, joined together at the Baſe; one of which hath its Vertex in ſome point of the Object, and has the Glaſs *G L S.* (Tab Opticks Fig. 39) for its Baſe; and the other has its Baſe on the ſame Glaſs, but its Vertex in the point of Convergence; as at C. See Ray, *&c.*

Thus *B G S C* is a *Pencil of Rays*; and the Line *B L C* is call'd the *Axis of that Pencil.*

PENDANT, an *Ear-ring,* or Ornament, of ſome precious Matter, wore by the Ladies; hung by a Hole made for that purpoſe thro' the Ear; and frequently enriched with Diamonds, Pearls, and other precious Stones.

The *Pendants* of the *European* Ladies are nothing in compariſon with thoſe wore by the *E. Indians,* both Men and Women; among whom 'tis the Faſhion to lengthen out the Ears, and to enlarge the Hole, by putting in *Pendants* of the Size of Saucers, ſet with Stones.

The Queen of *Calicut, Pyrard* tells us, and other Ladies of her Court, have their Ears, by this Means, weigh'd down as low as their Breaſts, and even lower; imagining this a main point of Beauty; and the Holes large enough to paſs the Fiſt thro'.

The *Moncois,* who are the common People, are not allowed to wear their Ears ſo long as the *Naires,* who are the Nobleſſe; three Fingers length are the utmoſt ſtretch allow'd the Former.

In the *W. Indies, Columbus* named a certain Coaſt *Oreja,* by reaſon he found People with Holes in their Ears big enough to paſs an Egg thro'.

They make Holes, too, in their Lips and Noſtrils, and hang *Pendants* at 'em; which is alſo practis'd by the *Mexicans* and other Nations.

PENDANT, in Heraldry, a Term applied to the Parts hanging down from the Label, to the Number of 3, 4, 5, or 6 at moſt: Theſe muſt be ſpecified in Blazoning, when there are more than three. See Label.

They reſemble the Drops at the Bottom of the Triglyphs in the Doric Freeze.

Pendant *Feathers,* in Falconry, are thoſe Feathers, which grow behind the Thighs of an Hawk. See Feather.

Pendants, among Floriſts, a Kind of Seeds, growing on Stamina, or Chives; ſuch are thoſe in the middle of Tulips, Lillies, *&c.*

Pendants *of a Ship,* are of two Kinds.

I. Thoſe long Colours or Streamers, cut pointing out towards the End, and there divided into two Parts, and hung out at the Heads of the Maſts, or at the Yard-arm Ends, are called *Pendants*; and uſed for ſhew, and ſometimes for diſtinction of Squadrons. See Colour, Flag, *&c.*

II. That ſhort Rope is called a *Pendant,* which at one End is faſtened to the Head of the Maſt, or to the Yard, or to the Clew of the Sail, and at the other End, hath a Block and Shiver, to reeve ſome running Rope into.

Thus, the *Pendant* of the Tackle is made faſt to the Head of the Maſt; and the *Pendants* of the Back-ſtays are faſtened to, and hang down on the inſide of the Shrouds.

All the Yard-arms, except the Miſſen have of theſe *Pendants,* into which the Braces are reev'd.

PENDENTIVE, in Architecture, the whole Body of a Vault, ſuſpended out of the Perpendicular of the Walls, and bearing againſt the Arc-boutants. See Vault.

Daviler deſcribes it as a Portion of a Vault between the Arches of a Dome, uſually enrich'd with Sculpture: And *Felibien,* as the Plain of the Vault, contain'd between the double Arches, the forming Arches and the Ogives. See Ogive.

The *Pendentives* are uſually of Brick, or ſoft Stone; but Care muſt be taken that the Couches or Beds of Maſonry be always laid level, and in right Lines proceeding from the Sweep whence the Riſe is taken.

The Joints too muſt be made as ſmall as poſſible, to ſave the Neceſſity of filling 'em up with Wood, or of uſing much Mortar.

PENDULOUS, *hanging down*; a Name Botaniſts give to thoſe Flowers which hang downwards; the Stalk not being able to ſuſtain 'em upright. See Flower.

PENDULUM, in Mechanicks, any heavy Body ſo ſuſpended as that it may vibrate, or ſwing backwards and forwards, about ſome fix'd Point, by the force of Gravity. See Vibration.

The Vibrations, or alternate Aſcent and Deſcent, of the *Pendulum,* are call'd its *Oſcillations.* See Oscillation.

The Point on which it vibrates, is call'd the Centre of *Suſpenſion* or *Motion.* See Centre and Suspension.

And a right Line paſſing thro' the Centre, parallel to the apparent Horizon, is call'd the *Axis of Oſcillation.* See Axis.

The Vibrations of a *Pendulum,* are all *Iſochronal,* or effected in ſpaces of Time perfectly equal. See Isochronal.

And hence the *Pendulum* becomes the moſt accurate Chronometer, or Inſtrument for meaſuring Time, in the World. See Time and Chronometer.

And hence alſo its Vibrations are propoſed as an invariable and univerſal Meaſure of Lengths for the moſt diſtant Countries and Ages. See Measure.

For a Vibration being once found preciſely equal to a ſecond of Time of the Suns mean Motion; if *v. g* the Horary Foot (as M. *Huygens* calls the third Part of his ſecond *Pendulum*) compared to the *Engliſh* Standard Foot, be as 392 to 360; 'twill be eaſy, by Calculation, to reduce all the other Meaſures of the World to theſe Feet; the Lengths of *Pendulums,* reckon'd from the Point of Suſpenſion, to the Centre of the Ball, being to each other, as the Squares of the Times wherein the ſeveral Oſcillations are perform'd; and therefore reciprocally as the Squares of the Numbers of Oſcillations preform'd in the ſame Time.

On this ſame Principle, M. *Mouton*, Canon of *Lyons*, has a pretty Treatiſe, *de menſura poſteris tranſmittenda*.

Mr. *Huygens* lays down the Length of a *Pendulum* that ſhall ſwing Seconds, to be 3 Feet, 3 Inches, and 2 Tenths of an Inch; according to Sir *J. Moor's* Reduction; which agrees perfectly with M. *Mouton's Pendulum* 8 Inches 1 Tenth long, to Vibrate 132 times in a Minute: ſo that this may be relied on as a ſure Meaſure.

Note, the Lengths of *Pendulums* are uſually meaſur'd from the Centre of Motion.

The Firſt who obſerv'd this noble Property, the *Iſochroniſm* of *Pendulums*, and made Uſe thereof in meaſuring Time, *Sturmius* tells us, was *Ricciolus*; after him *Tycho*, *Langrenus*, *Wendeline*, *Merſenne*, *Kircher* and others hit on the ſame Thing; tho' without any Intimation of what *Ricciolus* had done.

Huygens firſt applied the *Pendulum* to Clocks. See *Pendulum* Clock.

Pendulums are either *Simple* or *Compound*.

Simple Pendulum, is that conſiſting of a ſingle Weight, as *A*, conſider'd as a Point; and an inflexible right Line, as *AC*, conſider'd as void of Gravity, ſuſpended on a Centre *C*, and voluble about it. (Tab. Mechanicks Fig. 36)

Compound Pendulum, is that which conſiſts of ſeveral Weights, ſo fix'd as to retain the ſame Diſtance both from one another, and from the Centre about which they vibrate.

The Doctrine and Laws of Pendulums.

A Pendulum rais'd to B, thro' the Arch of the Circle B A; will fall, and again riſe, thro' an equal Arch, to a Point equally high, D; and thence fall to A, and again riſe to B; and thus continue riſing and falling reciprocally, for ever.

For ſuppoſe *H I* a horizontal Line, and *B D* parallel thereto; if the Ball *A*, which we here conſider as a Point, be rais'd to *B*; the Line of Direction *B H*, being Perpendicular from the Centre of Gravity *B* to the Horizontal Line *H I*, falls without the *Baſe*, which is in the Point *C*.

The Ball therefore cannot reſt, but muſt deſcend. See Descent.

But being retain'd by the Thread *B C*, from falling perpendicularly thro' *B H*; it will fall thro' the Arch *B A*. Conſequently, when the Centre of Gravity arrives at the Bottom; *A* has the ſame force, it wou'd have acquired in falling from *K*; and will therefore be able to riſe equally high as if it had, *i.e.* in deſcending thro' the firſt half of its Vibration, it acquires a Velocity by the continual Acceleration of its Fall; and as this Velocity is always proportionable to the Height whence it falls, as being in ſome meaſure the Effect thereof; it is ſtill able to make it remount to the ſame Height, ſuppoſing according to the Syſtem of *Galileo*, that the Velocities are always the ſquare Roots of the Heights. See Acceleration.

Since then the Thread prevents the *Pendulum* going off in the Tangent *A I*, it muſt aſcend thro' the Arch *A D*, equal to that *A B*.

All the Force therefore which it had acquired by falling, being exhauſted; it will return by the force of Gravity thro' the ſame Arch *A D*, and again riſe from *A* to *B*; and thus for ever. *Q. E. D.* See Gravity.

Experience confirms this Theorm, in any finite Number of Oſcillations; but if they be ſuppoſed infinitely continued, there will ariſe a Difference. For the Reſiſtence of the Air, and the Friction about the Centre *C*, will take off part of the Force acquired in falling; whence it will not riſe preciſely to the ſame Point whence it fell.

Thus the Aſcent continually diminiſhing; the Oſcillation will be at laſt ſtopp'd, and the *Pendulum* hang at reſt. See Resistance and Friction.

II. *If a ſimple Pendulum be ſuſpended between two Semi-cycloids* C B *and* C D. (Tab Mechanicks Fig. 37) *Whoſe generating Circles have their Diameters* C F *equal to half the length of the Thread* C A; *ſo as the Thread in Oſcillating be wound about 'em; all the Oſcillations, however unequal in Space, will be Iſochronal, or perform'd in equal Times; even in a reſiſting Medium.*

For ſince the Thread of the *Pendulum C E*, is wound about the Semi-cycloid *B C*; the Centre of Gravity of the Ball *E*, which is here conſider'd as a Point, by its Evolution, will deſcribe a Cycloid *B E A D*; as is ſhewn from the Doctrine of Infinites; but all Aſcents and Deſcents in a Cycloid are Iſochronal, or equal in Time: Therefore the Oſcillations of the *Pendulum* are alſo equal in Time *Q. E. D.* See Cycloid.

Hence, if with the length of the *Pendulum C A*, a Circle be deſcribed from the Centre C; ſince a Portion of the Cycloid near the Vertex *A*, is almoſt deſcribed by the ſame Motion; a ſmall Arch of the Circle will almoſt coincide with the Cycloid.

In little Arches of a Circle, therefore, the Oſcillations of *Pendulums* will be Iſochronal as to Senſe; however, unequal in 'emſelves; and their Ratio to the Time of perpendicular Deſcent thro' half the length of the *Pendulum*, is the ſame with that of the Circumference of a Circle to its Diameter.

Hence alſo, the longer the *Pendulums* are, that oſcillate in Arches of a Circle; the more Oſcillations are Iſochronal; which agrees with Experiment; for in two *Pendulums* of equal lengths, but oſcillating in unequal Arches, provided neither Arch be very great, you'll ſcarce diſcern any inequality in an hundred Oſcillations.

Hence alſo, we have a Method of determining the Space which a heavy Body, falling perpendicularly, paſſes over in a given Time. For the Ratio which the Time of one Oſcillation has to the Time of the Fall thro' half the Length of the *Pendulum*, being thus had; and the Time wherein the ſeveral Vibrations of any given *Pendulum* being found; we have the Time of the Fall thro' half the length of the *Pendulum*. And hence may collect the Space it will paſs over in any other Time.

The whole Doctrine of *Pendulums* oſcillating between two Semi-cycloids, both Theory and Practice, we owe to the great *Huygens*; who firſt publiſh'd the ſame in his *Horol. Oſcil lator. ſive demonſtrationes de Motu Pendulorum*, &c.

III *The Action of Gravity is leſs in thoſe Parts of the Earth where the Oſcillations of the ſame Pendulum are ſlower, and greater where they are ſwifter.*

For the Time of Oſcillation in a Cycloid, is to the Time of Perpendicular Deſcent thro' the Diameter of the generating Circle, as the Periphery of the Circle to the Diameter.

If then, the Oſcillation of the ſame *Pendulum* be ſlower; the Perpendicular Deſcent of heavy Bodies is likewiſe ſlower; *i. e.* the Motion is leſs accelerated, or the Force of Gravity is leſs: and converſely. See Gravity.

Hence, as 'tis found by Experiment, that the Oſcillations of the ſame *Pendulum* are ſlower near the Equator, than in Places leſs remote from the Pole; the force of Gravity is leſs towards the Equator than towards the Poles. And conſequently the Figure of the Earth is not a juſt Sphere, but a Spheroid. See Earth and Spheroid.

This M. *Richier* found by an Experiment made in the Iſland *Cayenna*, about four Degrees from the Equator; where a *Pendulum* 3 Foot, 8 Lines $\frac{2}{5}$ long, which at *Paris* Vibrates ſeconds, was to be ſhorten'd a Line and a Quarter to reduce its Vibrations to Seconds.

M. des Hayes, in a Voyage to *America*, confirms the Obſervation of *Richier*; but adds, that the Diminution eſtabliſh'd by that Author, appears too little.

M. *Couplet* the younger, upon his return from a Voyage to *Braſil* and *Portugal*, falls in with *M. des Hayes*, as to the Neceſſity of ſhortening the *Pendulum* towards the Equator more than *Richier* has done. He obſerv'd, that even at *Lisbon* the *Pendulum* which beats Seconds, muſt be two Lines $\frac{1}{2}$ ſhorter than that of *Paris*; which is ſhorter than that of *Cayenna*, as fix'd by *Richier*; tho' *Cayenna* be in 24 Degrees leſs Latitude than *Lisbon*.

The Truth is, this Diminution does not proceed regularly: Meſs. *Picart* and *de la Hire*, found the Length of the *Pendulum* which beats Seconds exactly the ſame at *Bayonne*, at *Paris*, and at *Uranisbourg* in *Denmark*; tho' the firſt be in 43° $\frac{1}{2}$ of Latitude, and the laſt in the Latitude 55° 3'.

Hence *M. de la Hire* takes occaſion to ſuſpect that the Diminution is only Apparent; and that *E. gr.* the Iron Yard, wherewith *M. Richier* meaſur'd his *Pendulum*, might be lengthen'd by the great Heats of the Iſle of *Cayenna*; not the *Pendulum* ſhorten'd by the approach towards the Line.

To confirm this, he tells us he found, by very careful Experiments, that an Iron Bar, which expoſed to the Froſt was 6 Foot long; was lengthen'd $\frac{2}{3}$ of a Line by the Summer's Sun. See Dilatation, Heat, Thermometer.

IV. *If two Pendulums vibrate in ſimilar Arches, the Times of the Oſcillations are in the Subduplicate Ratio of their Lengths.*

Hence the Lengths of *Pendulums* vibrating in ſimilar Arches, are in a Duplicate Ratio of the Times wherein the Oſcillations are perform'd.

V. *The Numbers of Iſochronal Oſcillations perform'd in the ſame Time by two Pendulums, are reciprocally as the Times wherein the ſeveral Oſcillations are perform'd.*

Hence, the Lengths of *Pendulums* vibrating in ſimilar and ſmall Arches, are in the Duplicate Ratio of the Numbers of Oſcillations perform'd in the ſame Time, but reciprocally taken.

VI. *The Lengths of Pendulums ſuſpended between Cycloids, are in a Duplicate Ratio of the Times wherein the ſeveral Oſcillations are perform'd.*

And hence they are in a Duplicate Ratio of the Numbers of Oſcillations perform'd in the ſame Time, but reciprocally taken: and the Times of Oſcillations in different Cycloids are in a Subduplicate Ratio of the Lengths of the *Pendulums*.

VII. *To find the Length of a Pendulum, which ſhall make ny aſſign'd Number of Vibrations in any given Time.*

Let the Number of Vibrations requir'd, be 50 in a Min. nd the Length of the String, counted from the Point of Suſ- enſion, to the Centre of Oſcillation, or round Ball at the End of it be requir'd: 'Tis a fix'd Rule that *the Lengths of Pendulums are to each other, as the Squares of their Vibrations nd Contrarywiſe*: Now 'tis agreed that a *Pendulum* vibrat- ng Seconds (or 60 times in a Minute) is 39 Inches, and $\frac{2}{10}$ of n Inch; ſay therefore as the Square of 50 (which is 2500) to he Square of 60, (which is 3600) ſo is 39, 2. to the Length f the *Pendulum* requir'd: which will be found to be 56 Inhes $\frac{4}{10}$.

Note, In Practice, ſince the Product of the mean Time, will always be 1411200 (that is the Product of the Square of 0, multiplied by 39, 2.) that is 3600 + 39, 2. you need on- y divide that Number by the Square of the Number of Vibartions aſſign'd; and the Quotient will give the Length of a *Pendulum*, that ſhall vibrate juſt ſo many times in a Min.

VII. *The Length of a Pendulum being known, to find the Number of Vibrations it will make in a given Time.*

This being the Reverſe of the Former; ſay, As the Length given, ſuppoſe 56, 4, is to the Length of the Standard *Pendu- um* ſwinging Seconds, *viz.* 39, 2; ſo is the Square of the Vibrations of the Standard *Pendulum* in the given Time, *v. gr.* a Minute, to the Square of the Vibrations ſought: that is, as 56: 4: 39: 2, 3600: 2500.

And the Square Root of 2500, will be 50, the Number of Vibrations ſought.

But for Uſe, here, (as in the former Problem) you need only divide 1411200 by the Length; and it gives the Square of the Vibrations; as there you divided by the Square of the Vibrations, to find the Length.

On theſe Principles, Mr. *Derham* has conſtructed a Table of the Vibrations of *Pendulums* of different Lengths in the Space of a Minute.

Pend. length in inches	Vibrat. in a Minute	Pend. length in inches	Vibrat. in a Minute
1	375.7	30	68.6
2	265.6		
3	216.9	39.2	68.0
4	187.8		
5	168.0	40	59.5
6	153.3	50	53.1
7	142.0	60	48.5
8	132.8	70	44.9
9	125.2	80	42.0
10	118.8	90	39.6
20	84.0	100	37.5

Note, Theſe Laws, *&c.* of the Motion of *Pendulums*, will ſcarce hold ſtrictly, unleſs the Thread that ſuſtains the Ball, be void of Weight, and the Gravity of the whole Weight be collected in a Point.

In practice, therefore, a very fine Thread, and a ſmall Ball, but of a very heavy Matter, are to be uſed. A thick Thread, and a bulky Ball diſturb the Motion ſtrangely; for in that Caſe, the *Pendulum*, of Simple, becomes compound; it being much the ſame as if ſeveral Weights were applied to the ſame inflexible Rod in ſeveral Places.

The Uſe of *Pendulums* in meaſuring Time in Aſtronomical Obſervations, and on other Occaſions where a great Degree of Preciſeneſs is requir'd; is too obvious to need a Deſcription. Either the Length of the *Pendulum* may be adjuſted before its Application, and made to vibrate the deſired Time, *v. g.* Seconds, half Seconds, *&c.* by Article VI. or it may be taken at Random, and the Times of the Vibrations afterwards determined from Article VIII.

For the Uſe of the *Pendulum* in meaſuring remote inacceſſible Diſtances, *&c.* by means of Sound, *&c.* See SOUND.

PENDULUM *Clock*, a Clock, which derives its Motion from the Vibration of a *Pendulum*.

'Tis controverted between *Galileo* and *Huygens*, which of the the two firſt applied the *Pendulum* to a Clock; *for the Pretenſions of each.* See CLOCK.

After *Huygens* had diſcover'd that the Vibrations made in Arches of a Cycloid, however, unequal they were in extent, were all equal in Time; he ſoon perceiv'd that a *Pendulum* applied to a Clock, ſo as to make it deſcribe Arches of a Cycloid, would rectify the otherwiſe unavoidable Irregularities of the Motion of the Clock; ſince, tho' the ſeveral Cauſes of thoſe Irregularities ſhou'd occaſion the *Pendulum* to make greater or leſs Vibrations; yet, in virtue of the Cycloid, it wou'd ſtill make 'em perfectly equal; and thus the Motion of the Clock govern'd thereby, wou'd be preſerved perfectly equable. See CYCLOID.

But the Difficulty was to make the *Pendulum* deſcribe Arches of a Cycloid; for, naturally, the *Pendulum* being tied to a fix'd Point, can only deſcribe Arches of Circles about the ſame.

Here *M. Huygens* hit on a Secret which all the World is now ter of: The Iron Rod or Wiar which bears the Bob at Bottom, he tied a Top to a Silken Thread, placed between two Cycloidal Cheeks, or two little Arches of a Cycloid, made of Metal. Hence the Motion of Vibration, applying inceſſantly from one to t'other of thoſe Arches, the Thread, which is extremely flexible, eaſily aſſumes the Figure thereof; and by Means hereof tis demonſtrated, that the Weight ſuſpended at the other End of the Rod, will deſcribe a juſt Arch of a Cycloid.

This is doubtleſs one of the moſt uſeful and ingenious Inventions many Ages have produced: By means whereof, we have Clocks which won't err a ſingle Second in ſeveral Days.

'Tis true, the *Pendulum* is lyable to its Irregularities; how minute ſoever they may be; *M. de la Hire* thinks there is ſtill room to improve it.

The Silk Thread by which it is ſuſpended, he obſerves ſhortens in moiſt Weather, and lengthens in dry; by which means the Length of the whole *Pendulum*, and conſequently the times of the Vibrations are varied.

To obviate this Inconvenience, *M. de la Hire*, in lieu of a Silk Thread, uſed a little fine Spring; which was not indeed ſubject to ſhorten and lengthen; but which he found grew ſtiffer in cold Weather, and made its Vibrations faſter than in warm.

He had therefore recourſe to a ſtiff Wiar or Rod, Firm from one End to t'other. Indeed, by this means he renounced the Advantages of the Cycloid; but he found, as he ſays, by Experience, that the Vibrations in Arches of Circles are performed in Times as equal, provided they ben't of too great Extent, as thoſe in Cycloids. But the Experiments of Sir *J. Moor* and others, have demonſtrated of the contrary.

The ordinary Cauſes of the Irregularities of *Pendulums*, Mr. *Derham* aſcribes to the Alterations in the Gravity, and Temperature of the Air; which increaſe and diminiſh the Weight of the Ball, and by that means make the Vibrations greater and leſs: An Acceſſion of Weight in the Ball being found by Experiment to accelerate the Motion of the *Pendulum*.

A Weight of Six Pound added to the Ball, Mr. *Derham* found, made his Clock gain 13 Seconds every Day.

A general Remedy againſt theſe Inconveniences of *Pendulums*, is to make 'em long, the Bob heavy, and to vibrate but a little way: this is the uſual means in *England*; the Cycloidel Cheeks being generally overlook'd.

To correct the Motion of Pendulum-*Clocks*; the uſual Method is to ſcrew and let down the Ball; but a very ſmall Alteration here having a very great Effect; Mr. *Derham* prefers *Huygens*'s Method, which is to have a ſmall Weight or Bob to ſlide up and down the Rod above the Ball, which is to be immoveable: tho' he improves on the Method, and recommends having the Ball to ſcrew up and down, to bring the *Pendulum* near its Gage; and the little Bob to ſerve for the nicer Corrections, as the Alteration of a Second, *&c.*

Mr. *Huygens* orders rhe Weight of this little Corrector to be equal to that of the Wiar, or 50' of that of the great Ball: He adds a Table of the Alterations, the ſeveral ſhiftings thereof will occaſion in the Motion of the *Pendulum*; Wherein it is obſervable, that a ſmall Alteration towards the lower End of the *Pendulum*, makes as great an Alteration in Time, as a greater riſing or falling does when higher.

PENDULUM *Royal*, a Name given among us to a Clock, whoſe *Pendulum* ſwings Seconds, and goes eight Days; ſhewing the Hour, Minutes, and Seconds. See CLOCK.

The Numbers of ſuch a Piece are thus calculated; firſt caſt up the Seconds in 12 Hours, and you will find them to be 43200 = 12 × 60 × 60. The ſwing Wheel muſt be 30 to ſwing 60 Seconds in one of its Revolutions: Now let $\frac{1}{2}$ 43200 = 21600, be divided by 30, and you will have 720 in the Quotient, which muſt be broken into Quotients; the firſt of them muſt be 12 for the great Wheel which moves round once in 12 Hours. 720 divided by 12, gives 60, which may alſo be conveniently broken into two Quotients, as 10 and 6, or 5 and 12, or 8 and $7\frac{1}{2}$; which laſt is moſt convenient: and if you take all your Pinnions 8, the Work will ſtand thus.

8) 96 (12
8) 64 (8
8) 60 ($7\frac{1}{2}$
30

According to this Computation, the great Wheel will go about once in 12 Hours, to ſhew the Hour; the ſecond Wheel once in an Hour, to ſhew the Minutes; and the ſwing Wheel once in a Minute, to ſhew the Seconds. See MOVEMENT and CLOCK-WORK.

PENECILLA, in Pharmacy, a *Lozenge*, made round by rolling; the ſame as *Turundula*; thus call'd from *Penecillus* a Pencil, which it reſembles in ſhape.

PENECILLUS, among Chirurgeons, is uſed for a Tent, to be put in Wounds or Ulcers. See TENT.

PENETRATION, the Action whereby one Thing enters another, or takes up the ſame Place. See PLACE.

The School-men define *Penetration*, the Co-exiſtence of two or more Bodies; ſo, as one is preſent, or has its Extenſion in the ſame Place as the other. See EXISTENCE and BODY. See alſo MATTER, SOLIDITY, *&c.*

In Phyſicks, the real *Penetration of Bodies* is held abſurd, *i. e.* that two Bodies ſhou'd be at the Time in the ſame Place: accordingly *Impenetrability* is laid down as one of the eſſential Properties of Matter. See IMPENETRABILITY.

What we popularly call *Penetration*, only amounts to the Matter of one Body's being admitted into the Vacuity of another. See VACUITY, DIMENSION.

Such is the *Penetration* of Water thro' the Subſtance of Gold. See WATER, GOLD, *&c.* See alſo HARDNESS.

PENIDIUM, in Pharmacy, *Barly-Sugar*; a Preparation of Sugar, made by boiling it up with a Decoction of Barley, till it become Brittle; which done, it is turn'd out upon a Marble, anointed with Oil of Sweet Almonds, kneaded with the Hands like paſt; and while yet hot, drawn out into Sticks twiſted like Cords. See SUGAR.

Penidia are very good againſt Colds, to moderate the Acrimonies of the Breaſt, promote Expectoration, *&c.*

Dr. *Quincy* uſes the term *Penidium*, for a kind of clarified Sugar, with a Mixture of Starch, made up into Bolus's.

PENINSULA, in Geography, a Portion, or Extent of Land, joining to the Continent by a narrow Neck, or *Iſthmus*; the reſt encompaſſed with Water. See ISTHMUS.

Such is *Peloponeſus*, or the *Morea*, *Africa*, *&c.*

Peninſula is the ſame with *Cherſoneſus*. See CHERSONESUS.

The Word is compounded of the *Latin*, *Pene*, and *Inſula*; *q. d.* almoſt Iſland, which the *French* pertinently enough render *preſque Iſle*.

PENIS, in Anatomy, a part of the Body, from its form, call'd alſo the *Yard*; and by way of Eminence the *Member*, or *virile Member* as being one of the principal Organs of Generation in the Male Kind. See GENERATION, and MALE.

It is faſten'd to the lower Part of the *Os Pubis*, and the upper Part of the *Iſchion*: Its Body conſiſts of the two *Corpora Cavernoſa*, the *Corpus Cavernoſum Urethræ*, and the *Urethra* it ſelf.

The *Corpora Cavernoſa* of the *Penis*, call'd alſo *Corpora, Nervoſa & Spongioſa*, &c. have two diſtinct Origins in the *Os Pubis*; whence they proceed, growing both in bulk and thickneſs, till they meet the *Corpus cavernoſum* of the *Urethra*; where they join; leaving an Interſtice or Channel for its Paſſage along 'em; and thus continue their Progreſs, connected together by a membranous Body call'd the *Septum*, and terminating at length in the Glans. See CAVERNOSA *Corpora Penis*.

The Cavernous Body of the Urethra, includes the *Urethra* or Urinary Paſſage. Its form contrary to that of the other Cavernous Bodies, is largeſt at the two Extremes, and ſmalleſt in the Middle.

That Part included between the two Origins of the Cavernous Bodies of the *Penis*, Mr. *Cowper* calls the *Bulb of the Urethra*: Its other Extremity being dilated, forms the Body call'd the *Glans*. See URETHRA, BULB and GLANS.

The *Penis* receives Arteries from the internal Iliac Branches, and Umbilical Arteries; and theſe at Length ſubdividing into innumerable Branches, from the capillary Extremities thereof ariſe ſo many Veins; in whoſe Chanels are Apertures correſponding to ſo many Cells, which communicating with each other, empty 'emſelves into larger Venous ducts, running on the ſuperior Surface of the *Penis*; ſome whereof join the Veins of the Prepuce; others make one large Trunk, call'd *Vena Penis*, which marching on the *Dorſum Penis* to the *Proſtatæ*, there divides and enters the internal Iliac on either Side.

The *Penis* has Nerves from a Trunk compoſed of a Coaleſcence of the third of the *Os Sacrum*, and a Branch of the great Crural: Theſe aſcending the Cavernous Bodies, expand 'emſelves o'er the upper Surface thereof, and are thence diſtributed to all Parts of the *Penis*.

It has Lymphæducts very numerous on its Surface under the Skin, which diſcharge 'emſelves into the Glandulæ Inguinales. See SEED and URINE.

The *Penis* has two pair of Muſcles, and an odd one; the odd Muſcle is call'd *Accelerator Urinæ*: its upper Part, which covers the Bulb, ſerves to ſtreighten the Veins paſſing thro' it from the *Corpus Cavernoſum* of the *Urethra*, and thus hinders the Reflux of the Blood in Erection; and by repeated Contractions, drives the Blood into the Bulb towards the Glans. Its Elongation ſerves to compreſs the Channel of the *Urethra*, and to force out the contain'd Seed or Urine. See ACCELERATOR UINE.

The firſt pair of Muſcles is call'd the *Erectores Penis*. By their Action the *Penis* is ſuſtain'd, and drawn towards the *Pubes*; and by the Aſſiſtance of the ſuſpenſory Ligament of the *Penis*, this *Vena Penis* is applied to the tranſverſe Legiment of the *Oſſa Pubis*, and the refluent Blood hinder'd from paſſing that way; whereby the *Copora Cavernoſa* become diſtended. See ERECTORES *Penis*.

The laſt pair of Muſcles are the *Tranſverſales Penis*, which vary in various Subjects, and are ſometimes wanting: Their Uſe is to dilate that Part of the Cavernous Body of the Urethra, to which they are faſten'd. See TRANSVERSALES *Penis*.

The *Penis* has alſo three Glands, firſt diſcover'd by Mr. *Cowper*; theſe all empty 'emſelves into the *Urethra*, and from the Tenacity of the Liquor they ſeperate, are call'd the *Mucous Glands*. See MUCOUS *Gland*.

The whole Compages of the *Penis* is inveſted with a Celluloſe Membrane, of admirable Texture; which again is cover'd with a firm nervous Coat; and that with a *Cuticula* and *Cutis*: The Duplicature of the *Cutis* on the Glans, makes the Prepuce. See PREPUTIUM.

It is tyed to the lower Part of the Glans by a Ligament, call'd the *Frænum*. See FRÆNUM.

By another Ligament, call'd *Suſpenſorium*, the *Penis* is held up to the *Oſſa Pubis*. See LIGAMENTUM *ſuſpenſorium Penis*.

The Uſe of the *Penis* is for the Evacuating of the Seed and Urine. See SEED and URINE.

Indeed, Dr. *Drake*, from a View of its Structure, thinks it originally intended for the former only; and that the Conveyance of the Urine was not conſider'd by Nature in the Mechaniſm of this Part.

He adds another Uſe, *viz.* the Incitement to the Propagation of the Species.

In Effect, without ſuch an Inſtrument, the Seed of the moſt perfect Animals cou'd not be convey'd to the Place of Prolification: Add to this, that an Alternation of Erection and Flaccidity is abſolutely neceſſary; the firſt for the Performance of its Office, the ſecond for the Security of the Part.

Without an Erection, it were impoſſible to emit and lodge the Seed where it ought to be; and with a conſtant one, almoſt as impoſſible to ſecure the Part from Injuries; not to mention the Loſs of Inſtigation, which wou'd be the Conſequence of conſtant Erection. See SATYRIASIS, *&c.*

The *Cauſe of the Erection of the Penis* is the Blood diſtending the *Copora Cavernoſa*; as is evident from many Experiments; among the reſt, from tying the *Penis* of a Dog *in Coitu*, in which nothing is found but Blood. And hence, in the Bodies of Criminals that hang long after death, the *Penis* becomes erected, by the Blood's falling to the inferior Parts, and ſtopping there.

The Cavernous Body of the Urethra is erected by the *Muſculi Acceleratores*, embracing the Veins of its Bulb. See ERECTION.

PENITENCE, *Pœnitentia*, is ſometimes uſed for a State of Repentance, and ſometimes for the Act of Repenting. See REPENTANCE.

PENITENCE is alſo uſed for a Diſcipline or Puniſhment attending Repentance, more uſually call'd *Penance*. See PENANCE.

PENITENCE, is alſo the Title of ſeveral religious Orders, conſiſting of converted Debauchees, and reform'd Proſtitutes; or of Perſons who devote 'emſelves to the Office of reclaiming 'em.

Of this latter Kind is the Order of *Penitence* of St. *Magdalen*, eſtabliſh'd about the Year 1272, by one *Bernard*, a Cittizen of *Marſeilles*; who devoted himſelf to the work of converting the Courtezans of that City.

Bernard was ſeconded by ſeveral others; who making a kind of Society, were at length erected into a religious Order by Pope *Nicholas* III. under the Rule of St. *Auguſtin*.

F. Geſnay adds, that they alſo made a religious Order of the *Penitents*, or Women they converted, giving 'em the ſame Rules and Obſervances which they themſelves kept.

The Congregation of *Penitence of the Magdalen* at *Paris*, owed its Riſe to the preaching of *F. Tiſſeran*, a *Franciſcan*; who converted a great Number of Courtezans about the Year 1492.

Louis, Duke of *Orleans*, gave 'em his Houſe for a Monaſtery; or rather, as appears by their Conſtitutions, *Charles* VIII. gave 'em the Hotel, call'd *Bochaigne*, whence they were removed to St. *George*'s Chapel in 1572. By Virtue of a Brief of Pope *Alexander*; *Simon*, Biſhop of *Paris*, in 1497, drew 'em up a Body of Statutes, and gave 'em the Rule of St. *Auguſtin*.

To qualify a Woman for Admiſſion, it was required that ſhe had committed the Sin of the Fleſh: None were admitted above 35 Years of Age.

Till the Beginning of the laſt Century, none but *Penitents* were admitted; but ſince its Reformation by *Mary Alvequin*, in 1616, none have been admitted but Maids; who, however, ſtill retain the ancient Name *Penitents*. See PENITENTS.

PENITENTS, are certain peculiar Friaries, or Societies of Perſons who aſſemble together for Prayers, make Proceſſions bare footed their Faces cover'd with Linnen, and give 'emſelves Diſcipline.

There are *white Penitents* in *Italy*, at *Avignon*, and at *Lyons*: There are alſo *blue Penitents*, and *black Penitents*, which laſt aſſiſt Criminals at their Death, and give 'em Burial.

Mabillon tells us, that at *Turin* there are a Set of *Penitents* kept in pay, to walk thro' the Streets in Proceſſion, cut their Shoulders with Whips, &c.

PENITENTS, or *Converts of the Name of Jeſus*, a Congregation of Religious in *Sevil*; conſiſting of Women, who have led a licentious Life; founded in 1550.

This Monaſtery is divided into three Quarters: one for profeſs'd Religious; another for Novices; a third for thoſe under Correction.

When theſe laſt give Signs of a real Repentance, they are removed into the Quarter of the Novices; where, if they don't behave 'emſelves well, they are remanded to their Correction. They obſerve the Rule of St. *Auguſtin*.

PENITENTS of *Orvieta*, are an Order of Nuns, inſtituted by *Anthony Simoncelli*, a Gentleman of *Orvieta*.

The Monaſtery he built, was at firſt deſtined for the Reception of poor Girls, abandoned by their Parents, and in danger of loſing their Virtue.

In 1662, it was erected into a Monaſtery, for the Reception of ſuch as having abandoned 'emſelves to the Fleſh, were willing to take up and conſecrate 'emſelves to God by ſolemn Vows. Their Rule is that of the *Carmelites*.

Theſe Religious have this in peculiar, that they undergo no Noviciate. All they require is, that they continue a few Months in the Monaſtery in a ſecular Habit; after which they are admitted to the Vows.

PENITENTIAL, PENITENTIALE, an Eccleſiaſtical Book, retain'd among the *Romaniſts*; wherein is preſcribed what relates to the Impoſition of *Penance*, and the Reconciliation of *Penitents*. See PENANCE and PENITENT.

In the Capitularies of *Charlemaign*, the Prieſts are enjoin'd to ſtudy well their *Penitential*.

There are various *Penitentials*; the *Roman Penitential*; that of *Venerable Bede*, that of *Pope Gregory* III. &c.

PENITENCIARY, an Office, or Tribunal in the Court of *Rome*; wherein are examined and deliver'd out the ſecret Bulls, Graces, or Diſpenſations relating to Conſcience, Confeſſion, &c. See BULL, &c.

The Expeditions of the *Penitentiary* are ſeal'd up with red Wax; and ſent cloſe; directed to the Confeſſors.

PENNATA *Folia*, *winged Leaves*; amongſt *Botaniſts*, are ſuch Leaves of Plants, as grow directly one againſt another, on the ſame Rib, or Stalk as: thoſe of Aſh, Walnut-Trees, &c. See LEAVES, PLANT. &c.

PENITENTIARY, is alſo an Officer, or Dignitary in ſome Cathedrals, veſted with Power from the Biſhop to abſolve Caſes reſerv'd to him; on which Account he is call'd the *Biſhop's Ear*.

In ſome Places there is a *Grand Penſionary*, and a *Sub-Penitentiary*. *Anaſtaſius* ſays, that Pope *Simplicius* choſe ſome among the *Roman* Prieſts to preſide over *Penances*. At preſent the Pope has his *Grand Penitentiary*; who is a Cardinal, and the Chief of the other *Penitentiary* Prieſts eſtabliſh'd in the Patriarchal Churches of *Rome*, who conſult him in difficult Caſes.

He preſides in the *Penitentiary*, diſpatches Diſpenſations, Abſolutions, &c. and has under him a Regent, and twenty four Proctors or Advocates of the *ſacred Penitentiary*.

PENNON, a Standard with a long Tail; antiently belonging to a ſimple Gentleman; properly us'd as a Guidon to place over a Tent. See GUIDON, &c.

It is oppos'd to the *Banner*, which was ſquare; and hence, when any one was to be made a Banneret, the Ceremony conſiſted in Cutting off the Tail of his *Pennon*, and thus converting it into a *Banner*, See BANNER, or BANNERET.

The word comes from the *Latin*, *Pannus*, Cloath.

PENNY, or PENY, in Commerce, an ancient *Engliſh* Coin, which had formerly conſiderable Courſe; but is now generally dwindled into an imaginary Money, or Mony of Account. See MONY and COIN.

The ancient *Engliſh Penny*, *Penig* or *Pening*, is the firſt Silver Coin ſtruck in *England*; nay, and the only one Current among our *Saxon* Anceſtors, as is agreed by *Cambden Spelman*, Dr. *Hicks*, &c.

Hence, *Peny*, in ancient Statutes, &c. is uſed for all Silver Money. *Cambden* derives the Word from the *Latin*, *Pecunia*, Money, in the general; and hence the *Ward-Peny*, *Aver-peny*, *Hundred-peny*, *Tithing-peny*, and *Brothal-peny*.

The *Penny* was equal in Weight to our Three-*pence*; five of 'em made one *Shilling*, or *Scilling Saxon*; thirty a *Mark* or *Mancuſe*, equal to our 7 s. 6d.. See MARK, MANCUSE &c.

Till the Time of King *Edward* I. The *Penny* was ſtruck with a Croſs ſo deeply indented in it, that it might be eaſily broke, and parted, on occaſion, into two parts; thence call'd *Half-pennys*; or into four, thence call'd *Fourthings*, or *Farthings*. See FARTHING.

But that Prince coin'd it without Indenture; in lieu of which he firſt ſtruck round *Half-pence* and *Farthings*.

He alſo reduc'd the Weight of the *Penny* to a Standard; ordering that it ſhou'd weigh 32 Grains of Wheat, taken out of the Middle of the Ear.

This *Penny* was call'd the *Penny Sterling*. See STERLING.

Twenty of theſe Pence were to weigh an Ounce; whence the *Penny* become a Weight, as well as a Coin. See PENNY *Weight*.

The *Penny Sterling*, is now nigh diſuſed as a Coin, and ſcarce ſubſiſts, but as a Money of Account; containing the 12th Part of a Shilling. See SHILLING. Or the two hundred and fortieth Part of a Pound. See POUND.

The Courſe of Exchange between *England* and *France*, is ſettled on the Foot of ſo many Pence *Sterling*, for a *French* Crown of three Livres. See EXCHANGE.

The *French* PENNY, or *Denier*, is of two Kinds; the *Paris Penny*, call'd *Denier Pariſis*; and the *Penny of Tours*, *Denier Tournois*. See DENIER.

The *Dutch Penny*, call'd *Pening*, is a real Money, worth about one fifth more than the *French Penny Tournois*.

The *Penin* is alſo uſed as a Money of Account, in keeping Books by Pounds, *Florins* and *Patards*; twelve *Penins* make the *Patard*; and twenty *Patards* the *Florin*. See FLORIN.

At *Hambourg*, *Nuremberg*, &c. the *Penin of Account*, is put equal to the *French Penny Tournois*. Eight of 'em make the *Kreux*; and 60 the *Florin* of thoſe Cities; and 90 the *French* Crown, or 4 s. 6d. *Sterling*.

PENNY-*Weight*, a *Troy* Weight, containing 24 Grains; each Grain weighing a Grain of Wheat gather'd out of the Middle of the Ear, well dried. See WEIGHT and GRAIN.

Twenty of theſe *Penny-weights* make an Ounce *Troy*. See OUNCE.

A *Penny-weight* of Gold Bullion Standard, is worth four Shillings; and of Silver Bullion, Three-pence. See GOLD and SILVER.

The Name took its riſe hence, that this was actually the Weight of one of our ancient Silver *Pennies*. See PENNY.

PENNY-*Poſt*. See *Penny*-POST.

PENSA *Libra*, in our ancient Cuſtoms, a Pound of Money paid by Weight, not by Tale. See POUND and LIBRA.

PENSION, a yearly Appointment, or Sum of Money paid any one for Services, or Conſiderations already paſt. See PENSIONARY.

That which in the two Temples is call'd a *Parliament*, and *Lincoln's-Inn* a *Council*, is in *Gray's-Inn* termed a *Penſion*; that is, an Aſſembly of the Members of the Society, to conſult of the Affairs of the Houſe. See PARLIAMENT, &c.

Penſions, are alſo certain annual Payments of each Member to the Houſe, for certain Occaſions.

When a *Penſion-Writ* is iſſued, none ſued thereby in the Inns of Court, ſhall be diſcharged, or permitted to come into Commons, till all Duties be paid.

Hence a *Penſion-Order* in the ſame Inn, is a peremptory Order againſt ſuch of the Society as are in Arrear for *Penſions*, and other Duties.

PENSIONARY, or PENSIONER, a Perſon who has a *Penſion*, Appointment, or yearly Sum, payable during Life, by way of Acknowledgement; charg'd on the Eſtate of a Prince, Company, particular Perſon, &c.

In the *Romiſh* Countries, 'tis frequent to have *Penſions on Benefices*: Theſe were antiently granted with a great deal of Eaſe, under pretence of Infirmities, Poverty, &c. But ſince the XII. Century, theſe Pretences were carried ſo far, that the Incumbents, or Titularies of Benefices were little more than Farmers.

This oblig'd the ſpiritual Powers to fix the Cauſes, and the quantities of *Penſions*. *Penſions* are now only creatable by the Pope; and are never to exceed one third of the Revenue; two thirds being ſtill to remain to the Incumbent.

PENSIONARY, is alſo the firſt Miniſter of the States of the Province of *Holland*. See STATES.

The *Penſionary* is Chairman in Aſſemblies of the States of that Province; he propoſes the Matters to be conſulted on, collects the Votes, forms and pronounces the Reſolutions of the States, opens Letters, confers with foreign Miniſters, &c.

He is charg'd with inſpecting the Finances, preſerving the Rights of the Province, maintaining the Authority of the States, and ſeeing to the Obſervation of Laws, &c. for the good of the State.

He aſſiſts in the College of Deputy-Councellors of the Province, who repreſent the Soveraignty in the Abſence of the States; and is perpetual Deputy of the States General of the United Provinces.

His Commiſſion is only given for five Years; after which 'tis deliberated whether or no it ſhall be renew'd. Indeed, there is no Inſtance of its having been revoked. Death only puts a Period to the Functions of this important Miniſter.

Formerly, he was call'd the *Advocate of the Province*: The Title *Penſionary* was only given at the Time *Barnveld* had the Office.

Grotius calls him in *Latin*, *Adſeſſor Juriſperitus*; *Merula*, *Advocatus Generalis*; *Mathæus*, Profeſſor at *Leiden*, *Conſiliarius Penſionarius*; which is the Quality the States give him in their Inſtruments.

Pensionary, is alſo the firſt Miniſter of the Regency of each City, in the Province of *Holland*. See Province.

His Office is to give his Advice in Matters relating to the Government, either of the City in particular, or of the State in General; and in Aſſemblies of the States of the Province is Speaker in behalf of his City.

Yet, the Functions of theſe *Penſionaries* is not alike every where: In ſome Cities they only give their Advice; and are never found in Aſſemblies of the Magiſtrates, except when expreſly call'd thither: In others they attend conſtantly; and in others they even make the Propoſitions on the Part of the Bourguer Maſters, draw up their Concluſions, *&c.*

They are call'd *Penſionaries*, becauſe they receive an Appointment or *Penſion*.

Gentlemen-Pensioners, a Band of Gentlemen, whoſe Buſineſs is to Guard the King's Perſon in his own Houſe; and who for that End wait in the preſence Chamber.

They were firſt ſet on Foot by K. *Henry* VII. The Number is Forty; and each obliged to keep three double Horſes and a Servant, who is to be arm'd: ſo that they properly make a Troop of Guards; and have accordingly been muſter'd by their own Officers: but this part of Duty, to which they are ſwore, the King uſually diſpenſes with.

Their Officers are a Captain, Lieutenant, Standard-bearer, and Clerk of the Cheque.

Their ordinary Arms are guilt Pole-Axes, with which they attend the King to and from the Chapel Royal; receiving him in the Preſence Chamber, or coming out of his private Lodging; as alſo at all great Solemnities. Their *Penſion* 100 *l. per Annum*.

PENTACHORD, an ancient muſical Inſtrument, with five Strings; whence the Name, of πέντε, five, and χορδα Chord, String.

The Invention of the *Pentachord* is referr'd to the *Scythians*: The Strings were of Bullocks Leather, and were ſtruck with a *Plectrum* made of Goats Horn.

PENTACROSTICK, a Set or Series of Verſes ſo diſpos'd, as that there are always found five Acroſticks of the ſame Name, in five Diviſions of each Verſe. See Acrostic.

PENTAGON, in Geometry, a Figure with five Sides, and five Angles; whence its Name; from the *Greek* πενταγωνος *Quinquangulus*. See Polygon.

If the five Sides be equal, the Angles are ſo too; and the Figure is call'd a *regular Pentagon*: As Fig. 47. Tab. Geometry.

Moſt Cittadels are regular *Pentagons*. See Cittadel.

The moſt conſiderable Property of a *Pentagon* is, that one of its Sides, *v. g.* *D E*, is equal in Power to the Sides of a *Hexagon*, and a *Decagon* inſcribed in the ſame Circle *A B C D E*: that is, the Square of the Side *D E* is equal to the Sum of the Squares of the Sides *D a* and *D b*.

Pappus has alſo demonſtrated that twelve regular *Pentagons* contain more than twenty Triangles inſcribed in the ſame Circle, Lib. 5. prob. 45.

The *Dodecahedron*, which is the fourth regular Body, conſiſts of twelve *Pentagons*. See Dodecahedron.

Projection or Perſpective of a Pentagon. See Perspective.

PENTAGRAPH, an Inſtrument whereby Deſigns, Prints, *&c.* of any Kind, may be copied in any Proportion; without a Perſon's being skill'd in drawing. See Design, Reduction, *&c.*

The Inſtrument is otherwiſe call'd a *Parallelogram*. See Parallelogram.

The common *Pentagraph* (repreſented Tab. *Miſcellany* Fig. 6.) conſiſts of four Braſs or Wooden Rulers, two of 'em from 15 to 18 Inches long, the other two half that length. At the Ends, and in the Middle of the longer Rulers, as alſo at the Ends of the ſhorter are Holes; upon the exact fixing whereof the Perfection of the Inſtrument chiefly depends. Thoſe in the Middle of the long Rulers are to be at the ſame diſtance from thoſe at the ends of the long ones, and thoſe of the ſhort ones; ſo that when put together they may always make a *Parallelogram*.

The Inſtrument is fitted together for uſe, by ſeveral little Pieces, particularly a little Pillar, Fig. 1. having at one End a Screw and Nut, whereby the two long Rulers are joined; and at the other a little Knot for the Inſtrument to ſlide on. The Piece 2 is a Rivet with a Screw and Nut, wherewith each ſhort Ruler is faſten'd to the Middle of each long one. The Piece 3 is a Pillar, one End whereof being hollow'd into a Screw, has a Nut to fit it.

At the other End is a Worm to ſcrew into the Table: when the Inſtrument is to be uſed, it joins the Ends of the two ſhort Rulers. The Piece 4 is a Pen, Portecraion, or Pencil, ſcrew'd into a little Pillar. *Laſtly*, the Piece 5 is a Braſs-point, moderately blunt, ſcrew'd likewiſe into a little Pillar.

Uſe of the PENTAGRAPH or Parallelogram.

1. To Copy a Deſign in the ſame Scale or Bigneſs as the Original: Screw the Worm 3 into the Table; lay a Paper under the Pencil 4, and the Deſign under the Point 5. This done, conducting the Point over the ſeveral Lines and Parts of the Deſign, the Pencil will draw or repeat the ſame on the Paper.

2. If the Deſign be to be reduced *E. gr.* into half the Space; the Worm muſt be placed at the End of the long Ruler 4; and the Paper and Pencil in the Middle. In this Situation conduct the Braſs-point over the ſeveral Lines of the Deſign as before; and the Pencil at the ſame Time will draw its Copy in the Proportion required; the Pencil here only moving half the Lengths that the Point moves.

Hence, on the contrary, if the Deſign be to be enlarged by one half: The Braſs-point, with the Deſign, muſt be placed in the Middle, at Fig. 3. the Pencil and Paper at the End of the long Ruler, and the Worm at the other.

3. To enlarge or reduce in other Proportions, there are Holes drill'd at equal Diſtances on each Ruler, *viz.* all along the ſhort ones, and half way the long ones; in order for placing the Braſs Point, Pencil, and Worm in a right Line therein; *i. e.* if the Piece carrying the Point be put in the third Hole, the two other Pieces muſt be put each in its third Hole.

If then, the Point and Deſign be placed at any Hole of the great Rulers, and the Pencil with the Paper at any Hole of the ſhort Ruler, which forms the Angle therewith; the Copy will be leſs than half the Original. On the contrary, if it be placed at one of the Holes of that ſhort Ruler, which is parallel to the long Ruler, the Copy will be greater than half the Original.

The Conſtruction of this Inſtrument requires a Degree of Accuracy, which moſt of our Inſtrument Makers are Strangers to; for which reaſon there are very few of the Inſtruments that ſucceed. Few will do any Thing tolerably but ſtraight Lines; and many of 'em not thoſe.

PENTAMETER, in Poetry, a kind of Verſe, conſiſting of five Feet. See Verse and Foot.

The two firſt Feet of a *Pentameter*, may be either Dactyls, or Spondees; the third always a Spondee; and the two laſt Anapeſts.

It is uſually join'd to Hexameters, in Elegies, Epiſtles, Epigrams, and other little Pieces. There is no work of *Pentameters* alone. See Hexameter.

The Word is form'd from the πενταμετρον, *q. d. five Meaſures*.

PENTAPETALOUS *Plants*, are ſuch whoſe Flower conſiſts of five Leaves. See Plaet.

PENTAPOLIS, in Geography, *&c.* a Country wherein are five Cities.

The Name has been given to ſeveral Countries, particularly the Valley wherein ſtood the five infamous Cities deſtroy'd by the Shower of Fire and Brimſtone, in ths Time of *Abraham*.

'Tis commonly ſuppoſed, this Country was the Place where now ſtands the Lake *Aſphaltites*, or dead Sea: *Sanſon* places it in the Neighbourhood of this Lake, but without any Proof. *D' Herbelot* calls this the *Pentapolis of the Sodomites*.

The Pentapolis of Egypt was in the *Cyrenaica*, on the Sea of *Libya*; its five Cities were *Berenice*, *Arſinoe*, *Ptolemais*, *Cyrene*, and *Apollonia*.

Among the ancient Geographers and Hiſtorians, we likewiſe read of the *Pentepolis* of *Libya*, now call'd *Meſtrata*; The *Pentapolis* of *Italy*; and the *Pentapclis* of *Aſia Minor*.

PENTAPTOTON, in Grammar, a Noun which has only five Caſes. See *Aptote* and Case.

PENTASTICH, in Poetry, a Stanza, or Diviſion of a Poem, conſiſting of five Verſes. See Stanza.

PENTASTYLE, in Architecture, a Work wherein are five Rows of Columns.

Such was the *Portico* begun by the Emperor *Gallian*, and which was to have been continued from the *Flaminian-Gate* to the Bridge *Milvius*, *i. e.* from the *Porto del Populo*, to the *Ponte-mole*.

PENTATEUCH, in the ſacred Learning, the five Books of *Moſes*, at the Head of the Old Teſtament; *viz.* *Geneſis*, *Exodus*, *Leviticus*, *Numbers*, and *Deuteronomy*. See Bible.

The Word is form'd from the *Greek* πεντατευχος.

Pere Simon, in his *Hiſt. Crit. du V. Teſt.* produces a good Number of Paſſages to prove that *Moſes* was not wholly the Author of the *Pentateuch*, as we now have it. Indeed, thoſe apparent Interpolations at the End, are ſufficient to determine the Point; it being abſur'd to ſuppoſe *Moſes* the Author of the Account of his own Death and Burial, and of the Compariſon between him and the ſucceeding Prophets in *Iſrael*.

Theſe interpolated Paſſages are uſually attributed to *Eſdras*; who, on his Return from the *Babyloniſh* Captivity, is ſuppoſed to have publiſh'd the Old Teſtament, or at leaſt a Part of it corrected and enlarg'd. See CANON.

There are two famous *Pentateuchs*, or Editions of the *Pentateuch*, which have a long Time diſputed the Preference, both as to Antiquity, and as to Character, *viz.* that of the *Jews*, call'd the *Jewiſh or Hebrew Pentateuch*, wrote in *Chaldean* or *Aſſyrian* Characters; and that of the *Samaritans* wrote in the *Samaritan* or *Phœnician* Character.

Each is maintain'd to be the ancient *Hebrew*; tho' the Generality of the Criticks give it in behalf of the latter. See HEBREW.

Indeed, as to the Point of *Matter*, they are generally pretty conformable to each other; each has all the interpolated Paſſages above-mention'd, tho' the *Samaritan* has one or two more, not in the *Hebrew*. The firſt a Paſſage in *Deut.* 27. 4 where an Altar is enjoin'd to be built, and Sacrifices to be offer'd at Mount *Ebal*, or rather Mount *Gerizzim*, which Paſſage was doubtleſs foiſted in to countenance the *Samaritan* Worſhip, and repreſent it of equal Antiquity with that of the Temple of *Jeruſalem*. See SAMARITANS.

Indeed, Mr. *Whiſton* declares he ſees no Reaſon to accuſe the *Samaritan* of Corruption, in theſe Points, but rather the *Jewiſh*; and earneſtly concludes that the Former is an uncorrupted Copy of the Books of *Moſes*, originally derived from the firſt Separation of the ten Tribes 'emſelves, in the Days of *Jeroboam*; the contrary whereof is apparent from the mere confeſſed Interpolations aſcribed to *Eſdras*, who lived ſeveral hundred Years after the time of *Jeroboam*.

But the grand Difference is in the Character: The *Jewiſh* being in the *Chaldean* or *Aſſyrian* Character, and the *Samaritan* in the *Phœnician*, *i. e.* the *Canaanitiſh* Character; this latter ſeems to have an Advantage over the vulgar *Jewiſh Pentateuch*; yet is *Prideaux* of Opinion, the Latter is only a Tranſcript from the Former, out of the *Chaldean* into the old *Hebrew* Character. One great Reaſon he gives, is, that there are many Variations in the *Samaritan*, manifeſtly occaſioned by miſtaking the ſimilar Letters in the *Hebrew* Alphabet; which Letters having no Similitude in the *Samaritan* Character, 'tis evident the Variations muſt have a-riſen in tranſcribing from the vulgar *Hebrew* into the *Samaritan*; not the contrary way.

Add to this, that *Simon*, *Allix*, and many other learned Men take the *Chaldean* or *Aſſyrian* Character to have been the Character always in uſe among the *Jews*; and the *Samaritan* or *Canaanitiſh*, or as it is alſo call'd the *old Hebrew* Character, to have never been uſed by the *Jews* before the Captivity, in any manner, either in Books or on Medals. See CHARACTER.

Hence the *Pentateuch* muſt have been tranſcribed into that Character; and that, probably, to render it legible to the Inhabitants of *Samaria*, who upon the firſt Introduction of the *Pentateuch* might probably be verſed in no other Character.

Uſher takes the *Samaritan Pentateuch* to have been compiled by *Doſitheus* a *Samaritan*, mention'd by *Origen* to have adulterated the *Pentateuch*. *Du-pin* ſuppoſes it the Work of ſome modern *Samaritan*, whom he imagines to have compiled it chiefly out of the different Copies of the *Paleſtinian* and *Babylonian Jews*, and the *Septuagint*; becauſe it ſometimes agrees with one, and ſometimes with another.

PENTATHLON, in Antiquity, the five Exerciſes performed in the *Grecian* Games, and for which Prizes were propoſed. See EXERCISES, GAME, *&c.*

Theſe Exerciſes were Wreſtling, Boxing, Leaping, Running and Quoit-playing.

He who bore away the Prize in 'em all, was call'd *Pentathlus*; by the *Latins*, *Quincurtio*; as the five Exerciſes themſelves were by thoſe latter People call'd *Quinquertium*.

PENTATONON, in the ancient Muſic, a Concord, by us call'd the greater Sixth. See SIXTH.

It conſiſts of four Tones, and a major and minor Semitone; whence the Name *Pentatonon*, *q. d.* five Tones.

PENTECOST, *Whitſuntide*, a ſolemn Feaſt of the Church, held in Commemoration of the Deſcent of the Holy Ghoſt on the Apoſtles; as deſcribed in the Acts. See FEAST.

It has its Name from the *Greek* πεντηκοστὸς, *Qunquageſimus* 50th, becauſe held on the fiftieth Day after Eaſter. See EASTER.

In the ancient Church, *Pentecoſt* finiſh'd the Paſchal Time, or *Eaſter*-Seaſon; wherein, as *Tertullian*, St. *Jerom*, *&c.* obſerve, *Hallelujah* was ſung every where, the Office celebrated ſtanding, no Faſting allowed, *&c.*

The *Jews* likewiſe had a Feaſt, they call'd *Pentecoſt*, or *Quinquageſimus*; ſolemnized in Memory of the Laws being given to *Moſes* 50 Days after their Departure out of *Egypt*.

PENTECOSTALS, antiently, were pious Oblations made at the Feaſt of *Pentecoſt*, by the Pariſhioners, to their Pariſh Prieſt; and ſometimes by inferior Churches or Pariſhes, to the principal Mother Church. See OBLATION.

Theſe Pariſh *Pentecoſtals* were alſo call'd *Whitſon-Farthings*; and their Sum was divided into four Parts, of which one went to the Prieſt, one to the Poor, one towards the Repair of the Pariſh Church, and one to the Biſhop. See WHITSON-FARTHINGS.

PENTECONTORE, a Veſſel with fifty Oars.

PENTESYRINGUS, in Antiquity, a Sort of Pillory, with five Holes; wherein were faſtened the Legs, Arms, and Heads of Criminals, to prevent their ſtirring.

PENTHEMIMERIS, in the *Greek* and *Latin* Poetry, part of a Verſe conſiſting of two Feet, and a long Syllable.

The Word is *Greek* πενθημιμέρις.

PENULTIMA, or PENULTIMATE, in Grammar, *&c.* a Syllable, or Foot, immediately before the laſt.

Hence *Antepenultimate* is that before the *Penultimate*, or the laſt but two.

The Word is form'd from the *Latin*, *Pene & ultimus*, almoſt laſt.

PENULTIMATE, in Muſic. *M. Broſſard* will have it the ſame with what the *Greeks* call'd *Paranete*; tho' others won't allow the *Paranete* to be the *Penultimate* Chord, but the next thereto.

The *Penultimate of the ſeparate*, *Paranete Diezeugmenon*, is a Name the Ancients gave to one of the Chords of their Lyre or Syſtem; correſponding to the *D*, *la*, *re*, of the third Octave of the modern Syſtem.

Penultimate of the Acute, Or *paranete Hyperboleon*, a Chord of the ancient Syſtem, anſwering to the *G*, *re*, *ſol*, of the third Octave of the modern Syſtem.

PENUMBRA, in Aſtronomy, a faint or partial Shade, obſerv'd between the perfect Shadow and the full Light, in an Eclipſe. See SHADOW.

The *Penumbra* ariſes from the Magnitude of the Sun's Body: were he only a luminous Point, the Shadow wou'd be all perfect; but by reaſon of the Diameter of the Sun, it happens that a Place which is not illuminated by the whole Body of the Sun, does yet receive Rays from a Part thereof.

Thus ſuppoſe *S* the Sun (Tab Aſtronomy Fig. 47.) and *T* the Moon, and the Shadow of the latter to be projected on a Plane as *G H*. The true proper Shadow of *T*, *viz.* *G H*, will be incompaſs'd with an imperfect Shadow or *Penumbra H L* and *G E*, each Portion whereof is illuminated by an entire Hemiſphere of the Sun.

The Degree of Light or Shadow of the *Penumbra* will be different in different Parts, as thoſe Parts lye open to the Rays of a greater or leſſer Part of the Sun's Body: Thus from *L* to *H*, and from *E* to *G* the Light continually diminiſhes; and in the Confines of *G* and *H*, the *Penumbra* becomes loſt and confounded with the total Shade; as, near *E* and *L*, it is confounded with the total Light.

The *Penumbra* muſt be found in all Eclipſes, whether of the Sun, the Moon, or the other Planets, primary, or ſecondary; but it is moſt conſiderable with us in Eclipſes of the Sun; as in the Caſe here referr'd to.

In Eclipſes of the Moon, the Earth is incompaſs'd indeed with a *Penumbra*; but 'tis only ſenſible to us on the Earth near the total Shadow: An Obſerver placed on a Plane, whereon the Shadow falls, might obſerve the whole *Penumbra*, as in Eclipſes of the Sun. Thus an Eye placed at *I* or *F*, will only ſee the Semi-diameter of the Sun; the reſt being hid behind the Moon. Going from *I* towards *H*, the more and more of the Sun is hid, till it be loſt in the Shadow itſelf, *&c.*

Hence we have Eclipſes of the Sun when the Shadow never touches the Earth, provided the *Penumbra* doth but reach it; and hence there is a Difference obſerv'd in Eclipſes of the Sun, as the Shadow itſelf, or a greater or leſs Degree of the *Penumbra*, paſſes over a Place. See SUN.

But Eclipſes of the Moon appear the ſame in all Places where they are viſible. See MOON.

When the Shadow itſelf falls on the Earth, the Eclipſe is ſaid to be *Total or Central*; when only the *Penumbra* falls on it, the Eclipſe is ſaid to be *partial*. See ECLIPSE.

The *Penumbra* extends infinitely in length, inaſmuch as to each point of the Diameter of the Sun, there anſwers a ſpace infinite in length into which no Rays enter from that Point, tho' there do from others. Two Rays drawn from the two Extremities of the Earth's Diameter, and which proceed ſtill diverging, make the two Edges of the *Penumbra*; which, of Conſequence, is continually growing in Width, and is infinite, alſo in this Senſe.

All that infinite Space is the *Penumbra*, except the Triangle of the Shadow included in it.

The Figure of this Space comprehending the Shadow, is a Trapezium, one of whoſe Sides is the Diameter of the Earth; the oppoſite Side parallel thereto is an infinite Line, *i. e.* the Width of the *Penumbra* projected to infinity, and the two other Sides the two Rays drawn from the two Extremities of the Diameter of the Sun, by thoſe of the Diameter of the Earth, and which prolong'd back beyond the Sun, will interſect in a certain Point, making an Angle equal to the apparent Diameter of the Sun; which Angle may be call'd the *Angle of the Penumbra*.

Now the *Penumbra* will be the greater as this Angle, or, which is the ſame Thing, as the Star is greater, the Planet remaining the ſame: And if the Diameter of the Planet be increas'd, the Star remaining the ſame, 'twill be the ſame as if the Diameter ſtill receeded from the Angle of the *Penumbra*.

M. de le Hire examins the different Degrees of the *Penumbra*, and repreſents 'em Geometrically by the Ordinates of a Curve, which ſhall be among 'emſelves, as the different Parts of the Sun's Diſk, wherewith a Body placed in the *Penumbra* is enlighten'd.

PEPPER, an Aromatic Fruit, or Grain of a hot, dry Quality; chiefly uſed in the ſeaſoning of Meats. See SPICE.

It is the Product of a Shrub growing in ſeveral Parts of the *Eaſt-Indies*, chiefly *Java*, *Sumatra*, *Malacca*, and the Coaſts of *Malabar*. The Plant is very weak and of the reptile Kind, and for that Reaſon uſually planted at the Foot of the larger Trees, as the *Areca*, *Cacoa*, &c.

The *Pepper* grows in Grapes or Cluſters; at firſt green, as they ripen they grow red; and at laſt, after being expoſed a While to the Sun, become black, in the Condition we ſee 'em.

The Fruit is gather'd in *November*. It muſt be choſen large, well fed, not wrinkled, without Duſt, with a good many white Grains in it; and Care be taken the largeſt Grains han't been pick'd out to make white *Pepper*.

White PEPPER is the Fruit of the ſame Plant with the Black, and is prepared from it by moiſtening it with Sea Water, and then expoſing it to the Sun, and caſting away the outer Bark, which abandoning the Grain, leaves it white.

Indeed, *M. Dellon*, a late Traveller, ſays, they ſtrip off the Skin, by beating it before it be quite dry; or by ſoaking it in Water after it has dried, and then beating it.

Many Authors, and among the reſt *Pomet*, will have the white *Pepper* to be natural, and the Fruit of a different Plant from the Black; but *M. Dellon*, who expreſsly declares the contrary from his own long Experience, ſeems to put the Matter paſt doubt.

White *Pepper* muſt be choſen after the ſame manner as black; with this further Care, that it han't been whiten'd.

Pepper that is ſold ground, is very apt to be ſophiſticated; the Black with burnt Cruſt of Bread, &c. the White with beaten Rice.

Long PEPPER is a kind of *Pepper* denominated from its form, which in Length and Thickneſs equals a Child's Finger; it conſiſts of an aſſemblage of Grains join'd cloſe to one another, of a browniſh Colour, bordering without on red, and within on black; and grows by a long Pedicle to a Plant, like that of the black *Pepper*, but lower, and its Leaves ſmaller and greener.

Its Taſte reſembles that of the former, but leſs ſharp.

There are three kinds of this *Pepper*, that of the *Eaſt-Indies*, that of *America*, and that of *Ethiopia*, call'd alſo Grain of *Zeilon*: Tho' the firſt alone is the proper long *Pepper*; the reſt reſembling it but little.

It muſt be choſen new, large, heavy, well fed, hard to break, without Duſt or Mixture; its chief Uſe is in Medicine, where it enters ſeveral Galenical Compoſitions, among the reſt Treacle.

Guinea PEPPER, is a red *Pepper*, of a Coral Colour, much eſteem'd by the *Americans*, from among whom 'tis brought, and by them call'd Chile, by the *Spaniards* Pimenta, and the *French*, Garden Coral.

'Tis now cultivated pretty commonly in *France*, eſpecially in *Languedoc*; uſed in making Vinegar, and likewiſe confected with Sugar. It muſt be choſen new, in large Pods, dry, entire, and red.

There are four Kinds, the firſt call'd by the *Americans* Chilchotes; the ſecond very ſmall Chilterpin, both of a very pungent Taſte; the third Tonalchiles, moderatly hot, and eaten by the Natives like other Fruit with Bread; the fourth Chilpelagua, moderately pungent, much uſed by the *Spaniards* in the Preparation of Chocolate; there is alſo a fifth Kind call'd Agy, growing in *Peru*.

Jamaica PEPPER, call'd by the *Dutch Amomi*, is the Fruit of the Tree that yields the *Indian* Wood, growing plentifully in *Jamaica* and other *American* Iſlands.

It is a real *Aromatic*, and may ſupply the Defect both of Cloves, Nutmeg, and Cinnamon; the *French* call it the *round Clove*, from its Taſte reſembling that Spice.

PERACUTUM *Menſtruum*. See MENSTRUUM.

PENY. See PENNY.

PEPASMUS, in Medicine, the digeſting and ripening of morbid Humours. See MATURATION, DIGESTION.

The Word is *Greek* πεπαὸμσς.

PEPASTIC, or **PEPTIC**, in Medicine, a kind of Medicament, of the Conſiſtence of an Emplaſter; proper to bring vitious and corrupt Humours to a Head, and diſpoſe 'em for Suppuration. See RIPENER and DIGESTIVE.

Butter, Roots of Mallows, of Flowers-de-lis, Onions and Leaves of Oxylapathum are eſteem'd good *Pepaſticks*, or Maturatives.

The Word is form'd from the *Greek* πεπαίνειν to digeſt or ripen.

PEPIA, popularly PEP or PIP, a Diſeaſe of Fowls; conſiſting in a little white dry Pellicle, ariſing on the Tongue, from their having thirſted much.

Among Falconers, the *Pepia* is a Diſeaſe ariſing in the Tongues of their Birds, from eating Salt and ſtinking Fleſh.

PEPSIS, in Medicine, the Coction, or digeſting of Foods, or Humours in the Body. See COCTION and DIGESTION.

The Word is *Greek*, πέψις, boiling.

PEPTIC, in Medicine. See PEPASTIC.

PEPUZIANS, a Sect of ancient Hereticks, otherwiſe call'd *Phrygians*, or *Cataphrygians*.

They had their Name *Pepuzians* from a Pretence that *J. C.* appear'd to one of their Propheteſſes in the City *Pepuza* in *Phrygia*, which was their holy City. See QUINTILIANS.

PER *Deſcenſum*, by *Deſcent*, in Chymiſtry, a particular manner of Diſtillation. See DESCENT.

PER *Deliquium*. See DELIQUIUM.

Salt of Tartar, diſſolved by the coldneſs or moiſture of the Air, is call'd Oil of Tartar *per Deliquium*, &c. See TARTAR.

PER *Arſin*, **PER** *Theſin*. Terms in Muſic. *Per* is a *Latin* Prepoſition, ſignifying *by*, *during*; *Arſis* and *Theſis* are *Greek* Words, the firſt whereof ſignifies *Elevation*; the ſecond *Poſition*.

Per Theſin, ſignifies *in beating* or during the firſt time of the Meaſure; *Per Arſin*, *in riſing*, or in the laſt Time of the Meaſure.

A Song, Counter-point, Fugue, &c. are ſaid to be *per Theſin*, when the Notes deſcend from the Acute to the Grave; and on the contrary, that they are *per Arſin*, when the Notes aſcend from Grave to Acute.

PERAMBULATION *of the Foreſt*, the Surveying or Walking about the Foreſt, or the Limits of it, by Juſtices or other Officers thereto appointed, to ſet down the Metes and Bounds thereof, and what is within the Foreſt, and what without. See PURLIEU *and* FOREST.

PERAMBULATIONE *facienda*, is a Writ comanding the Sheriffs to make *Perambulation*, and ſet down the Bounds of two or more Manours, whoſe Limits are not ſo well known.

PERAMBULATOR, in Surveying, an Inſtrument for the meaſuring of Diſtances, call'd alſo *Pedometer*, *Way-wiſer*, and *Surveying Wheel*. See PEDOMETER and SURVEYING-*Wheel*.

Its Advantages are its Handineſs, and Expedition; its contrivance is ſuch, as that it may be fitted to the Wheel of a Coach; in which it preforms its Office, and meaſures the Road without any Trouble at all.

There is ſome Difference in its make: That now moſt uſual, as moſt Convenient, is as follows.

Conſtruction of the PERAMBULATOR *or Way-wiſer*.

The *Perambulator* (repreſented Tab. *Surveying* Fig. 23.) conſiſts of a Wheel 2 Foot 7 Inches and an half in Diameter; conſequently half a Pole, or eight Foot and 3 Inches in Circumference. On one End of the Axis is a Nut $\frac{3}{4}$ of an Inch in Diameter, divided into 8 Teeth, which upon moving the Wheel round, fall into the 8 Teeth of another Nut *c*, fix'd on one End of an Iron Rod *Q*, and thus turn the Rod once round, in the Time the Wheel makes one Revolution. This Rod lying along a Groove in the Side of the Carriage of the Inſtrument, has at its other End a ſquare Hole, into which fits the End *6* of the little Cylinder *P*. This Cylinder is diſpoſed under the Dial-plate of a Movement, at the End of the Carriage *B*, in ſuch manner as to be moveable about its Axis. Its End *a* is cut into a perpetual Screw, which falling into the 32 Teeth of a Wheel perpendicular thereto; upon driving the Inſtrument forward, that Wheel makes a Revolution, each 16 Pole. On the Axis of this Wheel is a Pinion with ſix Teeth, which falling into the Teeth of another Wheel of 60 Teeth, carries it round every 160th Pole, or half Mile.

This laſt Wheel then carrying a Hand or Index round with it, over the Diviſions of the Dial-plate whoſe outer Limb is divided into 160 Parts, correſponding to the 160 Poles; points out the Numbers of Poles paſs'd over.

Again, on the Axis of this laſt Wheel, is a Pinion containing 20 Teeth, which falling into the Teeth of a third Wheel that has 40 Teeth, drives it once round in 320 Poles, or a Mile. On the Axis of this Wheel is a Pinion of 12 Teeth, which falling into the Teeth of a fourth Wheel that has 72 Teeth, drives it once round in 12 Miles.

This fourth Wheel carrying another Index, over the inner Limb of the Dial-plate, divided into 12, for Miles, and each Mile ſubdivided into Halves, Quarters, and Furlongs, ſerves to Regiſter the Revolutions of the other Hand, and to keep Account of the half Miles and Miles paſs'd over as far as 12 Miles.

Uſe of the PERAMBULATOR *or Way-wiſer*.

The Application of this Inſtrument is obvious from its Conſtruction. Its proper Office is in the Surveying of Roads, and large Diſtances, where a great deal of Expedition, and not over much Accuracy is required. 'Tis evident the driving it along, and obſerving the Hands; has the ſame Effect as dragging the Chain, and taking account of the Chains and Links. See therefore the Article Chain.

PERCEPTION, in Philoſophy, a ſimple Comprehenſion; or that ſimple Idea of a Thing, which we conceive without making any Affirmation or Negation. See Idea.

If that Idea exhibit any Image to the Mind, it is call'd Imagination; if it exhibit none, it retains the general Name of *Perception*. See Imagination.

Thus when we hear the Word *Tree*; the Idea we then form in the Mind, is call'd an *Imagination*. But when we hear of a Thing, whereof no Image can be framed as of *doubting*, the Idea we then have is a mere *Perception*. See Sensation.

It may be obſerv'd, that the Idea's we receive by *Perception*, are often alter'd by the Judgement, without our taking notice of it; thus a Globe being ſet before our Eyes, the Idea thereby imprinted, is a flat Circle, variouſly ſhadow'd: But being accuſtom'd to perceive what kind of Appearances convex Bodies are wont to make in us; the Judgement alters the Appearances into their Cauſes; and from that Variety of Shadow or Colour frames to itſelf the *Perception* of a convex Figure of one uniform Colour. See Judgement.

This in many Caſes, by a ſettled Habit, is perform'd ſo readily, that we take that for the *Perception* of our Senſation, which is but an Idea form'd by the Judgement; ſo that one ſerves only to excite the other, and is ſcarce taken notice of itſelf: as a Man who reads or hears with Attention, takes little notice of the Characters or Sounds; but of the Idea's which are excited in him thereby.

The Faculty of *Perception*, ſeems to be that which puts the Diſtinction between the animate and inanimate Parts of the Creation. *Vegetables*, ſome of them, have ſome degree of Motion, and upon different Application of other Bodies, alter their Figures and Motions; and have hence obtained the Name of *ſenſitive Plants:* Which, however, is the Reſult of mere Mechaniſm, and no otherwiſe produced, than the ſhortening of a Rope by the Affuſion of Water. But *Perception* is a Metaphyſical Principle, and found in ſome Degree in all Animals; and in them alone.

PER *Minima*, in Pharmacy, an intimate and perfect Mixture of natural Bodies; wherein their very *Minima, i. e.* their Atoms, or firſt component Particles are ſuppoſed to be accurately blended together. See Mixtion.

If Silver and Lead be melted together, they will mingle together *Per minima*.

PER-SE, in Chymiſtry. When a Body is diſtill'd ſingly, and without the uſual addition of any other Matter to raiſe it; it is ſaid to be *diſtill'd Per-ſe*. See Distillation.

The genuine Spirits of Harts-horn, are thoſe rais'd *Per-ſe*, in oppoſition to thoſe diſtill'd by the addition of Chalk.

Per-se, in Logic. A Thing is ſaid to be conſidered *Per-ſe*, when it is taken in the Abſtract. See Abstract.

PERCH, Pole or *Rod*, a long Meaſure, much uſed in ſurveying and meaſuring of Land. See Measure.

Among the old *Romans*, and ſtill among Geometricians, the Pertica, *Perch*, is ten foot; and they otherwiſe call it the *Catena*, *funis*, and *Decempeda*. See Decempeda.

In *England*, the *Statute Perch* contains 16 Foot and $\frac{1}{2}$, and for Coppice-woods, *&c.* 18 Foot: 40 ſquare Perches make a *Rood*, and 160 an *Acre*. See Rood and Acre.

The *Cuſtomary Perch* is various in various Counties: In *Staffordſhire* 'tis 24 Foot; in the Foreſt of *Sherwood* 21, the Foot there being 8 Inches, the Meaſure whereof was mark'd on the Chancel Wall of *Edonſtow*, and in the Church of St. *Mary* in *Nottingham*. See foot.

In *Herefordſhire*, a *Perch of walling* is 16^{1} Foot; a *Perch of Ditching* 21 Foot, *&c.*

In *France*, the *Perch* is from 18 to 23, and even 27 of their Feet.

PERCHANT, among Fowlers a Decoy-bird, which the Fowler has faſten'd by the Foot, and which flutters about the Place where 'tis tied, to draw other Birds to it, and give the Fowler an Occaſion of catching 'em.

PERCOLATION, in Medicine, *&c.* the Action of Filtrating. See Filtration.

PERCUSSION, in Phyſicks, the Impreſſion a Body makes in falling or ſtriking upon another; or the Shock or Colliſion of two Bodies, which concurring, alter each others Motion. See Motion and Collision.

Percuſſion is either direct or oblique.

Direct Percuſſion, is where the Impulſe is given in the Direction of a right Line perpendicular to the point of Contact.

In Spheres, therefore, the *Percuſſion* is *direct*, when the Line of Direction paſſes thro' both their Centres. See Direct.

Oblique Percuſſion, is where the Impulſe is given in the Direction of a Line *Oblique* to the Point of Contact. See Oblique.

Doctrine of Percussion, *or the Laws of Motion, reſulting from the* Percussion *of Bodies.*

In Bodies either perfectly hard, or perfectly ſoft, and ſo void of all Elaſticity; the Laws of *Percuſſion* are eaſily determin'd: but ſince, even the hardeſt Bodies have their ſhare of Elaſticity; and in Elaſtic Bodies, the Laws are very different, and much more intricate; having been firſt aſcertain'd in the Philoſoph. Tranſact. by Sir *Ch. Wren*, Dr. *Wallis*, and Mr. *Huygens*; we ſhall lay down each a-part.

Laws of Percussion *in Bodies not Elaſtic.*

I. If a Body in Motion as *A*,(Tab. Mechanicks Fig.40.) ſtrike directly againſt another at reſt *B*: the firſt will loſe juſt as much of its Motion as it communicates to the 2d; ſo that the two will proceed thence with an equal Velocity, as if collected into one Maſs.

If *A* therefore be triple of *B*, it will loſe one fourth of its Motion; ſo, that if before, it moved thro' a Line of 24 Foot in a Minute, it will now only move 18.

II. If a moving Body, *A*, ſtrike againſt another already in Motion, *B*; the firſt will increaſe the Velocity of the latter; but will loſe leſs of its own Motion than if the latter had been at reſt: Since all here requir'd, is that ſome Degrees of Motion be added to thoſe it already has, to make 'em both proceed with an equal Velocity.

Suppoſe *E. gr.* the Body *A* with 12 Degrees of Motion, to ſtrike againſt the other *B*, leſs by half, and at reſt: The firſt will transfer 4 Degrees of its Motion to the latter, and retain 8 to itſelf: But if it ſtrike with 12 Degrees of Motion on the other already moving with three Degrees, it will communicate two Degrees; for *A* being double of *B*, this need only half the Motion to make it proceed with the ſame Velocity.

III. If a moving Body *A*, ſtrike on another *B*, either at reſt, or moving more ſlowly, and either in the ſame Direction, or in a contrary one; the Sum of the Momenta, if the Bodies move in the ſame Direction; or their Difference, if they move in a contrary one, will be the ſame after the *Percuſſion* as before.

IV. If two equal Bodies *A* and *B* meet each other with equal Velocities; after the Congreſs, they well both remain at reſt.

V. If a Body *A*, ſtrike directly on another at reſt *B*, its Celerity after the Stroke, is to its Celerity before it; as the Weight *A* is to the Sum of the Weights *A* and *B*: if therefore the Weights were equal, the Celerity after the Shock will be half of that before it.

VI. If a Body in Motion, *A* ſtrike directly on another moving more ſlowly, but in the ſame Direction; the Velocity after the Shock, will be equal to the Sum of the Momenta, divided by the Sum of the Weights.

VII. If two equal Bodies moving with different Velocities, ſtrike directly againſt each other; after the Conflict, they will proceed with the Semi-difference of the Velocities, wherewith they were moved before it.

VIII. If two Bodies *A* and *B* meet directly with Velocities that are reciprocally as their Weights; after the Conflict, they will both remain at reſt.

IX. If two Bodies *A* and *B* meet directly with the ſame Velocity, the Celerity after the Impulſe will be to that before it, as the Difference of the Weights to their Sum.

X. If two Bodies meet directly with any Velocity whatever, the Celerity after the Stroak will be equal to the Semi-difference of the Momenta, divided by the Sum of the Weights.

To determine the Momentum loſt by the Conflict: multiply the Celerity which the Body had before the Conflict, into its Maſs: Thus have you the Momentum before the Conflict. In like manner, multiply the Celerity after the Conflict into the Maſs: Thus have you the Momentum after the Conflict. The latter Moment therefore being ſubtracted from the former Leaves the Loſs. Hence may the Magnitudes of the Strokes be eſtimated.

XI. A direct or perpendicular Stroke is to an Oblique one; as the whole Sine is to the Sine of the Angle of Incidence.

Laws of Percussion *in Elaſtic Bodies.*

In Bodies perfectly Elaſtic, the Force of Elaſticity is equal to the force wherewith they are compreſs'd, *i. e.* the Colliſon of two ſuch Bodies on each other, is equivalent to the Motion which either of 'em wou'd acquire, or loſe, by mere ſimple Impulſe. This Force exerting itſelf contrary ways; a Motion equivalent thereto muſt be ſubtracted from the Motion in the impelling Body, and added to that in the Body impell'd by mere Impulſe, to find their Velocities after *Percuſſion*. See Elasticity.

XII. If a Body ſtrike directly on an immoveable Obſtacle, either one, or both of 'em being Elaſtic; the Body will be reflected with the ſame Velocity wherewith it ſtruck, and in the ſame Line.

For if the Elaſticity were away, the whole force of the Body wou'd be ſpent in breaking the Obſtacle, and its Motion wou'd be ſtopp'd : The whole Force therefore is ſpent in compreſſing the Elaſtic Body; by which means it acquires an Elaſtic Force equal thereto: ſince then, the Elaſticity, when the compreſſing Force is ſpent, reduces the Body into its former ſtate; it repells the other with the ſame Force wherewith it ſtruck; conſequently it will rebound with the ſame Velocity. And becauſe an Elaſtic Body reſtores itſelf in the ſame Direction wherein it was compreſs'd; (there being no reaſon why it ſhou'd change its Direction) the Body will rebound in the ſame right Line.

XIII. If an Elaſtic Body ſtrike obliquely on an inmoveable Obſtacle, it will rebound in ſuch manner as to make the Angle of Reflexion equal to the Angle of Incidence. See Reflexion.

XIV. If an Elaſtic Body A, ſtrike directly againſt another at reſt B; after *Percuſſion*, A will remain at reſt, and B proceed with the ſame Velocity which A had before the Shock, and in the ſame Direction.

For if the Bodies were not Elaſtic, each wou'd proceed after the Stroke in the ſame Direction, and with half the Velocity; but ſince the Elaſtic Force acts in the ſame Direction wherein the Compreſſion is made, and is equal to the compreſſing Force; it repells A with half its Velocity, and therefore ſtops its Motion; but it drives B further, with half its Velocity, and therefore accelerates its Motion. Tis therefore carried after the Shock with the whole Celerity wherewith A was carried before it, and A remains at reſt.

Hence, ſince A (Tab Mechanicks Fig. 41.) transfers all its force to B; B in like manner will transfer it to C; C again to D, and D to E. Wherefore, if there be ſeveral equal Elaſtic Bodies, mutually touching each other; and A be ſtruck againſt B; all the intermediate ones remaining at reſt, the laſt alone, E will be mov'd; and that with the Velocity wherewith A ſtruck againſt B.

XV. If two equal Elaſtic Bodies A and B meet directly, and with equal Velocity; each will rebound with the ſame Velocity wherewith it ſtruck, and in the ſame Direction.

For ſetting aſide the Elaſticity, both wou'd remain at reſt: Their whole Force therefore is ſpent in the Compreſſion; but their Elaſtic Force whereby they rebound in the former Direction, is equal thereto: This Force therefore acting equally on each Body A and B will produce the ſame Celerity in each; and that, equal to the former. So that they will rebound with the Celerity wherewith they ſtruck.

XVI. If two equal Elaſtic Bodies A and B ſtrike directly againſt each other with unequal Velocities; after the Shock they will rebound with interchanged Velocities.

For ſuppoſe the Bodies to concur with the Velocities $C + c$ and C: If they meet with the ſame Velocity C; after the Shock, they wou'd both move with the Velocity C. If B were at reſt, and A ſhou'd ſtrike upon it with the Celerity c; after the Shock, A wou'd remain at reſt, and B be mov'd with the Celerity c. Therefore the Exceſs of Celerity c, wherewith A is carried, is transferr'd wholly by the Conflict to B: A therefore is mov'd with the Celerity C, and B with the Celerity $C + c$.

Hence, after *Percuſſion*, they recede from each other with the ſame Velocity as, before, they concurr'd.

XVII. If an Elaſtic Body A, ſtrike on another equal one, indued with a leſs Degree of Motion, B; after *Percuſſion*, both will proceed in the ſame, *viz.* the former, Direction, and with interchanged Velocities.

For ſuppoſe A to ſtrike with the Velocity $C + c$, upon B moving with the Velocity C. Since by reaſon of the equal Velocities C and C, there ariſes no Impulſe; 'tis the ſame thing as if A ſtruck on B with the ſole Celerity c, on B at reſt. But in that caſe A wou'd remain at reſt, and B move with the Velocity c: Therefore, after *Percuſſion*, A will move with the ſole Celerity C; and B with the Celerity $C + c$, both according to the former Direction, there being nothing to change that Direction.

XVIII. If a Body A ſtrike on another B, the Stroke is the ſame as wou'd be made by the Body A ſtriking on B at reſt, with the Difference of their Velocities.

Hence, ſince the Elaſtic Force is equal to the *Percuſſion*; it acts on the Bodies A and B with the Difference of the Velocities they had before the Congreſs.

XIX. *To determine the Velocities of any two Elaſtic Bodies* A *and* B, *ſtriking directly on each other with any Velocities.*

If the Elaſtic Body A ſtrike on B, either at reſt, or moving ſlower than A; the Velocity *v. g.* of A after *Percuſſion*, is found thus: as the Sum of the Weights is to double of either of 'em, ſuppoſe, in this Caſe, of B; ſo is the Difference of the Velocities before the Congreſs, to a Velocity, which ſubtracted from the Velocity of A before the Impulſe (in the other Caſe added to it) leaves the Velocity of A after the Congreſs.

If the two Elaſtic Bodies A and B meet each other; the Velocity of A after the Impulſe is found thus: As the Sum of the Weights, is to the double of either of 'em, ſuppoſe of B; ſo is the Sum of the Velocities before Colliſion, to a Velocity which ſubtracted from the Velocity of A before Colliſion, leaves its Celerity after Colliſion.

XX. If an Elaſtic Body A ſtrike directly on another at reſt B; its Velocity after *Percuſſion* will be to its Velocity before it, as the Difference of Weights is to their Sum: But the Velocity it communicates to B is the ſame, as double the Weight of A to the Sum of the Weights.

After *Percuſſion*, therefore, the Velocity of A is to the Velocity of B, as the difference of Weights, to the double of A.

XXI. If two Elaſtic Bodies, A and B, ſtrike directly on each other with Velocities that are reciprocally proportional to their Weights; after Colliſion, they will rebound with the ſame Velocity wherewith they met.

XXII. In the direct Colliſion of Bodies, the ſame reſpective Velocity is preſerv'd, *i. e.* in a direct Concurrence, the Difference of Velocities is the ſame before and after the Shock; and in a direct mutual Encounter, the difference of Velocities after the Shock is the ſame with their Sum before it.

Hence they retire from each other after the Impulſe, with the ſame Velocity wherewith they met.

XXIII. In the Colliſion of Elaſtic Bodies, there is not always preſerv'd the ſame Momentum, or as the *Carteſians* expreſs it, the ſame Quantity of Motion; but it is ſometimes increas'd, and ſometimes diminiſh'd.

'Tis a Miſtake, therefore of *Cartes* and his Followers, that the ſame Quantity of Motion is ſtill preſerv'd in the World. See Cartesian.

XXIV. If two Elaſtic Bodies, A and B, meet, or overtake each other directly; the Sum of the Factums of the Maſſes into the Squares of the Velocities, remains the ſame before and after the Congreſs.

Hence the ſame Quantity of Force is likewiſe preſerv'd in the Congreſs.

XXV. *To determine the Motion of two Bodies* A *and* B, (Fig. 42.) *ſtriking obliquely againſt each other, whether they be Elaſtic, or not Elaſtic.*

The Motion of the Body A, along AC, is reſoluble into two others, in the Directions AE and AD; and the Motion of B along BC into two others according to BF and BG; and the Velocities thro' AD and BF are to the Velocities thro' AC and BC as the right Lines AD, BF, AC, BC; now, ſince the right Lines AE and BG are parallel, the Forces acting according to theſe Directions are not mutually oppoſite, and muſt therefore be conſider'd in the Congreſs. But ſince the Lines AD and BF, or which is the ſame, EC and GC conſtitute the ſame right Line perpendicular to DC; 'tis the ſame as if the Bodies A and B ſhou'd meet directly with Velocities that are as EC and GC. Find therefore the Velocity of A and B according to the Rules above laid down.

Suppoſe *E. gr.* the Velocity of the rebounding Body A to be as CH; ſince the Motion along AE is not chang'd by the Congreſs, make $CK = AE$, and compleat the Parallelogram $HCKI$; the Diagonal CI will repreſent the Motion of A after Congreſs: for after *Percuſſion*, the Body will move according to the Direction CI, and with a Velocity as CI. In the ſame manner it will be found that the rebounding Body B will move along the Diagonal of the Parellelogram CM; in which $LM = BG$. The Velocities therefore after *Percuſſion* are as CI to CM.

Centre of Percussion that Point wherein the Shock or Impulſe of the percutient Bodies is the greateſt. See Centre.

The *Centre of Percuſſion* is the ſame with the Centre of Oſcillation, if the percutient Body revolve round a fix'd Axis. See Oscillation.

If all the Parts of the percutient Body be carried with a parallel Motion, or with the ſame Velocity; the Centre of *Percuſſion* is the ſame with the Centre of Gravity. See Gravity.

PERDONATIO *Utlegariæ*, in Law, a Pardon for one who is out-law'd. See Pardon and Out-lawry.

PERDUE, a Soldier placed in a dangerous, and almoſt deſperate Poſt.

The Word is *French*, and litterally ſignifies *loſt*.

Thus we ſay *Enfans Perdues*, for the Forlorn Hope of an Army. See Forlorn.

To lie *Perdue*, is to lie flat on the Belly, to lie cloſely in wait.

PEREMPTORY, in Law, an Epithet applied to an Action, Exception, &c. ſignifying 'em to be abſolute, final, and determinate; not to be alter'd, renew'd, or reſtrain'd

Thus in our Law-Books we find *Peremptory Action*, *Peremptory Nonſuit*, *Peremptory Exemption*, &c.

PERENNIAL, in Botany, is applied to *Ever-greens*, or Plants, which preſerve their Leaves and Verdure all the Year. See Ever-*green*.

PEREGRINE, *foreign, outlandiſh*; a Term applied among Aſtrologers, to a Planet, when found in a Sign where it has none of its Eſſential Dignities.

PERFECT, ſomething to which nothing is wanting; or that has all the Requiſites. See Perfection.

Perfect, in Arithmetic. *Perfect Number* is that, all whoſe aliquot Parts added together, make the ſame Number with the Number whereof they are ſuch Parts. See Number.

Perfect in Grammar. *Preter-* or *Preterit-perfect Tenſe*, is an Inflection, marking a Time perfectly paſt; as I have heard. *Pluſquam perfect*, is an Inflection, expreſſing a Time more than perfectly paſt, as *I had heard*, *&c.* See Tense.

Perfect in Muſic, ſomething that fills and ſatisfies the Mind and the Ear.

In this Senſe we ſay, *Perfect Cadence*, *Perfect Concord*, &c. See Concord, Cadence, *&c.*

The Ancients had two kindes of Modes, the Major and Minor; and each of theſe again was either *Perfect* or *Imperfect*. See Mode.

The Word *Perfect* when join'd with the Words *Mode* and *Time*, uſually expreſs triple Time or Meaſure; in oppoſition to double Time, which they call'd imperfect. See Time, Triple, *&c.*

Perfect, in Phyſiology. A *perfect* Animal, is uſed by ſome Writers for that which is born by univocal Generation, in oppoſition to Inſects, which they pretend to be born by equivocal Generation. See Generation, Univocal, Equivocal, *&c.*

Perfect *Flowers*, are ſuch as have Petala, Piſtil, Stamina and Apices. See Flower.

PERFECTION is divided into *Phyſical*, *Moral* and *Metaphyſical*.

Phyſical, or *natural Perfection*, is that whereby a Thing has all its Powers or Faculties, and thoſe too, in, their full Vigour; all its Parts both Principal and Secundary, and thoſe in their due Proportion, Conſtitution, *&c.*

In this Senſe a Man is ſaid to be *Perfect* when he has a ſound Mind in a ſound Body.

This *Perfection* is by the Schoolmen, frequently call'd ἐνεργητικὴ, by reaſon a Thing is hereby enabled to perform all its Operations.

Moral Perfection, is an eminent Degree of Virtue, or moral Goodneſs; to which Men arrive by often repeated acts of Piety, Beneficence, *&c.*

This, ſome ſubdivide into *Abſolute* or *Inherent*, which is actually in him to whom we attribute it; and *Imputative* which exiſts in ſome other, and not in him it is attributed to.

Metaphyſical, or *Tranſcendental* or *Eſſential Perfection* is the Poſſeſſion of all the eſſential Attributes, or of all the Parts neceſſary to the Integrity of a Subſtance: Or it is that whereby a Thing has, or is provided of every thing belonging to its Nature. See Essence.

This is either *Abſolute*, where all Imperfection is excluded; ſuch is the *Perfection* of God: Or *Secundum quid*, and in *its kind*. See Good.

PERFECTISSIMATE, a Quality or Dignity whereof we find mention made in the Code.

Perfectiſſimi were thoſe with whom the Emperors intruſted any Office, Adminiſtration or Government. *Alciat* imagin'd the Name had been only given to the Governors of *Hiſpania Tarragonenſis*, and *Norica*; but *Calvin* has ſhewn the contrary in his *Lexicon Juridicum*. The *Perfectiſſimi* were inferior to the *Clariſſimi*, tho' that Word imply *moſt perfect*. See Clarissimi.

PERFIDIA, in Muſic, a Term borrowed from the *Italian*; ſignifying an Affectation of doing always the ſame Thing, of following the ſame Deſign, continuing the ſame Motion, the ſame Song, the ſame Paſſage, and the ſame Figures of Notes.

Such are the ſtiff Baſſes of Chacones, *&c.* becauſe depending wholly on the Caprice of the Compoſer.

PERFORANS *Manus*, in Anatomy, a Muſcle of the Hand; call'd alſo, from its Action, *Flexor 3tii Internodii digitorum Manus*.

It ariſes fleſhy from the fore and upper Part of the Ulna, and the Ligament which joins that and the Radius; and after forming a pretty thick fleſhy Body, is ſplit into four round Tendons; which paſſing under the annular Ligament, and thro' the Slits in the Tendons of the former, are inſerted into the third Bone of each Finger. See Fingers.

Perforans *Pedis*, in Anatomy, a Muſcle of the Foot, call'd alſo *Profundus*; and from its Action, *Flexor 3tii Internodii digitorum pedis*, *&* *Flexor Magnus*.

It riſes from the Upper and Back-part of the Tibia, and paſſing under the inner Ancle and Ligament, that ties the *Tibia* and *Os Calcis* together, divides into four Tendons, which paſſing the Holes of the Perforatus, are inſerted into the third Phalanx of the leſſer Toes.

There is a *Maſſa Carnea*, or fleſhy Subſtance that ariſes from the *Os Calcis*, and which joins the Tendons of this Muſcle where the Lumbricales begin.

PERFORATUS *Manus*, in Anatomy, a Muſcle of the Fingers, thus call'd from the *Perforations* of its Tendons by thoſe of the *Perforans*; ſometimes *Flexor Secundi Internodii*, from its Action; and ſometimes *Sublimis*.

It ariſes tendinous from the internal Protuberance of the Humerus, and the Upper-part of the Radius before; and being parted into four, paſſes under the annular Ligament; whence it ſends ſeveral Tendons into the Upper-part of the Phalanx of each Finger: Every Tendon having at the firſt Internode, a Slit or *Perforation* for the Admiſſion of the Tendons of the Perforans.

Perforatus *Pedis*, in Anatomy, a Muſcle of the Foot, call'd alſo *Flexor pedis*, *&* *ſublimis*.

It ariſes from the inner and lower Part of the Calcaneum; and ſends a Tendon to evey Bone of the ſecond Phalanx of each of the four leſs Toes. In this, as the *Perforatus* of the Hand, there is a Slit in each Tendon about the firſt Joint, which lets thro' the Tendon of the *Perforans*.

PERFUME, an agreeable Odour, ſtriking the Senſe of Smelling. See Odour and Smell.

The generality of *Perfumes* are made or compos'd with Muſk, Amber-greece, Civet, Roſe, and Cedar-woods, Iris, Orange-Flowers, Jaſſemin, Jonquills, Tuberoſes, and other odoriferous Flowers.

Therein alſo enter Storax, Frankincenſe, Benjoin, Cloves, Mace, and other like Drugs, commonly call'd Aromatics. See Aromatic.

Some perfumes are alſo compoſed with Aromatic Herbs, as Lavender, Marjoram, Sage, Thyme, Hyſſop, *&c.*

Perfumes were anciently much in Uſe; particularly thoſe wherein Muſk, Ambergreeſe, and Civet, enter; they are now generally diſuſed, ſince People have become ſenſible of the Harm they do the Head. In *Spain* and *Italy* they are ſtill Alamode.

Perfumes, *Suffitus*, in Pharmacy, *&c.* are Topic, or external Medicines, compoſed of certain Powders and Gums, which being mix'd together, and thrown on the Coals, produce a Vapour or Smoak, Salutary in ſeveral Diſeaſes. See Suffitus and Suffimentum.

Fits of the Mother are cured by a *Perfume* of Partridge Feathers, old Leather, *&c.* burnt. Mercury is ſometimes applied by way of *Perfume*, call'd *Perfume* of Cinnabar.

For thoſe whoſe Brain is too humid, Tobacco is preſcribed by way of *Perfume*.

There are dry *Perfumes* made up in Troches, Pills, *&c.* of Olibanum, Maſtic, Aloes, *&c.* and moiſt viſcous ones of the Juices of Herbs, *&c.*

PERIANTHEUM, in Botany the little green Leaves which compaſs the Bottom of a Flower; call'd by Dr. *Grew* the *Empalement*, and by others the *Calyx*. See Calyx. See alſo Flower.

The Uſe of the *Periantheum* is to be a Support, Security, and as it were Bands, to the other Parts of the Flower.

Mr. *Ray* obſerves, that Flowers, whoſe Leaves or Petala are ſtrong, as Tulips, have no *Perianthium*, as needing none. Carnations, *&c.* whoſe Petala are long and ſlender, have their *Perianthium* of one piece; others, as the Knap-weed, *&c.* have it of ſeveral Pieces, and in divers rounds, and all with a counterchangeable Reſpect to each other, for the greater Strength and Security of 'emſelves, and the Petala, *&c.* they include.

The Word is form'd from the *Geeek* περὶ about and ἄνθος Flower.

PERIAPTA, a kind of Medicines, otherwiſe call'd PERIAMMA, *Appenſa* and *Amulets*; which being tied about the Neck, are ſuppoſed to prevent, or cure Diſeaſes. See Amulet. See alſo Phylactery.

PERICARDIARY, an Epithet given to Worms generated in the Pericardium, or Capſula of the Heart. See Worms and Pericardium.

M. *Andry* makes theſe one of the twelve Kinds of Worms engender'd in the human Body: They ſometimes occaſion Convulſions; the Paroxyſms whereof laſt but a little while, but return inceſſantly.

Theſe Worms are accompanied with a frightful Paleneſs of the Face, a low Pulſe, violent Pains of the Stomach and Breaſt.

They ſometimes occaſion a Palpitation of the Heart. See Palpitation. M. *Andry* adds, that they have been known to occaſion ſudden Death.

PERICARDIUM, in Anatomy, a Capſula, or Pouch, which includes the Heart. See Heart.

It conſiſts of a double Membrane; the Inner ariſing from the Coats of the Veſſels of the Heart, and the Outer from the Mediaſtinum. Its Figure reſembles that of the Heart, Conoidal; and it embraces the Heart laxly, allowing Room for its Pulſation.

'Tis connected either immediately, or by Veſiculæ emitted from it, to the Sternum, Back, Jugulum, and in human Bodies to the tendinous Part, or Centre of the Diaphragm; whereas in Brutes it is looſe.

Its Uſe is ſuppoſed to be to defend the Heart; as likewiſe to contain a ſoft ſerous Humour, which ſerves to lubricate and moiſten the Heart, and prevent any Inflammation that might probably ariſe from the dry Friction of the Heart and its Capſula. But this latter Uſe is controverted; for ſome take the Humour found in it to be unnatural, and will have it forcibly ſeparated by the convulſive Agonies ſupervening in the Article of Death. In effect, Anatomiſts are puzzled to find whence it ſhou'd come, or from what Veſſels it is ſecreted.

The word *Pericardium* is form'd from the *Greek* περὶ about and καρδία Heart.

Dr. *Keil*, in his Treatiſe of *Anim. Secretion* ſhews that the Liquor in the *Pericardium* muſt be the moſt Fluid of any ſeparated from the Blood, becauſe its Particles unite firſt, and are ſecreted firſt. For thoſe Particles which unite firſt, will have the greateſt attractive Force, conſequently their Particles muſt be the moſt Spherical and moſt Solid; and therefore their Contact the leaſt of any, therefore the moſt Fluid. See FLUIDITY.

In the Memoirs of the *French* Academy, *M. de Mortal* gives an Inſtance of a *Pericardium*, which being open'd, the Liquor contain'd therein, was found congeal'd into a Conſiſtence fit to be cut with a Knife, and two ſquare Fingers thick about the Heart.

PERICARPIA, from περὶ, circum, about, and *Carpus* the Wriſt, are Medicines that are applied to the Wriſt.

PERICARPUS, in Botany, a Pellicle, or thin Membrane, incompaſſing the Fruit or Grain of a Plant. See FRUIT, SEED, &c.

The Wordis form'd of the *Greek* περὶ about and καρπὸς Fruit.

PERICHORUS, in Antiquity, a Name given by the *Greeks*, to their profane Games and Combats; *i. e.* to ſuch as were not conſecrated to any of the Gods. See GAMES.

The Word in the Original, ſignifies *near* or *neighbouring*; apparently, becauſe none but the People of the Neighbourhood attended at theſe obſcure Exerciſes.

The Champions did not fight in Honour of any God or Heroe, as in the others; but only for the prize Sake.

The Word is form'd from the *Greek* περὶ about and χώρα Country.

PERICRANIUM, in Anatomy, a thick ſolid Coat or Membrane, covering the out Side of the *Cranium* or Skull. See CRANIUM.

Some call it by the general Name of *Perioſteum*, becauſe of its adhering to the Bone: others divide it into two Membranes, the under whereof immediately inveſting the Skull, they call Perioſteum; and the upper the *Pericranium*. But in effect, 'tis but one double Membrane, conſiſting, as moſt others do of two Coats. 'Tis ſuppoſed to have its Origin from the dura Mater; which paſſing thro' the Sutures of the Skull, by means of ſeveral Filaments forms this thick Membrane: At leaſt, 'tis ſtill found connected to the dura Mater by Fibres tranſmitted from it to the Membrane, thro' the Sutures.

About the Origin of the temporal Muſcles, the two Coats of the *Pericranium* part; the Outer paſſing over thoſe Muſcles, and the Inner ſtill adhering cloſe to the *Cranium*. See PERIOSTEUM.

The Word is form'd from the *Greek* περὶ about and κρανίον Head.

PERIDROME, PERIDROMUS, in the ancient Architecture, the Space, Gallery, Alley, or the like, in a Periptere, between the Columns and the Wall. *Salmaſius* obſerves that the *Peridromes* ſerved for Walks among the *Greeks*.

PERIOECI, in Geography, ſuch Inhabitants of the Globe as have the ſame Latitudes, but oppoſite Longitudes; or live under the ſame Parallel, and the ſame Meridian, but in different Semi-circles of that Meridian. See GLOBE.

Theſe have the ſame common Seaſons throughout the Year; and the ſame Phænomena of the heavenly Bodies; but their Hours, or times of the Day, are oppoſite to each other. When *v. g.* with the one 'tis Mid-day; with the other 'tis Mid-night. See DAY and SEASON.

The Word is form'd from the *Greek* περὶ about and οἰκέω I inhabit.

PERIEGETES, a *Greek* Term, ſignifying a Perſon who conducts another about a Thing, to ſhow it him, &c.

It is applied in Antiquity to Geographers; eſpecially to thoſe who deſcribed the Sea-Coaſts: Thus *Dionyſius* is ſtiled *Periegetes*, for publiſhing a Geography in Hexameter Verſes; which *Euſtathius* has commented on, both, in *Greek*.

The Name *Periegetes* was alſo given to thoſe who conducted Strangers about in Cities, to ſhew 'em the Antiquities, Monuments, Curioſities, &c. thereof.

Theſe *Periegetes* were the ſame with what they now call Antiquaries in *Italy*. See ANTIQUARY.

PERIGÆUM, PERIGEE, in Aſtronomy, that point of the Heavens, wherein the Sun and Planets are at their leaſt Diſtance from the Earth. See EXCENTRIC.

The Moon in her *Perigee* is 53 or 54 Semi-dameters of the Earth diſtant from us. See MOON.

The Term is but little uſed, except in the Ptolomaic Syſtem; where the Earth is placed in the Centre of the World, and the Diſtances of the Planets chiefly conſider'd with regard thereto; being form'd of the *Greek* περὶ, about and γῆ *Terra*, Earth.

The *Copernicans* uſe the Word *Perihelium* in lieu of *Perigeum*; becauſe they place the Sun in the Centre. See PERIHELIUM.

PERIHELIUM, in Aſtronomy, that point of the Orbit of a Planet, or Comet, wherein it is at its leaſt Diſtance from the Sun. See PLANET, COMET, SUN, &c.

The Word is form'd from the *Greek* περὶ, and ἥλιος, *Sol*, Sun.

The ancient Aſtronomers, in lieu hereof uſed *Perigæum*; becauſe they placed the Earth in the Centre. See PERIGÆUM.

PEREGRINARY, PEREGRINARIUS, in the ancient Monaſteries, a Monk to whom was committed the Care of receiving, and entertaining Strangers, or Viſitors.

PERIMETER, in Geometry, the Ambit, or extent, that bounds a Figure or Body. See FIGURE.

The Perimeters of Surfaces, or Figures, are Lines; thoſe of Bodies are Surfaces. See SUPERFICIES.

In circular Figures, &c. inſtead of Perimeter we ſay *Circumference* or *Periphery*. See PERIPHERY.

The Word is form'd from the *Greek* περὶ and μέτρον Meaſure.

PERINÆUM, in Anatomy, the Space between the *Penis* or *Scrotum*, and the Fundament; properly the Ligamentous Seam; call'd by the *Latins*, Femen, and Interefemineum.

The Word *Perinæum* is form'd from the *Oreek* περὶ and ναίειν to inhabit.

PERINDE *Valere*, in the Canon Law, a Diſpenſation granted a Clerk, who being legally incapable of a Benefice, or other eccleſiaſtical Function, is, *de facto*, admitted to it. See DISPENSATION.

The *Perinde Valere*, is a kind of Writ; thus call'd from two Words therein, ſignifying the Diſpenſation to be equivalent or tantamount to a legal Capacity.

PERIOCHA, an Argument containing the Sum of a Diſcourſe.

PERIOD, in Aſtronomy, the Time taken up by a Star or Planet, in making a Revolution; or the Duration of its Courſe, till it return to the ſame Point of the Heavens. See REVOLUTION.

The Sun's, or rather the Earth's *Period*, is 365 Days, five Hours, 49 Min. That of the Moon 27 Days, 13 Hours, 9 Min. &c. See SUN, MOON, &c.

The *Periods* of the Comets are now many of 'em pretty well aſcertain'd. See COMET.

There is a wonderful Harmony between the Diſtances of the Planets from the Sun, and their *Periods* round him; the great Law whereof is, *that the Squares of the Periodic Times are ever proportional to the Cubes of their mean Diſtances from the Sun*. See PLANET.

The ſeveral *Periods* and mean Diſtances of the ſeveral Planets are as follow.

PERIODS.

	Days	h.	′	″	mean Diſt.
Saturn	10579	6	36	26	953800
Jupiter	4332	12	20	35	520110
Mars	686	23	27	30	152369
Earth	365	6	9	30	100000
Venus	224	16	49	24	72333
Mercury	87	23	15	53	38710

PERIOD, in Chronology, an Epocha or interval of Time, by which the Years are accounted; or a Series of Years, whereby, in different Nations, and on different Occaſions Time is meaſur'd. See TIME.

Such are the *Callipic*, and *Metonic Periods*, two different Corrections of the *Greek* Calendar; the *Julian Period*, invented by *Joſ. Scaliger*; the *Victorian Period*, &c.

Metonic PERIOD, or *Cycle*, call'd alſo the *Cycle of the Moon*, is a Series of 19 Years, which elaps'd the new and full Moons, are ſuppoſed to return to the ſame Day of the ſolar Year: It was thus call'd from its Inventor *Meton*. See METONIC. See alſo CYCLE.

Callipic PERIOD, is a Series of 76 Years, returning in a perpetual Circle; which elaps'd the new and full Moons, are ſuppoſed to return to the ſame Day of the ſolar Year. The *Collipic Period* is an improvement on the *Metonic* of 19 Years, which proving inaccurate, *Calippus* the *Athenian* multiplied it by 4, and thus aroſe the *Calippic Period*. See CALIPPIC.

Hipparchus's PERIOD, is a Series of 304 ſolar Years, returning in a conſtant round; and reſtoring the new and full Moons to the ſame Day of the ſolar Year; according to the Sentiment of *Hipparchus*.

This *Period* ariſes by multiplying the *Calippic Period* by 4. *Hipparchus* aſſumed the Quantity of the ſolar Year to be 365 Days, 5 Hours, 55′ 12″. And hence concluded that in 104 Years, *Callippus*'s *Period* wou'd Err a whole Day. He therefore multiplied the *Period* by 4, and from the Product, caſt away an entire Day. But even this does not reſtore the new and full Moons to the ſame Day throughout the whole

Period: But they are ſometimes anticipated 1 Day 8 Hours, $23' 29'' 20'''$.

Victorian **Period**, an Interval of 532 *Julian* Years, which elaps'd, the new and full Moons, return on the ſame Day of the *Julian* Year; according to the Sentiment of *Victorinus* or *Victorius*, who lived in the Time of Pope *Hilary*.

Some aſcribe this *Period* to *Dionyſius exiguus*; and hence call it the *Dionyſian Period*: others call it the *great Paſchal Cycle*; becauſe invented for computing the Time of *Eaſter*.

The *Victorian Period*, is produced by multiplying the Lunar Cycle 19, by the ſolar Cycle 18; the Product of which is 532. But neither does this reſtore the new and full Moons to the ſame Day throughout its whole Duration; by 1 Day, 16 Hours, $58' 59'' 40'''$.

Dionyſian **Period**. See *Victorian* Period.

Julian **Period**, a Series of 7980 *Julian* Years; ariſing by the Multiplication of the Cycles of the Moon, the Sun, and Indictions into one another; commencing from the firſt Day of *January*, in the *Julian* Year. See Julian.

The *Julian Period* is alſo produced by multiplying the *Victorian Period* by 15. Since every Year in the *Julian Period* has its particular Cycles of the Moon, Sun, and Indictions; *E. gr.* only the firſt has the Moon's Cycle 1, the Sun's Cycle 1, and the Cycle of Indictions 15 all the Years of this *Period* are accurately diſtinguiſh'd from each other.

This *Period* was invented by *Scaliger*, as a common receptacle of Epocha's, to facilitate the reduction of Years of a given Epocha, to thoſe of another Epocha likewiſe given. It agrees with the *Conſtantinopolitan* Epocha, or *Period*, uſed by the *Greeks*, except in this that the Cycles of the Sun, Moon, and Indictions, are reckon'd differently; and in that the firſt Year of the *Conſtantinopolitan Period* differs from that of the *Julian Period*.

Conſtantinopolitan **Period**. See *Julian* Period.

Period, in Grammar, a little Compaſs of Diſcourſe, containing a perfect Senſe; diſtinguiſh'd at the End by a Point or full Stop (.) and its Members or Diviſions mark'd by Comma's, Colons, *&c.* See Sentence, Point, *&c.*

De Cologne defines *Period* a ſhort, but perfect Sentence, conſiſting of certain Parts or Members, depending one on another, and connected together by ſome common Vinculum.

That celebrated Difinition of *Ariſtotle* is; a *Period* is a Diſcourſe which has a Beginning, a Middle, and an End, all viſible at one View.

A *Period* of two Members, *Cicero* ſupplies us with: *Ergo & mihi meæ priſtinæ vitæ Conſuetudinem, C. Cæſar, intercluſam aperuiſti; & his omnibus ad bene de republica ſperandum quaſi ſignum aliquod ſuſtuliſti.*

A *Period* of three Members, the ſame *Cicero* gives us in the Exordium of his *Manilian Oration*: *Nam cum antea per ætatem hujus Auctoritatem loci contingere non auderem; ſtatueremque nihil huc niſi perfectum ingenio, elaboratum Induſtria afferri oportere: Omne meum tempus amicorum temporibus tranſmittendum putavi.*

A *Period* of four Members he gives us in that admirable Deſcription of the Puniſhment of Parricides. *Ita vivunt ut ducere animam de Cœlo non queant: Ita Moriuntur ut eorum oſſa terra non tangat: Ita jactantur fluctibus ut nunquam abluantur: Ita poſtremo ejiciuntur ut ne ad Saxa quidem mortui conquieſcant.*

The Laws and Meaſures of *Periods* are pretty ſtrictly regarded by Orators; at leaſt by the ancient ones: In ordinary Diſcourſe, and in the modern Tongues, Authors are much leſs ſevere.

In Oratory, the Members of *Periods* are to be equal or nearly equal; that the Pauſes or Reſts of the Voice at the cloſe of each Member may be nearly equal; but in Writing no ways intended for rehearſal, this is diſreguarded. Common Diſcourſe allows of *Periods* both longer and ſhorter than Oratory; which admits of none leſs than two Members, nor greater than four. Short, mutilated Periods break the Stream, and check the Courſe of the Sublime; and long ones embarraſs and keep the Mind too long in Suſpenſe; and even ſtrain the Voice which is never to ſtop but at the Ends of *Periods*.

The *Periods* allow'd in Oratory are three: A *Period* of two Members, call'd by the *Greeks*, *Dicolos*, and the *Latins*, *Bimembris*: A *Period* of three Members, *Triccolos*, *trimembris*; and a *Period* of four, *Quadrimembris*, *Tetracolos*. See Member.

A ſtrict Oratorial *Period* does not allow of either more or fewer than theſe: 'Tis poſſible indeed to introduce a *Period* of one Member, call'd by *Ariſtotle Monocolos*, or ſimple *Period*; but 'twill be reputed a Flaw; and is a Thing never to be practis'd by the Maſters. The *Period* may be likewiſe prolonged to five or ſix Members, but then it changes its Name; and inſtead of *Period* commences what they call a *periodical Speech*.

Phalareus, *Hermogenes*, *Terence*, &c. confine the juſt *Period* (call'd by the *Latins*, *Ambitus* and *Circuitus*,) to four Members; agreeably to the Diſtich

Quatuor e membris plenum formare videbis
Rhetora Circuitum, *ſive* Ambitus *ille vocetur*.

Of which Sentiment is *Cicero*, who in his Orator, ſays, *Conſtat ille Ambitus & plena comprehenſio e quatuor ſere partibus quæ membra dicuntur, ut & aures impleat, & ne brevior ſit quam ſatis ſit, neque longior*: An Inſtance of a periodical Oration he gives us in the Opening of his Oration for *Architas* the Poet. *Si quid in me ſit Ingenii, Judices, quod ſentio quam ſit exiguum; aut ſi qua exercitatio dicendi, in qua me non Inficior mediocriter eſſe verſatum; aut ſi hujuſce rei ratio aliqua ab optimarum artium ſtudiis & diſciplina profecta, a qua ego confiteor nullum Ætatis meæ tempus abhorruiſſe; earum rerum omnium vel in primis hic A. Licinius fructum a me repetere prope ſuo jure debet.*

Periods are ſaid to be either *rotundi*, round, or *quadrati*, Square, according to their different Oeconomy and Cadences: *A ſquare Period* is that conſiſting of 3 or 4 equal Members, formally diſtinguiſh'd from each other; as that of *Cicero* on the Puniſhment of Parricides. *A round Period* is that whoſe Members or Parts are ſo connected, and fitted into each other, as that the Junctures or Commiſſures are ſcarce ſeen; but the whole ſlides equally round; without any notable Stops or Inequalities. Such are the Dicolos and Tricolos of *Cicero* abovemention'd.

Period is alſo uſed for the Character (.) wherewith the *Periods* of Diſcourſe are terminated and expreſs'd; popularly call'd a *Full-ſtop* or *Point*. See Pointing.

Father *Buffier* obſerves two Difficulties in the Uſe of the *Period* or Point, *i. e.* in the diſtinguiſhing it from the Colon, or double Point; and in determining juſtly the End of a *Period*, or perfect Sentence.

'Tis obſerv'd that the Supernumerary Members of a *Period*, ſeparated from the reſt by Colons and Semicolons, uſually commence with a Conjunction. (See Colon.) Yet 'tis certain theſe ſame Conjunctions ſometimes rather begin new *Periods*, than ſupernumerary Members of old ones. 'Tis the Senſe of Things, and the Authors own Diſcretion that muſt make the proper Diſtinction which of the two in effect it is. No Rules will here be of any Service, unleſs this be admitted as one; that when what follows the Conjunction is of as much extent as what precedes it, 'tis uſually a new *Period*; otherwiſe not.

The ſecond Difficulty ariſes hence, that the Senſe appears perfect in ſeveral ſhort detached Phraſes, wherein it does not ſeem there ſhou'd be *Periods*: A Thing frequent in free Diſcourſe; as, *we are all in Suſpence; make your Propoſals immediately; you'll be to blame for detaining us longer.* Where 'tis evident that ſimple Phraſes have perfect Senſes like *Periods*; and ought to be mark'd accordingly; but that the Shortneſs of the Diſcourſe making 'em eaſily comprehended, the Pointing is neglected.

The Word *Period* in the original *Greek* περίοδος ſignifies *ambit*, *circuit*.

Period, in Numbers, is a Diſtinction made by a Point or Comma, after every ſixth Place, or Figure; and is uſed in Numeration, for the readier diſtinguiſhing and naming the ſeveral Figures or Places: which ſee under Numeration.

Period, in Medicine, the Space of Time a Diſtemper continues, from its Beginning to its Declenſion. See Disease.

Hence, ſuch as return after a certain Space, with like Symptoms, are call'd *periodical Diſtempers*; ſuch are Agues, intermitting Fevers, *&c.* See Fever.

In the Phil. Tranſact. Dr. *Muſgrave* gives us an Inſtance of a *periodic* Palſy; Dr. *Cole* an Inſtance of a *periodic* Convulſion. See Convulsion, Palsy, *&c.*

PERIODIC, ſomething that terminates and comprehends a Period. See Period.

A periodic Month, is the Space of Time wherein the Moon diſpatches her Period, or *periodic* Motion, *viz.* 27 Days, 7 Hours, 43 Minutes; in which Time ſhe returns to the ſame Point of the Zodiac, wherein ſhe was when ſhe left the Sun. See Month.

Periodic Diſeaſes, are ſuch as decline and riſe again with ſimilar Symptoms alternately.

Periodic, in Grammar, is applied to a Stile or Diſcourſe that has Numbers; or which conſiſts of juſt, and artful *Periods*. See Numbers.

PERIODUS *Sanguinis*, the Circle of the Blood, or the Tour it makes round the Body, for the Support of Life. See Circulation.

PERIODEUTA, a Church Officer among the *Greeks*; eſtabliſh'd by the Council of *Laodicea*, in Towns, *&c.* where there were no Biſhops.

The *Periodeutæ* were a Kind of rural Deans, ſo call'd, according to *Zonaras*, becauſe always on the Road, going from one Quarter to another to keep the People in their Duty. See Rural.

Hence, *Gregory* of *Theſſalonica* calls 'em *Ambulantes*, *Walkers*. *Balſamon* calls 'em *Exarchæ*, by which Name they are ſtill known among the *Greeks* at this Day. See Exarcha.

PERIOPHTHALMIUM, in natural Hiſtory, a thin Skin, which Birds can draw over their Eyes, to defend 'em without ſhutting their Eye-lids: The ſame with the *Nictitating* Membrane. See Nictitating *Membrane*.

The Word is compounded of the *Greek* περὶ about, and ὀφθαλμὸς Eye.

PERIOSTEUM, in Anatomy, a Membrane, pretty tough, and extremely ſenſible, covering the whole exterior Surface of all the Bones of the Body; the Teeth alone excepted. See BONE.

It is derived from the Dura Mater, and conſiſts principally of Fibres detach'd thence; beſides which it receives other Fibres from the Membrana Communis of the Muſcles, or as Dr. *Havers* imagines, from the fleſhy Fibres of the Belly of the Muſcles, which interſect the Former.

That Part of it which covers the Cranium or Skull, is by a peculiar Name call'd the *Pericranium.* See PERICRANIUM.

The *Perioſteum* is very thin every where; tho' not every where alike. It adheres cloſely to the Bone; and in ſome Places is obſerv'd to ſend Fibres into the very Subſtance thereof.

Its principal Uſe is to defend the Muſcles and Tendons from being fretted in their Action by the attrition of the hard Subſtance of the Bones; and to give Notice, by its ſenſibility, of any Thing that might annoy the Bones.

Indeed, this laſt Uſe is controverted; ſome of the lateſt Anatomiſts maintaining that the *Perioſteum* is inſenſible.

The Word is form'd from the *Greek* περὶ about and ὀςέον.

PERIPATETICKS, a Sect of Philoſophers, the Followers of *Ariſtotle*; or the Maintainers of the *Peripatetic* Philoſophy; call'd alſo *Ariſtotelians.* See ARISTOTELIAN.

Cicero tells us that *Plato* left two excellent Diſciples, *Xenocrates* and *Ariſtotle*, who founded two Sects, which only differ'd in Name; The Former taking the Appellation of *Academicks*, who were thoſe that continued to hold their Conferences in the Academy, as *Plato* had done before; the other who follow'd *Ariſtotle* were call'd *Peripateticks*; from πέριπατέω, I walk, becauſe they diſputed walking in the *Lyceum.* See LYCEUM.

Ammonius fetches the Name *Peripatetic* from *Plato* himſelf, who only taught walking; and adds that the Diſciples of *Ariſtotle*, and thoſe of *Xenocrates* were equally call'd *Peripateticks*; the one *Peripateticks* of the Academy, the other *Peripateticks* of the *Lyceum*; but that at length, the Former quitted the Title *Peripatetic* for that of Academic, on occaſion of the Place where they aſſembled; and the Latter retain'd ſimply that of *Peripatetic.* See ACADEMIC.

The greateſt and beſt Part of *Ariſtotles* Philoſophy, he borrow'd from his Maſter *Plato*: *Serranus* affirms confidently, and ſays he is able to demonſtrate it, that there is nothing exquiſite in any part of *Ariſtotles* Philoſophy, Dialectics, Ethics, Politics, Phyſics, or Metaphyſics, but is found in *Plato.* And of this Opinion are many of the ancient Authors, *Clemens Alexandrinus*, &c. See PLATONISM.

Gale endeavours to ſhew that *Ariſtotle* borrow'd a good deal of his Philoſophy both Phyſical about the *firſt Matter*; and Metaphyſical about the *firſt Being*, his Affections, Truth, Unity, Goodneſs, *&c.* from the ſacred Books; and adds from *Clearchus*, one of his (*Ariſtotle*'s) Scholars, that he made uſe of a certain *Jew*, who aſſiſted him therein.

Ariſtotle's Philoſophy preſerv'd itſelf in *puris naturalibus*, a long Time; none of his Followers or Commentators having dared to make any Innovations therein: Till the Beginning of the XIIIth Century; when it began to be new model'd. A reform'd Syſtem of *Peripateticiſm* was firſt introduc'd into the Schools, in the Univerſity of *Paris*; from whence it ſoon ſpread throughout *Europe*; aud has ſubſiſted in the Schools to this Day, under the Name of *School Philoſophy.* See SCHOOL, *&c.*

The Foundation hereof is *Ariſtotle*'s Doctrine, frequently miſunderſtood; oftener miſapplied: Whence the Retainers thereto may be denominated *reformed Peripateticks.*

Out of theſe have ſprung at ſeveral times ſeveral Branches, the chief are the *Thomiſts*, *Scotiſts*, and *Nominaliſts*; See each under its proper Article, THOMIST, SCOTIST, and NOMINAL.

PERIPATETIC *Philoſophy*, the Syſtem of Philoſophy, taught and eſtabliſh'd by *Ariſtotle*, and maintain'd by his Followers the *Peripateticks.* See PERIPATETICKS and PHILOSOPHY.

A Specimen of the *Peripatetic* Philoſophy, See under ARISTOTELIAN.

PERIPETIA, in the Drama, that part of a Tragedy wherein the Action is turn'd, the Plot unravel'd, and the whole concludes. See TRAGEDY.

The *Peripetia* is properly the Change of Condition whether happy or unhappy, which the principal Perſon or Perſons undergo; ariſing from ſome Diſcovery or Incident, which gives a new turn to the Action.

The *Peripetia* therefore coincides with the Cataſtrophe, or Unravelling; unleſs we make the *Peripetia* to depend on the Cataſtrophe, *&c.* as an effect on its Cauſe. See CATASTROPHE and UNRAVELLING.

The *Peripetia* is ſometimes induced by Remembrance or Diſcovery, as in the *Oedipus*, where the Meſſenger ſent from *Corinth* to invite *Oedipus* to the Crown, informs him that *Polybus* and *Merope* were not his Father and Mother; which begins a Diſcovery, that *Laius*, whom he had kill'd, and *Jocaſta* whom he had then to Wiſe, were his Father and Mother; and throws him into the deepeſt Diſtreſs. See DISCOVERY.

This Inſtance *Ariſtotle* calls a *double Peripetia.*

The Qualities of the *Peripetia* are, that it be probable and neceſſary; in order to which it muſt be the natural Reſult, at leaſt the Effect, of the foregoing Actions, or of the Subject itſelf; not ſtart out from any foreign, or collateral Cauſe.

Sometimes the *Peripetia* is occaſion'd without any Diſcovery; as in the *Antigone* of *Sophocles*, where the Change in *Creon*'s Fortune is produced by the Effect of his own Obſtinacy; and ſometimes by a mere Change of the Will, which, tho' the leaſt artful, yet, Mr. *Dryden* obſerves, may be ſo manag'd as to become exceedingly beautiful.

Theſe two Caſes *Ariſtotle* calls *ſimple Peripetias*; in theſe, the Change only conſiſts in a Paſſage out of Trouble and Action, into Tranquillity and Reſt. See FABLE, ACTION, *&c.*

The Word *Peripetia* is form'd from the *Greek* περιπέτης, *ſomething falling into a different State.*

PERIPHERY, in Geometry, the Circumference, or Bounding-Line of a Circle, Ellipſis, Parabola, and other ſimilar Figures. See CIRCUMFERENCE, CIRCLE, *&c.*

The *Periphery* of every Circle is ſuppoſed to be divided into 360 Degrees, which are again ſubdivided, each into 60 Minutes, the Minutes into Seconds, *&c.* See DEGREE, MINUTE, *&c.*

The Diviſions of Degrees, therefore, are Fractions, whoſe Denominators proceed in a ſexacuple Ratio: As, the Minute $\frac{1}{60}$, Second $\frac{1}{3600}$, Third $\frac{1}{216000}$. See SEXAGESIMAL.

But theſe Denominators being troubleſome; in their ſtead are uſed the Indices of their *Logarithms*; hence the Degree, being the Integer, or Unit, is mark'd by o, the Minute by ′, Second by ″ *&c.* See MINUTE, SECOND, *&c.*

Geometricians demonſtrate that a Circle is equal to a Triangle, whoſe Baſe is equal to the *Periphery*, and Altitude to the Radius. See TRIANGLE.

Hence it follows that Circles are in a Ratio compounded of their Peripheries and Radii. But they are alſo in a duplicate Ratio of the Radii; therefore the *Peripheries* of Circles are to each other as their Radii: and ſince the *Pheriphery* of one Circle is to its Radius, as the *Periphery* of any other to its Radius; The Ratio of the *Periphery* to the Diameter is the ſame in all Circles.

The Word is form'd from the *Greek* περιφέρω *Circumfero*, I ſurround.

PERIPHRASIS, in Rhetoric, *Circumlocution*, a Circuit or Tour of Words, much affected by Orators, to avoid common and trite manners of Expreſſion. See CIRCUMLOCUTION, FIGURE.

The *Periphraſis* is of good uſe on many occaſions; and we are frequently forced to have recourſe to it, to make Things be conceiv'd, which it is not proper to name.

'Tis a Piece of Politeneſs to ſuppreſs the Names, and only intimate, or deſign 'em. Theſe Turns of Expreſſion are particularly ſerviceable in Oratory; for the Sublime admitting of no direct Citations, there muſt be a Compaſs taken to inſinuate the Authors, whoſe Authority is borrowed. A *Periphraſis* by turning round a proper Name to make it underſtood, amplifies and raiſes the Diſcourſe; but Care muſt be taken it be not too much ſwell'd, nor extended mal a propos, in which Caſe it becomes flat and languid.

The Word in the original *Greek* περίφρασις, ſignifies *Circumlocution.*

PERIPLUS, a Voyage or Navigation round a certain Sea, or Sea Coaſts.

Arrian has deſcribed all the Coaſts of the black Sea, after having inſpected 'em in Quality of General of the Emperor *Adrian*, to whom he dedicates the Deſcription under the Title of *Periplus of the Euxine Sea.*

PERIPNEUMONIA, in Medicine, an Inflammation of ſome Part of the Thorax, properly of the Lungs; attended with an acute Fever, and a Difficulty of breathing. See LUNGS, *&c.*

The *Peripneumonia* is diſtinguiſh'd into *vera*, *true*; and *notha*, *ſpurious.*

The *firſt* is a real Inflammation of the Lungs, attended with a ſymptomatical Fever, and a Cough; by the Former of which it is diſtinguiſh'd from an Aſthma; and by the latter from a Pleuriſy. See ASTHMA and PLEURISY.

Its uſual Cauſes are, want of Exerciſe, hard Study, Suppreſſion of natural Evacuations, a moiſt Air, or the like.

When it ariſes from a Phlegmon, the Patient ſpits pure Blood; when it is Ereſipelatous, the Sputum is yellow, and not much tinged with red. In this laſt, the Breaſt is not ſo much contracted, but the Fever more violent.

The *Peripneumonia* is more dangerous, tho' leſs painful than a Pleuriſy: Its uſual way of going off is by Expectoration of well concocted reddiſh, yellow, or white Matter. The flowing of the Menſes, or any Hæmorrhage, a Diarrhæa, Abſceſſes about the Ears, or other Parts, are alſo good Prognoſticks.

The Medicines preſcribed are moſtly the ſame that obtain in Aſthmatick and Pleuritick Caſes.

The Word is form'd from the *Greek* περὶ about, and πνεύμων, ungs.

PERIPNEUMONIA *Notha* or *Spuria* is a Diſeaſe of the ungs, ariſing from a heavy pituitous Matter generated roughout the whole Maſs of Blood, and diſcharged upon e Lungs.

'Tis known by the Viſcidity, Paleneſs, and Slowneſs of the lood, Ropineſs of the Saliva, Paleneſs and Want of Scent of e Urine, Swellings and Obſtructions in the minuter Veſſels, ort Breath, Oppreſſion in the Thorax, *&c.* worn out, phleg- atic, cold, phthiſical, catarrhous, Conſtitutions, are moſt able to it. It begins with a Feebleneſs, Indolence, Weari- eſs, Difficulty of Breathing, Oppreſſion of the Breaſt, Fever- hneſs; and goes on without any great Appearance of danger Death itſelf, without any Prognoſtic thereof in the Urine, ulſe, *&c.* It is cured by Blood-letting, Clyſters, thin Diet, Diluents, Abſtergents and Aperients.

PERIPTERE, in the ancient Architecture, a Building ncompaſs'd without-ſide by a Series of inſulated Columns, orming a kind of Iſle all around.

Such were the Baſilic of *Antonine*, the Septizon of *Seve- us*, the Portico of *Pompey*, *&c.* The *Peripteres* were properly Temples, which had Columns on all the four Sides; by which they were diſtinguiſh'd from the *Proſtyles* and *Amphiproſtyles*, the one of which had no Columns before, and the other none on the Sides. See PROSTYLE, *&c.*

M. *Perrault* obſerves, that *Periptere* in its general Senſe, is the Name of a Genus, including all the Species of Temples which have Portico's of Columns all around; whether the Columns be Diptere, or Pſeudo-diptere, or ſimply *Periptere*, which is a Species that bears the Name of the Genus, and which has its Columns diſtant from the Wall by the Breadth of an Intercolumniation. See TEMPLE.

For the Difference between Periptere and Periſtyle. See PERISTYLE.

The Word is form'd of the *Greek* περὶ, *circum*, about and πτερὸν, *Ala*, Wing.

PERISCII, in Geography, thoſe Inhabitants of the Earth, whoſe Shadows do, in one and the ſame Day, ſucceſſively turn to all the Points of the Horizon. See SHADOW.

Such are the Inhabitants of the frozen Zones, or thoſe who live within the compaſs of the Arctic and Antarctic Circles for, as the Sun never goes down to them after he is once up, but always round about, ſo do their Shadows; in ſo much, that in the ſame Day they have their Shadows on all Sides. See ZONE.

And hence the Name, from the *Greek* περίσκιοι, *Circum umbres.*

PERISKYTISM, in Chirurgery, an Operation perform'd by the Ancients on the Cranium. See CRANIUM.

The *Periskytiſm* is an Inciſion which they made under the Coronal Suture, reaching from one Temple a-croſs to the other, and penetrating to the Bone of the Cranium: its Intention was to ſeparate the Pericranium from the Skull. See PERICRANIUM.

The Word is form'd from the *Greek* περὶ and σκυτίζειν to flea.

PERISSACHOREGIA, a Term found in the Code, about the Meaning whereof Authors are much divided.

Alciat, and ſome others will have it to be the Name of an Office *viz.* that of Curator of the *Annona* or Proviſions; from περίσσεια Abundance and χορηγέω to bring. Others take it to be the Office of a Magiſtrate who was to look to the Augmentation of the *Annona*, and the Diſtribution of the ſame.

Dom. Macri will have it to ſignify a Donative or Diſtribution made to the Soldiers over and above their Pay. See DONATIVE.

PERISTALTIC, in Medicine, a Motion proper to the Inteſtines, wherein the ſeveral Parts are ſucceſſively contracted from above downwards, in a manner reſembling the creeping of a Worm; whence it is alſo call'd the *Vermicular Motion.* See INTESTINES.

The *Periſtaltic* Motion is perform'd by the Contraction of the circular and longitudinal Fibres, whereof the fleſhy Coat of the Inteſtines is compoſed. 'Tis by Means hereof, that the Chyle is driven into the Orifices of the lacteal Veins, and the Excrements preſs'd downwards, and at laſt expell'd. See CHYLE and EXCREMENT.

When this Motion comes to be depraved, and its Direction changed, ſo as to proceed from below upwards, it produces what we call the *Iliac Paſſion.* See ILIAC *Paſſion.*

M. *Perrault*, in an expreſs Treatiſe on the *Periſtaltic Motion*, obſerves, that tho' 'tis ordinarily, only attributed to the Inteſtines; yet, it is really an Action common to all the Parts of the Body which alter, prepare, concoct the ſeveral Humours and Spirits, which are the Matter and Inſtruments of animal Action. In effect, he gives the Name to all the Motions whereby the Cavities of the Body are preſs'd and compreſs'd.

The Word is form'd from the *Greek* περιστέλλω; and literally implies ſomething *ſent all a-round.*

PERISTAPHILINUS, in Anatomy, a Name ſome give to the Muſcle of the Uvula, more properly denominated *Pterygoſtaphilinus.* See UVULA and PTERYGOSTAPHILINUS.

PERISTYLE, in the ancient Architecture, a Place, or Building, incompaſs'd with a Row of Columns on the Inſide; by which it is diſtinguiſh'd from the *Periptere*, where the Columns are diſpoſed without-ſide. See PERIPTERE.

Such was the Hypetre Temple of *Vitruvius*; and ſuch are now ſome Baſiliques in *Rome*, ſeveral Palaces in *Italy*, and moſt Cloiſters of Religious.

Yet, the Word *Periſtyle* is ſtill uſed indifferently for a Range of Columns, either within or without a Building: As the Corinthian *Periſtyle* of the Portail of the *Louvre*, *&c.*

The Word is form'd from the *Greek* περὶ about and στύλος, Column.

PERISYSTOLE, in Medicine, the Pauſe or Interval between the two Motions of the Heart, or Pulſe; *viz.* that of the Syſtole or Contraction, and that of the Diaſtole or Dilatation. See SYSTOLE and DIASTOLE. See alſo PULSE and HEART.

PERITONÆUM, in Anatomy, a thin, ſoft Membrane, covering and containing all the Viſcera of the lower Belly. See VISCERA and ABDOMEN.

Its Figure and Size anſwer to thoſe of the lower Belly, which it lines throughout; its internal Surface is ſmooth, and lin'd with an unctuous Humour, ſerving to prevent its wounding the Inteſtines, and other Parts it touches, as well as to lubricate and facilitate their Motion; when the Glands which furniſh it are obſtructed, the *Peritonæum* grows thick, as 'tis frequently found in Dropſies.

The external Surface is fibrous and unequal, that it may adhere more firmly to the Muſcles of the Abdomen, Linea Alba, Oſſa pubis, Iſchium, Ilium, Sacrum, and the Vertebræ Lumbares, to which it is faſten'd; and from the laſt whereof, many ſuppoſe it to have its Origin.

It is alſo connected to the inferior or convex Surface of the Liver, which it ſuſpends; and the Part employ'd in this Action, is call'd the *Ligamentum Suſpenſorium Hepatis.*

The *Peritonæum* is double every where, but moſt apparently ſo from the Navel to the Os pubis, and near the Lumbar Vertebræ, as appears not only from its extraordinary Thickneſs in both, but from its Spontaneous parting in the latter, to receive the Kidnies.

It is perforated in the upper Part to give Paſſage to the Oeſophagus, Aorta and Cava; in the under, for the Fundament, the Neck of the Matrix, and the Veſſels that go to the Thighs; and in the Fore-part to give Paſſage to the Umbilical Veſſels.

Its exterior Coat has two Proceſſes; which in Men fall down into the Scrotum, wrap up the Spermatick Veſſels, and dilating make the Tunica Vaginalis of the Teſticles; in Women they form a Cover for the round Ligament of the Womb.

The *Peritonæum* receives Veins and Artries from the Mammariæ, Diaphragmaticæ, Epigaſtricæ, Sacræ, and Lumbares: Nerves from the Os Sacrum and Loins. *Ol. Rudbeckius* pretends to have likewiſe diſcover'd Lymphaticks, which being ſcarce viſible, except in Hydropic Caſes, an't much taken notice of.

In morbid Caſes, great Quantities of Serum have been found between the Duplicatures of this Membrane, when there was none in the Cavity of the Abdomen; which conſtitutes the true *Tympany.* See TYMPANY.

The Uſe of the *Peritonæum* is to contain, and keep in their Place the Viſcera of the Abdomen: This is ſo manifeſt, that when ever this Membrane happens to be broke, or extraordinarily dilated, ſome of the Parts are apt to fall down, and to form thoſe Tumors call'd *Hernia's* or *Ruptures.* See HERNIA.

The Term *Peritonæum* is *Greek*, and is derived from the Verb περιτείνω circumtendo, I ſtretch all a-round.

PERITROCHIUM, in Mechanicks, a Wheel or Circle, as *A B*, (Tab. Mechanicks, Fig. 44.) concentric with the Baſe of a Cylinder, and moveable together with it, about an Axis *E F.*

The Axis, with the Wheel, and Levers fix'd therein to move it, make that mechanical Power, call'd *Axis in Peritrochio.* See *Axis in* PERITROCHIO.

Axis in PERITROCHIO, in Mechanicks, one of the ſix mechanical Powers, or ſimple Machines, contriv'd for the raiſing of Weights. See its Structure, Doctrine, Application, *&c.* under the Article AXIS *in Peritrochio.*

PERJURY, in Law, the Crime of ſwearing falſely in a lawful Oath, adminiſter'd by one who has Authority, in any Matter relating to an Iſſue, or Cauſe in Queſtion; whether it be of the Perſons own accord, or by Subornation of another. See OATH.

If a Man call me *perjur'd*, I have my Action upon the Caſe. If he calls me *foreſworn* no Action lies, becauſe the Forſwearing may be extra-judicial.

Perjury is uſually excepted out of general Acts of Grace.

The Puniſhment of *Perjury* is *Colliſtrigium*, the Pillory, or burning the Criminal in the Forehead with a *P*, rooting up his Trees, and confiſcating his Goods. See PILLORY, *&c.*

PERMEABLE, denotes a Body conſider'd as its Pores are capable of letting ſomewhat paſs thro' 'em. See Pore.

PER MINIMA, in Medicine, denotes a perfect Mixture of the ſmalleſt Particles of ſeveral Bodies, or Ingredients. See Mixture and Minima.

PERMUTATION, the Truck, or Exchange of one Thing for another. See Exchange.

The Commerce of the Ancients, was perform'd wholly by way of Permutation. See Commerce.

Permutation, in the Canon Law, a real and active Exchange of two Benefices. See Benefices.

Permutation, is a Means of bringing Benefices into Commerce without Simony. See Simony.

The Conditions requir'd to a canonical *Permutation* are; 1°. That there be Benefices *permuted* on either Side; tho' the Revenues be unequal; and in Caſe of Inequality, no Compenſation to be made in Money; but only a Penſion charged on the bigger. 2° That each of the Permutants quit his Benefice, and make a Procuration *ad reſignandum*. 3° That the *Permutation* be followed by a Collation of the Ordinary. 4° That the Ordinary be inform'd of the Cauſe of the *Permutation*. 5° That thoſe to whom the Preſentation or Election to the Benefices belongs, give their Conſent; or in Caſeof their Refuſal, that the Conſent of the *Dioceſan* behad.

The chief Rules of *Permutation* are, that if one of the Compermutants cannot enjoy, he re-enters with full right into the Benefice he has quitted; and that if he die 'ere he have accompliſh'd the *Permutation* on his Part by the taking of Poſſeſſion, the Compermutant who has accompliſh'd, retains both Benefices, unleſs they fall into the Regale.

Permutations *of Quantities*, in Algebra, the Changes, Alternations, or different Combinations of any Number of Quantities. See Combination and Change.

PERMUTATIONE Archidiaconatus & Eccleſiæ eidem annexæ cum Eccleſia & prebenda, is a Writ iſſued to an Ordinary, commanding him to admit a Clerk to a Benefice upon Exchange made with another. Reg. of Writs.

PER MY & PER TOUT, a joint Tenant is ſaid to be ſeiz'd of the Land he holds jointly *Per my & Per tout*, *i. e.* he is ſeiz'd by every Parcel, and by the whole, *Totum tenet, & nihil tenet, ſc. totum conjunctim & nihil ſeparatim. Bracton.*

PERNANCY, in Law, the taking or receiving any Thing; from the *French Prendre*, to take.

Tithes in *Pernancy* are Tithes taken in kind. See Tithes.

PERNIO, in Medicine, a Diſeaſe afflicting the Hands and Feet in Winter-time, popularly call'd a *Kibe* or *Chilblain*. See Chilblain.

The Parts affected ſwell, inclining from a white to a blueiſh Colour, itch and ake; yet, the Tumour vaniſhes without any Exulceration, upon anointing the Part with Petrol.

PERNOR *of Profits*, he who takes, or receives the Profits of any Thing; from the *French Preneur*, Taker.

PERONE, in Anatomy, a Bone of the Leg, more uſually call'd *Fibula*. See Fibula. Hence

PERONÆUS *Anticus*, *longus* or *primus*, a Muſcle of the Leg, ariſing fleſhy and tendinous from the Head to the Middle of the Perone; whence running as in a Pulley, thro' the Channel on the hind Part of the outer Ankle Bone, it is inſerted into the Upper-end of the Bone of the Metatarſus, which joins the great Toe: The Office of this Muſcle is to draw the Foot upwards.

Peronæus *Poſticus*, *brevis*, or *ſecundus*, a Muſcle ſometimes alſo call'd *Semifibulæus*, ariſing fleſhy and ſharp in the Back-part of the Perone; whence, continuing down the Outer-ſide of the Bone till below the Middle, it forms a ſmooth, ſtrong, flat Tendon, which runs thro' the ſame Channel at he Bottom of the Malleolus externus, with the Longus, to he Out-ſide of the Os Metatarſi of the little Toe: Its Office is to pull the Foot upwards.

PERORATION, in Rhetoric, the *Epilogue*, or laſt Part of an Oration; wherein, what the Orator had inſiſted on thro' his whole Diſcourſe is urg'd a-freſh, with greater Vehemence and Paſſion: Thus *Quintilian*. See Oration.

The *Peroration* conſiſts of two Parts, 1. *Recapitulation*, wherein the Subſtance of what is diffuſed throughout the whole Speech, is collected briefly, and curſorily; and ſum'd up with new Force and Weight. See Recapitulation.

And, 2. The *Moving of the Paſſions*; which is ſo peculiar to the *Peroration*, that the Maſters of the Art call this Part *ſedes affectuum*. See Passions.

The Paſſions to be rais'd in the *Peroration* are various, according to the various Kinds of Orations: In a Panegyric, Love, Admiration, Emulation, Joy, &c. In an Invective, Hatred, Contempt, &c: In a Deliberation, Hope, Confidence or Fear.

The Qualities required in the *Peroration* are, that it be vehement and paſſionate; and that it be ſhort: Becauſe, as *Cicero* obſerves, Tears ſoon dry up.

The *Peroration* was *Cicero*'s Maſter-piece: Here that great Orator not only ſet his Judges and Auditors on Fire, but even ſeem'd to burn himſelf; eſpecially when he was to raiſe Pity and Commiſeration towards the accuſed; where, as he himſelf tells us, he frequently fill'd the Forum with Weeping and Lamentation. He adds, that where there were ſeveral Orators to ſpeak for the ſame Perſon, the *Peroration* was always reſerv'd to *Cicero*; and ſubjoins, that if he excell'd herein, 'twas not owing to Genius, but to the Grief he himſelf ſhew'd. This is abundantly evident in his Milonian *Peroration*; where he ſays *ſed finis ſit: neque enim præ Lacrymis jam loqui poſſum; & hic ſe Lacrymis defendi vetat*--and in that for *Rabirius Poſthumus*: *ſed jam, quoniam, ut ſpero, fidem quam potui, tibi præſtiti, Poſthume, reddam etiam Lacrymas quas debeo -- Jam indicat tot hominum fletus quam ſis carus tuis, & me dolor debilitat, includitque vocem.*

PERPENDICULAR, in Geometry, a Line falling directly on another Line, or ſo as to make equal Angles on each Side; call'd alſo a *normal* Line. See Line.

Thus the Line *I G.* (Tab. Geometry Fig. 57.) is *Perpendicular* to the Line *K H. i. e.* makes right and equal Angles therewith:

From the very Notion of *Perpendiculars*, it follows; 1. That the *Perpendicularity* is mutual, *i. e.* if a Line as *I G* be *Perpendicular* to another, *A B*; that other, is alſo *Perpendicular* to the firſt.

2. That only one *Perpendicular* can be drawn from one Point in the ſame Place.

3. That if a *Perpendicular* be continu'd thro' the Line it was drawn *Perpendicularly* to; the Continuation will alſo be *Perpendicular* to the ſame.

4. That if there be two Points of a right Line, each of which is at an equal Diſtance from two Points of another right Line; that Line is *Perpendicular* to the other.

5. That a Line which is *Perpendicular* to another, is alſo *Perpendicular* to all the Parallels of the other. See Parallel.

6. That a *Perpendicular* Line is the ſhorteſt of all thoſe which can be drawn from the ſame Point to the ſame right Line.

Hence the Diſtance of a Point from a Line, is a right Line drawn from the Point *Perpendicular* to the Line or Plane; and hence the Altitude of a Figure is a *Perpendicular* let fall from the Vertex to the Baſe. See Distance.

To erect a Perpendicular G I on any given Point *G*, in a right Line *M L*; one Foot of the Compaſſes being in *G*, with any Interval at Pleaſure, cut off equal Parts on each Side *G H* and *G K*; from the Points *K* and *H*, with an Interval greater by half than *K H* ſtrike two Arches interſecting in *I*; the right Line *G I* is *Perpendicular* to *M L*.

Perpendiculars are beſt deſcrib'd in Practice by means of a Square; one of whoſe Legs is applied along that Line to, or from which the *Perpendicular* is to be let fall or rais'd. See Square.

To erect a Perpendicular on the End of a given Line, ſuppoſe at *P*; open your Compaſſes to any convenient Diſtance, and ſetting one Foot in *C*, deſcribe the Arch *R P S*; lay a Ruler from *S* through *C*, it will find the Point *R* in the Arch, whence draw *P R*, which is *Perpendicular* to *P M*.

To let fall a Perpendicular on a given Line *M P*, from a given Point L; ſet one Foot of the Compaſſes in *L*, and with the other croſs the given Line in the Points *M* and *G*. Then ſetting the Compaſſes in *G* and *M*, ſtrike two Arches interſecting each other below in 8: Then lay a Ruler from *L* to 8, and the Line *K L* deſcrib'd thereby is the *Perpendicular* requir'd.

Perpendicular to *a Parabola*, is a right Line cutting the Parabola in the Point in which any other right Line touches it, and is alſo itſelf *Perpendicular* to that Tangent. See Parabola.

A Line is ſaid to be *Perpendicular* to a Plane, when it is *Perpendicular* to all the Lines it meets with in that Plane; and a Plane is *Perpendicular* to another Plane, when a Line in one Plane is *Perpendicular* to the other Plane. See Plane.

PERPENDICULARITY *of Plants*, is a curious *Phænomenon*, in Nat. Hiſtory, firſt obſerv'd by M. *Dodart*, and publiſh'd in an expreſs Eſſay on the *Affectation of* Perpendicularity, *obſervable in the Stems or Stalks of all Plants; of the Roots of many, and even of the Branches as much as poſſible.*

The Matter of Fact is, that tho' almoſt all Plants riſe a little crooked; yet, the Stems ſhoot up perpendicularly, and the Roots ſink down *Perpendicularly*: Even ſuch as by the Declivity of the Soil come out inclin'd, or ſuch as are diverted out of the Perpendicular by any violent Means; again ſtreighten themſelves, and recover their *Perpendicularity*, by making a ſecond and contrary Bend or Elbow, without rectifying the firſt.

A common Eye looks on this Affectation without any Surprize; but a Man that knows what a Plant is, and how form'd, finds it a Subject of Aſtoniſhment.

In effect, each Seed contains a little Plant, already form'd, and needing nothing but to be unfolded: The little Plant has its little Root; and the Pulp, which is uſually ſeparated into two Lobes, is the Foundation of the firſt Food the Plantule draws, by its Root, when it begins to germinate. See Seed, Radicle, &c.

Now, if a Seed in the Earth, be ſo diſpoſed, as that the

Root of the little Plant be turn'd downwards, and the Stem upwards, and even *Perpendicularly* upwards; 'tis eaſy to conceive that the little Plant coming to unfold itſelf, 'its Stalk and Root need only follow the Direction they have, to grow *Perpendicularly*. But 'tis known the Seeds of Plants whether ſown of themſelves, or by the Help of Man, fall in the Ground at random; and among an infinite Number of Situations with regard to the Stalk of their Plant, the *Perpendicular* one upwards is but one. See SEMINATION.

In all the reſt therefore, 'tis neceſſary the Stalk redreſs or rectify itſelf, in order to get out of the Ground: But what Force is it, that effects this change, which is certainly a violent Action? Is it that the Stalk finding a leſs Load of Earth above it, goes naturally that way where it finds the leaſt Obſtacle? Were this ſo, the little Root when it happens to be uppermoſt, muſt for the ſame Reaſon follow the ſame Direction, and mount on high.

M. *Dodart*, therefore, to account for two ſuch different Actions; has recourſe to another Syſtem: He ſuppoſes that the Fibres of the Stalks are of ſuch a Nature, as that they contract and ſhorten by the Heat of the Sun, and lengthen out by the Moiſture of the Earth: And on the contrary, that the Fibres of the Roots contract by the Moiſture of the Earth, and lengthen by the Heat of the Sun.

When, then, the Plantule is inverted, and the Root a-Top; the Fibres which compoſe one of the Branches of the Root are not equally expoſed to the Moiſture of the Earth; the lower Part is more expoſed than the Upper. The Lower therefore muſt contract the moſt; which Contraction is again promoted by the lengthening of the Upper, whereon the Sun acts with the greateſt Force. Of Conſequence, therefore, this Branch of the Root muſt recoil towards the Earth, and inſinuating thro' the Pores thereof get underneath the Bulb, &c.

By inverting this reaſoning, 'tis eaſy to ſhew how the Stalk comes to get uppermoſt.

In a Word, we may imagine that the Earth attracts the Root to itſelf, and that the Sun contributes to its Deſcent; and on the contrary, that the Sun attracts the Stem, and the Earth, in ſome meaſure, ſends it towards the ſame.

As to the ſecond Streightning, *viz.* that of the Stalks in the open Air; he takes it to ariſe from the Impreſſion of external Cauſes, particularly the Sun and Rain. For the upper Part of a Stalk that is bent, is more expoſed to the Rain, Dew, and even Sun, &c. than the under. Now both theſe Cauſes, in a certain Structure of the Fibres, tend equally to ſtreighten the Part moſt expoſed, by the Shortening they ſucceſſively occaſion it; for Moiſture ſhortens by ſwelling, and Heat by Diſſipating. Indeed, what that Structure is which gives the Fibres ſuch different Qualities; or whereon it depends, is ſtill a Myſtery.

M. de la Hire Accounts for the *Perpendicularity* of the Stems or Stalks of Plants thus: He imagines that in Plants, the Root draws a coarſer and heavier Juice; and the Stem and its Branches a finer and more volatile one. And, in effect, moſt Naturaliſts conceive the Root as the Stomach of the Plant, where the Juices of the Earth are ſubtiliz'd, ſo as to become able to riſe thro' the Stem to the Extremity of the Branches. This Difference of Juices ſuppoſes larger Pores in the Roots than the Stalk, &c. and in a Word, a different Contexture; which Difference muſt be found even in the little inviſible Plant incloſed in the Seed: In this Plantule, therefore, we may conceive a point of Separation; ſuch, as that all on one Side *E. gr.* the Root, ſhall be unfolded by the groſſer Juices, and all on the other Side by the more ſubtile Juices.

Suppoſe, now, the Plantule when its Parts begin to unfold, to be entirely over-turn'd; the Root a Top, and the Stalk below: the Juices which enter the Root will ſtill be coarſeſt, and when they have open'd and enlarg'd the Pores, ſo as to admit Juices of a determinate Weight, thoſe Juices ſtill preſſing the Root more and more, will drive it downwards, and this the more, as the Root more extended or enlarged: For the Point of Separation being conceived as the fixed Point of a Lever, they will act by the longer Arm. At the ſame Time the volatile Juices having penetrated the Stalk, will tend to give it a Direction from below upwards; and by reaſon of the Lever, will give it more and more every Day. Thus is the little Plant turn'd on its fix'd Point of Separation; till it be perfectly erect.

The Plant thus erected; the Stalk, we know, ſhou'd continue to riſe *Perpendicularly*, to give it the more firm Biding and enable it to withſtand the Effort of Wind and Weather.

The Manner wherein this is effected, M. *Parent* lays down thus: The nutritious Juice being arriv'd at the Extremity of a riſing Stalk; if it evaporate, the Weight of the Air which encompaſſes it on all Sides, will make it aſcend vertically; and if it do not evaporate, but congeal, and remain fix'd to that Extremity whence it was ready to go off; the Weight of the Air will give it the ſame Direction: ſo that the Stalk will have acquir'd a very little new Part, vertically laid over it: Juſt as in a Candle held any how obliquely to the Horizon, the Flame ſtill continues Vertical, by the Preſſure of the Atmoſphere. The new Drops of Juice that ſucceed, will follow the ſame Direction; and as all together form the Stalk, that muſt of courſe be Vertical, unleſs ſome particular Circumſtance intervene.

As to the Branches, which are at firſt ſuppoſed to proceed laterally out of the Stalk in the firſt Embryo of the Plant; tho' they ſhou'd even come out in a horizontal Direction, yet, muſt they raiſe 'emſelves upwards by the conſtant Direction of the nutritious Juice; which at firſt ſcarce meets any Reſiſtance in a tender, ſupple Branch; and even afterwards, tho' the Branch grow more firm, yet will it act with the more Advantage: ſince the Branch being become longer, furniſhes it with a longer Arm of a Lever. The ſlender Action of a little Drop becomes very conſiderable, by its Continuity; and by the Aſſiſtance of ſuch favorable Circumſtances. Hence may be accounted for, that regular Situation and Direction of the Branches, which all, and always, nearly, make the ſame conſtant Angle of 45° with the Stem and one another. See BRANCH.

M. *Aſtruc*, accounts for the *Perpendicularity* of the Stems, and their Redreſſing themſelves; on theſe two Principles. 1°. That the nutritious Juice ariſes from the Circumference of the Plant, and terminates in the Pith. 2°. That Fluids contained in Tubes either parallel or oblique to the Horizon, gravitate on the lower Part of the Tubes, and not at all on the Upper.

For hence it eaſily follows, that in a Plant poſited either obliquely or parallel to the Horizon, the nutritious Juice will act more on the lower Part of the Canals than the upper, and by this Means, inſinuate more into the Canals communicating therewith, and be collected more copiouſly therein; thus the Parts on the lower Side will receive more Accretion, and be more nouriſh'd than thoſe on the upper; the Conſequences whereof muſt be, that the Extremity of the Plant will be oblig'd to bend upwards.

The ſame Principle brings the Seed into its due Situation at firſt: In a Bean planted upſide down, the Plume and Radicle are eaſily perceiv'd with the naked Eye, to ſhoot, at firſt, directly for about an Inch; but thence forth they begin to bend, the one downward, and the other upward. The like is ſeen in a heap of Barley, to be made into Malt; in a Quantity of Acorns, laid to ſprout in a moiſt Place, &c. each Grain of Barley in the firſt Caſe, and each Acorn in the ſecond, has a different Situation; and yet, all the Sprouts tend directly upward, and the Roots downward, and the Curvity or Bend they make is greater or leſs as their Situation approaches more or leſs to the direction wherein no Curvature at all wou'd be neceſſary. Now, two ſuch oppoſite Motions cannot ariſe without ſuppoſing ſome conſiderable Difference between the two Parts: The only one we know of, is, that the Plume is fed by a Juice, imported to it by Tubes parallel to its Sides, whereas the Radicle imbibes its Nouriſhment at all the Pores in its Surface. As oft, therefore, as the Plume is either parallel, or inclin'd to the Horizon, the nutritious Juice feeding the lower Parts more than the upper, will determine its extremes to turn upward, for the Reaſons already aſſign'd. On the contrary, when the Radicle is in the like Situation, the nutritious Juice penetrating more copiouſly thro' the upper Part than the under; there will be a greater Accretion of the former, than the latter; and conſequently the Radicle will be bent downwards. And this mutual Curvity of the Plume and Radicle muſt continue, till ſuch Time as their Sides are nouriſh'd alike, which cannot be till they are Perpendicular. *Memoirs de l Acad. Royale des ſcien.* An. 1708.

PERPETUAL, ſomething that endures always, that laſts for ever. See ETERNITY.

The Term is ſometimes alſo uſed for a Thing that laſts, or holds, during a Perſon's Life.

Thus Offices, &c. held *durante vita*, are ſometimes call'd *Perpetual* Offices: In this Senſe M. *Fontenelle* is ſaid to be *Perpetual* Secretary of the Royal Academy of Sciences. Hence the *French* call him abſolutely *M. le Perpetuel*.

PERPETUAL *Motion*, in Mechanicks, is a Motion which is ſupplied and renew'd from itſelf, without the Intervention of any external Cauſe; or it is an uninterrupted Communication of the ſame Degree of Motion from one Part of Matter to another, in a Circle, (or other Curve returning into itſelf) ſo as the ſame Momentum ſtill returns perpetually undiminiſhed upon the firſt mover. See MOTION.

To find a *perpetual* Motion, or to conſtruct an Engine, &c. which ſhall have ſuch a Motion, is a famous Problem that has employ'd the *Mathematicians* of two thouſand Years; tho' none perhaps have proſecuted it with Attention and Earneſtneſs equal to thoſe of the preſent Age.

Infinite are the Schemes, Deſigns, Plans, Engines, Wheels, &c. to which this long'd for *perpetual* Motion has given Birth: 'Twere as endleſs as impertinent to give a Detail of 'em all.

Nor does any of 'em deſerve particular Mention, ſince they have all equally prov'd Abortive. It wou'd rather be of the Nature of an Affront than a Complement, to diſtinguiſh the Pretenders hereto; when the very Thing they are commemorated for, carries with it ſo diſagreable an Idea.

In effect, there ſeems but little in Nature to countenance all this Aſſiduity and Expectation: Among all the Laws of Matter and Motion, we know of none yet, which ſeems to lay any Principle or Foundation for ſuch an Effect. See NATURE.

Action and Re-action are allow'd to be ever equal; and a Body which gives any Quantity of Motion to another, loſes juſt ſo much of its own: But under the preſent State of Things; the Reſiſtance of the Air, the Friction of the Parts of Machines, &c. do neceſſarily retard every Motion. See RESISTANCE.

To keep the Motion on foot, therefore, 1. Either there muſt be a Supply from ſome foreign Cauſe; which in a *perpetual* Motion is excluded.

Or, 2° all Reſiſtance from the Friction of the Parts of Matter, muſt be removed; which implies a Change in the Nature of Things. See MATTER.

For by the ſecond Law of Nature, the Changes made in the Motions of Bodies, are always proportional to the impreſs'd moving Force, and are produc'd in the ſame Direction with it; no Motion, then, can be communicated to any Engine, greater than that of the firſt Force impreſs'd. See COMMUNICATION and PERCUSSION.

But, on our Earth, all Motion is perform'd in a reſiſting Fluid; and muſt therefore of neceſſity be retarded; conſequently a conſiderable Quantity of its Motion will be ſpent on the Medium. See MEDIUM.

Nor is there any Engine or Machine wherein all Friction can be avoided; there being in Nature no ſuch Thing as exact Smoothneſs, or perfect Congruity; The Manner of the Coheſion of the Parts of Bodies, the ſmall Proportion the ſolid Matter bears to the Vacuities between them, and the Nature of thoſe conſtituent Particles not admitting it. See FRICTION.

This Friction, therefore, will alſo in Time ſenſibly diminiſh the impreſſed, or communicated Force; ſo that a *perpetual* Motion can never follow, unleſs the communicated Force be ſo much greater than the generating Force, as to recompenſe the Diminution made therein by all theſe Cauſes: but *nil dat quod non habet*, the generating Force cannot communicate a greater Degree of Motion than it hath itſelf.

The whole Buſineſs of finding a *perpetual* Motion, therefore, comes to this, *viz.* to make a Weight heavier than itſelf, or an elaſtic Force greater than itſelf. See MACHINE.

Or 3°. and *laſtly*, there muſt be ſome Method of gaining a Force equivalent to what is loſt, by the artful Diſpoſition and Combination of Mechanic Powers: To which laſt Point, then, all Endeavours are directed; but how, or by what Means ſuch Force ſhou'd be gain'd, is ſtill a Myſtery.

The Multiplication of Forces, 'tis certain avails nought; for what is gain'd in Force is ſtill loſt in Time, ſo that the Quantity of Motion ſtill remains the ſame.

All Mechanicks cannot really make a little Force equal, or ſuperior to a larger; and wherever a leſs Force is found *in Equilibrio* with a larger *v. g.* 25 Pounds with 100, 'tis a Kind of Deception of the Senſe; the Equilibrium is not ſtrictly between 100 Pounds and 25; but between 100 Pounds, and 25 moving, or diſpoſed to move four times as faſt as the 100.

To conſider the Weights 100 and 25 as fix'd, and immoveable; the 25 wou'd ſeem, ſome how, rais'd beyond 'emſelves; which is one of the Sham-miracles of Mechanicks, that has deceiv'd Millions; but which is eaſily diſſipated by conſidering the four Degrees of Velocity, which are to be given to the 25 Pounds, and which require a Force equal to the Exceſs of 100 above 25 Pounds.

A Force of 10 Pounds moved with ten times the Velocity of the 100 Pounds, wou'd have equal'd 'em in the like Manner; and the ſame may be ſaid of all the poſſible Products equal to 100. But in fine, there muſt ſtill be 100 Pounds of Force on each Side, what way ſoever they be taken; whether in the Matter, or in the Velocity.

This is an inviolable Law of Nature; by which nothing is left to Art, but the Choice of the ſeveral Combinations that may produce the ſame Effect. See *Law of* NATURE.

PERPETUAL, or *endleſs Screw.* See SCREW.

PERPETUAL *Pills*, *Pilulæ perpetuæ*, among Phyſicians, are Pills made of *Regulus* of *Antimony*; which being ſwallow'd, and voided 50 Times, will purge every Time, with undiminiſh'd Force. See ANTIMONY.

PERPETUAL *Glandules*, in Anatomy, are thoſe which are Natural; thus diſtinguiſh'd from the adventitious ones. See GLAND.

PERPETUITY, in the Canon Law, the Quality of a Benefice that is irrevocable, or whoſe Incumbent cannot be deprived; except in certain Caſes determin'd by Law. See BENEFICE.

'Tis aſſerted with Reaſon, that the *Perpetuity* of Benefices is eſtabliſh'd by the ancient Canons, and that the Prieſts are inſeparably attach'd to their Churches, as by a ſpiritual Marriage. 'Tis true, by the Corruption of the Times, the ſecular Prieſts being fallen into great diſorder, and even Contempt; the Biſhops antiently call'd the Religious to their Aſſiſtance, and committed to them the Cure of Souls, and the Adminiſtration of Pariſhes; ſtill remanding 'em back again to their Cloiſters, when they thought fit, and revoking them *ad Nutum*.

But this vague and uncertain Adminiſtration only laſted to the XII Century, when Benefices return'd to their eſſential *Perpetuity*.

PERQUISITE, any Thing gotten by a Man's own Induſtry, or purchaſed with his own Money; in contradiſtinction to that which deſcends to him from his Father, or Anceſtors.

PERQUISITES of Court are thoſe Profits which ariſe to a Lord of a Mannor, by Virtue of his Court-Baron, over and above the certain yearly Profits of his Land; as Fines of Copy-holds, Harriots, Amerciaments, Waifes, Strays, &c.

PER QUÆ *ſervitia*, is a Writ judicial, iſſuing from the Note of a Fine, and lies for the Cognizee of a Manor, Seignory, chief Rent, or other Services, to compel him that is Tenant of the Land at the Time of the Note of the Fine levied, to attorn to him.

PERRON, in Architecture, a Stair-Caſe lying open, or without-ſide the Building; properly, the Steps in the Front of a Building, which lead into the firſt Story when rais'd a little above the Level of the Ground. See STAIR-CASE.

Perrons are made of different Forms and Sizes, with regard to the Space and Height they are to lead to.

Sometimes the Steps are round, or Oval; more uſually Square.

PERRUKE, was anciently uſed for a long Head of natural Hair, ſuch, particularly, as there was care taken in the Adjuſting and Trimming of. The Latins call'd it *Coma*, whence part of *Gaul* took the Denomination of *Gallia Comata*; from the long Hair which the Natives wore as a Sign of Freedom. See HAIR.

An ancient Author ſays, that *Abſolom's Perruke* weigh'd 200 Shekels.

PERRUKE, is now uſed for a Set of falſe, or borrow'd Hair, curl'd, buckled, and ſew'd together on a Frame or Cawl; anciently call'd a *falſe Perruke.*

Menage derives the Word from the *Greek* πυῤῥίχη which ſignifies the ſame Thing.

'Tis doubted whether or no the Uſe of *Perrukes* was known among the Ancients. 'Tis true, they uſed falſe Hair; *Martial* and *Juvenal* make merry with the Women of their Time, for making 'emſelves look young with their borrow'd Hair; with the Men who chang'd their Colours according to the Seaſons; and the Dotards who hoped to deceive the Deſtinies by their white Hair.

But theſe ſeem to have ſcarce had any Thing in common with our *Perrukes*; and were at beſt compoſed of Hair painted, and glu'd together: Nothing can be more ridiculous than the Deſcription *Lampridius* gives of the Emperor *Commodus's Perruke*: 'Twas powder'd with ſcrapings of Gold, and oil'd (if we may uſe the Expreſſion) with glutinous Perfumes for the Powder to hang by.

In effect, the uſe of *Perrukes*, at leaſt on their preſent footing, is not an hundred Years old: The Year 1629 is reckon'd the Epocha of long *Perrukes*; at which time they began to appear in *Paris*; whence they ſpread by degrees throughout the reſt of *Europe*.

At firſt it was reputed a Scandal for young People to wear 'em; by reaſon the Loſs of the Hair at that Age was attributed to a Diſeaſe, the very Name whereof is a Reproach; but at length the Mode prevail'd over the Scruple; and now all Ages and Conditions wear 'em; foregoing, without any Neceſſity, the Conveniences of their natural Hair.

'Twas ſometime, though, 'ere Eccleſiaſticks came into the Faſhion: The firſt who aſſum'd the *Perruke* were ſome of the *French* Clergy, in the Year 1660; nor is the Practice yet well authoriz'd. The Cardinal *Grimaldi* in 1684, and the Biſhop of *Lavaur* in 1688, prohibited the Uſe of the *Perruke* to all Prieſts without a Diſpenſation and Neceſſity. *M. Thiers* has a Treatiſe expreſs, to prove the *Perruke* indecent in an Eccleſiaſtic, and directly contrary to the Decrees and Canons of Councils. A Prieſts Head embelliſh'd with an artificial Hair curiouſly adjuſted, he eſteems a Monſter in the Church; nor can he conceive any Thing ſo ſcandalous as an Abbot with a florid Countenance, heighten'd with a jolly *Perruke*.

PERRY, a Drink made of Pears, after the like manner as Cyder from Apples.

The beſt Fruit for this Uſe are ſuch as are leaſt fit for eating; *E. gr.* the Borberry-Pear, Horſe-Pear, Boreland-Pear, and Choak-Pear; and ſtill the redder they are the better.

The Method of preparing *Perry* is perfectly the ſame with that of preparing Cyder. See CYDER. Only Note, that the Fruit muſt be perfectly ripe. Some mix Crabs with 'em to mend the Liquor.

PER SE, in the Schools, is ſometimes oppoſed to *per accidens*; in which Senſe a Thing is ſaid to agree with another *Per ſe*, when the Agreement is not owing to any accidental Event, but that is found in the intrinſic Principles of the Things themſelves.

Sometimes *Per ſe* is oppoſed to *Per aliud*; in which Senſe God alone is ſaid to have a Being *Per ſe*, as not deriving it from any other, but having it neceſſarily and of himſelf.

Sometimes again, *Per ſe* ſignifies as much as, of its own Nature, or in virtue of its own Entity: Thus the Sun is ſaid to give light *Per ſe*; and Quantity is extended *Per ſe*.

Among Logicians, a Thing is ſaid to be known *Per ſe*, *Per ſe notum*, when we immediately perceive it upon the firſt propoſing of the Terms: As that the Whole is greater than its Parts. See AXIOM.

The Philoſophers go ſo far as to conſider the Mode of a Thing exiſting *Per ſe*, or that which conſtitutes its Exiſtence ſuch; which they call *Perſeity*, *Perſeitas*. See EXISTENCE.

PERSECUTION, a Word which literally imports any Pain, Affliction, or Inconvenience, which a Perſon deſignedly inflicts on another.

But, as a Term, Perſecution is reſtrain'd to the Sufferings of Chriſtians, in Behalf of their Religion; particularly to thoſe of the primitive Chriſtians, under the Heathen Emperors *Nero*, *Decius*, *Diocletian*, &c.

They reckon ten of theſe Perſecutions; *Nero* lighted the Firſt. *Lactantius* has wrote the Hiſtory of the Deaths of *Perſecutors*; tho' ſome queſtion whether that Work be really his or not. Biſhop *Burnet*, who has turn'd it into *Engliſh*, makes no great doubt of it.

PERSEVERANCE, in Theology, a Chriſtian Virtue, whereby we are enabled to perſiſt in the way of Salvation to the End.

The final *Perſeverance* of the Saints is an Article much controverted between the *Arminians* and *Calviniſts*: The latter of whom maintain it impoſſible for Grace to be loſt; and therefore make *Perſeverance* to the End, a neceſſary Conſequence thereof; which the former deny; believing the moſt confirm'd Believers never out of a Poſſibility of falling See GRACE.

PERSEUS, in Aſtronomy, a Conſtellation of the Northern Hemiſphere. See CONSTELLATION.

The Stars in this Conſtellation, in *Ptolomy*'s Catalogue are 29; in *Tycho*'s as many; in the *Britannic* Catalogue 67. The Longitudes, Latitudes, Magnitudes, &c. whereof are as follow:

Stars in the Conſtellation PERSEUS.

Names and Situations of the Stars.	Sign.	Longit.	Latitude. North.	Magnit.
		° ′ ″	° ′ ″	
In *Andromeda's* Foot, according	♉	8 08 36	35 23 45	4
to *Ptolomy* and *Tycho*; according		10 18 13	36 49 13	5
to *Bayer* in *Perſeus*.		14 19 14	40 13 15	6
In the Middle of the Sword		11 52 02	36 18 37	6
5		12 09 56	34 26 01	6 7
		15 39 10	38 57 37	6
		19 02 06	41 13 15	6
		15 45 38	35 09 28	6
South in the Hilt of the Sword againſt		19 56 48	40 43 20	5 6
North, (the Hand 10		20 12 34	41 03 20	6
Small one under the Hand		19 44 42	38 57 41	6
		20 39 23	39 28 49	7
		22 47 39	37 06 23	7
North. of the Informes before *Me-*		16 32 13	23 13 10	6
In the preceed. Shoulder (*duſa*'s Head 15		20 19 25	31 36 07	4
In the upper Arm		18 25 56	26 57 26	6
(*duſa*'s Head		24 23 27	37 26 50	4
South. of the Informes before *Me-*		17 29 12	20 55 32	4
Preced. of Inform. under *Meduſa*'s		16 36 35	17 46 05	6 5
In *Perſeus*'s Head [Head 20		23 35 30	34 20 12	5
Subſeq. and leſs. before *Meduſa*'s		18 08 09	20 44 42	6
(Head		16 51 09	14 24 47	5 6
Preced. in *Meduſa*'s Head		19 34 36	21 42 15	4
Laſt of Inform. und. *Meduſa*'s Head		18 13 28	17 24 46	6
In the hind Shoulder 25		25 42 10	34 30 05	3
In the upper Part of the Arm		27 10 38	37 27 42	5 6
South. in *Meduſa*'s Head		20 34 30	20 33 13	4
In the Middle of the Back *Algol*		24 49 20	30 38 35	4
Bright one in *Meduſa*'s Head		21 50 42	22 23 47	2 3
In the lower Part of the Arm 30		23 21 12	26 04 21	4
That under *Algol*		22 01 38	20 55 56	4 5
		26 52 43	30 42 10	6 7
		24 38 48	24 49 51	6
		26 54 54	30 33 42	6
Againſt the Preceed. and South. Side 35		25 07 54	23 58 05	5 6
A Lucid one againſt the hind Part		27 46 04	30 05 20	2
		28 35 25	29 30 00	6
Preced. the Lucida of the hind Part		28 17 42	28 00 24	5
		28 03 15	26 03 51	6
Middle of three in the Side 40		29 26 13	27 56 05	5
Another following theſe againſt the [Hip	II	0 29 07	27 15 21	3
Over the Heel of the inner Foot	♉	26 48 20	13 53 28	6
In the lower Thigh		29 30 16	22 07 03	4
In the Heel of the South. Foot		26 49 11	12 08 36	3 4
In the Heel of the ſame Foot		28 05 52	12 40 25	6
In the upper Thigh	II	2 54 03	26 20 30	7
		3 46 50	29 33 04	5
In extrem. of South. Foot	♉	28 47 44	11 17 54	3
In South. Knee	II	1 21 25	19 04 53	3
In South Leg 50		0 39 15	14 54 06	5
Preced. againſt North Knee		5 26 24	28 51 00	5
Preced. in the upper Leg		5 10 54	26 12 08	4 5
		2 56 50	16 26 27	6
		3 03 45	16 44 25	6 7
Subſeq. in upper Leg 55		6 28 58	26 40 09	5
Inform. over North Knee		7 54 41	31 27 20	6
That following South Knee		4 49 30	18 53 20	5
That following North. Knee		7 30 02	28 24 56	5
South. of thoſe contiguous thereto		7 37 09	28 08 30	6
North. 60		7 59 23	28 58 11	7
In the Calf of the upper Leg		7 17 48	24 35 00	6
		4 51 10	12 51 48	6 5
		5 37 12	12 17 47	7
		5 37 19	12 07 44	7
In the Heel of upper Foot. 65		8 55 46	20 49 11	6
In the Sole of the ſame Foot		9 16 20	18 58 00	5
	II	10 48 29	20 52 59	6

PERSIAN, or the PERSIAN *Tongue*, one of the living oriental Languages; ſpoke in the Empire of *Perſia*. See LANGUAGE.

The *Perſian* has two Particularities not found in any of the other Eaſtern Tongues, The one that it has an auxiliary Verb, anſwering to the Verb ἐιμι of the *Greeks*; the other, that it has an Aoriſtus: Both theſe it borrow'd from the *Macedonians*, after the Conqueſt of *Alexander*. Sec GREEK.

PERSIAN *Wheel*, in Agriculture, is a Machine for raiſing a Quantity of Water ſufficient to over-flow Lands bordering on the Banks of Rivers, &c. where the Stream is too low to do it alone. See WHEEL.

PERSIAN or PERSIC, in Architecture, a Name common to all Statues of Men, ſerving inſtead of Columns, to ſupport Entablatures. See STATUE.

They only differ from Caryatides, in that thoſe repreſent Statues of Women. See CARYATIDES.

The *Perſian* is a Kind of Order of Columns, firſt practiz'd among the *Athenians*; on occaſion of a Victory their General *Pauſanias* obtain'd over the *Perſians*. As a Trophy of this Victory, the Figures of Men dreſs'd in the *Perſian* Mode, with their Hands bound before them, and other Characters of Slavery, were charg'd with the Weight of Doric Entablatures; and made to do the Office of Doric Columns. See ORDER.

Perſian Columns, *M. le Clerc* obſerves, are not always made with the Marks of Slavery; but are frequently uſed as Symbols of Virtues, Vices, of Joy, Strength, Valour, &c. as when made in the Figure of *Hercules* to repreſent Strength, of *Mars*, *Mercury*, *Fauns*, *Satyres*, &c.

PERSIAN *Æra* and Year. See EPOCHA and YEAR.

PERSON, an individual Subſtance, of a rational or intelligent Nature. See SUBSTANCE, and INDIVIDUAL.

The Father and Son are reputed, in Law, as the ſame Perſon; an Embaſſador repreſents the Perſon of his Prince. See EMBASSADOR.

In Theology the Godhead is divided into three Perſons; but here the Word *Perſon* carries a peculiar Idea, very different from that attach'd to it every where elſe; being only uſed for want of a Term more pertinent and expreſſive. See TRINITY.

The Word *Perſon*, *Perſona* is ſaid to be borrow'd a *Perſonando*, from perſonating, or counterfeiting; and is ſuppoſed to have firſt ſignified a Mask: By Reaſon, ſays *Boethius*, *in Larva Concava ſonus volvatur*, and hence the Actors who appear'd mask'd on the Stage, were ſometimes call'd *Larvati*, and ſometimes *Perſonati*.

Hence, adds *Boethius*, as the ſeveral Actors repreſented each their ſingle individual Man, *viz.* *Oedipus*, or *Chremes*, or *Hecuba*, or *Medea*; for this Reaſon, other People, who were alſo diſtinguiſh'd by ſomething in their Form, Character, &c. whereby they might be known; came alſo to be call'd by the *Latins* *Perſonæ*, and by the *Greeks* πρόσωπα.

Again, as theſe Actors rarely repreſented any but great and illuſtrious Characters; the Word came at length to import the *Mind*, as being a Thing of the greateſt Regard and Dignity among human Matters. And thus Men, Angels, and even God himſelf were call'd *Perſons*.

Things merely corporeal, as a Stone, a Plant, or a Horſe, were call'd *Hypoſtaſes*, or *Suppoſita*; but never *Perſons*. See HYPOSTASIS, &c.

Hence alſo, the Learned imagine, the ſame Name *Perſon* came to be uſed to ſignify ſome Dignity, whereby a *Perſon* is diſtinguiſh'd from another; as a Father, Husband, Judge, Magiſtrate, &c. In which Senſe we are to underſtand that of *Cicero*: *Cæſar* never ſpeaks of *Pompey*, but in Terms of Honour and Reſpect; but he does many hard and injurious Things againſt his *Perſon.*

This for the Name: as for the Thing, we have already defin'd *Perſon, an individual Subſtance of a reaſonable Nature*; which is the ſame *Boethius*'s Definition.

Now a Thing may be *individual* two ways; 1. Logically, as it cannot be predicated of any other; as *Cicero*, *Plato*, &c. 2. Phyſically, in which Senſe a Drop of Water ſeparated from the Ocean may be call'd an individual. *Perſon* is an individual Nature in each of theſe Senſes: *Logically* ſays *Boethius*, ſince *Perſon* is not ſpoke of univerſals, but only of Singulars and Individuals; we don't ſay the *Perſon* of an Animal or a Man, but of *Cicero* and *Plato*: And phyſically, ſince *Socrates*'s Hand or Foot are never conſider'd as *Perſons*

This laſt Kind of Individual is denominated two ways; poſitively, as when the *Perſon* is ſaid to be the whole Principle of Acting; for, to whatever Thing Action is attributed, that do the Philoſophers call a *Perſon*: And negatively, as when we ſay, with the Thomiſts, &c. that a Perſon conſiſt s in this, that it does not exiſt in another as a more perfect Being.

Thus, a Man, tho' conſiſting of two very different Things, *viz.* Body and Spirit, is not two *Perſons*; ſince neither Part alone is a whole Principle of Action; but one *Perſon*, ſince the Manner of his conſiſting of Body and Spirit, is ſuch as conſtitutes one whole Principle of Action: nor does he exiſt in any other as a more perfect Being, as *E. gr. Socrates*'s Foot does in *Socrates*, or a Drop of Water in the Ocean.

So Chriſt, tho' conſiſting of two different Natures, *viz.* the Divine and Humane, is not two *Perſons*, but one Divine *Perſon*; the human Nature, in him, not being a whole Principle of Action; but exiſting in the other more perfect one. By the Union of the Divine and human Nature one Individual, or Whole is conſtituted; that is one Principle of acting: for whatever Chriſt's Humanity does, that does his Divinity join'd therewith: So that there is but one *Perſon* in Chriſt, and one Operation, which is call'd *Theandric.* See THEANDRIC.

PERSON, in Grammar, a Term applied to Verbs and Pronouns, which being conjugated, are applicable to three different *Perſons.* See VERB, &c.

I love is a Verb uſed in the firſt *Perſon*; *thou loveſt* deſigns the ſecond *Perſon*; *he loveth* marks the Third: And thus in the Plural Number. See NUMBER.

I, thou, he, are Pronouns of the firſt, ſecond, and third *Perſons.* See PRONOUN.

Verbs agree with their Nouns in Tenſe, Number, and *Perſon.* See CONSTRUCTION, and CONCORD.

PERSON, *Perſona*, in dramatic Poetry, the Name and Part of an Actor; or of him repreſented by the Comedian.

At the Head of dramatic Pieces come the *Dramatis Perſonæ*, the Liſt of Actors, and Characters that are to appear on the Stage.

The ancient Tragedy was only a ſimple Chorus: *Theſpis* was the firſt who introduced a *Perſon* to relieve the Chorus; *Æſchylus* added a ſecond. See TRAGEDY. See alſo CHORUS, &c.

F. Boſſu obſerves, that in the Epic and Dramatic Poem, the ſame *Perſon* muſt reign throughout, *i. e.* muſt ſuſtain the chief Part thro' the whole Piece, and the Characters of all the other *Perſons* be ſubordinate to him. See CHARACTER. See alſo HERO.

PERSONA, in Law. See PARSON.

PERSONABLE, in Law, implies the being able to hold, or maintain, a Plea in Court.

That is, as the Civilians wou'd expreſs it, *habere perſonam ſtandi in Judicio.*

Thus they ſay, the Defendant was judg'd *Perſonable* to maintain this Action: Old *Nat. Brev.* in *Kitchin* Fol. 124. The Tenant pleaded that the Wife was an *Alien*, born in *Portugal*, without the Ligeance of the King; and Judgement was ask'd whether ſhe ſhou'd be anſwer'd? The Plaintiff ſaid he was made *Perſonable* by Parliament.

PERSONABLE, is alſo uſed to ſignify a Capacity to take any Thing granted or given. See CAPACITY.

PERSONAL, ſomething that concerns, or is reſtrain'd to the *Perſon.* See PERSON.

In Diſputes among the Learned, there is ever ſomething *Perſonal* intermix'd; in Ethicks 'tis a Maxim that all Faults are *Perſonal*, *i. e.* don't paſs to our Deſcendants.

A PERSONAL *Action*, in Law, is that levied directly, and ſolely againſt the Perſon, in oppoſition to a real or mix'd Action. See ACTION.

PERSONAL *Goods*, or *Perſonal Eſtate*, is that conſiſting of Money, Moveables, &c. which every Perſon has in his own Diſpoſal; in oppoſition to Lands and Tenements, which are call'd *real Eſtate.* See ESTATE, and GOODS.

Theft is defin'd a felonious taking a way another Man's *moveable Perſonal Goods.* See THEFT.

PERSONAL *Tithes*, are Tithes paid of ſuch Profits as come by the Labour of a Man's Perſon; as by buying and ſelling; gains of Merchandize, Handicraft, &c. See TITHES.

Pronoun PERSONAL, or *Verb* PERSONAL, in Grammar, a Verb, or Pronoun, conjugated in all the three Perſons. See VERB and CONJUGATION.

In Oppoſition to Imperſonals which have only the third Perſon. See IMPERSONAL.

PERSONALITY, in the Schools, the Quality of *Perſon*; or that which conſtitutes an Individual in the Quality of *Perſon.* See PERSON,

The Philoſophers being uſed to conſider Matter, and Form in every other Thing; do the ſame in *Perſon.* The *Matter* of Perſon, according to them, is a ſingular Subſtance, endued with Reaſon. For, Subſtance may, at the Pleaſure of God, either be, or not be a Perſon; in aſmuch as the human Nature in Chriſt is not a Perſon. The *Form* of Perſon which they call *Subſiſtency*, *Suppoſitality*, and *Perſonality*, is that by which the foreſaid Subſtance becomes individual.

The School Divines are divided about what it is that diſtinguiſhes the ſeveral *Perſonalities* in the Trinity: ſome will have it to be only the different Relations; others, as *Horaventius* contend for ſome incommunicable Subſtance: S. *Bonaventure*, and S. *Thomas*, take it to be the different Origins, that diſtinguiſh the *Perſonalities*; which Opinion is the moſt follow'd. See IDENTITY.

PERSONALITY, in Law. An Action is ſaid to be in *Perſonatliy*, when it is brought againſt the right Perſon.

PERSONATI, among Botaniſts, are ſuch Flowers as expreſs the gaping Mouths of ſome living Creatures.

PERSONIFYING, or PERSONALISING, the feigning a Perſon; or attributing a Perſon to an inanimate Being; or giving it the Figure, Sentiments, and Language of a Perſon.

The Poets have *perſonified* all the Paſſions; and made Divinities of them, which were worſhip'd by the Heathens; as the Goddeſs Perſuaſion, the God Sleep, the Furies, Envy, Diſcord, Fame, Fortune, Victory, &c. See GOD, See alſo MACHINE.

Perſonifying is eſſential to Poetry, eſpecially the Epopea. See POETRY and EPIC.

PERSPECTIVE, the Art of Delineating viſible Objects on a plane Surface, ſuch as they appear at a given Diſtance or Height, upon a tranſparent Plane, placed perpendicular to the Horizon, between the Eye and the Object. See DELMEATING.

This, we particularly call *linear Perſpective*, as regarding the Poſition, Magnitude, Form, &c. of the ſeveral Lines, or Contours of Objects; and expreſſing their Diminution: In Oppoſition to the *Aerial Perſpective*, which regards the Colour, Luſtre, Strength, Boldneſs, &c. of diſtant Objects, conſider'd as ſeen thro' a Column of Air; and expreſſes the Diminutions thereof.

The former is a Branch of Mathematicks: Some make it a Member of Opticks; others a Rivulet therefrom; and its Operations, are all Geometrical. See OPTICKS.

The latter is a Part of Painting, and conſiſts wholly in the Conduct of the Colours, their different Teints, or Degrees, Force, Weakneſs, &c. See COLOUR and COLOURING.

Some make a third Kind of *Perſpective*, *viz. Specular Perſpective*; which repreſents the Objects in Conical, Spherical, or other Mirrors, erect, and clear; whereas on Lawn and other Planes appear confuſed and irregular. See MIRROR.

To conceive the Nature of *Perſpective*; *i. e.* Linear *Perſpective*: Suppoſe a Glaſs-plane *H I*, (Tab. *Perſpective* Fig. 1.) rais'd perpendicularly on a horizontal Plane; and the Spectator *S*, directing his Eye *O*, to the Triangle *A B C*: If now we conceive the Rays *A O*, *O B*, *O C*, &c. in their Paſſage thro' the Plane, to leave their Traces or Veſtigia, in *a*, *b*, *c*, &c. On the Plane; there will appear the Triangle *a b c*; which, as it ſtrikes the Eye by the ſame Rays *a O*, *b O*, *c O*, by which the Species of the Triangle *A B C* is carried to the ſame; it will exhibit the true Appearance of the Triangle *A B C*, tho' the Object ſhou'd be remov'd; the ſame Diſtance and Height of the Eye being preſerv'd. See VISION, POINT, PLANE, LINE, &c.

The Buſineſs of *Perſpective* then, is to ſhew by what certain Rules the Points *a*, *b*, *c*, &c. may be found Geometrically: And hence alſo, we have a mechanical Method of delineating any Object very accurately; See DESIGNING.

Perſpective is either employ'd in repreſenting the Ichnographies, or Ground-plats of Objects, as projected on *Perſpective* Planes. See ICHNOGRAPHY.

Or in Scenographies, or Repreſentations of the Bodies themſelves. See SCENOGRAPHY.

The general Laws of each, are ſubjoin'd; in order to which it is neceſſary to premiſe the following Lemmas in *Perſpective.*

1. That the Appearance of a right Line is ever a right Line; whence, the two Extremes being given, the whole Line is given.

2. That if a Line be Perpendicular to any right Line drawn on a Plane, it will be Perpendicular to every other right Line drawn on the ſame Plane.

3. And

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Tab: Perspective

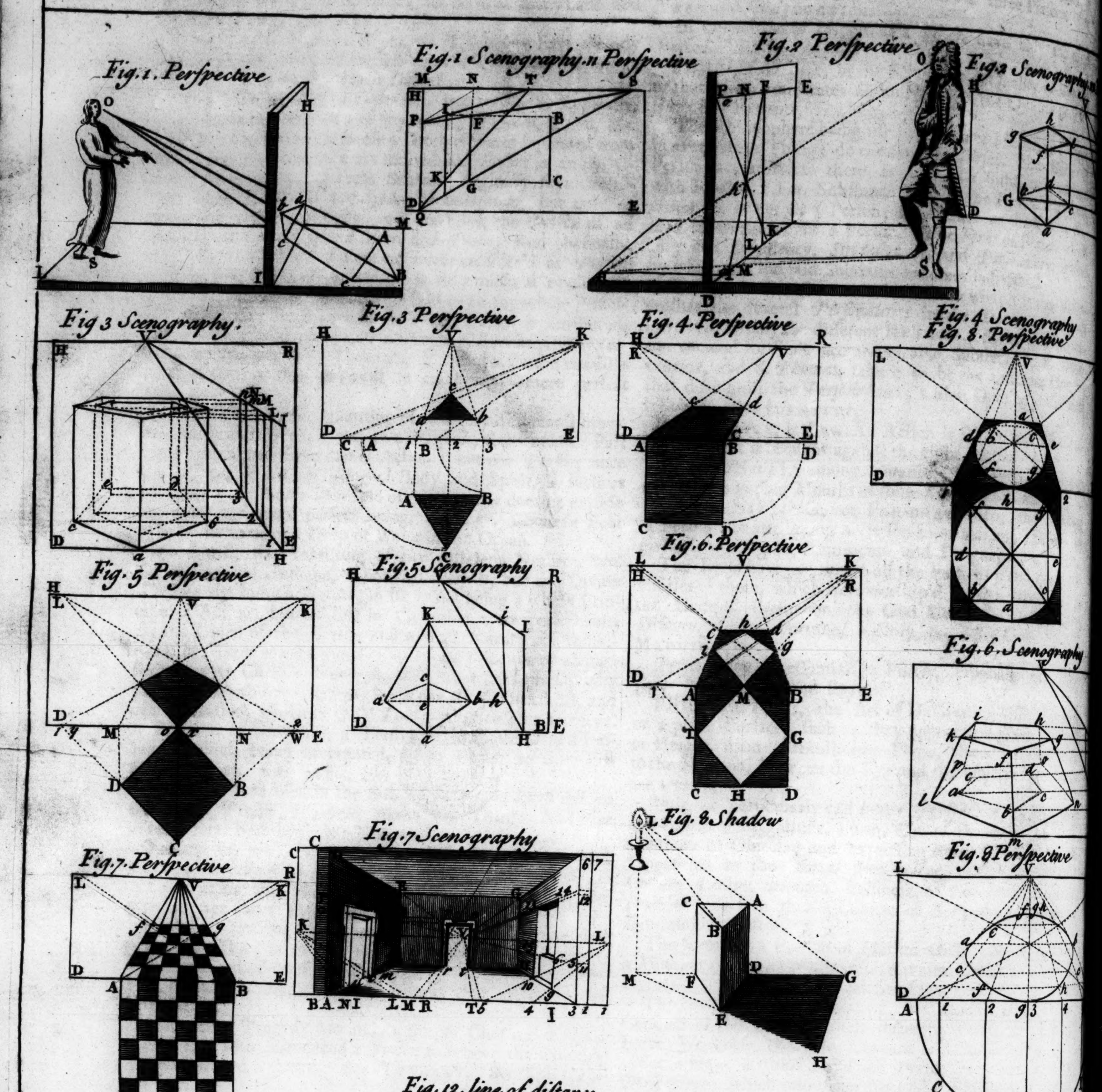


Fig. 1. Perspective
Fig. 1 Scenography. n Perspective
Fig. 2 Perspective
Fig. 2 Scenography
Fig 3 Scenography.
Fig. 3 Perspective
Fig. 4. Perspective
Fig. 4 Scenography
Fig. 8. Perspective
Fig. 5 Perspective
Fig. 5 Scenography
Fig. 6. Perspective
Fig. 6. Scenography
Fig. 7. Perspective
Fig. 7 Scenography
Fig. 8 Shadow
Fig. 8 Perspective
Fig. 12. line of distance
Fig. 13 Orthography of Building
Fig. 10 Perspective.
Fig. 19 Anamorphosis.
Fig. 18 Anamorphosis
Fig. 14 Perspective of Building
Fig. 15. designing
Fig. 17 Orthographic Projection
Fig. 20 Anamorphosis
Fig. 21 Anamor

3. And that the Height of a Point appearing on the Plane, is to the Height of the Eye, as the Diſtance of the objective Point from the Plane, to the Aggregate of that Diſtance and the Diſtance of the Eye.

Ichnographic PERSPECTIVE; *or the Laws of the Projection of Plane Figures.*

Perſpective of a Point.

To exhibit the Appearance h *of an objective Point*, H. (Fig. 2.) From the given Point, draw a Perpendicular to the fundamental Line *D E*. From the fundamental *D E* cut off *I K* = *I H*; thro' the Point of Sight *F* draw a horizontal Line *E P*; and make *F P* equal to the Diſtance of the Eye *S L*: Laſtly from the Point *I* to the Point of Sight *F* draw *F I*; and from *K* to the Point of Diſtance *P*, the Line *P K*. The Interſection *h* is the Appearance of the objective Point. See Point.

Hence, 1. Since, the Appearance of the extreme Points of a right Line being given, the Appearance of the whole Line is given; the Ichnographic Projection of any Rectilinear Figure may be had by this Method. See Rectilinear.

And, 2. Since any Number of Points of a Curve Line may by this means be projected on the *Perſpective* Plane; the Projection of Curve Lines may likewiſe be effected after the ſame manner. See Curve.

3. Therefore, this Method will likewiſe ſuffice for Mixtilinear Figures; and is conſequently univerſal.

There are indeed other Methods deliver'd by other Authors, but this is the moſt uſual. To conceive its force and effect, it will be proper to illuſtrate it with ſome Examples.

Perſpective of a Triangle.

To find the Appearance of a Triangle, A B C, (Fig. 3.) whoſe Baſe *A B* is parallel to the fundamental Line *D E*. To the fundamental Line *D E* draw a Parallel at an Interval equal to the Altitude of the Eye. Aſſume a fundamental Point *V*, oppoſite to this either directly or obliquely, as the Caſe requires. Transfer the Diſtance of the Eye from *V* to *K*. From the ſeveral Angles of the Triangle *A C B*, let fall Perpendiculars *A* 1, *C* 2, *B* 3: ſet off theſe Perpendiculars upon the fundamental Line *D E* oppoſite to the Point of Diſtance *K*. From 1, 2, 3, draw right Lines to the fundamental or principal Point *V* 1, *V* 2, *V* 3. From the Points *A*, *B* and *C* of the fundamental Line *D E* draw other right Lines *A K*, *B K*, *C K*, to the Point of Diſtance *K*.

Since *a*, *b*, and are the Appearances of the Points *A*, *B* and *C c*; The right Lines *ca*, *ab* and *bc*, being drawn, *a c b* will be the Appearance of the Triangle *A C B*.

After the ſame Manner is a Triangle projected on a Plane, where the Vertex *C* is oppoſed to the Eye: All here requir'd, is, that its Situation on the Geometrical Plane be changed, and the Vertex *C* turn'd towards the fundamental Line *D*.

Perſpective of a Square.

To exhibit the Appearance of a Square, A B D C (Fig. 4.) *ſeen obliquely*, and having one of its Sides *A B* in the fundamental Line. The Square being view'd obliquely aſſume the principal Point *V* in the horizontal Line *H R*, in ſuch manner as that a Perpendicular to the fundamental Line may fall without the Side of the Square *A B*, at leaſt, may not biſſect it; and make *V K* the Diſtance of the Eye. Transfer the Perpendiculars *A C* and *B D* to the fundamental Line *D E*; and draw the right Lines *K B*, *K D*, as alſo *A V*, *V C*. Then will *A* and *B* be their own Appearances; and *c* and *d* the Appearances of the Points *C* and *D*. Conſequently *A c d B* is the Appearance of the Square *A B D C*.

If the Square *A C B D* ſhou'd be at a Diſtance from the fundamental Line *D E*; which yet rarely happens in Practice; the Diſtances of the Angles *A* and *B* muſt likewiſe be transfer'd to the fundamental Line: As is evident from the preceeding Problem. And ſince, even the oblique View is not very common; in what follows, we ſhall always ſuppoſe the Figure to be poſited directly oppoſite to the Eye; unleſs, where the contrary is expreſsly mention'd.

4. *To exhibit the Appearance of a Square* A B C D (Fig. 5.) *whoſe Diagonal* A C *is Perpendicular to the fundamental Line*. Continue the Sides *D C* and *C B* till they meet the fundamental Line in 1 and 2. From the principal Point *V*. ſet off the Diſtance of the Eye to *K* and *L*. From *K* to *A* and 1 draw right Lines *K A* and *K* 1; and from *L* to *A* and 2, the right Lines *L A*, *L* 2. The Interſections of theſe Lines will exhibit the Appearance of the Square *A B C D* view'd Angle-wiſe.

5. *To exhibit the Appearance of a Square* A B C D *Fig. 6. wherein another*, I M G H *is inſcribed*; the Side of the greater, *A B*, being in the fundamental Line; and the Diagonal of the leſs, Perpendicular to the Fundamental. From the principal Point *V*, ſet off, each way, on the horizontal Line *H R*, the Diſtances *V L* and *V K*; draw *V A* and *V B*; and *K A* and *L B*; then will *A c d B* be the Appearance of the Square *A C D B*. Produce the Side of the inſcrib'd Square *I H*, till it meet the fundamental Line in 1; and draw the right Lines *K* 1, and *K M*; then will *i h g M* be the Repreſentation of the inſcrib'd Square *I H G M*.

Hence is eaſily conceiv'd the Projection of any Figures inſcrib'd in others.

Perſpective of a Pavement.

5. *To project a Pavement conſiſting of ſquare Stones, view'd directly.* Divide the Side *A B* transfer'd to the fundamental Line Fig. 7. into as many equal Parts as there are ſquare Stones in one row. From the ſeveral points of Diviſion, draw right Lines to the principal Point *V*; and from *A* to the Point of Diſtance *K*, draw a right Line *A K*; and from B to the other Point of Diſtance *L*, draw another *L B*. Thro' the Points of the Interſections of the correſponding Lines, draw right Lines *V* on each Side, to be produced to the right Lines *A V*, and *B*. Then will *A f g B* be the Appearance of the *Pavement A F G B*.

Perſpective of a Circle.

6. *To exhibit the Appearance of a Circle.* 1. If the Circle be ſmall, circumſcribe a Square about it. Draw Diagonals and Diameters *ha* and *de* (Fig. 8.) interſecting each other at right Angles; and draw the right Lines *f g* and *b c* parallel to the Diameter *d e* thro' *b* and *f*; as alſo thro' *c* and *g* draw right Lines meeting the fundamental Line *D E* in the Points 3 and 4. To the principal Point *V* draw right Lines *V* 1, *V* 3, *V* 4, *V* 2; and to the Points of Diſtance *L* and *K*, draw the right Lines *L* 2 and *K* 1. Laſtly connect the Points of Interſection, *a*, *b*, *d*, *f*, *h*, *g*, *e*, *c*, with the Arches *a b*, *b d*, *d f*, *&c.* Thus will *a b d f h g e c a*, be the Appearance of the Circle.

If the Circle be large, on the Middle of the Fundamental *A B* (Fig. 9.) deſcribe a Semicircle; and from the ſeveral Points of the Periphery, *C*, *F*, *G*, *H*, *I*, *&c.* to the fundamental Line, let fall perpendiculars *C* 1, *F* 2, *G* 3. *H* 4, *I* 5, *&c.* From the Points 1, 2, 3, 4, 5, &c. of *A B* draw right Lines to the principal Point *V*, as alſo a right Line from *B* to the Point of Diſtance *L*; and another from *A* to the Point of Diſtance K. Thro' the common Interſections, draw right Lines as in the preceeding Problem; thus ſhall we have the Points *c*, *f*, *g*, *h*, *i*, which are the Repreſentations of theſe *A. C*, *F*, *G*, *H*, *I*, which being connected as before, give the Projection of the Circle.

Hence appears not only how any curvilinear Figure may be projected on a Plane; but alſo how any Pavement, conſiſting of any kind of Stones, may be delineated in *Perſpective*.

Hence alſo, appears what Uſe the Square is of in *Perſpective*, for even in the ſecond Caſe we uſe a Square divided into certain Areolæ, and circumſcribed about the Circle; tho' it be not delineated on the geometrical Plane in the Diagram.

Perſpective of a regular Pentagon.

7. *To repreſent a regular Pentagon, having a broad Limb, terminated by Lines parallel thereto*: 1°. From the ſeveral Angles of the exterior Pentagon *A*, *B*, *C*, *D*, *E*, Fig. 10. to the fundamental Line *T S*, let fall Perpendiculars *A* 0, *B* 1, *C* 2, *D* 3, *E* 4; which, as in the former, transfer to the fundamental Line. Connect the Points 1, 2, 3, 4 to the principal Point *V*; and the Points 1, 2, 3, 4 to the Point of Diſtance *K*. Thus will the common Interſections repreſent the Appearance of the exterior Pentagon. 2. If now, from the inner Angles *G H L I*, the Perpendiculars *G* 0, *H* 5, *K* 6, *I* 7, *L* 8, be in the like manner let fall; and the reſt be done as in the former; we ſhall have the Repreſentation of the inner Pentagon. The Pentagon *A B C D E*, therefore, with its Limb, is repreſented in *Perſpective*.

This Problem is added for the ſake of an Inſtance of the Projection of a Figure that has a broad Limb, or Edge.

It muſt be here obſerv'd, that if the Magnitudes of the ſeveral Parts of an Object, be given in Numbers, together with the Height and Diſtance of the Eye; its Figure is to be firſt conſtructed by a geometrical Scale; and the fundamental Point with the Point of Diſtance 1, to be determin'd by the ſame.

Nor is it always neceſſary, that the Object be delineated under the fundamental Line; in the Projection of Squares and Pavements 'tis beſt let alone. But where 'tis neceſſary, and Space is wanting; draw it a-part; find the Diviſions in it, and transfer 'em to the fundamental Line in the Plane.

Threads being hung in the principal Point, and the Point of Diſtance, and ſtretch'd to the Points of the Diviſions of the fundamental Line; the common Interſection of the Threads will give the Projection of the ſeveral Points without Confuſion; a Thing much to be fear'd from the Multiplicity of Lines to be drawn.

Scenographic Perſpective; or the Projection of Bodies on a Plane.

On the given Point C, (Fig. 11.) *to raiſe a* Perſpective *Altitude, anſwerable to the given objective Altitude P Q.* On the fundamental Line, raiſe a Perpendicular *P Q*, equal to the given objective Altitude. From *P* and *Q* to any Point, as *T*, draw right Lines *P T* and *Q T*. From the given Point *C* draw a right Line *C K*, parallel to the fundamental Line *D E*; and meeting the right Dine *Q T*, in *K*. In *K*, erect a Perpendicular to *K C*, *viz. I K*; this *I K* is the ſcenographic Altitude requir'd.

Perſpective of a Solid

To exhibit the Scenography of any Solid. Find the Projection of its Baſe in the Ichnographic *Preſpective*; and in the ſeveral Points thereof erect the *Preſpective* Altitude: Thus will the Scenography of the Solid be finiſh'd, except for what relates to the Shadow; which muſt be ſuperadded from the Laws of Shadows, deliver'd under the Article *Shadow*. For an Example.

To exhibit the ſcenographic Perſpective *of a Cube* view'd Angle-wiſe: Since the Baſe of a Cube view'd Angle-wiſe, and ſtanding on a geometrical Plane is a Square view'd Angle-wiſe; draw a Square on the *perſpective* Plane, after the manner laid down above, raiſe the Side of the Square *H I* (Fig. 12.) perpendicularly in ſome Point of the fundamental Line *D E*; and to any Point *V*, of the horizontal Line *H R*, draw right Lines *V I* and *V H*. From the Angles *d*, *b*, and *c*; draw *c* 1, *d* 2 parallel to the fundamental Line *D E*. From the Points 1 and 2 raiſe *L* 1 and M 2 Perpendicular to the ſame. Laſtly, Since *H I* is the Altitude to be rais'd in *a*, *L* 1 in *c* and *h* and *M* 2 in *d*; in *a* raiſe *fa*, Perpendicular to *a E*; and in *b* and *c*, raiſe *b g* and *c e* Perpendicular to *b c* 1; and laſtly raiſe *d h* Perpendicular to *d* 2; and let *a f* be equal to *HI*, *b g* and *e c* to L 1 and *h d* to *M* 2; If then the Points *g*, *h*, *e*, *f* be connected by right Lines, the Scenography will be finiſh'd.

This Method is general; but its Application is not equally obvious in every Caſe; ſee it further illuſtrated under the Article SCENOGRAPHY.

PERSPECTIVE *of Building*, &c.

In the Practice of the *Perſpective* of Building, &c. Great regard is had to the Height of the horizontal Line; all above the horizontal, being ſeen in the upper Part, and all above it in the under Part, whence *Perſpective* becomes divided into the *high* and *low* Sight; both which will be well illuſtrated by what follows.

To repreſent a Building (v. g. Palace, College, *&c.) in Perſpective.* 1. Take the Ichnography, or Ground-plat of the Building; its Lengths, Breadths, and Depths; by actual meaſuring. See ICHNOGRAPHY; and take its Altitude with a Quadrant. See ALTITUDE and QUADRANT.

2. Makea Scale divided into two or three hundred equal Parts, either actually, or ſo as that each diviſion ſignifie ten Parts: By this Scale lay down the *Ground-plot*, as in Figure 13.

This done, having a long Rule, and a Square, which by ſliding on the Rule helps you to draw your Perpendiculars eaſilier, reduce it into *Perſpective*, in its *Scenographick Appearance*.

Then having drawn a Line towards the Bottom of the Paper for the Front or Baſe Lineas; *F L* Fig. 14. divide it into as many equal Parts as you find the Building has in the Ichnography, or more if you pleaſe: This will ſerve for a Scale to determine the ſeveral Heights, *&c.* and to theſe Diviſions, with a black Lead Pencil draw Lines from the Centre, when you have choſen it; which Choice requires Judgement on two accounts.

For, if the Centre be too nigh the Front-line, then the Depth of the whole Building will fore-ſhorten too much; if too far off, it will not fore-ſhorten enough. This may be illuſtrated thus; ſet an open Tankard, or the like on a Stand, ſo as that it be a little lower than your Eye; if you be a great Diſtance from it, you can ſee very little or nothing into it; if you come nigher to it by degrees, you will perceive the farther Edge ſeem to be rais'd a little higher than that next you, ſo that you may ſee a little Way into it; if you come very nigh it, you ſee too deep into it more than can well be expreſt in Picture. We ſhall therefore find ſome one Place, which we muſt conclude the moſt convenient for the Draught, and which may be in general determin'd to be as far off the Front-line as the Front-line is long: This Rule, tho' it has juſt grounds, yet we ſometimes diſpence with it *pro re nata*; that we may expreſs Things with the better Appearance.

4. Conſider how to place this Centre with ſuch Advantage as that we may expreſs thoſe Things moſt, which we chiefly deſign to do; for as to the bottom and top Lines of the Sides of the Building that run from us in or nigh the direct Line to the Centre, tho' you ſee the upper Part very well, yet the Sides that fall between the Ground-line and Top, fall ſo very near one another, that 'twould be very difficult to expreſs Particulars in them; ſo that the Centre muſt be well choſen in reference to this.

Thoſe Buildings therefore, you would ſee moſt of, muſt be plac'd as far off as you think convenient from the direct Line that runs to the Centre; and the farther they are, the plainer they are.

Place then thoſe Things you would ſee leaſt of, nigheſt the direct Line; and ſee whether the others fall according to your Mind; but this muſt be done after you have drawn your Diagonal, which is the next Thing.

5. Having pitch'd on your Centre, and having from it drawn Lines to every Diviſion of the Front-line, you are to determine your Diagonal, *A R*, thus: Having with a pair of Compaſſes meaſur'd the Length of the Front-line, take your Compaſſes, and putting one Foot in the Centre, ſee where the other will reach in the Horizon: (on both Sides if you pleaſe) where it reſts, from that Point draw a thwart Line from it to the laſt Diviſion of the Front; and this will be truely drawn, or pretty nigh to the Truth. That this is ſo, you may conſider how it falls in reſpect of the two laſt Centre-lines: For if where the next Line from the laſt is interſected by the Diagonal, you draw a Parallel to the Front between them, as at *A* 10. you will have a *Rhombus*; if then all the Sides be pretty equal, you may be ſure you are nigh the right; but if the Sides that run toward the Centre be too long, then Things will not fore-ſhorten enough; if the Sides be not long enough, then they will fore-ſhorten too much.

6. After the Front-line is thus divided, the Centre fixt, and the Diagonal placed, take the Breadth of the Chappel *A. B.* which in the *Ichnography* is ſhewn to be twenty Parts; becauſe this Line is Perpendicular, it muſt run toward the Centre, therefore reckon twenty in the Diagonal, and the Rule laid parallel to the Front in that Point, will give you a Point in the Centre-line which will give the Breadth of the Chappel; Conſequently a Line drawn from *A.* to *B.* puts it into the Ichnographick *Perſpective*. The Length of the Chappel being ſeventy Diviſions in the Front-line; reckon ſeventy from *B.* parallel to the Front-line, and there you will have a Point at *C*,---

The Depth of the Building from the Chappel Northward, being 115 from the Chappel, I reckon from *D*; (where it cuts the Diagonal at ten) onwards in the Diagonal; and at 115. in the Diagonal, with my Rule as before parallel in this Place in the Front, I have the Point Z. in the Central-line. Its Breadth being thirty, I reckon three Diviſions, and there is the juſt Breadth there; and ſo on in every particular Part.

Having placed the Ichnography into *Perſpective*, you may then give every Thing its proper Height thus:

7. The Height of the Chappel being 30, I reckon 30 on the Front-line, and with this Length by a Square clapt to the Front-line, I drop a Perpendicular to that Height, and ſo where the other Side of the Chappel is plac'd, having reckon'd the Height upon a ſuppoſed Parallel, there I draw another Line in that Height; then joining theſe ſeveral Heights by ſeveral Lines, you have the Profiles of each Building.

Now to diverſifie theſe ſeveral Lines, that they confound you not, make the Ichnography, when you lay it into *Perſpective*, in diſcontinued crooked Lines, the Heights in prick't Lines, and the Tops of each Building in continued Lines, as the Centre-lines are, in the Table. You will likewiſe find the Centre, tho' 'tis not here expreſt, as likewiſe the Point of Diſtance, by continuing the Diagonal up to the ſuppoſed Horizon where it and the Eye is placed.

Having done thus, your Art muſt be employ'd for the particular Expreſſions of Things, by drawing and ſhadowing, which is the Life of this half-form'd Figure, and which we leave to the Painter.

It remains that we ſpeak of the *Low-ſight*: Here we ſuppoſe the Horizontal juſt the Height of the Eye, about 5 Foot from the Baſis; tho' 'tis generally plac'd higher, even to a third Part of the Height of the Building, that the Side Buildings may be expreſs'd more gracefully.

The Diagonal is beſt determined by dividing the laſt Diviſion of the Baſis-line into 5 Parts at *G.* Fig. 14 taking 4 of theſe, ſometimes the whole 5, becauſe we determin'd before, that the Length of the Front-line was the Diſtance of the Eye in the Horizon to the Point of Diſtance: But here I take 4, and then make this the Diſtance in the Horizon between the Eye and the Point of Diſtance. You may then either graduate the Plan at the ſeveral Interſections of the Diagonal with the Centre-lines, or elſe ſuppoſe it ſo; and then raiſe the Building, as you will find by *Perſpectives* enough of this Sort every where to be met with.

PERSPECTIVE, is alſo uſed for a Kind of Picture or Painting, frequently ſeen in Gardens, and at the Ends of Galleries; deſign'd expreſly to deceive the Sight by repreſenting the Continuation of an Alley, a Building, Landſkip, or the like.

Perspective *Plane*, is a Glaſs, or other tranſparent Surface, ſuppos'd to be placed between the Eye and the Object, Perpendicular to the Horizon, unleſs the contrary be expreſsly mention'd. See Plane.

Such is the Plane, *H I* (Fig. 15.) between the Eye *O* and the Object *A B C*, cutting the optic Rays in *a*, *b*, *c*.

This, ſome call the *Section*; ſome the *Table*, and others the *Glaſs*. See Section.

PERSPIRATION, in Medicine, the Action of evacuating the Juices of the Body, through the Pores of the Skin. See Evacuation, Pore, and Skin.

When this Evacuation is copious enough to be perceiv'd by the Senſes, as in ſweat, the *Perſpiration* is ſaid to be *ſenſible*; where it eſcapes the Notice of the Senſes, as is the Caſe in the ordinary State of the Body, the *Perſpiration* is ſaid to be *inſenſible*. See Sweat.

The Word *Perſpiration* uſed ſimply, and without any Adjective, is underſtood of inſenſible *Perſpiration*. *Sanctorius*, the great *Paduan* Phyſician, was the Firſt who took Notice of this Evacuation: To him we owe both the Invention and Perfection of the Doctrine of *inſenſible Perſpiration*.

The Veſſels thro' which the *Perſpiration* is perform'd, lye obliquely open under the Squamæ or Scales of the Cuticle or Scarf-skin. They are inconceivably ſmall: From a Calculation of *Leewenhoeck*, it appears that the Mouths of 125000 of 'em may be cover'd with a common Grain of Sand. See Cuticle, Miliary *Gland*.

Thro' theſe Veſſels is continually tranſuding a ſubtile Humour, from every Point of the Body, and throughout the whole Expanſe of the Cuticle.

The Matter evacuated this way, is found by ſure Experience to be more than equal to that evacuated all the other Ways, *i. e.* by Stool, Urine, &c. *Sanctorius* found in *Italy*, under the Circumſtances of a moderate Diet, middle Age, and eaſy Life, that the Matter inſenſibly perſpired was $\frac{5}{8}$ of that taken in for Food: ſo that there only remain'd $\frac{3}{8}$ for Nutrition, and the Excrements of the Noſe, Ears, Inteſtines, Bladder, &c. See Excrement.

The ſame Author ſhews, that as much is evacuated by inſenſible *Perſpiration* in one Day, as by Stool in fourteen Days; particularly, that in a Night's Time, about ſixteen Ounces is ordinarily ſent out by Urine, four Ounces by Stool; and above forty Ounces by *inſenſible Perſpiration*.

He alſo obſerves, that if a Man eat and drink 8 *l.* in a Day, 5 *l.* of it is ſpent in inſenſible *Perſpiration*; and adds as to the Times, that within 5 Hours after eating there is perſpired about 1 *l.* from the 5th to the 12th Hour about 3 *l.* and from the 12th to the 16th ſcarce half a Pound.

The Benefits of inſenſible *Perſpiration* are ſo great, that without it, *Borelli* ſays, animal Life cou'd not be preſerv'd.

The great Subtility, Equability, and Plenty of the Matter thus perſpired, its Increaſe after Sleep, &c. conſtitute the grand Symptoms of a perfect State of Health; and the chief Means of preſerving the ſame. See Health.

On the contrary, the departing from theſe is the firſt ſure Sign, and perhaps Cauſe, of Diſeaſes. See Disease.

Perſpiration is performed, preſerved, and encreaſed by the Viſcera, Veſſels, Fibres; by Motion or Exerciſe as far as the firſt Appearance of Sweat, by moderate Uſe of Venery; Sleep of 7 or 8 Hours, the Body well cover'd yet not loaden with Bed-cloaths, Chearfulneſs, light fermented yet ſolid Food, not Fat; pure, cold, heavy Air, &c.

The contraries of all theſe, as alſo the Increaſe of the other Excretions, diminiſh, prevent, deprave it.

Hence we ſee the Cauſe, Effect, &c. of this perſpirable Matter, its Uſe is preſerving the Parts ſoft and flexible, in ſupplying what's loſt, but chiefly in preſerving the nervous Papillæ moiſt, freſh, lively, fit to be affected by Objects, and to tranſmit their Impreſſions. See Nerve, Sensation, &c.

Too much *Perſpiration* occaſions weakneſs, ſwoonings, ſudden Death; too little or none at all occaſions the Veſicles to dry, wither, and periſh. Hence alſo the larger Emunctories, come to be obſtructed; hence the Circulation is diſturb'd, ſharp Humours retain'd; hence Putridity, Crudity, Fevers, Inflammations, Impoſthumes. See Disease.

To determine the State and Conditions of the *Perſpiration*, ſo neceſſary for judging of thoſe of the Body, *Sanctorius* invented a *weighing* Chair, whereby he examin'd the Quantity, Degree, &c. of *Perſpiration* in ſeveral Circumſtances of the Body, under ſeveral Temperatures of the Air, in the ſeveral Intervals of eating, drinking, ſleeping, &c. See Weighing *Chair*.

Some of the more extraordinary Phænomena obſerv'd herewith, are; that for ſome time after eating the *Perſpiration* is leaſt of all. That between the 5th and 12th Hour after Meals *Perſpiration* is greateſt. That riding either on Horſeback, in a Coach, or Ship, &c. briſk Motion on the Ice, &c. but above all, a briſk Friction of the Skin; promote *Perſpiration* ſurpriſingly. That in ſweating the *Perſpiration* is much leſs than at other Times: And that *Perſpiration* is always much leſs in Women than Men.

PERTICA or Perticata *terræ*, in our old Law Books, is the fourth Part of an Acre. See Rood.

Continet in integra ſuperficie 40 *perticas*. See Perch.

PERVISE or Parvise, a Term in our old Law Books. *Forteſcue* ſays, *Placitantes* (*ſcil poſt meridiem*) *ſe divertunt ad* perviſum & *alibi cum ſervientibus ad legem* & *aliis*. *Selden* in his Notes on *Forteſcue*, defines this to be an Afternoon's Exerciſe, or Moot, which the Pleaders held for the Inſtruction of the younger Students; bearing originally the ſame Name with the Parviſiæ in *Oxford*. See Moot.

M. *Somner* ſays, that *Perviſe* ſignifies *palatii Atrium vel area illa a fronte aulæ Weſtmonaſterienſis*, *hodie* the *Palace-Yard*. See Paradisus.

Spelman obſerves, that the Lawyers turn'd thither to meet their Clients not to hold Moots.

PERVIGILIUM, in Medecine. See Vigilia.

PERUVIAN-Bark. See Cortex *Peruvianus*.

PES, a long Meaſure, in *Engliſh*, better call'd a Foot. See Foot.

Pes *Foreſtæ*. *Notandum eſt quod* pes foreſtæ *uſitatus tempore Ric. Oyſell in Arrentatione vaſſallorum, factus eſt, ſignatus & ſculptus in pariete Cancellæ Eccleſiæ de Edwynſtone & in Eccleſia B. Mariæ de Nottingham, & dictus pes continet in longitudine octodecim pollices, & in arrentatione quorundam Vaſſallorum Pertica* 20, 21, & 24 *pedum uſa fuit*, &c.

Pes *Monetæ*, in ancient Records, ſignifies a true and reaſonable Adjuſtment of the real Value of all current Coin. See Standard and Coin.

PESA, an old Law Term, for a Wey, or certain weight of Cheeſe, Wool, &c. See Wey.

PESADE, in the Manage, that Action taught a Horſe, wherein he riſes with his fore Feet, and bends 'em up to his Body, without ſtirring the hind Feet.

The *Peſade* is the firſt Leſſon taught a Horſe, in order to bring him to Curvetts, &c. unleſs he perform this well, he'll never go well in any Air, yet is he not to be taught it at the firſt Riding.

PESAGE, a Cuſtom or Duty paid in certain Markets, &c. for weighing of Merchandices, or Wares. See Weighing.

PESSARY, in Medicine, a ſolid Medicament, of the Length and Thickneſs of the Finger, but a Pyramidal Form; convey'd into the natural Parts of a Woman to provoke, or put a Stop to the Menſes, or to prevent a Deſcent of the Matrix, or on other Occaſions of thoſe Parts.

At one End 'tis faſten'd to a little Ribbon, by which it may be drawn out at pleaſure.

It conſiſts of Cork, or other light Wood, or of a little Linnen Bag, full of Pouders, incorporated with Wax, Oil, and Cotton; cram'd cloſe together to make it ſolid enough for intromiſſion.

The Word is form'd from *Greek* πεσσὸς, which ſignifies the the ſame Thing.

PESTILENCE, in Medicine, a contagious Diſeaſe, uſually mortal; popularly known under the Name of Plague. See Plague.

The Word is form'd from the *Latin Peſtis*.

Pest-*houſe*, a Lazaretto or Infirmary, where Goods, Perſons, &c. infected, or ſuſpected to be infected with ſome contagious Diſeaſe, are diſpoſed and provided for. See Lazaretto.

PESTILENTIAL *Fevers*, among Phyſicians, are ſuch as do not only afflict the Patient with a vehement Heat, but alſo a malignant and venomous Quality. See Fever.

PESTIS. See Plague.

PETALA, in Botany, the Leaves of a Flower; ſo call'd to diſtinguiſh 'em from the Leaves of the Plant. See Leaf.

By Flower is properly meant, That aſſemblage of Parts call'd *Stamina* and *Piſtil*, which ſerve for propagation of the Kind. See Flower.

The colour'd Leaves which incompaſs thoſe Parts, are in reality no more than Caſes or Covers to ſecure and ſcreen the generative Parts; unleſs, as Mr. *Bradley* conjectures, they may ſerve to ſecrete ſome fine Juice for the Nouriſhment of the Seed. See Generation *of Plants*.

The moſt eaſy Diviſion of Flowers is into ſimple Flowers, *i. e.* thoſe form'd of *Stamina* and *Piſtils* only; and compound Flowers, whoſe *Stamina* and *Piſtils* are incompaſs'd with *Petala*, call'd by Dr. *Grew* the *Foliation*, and by Mr. *Ray Folia*. See Foliation.

Compound Flowers again, are either incompaſs'd with a ſingle *Petalum*, or Piece; or with ſeveral Pieces; the firſt of which are call'd *Monopetalous*, the ſecond *Polypetalous* Flowers. See Monopetalous, &c.

Again, from the regular or irregular Configuration of the *Petala*, M. *Juſſieu* makes another Diviſion of Flowers into Claſſes; as regular and irregular *Menopatalous*; regular and irregular *Polypetalous*, &c. See Polypetalous.

Nature ſhews a World of Art in the folding up of the *Petala*, in the Perianthium, before they begin to blow or expand: Of theſe Foldings Dr. *Grew* notes the following Varieties, *viz.* the cloſe Couch as in Roſes; the concave Couch as in

Blattaria flore albo; the ſingle Plait as in Peaſe-bloſſoms; the double Plait as in Blue-bottles. The Couch and Plait together as in Marigolds, *&c.* The Rowl as in Ladies Bower; the Spire as in Mallows; and laſtly the Plait and Spire together as in *Convolvulus Doronici Folio.*

The Calyx or Perianthium ſometimes ſerves in lieu of *Petala.* See CALYX.

The Word is form'd from the *Greek* πέταλον a Leaf; And in that Language ſerves indifferently for the Leaves of the Plant and the Flower.

PETALISM, PETALISMUS in Antiquity, a Kind of Exile, or Baniſhment for the Term of five Years. See BANISHMENT.

The *Petaliſm* at *Syracuſe* was nearly the ſame Thing as the Oſtraciſm at *Athens*; except that the latter was for 10 Years, and the former only for five. See OSTRACISM.

The *Petaliſm* was perform'd by the Peoples writing the Name of the Perſon condemn'd, on a Leaf; whence the Name, from πέταλον, Leaf.

PETALOIDES, a Name ſometimes given to Urine, when it ſeems to have little Leaves or Scales in it. See URINE.

PETAMINARIUS, in Antiquity, a Name given to certain Perſons who perform'd extraordinary Feats of Activity; took perillous Leaps, Vaults, *&c.*

The Word is form'd from the *Greek* πέταμαι, *I fly.*

Some Authors write it *Petiminarius*, and derive it from *Petimen*, which according to *Servius* ſignifies the Bunch of a Camel, in Alluſion to the Manner wherein they bent the Body in exhibiting Poſtures, *&c.*

PETARD, in War, a Kind of Cannon, very ſhort, narrow at the Breech, and wide at the Muzzel; made of Copper mix'd with a little Braſs; or of Lead with Tin; uſually about 11 Inches long, and ſeven and an half Broad at the Mouth; weighing from 50 to 60 Pound. See CANNON and ORDINANCE.

Its Charge is from five to ſix Pounds of Powder, which reaches to within three Fingers of the Mouth: The Vacancy is fill'd with Tow, and ſtopp'd with a Wooden Tampion; the Mouth being ſtrongly bound up with Cloth tied very tight with Ropes.

'Tis fitted into a Wooden Plank that has a Cavity cut into it to receive the Mouth of the Gun; after the manner expreſs'd in the Fig. 10. Tab. Fortification.

Its Uſe is in a clandeſtin Attack, to break down Gates, Bridges, Barriers, *&c.* to which it is hung, which it does by means of the Wooden Plank.

'Tis alſo uſed in Countermines to break thro' the Enemies Galleries, and give vent to their Mines.

Some, inſtead of Gun-powder for the Charge uſe one of the following Compoſitions, *viz,* Gun-powder 7 Pounds, Mercur. Sublimat. 1 Ounce, Champhor 8 Ounces; or Gun-powder 6 Pound, Mercur. Sublimat. 3 Ounces, and Sulphur 3; or Gun-powder 6, beaten Glaſs $\frac{1}{2}$ an Ounce, and Camphor $\frac{3}{4}$.

Petards are ſometimes alſo made of Wood, bound round with Iron Hoops.

The Invention of *Petards* is aſcribed to the *French Hugonots* in the Year 1579: their moſt ſignal Exploit was the taking the City *Cahors* by their Means, as we are told by *d'Aubigne.*

PETECHIÆ, are Spots in the Skin, like Flea-Bites, which come out in ſome Fevers.

Hence *Petechial* Fever is the ſpotted Fever, commonly ſo called. See FEVER.

PETER-*pence*, an ancient Levy, or Tax of a Penny on each Houſe throughout *England.* See TAX.

It was call'd *Peter-pence*, becauſe collected on the Day of St. *Peter ad vincula*; by the *Saxons* it was call'd Rome Feoh *i. e.* the Fee of *Rome*, and alſo *Rome-ſcot*, and *Rome-pennyng*, becauſe collected and ſent to *Rome*; and laſtly it was call'd *Hearth-Money*, becauſe every Dwelling-houſe was liable to it, provided there were 30 Pence *vivæ pecuniæ* belonging to it; nay, and every religious Houſe; the Abby of St. *Albans* alone excepted.

This *Peter-pence* was at firſt given as a Penſion, or Alms, by *Jna* King of the Weſt *Saxons*, in the Year 725, being then in Pilgrimage at *Rome*: And the like was done by *Offa* King of the *Mercians*, throughout his Dominions in 794.

It was not intended as a Tribute to the Pope, but chiefly for the Support of the *Engliſh* School or College at *Rome*: the Pope, however, went halves with the College; and at lenth ſwallow'd almoſt the Whole.

At firſt it was only an occaſional Contribution; but became at laſt a ſtanding Tax; being eſtabliſh'd by the Laws of King *Canute*, *Edward* the Confeſſor, the Conqueror, *&c.*

The Biſhops who were charg'd with the Collecting it, employ'd the rural Deans and Archdeacons therein. *Edward* the III. firſt forbad the Payment, but it ſoon return'd and continu'd till the Time of King *Henry* VIII, when *Polydore Virgil* reſided there as the Popes Receiver-General.

PETIT *Cape.* See CAPE.

PETIT *Serjeanty*, in Law. See SERJEANTY.

PETITIO *induciarum*, in the civil Law, the ſame as Imparlance in common Law. See IMPARLANCE.

PETITIO *Principii*, in Logic, a begging of Principles; or a precarious ſuppoſing a Thing to be true, or taking it for granted, when it really remains either dubious, or elſe is expreſsly denied.

This we popularly call *begging the Queſtion.*

PETITION, a Supplication in form, made by an Inferiour to his Superiour; eſpecially to one having Juriſdiction. See SUPPLICATION.

PETRA *lanæ*, in our ancient Cuſtoms, a Stone of Wool. See STONE.

PETRARIA, in ancient Writers, is ſometimes taken for a Quarry of Stones; and in other Places for a great Gun, call'd a *Petard*; 'tis often mention'd in old Records and Hiſtorians in both Senſes.

PETRE Oil, the ſame as Petroleum. See PETROLEUM.

PETRIFACTION, or PETRIFCATION, in Phyſiology, the Action of converting Fluids, Woods, and other Matters into Stone. See STONE.

The Faculty of *petrifying* Wood is aſcribed to ſeveral Springs, Lakes, *&c.* The ancient Naturaliſts mention a River whoſe Waters turn'd Bodies into Marble, by mere contact; nay, which being drunk *petrified* the Viſcera of the Drinker.

> *Flumen habent Cicones, quod potum ſaxea reddit*
> *Viſcera, quod tactis inducit Marmora rebus.*

Seneca relates, that the Mud of this Riveris of ſuch a Nature as to harden and glue together the Parts of Bodies. As, ſays he, the Duſt of Puzzuoli, by barely touching Water becomes Stone; ſo this Water, by touching any Solid, ſticks, and grows to it: Whence Things caſt into it, are immediately taken out Stones. *Pliny* adds very well, that Wood caſt into this River, is preſently found cover'd with a ſtony Bark or Rind; and ſubjoins the Names of ſeveral other Rivers which do the ſame; particularly the River *Silarus* near *Tarentum*, whoſe Waters are yet found very wholeſome.

To *Pliny*'s Liſt we might add many more among ourſelves; particularly the Lake *Lokmond* in *Scotland*, *&c.*

But, in effect, there does not ſeem any real Tranſmutation of the woody Nature into the Nature of Stone, in any of theſe Caſes; all that is done is this, the Stony Particles which before floated in the Liquor are now lodged, and depoſited in the Pores of theſe Subſtances, in ſuch manner, and in ſuch Plenty as to leave little elſe but the Appearance of a Stone.

Petrifactions too, are frequently nothing elſe but incruſtations of ſtony Particles, which ſurround the Bodies immerg'd, as Salts ſhoot upon and adhere to them. See INCRUSTATION.

Varenius has a Conjecture that Waters only petrify Woods by means of certain minute, ſharp, and pointed Particles lodg'd therein, which cut the longitudnal Fibres of the Wood in an infinite Number of Points, and thus deſtroy the Form they were diſtinguiſh'd from Stone.

Near *Nacſivan* is a little River, whoſe Water the People turn off into little Canals; where, in a little Time it *petrifies*; and of this *petrified* Water is built a large *Caravanſera* in the Neighbourhood.

Petrifications of Waters, or Juices of the Earthare inconteſtable. In the Place call'd *les Caves Goutieres* in *France*, the Water falling from the Upper-parts of the Cave to the Ground, immediately hardens into little Stones, of ſuch Figures as the Drops falling either ſingly, or upon one another chance to exhibit.

Of this Kind of Caves we have ſeveral in *England*; Mr. *Derham* mentions one on the Top of *Bredon* hill in *Worceſterſhire*; to which we may add an other call'd the *Elvehole* in *Witherſlack* in *Weſtmoreland*; lin'd a-top with theſe ſtalactical Stones, hanging like Icicles; which are manifeſtly nothing elſe but Exſudations or Extillations of ſome *petrifying* Juices out of the rocky Earth there. See STALACTITES. See alſo LABYRINTH.

The Word is form'd from the *Greek* πέτρα Stone, and the *Latin fio* or *facio* to become, to do.

PETROBRUSSIANS, a religious Sect, which aroſe in *France*, and the *Netherlands*, about the Year 1126; ſo call'd from their Leader *Peter Bruys* a Provincial.

The chief of *Bruys*'s Adherents was a Monk, one *Henry*; from whom the *Petrobruſſians* were alſo call'd *Henricians.*

Peter the venerable Abbot of *Clugny*, has an expreſs Treatiſe againſt the *Petrobruſſians*; in the Preface to which he reduces their Opinions to five Heads. 1. They denied that Children before the Age of Reaſon can be juſtified by Baptiſm; In regard, 'tis our own Faith that ſaves by Baptiſm. 2. That no Churches are to be built, but thoſe that already are, to be pull'd down; an Inn being as proper for Prayer as a Temple, and a Stable as an Altar. 3. That the Croſs ought to be pull'd down and burnt, in regard we ought to abhor the Inſtruments of our Saviour's Paſſion. 4. That Jeſus Chriſt is not in the Euchariſt, and that this Sacrament is vain. 5. That Sacrifices, Alms, Prayers, *&c.* don't avail the Dead.

F. Langlois objects Manicheiſm to the *Petrobruſſians*; and ſays they maintain'd two Gods, the one Good, the other Evil; but this we rather eſteem an Effect of his Zeal for the

Catholick Cauſe, which determin'd him to blacken the Adverſaries thereof, than any real Sentiment of the *Petrobruſſians.*

PETROJOANNITES, the Followers of *Peter John*, or *Peter Joannis, i. e. Peter* the Son of *John*, who liv'd in the XII. Century.

His Doctrine was not known till after his Death; when his Body was taken out of his Grave and burnt.

His Opinions were, that he alone had the Underſtanding of the true Senſe wherein the Apoſtles preached the Goſpel; that the reaſonable Soul is not the Form of the Man; that there is no Grace infuſed by Baptiſm; that Jeſus Chriſt was pierced with a Launce on the Croſs 'ere he expir'd.

PETROL, PETROLEUM, *q. d. Petræ-oleum*, Oil of Rock; an Oleaginous Juice, iſſuing out of the Clefts of Rocks. See OIL.

Beſide artificial and vegetable Oils, *i. e.* thoſe drawn from Plants, *&c.* by Expreſſion; there are alſo natural and mineral Oils iſſuing of themſelves from the Entrails of the Earth; call'd by a common Name *Petrols*, or *Petrolea*.

Theſe, according to all Appearance, muſt be the Work of ſubterraneous Fires, which raiſe, or ſublime the more ſubtile Parts of certain bituminous Matters that lie in their Way. Theſe Parts being condens'd into a Liquor by the Cold of the Vaults of Rocks, are there collected, and Ooze thence through Clefts and Apertures, which the Diſpoſition of the Ground furniſhes 'em withal.

PETROL, then is a Liquid Bitumen; only differing by its Liquidity from other Bitumens, as Aſphaltum, Jet, *&c.* See BITUMEN.

The Naphtha, which is either a Liquid, or at leaſt a very ſoft Bitumen, is much the ſame with the *Petrol.* See NAPHTHA.

Hitherto there has been little *Petrol* found, except in hot Countries. *Olearius* ſays he ſaw above 30 Springs of it near *Scamachia* in *Perſia*: There are *Petrols* in the Southern Provinces of *France*; but the beſt are thoſe in the Dutchy of *Modena*, firſt diſcover'd by *Arioſto* a Phyſician, in 1640, in a very barren Valley, 12 Leagues from the City of *Modena*.

There are three Canals dug with great Expence in the Rock; by which three different Kinds of *Petrol* are diſcharg'd into little Baſons or Reſervoirs: The firſt, as white, clear, and fluid as Water, of a briſk penetrating Smell, and not diſagreeable; the ſecond of a clear Yellow, leſs fluid, and a leſs briſk Smell than the White; the third a blackiſh Red of thicker Conſiſtence, and a Smell more approaching that of Bitumen.

M. *Boulduc* has made ſeveral Experiments on the *Petrol*, deſcrib'd in the Hiſt. of Acad. of Sciences M. DCC. XV. He obſerves, that he cou'd not raiſe any Phlegm or ſaline Spirit by any Diſtillation, either in *Balneo Mariæ*, or in a Sand heat: All that wou'd riſe was Oil; at the Bottom of the Pellican remain'd an exceeding ſmall Quantity of a thickiſh, browniſh Matter.

Hence, to uſe *Petroleum* in Medicine, it muſt be preſcrib'd juſt as it is. 'Tis a Remedy Nature has prepar'd to our Hands; it is found very warm and penetrating; and commended in many outward Complaints, Rheumatick and Arthritick Pains, and paralytick Limbs.

PETRONEL, a Sort of Harquebuſs or Hand-gun. See HARQUEBUSS.

PETROSA *Oſſa*, in Anatomy, two Bones of the Cranium. See CRANIUM.

The fifth and ſixth Bones of the Skull are thoſe of the Temples; ſo call'd *a Temporibus*, becauſe they ſhew the Age of Man; the Hairs hereon turning grey before any of the reſt. See TEMPLES.

Their Upper-part is ſquamous or Scaly, the lower *Petrous, i. e.* hard or ſtony, and hence they come here to be denominated *Petroſa*.

The *Oſſa Petroſa* are the ſmalleſt proper Bones of the Cranium: Their Upper-part is Semi-circular, and their Lower of a Rocky Make. They are ſituated in the lateral and lower Parts of the Head; bounded a-top by the ſquammous Suture, which joins 'em to the Parietalia; behind by the Lambdoides, which joins them to the Occipital, and connects them to *Os Sphenoides*.

Each has two Sinus's before and behind the Sphenoidal: the Exterior lin'd with a Cartilage, receiving the Proceſs of the lower Jaw; the Interior receives the Lower-part of the *Sinus Lateralis* of the Dura Mater.

Each again has four Proceſſes; three External, and one Internal; of the External, the firſt is call'd *Zygomaticus* or *Os Jugale*; the ſecond *Maſtoides* or *Mammillaris*; the third *Styloides*, each whereof ſee under its proper Article. ZYGOMATICUS, &c.

The internal Proceſs is properly call'd the *Os petroſum*: This is pretty long and large, containing the whole *Meatus Auditorius* and Cavity of the *Tympanum.* See TYMPANUM and EAR.

PETTEIA or PETTIA, in the ancient Muſick, a *Greek* Term, to which we have no correſponding one in our Language.

The Melopoeia, *i. e.* the Art of arranging Sounds in Succeſſion ſo as to make Melody, is divided into three Parts, which the *Greeks* call *Lepſis*, *Mixis*, and *Chreſis*, the *Latins Sumptio*, *Mixtio*, and *Uſus*; and the *Italians Preſa*, *Meſcolamento*, and *Uſo*.

The laſt is alſo call'd by the *Greeks* Πεττεία, *Petteia*, and by the *Italians Pettia.*

Petteia or *Pettia*, then is the Art of making a juſt Diſcernment of all the Manners of ranging, or combining Sounds among themſelves, ſo as they may produce their Effect, *i. e.* ſo as they may expreſs the ſeveral Paſſions intended to be rais'd; thus, *E. gr.* it ſhews what Sounds are to be us'd, and what not, how often any of 'em are to be repeated, with which to begin, and with which to end, whether with a grave Sound to riſe, or an Acute one to fall, *&c.*

'Tis the *Petteia* that makes the Manners of the Muſick; it being this that chuſes out this or that Paſſion, this that or Motion of the Soul to be awaken'd, and whether it be proper to excite it in this or that occaſion.

The *Petteia* therefore is in Muſick what the Manners are in Poetry. See MANNERS.

We don't ſee whence the Word ſhou'd have been taken by the *Greeks* unleſs from Πεττεία their Game of Cheſs; the muſical *Petteia* being a Combination and Arrangement of Sounds, as Cheſs is of Pieces call'd πέττοι, *Calculi*, Cheſs-Men.

PETTY-*Bag*, an Office in Chancery; the three Clerks whereof Record the Return of all Inquiſitions out of every Shire, make all Patents of Cuſtomers, Gaugers, Controllers, *&c.* See CHANCERY.

PETTY-*Fogger*, from the *French Petite*, little, and the *Saxon* ꝼoᵹeꞃe Wooer, Suiter, *&c.* A little, Stickling, Solicitor, or Jobber in Law-diſputes, without either Skill or Conſcience.

PETTY-*Larceny*, in Law, ſmall Theft; or the ſtealing of Things under the Value of 12*d.* See LARCENY.

The Puniſhment, antiently, was ſometimes the Loſs of an Ear; ſometimes Cudgelling: After *Edward* III. It was for along Time Whipping, but is now Tranſportation.

PETTY *Patees*, among Confectioners, a ſort of ſmall Pies, made of *March* Pane, and fill'd with ſweat Meats.

PETTY-*Singles*, among Faulconers, are the Toes of a Hawk. See HAWK.

PETTY-*Tally*, in the Sea Language, a competent Allowance of Victuals, according to the Number of the Ships Company.

PETTY-*Treaſon*, in Law, the Crime of a Servant's killing his Maſter, a Wife's killing her Husband, a Child's killing his Parent, or a Clergyman's killing his Prelate to whom he owes Obedience. See TREASON.

The Puniſhment of *Petty-Treaſon* is, that the Criminal ſhall be drawn on a Sledge, or Hurdle to the Gallows, and there hanged.

The Puniſhment of *Petty-Treaſon* in a Woman is the ſame with that of High-Treaſon, *viz.* drawing and burning alive. See PUNISHMENT.

PETUM. See NICOTIANA.

PEVETTS, the Ends of the Spindle of a Wheel in a Watch. The Holes into which they run, are call'd *Pevett*-Holes. See WATCH.

PEWTER, a factitious Metal, uſed in domeſtick Utenſils.

The Baſis of *Pewter* is Tin, which is converted into *Pewter* by the Mixture of ſix Pounds of Braſs, and fifteen Pounds of Lead, with an hundred Weight of Tin.

Beſide this Compoſition which makes the *common Pewter*, there are others for other Occaſions; compounded of Tin, mix'd with Regulus of Antimony, Tin-Glaſs and Copper, in ſeveral Proportions. See TIN.

Pewter has occaſionally ſerv'd for Money. In the Philoſoph. Tranſact. M. *Putland* informs us, that K. *James* II. turn'd all the *Pewter* Veſſels, *&c.* of the Proteſtants in *Ireland* he could ſeize, into Money; Half-Crowns were ſomewhat bigger than Half-pence, and other Pieces in proportion. See MONEY and COIN.

He order'd it to be Current in all Payments: Whence, our Author obſerves, People abſconded for fear of being paid their Debts: He mentions Crown-pieces of this Metal, with this Legend on the Rim, *MELIORIS TESSARA FATI.*

PHÆNOMENON, in Phyſicks, an extraordinary Effect, or Appearance in the Heavens, or on Earth; diſcover'd by Obſervation of the Cæleſtial Bodies, or by phyſical Experiments; and whoſe Cauſe is not obvious. See OBSERVATION, EXPERIMENT, *&c.*

Such are Meteors, Comets, uncommon Appearances of Stars, and Planets, Earthquakes; ſuch alſo are the Effects of the Magnet, Phoſphorus, *&c.* See METEORS, COMET, STAR, PLANET, EARTHQUAKE, MAGNET.

'Tis a Maxim, that Hypotheſis is beſt, which ſolves moſt *Phænomena.* See HYPOTHESIS.

The *Phænomena* of Comets are inconſiſtent with the Solidity of the Heavens, ſuppos'd in the Ptolomaic Hypotheſis and with the Plenitude of the Heavens aſſerted by the Carteſians. See PTOLOMAIC, PLENITUDE, *&c.*

The Word is form'd from the *Greek* φαίνω, *I appear*.

Sir *Iſ. Newton* ſhews, that all the *Phænomena* of the heavenly Bodies, follow from the Attraction of Gravity, which intercedes thoſe Bodies; and almoſt all the *Phænomena* of the leſſer Bodies from the Attraction and Repulſion between their Particles: So ſimple is Nature. See GRAVITATION, ATTRACTION, COHESION, PARTICLE, *&c.*

PHAGEDÆNA, in Chirurgery, *&c.* a deep, bloated Ulcer, which eats and corrodes the neighbouring Parts; ſo call'd from the *Greek* φαγέδαινα of φάγομαι I eat. See ULCER.

Hence, *Phagedænic* Medicines; ſuch as are uſed to eat off fungous, or proud Fleſh. particularly,

PHAGEDÆNIC *Water*, in Chymiſtry, a Water drawn from quick Lime; ſo call'd from its Efficacy in the Cure of *Phagedænic* Ulcers. See LIME.

To prepare this Water; they put two Pounds of freſh quick-Lime in a large Earthern-pan, and pour upon it about ten Pounds of rain Water; theſe they let ſtand together two Days, ſtirring 'em frequently: At laſt, leaving the Lime to ſettle well, they pour off the Water by Inclination, filtrate it and put it up in a Glaſs Bottle, adding to it an Ounce of Corroſive Sublimate in Powder; which, of white becomes yellow, and ſinks to the Bottom of the Veſſel.

The Water being ſettled, is fit for Uſe, in the cleanſing of Wounds and Ulcers, and to eat off ſuperfluous Fleſh: Eſpecially in Gangrenes; in which Caſe may be added a third or fourth Part of Spirit of Wine. See GANGRENE.

The Ephemerides of the Academy of the *Curioſi Naturæ*, relate that *Phagedænic* Ulcers have been frequently cured with Sheeps Dung.

PHALANX, in Antiquity, a huge, ſquare, compact Battalion, form'd of Infantry ſet cloſe to one another, with their Shields join'd, and Pikes turn'd croſs ways; inſomuch that it was almoſt impoſſible to break them.

It conſiſted of 8000 Men: *Livy* ſays, that this ſort of Battalion was invented by the *Macedonians*, and that it was peculiar to them; whence, among Writers, it is ſometimes call'd the *Macedonian Phalanx*.

St. *Evremond* obſerves, that the *Macedonian Phalanx* had the Advantage of Valour and Strength over the *Roman* Legion. See LEGION.

PHALANX, is alſo applied by Anatomiſts, to the Rows of the ſmall Bones of the Fingers, as if rang'd in order of Battle. See FINGER.

PHALEUCUS, in Poetry, a kind of Verſe, in Uſe among the *Greeks* and *Latins*; conſiſting, like the Sapphic, of five Feet, the firſt a Spondee, the ſecond a Dactyl, the three laſt Trochees. See VERSE, FOOT, SPONDEE.

The *Phaleucus* is very proper for Epigrams. *Catullus* excell'd in it. See EPIGRAM.

PHALLOPHORI, in Antiquity, a Name given at *Sicyon* to certain *Mimes*, who ran about the Streets ſmutted with black, cloathed in Sheeps Skins, bearing Baskets full of various Herbs, as Chervil, Branca Urſina, Violet, Ivy, *&c.*

They danced in Cadence and were crown'd with Ivy, in honour of *Bacchus*.

The Word is form'd from the *Greek* φαλλὸς Skin and φέρω *I bear*.

PHALLICA, in Antiquity, Feaſts, or Sacrifices celebrated at *Athens*, in honour of *Bacchus*. See FEAST.

The *Phallica* were inſtituted on the following Occaſion: One *Pegaſus*, a Citizen of *Elutheris*, having carried ſome Statues of *Bacchus* to *Athens*; drew the Laughter and Contempt of the *Athenians*. Soon after this they were ſeiz'd with an Epidemic Diſeaſe, and upon conſulting the Oracle how to get free of it, they were anſwer'd that there was no Way but to receive *Bacchus* in Pomp: They did it, and thus inſtituted the *Phallica*; wherein, beſides the Statues and Trophies of the God, they bore Figures of the Parts affected tied to *Thyrſi*.

PHANATIC, PHANATICUS, a *Viſionary*; one who *fancies*, or thinks, he ſees Spectres, Spirits, Apparitions, or other imaginary Objects, even when awake; and takes 'em to be real. See PHANTASY.

Such are Phrenetics, Necromancer, Hypocondriac Perſons, and Lycanthropi. See PHRENETIC, HYPOCHONDRIAC, LYCANTHROPOS *&c.* See alſo WITCHCRAFT, IMAGINATION, *&c.*

Hence the Word is alſo applied to Enthuſiaſts, Pretenders to Revelation, new Lights, Prophecies, *&c.*

PHANTASM, PHANTASMA, PHANTOM, a Species of an Object perceiv'd by an external Senſe, and retain'd in the Phantaſy. See SPECIES and PHANTASY.

PHANTASY, or FANCY, the *Imagination*; the Second of the Powers, or Faculties of the ſenſitive or rational Soul, by which the Species of Objects receiv'd in by the common Senſe, are retain'd, recall'd, further examin'd, and either compounded or divided. See IMAGINATION.

Others define the *Phantaſy* to be that internal Senſe or Power, whereby the Idea's of abſent Things are form'd, and preſented to the Mind, as if they were preſent. See SENSE.

The Organ of this Senſe is vulgarly ſuppos'd to be the middle Part of the Brain; and its objects, all the Species communicated to it by the common Senſe, by the comparing of which it frames infinite others to itſelf. See IMAGE.

In Melancholic, and mad Men this Faculty is very ſtrong, repreſenting many extravagant and monſtrous Things; and framing its Images as lively as thoſe of Senſation; whence the Viſions and Deceptions thoſe Perſons are liable to. See PASSION, DELIRIUM, *&c.*

In Poets and Painters, that ſame Faculty is to be the Predominant one; to enable 'em to feign, and purſue and execute their Fictions or Fables with more Strength, Conſiſtency, *&c.* See FABLE, POETRY, *&c.*

In Men it is ſuppos'd to be ſubject to Reaſon, but in Brutes it has no Superior; this being the *Ratio Brutorum*, or what we call Reaſon in Brutes. See REASON and BRUTE.

The *Phantaſy* is free from the Ligature or Suſpenſion of Sleep, witneſs our Dreams, *&c.* See SLEEP and DREAM.

Some Philoſopers uſe the Word *Phantaſy*, in a more general Signification, *viz.* for what we uſually call *Senſus Communis*, the common Senſe. See *Common* SENSE.

PHANTASTIC, in Muſick. PHANTASTIC *Style*, is a Style proper for Inſtruments; or a free, eaſy manner of Compoſition. See STYLE.

PHANTASTICAL *Colours*, is a Denomination given by the Peripateticks to thoſe Colours exhibited by the Rainbow, or a Priſm; as ſuppoſing 'em not to be real Colours; but only *Phantoms* or Deceptions of the Sight. See COLOUR.

But many Experiments of the Moderns, and particularly thoſe of Sir *Iſaac Newton* demonſtrate the contrary; and prove them as real as any other Colours in Nature. See PRISM, and RAIN-*bow*.

PHARISEES, a celebrated Sect among the ancient *Jews*; ſo call'd, ſay ſome, becauſe *ſeparated from the reſt* by the Auſterity of their Life, by their profeſſing a greater Degree of Holineſs, and a more religious Obſervation of the Law.

This is the Import of the Word *Pharis* in the *Hebrew*, or rather the *Chaldee* Tongue; whence is form'd the *Greek* Φαρισαῖος and the *Latin Phariſæus*.

St. *Jerom*, and ſeveral of the *Rabbins* maintain this Etymology; which is very agreeable to the State and Character of the *Phariſees*; who were not only diſtinguiſh'd from the reſt by their manner of Life, but by their Habit.

'Tis very difficult to fix the preciſe Origin of the *Phariſees*. The *Jeſuite Serrarius* places their firſt Riſe about the Time of *Eſdras*; becauſe 'twas then the *Jews* firſt began to have Interpreters of their Traditions. *Maldonat*, on the other Hand, will not have this Sect to have roſe among the *Jews*, till a little before the Time of Chriſt. Others, perhaps with more probability, refer the Origin of the *Phariſees* to the Time of the *Maccabees*.

Be this as it will *Phariſaiſm* is ſtill the prevailing Doctrine in the *Jewiſh* Religion; that huge Number of Traditions in the *Talmud* which bear ſo great a Sway among the *Jews*, coming all from the *Phariſees*. See TRADITION and TALMUD.

Joſephus, who deſcribes their Dogmata, ſays, that they attributed all to Deſtiny, and to God; ſo, however, as not to deprive Man of his free Agency; which *Sixtus* of *Sienna* thus explains: The *Phariſees* believ'd that all Things were done by Deſtiny, *i. e.* with Gods foreknowledge, and in Conſequence of his immutable Decree; the Will of Man ſtill remaining free and unaffected: *Fato, hoc eſt Dei preſcientia & immobili decreto omnia geri; manente tamen libero humanæ libertatis aſſenſu.*

They own'd the Immortality of the Soul, and a future State; but admitted at the ſame Time a kind of Metempſychoſis, or Tranſmigration of Souls. See METEMPSYCHOSIS.

The *Phariſees* were great Sticklers for the allegorical or myſtical Senſe of the Scriptures; whence moſt of Converts made to Chriſtianity among the *Jews* were of the *Phariſees*.

In effect, the *Phariſees* were in every Thing directly oppoſite to the *Saducees*. See SADUCEES.

PHARMACEUTICA, that part of Phyſick which directs the Uſe, Preparation, *&c.* of Medicines. See PHARMACY.

PHARMACOLOGY, a Treatiſe of Medicines; of the Art of preparing 'em, judging of 'em, *&c.* See PHARMACY.

PHARMACOPOEIA, a *Diſpenſary*; or a Treatiſe containing the Preparations of the ſeveral Kinds of Medicines, with their Uſes, manner of Application, *&c.* See DISPENSARY.

We have various *Pharmacopœia's*; as thoſe of *Bauderon*, *Quercetan*, *Zwelfer*, *Charras*, *Bates*, *Salmon*, *Lemery*, &c.

The lateſt and moſt rational, and that in moſt Eſteem, is *Quincy's Pharmacopœia officinalis & extemporanea*.

The Word is form'd from the *Greek* φάρμακον, Remedy, and ποιεῖν *facere*, to make.

PHARMACOPOLA, an *Apothecary*; or a Perſon who prepares and ſells Medicines. See APOTHECARY.

The Word is ſeldom uſed but by way of ridicule. It is form'd from the *Greek* φάρμακον and πωλεῖν *vendere*, to ſell.

PHARMACUM, a Medicament, or Medicine. See MEDICINE. Hence,

PHARMACY, that Branch of Medicine which teaches the Choice, Preparation, and Mixture of Medicines. See MEDICINE.

Pharmacy is divided into *Galenical* and *Chymical.*

Galenical PHARMACY, call'd alſo ſimply *Pharmacy*, is that deriv'd to us from the Ancients; conſiſting in the Knowledge and Management of the ſeveral Parts of the *Materia Medica*, now in the Hands of the Apothecaries. See GALENICAL.

The chief Obſtacle in the Way of the Improvement of Phyſic, is the Phyſicians neglecting of *Pharmacy.*

Chymical PHARMACY, call'd alſo *Spagyrical* and *Hermetical*, is that introduced by *Paracelſus*, who calls it *Ars diſtillatoria*; conſiſting in the reſolving of mixed Bodies, into their component Parts, in order to ſeparate the uſeleſs and Ill, and collect and exalt the Good. See CHYMISTRY.

The Word is deriv'd from the *Greek* φάρμακον *Remedy.*

----Simples, vulgar, familiar, eaſily prepar'd, readily procur'd Simples, *Pliny* well obſerves, were the only Remedies intended by Nature: ſo ſoon as Fraud was got into the World, and Men began to live by their Witts; Shops were ſoon ſet up; and Life offer'd every Man to Sale. Straight, innumerable Compoſitions; endleſs, inexplicable Mixtures, are cri'd up; *Arabia* and *India* are crouded into a Draught; and a Plaiſter for a little Ulcer fetch'd from the red Sea. When as the proper Remedies are thoſe the Poor every Day feed on. ----Hiſt. *Nat.* lib. 24. c. 1.

PHAROS, PHARE, or PHANAL, a *Light-houſe*; a Pile rais'd near a Port, where a Fire is kept burning in the Night to guide and direct Veſſels near at Hand.

The *Pharos* of *Alexandria* was antiently very famous, in ſo much as to communicate its Name to all the reſt; the *Coloſſus* of *Rhodes* ſerv'd as a *Pharos.*

Ozanam ſays, *Pharos* antiently ſignified a Streight, as the *Pharos* or *Pharo* of *Meſſina.* See STREIGHT.

PHARSANG, or PARASANG, a *Perſian* Meaſure of 40, 50, or 60 Furlongs. See PARASANG.

PHARYNX, in Anatomy, the upper Opening of the Oeſophagus or Gullet, ſituate at the Bottom of the Fauces. See OESOPHAGUS.

The *Pharynx* is that Part particularly call'd the *Gula* or the *Throat.* It being in this Part of the Gullet the Action of Deglutition commences, and where 'tis chiefly perform'd. It is aſſiſted by three Pair of Muſcles which compoſe the *Pharynx.* See DEGLUTITION.

The firſt call'd the *Stylopharyngæus* ſerves to draw up and dilate the *Pharynx*; the ſecond the *Pterygopharyngæus* ſerves to conſtringe it; the third, which is call'd the *Oeſophagæus* ſerves to cloſe it; ſee each under its proper Article. STYLOPHARYNGÆUS, &c.

The Word in the original *Greek* φάρυγξ ſignifies the ſame.

PHASES, in Aſtronomy, the ſeveral Appearances, or Quantities of Illumination of the Moon, Venus, Mercury and the other Planets; or the ſeveral manners wherein they appear illuminated by the Sun. See PLANET.

The Variety of *Phaſes* in the Moon is very remarkable. Sometimes ſhe Increaſes, ſometimes Wanes, ſometimes is bent into *Horns*, and again appears like a Semi-circle, at other Times is *Gibbous*, and preſently reſumes a full circular Face. See CRESCENT, FALCATED, GIBBOUS, &c.

For the Theory of the *Lunar-Phaſes.* See MOON.

As to the *Phaſes* of Venus, the naked Eye does not diſcover any; but the Teleſcope does. *Copernicus* antiently propheſied, that after Ages wou'd find that Venus underwent all the Changes of the Moon; which Prophecy was firſt fulfill'd by *Gallileo*, who directing his Teleſcope to Venus, obſerv'd her *Phaſes* to emulate thoſe of the Moon; being ſometimes full, ſometimes horn'd, ſometimes gibbous. See VENUS.

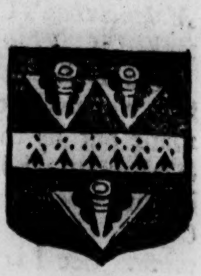
And Mercury does the ſame—— all the Difference between theſe, and thoſe of the Moon; is, that when theſe are full the Sun is between them and us; whereas, when the Moon is full, we are between her and the Sun. See MERCURY.

The Word is form'd from the *Greek* φαίνω, *appareo*, I appear.

Saturn puzzled the Aſtronomers a long Time with his ſtrange Variety of *Phaſes. Hevelius* and others found him. 1. *Monoſpherical.* 2. *Triſpherical.* 3. *Spherico-anſated.* 4. *Elliptico-anſated.* 5. *Spherico-cuſpidated*: But *Huygens* ſhews, that thoſe monſtrous *Phaſes* are all owing to the Imperfection of their Teleſcopes. That great Author aſſiſted by the beſt Teleſcopes noted three principal *Phaſes*; *viz. Jan.* 16, 1656. he was *round*, *Octob.* 13, *Brachiated*, and *Decemb.* 17, 1657. *Anſated.* See SATURN.

To determine the Phaſes *of an Eclipſe for any given Time.*

Find the Moon's Place in her viſible Way for that Moment; and thence, as a Centre, with the Interval of the Moons Semi-diameter, deſcribe a Circle. Find in like manner the Sun's Place in the Ecliptic, and thence, with the Semi-diameter of the Sun deſcribe another Circle: The Interſection of the two Circles ſhews the *Phaſes* of the Eclipſe, the Quantity of Obſcuration, and the Poſition of the Cuſps or Horns. See ECLIPSE.



PHEONS, in Heraldry, the Barbed Heads of Darts and Arrows; uſually repreſented of the adjoining Figure. Sable, a Feſſe Ermine between three *Pheons*, by the Name of *Egerton.*

PHIAL, PHIALA, a little Glaſs-bottle, popularly call'd a *Vial.*

The Word is form'd of the *Greek* φιάλη which ſignifies the ſame Thing.

PHIDITIA, or PHILITIA, in Antiquity, Feaſts celebrated with great Frugality at *Lacedemon.*

The *Phiditia* were held in public Places, and in the open Air; Rich and Poor aſſiſted at 'em a like; and on the ſame footing; their Deſign being to keep up Peace, Friendſhip, and a good Underſtanding, and Equality among all the Citizens great and ſmall.

Bernegger ſays, they who attended at this Feaſt, each brought a Buſhel of Flower, eight Meaſures of Wine, call'd Corus, and five Minæ of Cheeſe, and as much Figs.

The *Phiditia* of the *Greeks* were much the ſame with the Chariſtia at *Rome.* See CHARISTIA.

PHILADELPHUS, in Antiquity, a Title, or Sur-name, bore by ſeveral ancient Kings; form'd from the *Greek* φίλος Friend, loving and ἀδελφὸς Brother, *q. d.* who loves his Brother.

Ptolomy Philadelphus erected a Library at *Alexandria*, and furniſhed it with 50000 Volumes, by the Advice, and with the Care of *Demetrius Phalareus.* See LIBRARY.

It was the ſame *Philadelphus*, that procur'd the *Greek* Verſion of the Books of *Moſes*, call'd the *Septuagint.* See SEPTUAGINT.

Father *Chamillart* has a Medal of the Queen of *Comagenes*, which bears the Title of *Philadelpha*; without any other Name. M. *Vaillant* alſo tells us that *Philip* King of *Syria* had the Title of *Philadelphus.*

PHILANTHROPY, a Love of Mankind; a general Benevolence toward the Species. See BENEVOLENCE.

PHILAUTIA, PHILAUTY, in the Schools, *ſelf Love*; a vicious Complaiſance for a Man's ſelf. From the *Greek* φίλος, *amicus*, and αὐτὸς, *ipſe.*

PHILIPPICKS, in Literature, a Name given to the Orations of *Demoſthenes* againſt *Philip* King of *Macedon.* See ORATION.

The *Philippicks* are eſteem'd the Maſter-pieces of that great Orator: *Longinus* quotes Abundance of Inſtances of the Sublime from 'em; and points out a thouſand latent Beauties therein. In effect, that Pathetic wherein *Demoſthenes* excell'd, the frequent Interrogations and Apoſtrophe's wherewith he attack'd the Indolence of the *Athenians*, where cou'd they be better employ'd? How much Delicacy ſoever there be in the Oration againſt *Leptinus*, the *Philippicks* have yet the Advantage over it, were it only on account of the Subject, which gives *Demoſthenes* ſo fair a Field to diſplay his chief Talent, we mean with *Longinus*, that of moving and aſtoniſhing.

Dionyſius Halicarnaſſeus ranks the Oration on the *Haloneſe* among the *Philippicks*, and places it the 8th in Order; but tho' the Authority of that great Critic be of no ſmall Weight; yet, that Force and Majeſty whereby *Cicero* Characteriſes the *Philippicks* of *Demoſthenes* ſeems to exclude the Oration on the *Haloneſe* out of the Number; and authoriſe the almoſt univerſal Opinion of the Learned, who reject it as ſpurious.

Libanius, *Photius* and others; and above all the Languidneſs of the Style, and the Lowneſs of the Expreſſions which reign throughout the Whole, father it on *Hegeſippus.*

M. *Tourreil* has given an excellent *French* Tranſlation of the *Philippicks.*

'Tis an extraordinary Thing to ſee ſo much Spirit in a Tranſlation: ſo much of the Strength and Energy of *Demoſthenes*, in a modern Tongue; and that too ſo weak a one as the *French.*

PHILLIPICK is alſo applied to the fourteen Orations of *Cicero* againſt *Marc Anthony.*— 'Twas *Cicero* himſelf that gave 'em this Title in his Epiſtles to *Brutus*; and Poſterity have found it ſo juſt that it has been perpetuated to our Times.

Juvenal calls the Second the *Divine Philippick*, and witneſſes it to be of great Fame, *Conſpicuæ Divina Philippica Famæ.* That Orator's entitling his laſt and moſt valued Orations after the *Philippicks* of *Demoſthenes*, ſhews the high Opinion he had of 'em.

Cicero's Philippicks coſt him his Life; M. *Anthony* having been ſo irritated with 'em, that when he was arriv'd at the *Triumvirate*, he procur'd his Murther, cut off his Head, and ſtuck it up in the very Place whence the Orator had deliver'd the *Philippicks.*

PHILIPPISTS, the Followers of *Philip Melancthon.*

That Reformer having ſtrenuouſly oppos'd the *Ubiquiſts*, who aroſe in his Time; and the Diſpute growing ſtill hotter after his Death: The Univerſity of *Wirtemberg*, who eſpouſed *Melanchthon's* Opinion, were call'd by the *Flaccians*, who attacked it, *Philippiſts*. See UBIQUIST.

PHILIZERS, or FILAZERS, Officers in the *Niſi Prius* Office, who make out all Proceſs upon Original Writs, (which are made out by the Curſitors, ſuch as *Capias*, *alias*, *&* *plures*, *&c.*) and to whom the original Writs are brought after returned by the Sheriff, as well for their Warrants in ſuing out ſuch *Capias*, *&c.* on them, as for them to fill with the *Cuſtos Brevium*. See FILAZERS.

It is to be obſerved, that the Subject cannot bring any Action in this Court by original in Debt, but muſt proceed by Bill; and where an Action is brought in this Court by Original, if the Defendant for Delay, or thro' any Miſ-entry, or miſtake in the Proceedings or Return of Proceſs, is adviſ'd to bring a Writ of Error; the Writ of Error muſt be returnable in Parliament, and not in the Exchequer-chamber, as are other Writs of Error upon Actions which are brought in this Court by Bill.

PHILO, a Term originally *Greek*, form'd of φίλος, *amicus*, Friend, Lover; uſed in Compoſition in ſeveral Words in our Language. As,

PHILO-ELUTHERUS, a Lover of Liberty; of φίλος and ἐλεύθερος, *liber*, free.

PHILOLOGY, a Science, or rather Aſſemblage of ſeveral Sciences, conſiſting of Grammar, Rhetorick, Poetry, Antiquities, Hiſtory, and Criticiſm.

Philology, is a Kind of Univerſal Literature, converſant about all the Sciences, their Riſe, Progreſs, Authors, *&c.* See LITERATURE.

Philology, makes what the *French* call the *Belles lettres*. Antiently, *Philology* was only a part of Grammar. See GRAMMAR.

Eratoſthenes, Library Keeper at *Alexandria*, was the firſt who bore the gay Title of *Philologus*, according to *Suetonius*; or that of *Critick*, according to *Clemens Alexandrinus*. He lived under *Ptolomy Philadelphus*, and died in the 146th *Olympiad*. See CRITICISM.

The Word is form'd from the *Greek* φίλος, and λόγος, Lover of Diſcourſe, or Words.

PHILOMATH, PHILOMATHES, a Lover of the Mathematicks, *&c.* See MATHEMATICKS.

PHILONIUM, in Pharmacy, an Opiate, whereof there are two Kinds; the *Roman* and the *Perſian Philonium*. See OPIATE.

The *Roman*, call'd alſo the great *Philonium*, took its Name from the Phyſician *Philo* who invented it. It conſiſts of the Seeds of Juſquiamus, Poppy, and other Ingredients. 'Tis uſed to promote Sleep, againſt Colds, Colicks, *&c.*

The *Perſian* PHILONIUM conſiſts of ſeveral Ingredients, among which are Opium, Terra ſigillata, Lapis Hematites, Caſtor, and Saffron. 'Tis uſed to ſtop Hemorrhages, Dyſenteries, *&c.*

PHILOPATOR, in Antiquity, a Title, or Sur-name, aſſumed by ſeveral of the Kings of *Egypt* and *Syria*.

Ptolomy Philopator ſuceeded *Ptolomy Evergetes*; and had for his Succeſſor *Ptolomy Philometer*. See EVERGETES.

The *Syrians* had their *Seleucus Philopator*, *Antiochus Philopator*, &c.

PHILOSOPHER, a Perſon well verſed in *Philoſophy*; or who makes Profeſſion of, or applies himſelf to the Study of Nature and Morality. See PHILOSOPHY.

The Sects of *Philoſophers* are very numerous; and their Dogmata, or Tenets very contradictory. See SECT.

Helmont and ſome of the Chymiſts denominate themſelves *Philoſophers by Fire*. See CHYMISTRY.

The Alchymiſts and Adepti are frequently denominated *the Philoſophers* by way of Eminence. See ALCHYMIST, *&c.*

PHILOSOPHERS STONE, the great Object of Alchymy, is a long ſought-for Preparation, which ſhall tranſmute impurer Metals, as Tin, Lead, and Copper into Gold and Silver. See TRANSMUTATION.

There are three ways whereby the Alchymiſts have attempted to arrive at the making of Gold: The firſt by *Separation*; for every Metal yet known, contains ſome Quantity of Gold: Only, in moſt, the Quantity is ſo little that it wont defray the Expence of getting it out.— The ſecond by *Maturation*; for the Alchymiſts hold Mercury to be the Baſis and Matter of all Metals; that Quickſilver purg'd from all heterogeneous Bodies wou'd be much heavier, denſer and ſimpler than the Native Quickſilver; And that by ſubtilizing, and purifying and digeſting it with much Labour, and long Operations, it may be converted into pure Gold. This Method of *Maturation* is only for Mercury. The other Metals it is ineffectual for, on two accounts: 1°, Becauſe their Matter is not pure Mercury, but has other heterogeneous Bodies adhering to it. And 2°. by reaſon the Digeſtion whereby Mercury is turn'd into Gold wou'd not ſucceed in other Metals, in regard they had not been long enough in the Mines. Weight is the individual and inimitable Character of Gold, *&c.* Now Mercury has ever ſome Impurities in it; and thoſe Impurities are lighter than Mercury. Cou'd thoſe be purged quite out, as it does not appear impoſſible but they might, Mercury wou'd be as heavy as Gold; and what is as heavy as Gold is Gold, or at leaſt is very eaſily made Gold. See GOLD.

The third Method is, that of Tranſmuting; or of turning of all Metals readily into pure Gold, by melting 'em in the Fire, and caſting a little Quantity of a certain Preparation into the fuſed Matter; upon which, the Fæces immediately retire, are volatiliz'd and burnt, and ſo carried off; and the reſt of the Maſs turn'd into pure Gold. Now, that which works this change in the Metals is call'd the *Philoſophers-ſtone*. See TRANSMUTATION.

Whether this third Method be poſſible or not is very hard to ſay. We have ſo many Teſtimonies of Perſons, who on all other Occaſions ſpeak perfect Truth, that 'tis ſomewhat hard to ſay they lye in this, that they have been Maſters of of the Secret. All required is to do that by Art which Nature does in many Years and Ages. For Lead and Gold do but differ little in Weight. Therefore there is not much in Lead beſide Mercury and Gold. Now, if I had any Body which wou'd ſo agitate all the Parts of Lead, as to burn all that is not Mercury therein; and had ſome Sulphur to fix the Mercury; wou'd not the Maſs remaining be converted into Gold? There is nothing in Nature ſo heavy as Lead; Gold and Mercury only excepted. 'Tis evident, therefore, there is ſomething in Lead that comes very near to Gold. But in Lead there is ſome heterogeneous Matter independent both of Mercury and Gold. If now 19 Ounces of Lead be diſſolved by the Fire, and 8 Ounces be thus deſtroyed; we ſhall have good Gold; the Ratio of Lead to Gold being as 11 to 19. If then the *Philoſophers-ſtone* can purify the mercurial Metal in Lead, ſo as nothing ſhall remain but the pure mercurial Body, and you can fix and coagulate this, by means of Sulphur; out of 19 Ounces of Lead you will have 11 of Gold. Or, if you reduce the Lead from 11 to 14, you will then have converted it into Mercury; and if you further purify this Mercury from 14 to 19 you will have Gold; provided you have but a Sulphur to fix and coagulate it withal. Such is the Foundation of the *Philoſophers-ſtone*; which the Alchymiſts contend to be a moſt ſubtile, fix'd, concentrated Fire, which aſſoon as it melts with any Metal, does by a magnetick Virtue immediately unite itſelf to the mercural Body of the Metal, volatilizes and cleanſes off all that is impure therein, and leaves nothing but a Maſs of pure Gold. See ELIXIR, METAL, MERCURY, *&c.*

PHILOSOPHERS *Tree*, a Chymical Preparation, call'd alſo *Arbor Dianæ*, *Diana's Tree*. See DIANA'S *Tree*.

PHILOSOPHICAL, ſomething that relates to *Philoſophy*, See PHILOSOPHY and PHILOSOPHER.

Thus we ſay a *Philoſophical* Theſis, a *Philoſophical* Principle, a *Philoſophical* Definition, *&c.*

PHILOSOPHICAL *Month*.	See	MENSTRUUM.
PHILOSOPHICAL *Tree*.	See	TREE.
PHILOSOPHICAL *Tranſactions*.	See	TRANSACTIONS.

PHILOSOPHICAL *Egg*, among the Chymiſts, is a thin Glaſs Veſſel, or Bubble, of the Shape of an Egg; with a long Neck or Stem; uſed in Digeſtions. See DIGESTION.

PHILOSOPHIZING, the Act of conſidering ſome Object of our Knowledge; examining its Properties, and the Phænomena it exhibits; enquiring into their Cauſes or Effects, and the Laws thereof: the whole conducted according to the Nature and Reaſon of Things; and directed to the Improvement of Knowledge.

The Rules of *Philoſophizing*, *Regulæ Philoſophandi*, as eſtabliſh'd by Sir *Iſaac Newton*, are; 1. That no more Cauſes of a natural Effect be admitted than are true, and ſuffice to account for the Phænomena thereof.— This agrees with the Sentiments of moſt Philoſophers, who hold that Nature does nothing in vain; and that it were vain to do that by many things which might be done by fewer.

2. Natural Effects, therefore, of the ſame Kind, proceed from the ſame Cauſes. Thus *E. gr.* the Cauſe of Reſpiration is one and the ſame in Man and Brute; the Cauſe of the Deſcent of a Stone, the ſame in *Europe* as in *America*; the Cauſe of Light the ſame in Culinary Fire, and in the Sun; the cauſe of Reflection the ſame in the Planets as the Earth.

3. Thoſe Qualities of Bodies which are not capable of being heighten'd, and remitted, and which are found in all Bodies where Experiments can be made; muſt be look'd on as univerſal Qualities of all Bodies. See QUALITY.

Thus the Extenſion of Body is only perceiv'd by our Senſes, nor is it perceiv'd in all Bodies: But ſince it is found in all that we have Perception of, it may be affirm'd of all. So we find that ſeveral Bodies are hard; and argue that the Hardneſs of the Whole only ariſes from the Hardneſs of the Parts: Whence we infer that the Particles, not only of thoſe Bodies which are ſenſible, but of all others, are likewiſe hard. Laſtly, If all the Bodies about the Earth gravitate towards the Earth, and this according to the Quantity of Matter in each; and the

Moon gravitates towards the Earth, alſo, according to its Quantity of Matter, and the Sea again gravitates towards the Moon; and all the Planets and Comets gravitate toward each other: It may be affirm'd univerſally, that all Bodies gravitate toward each other in the Creation. This Rule is the Foundation of all *Philoſophy*.

PHILOSOPHY, PHILOSOPHIA, the Knowlege or Study of Nature and Morality, founded on Reaſon and Experience. See KNOWLEGE.

Philoſophy owes its Name to the Modeſty of *Pythagoras*, who refuſed the Title σοφὸς, *wiſe*, given to his Predeceſſors *Thales*, *Pherecydes*, *&c.* as too aſſuming; and contented himſelf with the Apellation of φιλόσοφος, *quaſi* φιλὸς τῆς σοφίας, a *Friend or Lover of Wiſdom*.

Chauvin rather derives the Name from φιλία, Study, and σοφία, *q. d. Studium ſapientiæ*. *Pythagoras*, ſays he, conceiving that the Application of the human Mind, ought rather to be call'd *Study* than *Science*; ſet aſide the Appellation *Wiſe*, and in lieu thereof took that of *Philoſopher*: For having diſcourſed with great Judgment and Learning before *Leontius* King of the *Phliaſii*; that Prince ask'd him what Art he profeſſed; or in what Points his Wiſdom chiefly lay? To which he anſwer'd, that he neither underſtood any Art, nor was he a σοφὸς, but a φιλόσοφος. Which Title St. *Auguſtin* obſerves, took ſo well with other Authors; that whoever excelled in any thing relating to Wiſdom or Knowledge had no other Appellation. Accordingly, *Socrates*, *Plato*, *&c.* ever refrain'd from the ſwelling Title of *Sophos*. See SOPHIST.

The Word *Philoſophy* is uſed in various Significations among ancient and modern Writers: In its laxer Senſe, it ſignifies the *Love of Truth*; thus *Plato* frequently calls it *Philaletheia*.— In other Places it ſignifies the *Knowledge of many Things*: Thus *Zeno* calls *Philoſophy* κατάληψις *Comprehenſion*; becauſe comprehending all Truth: Agreeable to which is *Cicero's* Definition of *Philoſopher*, *viz.* He who ſtudies to know the Natures and Cauſes of all Things human and divine, and to attain to every good Rule and Method of Life.

In a ſtricter Senſe, *Philoſophy* is frequently confin'd to ſome Science, or Branch of Science, *v. g.* to *Logic*, as we find it in *Plato* and *Ariſtotle*; to *Phyſicks*, or the Knowledge of Nature, in which Senſe it was chiefly uſed in the *Jonic* School; and to *Ethicks*, or the Rules of Morality; Thus *Clemens Alexand.* relates, *that among the* Greeks *there are* Philoſophers *who hold Diſputes about Virtue*.

Agreeably hereto *Pythagoras* defines *Philoſophy*, *a Meditation of Death*; by which, according to *Plato* and *Clemens* is meant an Abſtraction or Retirement from the Body; which *Apuleius* thus explains: *A Philoſopher is to ſtudy nothing ſo much as to ſet his Soul at Liberty from its Correſpondence with the Body*: Thus *Cicero* calls *Philoſophy Ars vitæ, and* Seneca, *lex vitæ*; and thus *Plutarch*— *Conſtancy*, *Fidelity*, *and a ſound Mind*, *are the real Philoſophy*; *all the other Parts of Wiſdom, tending any other Way, are Prettineſſes and Curioſities*: And in this Senſe it was, that *Philoſophy* chiefly flouriſh'd in the School of *Socrates*, afterwards call'd the Academick School, and among the *Stoicks*. See ACADEMICK and STOICK.

Laſtly, *Philoſophy* is frequently uſed by *Pythagoras* and *Plato* for Metaphyſicks, or the Knowledge of God; which *Plato* calls the true *Philoſophy*, others the *Prima Philoſophia*; and in reſpect whereof, the *Platoniſts* call all other *Philoſophy*, *Nocturnal*, νυκτερινὴ φιλοσοφία.

Gale includes all the ſeveral Ideas hitherto deliver'd, under this one general Definition: *Philoſophy* is the Knowledge of things Notional, Natural, Moral, and Supernatural, firſt granted by God to our firſt Parents, and tranſmitted to us for the Honour of the Creator, and the Good of the Univerſe.

That Definition of *Epictetus* is pretty comprehenſive: *Philoſophy* conſiſts in three Things; the Practice of Precepts, the Reaſon of Precepts, aud the Proof of Precepts.

Some have given the following Epithets to the ancient *Philoſophy*, under its ſeveral Stages: *Philoſophy*, ſay they, became *Impious* under *Diagoras*; *Vicious* under *Epicurus*; *Hypocritical* under *Zeno*; *Impudent* under *Diogenes*; *Covetous* under *Demochares*; *Voluptuous* under *Metrodorus*; *Fantaſtical* under *Crates*; *Scurrilous* under *Menippus*; *Licentious* under *Pyrrho*; *Quarrelſome* under *Cleanthes*, &c.

The ſeveral Dogmata maintain'd by the ſeveral *Philoſophers*, are infinite: *Cicero* makes no ſcruple to aver, that There is nothing in the World, how abſurd ſoever, but has been maintain'd by one *Philoſopher* or other.— From the firſt Broachers of new Opinions, and the firſt Founders of Schools, *Philoſophy* is become divided into innumerable *Sects*; ſome Ancient, and others Modern; ſuch are the *Platoniſts*, *Peripateticks*, *Epicureans*, *Stoicks*, *Pyrrhonians* and *Academiſts*; and ſuch are the *Carteſians*, *Newtonians*, &c. See the Riſe, Doctrines; *&c.* of each Sect under its proper Article PLATONIST, PERIPATETICK, EPICUREAN, STOICK, PYRRHONIAN, ACADEMIC, CARTESIAN, NEWTONIAN, *&c.*

PHILOSOPHY may be divided into two Branches, or conſider'd under two Habitudes, *Theoretical and Practical*.

Theoretical, or *Speculative* PHILOSOPHY, is that employ'd in mere Contemplation, and which terminates therein. Such is *Phyſicks*, which is a bare Contemplation of Nature, and natural Things. See PHYSICKS.

Theoretical Philoſophy, again, is uſually ſubdivided into three, *viz. Pneumaticks*; *Phyſicks*, or *Somaticks*; and *Metaphyſicks*, or *Ontologia*.

The Firſt conſiders Beings abſtracted from all Matter; its Object are Spirits; their Nature, Properties, Effects, *&c.* See SPIRIT and PNEUMATICKS.

The Second conſiders Matter and material Things; its Objects are Bodies, their Properties, Laws, *&c.* See BODY and PHYSICKS.

The Third extends to each indifferently; its Objects are either Body or Spirit. See METAPHYSICKS.

In the Order of our Diſcovery, or Arrival at the Knowledge of 'em, Phyſicks is firſt, then Metaphyſicks; the third ariſes from the two conſider'd together: After an Acquaintance with God, ourſelves, and natural Bodies, we come to conſider what is common to 'em all, the Attributes that agree to all, and thus form a Sort of univerſal *Philoſophy*, or Doctrine *de Ente* in general. See ONTOSOPHY, ENS, ESSENCE, *&c.*

But in teaching, or laying down theſe ſeveral Branches to others, we obſerve a contrary Order; beginning with the moſt Univerſal, and deſcending to the more Particular. And hence we ſee why *Perpateticks* call Metaphyſicks, and the *Carteſians* Pneumaticks, the *prima Philoſophia*.

Others prefer the Diſtribution of *Philoſophy* into four Parts, *viz.* 1. *Pneumaticks*, which conſiders, and treats of Spirits. 2. *Somaticks*, of Bodies. The third compounded of both, *Anthropology*, which conſiders Man, in whom both Body and Spirit are found. The 4. *Ontoſophy*, *i. e.* which treats of what is common to all the other three.

Practical PHILOSOPHY, is that which lays down the Rules of vertuous and happy Life; and excites us to the Practice thereof.

Practical Philoſophy, is properly *Ethicks* alone, or the Method of leading a virtuous and happy Life: Yet, moſt Authors divide it into two, anſwerably to the two Sorts of human Actions to be directed thereby, *viz. Logicks*, which govern the Operations of the Underſtanding. See LOGICKS and UNDERSTANDING.

And *Ethicks* properly ſo call'd, which direct thoſe of the Will. See ETHICKS and WILL.

Natural PHILOSOPHY	See	NATURAL.
Moral PHILOSOPHY		MORAL.

PHILOSOPHY is alſo frequently uſed for the particular Doctrine, or Syſtem of Opinions, broach'd by ſome conſiderable Philoſopher, and eſpouſed and adhered to by his Followers. See SYSTEM and HYPOTHESIS.

In this Senſe we ſay the

Moſaic	PHILOSOPHY. See	MOSAIC
Epicurean		EPICUREAN
Ariſtotelian		PERIPATETIC.
Platonic		PLATONIC.
Carteſian		CARTESIAN.
Newtonian		NEWTONIAN.
Hermetical		HERMETICAL.

PHILOSOPHY is alſo uſed for a certain Manner of Philoſophizing; or certain Principles, upon which all the Enquiries thereby made, do turn.

In this Senſe we ſay

Corpuſcular or *Atomical* PHILOSOPHY.	See	CORPUSCULAR.
Mechanical PHILOSOPHY.		MECHANICAL.
Experimental PHILOSOPHY.		EXPERIMENTAL.

PHILOSOPHY, again, is conſider'd with regard to the Age, or the Place wherein it was taught.

In this Senſe we ſay

Scholaſtick or *School* PHILOSOPHY. See SCHOLASTICK.
New PHILOSOPHY, *&c.*

PHILTRATION, or FILTRATION, the Separation of the finer Part of a Fluid, from the Coarſer; by paſſing it through a *Filtre*, *viz.* a Linnen Cloth, Shammy Skin, Brown Paper, or the like. See FILTRATION.

PHILTER, PHILTRE, PHILTRUM, in Pharmacy, *&c.* a Strainer, or Filtre. See FILTRE.

PHILTER, or FILTRE, is alſo uſed for a Drug, or Preparation, which 'tis pretended will excite Love. See CHARM.

Philters, are diſtinguiſh'd into *true* and *ſpurious*: The Spurious are Spells or Charms, ſuppoſed to have an Effect beyond the ordinary Laws of Nature, by ſome magick Virtue; ſuch are thoſe ſaid to be given by old Women, Witches, *&c.* See MAGICK and WITCHCRAFT.

The true *Philtres* are thoſe ſuppoſed to work their Effect by ſome natural and magnetical Power.

There are many grave Authors who believe the Reality of theſe *Philtres*; and alledge matter of Fact in Confirmation of their Sentiments: among the reſt, *Van-Helmont*, who ſays, that upon holding a certain Herb in his Hand for ſome time, and taking afterwards a little Dog by the Foot with the ſame Hand; the Dog follow'd him wherever he went, and quite deſerted his former Maſter.

He adds that *Philtres* only demand a Conformation of Mumia; and on this Principle accounts for the Phænomena of Love tranſplanted by the Touch of an Herb; for, ſays he, the Heat communicated to the Herb, not coming alone, but animated by the Emanations of the natural Spirits; determines the Herb towards the Man, and identifies it to him: Having, then received this Ferment, it attracts the Spirit of the other Object magnetically, and gives it an amorous Motion. See MUMIA and TRANSPLANTATION.

But this is mere Cant; and all *Philters*, whatever Facts may be alledg'd, are mere Chimera's.

Naturaliſts aſcribe an Effect ſomewhat of Kin to that of a *Philtre* to *Cantharides*, taken inwardly; theſe, 'tis true, tend to excite love, or rather Luſt: but 'tis Luſt in the General, not determin'd to any particular Object; and they do it no otherwiſe than by irritating the Fibres of the Nerves and Muſcles, by whoſe Action the *Emiſſio Seminis* is effected. See CANTHARIDES.

The Word *Philtre* is form'd from the *Greek* φιλεῖν to love.

PHIMOSIS, in Medicine, a Diſeaſe of the *Penis*, wherein the Preputium is glued, or ſtrongly conſtringed upon the Glans; ſo as not to be capable of being drawn back, to uncover the Glans. See GLANS and PREPUCE.

The Word is alſo uſed for a Diſeaſe of the Eyes, wherein the Eye-lids are ſo bound together by the Mediation of ſome glutinous Matter, as not to be open'd.

The Word is *Greek*, and properly ſignifies a Ligature with Packthread, φίμωσις, denoting Packthread.

Sometimes a *Phimoſis* conceals Shankers on, or about the Glans; and ſometimes is ſo violent as to prevent the flowing out of the Matter, whence it cauſes an Inflammation or Morfication of the Part.

The Cure of a Paraphimoſis in no ways differs from that of a *Phimoſis*, except in the Uſe of Injections; and in both Caſes, if they ſtill prove obſtinate, the Prepuce muſt be cut, in order to reduce it to its natural State or Situation.

PHLEBOTOMY, in Medicine and Chirurgery, *Bleeding*; or the Art or Operation of letting Blood. See BLOOD.

The Word is compounded of the *Greek* φλέψ, Vein, and τέμνειν, to cut.

Phlebotomy is a Manner of Evacuation of the utmoſt Importance in Medicine, an Idea of its Effects, with the Reaſon of its Uſe may be conceiv'd from what follows.

'Tis evident the Blood thrown out of the Heart, while it ſtrikes upon the antecedent Blood, and drives it forwards, transfers to it Part of its own Motion, and is therefore ſo much retarded in its own Motion. Hence, if Blood be drawn out of the Baſilic Vein of the right Arm; the ſucceeding Blood, or that carried by the axillary Artery, or right Subclavian, will be leſs hinder'd in its Motion, than it was before that Vein was open'd; for Part of the Blood being taken away by the opening of that Vein, there remains behind a leſſer Quantity in the axillary Vein, or leſs is contained between the farther Extremity of the axillary Artery and the Heart, than was before: therefore the Blood being let out by the Vein, the Remainder in the Artery will be leſs impeded in its Motion than before. See PULSE.

Hence the Blood of that Artery which communicates with the Vein that is opened, will flow with a greater Velocity after the Aperture is made than before. Conſequently, while the Blood is flowing out of the Vein in the Arm, that thrown out of the Heart into the Aorta, will find leſs Reſiſtance in the aſcending Trunk, than in the Deſcending; and will therefore flow faſter in the Aſcending, than in the deſcending Trunk: And thence too it will find leſs Reſiſtance in the right Subclavian Artery than in the left.

Laſtly, it hence appears, that the Blood being let out of a Vein in the right Arm, the remaining Blood in the right axillary Artery runs with a greater Velocity into the Artery of that Arm that is contiguous to it, than through the thoracic Artery, or the right Scapulary, which is likewiſe contiguous to it; becauſe, when the Blood is not ſuppoſed to be drawn out from any Vein correſponding to the thoracic Artery, or into which this dſcharges itſelf, there is proportionally a greater Impediment to the Motion of the Blood in the thoracic Artery, than in that of the Arm. But becauſe the Velocity of the Blood in the ſubclavian Artery, or the right Axillary, is greater than in the Left; the Velocity in the right Thoracic will alſo be greater than in the left thoracic Artery. Hence it is manifeſt, that the Blood being let out of a Vein in the right Arm; the greateſt Velocity of the remaining Blood will be in the Artery of that Arm, becauſe it immediately empties its Blood into the Vein that is opened; and the next greateſt Velocity will be in the thoracic Artery, or Scapulary of the ſame Side, going out from the axillary Artery. But the Velocity of the Blood will be far leſs in the brachial Axillary, and thoracic Artery on the left and oppoſite Side; and leaſt of all in the Arteries ariſing from the deſcending Trunk of the Aorta.

On this View it may eaſily be gathered, what is to be done in the ſeveral Circumſtances of *Blood-letting*: For inſtance, if we would prevent the Increaſe of any Humour from the Blood ſtagnating in the left Leg, or bring it about, that as little Blood as poſſible, ſhould flow to that Leg in any given ſpace of Time; firſt, Blood is to be taken from the Arm or Leg of the right Side, becauſe this is truly making what is call'd a *Revulſion*.

Again, if Blood be drawn away on the ſame Side, and from ſome Vein that receives the Blood from a Branch of that Trunk which tranſmits it to the ſwell'd Part; it will occaſion a greater Derivation of Blood to that Limb.

As to what relates to the whole Habit; in all Lentors and Viſcidities, if there be a due Strength and Elaſticity remaining in the Solids, *Phlebotomy* will make the remaining Blood circulate the faſter, and become thinner and warmer; but in a Plethora, from Debauch, and too large Quantities of ſpirituous Nouriſhment, or from a Diminution of Perſpiration, where the Blood yet retains its natural Fluxility, *Phlebotomy* will make the remaining Maſs circulate ſlower, and become cooler.

In the former Caſe, a Diminution of the Reſiſtance in the Blood-Veſſels, will increaſe the contractile Powers of thoſe Veſſels, and make them beat faſter, and circulate their Contents with greater Velocity; but in the latter Caſe a Diminution of the Quantity of a ſpirituous Blood will leſſen the Quantity of Spirit ſecreted in the Brain, the Conſequence of which will be that the Heart and Arteries will not contract ſo often nor ſo ſtrongly as before, and therefore the Blood will move ſlower, and become cooler. See HEART and ARTERY.

And on theſe Things depend the whole Doctrine of *Blood-letting*. See EVACUATION.

PHLEGM, in Chymiſtry, is an aqueous and inſipid Fluid, ſuppoſed to be found in all natural Bodies; coinciding with what the other Philoſophers call *Water*. See WATER.

Phlegm makes the 4th of the Chymical Elements, or Elementary Principles. See PRINCIPLE and ELEMENT.

In the Diſtillation of Vinegar, as alſo of all Minerals and inodorous Vegetables, *Phlegm* comes out firſt; in that of Wine laſt. See DISTILLATION.

This *Phlegm* is ſuppoſed to be the common Vehicle and Diluter of all ſolid Bodies; and in proportion to its Quantity in the Mixture, are the other Parts more languid and diſabled in their Attractions; yet, on the Chymiſts Principles, *Phlegm* ſhou'd be a Principle of Action; as being neceſſary to the Diſſolution of the Salt in Bodies, without which the Salt muſt remain inactive. See SALT.

It is much to be queſtion'd whether this *Phlegm* can ever be procured without any Mixture of other Matters; that which has the leaſt muſt come neareſt to the Nature of a Principle; and on that account Rain-water ſhou'd afford it moſt.

Phlegm, *Boerhaave* obſerves, drawn by Diſtillation from Vegetables, does always carry with it ſome what of the Smell of the Vegetable, which it derives partly from the Oil, and parrly from the Spirit reſiding therein. The ſame *Phlegm*, by frequently reiterated Diſtillations, lays aſide moſt of this Smell, and approaches nearer to pure Water, but never becomes perfectly ſuch. Add, that the pureſt diſtill'd Water, if expoſed a few Days to the Sun, is much changed, and render'd turbid.

That *Phlegm* is not an elementary Body, Mr. *Boyle* argues from its different Powers and Properties; the *Phlegm* of Wine, and moſt Liquors, have Qualities that make them differ from mere Water, and from one another; the *Phlegm* of Vitriol that Author obſerves is an effectual Remedy againſt Burns; and a valuable Noſtrum for diſcuſſing hard Tumours; that of Vinegar will extract a Saccharine Sweetneſs out of Lead, and even diſſolve Corals with long Digeſtion; and that of Sugar of Lead, is ſaid to diſſolve Pearls.

In Effect, the Characters which ſerve to denominate a Fluid, *Phlegm*, or Water, among the Chymiſts, are Inſipidity and Volatility; yet, Quick-ſilver has all theſe, which no Body pretends to be *Phlegm*. Add, that it appears from ſeveral Experiments, that Water itſelf, by repeated Diſtillations, may be converted into Earth. Yet Water, the ſame Author obſerves, has a much fairer Pretence to be an Element, than any of the *tria prima*.

Add, that as to the Qualities which occaſion that Name to be given any viſible Subſtance, *viz.* its being Fluid, Inſipid, and inodorous; we have never yet ſeen any of theſe ſeparated Subſtances, which the Chymiſts call *Phlegm*, perfectly deſtitute both of Taſte and Smell.

Common Salt, and ſeveral other ſaline Bodies diſtilled ever ſo dry, will each yield a large Quantity of *Phlegm*; which can no other way be accounted for, but from this, that among the various Operations of the Fire, on the Matter of a Concrete, ſeveral Particles of that Matter are reduc'd to a

Shape and Size, requiſite to compoſe ſuch a Liquor as the Chymiſts call *Phlegm*, or Water.

PHLEGM, in the Animal Oeconomy, is one of the four Humours, whereof the Ancients ſuppoſed the Maſs of Blood to conſiſt. See HUMOUR, and BLOOD.

Phlegm is the ſame that is otherwiſe called *Pituita.* See PITUITA.

PHLEGMAGOGUE, a Medicine proper to purge, *Phlegm* or Pituita. See PURGATIVE.

Agaric, Hermodactyls, Turbith, &c. are *Phlegmagogues.*

The Word is form'd from the *Greek* φλέγμα, *pituita*, and *ἄγω to drive.*

PHLEGMATIC, a Temperament wherein *Phlegm*, or Pituita, is the prevailing Humour. See TEMPERAMENT and PHLEGM.

Phlegmatic Conſtitutions are ſubject to Rheums, Defluxions, *&c.* See CONSTITUTION.

PHLEGMON, in Medicine, a general Name for all Tumors form'd of the Blood. See TUMOR.

An Inflammation, attended with a conſiderable ſwelling of the Part, conſtitutes a *Phlegmon.* See INFLAMMATION.

If the Blood be good, and laudable, and only peccant in Quantity, 'tis call'd a *true Phlegmon.*

When corrupted and adulterated with Bile, or Pituita, 'tis call'd a *baſtard Phlegmon*; in which caſe it participates of the *Ereſypela*, *Oedema*, or *Schirrus.*

The Blood here extravaſated produces a Heat, Redneſs, Tenſion, Renitency, Pulſation, and great Pain.

The Bubo, Carbuncle, Furuncle, Puſtles, and other Tubercles ariſing from the Blood, are all reducible to the *Phlegmon.* See BUBO, CARBUNCLE, *&c.*

The Ophthalmia, Parotides, Squinancy, and even Pleuriſy and Peripneumony, are Species of the *Phlegmon. See each under its proper Article.*

The Word is form'd from the *Greek* φλέγειν, to cauſe an Inflammation.

PHLOGOSIS, in Medicine, a Degree of the *Ophthalmia.*

When the Inflammation of the Eye is light and gentle it is call'd a *Phlogoſis*; when very ſevere, *Chemoſis.* See OPHTHALMIA.

PHLYACOGRAPHIA, among the Ancients, a merry and burleſque Imitation of ſome grave and ſerious Piece; particularly a Tragedy traveſtied into a Comedy. See TRAVESTY.

The *Phlyacography* was the ſame thing with the *Hilarody*, or *Hilarotragedy.* See HILARODY.

There were ſeveral Kinds of *Phlyacography*; which had their ſeveral Names. See *Salmaſius* on *Solin.*

The Parodies which have been made of ſome Parts of the beſt Poets, as the *Virgil Traveſty* of *Scarron* and *Cotton*; the *Rival Queans* of *Cibber*, from the *Rival Queens* of *Lee*; ſome Pieces of Opera's, the Muſick whereof is applied to low and ridiculous Words, come under the Notion of *Phlyacographies.*

The Word is form'd from the *Greek* φλυάζειν, *nugari*, to trifle.

PHLYCTÆNÆ or PHLYCTENES, little white itching Veſiculæ, ariſing on the Skin, chiefly between the Fingers, and about the Wriſt, and full of a limpid Serum.

They ſometimes degenerate into the Itch, and ſometimes into Tetters. See ITCH, *&c.*

They are cured like other cutaneous Eruptions. See PSORA and PUSTLE.

PHLYCTÆNÆ are alſo little ulcerous Veſicles, ariſing ſometimes on the Adnata, ſometimes on the Cornea, of the Eye, like ſo many little Bladders full of Water; popularly call'd *Bliſters in the Eyes.*

They ſhew like Grains of Millet; and when produced by a ſharp corroding Humour, occaſion violent Pain: The Puſtles on the *Adnata* are red; thoſe on the *Cornea* blackiſh, if near to the Surface, but whiter if deeper.

They are cured by Excutients and Exſiccants.

PHLYSTENE or PHLYSTÆNA, in Medicine, a Diſeaſe which produces Bubo's, full of a ſerous Humour. See BUBO.

The *Phlyſtene* is a kind of Pox.—The Bubo's it occaſions are ſometimes big, livid, pale, black, or any Colour different from that of the natural Fleſh.—When pierc'd, the Fleſh frequently appears ulcerated under 'em.

They are uſually occaſion'd by a hot, ſharp Humour, and ariſe on all Parts of the Body; but are moſt dangerous on the *Cornea* of the Eye.

The Word is form'd from the *Greek* φλύω, φλύζω of φλύσσω, *ebullio*, I boil, bubble, *&c.*

PHOENIGMA, a Medicine which raiſes Redneſs, with Bliſters, on the Places it is applied to. See BLISTER, *&c.*

Such are Muſtard-Seed, Pepper, Veſicatories, *&c.* See VESICATORY, SINAPISM, *&c.*

Phœnigma's are applied to draw the Humour to the Part they are applied on, and divert it from the Part affected. See REVULSION.

The Word is form'd from the *Greek* φοῖνιξ, red.

PHOENIX, in Aſtronomy a Conſtellation of the Southern Hemiſphere; unknown to the Ancients, and inviſible in our Northern Parts. See CONSTELLATION.

The Conſtellation took its Name, and Form from that of a Bird famous among the Antients; but generally look'd upon the by Moderns as fabulous.

The Naturaliſts ſpeak of it as ſingle, or the only one of its Kind: They deſcribe it as of the Size of an Eagle; its Head finely creſted, with a beautiful Plumage; its Neck cover'd with Feathers of a Gold Colour, and the reſt of its Body Purple, only the Tail white intermix'd with Carnation; and its Eyes ſparkle like Stars.—They hold that it lives five or ſix hundred Years, in the Wilderneſs: That when thus advanced in Age, it raiſes itſelf a funeral Pile of Wood and Aromatic Gums; then it lights it with the waſting of its Wings, and thus burns itſelf; and from its Aſhes ariſes a Worm, which in time grows up to be a *Phœnix.*

Hence the *Phœnicians* gave the Name *Phœnix* to the Palm-Tree, by reaſon when burnt down to the very Root, it riſes again fairer than ever.

PHONASCIA, the Art of forming the human Voice. See VOICE.

In ancient *Greece*, there were Combats, or Conteſts, eſtabliſh'd for the Voice, as well as other Parts of the *Gymnaſtice.* See GYMNASTICK.

Theſe Combats were ſtill held in the Time of *Galen*; and it was theſe that brought the *Phonaſcia* into Vogue.

The Word is form'd from the *Greek* φωνή, Voice.

Hence the Maſters of this Art, or thoſe who taught the Art of managing the Voice, were call'd *Phonaſci*; under whoſe Tutorage were put all thoſe deſtin'd to be Orators, Singers, Comedians, *&c.*

PHONICKS, the Doctrine, or Science, of Sounds; otherwiſe call'd *Acouſticks.* See ACOUSTICKS.

The Word is deriv'd from the *Greek* φωνή, *Sound.*

Phonicks may be conſidered as an Art, analogous to Opticks; and may be divided, like that, into *direct*, *refracted* and *reflected.*

Theſe Branches the Biſhop of *Ferns*, in alluſion to the Parts of Opticks, denominates *Phonicks*, *Diaphonicks*, and *Cataphonicks.*

Phonicks is improvable both with regard to the Object; and with regard to the Medium or Organ.

As to the Object, *Sound*, it may be improved both with regard to the begetting, and the propagating of Sounds;

The firſt, in ſpeaking, or pronouncing, in whiſtling, or ſinging, or hollowing, or luring, which are all diſtinct Arts and all improvable.----The ſecond by the Poſition of the ſonorous Body.

With regard to the *Medium*, *Phonicks* may be improved by the Thinneſs and Quieſcency thereof, and by the ſonorous Body being placed near a ſmooth Wall, either plain or arch'd, eſpecially cycloidally or elliptically; hence the Theory of Whiſpering-Places. See WHISPERING.

Add to theſe, that by placing the ſonorous Body near Water, its Sound is mollified; that by placing it on a Plain, the Sound is convey'd to a greater Diſtance than on uneven Ground, *&c.* See SOUND.

As to the Organ, the *Ear:* It is help'd by placing it near a Wall, (eſpecially at one End of an Arch, the Sound beginning at the other;) or near the Surface of Water, or of the Earth.

And by Inſtruments, as the *Stentorophonicon*, or Speaking-Trumpet. See SPEAKING-TRUMPET.

By an Inſtrument to help weak Ears, as Spectacles do Eyes; by an Inſtrument to take in vaſtly remote Sounds, as Teleſcopes do Objects; by a Microphone, or magnifying Ear-Inſtrument; by a Polyphone or multiplying Ear-Inſtrument. See EAR, *&c.*

Cataphonicks, or Reflected Hearing, may be improved by ſeveral Kinds of artificial Ecchoes; for in general, any Sound falling either directly or obliquely, on any denſe Body, of a ſmooth Surface, whether plain or arch'd, is beat back again, or reflected, *i. e.* does eccho more or leſs. See ECCHO.

PHOSPHORUS, a Matter which ſhines, or even burns, ſpontaneouſly, and without the Application of any ſenſible Fire. See FIRE and LIGHT.

The Word is form'd from the *Greek* φῶς, Light, and φέρω, I carry.

Phoſphorus is either *Natural* or *Artificial.*

Natural PHOSPHORI are Matters which become luminous at certain Times, without the Aſſiſtance of any Art, or Preparation.

Such are the Glow-Worms, frequent in cold Countries; Flies, and other ſhining Inſects, in hot Countries; rotten Wood, the Eyes, Blood, Scales, Fleſh, Sweat, Feathers, *&c.* of ſeveral Animals; Diamonds when rubb'd after a certain manner; Sugar and Sulphur when pounded in a dark Place; Sea-Water, and ſome Mineral-Waters when briskly agitated; a Cat's or Horſe's Back, duly rubb'd with the Hand, *&c.* in the Dark; nay, Dr. *Croon* tells, that upon rubbing his own Body briskly with a well warm'd Shirt, he has frequently made both to ſhine; and Dr. *Sloane* adds, that he knows a *Briſtol* Gentleman and his Son, both whoſe Stockings will ſhine after much walking.

All Natural *Phoſphori* have this in common, that they don't ſhine always, and that they never give any Heat. See NOCTILUCA.

But that which of all Natural *Phoſphori* has occaſioned the moſt Speculation is the *Barometrical* or *Mercurial Phoſphorus.*

Barometrical or *Mercurial* PHOSPHORUS.---M. *Picard* firſt obſerved that the Mercury of his Barometer, when ſhaken in a dark Place, emitted Light; with this Circumſtance, that in ſhaking the Mercury with Rapidity, ſometimes above and ſometimes below its Equilibrium with the Air, the Light is only ſeen when below it, where it appears as if adhering to the upper Surface.

But this Light is not found in the Mercury of all Barometers, which occaſions a great Difficulty.

M. *Bernoulli*, upon examining the Circumſtances of this Phænomenon, invented a Solution of the ſame: He imagines that upon the Mercury's deſcending, the *Vacuum* in the Tube increaſing, there iſſues out of the Mercury to fill up this Exceſs of Vacuity, a very fine ſubtile Matter before diſpers'd throughout the Pores of this Mineral; and that at the ſame time there enters thro' the Pores of the Tube another finer Matter: Thus, the firſt Matter emitted out of the Mercury and collected over its Surface ſtriking impetuouſly againſt that received from without, has the ſame Effect with *Des-Cartes*'s firſt Element againſt the ſecond; that is, produces the Motion of Light. See LIGHT.

But why, then, is not the Phænomenon common to all Barometers? To this he anſwers, That the Motion of the ſubtile Matter out of the Mercury may be weaken'd, and prevented by any heterogeneous Matter collected on its upper Surface into a Kind of Pellicle; ſo that the Light ſhould never appear but when the Mercury was perfectly pure.

This Reaſoning was confirm'd from the Experiments of ſeveral Barometers which he made according to this Plan; but the *Royal Academy of Sciences*, who repeated the Experiments with Barometers made after the ſame manner, did not meet with the ſame Succeſs; the Light being found in ſome not in others.

M. *Homberg* therefore conjectured, that the Difference conſiſted in the different Qualities of the Quickſilver: In ſome, he obſerv'd, they uſed Quick-Lime to purify it; in others, Steel-Filings. The Mercury, then, raiſing in the Diſtillation, and paſſing thro' the Lime, might take away Parts thereof, capable, by their extreme Smallneſs, to lodge in its Interſtices. Hence, as Quick-Lime always retains ſome fiery Particles, 'tis poſſible, in a Place void of Air, where they ſwim at Liberty, they may produce this Luſtre.

Mr. *Hauksbee* has ſeveral Experiments of the Mercurial *Phoſphorus*—paſſing Air forcibly thro' the Body of Quickſilver placed in an Exhauſted Receiver, the Parts were violently driven againſt the Side of the Receiver, and gave all around the Appearance of Fire; continuing thus till the Receiver was half full again of Air.

From other Experiments he found, that tho' the Appearance of Light was not producible by agitating the Mercury in the ſame Manner in the common Air; yet that a very fine Medium nearly approaching to a *Vacuum* was not at all neceſſary.

And, laſtly, from other Experiments he found, that Mercury encloſ'd in Water, which communicated with the open Air, by a violent ſhaking of the Veſſel wherein it was encloſed, emitted Particles of Light in great plenty, like little Stars.

By including the Veſſel of Mercury, *&c.* in a Receiver, and exhauſting the Air, the Phænomenon was chang'd; and, upon ſhaking the Veſſel, inſtead of Sparkles of Light the whole Maſs appear'd one continued Circle of Light.

Artificial PHOSPHORI are ſuch as owe their luminous Quality to ſome Art, or Preparation.

Of theſe there are three Kinds: The firſt burns and conſumes every combuſtible it touches; the other two have no ſenſible Heat.

The firſt, or *Burning Phoſporus*, may be made of Urine, Blood, Hairs, and generally of any Part of an Animal that yields an Oil by Diſtillation.----The Matter it is moſt eaſily drawn from is human Urine.

'Tis of a yellowiſh Colour, and of the Conſiſtence of hard Wax, in the Condition 'tis left by the Diſtillation; And in this State is call'd *Phoſphorus Fulgurans*, from its Corruſcations; and *Phoſphorus Smaragdinus*, becauſe its Light is frequently green or blue, eſpecially in Places that are not very dark; and *ſolid Phoſphorus* from its Conſiſtence.

It diſſolves in all Kinds of diſtill'd Oils; and in that ſtate is call'd *liquid Phoſphorus.*

It may be ground in all kinds of fat Pomatums; in which Caſe it makes a *luminous Unguent.*

So that the *Phoſphorus fulgurans*, *Smaragdinus*, *Solid* and *Liquid Phoſphorus*, and *Luminous Unguent*, are all the ſame Drug, under different Circumſtances.

It was invented by Mr. *Kunkel*, Chymiſt of the Elector of *Saxony*; brought into *France* by M. *Kraft*, a Phyſician of *Dreſden*, by whom it was communicated to Mr. *Boyle*.

In 1676, M. *Elzholz* publiſh'd a Treatiſe expreſsly on it, at *Berlin*; and in 1680, Mr. *Boyle* publiſh'd another in *Engliſh* under the Title of *Noctiluca.* See NOCTILUCA.

M. *Homberg* firſt made of it at *Paris* in 1679, and communicated the Method of Preparation to the Publick.

Preparation of the Solid Phoſphorus, or Phoſporus of Urine.

Evaporate a good Quantity of Urine of Beer-Drinkers to the Conſiſtence of Honey. Cover it up in an Earthen Veſſel, and ſet it three or four Months in a Cellar to ferment and putrify.----Mix a double quantity of Sand, or Powder of Pot-ſhards with one Part of this Urine; put it into a Retort, fitted to a long-neck'd Receiver, with two or three quarts of Water.----Diſtil it in a naked Fire in a reverberatory Furnace; at firſt gently; after two Hours, augment the Fire gradually, till all the black fetid Oil be drawn off.---Raiſe the Fire to the higheſt degree; upon which white Clouds will come into the Receiver and fix by little and little on one ſide, in form of a yellowiſh Skin; and another part will precipitate to the Bottom in Powder.—Keep the Fire thus violent for three Hours till no more Fumes ariſe.—Let all cool, and unlooſe the Veſſels; and throwing more Water into the Receiver ſhake all well about to looſen what ſticks to the Sides.—Pour the whole into a Glaſs-Veſſel to ſettle.

The Volatile Salt will now diſſolve in the Water, and the *Phoſphorus* and Oil ſink to the Bottom; pour off the Water, and gathering the remaining Matter together, put it into a Glaſs-Veſſel with a little freſh Water; and digeſt it in a Sand-Heat ſtirring it from Time to Time with a wooden Spatula.

By this means the *Phoſphorus* will ſeparate from the Oil, and ſink to the Bottom: Pour off the Oil, and make up the *Phoſphorus*, while hot, into Sticks for Uſe.

Boerhaave gives us other Ways of preparing *Phoſphorus.* Recent Urine, he obſerves, digeſted three or four Days in a tall Glaſs, with a Heat no greater than that of a healthy Man, grows reddy, fetid, and cadaverous: This digeſted Urine being put to diſtil in a Retort, yields a clear fetid Liquor, then a yellow volatile Salt, which evaporated to the Conſiſtence of a *Sapa*, and mix'd with four times its Weight of dry Sand, and the Diſtillation continued in a cover'd Retort, there ſucceſſively comes over, by greater and greater degrees of Fire, a fetid brown Oil, bluiſh Fumes, and a groſs ſhining Matter which ſinks in Water, and is the *ſolid Phoſphorus.*

To make it more directly, and to the beſt Advantage, it may be proper to take a ſufficient Quantity of human Urine, afforded by a Perſon not much given to drink Wine, and exhale it away in an open Veſſel to a Rob, or the Conſiſtence of Honey; then ſet it to putrify for half a Year, and upon Diſtillation it will afford a large Proportion of Salt; after which, if ſix times its own Quantity of Sand, or Brick-Duſt, be added to the Remainder, and the Diſtillation be continued, as in the Caſe laſt mentioned, the *Phoſphorus* will fall into the Water.—Or it may commodiouſly be prepared, by ſuffering the Rob of Urine to digeſt for two Years in an open Veſſel in the open Air; during which time a ſlimy, fæculent, unctuous, earthy Matter will fall to the bottom; which being frequently waſh'd with pure Water, wherein it will not diſſolve, will leave a white Matter behind it, neither of an Alkaline, Acid, Saline, or Terreſtrial, nor ſcarce of an unctuous Nature; and this is of it ſelf a proper Matter for the making of *Phoſphorus* by Diſtillation with Sand.

Properties of the ſolid Phoſphorus.

1*ſt*, With this *Phoſphorus* one may write on Paper, as with a Pencil, and the Letters appear like Flame in the dark; yet in the Light nothing appears but a dim Smoak.

2*dly*, A little Piece rubb'd between two Papers, takes Fire inſtantaneouſly.—If Care be not taken in the Management of it, there is danger of burning the Fingers, the *Phoſphorus* being exceedingly inflammable. See FIRE.

3*dly*, Its burning is very vehement, and penetrates deeper into the Fleſh than common Fire; and 'tis very difficult to be extinguiſh'd.

M. *Caſſini* happening to preſs a Piece in a Cloth between his Fingers, the Cloth immediately took Fire; he endeavour'd to put it out with his Foot, but his Shoe caught the Flame, and he was obliged to extinguiſh it with a Braſs-Ruler, which caſt forth Rays in the Dark for two Months after.

The *ſolid Phoſphorus* never ſpoils, provided it be kept in a Phiol full of Water; that in form of an Unguent does not keep ſo well; and the *liquid Phoſphorus* worſt of all.

The *Liquid Phoſphorus* is made by digeſting in Horſe-Dung, a little Bit or ſome Scrapings of the *Solid*, for two Days, in Oil, or Eſſence, of Cloves, Oil of Turpentine, or the like. After Diſſolution the Oil will be ſo impregnated with it, that upon opening the Bottle, the Matter will appear on a Flame.

Experiments with the Liquid Phoſphorus.

By waſhing the Face, Hands, or the like, with the *Liquid Phoſphorus*, Dr. *Slare* tells us, they will be made to ſhine very conſiderably in the Dark, and the Luſtre thereof be communicated to adjacent Objects, yet without any Offence to the Skin.

As ſoon as a Candle is brought in, the Shining diſappears, and no Change perceivable.

This *Phoſphorus* emits frequent Flaſhes like Lightning, even when cloſe ſtopp'd; eſpecially in warm Weather. Hence Mr. *Boyle* takes occaſion to draw a Parallel between Lightning and *Phoſphorus*.

The ſecond Kind of *Artificial Phoſphorus*, is a Preparation of a Stone call'd the *Bolonian* Stone, from a City of that Name in *Italy* nigh which it is found.

The firſt who undertook to make this Stone luminous, was a Chymiſt of that City call'd *Vincenzo Caſciarolo*.

Poterus, *Licetus*, &c. have deſcribed the Proceſs, but miſtakenly: M. *Homberg*, who made a Journey to *Italy* expreſly to learn the Preparation, firſt communicated the ſame to M. *Lemery*, who publiſh'd it in the 7th Edition of his Chymiſtry. See the Method under the Article BOLONIAN *Stone*.

This *Phoſphorus* has not any ſenſible Heat; and only becomes luminous after being expos'd to the Sun, or the Day-light, when it reſembles a burning Coal, and preſerves its Light five or ſix Minutes in the dark, during which Time it dwindles; and to recover its Light muſt be expoſed afreſh to the Air.

The third Kind of *Phoſphorus* call'd the *Hermetic* PHOSPHORUS or PHOSPHORUS *Balduini*, is a Preparation of *Engliſh* Chalk, with *Aquafortis* or Spirit of Nitre by the Fire.

This makes a Body conſiderably ſofter than the *Bolonian* Stone; but it has all the Qualities thereof.

It has its Name from its Inventor *Balduin*, a *German* Chymiſt, call'd *Hermes*, in the Society of the *Naturæ Curioſorum*, whence its other Name *Hermetic*.

Some of the late Chymiſts have hit on other Sorts of *Phoſphori*.

Monſ. *Homberg*, in a Proceſs upon the Fecal Matter, happening to calcine it with Alum, accidentally produced a *new Phoſphorus*, in form of a Powder, the leaſt quantity of which taken out of a cloſe Veſſel, and expoſed to the Air upon a Piece of Paper, in a Moment's Time would take Fire, and ſet the Paper a ſmoaking, and preſently burn it or any combuſtible Matter it came near.

This it would do, equally by Night and Day; and without rubbing or heating, or mixing it with any other thing to promote the Inflammation; in which he obſerves, it differ'd from all the artificial *Phoſphori* hitherto known. For that *e. gr.* of Urine, requires a ſmall Degree of Warmth to enable it to ſhine, or take Fire; and the *Bolonian* Stone, and *Phoſphorus Balduini* only ſhine by Day-Light.

In Effect, M. *Lemery* the younger has at length diſcover'd that there is ſcarce any Animal or Vegetable Matter but will afford *Phoſphorus*.—This he experienced in the Seeds Farinæ, Honey, Sugar, Leaves, Flowers, Woods, Roots and Oils of divers Plants; the Blood and Fleſh of Calves, Sheep, Flies, Worms; the Yolks of Eggs, *&c.* The human Scull, Bones, Fat, Nails; and the Dung of all Animals.

The principal thing added to all theſe Matters to make *Phoſphorus* of them, is Alum, which is indiſpenſibly requiſite; nor can any other Salt how near a-kin ſoever hereto, even tho' it yield the very ſame Principles, be ſubſtituted hereto. As to the Means, or the Operation whereby it is to be made, Calcination appears to be the eſſential Part.

Phyſical Cauſe of the Phænomena of Phoſphorus.

As to the *Rationale* of the Effects, it may be obſerv'd, that in moſt of the *Natural Phoſphori*, there is a briſk Attrition or Friction concern'd; which we may ſuppoſe either to give the minute Parts of the Subſtance the proper Motion and Agitation neceſſary to convert them into Fire, if Fire be ſo producible, (as *Bacon*, *Boyle*, *Newton*, and the generality of the *Engliſh* Philoſophers have ſuppoſed it is) or to expel and emit the Particles of Fire naturally contained in them. See FIRE, FLAME, FRICTION, ATTRITION, *&c.*

In the *Factitious* Sorts, we may note, that a long Proceſs by Fire is uſually required, wherein the Matter undergoes divers Coctions, Torrefactions, Calcinations, Diſtillations, *&c.* in the Courſe whereof a conſiderable Quantity of Fire muſt neceſſarily be imbibed, and may poſſibly be retain'd therein.

In that *e. gr.* prepared of the Fecal Matter, M. *Homberg* obſerves, the aqueous Part of the Subſtance muſt neceſſarily have all been evaporated, with the greateſt Part of the Oil and volatile Salt, leaving Pores or Vacuities in the Places they poſſeſs'd; ſo that what remains, is a ſpongeous Tiſſue of Earth and fix'd Salt, having nothing in its Loculi, or Cavities, but ſome of the Matter of the Fire which has been arreſted and detain'd therein; much as in Quick-Lime.

This being ſuppoſed, we know that the fix'd Salt, which is here pretty copious, will readily abſorb the Moiſture of the contiguous Air; and the ſudden Introduction of ſuch Moiſture into the Pores of the Powder muſt produce a Friction, which may excite a ſmall Degree of Heat; and this join'd with what Fire was there already laid up, may make a Heat ſufficient to give Fire to the ſmall Remains of Oil too cloſely link'd with the Salt to have been carried off by the Calcining Fire: So that we have here every thing neceſſary to Heat and Light. See HEAT, *&c.*

What confirms this Doctrine is, that if the Powder be kept in a Veſſel not ſufficiently cloſe, the Air, inſinuating by Degrees, moiſtens and ſaturates the Powder, but ſo ſlowly, as not to produce Friction enough to ſet it on Fire; ſo that it is ſpoilt, and diſabled from taking Fire ever after: much as Quick-Lime, which after it has lain ſome time in the Air, ceaſes to grow hot even by the Affuſion of Water.

The Reaſon why Quick-Lime, which contains a deal of Particles of Fire, as well as our Powder, does not conceive Heat by the Acceſs of the Air, or the Ingreſs of its Moiſture into the Pores thereof, but that Water muſt be thrown thereon, is, that the Quick-Lime being more throughly calcined retains too little fix'd Salt to imbibe the Moiſture readily and copiouſly enough to excite the neceſſary Friction.

And the Reaſon why Quick-Lime does not produce a Flame, as the Powder does, even when Water is caſt on it, is, that it did not retain enough of the Oily Matter to afford Flame: For if Oil be mix'd with it, a Flame will readily enſue. *Mem. de l'Acad. An.* 1711.

PHOSPHORUS in Aſtronomy, is the Morning-Star, or the Planet *Venus*, when ſhe goes before the Sun. See VENUS.

The *Latins* call it *Lucifer*. The *French*, *Etoile de Berger*. The *Greeks*, *Phoſphorus*, from φῶς, Light, and φέρω I bear, bring.

PHOTASCIATERICA, a Term ſome Authors uſe for the Art of Dialling. See DIALLING.

The Names is derived hence, that the Art not only ſhews the Hours by the Shadows of a Gnomon, whence it is call'd *Sciaterica*, from σκιὰ, Shadow; But ſometimes alſo by means of the Sun's Light, as in Spot-Dials, Reflecting-Dials, *&c.* from φῶς, *Lux*, Light. See DIAL.

PHOTINIANS, a Sect of ancient Hereticks, who denied the Divinity of *Jeſus Chriſt*. See HERETICK.

They took their Name from *Photinus* their Chief, Biſhop of *Sirmium*, and Diſciple of *Marcellus*.

He maintained, as *Leo* tells us in one of his Sermons, that *Jeſus Chriſt* was true Man, but not true God, nor born before all Ages; that he only began to be *Chriſt* when the *Holy Ghoſt* deſcended upon him; and that he was call'd *only Son*, for no other Reaſon but becauſe the Virgin had no other.

He was convicted of his Error, and depoſed by a Synod of *Arians* held at *Sirmium* in 351.

PHRASE, PHRASIS, in Grammar, a certain elegant Faſhion or Manner of Speech, peculiarly belonging to this or that Occaſion, this or that Art, or this or that Language.

Thus we ſay an *Italian* Phraſe, an Eaſtern Phraſe, a Poetical Phraſe, or Rhetorical Phraſe. See IDIOM.

A few elegant Phraſes, pertinently applied, are an Ornament of Diſcourſe; but if they come too thick they have an ill Effect, and make the Style ſavour of Affectation. See STYLE.

The Word *Phraſe* is ſometimes alſo uſed for a ſhort Sentence, or ſmall Set or Circuit of Words conſtructed together. See SENTENCE.

In this Senſe Father *Buffier* divides Phraſes into *Compleat* and *Incompleat*.

Phraſes are *Compleat* where there is a Noun and a Verb, each in its proper Function, *i. e.* where the Noun expreſſes a Subject, and the Verb the thing affirm'd of it.

Incompleat Phraſes are thoſe where the Noun and Verb together only do the Office of a Noun; conſiſting of ſeveral Words without affirming any thing, and which might be expreſs'd in a ſingle Word.

Thus, *that which is true*, is an incompleat Phraſe, which might be expreſſed in one Word, *Truth*: as, that which is true ſatisfies the Mind; or Truth ſatisfies the Mind.

PHRASEOLOGY, Phraseologia, a Collection of the Phraſes, or elegant Expreſſions, in any Language. See Phrase.

PHRENES, in Anatomy, the *Diaphragm.* See Diaphragm.

It was thus call'd by the Ancients, from φρὴν, Mind; as imagining this the Seat of the rational Soul. Hence

PHRENESIS, Phrensy, or *Diſtraction.* See Phrenitis.

PHRENETIC *Nerves*, call'd alſo *Diaphragmatic* and *Stomachic Nerves*, are nervous Branches derived from the Cervical Nerves, which joyning in a Trunk, run through the Mediaſtinum undivided, till arriving near the Diaphragm, they again divide, and ſend off divers Branches, ſome into the muſcular, others into the tendinous Part thereof. See Nerve and Diaphragm.

PHRENIC *Veſſels*, is a Term applied to a Vein, and ſome Arteries of the human Body; from their paſſing through the Diaphragm.

The *Phrenic Artery* ariſes out of the deſcending *Aorta*, and diſtributes itſelf into the Diaphragm and Pericardium. See Artery, Aorta, *&c.*

The *Phrenic Veins* are two Veins which the Deſcending *Cava* receives immediately after its piercing the Diaphragm. See *Vein* Cava.

PHRENITIS, Phrenesis, Phrensy, in Medicine, a conſtant and vehement Delirium, or Diſtraction; accompanied with an acute Fever, raving, waking, *&c.* See Delirium.

It differs from the *Mania*, and Melancholly, in that theſe are without Fevers. See Mania, *&c.*

It has its Name from φρὴν, *Mens*, the Underſtanding; or as ſome will have it from φρὴν, the Diaphragm, in regard the Ancients ſuppoſed it to have its Seat in that Part. See Diaphragm.

Phyſicians generally make the *Phrenitis* to conſiſt in an Inflammation of the Meninges of the Brain; and diſtinguiſh it from the *Paraphrenitis*, which they ſuppoſe to be an Inflammation of the Diaphragm. See Paraphrenitis.

Willis will have them the ſame Diſeaſe, and both to conſiſt in an Inflammation of the Animal Spirits. He only diſtinguiſhes them as the Inflammation ariſes from the *Cerebrum* alone, or from the *Cerebrum* and *Cerebellum* together; and concludes, that they both ariſe after a Fever, from the boiling Blood's throwing its aduſt Recrements into the Brain.

Boerhaave makes the *Phrenitis* either *true*, wherein the *Cerebrum*, or Meninges, or both, are inflamed; or *ſymptomatic*, where the Matter of a Fever is tranſlated into the *Cerebrum.*

The true one either kills on the third, fourth, or fifth, or ſeventh Day; or changes into a Mania, Lethargy, Comus, *&c.* Tremors, Gnaſhing of the Teeth, grumous Blood diſtilling from the Noſe, are Prognoſticks of Death.

The Diſeaſe is ofteneſt the Effect of Inflammatory or Malignant Fevers; tho' it ſometimes alſo ariſes from a Suppreſſion of the natural Evacuations, as the *Menſes*, &c.

The Cure is the ſame as of an Apoplexy; but where the Evacuations are concern'd, they muſt firſt be rectified. See Apoplexy.

PHRYGIAN *Mode*, in Muſic. See Mode.

PHRYGIANS, Phryges, or Phrygastes, as S. *Epiphanius* calls 'em, were ancient Hereticks, a Branch of the *Montaniſts*; ſo call'd from *Phrygia* a Place where they abounded.—They eſteem'd *Montanus* their Prophet; and look'd on *Maximilla* and *Priſcilla* as great Propheteſſes. See Montanists.

This Spirit of Prophecy, or rather Enthuſiaſm, was their diſtinguiſhing Character. In the Buſineſs of the Trinity they were orthodox.

PHTHIRIASIS, in Medicine, the *Morbus Pedicularis*, or Louzy Diſeaſe, wherewith Children, and even ſometimes Adults are afflicted. See Pedicularis.

Its Cauſe is in the Seeds of that Vermin laid in the Cuticle, which here happening to prove a proper *Nidus*, cheriſhes and foſters the Seed ſo as to hatch it. See Worms.

The Linnen Cloths uſed by Goldſmiths to wipe their Veſſels with after gilding, are excellent againſt the *Phthiriaſis* by reaſon of the Mercury they contain, when applied by rubbing the Child's Head.

The Word is form'd from the *Greek* φθεὶρ, Louſe.

PHTHISIS, in Medicine, in its general Senſe, is any kind of Conſumption of the Body, in what part ſoever it be ſeated, or from what Cauſe ſoever it ariſe. See Consumption.

Thus we have a *Nervous Phthiſis*, *Renal Phthiſis*, *Dorſal Phthiſis*, *Pulmonary Phthiſis*, &c.

But, in its proper Senſe, *Phthiſis* is reſtrain'd to a *Pulmonary Conſumption*, or a Conſumption ariſing from an Ulcer or other Diſorder of the Lungs, accompanied with a ſlow hectic Fever, which waſtes, extenuates, and conſumes the muſcular Fleſh. See Lungs, *&c.*

Sydenham obſerves, that the hectic *Phthiſis* uſually has its Origin in the Winter's Cold; from a ſharp Humour trickling down upon the Lungs, where, like a Catarrh, it irritates them ſo as to raiſe a Cough. See Cough.

This by degrees brings on other Symptoms; as a ſpitting, firſt of a viſcid *Pituita*, then a heavy fetid *Pus*, then of pure Blood, and ſometimes of the very Subſtance of the Lungs rotted by a long Exulceration; with Night-Sweats, falling of the Hair, and a colliquative Flux which is ſoon followed by Death.

The ſame Author adds, that *Phthiſis* kills two thirds of thoſe that die of Chronic Diſeaſes. See Chronic.

In the laſt Stage of the *Phthiſis* the Noſe appears ſharp, the Eyes hollow, the Temples fallen, the Ears cold and contracted, the Skin about the Forehead hard and dry, and the Complexion greeniſh, or livid, *&c.* which is call'd the *Facies Hippocratica.*

Among the Cauſes of the Diſeaſe may alſo be reckon'd Intemperance as it brings on a Plethora or Cacochymia, Peripneumonies, Aſthma's, Pleuriſies, *&c.* *Morton* adds, that the *Phthiſis* frequently ariſes from an ill Conformation of the Breaſt; which is either *Natural*, as when the Breaſt is too narrow, the Neck too long, *&c.* or *Accidental*, where there happens a Curvity or Diſtortion of the Breaſt;—among the Symptoms he reckons a *Nauſea*, or Reaching, with a Heat in the Palms of the Hands, and Redneſs in the Cheeks, all after Eating.

For the Cure;—*Sydenham* orders the Defluxion on the Lungs, in the firſt Stage, to be abated by Blood-letting, *&c.* and Pectorals to be uſed, accommodated to the various States of the Diſeaſes, *viz.* Incraſſatives, Attenuatives, to aſſwage the Hectic, *&c.* with Emulſions, Aſſes-Milk, *&c.* and Balſamicks, to cure the Ulcer.

But the chief Aſſiſtance in this Diſeaſe is from riding conſtantly on Horſeback, where the Patient need not confine himſelf to any Laws of Diet, *&c.* This alone, he adds, is almoſt as ſure a Cure for a *Phthiſis*, as the *Cortex* for an Intermitting Fever. See Exercise.

Dr. *Baynard* recommends Butter-Milk as an admirable Succedaneum to Aſſes-Milk:——*Sylvius* ſays, he knows of no Medicine, either internal or external, ſo good againſt freſh Ulcers of the Lungs, as Balm of Sulphur, eſpecially when prepared with Oil of Aniſe. See Sulphur.

Etmuller obſerves, that the Cough of *Phthiſical* People is at firſt only Stomachal; at length it becomes Pulmonary. He adds, that Vomitaries are good in a beginning *Phthiſis*, Purgatives by all means to be avoided; and commends the Uſe of Medicines made of Tobacco, not only as they promote Expectoration; but as Vulnerary.

'Tis a common Obſervation, that in thoſe Countries where they burn Turf, People are rarely affected with the *Phthiſis*; which *Willis* aſcribes to the Sulphur abounding therein, and recommends Tincture of Sulphur as the beſt Remedy he knows of in any Cough without a Fever; adding, that a Suffumigation, or Smother, of Sulphur and Arſenic has frequently proved a Cure in the moſt deſperate *Phthiſis.*

Bonetus holds the *Phthiſis* to be contagious; and that there are frequently Inſtances of its being communicated by Cloaths, Linnen, Beds, *&c.*

Pitcairn recommends *Mercurius Dulcis*, in the Beginning of a *Phthiſis.* And *Barbette* and *Colbatch* aſſert, that, contrary to the Opinion of moſt Authors, they have frequently uſed Acids with Succeſs in *Phthiſics.* See Hectic, *&c.*

The Word is form'd from the *Greek* φθίσις, Corruption, Attenuation, *&c.*

PHYGETHLON, in Medicine, is defined by *Celſus*, a hard flat Tumor, ſomewhat reſembling a Puſtle; occaſioning an intenſe Pain, and ſometimes a Fever. See Tumor.

The *Phygethlon* only differs from the *Phyma*, in that it does not riſe ſo high; it ripens very ſlowly, and produces but little Pus. See Phyma.

The *Latins* call it *Panis*, or *Panus*, and ſometimes *Panicula.*—*Gorræus* defines the *Phygethlon*, a *Phlegmon* ariſing on the glandulous Parts, eſpecially about the Neck, Armpits, and Inguen; which laſt is call'd a Bubo. See Phlegmon, *&c.*

The *Phygethlon* has the ſame Cauſes, and the ſame Symptoms with the common Bubo. See Bubo.

It frequently ariſes after Fevers, and Pains of the Belly, and is cured like other Inflammations.

The Word is derived from the *Greek* φύω, I engender.

PHYLACTERY, in Church-Hiſtory, a Slip of Parchment, wherein was wrote ſome Text of Holy Scripture, particularly of the Decalogue; which the more devout People among the *Jews* wore on the Forehead, the Breaſt, or the Neck, as a Mark of their Religion.

In the general, the Ancients gave the Name *Phylactery* to all kinds of Charms, Spells, or Characters which they wore about them, as Amulets, to preſerve 'em from Dangers or Diſeaſes. See CHARM, AMULET, *&c.*

The Primitive Chriſtians alſo gave the Name *Phylacteries* to the Frames wherein they incloſed the Relicks of their dead.

PHYMA, or PHYMUS, in Medicine, a roundiſh pointed Tumor, ariſing on the Glandular Parts, eſpecially under the lower Jaw. See TUMOR.

The *Phyma* is ſmaller and ſmoother, leſs red and painful, than the Phygethlon. See PHYGETHLON.

It is eaſily cured in Children; more difficultly in Adults, but in thoſe it is more rare. It is remedied by aſſiſting Nature in the Work of Maturation; as, by a ſuppurating Cataplaſm, *&c.*---It is ſuppoſed to have its Riſe from a pituitous Blood; and is moſt common in Children, where it frequently ariſes from too tight Bandages.

Gorraus obſerves, that ſome make *Phyma* a general Name for all Tumors, or Apoſthumes, that maturate and ſuppurate readily, of what kind ſoever, or in whatſoever glandulous Part they ariſe. See APOSTHUME.

PHYSIC, or PHYSICK, the Art of Healing; properly called *Medicine.*

For the Riſe, Progreſs, Diviſion, *&c.* of *Phyſic*; See MEDICINE.

The Word is form'd from the *Greek* φύσις, Nature; in regard Medicine conſiſts principally in the Obſervation of Nature. See PHYSICKS.

PHYSICAL, ſomething belonging to, or really exiſting in Nature. See PHYSICKS.

In this Senſe we ſay a *Phyſical* Point, in oppoſition to a Mathematical one which only exiſts in the Imagination. See POINT.

A *Phyſical* Subſtance, or Body, in oppoſition to Spirit, or Metaphyſical Subſtance, *&c.* See SUBSTANCE, *&c.*

PHYSICAL, or *ſenſible* Horizon. See HORIZON.

PHYSICIAN, a Perſon who profeſſes Medicine, or the Art of Healing. See MEDICINE.

The Ancients diſtinguiſhed their *Phyſicians* into various Claſſes or Sects:——As, *Methodical Phyſicians*, thoſe who proceeded in a certain regular Method, founded upon Reaſon; deducing Conſequences therefrom, to particular Caſes. See METHODICAL.

Dogmatical Phyſicians, thoſe who laid down Principles, and reaſon'd from thoſe Principles, and from Experience. See DOGMATIC.

Empirical Phyſicians, thoſe who kept wholly to Experience, and excluded all Uſe of Reaſon in Medicine.——Such was *Serapim, Apollonius, Glaucus*, &c. See EMPERICAL.

Again, *Clinical Phyſicians* were thoſe who viſited their Patients a-bed, to examine their Caſes. See CLINIC.

In oppoſition to the Emperiſts, who ſold their Medicines in the Streets, *&c.*

They had alſo their Aſtrological *Phyſicians*, Botanic *Phyſicians*, Anatomical *Phyſicians*, Chirurgeons, Iatraliptes, or thoſe who applied external Unctions and Frictions, *&c.*

Coſmetick *Phyſicians* for the Complexions; Ophthalmic *Phyſicians* for the Eyes; Vulnerary *Phyſicians* for Wounds, *&c.*

Among the Moderns, a *general Phyſician* includes almoſt all theſe ſeveral Kinds: Regular *Phyſicians* are contra-diſtinguiſhed from *Emperical Phyſicians*, who preſcribe at random; having one or two Remedies which ſerve in all Diſeaſes. See EMPERICAL.

Galenical *Phyſicians* are thoſe who preſcribe gentle, natural and ordinary Medicines. See GALENICAL.

Spagyrical or Chymical *Phyſicians* are thoſe who preſcribe violent Medicines drawn from Minerals, *&c.* by Fire. See SPAGYRICAL and CHYMICAL.

PHYSICKS, by the *Latins* call'd PHYSICA, the *Greeks* φυσικη, and by us frequently PHYSIOLOGY, or *Natural Philoſophy*; is the Doctrine of Natural Bodies, their Phænomena, Cauſes, and Effects; their various Affections, Motions, Operations, *&c.* See PHILOSOPHY and NATURE.

Mr. *Locke* would likewiſe have GOD, Angels, and Spirits, come under *Phyſicks*, which more uſually are referr'd to *Metaphyſicks.* See METAPHYSICKS.

The Word is derived from φύσις, Nature. See PHYSIOLOGY.

The Origin of *Phyſicks* is referr'd by the *Greeks*, to the Barbarians, *viz.* the Brachmans, Magi, and the *Hebrew* and *Egyptian* Prieſts. See BRACHMANS, MAGI, *&c.*

From theſe it was derived to the *Greek* Sages or Sophi, particularly *Thales*, who is ſaid to have firſt profeſs'd the Study of Nature in *Greece.* See SOPHI.

Hence it deſcended into the Pythagoric, Platonic, and Peripatetic Schools; whence it was propagated into *Italy*, and thence thro' the reſt of *Europe*; tho' the Druids, Bards, *&c.* had *Phyſicks* of their own. See PYTHAGOREAN, PLATONIC, and PERIPATETIC; ſee alſo DRUID, BARD, *&c.*

Phyſicks may be divided, with regard to the manner wherein it has been handled, and the Perſons by whom, into

1° *Symbolical*, ſuch was that of the old *Egyptians*, *Pythagoreans* and *Platoniſts*, who delivered the Properties of Natural Bodies under Arithmetical and Geometrical Characters, and Hieroglyphics. See SYMBOL, GEOMETRY, HIEROGLYPHIC, *&c.*

2° *Peripatetical*, or that of the Ariſtotelians, who explain'd the Nature of things by Matter, Form, and Privation, Elementary and Occult Qualities, Sympathies, Antipathies, Attractions, *&c.* See ARISTOTELIAN, *&c.*

3° *Experimental*, which enquires into the Reaſons and Natures of Things from Experiments; ſuch as thoſe in Chymiſtry, Hydroſtaticks, Pneumaticks, Opticks, *&c.* See EXPERIMENT, *&c.*

This has been much cultivated ſince the Time of my Lord *Bacon*; and continues to be ſo, with good Succeſs.

The Experiments of the Academiſts of *Cimento*, of the Royal Society, of the Royal Academy, and even of private Perſons, particularly Mr. *Boyle*, Sir *Iſ. Newton*, Mr. *Hauksbee*, &c. have been of infinite Service in *Phyſicks*; and 'tis to theſe, in great meaſure, that the Advantage of the modern Philoſophy above the ancient is due.

4° The *Mechanical* or *Corpuſcular*, which explains the Appearances of Nature from the Matter, Motion, Structure, and Figure of the Bodies, and their Parts; all according to the ſettled Laws of Nature and Mechanicks. See CORPUSCULAR and MECHANICAL.

PHYSIOGNOMICKS, a Term uſed by ſome Phyſicians and Naturaliſts, for ſuch Signs as are taken from the Countenance to judge of the State, Diſpoſition, *&c.* of the Body and Mind. See SIGN and PHYSIOGNOMY.

PHYSIOGNOMY, the Art of knowing the Humour, Temperament, or Diſpoſition of a Perſon, from Obſervation of the Lines of the Face, and the Characters of its Members, or Features.

Baptiſta Porta and *Robert Fludd* are the top modern Authors on *Phyſiognomy.*——The ancient ones are the Sophiſt *Adamantius*, and *Ariſtotle*; the *Phyſiognomy* of which laſt we have tranſlated into *Latin* by *de Lacuna.*

The Word is form'd from the *Greek* φύσις, Nature, and γινώσκω, I know.

There ſeems to be ſomething in *Phyſiognomy*; and it may perhaps bear a much purer Philoſophy than what theſe Authors were acquainted withal.—This, at leaſt, we dare ſay, that of all the fanciful Arts of the Ancients, diſuſed among the Moderns, there is none has ſo much Foundation in Nature as this.

There is an apparent Correſpondence between the Face and the Mind; the Features and Lineaments of the one are directed by the Motions and Affections of the other: there is even a peculiar Arrangement of the Members of the Face, a peculiar Diſpoſition of the Countenance, to each particular Affection; perhaps to each particular Idea of the Mind. See PASSION.

In effect, the Language of the Face, *Phyſiognomy*, is as copious, nay, perhaps, as diſtinct and intelligible, as that of the Tongue, *Speech.*—Thanks to bounteous Nature, ſhe has not confined us to one only Method of converſing with each other, and of learning each other's Thoughts; we have ſeveral: We don't wholly depend on the Tongue, which may happen to be bound; and the Ear, which may be deaf; but in thoſe Caſes we have another Recourſe, the Countenance and the Eye; which afford us this further Advantage, that by comparing the Reports of the Tongue, (a Member exceedingly liable to deceive) with thoſe of the Face, the Prevarications of the former may be detected.

The Foundation of *Phyſiognomy* is this: The different Objects that preſent themſelves to the Senſes, nay, the different Ideas that ariſe in the Mind, do each make ſome Impreſſion on the Spirits; and each an Impreſſion correſpondent or adequate to it's Cauſe; therefore each a different Impreſſion.

If it be ask'd how ſuch an Impreſſion ſhould be effected; 'tis eaſy to anſwer, that it follows from the Oeconomy of the Creator, who has fix'd ſuch a Relation between the ſeveral Parts of the Creation; to the end we may be apprized of the Approach or Receſs of things uſeful or hurtful to us.

If this be'nt philoſophical enough, take the manner in the *Carteſian* Language, thus: The Animal Spirits moved in the Organ by an Object, continue their Motion to the Brain; whence that Motion is propagated to this, or that particular part of the Body, as is moſt ſuitable to the Deſign of Nature; having firſt made a proper Alteration in the Face, by means of its Nerves, eſpecially the Pathetici and *Oculorum Motorii.*

The Face, here, does the Office of a Dial-Plate; the Wheels and Springs within-ſide the Machine actuating its Muſcles, ſhew what is next to be expected from the ſtriking Part. Not that the Motion of the Spirits is continu'd all the Way by the Impreſſion of the Object; the Impreſſion probably terminates in the Medulla of the Brain, the common Fund of Spirits; the reſt Dr. *Gwither* imagines may be effected much after the ſame manner as the Air is convey'd into the Pipes of an Organ, which being uncover'd, the Air ruſhes in, and when the Keys are let go ſtopp'd again. See CONSENT *of Parts.*

Now if by repeated Acts, or the frequent entertaining of a favourite Paſſion, or Vice, which natural Temperament has hurried one to, or Cuſtom dragg'd; the Face is often put in that Poſture which attends ſuch Acts; the Animal Spirits will make ſuch patent Paſſages thro' the Nerves, (in which the Eſſence of a Habit conſiſts; ſee HABITUDE;) that the Face is ſometimes unalterably ſet in that Poſture; (as the *Indian* Religious are by a long continued ſitting in ſtrange Poſtures in their Pagods) or at leaſt falls inſenſibly and mechanically into that Poſture, unleſs ſome preſent Object diſtort it therefrom, or Diſſimulation hide it. See FAQUIR.

This Reaſoning is confirm'd by Obſervation: Thus we ſee great Drinkers, with Eyes generally ſet to the Noſe; the adducent Muſcles being oft employ'd to put 'em in that Poſture, to view their lov'd Liquor in the Glaſs in the time of Drinking; whence thoſe Muſcles are alſo denominated the *bibitory Muſcles.*

Thus alſo laſcivious Perſons are remarkable for the *Oculorum morbilis petulantia*, as *Petronius* calls it.

Hence we may account for the *Quakers* expecting Face, waiting the Spirit; the melancholly Face of moſt Sectaries; the ſtudious Face of Men of great Application of Mind, *&c.*

Were our Obſervation a little more ſtrict and delicate, we might doubtleſs not only diſtinguiſh Habits, and Tempers but even Profeſſions—In effect does there need much Penetration to diſtinguiſh the fierce Look of the veteran Soldier, the contentious Look of the practis'd Pleader, the ſolemn Look of the Miniſter of State, *&c.*

PHYSIOLOGY, the Doctrine of Nature, or Natural Bodies; call'd alſo *Phyſicks*, and *Natural Philoſophy.* See PHYSICKS, *&c.*

The Word is form'd of φύσις, Nature, and λόγος, Diſcourſe, Reaſon.

It is to be obſerv'd, that the Word *Phyſiology* properly denotes only an internal reaſoning or diſcourſing, which ſtops or terminates in the Speculation, or abſtract Contemplation of its Object, *viz.* Natural Appearances, their Cauſes, *&c.* and does not direct or preſcribe Rules for the making of natural things, *e. gr.* Stones, Plants, *&c.*

In this View Chymiſtry does not properly belong to *Phyſiology*, but is a kind of a counter-part thereto, as imitating or mimicking Nature, rather than conſidering and explaining her. See CHYMISTRY.

PHYSIOLOGY is particularly uſed for a Branch of Medicine, which conſiders Nature with Regard to the Cure of Diſeaſes; particularly the human Body, its Parts, Structure, Health, Life, Functions, Oeconomy, *&c.* See MEDICINE.

Phyſiology, in this Senſe, is the ſame with what we otherwiſe call the Doctrine of *Animal Oeconomy.* See OECONOMY.

PHYTOLOGY a Diſcourſe upon Plants; or a Deſcription of their Forms, Kinds, Properties, *&c.* See PLANT.

The Word is compounded of the *Greek* φυτὸν, Plant, and λόγος, Diſcourſe, or λέγω, *ſcribo*, I deſcribe, rehearſe.

PIA *Mater*, in Anatomy, call'd alſo *Mater tenuis*, and *Meninx tenuis*, a fine Coat, or Membrane, immediately inveſting the Brain. See MATER, MENINX and BRAIN.

PIACHE, PIAZZA, a cover'd arched Walk, or Portico. See PORTICO and PIAZZA.

PIASTER, a *Spaniſh* Money, more ordinarily call'd *Piece of Eight.* See PIECE *of Eight.*

PIAZZA, in Building popularly call'd *Piache*, an *Italian* Name for a Portico. See PORTICO.

The Word literally ſignifies a broad open Place, or Square; whence it became applied to the Walks, or Portico's around them.

PICA, in Medicine, call'd alſo *Malacia*, a Depravation of Appetite, which makes the Patient abſurdly covet things unfit for Food, or incapable of nouriſhing; as, Coals, Aſhes, Plaiſter, Salt, Lime, Chalk, Vinegar, Pepper, *&c.* See APPETITE.

The *Pica* is frequent in Girls, and Women with Child; Men are more rarely affected with it.—The Diſorder is ſeldom original; but uſually an Effect of an Hypochondraical Infirmity in Men; and a Chloroſis, Stoppage of the Menſes, or their Eruption about the ſecond Month of Pregnancy, in Women: Sometimes it is hereditary in Children, from ſome Cauſe affecting the Mother. See MONSTER.

The Diſeaſe is uſually ſuppoſed to have its Riſe from a vitious Ferment of the Stomach; to which may be added Diſorders of the Imagination, occaſioned by ill Examples and ridiculous Prejudices. See IMAGINATION.

In the *Philoſophical Tranſactions*, Dr. *Fairſax* gives us an Inſtance of a Woman in *Stow* Market, who was invited by her *Pica* to ſuck the Wind out of Bellows; which as often as ſhe cou'd ſhe took into her Body with open Mouth, forcing it in by blowing with both Hands, the Bellows inverted.—He adds, he knew another in the ſame Circumſtances whom nothing would ſatisfy but crackling Cinders under her Feet.

Something like this has alſo been found in Brutes.—The laſt mentioned Author mentions a Greyhound Bitch, who or 6 Days before caſting her Whelps, long'd for another Bitch's Whelps, and eat them all up, and would have eat the Bitch herſelf. Thus it is that Sows are ſometimes known to eat up whole Litters of Pigs.

The uſual Remedies in the *Pica* are Bleeding, Purging, Vomiting, and Chalybeats.

PICA, in Printing. See PRINTING *Letter.*

PICARDS, a Religious Sect, who aroſe in *Bohemia*, in the XVIth Century; ſo call'd from their Author, one *Picard.*

He drew after him a great Number of Men and Women, pretending he would reſtore them to the primitive State of Innocence wherein *Adam* was created; and accordingly himſelf aſſumed the Title of the *New Adam.*

Under this Pretence he taught his Followers to abandon themſelves to all Impurity; making them believe that therein conſiſted the Liberty of the Sons of God; and that all thoſe not of their Sect were in Bondage.

He firſt began in *Germany*, and the *Low Countries*; perſuading many to go naked, and giving them the Name of *Adamites.*—After this, ſeizing an Iſland, he fix'd himſelf and his Followers therein; appointed his Women to be common, but allowed none to enjoy them without his Permiſſion. So that when any Man deſired a Woman he carried her to *Picard*, who gave him leave in theſe Words, *Go, increaſe, multiply and fill the Earth.*

At length, *Ziſca*, the Great General of the *Huſſites*, ſo famous for his Victories over the Emperor *Sigiſmund*, ſtruck with their Abominations, march'd againſt them; and making himſelf Maſter of their Iſland, put them all to Death, except two, whom he ſpared to inform himſelf of their Doctrine.

PICKAGE, or PICAGE, from the *Latin Pica*; an ancient Cuſtom, or Duty, paid at Fairs and Markets, for breaking the Ground and pitching up Stalls, or Standings.

This Profit of *Picage* was uſually given or granted in Charters for holding a Fair, or Market.

PICKET, or PICQUET, or PIQUET, in Fortification, a Stake ſharp at one End, and uſually ſhod with Iron; uſed in laying out the Ground, to mark the ſeveral Meaſures and Angles thereof.

There are alſo larger *Pickets*, drove into the Earth to hold together Faſcines, or Faggots, in any Work caſt up in haſte.

PICKETS are alſo Stakes drove into the Ground by the Tents of the Horſe, in a Camp, to tie their Horſes to; and before the Tents of the Foot, where they reſt their Muskets or Pikes round about them in a Ring.

When an Horſeman hath committed any conſiderable Offence, he is often ſentenced to *ſtand on the Picket*; which is to have one hand drawn up as high as it can be ſtretch'd, and thus to ſtand on the Point of a *Picket*, or Stake, only with the Toe of his oppoſite Foot; ſo that he can neither ſtand or hang well, nor eaſe himſelf by changing Feet.

PICKETS are alſo Stakes with Notches towards the Top, to which are faſtened the Cordages of Tents.—Thus, to *plant the Picket*, is to encamp.

PICKET in Gaming. See PICQUET.

PICKLE, a Brine, or Liquor, ordinarily compos'd of Salt, Vinegar, *&c.* ſometimes with the Addition of Spices, *&c.* wherein Meats, Fruits, *&c.* are preſerv'd and ſeaſon'd.

PICKLE is alſo uſed ſubſtantively for a Fruit, Root, Leaf, or other Vegetable Matter, prepared in *Pickle*, to be uſed by way of Sauce, *&c.*

They *pickle* Artichokes, Muſhrooms, Aſhen-Keys, Barberries, Aſparagus, Beans, Broom-Buds, *&c.*

PICQUEERING, PICKEERING, or PICKEROONING, a little flying War, or Skirmiſh, which the Soldiers make when detach'd from their Bodies, for Pillage, or before a main Battle begins.

PICQUET, or PICKET, a celebrated Game at Cards, in Uſe throughout the polite World. See GAME and CARDS.

It is play'd between two Perſons, with only thirty two Cards; all the Duces, Threes, Fours, Fives, and Sixes, being ſet aſide.

In reckoning at this Game every Card goes for the Number it bears, as a Ten for ten; only all Court-Cards go for eleven, and the Ace for ten: And the uſual Game is 100 up.——But in playing, the Ace wins the King, the King the Queen, and ſo down.

Twelve Cards are dealt around, uſually by two and two; which done, the Remainder are laid in the middle: If one of the Gameſters find he has not a Court-Card in his Hand, he is to declare he has *Carte blanche*, and tell how many Cards he will lay out, and deſire the other to diſcard, that he may ſhew his Game, and ſatisfy his Antagoniſt that the *Carte blanche* is real; for which he reckons ten.

Each Perſon diſcards *i. e.* lays aſide a certain Number of his Cards, and takes in a like Number from the Stock.—The firſt, of the 8 Cards, may take 5, 6, or 7; the Dealer, all the Remainder if he pleaſes.

After diſcarding, the eldeſt Hand examines what Suit he has moſt Cards of; and reckoning how many Points he has in that Suit; if the other have not ſo many in that or any other Suit he tells one for every Ten of that Suit.—He who thus reckons moſt is ſaid to win the *Point*.

The Point being over, each examines what Sequences he has of the ſame Suit, *viz.* how many *Tierces*, or Sequences of three, *Quartes* or fours, *Quintes* or fives, *Sixiemes* or ſixs, *&c.* For a Tierce they reckon three Points, for a Quart four, for a Quinte fifteen, and for a Sixieme ſixteen, *&c.* And the ſeveral Sequences are diſtinguiſhed in Dignity by the Cards they begin from: Thus; Ace, King, and Queen, are call'd Tierce major; King, Queen, and Knave, Tierce to a King; Knave, Ten, and Nine, Tierce to a Knave, *&c.* and the beſt Tierce, Quarte, or Quint, *i. e.* that which takes its Deſcent from the beſt Card, prevails; ſo as to make all the others in that hand good, and deſtroy all thoſe in the other hand.—In like manner a Quarte in one hand ſets aſide a Tierce in the other.

The Sequences over, they proceed to examine how many Aces, Kings, Queens, Knaves, and Tens, each holds; reckoning for every three of any ſort, three: But here, too, as in Sequences, he that with the ſame Number of Three's, has one that is higher than any the other has, *e. gr.* 3 Aces, has all his others made good hereby, and his Adverſary's all ſet aſide.—But four of any ſort always ſet aſide three.

All the Game in Hand being thus reckoned, the Eldeſt proceeds to play; reckoning one for every Card he plays above a Nine; and the other follows him in the Suit; and the higheſt Card of the Suit wins the Trick.—Note, unleſs a Trick be won with a Card above a Nine, (except the laſt Trick) nothing is reckon'd for it; tho' the Trick ſerves afterwards towards winning the Cards: And that he who plays laſt does not reckon for his Cards unleſs he wins the Trick.

The Cards being play'd out, he that has moſt Tricks reckons ten for winning the Cards.——If they have Tricks alike neither reckons any thing.—The Deal being finiſh'd, and each having mark'd up his Game, they proceed to deal again as before, cutting afreſh each time for the Deal.

If both Parties be within a few Points of being up, the *Carte blanche* is the firſt thing that reckons; then the Point; then the Sequences; then the Threes; then the tenth Cards.

He that can reckon 30 in hand, by Carte blanche, Points, Quintes, *&c.* without playing, e'er the other has reckon'd any thing; reckons ninety for them;—and this is call'd a *Repique*;—if he reckons above 30, he reckons ſo many above 90.

If he can make up 30, part in hand, and part by play, e'er the other has told any thing, he reckons for them 60.—And this is call'd a *Picque*. Whence the Name of the Game.

He that wins all the Tricks, inſtead of 10, which is his Right for winning the Cards, reckons 40,—and this is call'd a *Capot*.

PICTS *Wall*, in Antiquity, a famed Piece of *Roman* Work, begun by *Adrian* the Emperor, on the Northern Bounds of *England*, to prevent the Incurſions of the *Picts* and *Scots*. See WALL.

At firſt it was made only of Turf, ſtrengthened with Palliſadoes; till the Emperor *Severus*, coming in Perſon into *Britain*, built it with ſolid Stone, reaching eighty Miles in Length, from the *Iriſh* to the *German* Sea, or from *Carliſle* to *Newcaſtle*; with Watch-Towers garriſon'd at the Diſtance of a Mile from each other.

It was ruined ſeveral Times by the *Picts*, and often repaired by the *Romans*.—At laſt *Aetius*, a *Roman* General, rebuilt it of Brick; and the *Picts* ruining it the Year following, it was no longer regarded, but as a Boundary between the two Nations.

The Wall was eight foot thick, and twelve high from the Ground; it run on the Northſide of the Rivers *Tyne* and *Irthing*, up and down ſeveral Hills; the Tract or Remains of it is to be ſeen this Day in many Places both in *Cumberland* and *Northumberland*.

PICTURE, a Piece of Painting; or a Subject, repreſented in Colours, on Canvas, Wood, or the like, and incloſed in a Frame. See PAINTING.

PIE-POUDER-*Court*, an ancient Court, mention'd in many of our Statutes, to be held in Fairs; for the rendering of Juſtice to Buyers and Sellers; and the Redreſs of Grievances ariſing therein. See FAIR.

It had its Name either becauſe moſt ordinarily held in Summer, and the that Suiters hereat were chiefly Country-Clowns, with *duſty Feet*, call'd by the *French*, *pieds poudreux*; or from the Expedition intended in the hearing of Cauſes proper thereto, e'er the *Duſt* went off the Plaintiff and Defendant's Feet.

The *Saxons* called it ceapung-gemot *i. e.* a Court of Merchandiſe; or for the Deciſion of Diſputes relating to buying and ſelling.—*Doctor* and *Student* obſerve that it is only held during the Continuance of the Fairs, *&c.*

PIECE, in Commerce, ſignifies, ſometimes, a whole; and ſometimes, only a Part of a whole.

In the firſt Senſe, we ſay, a *Piece of Cloth*, *of Velvet*, &c. meaning a certain Quantity of Yards, regulated by Cuſtom; being yet entire and not cut. See CLOTH.

In the other Signification we ſay, a *Piece of Tapeſtry*, meaning a diſtinct Member wrought a-part, which with ſeveral others make one Hanging. See TAPESTRY.

A *Piece of Wine*, of Cyder, *&c.* is a Caſk full of thoſe Liquors.

PIECE, in matters of Money, ſignifies, ſometimes, the ſame thing with *Species*; as when we ſay this Piece is too light, *&c.* See SPECIES.

Sometimes, by adding the Value of the Species, 'tis uſed to expreſs ſuch as have no other particular Name; as, a *Piece of* 8 *Rials*, a *Piece of* 25 *Sols*, &c.

In *England* the *Piece* is ſometimes uſed for twenty Shillings Sterling; and ſometimes for a Guinea. See GUINEA, and POUND, and STERLING.

PIECE *of Eight*, or *Piaſter*, is a Silver Money, firſt ſtruck in *Spain*, afterwards in other Countries; and now current in moſt Parts of the World. See COIN.

It has its Name *Piece of Eight*, or *Rial of Eight*, becauſe equal to 8 Silver Rials. See RIAL.

Its Value is nearly on the ſame Foot with the *French* Crown; *viz.* 4*s.* 6*d. Sterling*.—In 1687, the Proportion of the ſimple Rial to the Piaſter was changed; and in lieu of 8 Rials they gave 10.——At preſent the Reduction is on its ancient Standard.

There are two kinds of Piaſters or *Spaniſh* Crowns; the one ſtruck at *Potoſi*, the other at *Mexico*: Theſe latter are a little Matter heavier than the former, but in return they are not quite ſo fine.

The *Piece of Eight* has its Diminutions; *viz.* the Demi-Piaſter, or *Piece* of 4 Rials; the Quarter, or *Piece* of 2; the half Quarter, and the Sixteenth.——The Exchange between *Spain* and *England* is made in *Pieces of Eight*. See EXCHANGE.

Piece, is alſo a kind of Money of Account, or rather a manner, of accounting uſed among the Negroes of the Coaſt of *Angola* in *Africa*. See MONEY.

The Price of Slaves, and other Commodities, here negotiated, as alſo the Duties paid the petty Kings, are eſtimated on both ſides in *Pieces*.

Thus, theſe Barbarians requiring 10 *Pieces* for a Slave; the *Europeans* in like manner value the Money, or Merchandize, to be given in Exchange, in *Pieces*. See COMMERCE.

Ten Anabaſtes, *e. g.* are 1 *Piece*; a Barrel of Powder of ten Pounds, 1 *Piece*; a Piece of blue Salempouris, 4 *Pieces*; ten braſs Baſons, 1 *Piece*.

PIECE, in Heraldry, is an Ordinary, or Charge. See ORDINARY.

The honourable *Pieces* of the Shield are the Chief, feſs, bend, pal, bar, Croſs, Saltier Chevron; and in general all thoſe which may take up one third of the Field, when alone, in what manner ſoever it be.

PIECES, in the Military Art, are Cannons, or great Guns, uſed at Sieges, *&c.* call'd *Pieces of Ordnance*, *battering Pieces*, &c. See ORDNANCE, CANNON, *&c.*

Field-Pieces are thoſe placed in the Front of an Army, *&c.* See FIELD-PIECES.

PIEDOUCH, in Architecture, a little Stand, or Pedeſtal, either long or ſquare, enrich'd with Mouldings; ſerving to ſupport a Buſt, or other little Figure. See PEDESTAL, BUST, *&c.*

The Word is *French*; form'd from the *Italian*, *peduccio*, *little foot*.

PIEDROIT, in Architecture, a *Peer*; or a kind of ſquare Pillar, part whereof is hid within a Wall. See PEER and PILLAR.

The only thing wherein it differs from a Pilaſter, is, that the latter has a regular Baſe and Capital, which the other wants. See PILASTER.

PIEDROIT is alſo uſed for a Peer, or Jaumb of a Door, or Window; comprehending the Chambranle, Chamfering, Leaf, *&c.* See DOOR, WINDOW, *&c.*

PIERCED, in Heraldry, is when an Ordinary is perforated, or ſtruck through, ſhewing, as it were, a Hole in it.

This *Piercing* is to be expreſſed in Blazon, as to its Shape: Thus if a Croſs have a ſquare Hole, or Perforation in the Center, it is blazon'd, *Square Pierced*, which is more proper than quarterly pierced, as *Leigh* expreſſes it; and accordingly the *French* call it *Percée en quarre*—When the Hole, or Perforation, is round, it muſt be expreſſed *Round Pierced*; which *Gibbon*, in *Latin* calls *Perforation*, becauſe all Holes made with Piercers, or Augers, are round.—If the Hole in the

Center be in the Shape of a Lozenge, it is expreſſed *Pierced Lozenge ways*.

All Piercings muſt be of the Colour of the Field, becauſe the piercing implies the ſhowing of that which is under the Ordinary, or Bearing.—Tho' when ſuch Figures appear on the Center of a Croſs, *&c.* of another Colour, the Croſs is not to be ſuppoſed *pierced*, but that the Figure on it is a Charge, and muſt be accordingly blazoned. See Cross, *&c.*

Pierced, among Farriers, to *pierce a Horſe's Shoe lean*, is to pierce it too near the Edge of the Iron.—To *pierce it fat*, is to pierce it further in.

PIES, in our ancient Law Books. *Freres Pies*, were a ſort of Monks, ſo called becauſe they wore black and white Garments, like Magpies.—They are mentioned by *Walſingham*, *p.* 124. *In quodam veteri cœmeterio, quod fuerat quondam fratrum, quos* Freres pies *veteres appellabant*.

PIESTRUM, πίεςρον, an Inſtrument wherewithal to beat in pieces the Bones of the Head, in drawing a Child out of the Womb.

PIETANTIA, a *Pittance*; or Portion of Victuals diſtributed to the Members of a College, upon ſome great Feſtivals. See Pitance.

PIETISTS, a Religious Sect lately ſprung up among the Proteſtants of *Germany*.

The *Pietiſts* ſeem to be a kind of mean, between the Quakers of *England*, and the Quietiſts of the *Romiſh* Church. See Quietist and Quaker.

Their Author was *Spenerus*, from whom they learnt to deſpiſe all Eccleſiaſtical Polity, all School Theology, all Forms and Ceremonies; and to give themſelves up to Contemplation and the myſtic Theology. See Mystic.

The *Pietiſts* are eſteemed Adiaphoriſts, or Indifferentiſts, *i. e.* in the *German* way of talking, they receive and allow of all Sects among Proteſtants, particularly the *Calviniſts*; contrary to the Practice of other *Lutherans*.—Hence a *Lutheran* of *Dantzick* defines *Pietiſm* an Aſſemblage of the Hypotheſes, or Syſtems, of *Anabaptiſts*, *Schwecnekfeldians*, *Weigelians*, *Rathmannians*, *Labadiſts*, *Quakers*, &c. who under Pretence of a new Reformation, and in hopes of better Times, ſet aſide the *Augsburg* Confeſſion.

The ſame Author charges them not only with Schiſm, but with Hereſy; in that they believe with the *Donatiſts*, that the Effect of the Sacraments depends on the Piety and Virtue of the Miniſter; that Creatures are Emanations from the Subſtance of God; that a State of Grace is a real Poſſeſſion of the Divine Attributes, and a true Deification; that one may be united to God, tho' he deny the Divinity of *Jeſus Chriſt*; that all Error is innocent, provided the Will be but ſincere; that Preventing-Grace is natural, and that the Will begins the Work of Salvation; that one may have Faith without any Supernatural Aſſiſtance; that all Love of the Creature is original; that a Chriſtian may avoid all Sin; that one may enjoy the Kingdom of God in this World.

Theſe things we find charg'd on the *Pietiſts*, in a Book intituled, *Manipuli Obſervationum Antipietiſticarum*.—Indeed this looks like polemical Exaggeration, at leaſt 'tis certainly ſo with regard to a good part of them.

In effect there are *Pietiſts* of ſeveral kinds; ſome are in groſs Illuſions, and carry their Errors to the overturning a good part of the Chriſtian Doctrine; others are only viſionaries; and others very honeſt good People, who diſguſted with the Coldneſs and Formality of other Churches, and charm'd with the fervent Piety of the *Pietiſts*, are attach'd to their Party, without giving into the groſſeſt of their Errors.

PIG *of Lead*. See Fother and Lead.

PIGER *Henricus*, *Slothful Henry*, a ſlow diſtilling Chymical Furnace; call'd alſo *Athanor*. See Athanor and Furnace.

PIGMENTS, Pigmenta, Preparations uſed by Painters, Dyers, *&c.* to impart Colours to Bodies, or to imitate particular Colours. See Colour.

When Glaſs is ſtained, or coloured, as in Painting on Glaſs, or for the counterfeiting of Gems, or Precious Stones; the *Pigment* is uſually of a Metalline, or a Mineral Nature. See Enamel; ſee alſo Painting *on Glaſs*.

PIGMY, or Pygmy, πυγμὴ, the Length, or Extent, between the Elbow and the Extremity of the Hand; the Fiſt being ſhut; popularly call'd *Cubit*. See Cubit.

Hence the Name has paſs'd to a diminutive People of *Thrace*, much talk'd of in old Authors; ſaid to have generated at five Years of Age, and to have been old at eight; famous for their War with the Cranes, which makes the Subject of a fine *Latin* Poem of Mr. *Addiſon*.

The Word is derived from the *Greek* πυγμὴ, Cubit.

PIKE, an offenſive Weapon, conſiſting of a Shaft of Wood, twelve or fourteen Foot long; headed with a flat, pointed Steel.

The *Pike* was a long time in uſe in the Infantry, to enable them to ſuſtain the Attack of the Cavalry; but is now taken from them, and the Bayonet, which ſcrews on at the End of the Carabine, ſubſtituted in its Place.

Yet the *Pike* ſtill continues the Weapon of Foot-Officers, who fight *Pike* in hand, ſalute with the *Pike*, &c.

Pliny ſays the *Lacedemonians* were the Inventors of the *Pike*.—The *Macedonian Phalanx* was a Battallion of *Pikemen*. See Phalanx.

The Name *Pike* is ſaid to be derived from a Bird call'd by the *French Pie*, by us Wood-Pecker, whoſe Bill is ſo ſharp as to pierce Wood like an Auger.—*Du Cange* derives it from the baſe *Latin Pica*, or *Picca*, which *Turnebius* ſuppoſes to have been ſo call'd *quaſi Spica*, becauſe reſembling a kind of Ear of Corn. *Octavius Ferrarienſis* derives it *à ſpiculo*.

M. *Fauchet* ſays, 'tis the *Pike* gave Name to the *Picards*, and *Picardy*, which he will have to be modern, and to have been given on occaſion of that People's renewing the uſe of the *Pike*, the Etymology whereof he fetches from the *French piquer*, to prick: others will have the Name *Picard* to have been given that People by reaſon of their Readineſs to pick Quarrels, call'd in *French Piques*.

Pike, in Commerce——*To treat with the Pike*, *à la pique*, is a kind of Commerce which the *Europeans* hold with certain ſavage Nations, wherein they are to keep on their Guard, and as it were Sword in Hand.—Thus it is we treat with the Savages of *Canada*, &c. and ſome Negroe Nations on the Coaſt of *Africa*.

Treating with the Pike, is alſo a kind of prohibited Traffic which the *Engliſh* and *Dutch* maintain in ſeveral Parts of the *Spaniſh Weſt Indies*, near the Colonies which thoſe two Nations have in the *Caribbee* Iſlands.

Perhaps it ſhould be call'd *Treating at the Pike*, i. e. the Veſſel at Anchor; in regard this Commerce, which is prohibited on Pain of Death, is only practiſed in Roads where Veſſels lie at Anchor, waiting for the *Spaniſh* Merchants, who ſometimes by Stealth, more frequently with the Connivance of the Governors, *&c.* come to exchange their Gold Pieces of Eight, Cochineal, *&c.* for the *European* Merchandizes.

Some will have it treating at the Pike, *i. e.* at a *Pike's* Length, or Diſtance; by reaſon of the Diſtance Strangers are obliged to keep at. See Commerce.

PILA or Pile, among our ancient Writers, denotes the Arms-ſide of a Piece of Money. The Denomination aroſe hence, that anciently this Side bore an Impreſſion of a Church built on Piles. *Fleta lib.* 1. *cap.* 39. *He who brings an Appeal of Robbery or Theft againſt another, muſt ſhew the certain Quantity, Quality, Price, Weight, Number, Meaſure,* Valorem & Pilum; where *Pilum* ſignifies *figuram Monetæ*.

Pila, *Peer*, in Building, a Maſſive of Maſons Work in manner of a Pillar; uſually hexagonal. See Peer.

Such are thoſe ſerving as Fulcra, to ſeparate and ſupport the Arches of a Stone Bridge, or the Beams of a wooden Bridge.

The *Peers* of a Stone Bridge are not to be leſs than one ſixth Part of the Arch, nor more than a fourth. See Bridge.

The Word comes from the *Latin*, *Pila*, uſed in the ſame Senſe by *Vitruvius*; and this, probably, from πιλέω, *cogo*, *coarcto*.

Evelyn obſerves, that *Pilæ* and their Quadras, as we ſee them in ancient Altars and Monuments, were uſed for Inſcriptions; but the ſhorter and more maſſy ſerve for Arches and Buttreſſes to ſolid Work.—They were ſometimes made half circular: But the Ancients preferr'd thoſe pointed at right Angles, as beſt able to reſiſt the Current.

PILASTER, in Architecture, a ſquare Column, ſometimes inſulated, but more frequently let within a Wall, and only ſhewing a fourth or fifth Part of its Thickneſs. See Column.

The *Pilaſter* is different in different Orders; it borrows the Name of each Order, and has the ſame Proportions and the ſame Capitals, Members, and Ornaments, with the Columns themſelves. See Order.

Pilaſters are uſually without either Swelling or Diminution, as broad at top as at the bottom; tho' ſome of the modern Architects, as M. *Manſard*, &c. diminiſh them at top, and even make them ſwell in the middle, like Columns; particularly when placed behind Columns. See Diminution.

Pilaſters, M. *Perrault* obſerves, like Columns, become of different Kinds, according to the different Manner wherein they are applied to the Wall.——Some are wholly detach'd, call'd by *Vitruvius*, *Paraſtatæ*; others have three Faces clear out of the Wall; others two; and others only one; all call'd by *Vitruvius*, *Antæ*. See Anta and Parastata.

Inſulate *Pilaſters* are but rarely found in the Antique—The chief Uſe they made of *Pilaſters* was at the Extremities of Portico's, to give the greater Strength to the Corners.

There are four principal Things to be regarded in *Pilaſters*: *viz.* their Projecture out of the Wall, their Diminution, the Diſpoſition of the Entablature when it happens to be common to them and to a Column, and their Flutings and Capitals.

1° Then, the Projecture of *Pilaſters* which have only one Face out of the Wall, is to be one eighth of their Breadth; at moſt not above one ſixth. When they receive Impoſts againſt

gainſt their Sides, the Projecture may be a Quarter of their Diameter. See PROJECTURE.

2° *Pilaſters* are but ſeldom diminiſh'd, when they have on-y one Face out of the Wall.——Indeed where they ſtand in he ſame Line with Columns, and the Entablature is con-inued over both, without any Break, the *Pilaſters* are to ave the ſame Diminution with the Columns; that is to y, on the Face reſpecting the Column; the Sides being eft without any Diminution.

3° *Pilaſters* are ſometimes fluted, tho' the Columns they ccompany be not; and, on the other hand, the Columns re ſometimes fluted, when the *Pilaſters* that accompany hem are not.

The Flutings of *Pilaſters* are always odd in Number, ex-cept in half *Pilaſters*, meeting at inward Angles; where four Flutings are made for three, *&c.* See FLUTING.

4° The Proportions of the Capitals of *Pilaſters*, are the ame as to Height with thoſe of Columns, but differ in Width, the Leaves of the former being much wider, be-cauſe *Pilaſters*, tho' of equal Extent, have only the ſame Number of Leaves for their Girt, *viz.* Eight.—Their uſual Diſpoſition is to have two in each Face, in the lower Row, and in the upper Row one in the middle, and two halves in the Angles, in the Turns whereof they meet.—Add to this, that the Rim of the Vaſe or Tambour is not ſtrait as the lower Part is, but a little circular and prominent in the middle. See CAPITAL, *&c.*

In *Pilaſters* that ſupport Arches, the Proportions, *Palladio* ſhews, muſt be regulated by the Light they let in; and at Angles, by the Weight they are to ſuſtain. For which Reaſon, ſays Sir *Henry Wotton*, a ruſtic Superficies beſt becomes them.

PILASTER-*Brick*. See BRICK.

PILCHARD *Fiſhing*. See *Pilchard* FISHING.

PILE, in Antiquity, a Pyramid built of Wood, whereon were laid the Bodies of the deceaſed, to be burnt. See BUSTUM; ſee alſo FUNERAL, BURNING, *&c.*

PILE is alſo uſed in Building, for great Stakes ramm'd into the Earth for a Foundation to build upon in marſhy Ground. See FOUNDATION; ſee alſo PALLIFICATION.

Amſterdam, and ſome other Cities are wholly built upon *Piles*. The Stoppage of *Dagenham*-Breach is effected by Dove-tail *Piles*, i. e. *Piles* mortais'd into one another, by a Dove-tail Joint. See DOVE-TAIL.

PILE is alſo uſed, among Architects, for a Maſs, or Body, of Building.

PILE, PILA, in Coinage, is the Punchion, or Matrice, which, in the old way of coining with the Hammer, contained the Arms, Croſs, or other Figures and Inſcriptions, to be ſtruck for the Reverſe of the Species. See COIN and SPECIES.

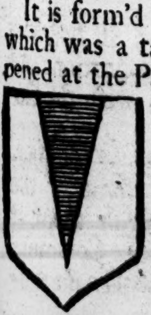
Accordingly we ſtill call the Arms Side of a Piece of Money, the *Pile*, and the Head the Croſs; becauſe in the ancient Monies, a Croſs uſually took the Place of the Head in ours. See COINING.

Hence the Game of *Croſs* and *Pile*.

Some will have it call'd *Pile*, *Pila*, becauſe on this ſide, in our ancient Coins, there was an Impreſſion of a Church built on *Piles*.——In ſome ancient Writings *Pila* is uſed to ſignify the particular Figure or Impreſſion of Money.——Thus *Fleta*; *He who bring an Appeal of Robbery, or Theft, againſt another, muſt ſhew the certain Quantity, Quality, Price, Weight, Number, Meaſure, Value, and* Pile.

PILE, in Heraldry, an Ordinary, in form of a Point inverted, or a Stake ſharpen'd; contracting from the Chief, and terminating in a Point towards the Bottom of the Shield, ſomewhat in manner of a Wedge.

It is form'd probably in Imitation of the *Roman Pilum*, which was a tapering Dart about five Feet long, and ſharpened at the Point with Steel.



The *Pile* is born inverted, engrailed, *&c.* like other Ordinaries, and iſſues indifferently from any Point of the Verge of the Eſcutcheon.——*He beareth a* Pile Gules, *by the Name of* Chandois.

PILES, in Medicine, a Diſeaſe, by Phyſicians, call'd Hæmorrhoids. See HÆMORRHOIDS.

PILETTUS, in our ancient Foreſt Laws, *Et quod Foreſtarii ſui non portabunt ſagittas barbatas ſed* pilettos. *Charta Rogeri de Quincy:* where the Word imports ſuch Arrows as had a round Knob a little above the Head, to hinder them from going far into the Mark; from the *Latin Pila*, which ſignifies any round thing like a Ball.

PILGRIM, PELGRIM, of the *Teutonic Pilgram*, the *French Pelerin*, or the *Italian Pelerigno*, of the *Latin Peregrinus*, one who travels thro' foreign Countries to viſit holy Places, and to pay his Devotion to the Reliques of dead Saints.

The Humour of going on Pilgrimage anciently prevail'd exceedingly; particularly about the Time of the Croiſades. See CROISADE and CROISE.

Several of the principal Orders of Knighthood were eſtabliſh'd in Favour of *Pilgrims* going to the *Holy Land*, to ſecure them from the Violences and Inſults of the *Saracens* and *Arabs*, &c. ſuch as the Order of the Knights *Templars*; the Knights *Hoſpitallers*, Knights of *Malta*, &c. See ORDER, TEMPLAR, MALTA, *&c.*

PILLAGE, among Builders, is ſometimes uſed for a ſquare Pillar, ſtanding behind a Column to bear up the Arches; having a Baſe and Capital as a Pillar has. See PILLAR.

PILLAR, in Architecture, a kind of irregular Column, round and inſulated; deviating from the Proportions of a juſt Column. See COLUMN.

Pillars are always either too maſſive or too ſlender for a regular Architecture. In effect, *Pillars* are not reſtrained to any Rules; their Parts and Proportions are arbitrary.

Such *e. gr.* are the *Pillars* which ſupport *Gothic* Vaults and Buildings, *&c.*

A ſquare *Pillar* is a maſſive Work, call'd alſo a Peer or Piedroit, ſerving to ſupport Arches, *&c.* See PEER and PIEDROIT.

Butting Pillar is a Buttreſs, or Body of Maſonry, raiſed to prop or ſuſtain the Shooting of a Vault, Arch, or other Work. See BUTTRESS.

PILLAR, in the Manage, ſignifies the Centre of the Volta, Ring, or Manage-Ground, round which a Horſe turns; whether there be a wooden Pillar placed therein or not.

There are alſo other *Pillars* in Manages on the Circumference or Side; placed at certain Diſtances by two and two.——To diſtinguiſh theſe from that of the Center, they are called the *two Pillars*.

When theſe latter are ſpoken of, it is uſual to ſay, *Work the Horſe between the two Pillars.*——When the former, it is call'd, *working round the Pillar*.

The Uſe of the *Pillar* in the Center, is for regulating the Extent of Ground, that the Manage upon the Volts may be perform'd with Method and Juſtneſs; and that they may work in a Square by Rule and meaſure upon the four Lines of the Volts; and alſo to break unruly high mettled Horſes, without endangering the Rider.

The *two Pillars* are placed at the Diſtance of 2 or 3 Paces the one from the other.——The Horſe is put between theſe, to teach him to raiſe before, and yerk out behind; and put himſelf upon rais'd Airs, *&c.* either by the Aids or Chaſtiſement.

PILLE *of Foddray*, or PILL *of Fouldrey*, in the County of *Lancaſter*, a Defence built on a Creek of the Sea, call'd *Pille*, by the Idiom of the County, for a Pile or Fort built for the Safe-Guard or Protection of any Place.

This *Pile* was erected there by the Abbot of *Forneſſe*, in the firſt Year of *Edw.* III. *Camb. Brit. Rex*——*Dedimus Henrico Comiti Northumb. Inſulam, Caſtrum,* Pelam *& Dominium de Man*, &c. Rot. Pat. 1 Hen. IV.

PILLORY was anciently a Poſt erected in a croſs Road, by the Lord, as a Mark of his Seigniory, with his Arms on it, and ſometimes a Collar to tie Criminals to.

At preſent, *Pillory* is a wooden Machine, whereon certain Criminals, as Perjurors, *&c.* are faſtened, and expoſed to the publick Deriſion. See PUNISHMENT, PERJURY, *&c.*

In the Laws of *Canutus* 'tis called *Healſehang*.——Sir *Henry Spelman* ſays 'tis *ſupplicii machina ad ludibrium, magis quam pœnam*.

'Twas peculiarly intended for the Puniſhment of Bakers who ſhould be caught tripping in the Weight or Fineneſs of their Bread.——In old Charters it is called *Colliſtrigium*. See COLLISTRIGIUM.

The *Pillory* in *Paris* is in the middle of a round Tower, with Openings on every ſide.——'Tis moveable on an Axis, or Arbor; round which the Executioner gives the Criminal the Number of Turns appointed in Court; ſtopping him at each Opening to ſhew him to the People.——'Twas intended for ſeveral Kinds of Criminals, particularly fraudulent Bankrupts; and all who made a Ceſſion, or Surrender of their Effects to their Creditors, were obliged to make ſome Turns round the Pillory on Foot with a green Cap on. See BANKRUPT, CESSION, *&c.*

PILLULA, PILL, in Pharmacy, a Form of Medicine, taken dry; reſembling a little Ball; invented in favour of ſuch as cannot a-way with Medicinal Draughts; as alſo to keep in Readineſs for occaſional Uſe without decaying.

Pills are of various Kinds, Anodyne, Somniferous, Laxative, Aperitive, Hyſteric, Antinephritic, *&c.* but principally Cathartic.

The Baſis of *Pills* is uſually Aloes; with which are mix'd Agaric, Turbith, Hermodactyls, Senna, Rhubarb, Mercury, Storax, *&c.*

Perpetual Pills, *Pillulæ perpetuæ*, are Regulus of Antimony made up into *Pills*; thus call'd, becauſe being ſwallowed and voided 50 times, they will purge every Time with undiminiſh'd Force. See ANTIMONY.

The *Aloephangine* or *Aromatic Pills* of *Meſue*, are uſually call'd *Polychreſtes*, as being ſuppoſed to collect the Humours from all Parts, to enable Nature to caſt 'em out more eaſily.

Bechic Pills, are a ſort of *Pills* good againſt Coughs, ſo call'd from the *Greek* βὴξ, Cough.—They are alſo call'd *Hypoglottides*, becauſe left to diſſolve under the Tongue.

Pills are uſually wrapp'd up in Leaf-Gold, in Sugar, or the like, to prevent the ill Taſts being perceived.

They take their Name from the *Latin*, *Pila*, Ball.

PILOT, Pilote, by the *Dutch* call'd Piloot, the *Italians* Pilota, the *Spaniards* Piloto, in Navigation, an Officer on board a Ship, who watches her Courſe, and directs it. See Course, Sailing, *&c.*

There are two kinds of *Pilots*; the one a *Coaſting Pilot*, well acquainted with the Coaſts, Ports, Roads, Bars, Sands, *&c.* and who commands in Sight thereof. See Coasting.

The other an Officer who makes Obſervations and takes Altitudes out at Sea, uſes the Quadrant, Fore-Staff, watches the Compaſs, *&c.* See Observation, Altitude, *&c.*

There are alſo *Pilots* of Havens, Rivers, *&c.* call'd *Lochmans*. See Lochman.

The *Pilot* is always the ſecond Perſon in the Ship; whether it be a Man of War, or a Merchant-Man.—In the former the Captain is the firſt, the *Pilot* the ſecond. In a Merchant-Ship, the Maſter is the firſt, the *Pilot* after him. The *Pilot* is alſo the Steersman, who ſtands at the Helm, and manages the Rudder. See Steerage, Helm, and Rudder.

Menage derives the Word *Pilot* from *Prorita*, *q. d.* he who governs the Prow, or Head. Others fetch it from the old *French*, *Pile*, Ship.

PIMENTO, Pimenta, or *all-Spice*; an Aromatic Grain; call'd alſo *Guinea-Pepper*. See Pepper.

PIN, in Commerce, a little neceſſary Utenſil, chiefly uſed by the Women in adjuſting of their Dreſs.

The Form and Application of this little Moveable need no Deſcription; but its Conſumption, and the Number of Hands it employs, are too conſiderable to be paſs'd by unnoted.

Pins are now altogether made of Braſs-Wiar blanch'd: Formerly they likewiſe made them of Iron-Wiar, which being blanch'd like the others paſs'd, for Braſs; but the ill Effects of thoſe *Pins* has quite diſcarded their Uſe.—The *French* however could not be driven off from 'em, without ſeveral Arrets of Parliament. By a Sentence of the Lieutenant de Police, *July* 1695, the Seizure of ſome Millions of thoſe *Pins* was confirm'd, and the *Pins* condemn'd to be burnt by the common Executioner.

The *Pins* moſt eſteemed in Commerce are thoſe of *England*; thoſe of *Bourdeaux* are next, then thoſe made at *Rugle*, *Naigle*, and ſome Places in *Normandy*.

The Perfection of *Pins* conſiſts in the Stiffneſs of the Wiar, and its blanching, in the Heads being well turn'd, and the Points filed.

The *London* pointing and blanching are the moſt eſteemed; becauſe after forming the Points on the Stone, they ſmooth them again on the Poliſher; and in blanching uſe fine Tin well calcin'd, and ſometimes Silver-Leaves prepared by the Gold-Beaters; whereas in other Parts they uſe a Mixture of Tin, Lead, and Quickſilver, which not only blanches worſe than the former, but is alſo dangerous, by reaſon of the ill Quality of that Mineral, which renders a Puncture with a *Pin* thus blanch'd very difficult to cure.

The Conſumption of *Pins*, and the Number of Artificers employ'd in the Manufacture thereof are incredible. In *Paris* alone there were anciently above 1000 People employ'd in it, at preſent there are none; yet is there every Year ſold above 50000 Crowns worth of the *Pin-Wiar*, to the *Pinmakers* of the neighbouring Places, all brought thither from *Stockholm*.—In the little Town of *Rugle* in *Normandy*, there are computed at leaſt 500 Workmen employ'd in the *Pin-Manufacture*; the whole City being peopled therewith.

Notwithſtanding that there is ſcarce any Commodity cheaper than *Pins*, there is none that paſſes thro' more Hands e'er they come to be ſold.——They reckon 25 Workmen ſucceſſively employ'd in each *Pin*, between the drawing of the Braſs-Wiar, and the ſticking of the *Pin* in the Paper.

Pins are diſtinguiſhed by *Numero*'s, the ſmalleſt call'd from N° 3, 4, 5. thence to the 14th; whence they are only accounted by two to two, *viz.* N° 16, 18, and 20, which is the largeſt Size.

Beſide the white *Pins*, there are alſo black ones made for Mourning, from N° 4, to N° 10.—Theſe are uſually of Iron-Wiar.

Laſtly, there are *Pins* with double Heads, of ſeveral *Numero*'s, uſed by the Ladies to fix the Buckles of their Hair for the Night, without Danger of being diſturb'd by their pricking, *&c.*

One of the Article of the Statutes of the ancient Pinmakers of *Paris*, was, That no Maſter ſhould open more than one Shop for the Sale of his Wares, *except on New-Year's-Day, and the Eve thereof:* This we mention in an Age of Luxury and Profuſion, to recollect the agreeable Simplicity of our Foreſathers, who contented themſelves with giving *Pins* for New-Years-Gifts.

Hence the Cuſtom of ſtill giving the Name *Pins*, or *Pin-Money*, to certain Preſents which accompany the moſt conſiderable Bargains; in which 'tis uſual to give ſomething towards the *Pins* of the Wife, or Children, of the Perſon with whom the Bargain is ſtruck.

Ad Pinnas *bibere*, is a Method of drinking, uſed among the *Danes* in *England*.——The Cuſtom was to fix a *Pin* in the Side of a wooden Cup or Bowl; which *Pin*, each Gueſt was to drink bare, upon Penalty of forfeiting.

Pin-*and-Web*, a horny Induration of the Membranes of the Eye, not greatly unlike a Cataract. See Cataract.

The *Pin* and Web is the ſame with what we otherwiſe call *Pannus*, *Unguis*, *Pterygium*, &c. See Pannus, Pterygium, *&c.*

Pin-*Wheel*, of a Clock, the ſame with the ſtriking Wheel. See Wheel and Clock.

PINDARIC, in Poetry, an Ode form'd in Imitation of the manner of *Pindar*. See Ode.

The *Pindaric* Manner is diſtinguiſh'd by the Boldneſs and Height of the Flights, the Suddenneſs and Surprizingneſs of the Tranſitions, and the ſeeming Irregularity, Wildneſs, and Enthuſiaſm of the whole.

Pindar, whence the manner takes its Name, was of *Thebes*. He flouriſh'd about 478 Years before *Chriſt*; and was contemporary with *Æſchylus:* What we have remaining of his is a Book of Odes, all in Praiſe of the Victors at the *Olympian*, *Pythian*, *Nemæan*, and *Iſthmian* Games; whence the firſt is entitled the *Olympians*, the ſecond the *Pythians*, the third the *Nemæans*, and the fourth the *Iſthmians*.

Pindar is full of Force and Fire; his Thoughts ſententious, his Style impetuous; his Sallies daring, and frequently running as it were at random: he affects a beautiful Diſorder, which is the Effect of the greateſt Art.

The ſuppoſed Irregularity of his Numbers has made ſeveral of his Imitators imagine themſelves *Pindaric* Poets, by the meer Wildneſs and Irregularity of their Verſes.—None of our Writers ſeem to have ſucceeded in the *Pindaric* Character, but Mr. *Cowley*.

In a *Pindaric* Ode, the Plan of the whole is to be drawn firſt, and the Places mark'd out where the elegant Sallies and Wandrings may beſt be, and how the Returns may be juſtly made to the Subject.

PINCHING, in Gardening, a ſort of pruning; perform'd by nipping or breaking off the Branches, or Sprigs of a Plant, or Tree, between the Nails of two Fingers. See Pruning.

Moſt Gardeners hold, that *pinching* contributes to the Abundance of the Fruit, as well as of the Branches; and ſay, that young Shoots, thus lopp'd, are leſs apt to grow black and die, than when cut with a pruning Knife.

The Seaſon for *pinching* is chiefly in *April* or *May*, ſometimes 'tis alſo practis'd in *June* and *July*.

Pinching is moſt uſual in Melons, Cucumbers, *&c.* *Quintinye* alſo preſcribes it for Fruit-Trees.

It is chiefly to be practiſed on the large Branches towards the Top of the Tree, which are uſeleſs and yet conſume a great Quantity of good Sap. It muſt rarely be practiſed on the large Branches below; which ought always to be preſerv'd for the Winter's pruning, that they may yield others, the following Year, fit to fill the empty Places.——Nor muſt the Operation of *pinching* be perform'd on the tender Shoots; becauſe having only juſt Sap enough for themſelves, when they come to put forth more Branches in the Place where they are *pinch'd*, the ſmall Stock of Sap allotted them being divided, will ſtarve them.—The Operation is perform'd within two or three Eyes of the Branch they grow out of.

The Effect of *pinching* is, that inſtead of one uſeleſs, perhaps hurtful, Wood-Branch, a vigorous Tree will put forth two or three at the Eyes remaining; and the Sap being thus divided, the Branches may be leſs, and fit for Wood and Fruit.

Pinching, in the Manage, is when, the Horſe ſtanding, the Rider holds him faſt with the Bridle-hand, and applies the Spurs juſt to the Hairs of his Sides, without pricking him.

Pinching is accounted an Aid, ſpurring a Correction. See Aid.

PINEA, or Pigne, in Commerce, a Term uſed in *Peru* and *Chili*, for a kind of light, porous Maſſes, or Lumps, form'd of a Mixture of Mercury and Silver-Duſt from the Mines. See Silver.

The Ore, or Mineral of Silver, being dug out of the Veins of the Mine, is firſt broke, then ground in Mills for the Purpoſe, driven by Water with Iron Peſtles of 200 Pound-Weight.—The Mineral thus pulveriz'd, is next ſifted, then work'd up with Water into a Paſte, which when half dry, is cut into Pieces, call'd *Cuerpo's*, a Foot long; weighing each about 2500 Pound.

Each Cuerpo is again kneaded up with Sea-Salt, which diſſolving incorporates with it.—They then add Mercury, from 10 to 20 Pound for each Cuerpo, kneading the Paſte a-freſh 'till the Mercury be incorporated therewith. This

Office being exceedingly dangerous, by reaſon of the ill Qualities of the Mercury, is the Lot of the poor *Indians*. See MERCURY.

This Amalgamation is continued for 8 or 9 Days: Some add Lime, Lead, or Tin Ore, *&c.* to forward it; and in ſome Mines they are obliged to uſe Fire.—To try whether or no the Mixture and Amalgamation be ſufficient, they waſh a Piece in Water, and if the Mercury be white, it has had its Effect, if black it muſt be further work'd.

When enough, it is ſent to the Lavatories, which are large Baſons that empty ſucceſſively into one another.—The Paſte *&c.* being laid in the uppermoſt, the Earth is then waſh'd from it into the reſt by a Rivulet turn'd upon it; an *Indian* all the while ſtirring it up with his Feet, and two other *Indians* doing the like in the other Baſons. See LAVADERO.

When the Water runs quite clear out of the Baſons, they find the Mercury and Silver at Bottom, incorporated.—This Matter they call *Pella*, and of this they form the *Pinea's* by expreſſing as much of the Mercury as they can; firſt by putting it in woolen Bags and preſſing and beating it ſtrongly; then by ſtamping it in a kind of wooden Mould of an Octagonal Form at bottom whereof is a Braſs-Plate pierced full of little Holes.

The Matter being taken out of the Mould is laid on a Trivet, under which is a large Veſſel full of Water; and the whole being cover'd with an earthen Head, a Fire is made around it.

The Mercury ſtill remaining in the Maſs is thus reduc'd into Smoak, and at length condenſing is precipitated into the Water, leaving behind it a Maſs of Silver Grains of different Figures, which only joining or touching at the Extremes render the Matter very porous and light.

This, then, is the *Pinea's* or *Pigne's* which the Workmen endeavour to ſell ſecretly to the Veſſels trading to the *South Sea*; and from which thoſe who have ventur'd to engage in ſo dangerous a Commerce have made ſuch vaſt Gains.——Indeed the Traders herein muſt be very careful, for the *Spaniſh* Miners are errant Knaves, and to make the *Pignes* weigh the more, make a Practice of filling the middle with Sand or Iron. See COMMERCE, PIKE, *&c.*

PINEAL, PINEALIS, in Anatomy, a Name which *Des Cartes* gives to a Gland in the third Ventricle of the Brain; from its Reſemblance to a Pine-Apple. See GLAND and BRAIN.

This Gland he makes the *Senſorium*, or Seat of the reaſonable Soul. See SENSORIUM.

Other Authors call it *Conoides* and *Conarium*. See CONARIUM.

PINGUEDO, among Anatomiſts, that ſort of Fat of Animals lying next under the Skin. See FAT.

PINION, in Mechanicks, an Arbor, or Spindle, in the Body whereof are ſeveral or Notches, into which catch the Teeth of a Wheel that ſerves to turn it round. Or a *Pinion* is a leſſer Wheel, which plays in the Teeth of a larger. See WHEEL.

In a Watch, *&c.* its Notches (which are commonly 4, 5, 6, 8, *&c.*) are call'd *Leaves*, and not Teeth as in other Wheels. See WATCH.

Pinion of Report, is that *Pinion* in a Watch which is commonly fix'd on the Arbor of the great Wheel, and which in old Watches uſed to have but four *Leaves*; it drives the Dial-Wheel, and carries about the Hand. See WATCHWORK.

The Quotient, or Number of Turns to be laid upon the *Pinion* of Report, is found by this Proportion: As the Beats in one Turn of the great Wheel, are to the Beats in an Hour; ſo are the Hours of the Face of the Clock, (*viz.* 12, or 24) to the Quotient of the Hour-Wheel, or Dial-Wheel divided by the *Pinion* of Report, that is, by the Number of Turns which the *Pinion* of Report hath in one Turn of the Dial-Wheel: which in Numbers is 26928 : 20196 :: 12 : 9.

Or rather thus; as the Hours of the Watches going, are to the Numbers of the Turns of the Fuſy; ſo are the Hours of the Face, to the Quotient of the *Pinion* of Report.—If the Hours be 12, then 16 : 12 :: 12 : 9. But if 24, the Proportion is 16 : 12 :: 24 : 18.

This Rule may ſerve to lay the *Pinion* of Report on any other Wheel, thus: As the Beats in one Turn of any Wheel, are to the Beats in an Hour; So are the Hours of the Face, or Dial-Plate of the Watch, to the Quotient of the Dial-Wheel, divided by the *Pinion* of Report, fixed on the Spindle of the aforeſaid Wheel. See CALCULATION.

PINK, or *Flute*, a Veſſel uſed at Sea, maſted and rigged like other Ships; only that ſhe is built with a round Stern; the Bends and Ribs compaſſing ſo, as that her Sides bulge out very much. See VESSEL.

This Diſpoſition renders the *Pinks* difficult to be boarded; and alſo enables them to carry greater Burdens than others.

They are often uſed for Store-Ships and Hoſpital-Ships in the Fleet.

PINK among Painters, a ſort of yellow Colour. See YELLOW and PAINTING.

PINNA, a *Latin* Word ſignifying a *Feather*. See FEATHER.

It is alſo uſed figuratively in divers Arts, to expreſs things which bear ſome Reſemblance, in Form, to Feathers; as the Fins of Fiſhes, *&c.* See FIN.

PINNA *Auris*, in Anatomy. See EAR.

PINNA *Naſi*, the ſame as *Ala Naſi*. See NOSE.

PINNACE, a ſmall Veſſel, with a ſquare Stern, having Sails and Oars, and carrying three Maſts; chiefly uſed as a Scout for Intelligence, and for landing of Men. See VESSEL.

One of the Boats belonging to a great Man of War, ſerving to carry the Officers to and from the Shore, is alſo called the *Pinnace*. See BOAT.

PINNACLE, in Architecture, the Top, or Roof, of a Houſe, terminating in a Point. See ROOF.

The Word comes from the *Latin Pinna*, or *Pinnaculum*.——This kind of Roof among the Ancients was appropriated to Temples; their ordinary Roofs were all flat, or in the Platform Way. See PLATFORM.

'Twas from the *Pinnacle*, that the Pediment took its Riſe. See PEDIMENT.

PINNATA *Folia*, from *Pinna*, a Feather, in Botany, are ſuch Leaves of Plants, as are deeply jagged, cut, or indented, reſembling a Feather in Shape. See LEAVES.

PINNING, in Building, the faſtening of Tiles together, with Pins of Heart of Oak; for the Covering of a Houſe, *&c.* See TYLES and COVERING.

PINT, a Veſſel or Meaſure uſed in eſtimating the Quantity of Liquids, and even ſometimes of dry things. See MEASURE.

The *Engliſh Pint* is twofold; the one for Wine-Meaſure, the other for Beer and Ale-Meaſure.

The *Wine Pint* contains a full Pound, *Avoir-du-pois*, of common running Water; two *Pints* make a Quart, two Quarts a Pottle, two Pottles a Gallon, *&c.* See GALLON, QUART, *&c.*

The *Paris Pint* is eſtimated at one ſixth of the ancient *Congius*; and contains two Pounds of common Water: It is divided into Chopines, which ſome call Septiers; the Septier into two Demi-Septiers, the Demi-Septier into two Poiſſons, each Poiſſon containing 6 Cubic Inches.—Two *Pints* make a Quart, *Quarteau*, which ſome call a Pot: The *Pint* of *S. Denis* is almoſt double that of *Paris*.

Budæus derives the Word *Pint* from the *Greek* πίνθα, *Menage*, from the *German Pinte*, a little Meaſure of Wine; *Nicod* from the *Greek* πίνειν, to drink.

PINTLE, among Gunners, an Iron Pin which ſerves to keep the Cannon from recoiling. See CANNON, ORDNANCE, RECOIL, *&c.*

PINTLES, in a Ship, are Hooks by which the Rudder hangs to the Stern-Poſt. See RUDDER, *&c.*

PIONEER, in War, a Labourer employ'd in an Army, to ſmooth the Roads, paſs the Artillery a-long, dig Lines and Trenches, Mines, and the other Works.

Menage derives the Word from the *Latin Peditones*, and *Peonarii*; or from *Pæonibus*, a People of *Aſia*, whoſe principal Employment was to dig the Earth in Mines, *&c.*

PIP, PEP, or PEPIA, a Diſeaſe among Poultry; conſiſting of a white thin Skin or Film, that grows under the Tip of the Tongue, and hinders their feeding.

It uſually ariſes from want of Water, or from drinking Puddle-Water, or eating filthy Meat.—It is cured by pulling off the Film with the Fingers, and rubbing the Tongue with Salt.—Hawks are particularly liable to this Diſeaſe. See HAWK.

PIPE, in Building, *&c.* a Canal or Conduit for the Conveyance of Water, and other Liquids. See CANAL.

Pipes for Water, Water-Engines, *&c.* are uſually of Lead, Iron, Earth, or Wood.—Thoſe of Timber are uſually either Oak or Alder. See TIMBER.

Thoſe of Iron are caſt in the Forges; their Length about two Foot and a half; ſeveral of which are piec'd together, by means of four Screws at each End, with Leather, or old Hat between them to ſtop the Water.

Thoſe of Earth are made by the Potters.—Theſe are fitted into one another, one End being always made wider than the other.—To join them the cloſer, and prevent their leaking, they are cover'd with Pitch and Tow.——Their Length is uſually about the ſame with that of the Iron *Pipes*.

The Wooden *Pipes* are bored with large Iron Augers of different Sizes, ſucceeding one another from leſs to larger; the firſt pointed, the reſt form'd like Spoons, increaſing in Diameter from one Inch to ſix.—They are fitted into the Extremities of each other, and are ſold by the Foot.

Leaden *Pipes* are of two kinds the one ſolder'd, the other not ſolder'd: For the Conſtruction of each Kind whereof, ſee PLUMBERY.

For the PIPES *of Organs*: See ORGAN.

PIPE is alſo a popular Machine uſed in the ſmoaking of Tobacco; conſiſting of a long ſlender Tube, made of Earth or Clay; having at one End a little Vaſe, or Furnace, call'd the *Boul*, ſor the Reception of the Tobacco; the Fumes whereof are drawn by the Mouth thro' the other End. See TOBACCO.

Pipes are made of various Faſhions, long, ſhort, plain, work'd, white, varniſh'd, unvarniſh'd, of various Colours, *&c.*—The *Turks* uſe *Pipes* three or four Foot long, made of Ruſhes, or of Wood bor'd; at the End whereof they fix a kind Nut, of bak'd Earth, which ſerves as a Boul, and which they take off after ſmoaking.

The Word is borrowed from the *Latin Pipa.*

PIPE is alſo a Veſſel, or Meaſure, for Wine, and Things meaſured by Wine-Meaſure. See MEASURE.

The *Pipe*, or Butt, contains two Hogſheads, four Barrels, or 126 Gallons; and is computed to weigh about 9 Hundred, 2 Quarters, and 17 Pound. See HOGSHEAD, *&c.*

The *Pipe* is little uſed in *France*, except in *Anjou* and *Poictou*, where it conſiſts of two Boiſſeaux, equal to a Muid and half of *Paris*; the Muid conſiſting of 36 Septiers, and the Septier of 8 Pints.

PIPE, PIPA, in Law, is a Roll in the Exchequer, call'd alſo the *Great Roll.* See ROLL and EXCHEQUER.

PIPE-*Office*, is an Office wherein a Perſon call'd the *Clerk of the Pipe* makes out the Leaſes of Crown-Lands, by Warrant from the Lord-Treaſurer, or Commiſſioners of the Treaſury, or Chancellor of the Exchequer. See CLERK *of the Pipe.*

All Accounts of Sheriffs, *&c.* are made up by the Clerk of the *Pipe*, and he gives the Accomptants their *Quietus eſt.* To this Office are brought all Accompts which paſs the Remembrancer's Office, and Remain there; that if any ſtated Debt be due from any Perſon, the ſame may be drawn down into the great Roll of the *Pipe*; upon which the Comptroller iſſues out a Writ, call'd, The *Summons of the Pipe* for Recovery thereof. See REMEMBRANCER.

All Tallies which vouch the Payment of any Sum contained in ſuch Accompts, are examined, and allowed by the chief Secondary of the *Pipe.* See TALLY.

Beſides the Clerk, in this Office are eight Attornies, or ſworn Clerks, and a Comptroller.

PIRATE, a Perſon, or Veſſel, that robs on the high Seas, or makes Deſcents on the Coaſts, *&c.* without the Permiſſion or Authority of any Prince or State. See PRIVATEER.

When *Pirates* are caught they are uſually hang'd up without Remiſſion, or any formal Trial; ſometimes in the next Port; ſometimes on board the Veſſel that takes them.

In different Parts they are differently denominated; as in the *Weſt Indies*, *Buccaneers*, *Free-booters*, &c.—In the *Mediterranean*, *Corſairs*, &c. See BUCCANEER, CORSAIR, *&c.*

Alexander reproaching a *Pirate* with his Condition; was anſwered, If I am a Pirate, 'tis becauſe I have only a ſingle Veſſel; had I a Fleet I ſhould be a mighty Conqueror.

The Word comes from the *Greek* πῦρ, Fire, becauſe they uſe to burn the Ships, Houſes, *&c.* of the Iſlands where they make Deſcents.

PIRATE was alſo anciently uſed for the Perſon to whoſe Care the Mole, or Peer, of a Haven, in *Latin Pera*, was intruſted. See PEER.

Sometimes, too, according to *Spelman*, it was uſed *pro milite maritimo*; for a Sea-Captain or Soldier.

Aſſer in the Life of King *Alfred*, tells us, *juſſit naves longas fabricari, impoſitis quæ* piratis *in illis vias maris cuſtodiendas commiſit.*

PIRETHRA, or PYRETHRA, or PIRETTE, or PELLITORY, a Medicinal Root brought from *Tunis*, of a hot, diſcutient Quality, uſed as an Alexipharmic and Phlegmagogue; as alſo to aſſwage the Toothach; and in the Compoſition of Vinegar.

'Tis of a moderate Length, the Thickneſs of the little Finger, greyiſh without, whitiſh within, and of a ſharp, burning Taſte.

'Tis pretended it took its Name from *Pyrrhus* King of *Epirus*; but there is no great Occaſion for having recourſe to a Myſtery; its burning Quality being ſufficient to give it the Name *Pirethra*, from the *Greek* πῦρ, Fire. It muſt be choſen new, dry, hard to break, *&c.*

It is call'd a Salivary Root, becauſe being held in the Mouth its Pungency promotes the Evacuation of Saliva.

PIROUETTE, or PIROET, in the Manage, a Turn or Circumvolution which a Horſe makes, without changing his Ground.

Pirouettes are either of one Tread or *Piſte*, or of two—The firſt is an entire ſhort Turn which the Horſe makes upon one Tread, and almoſt in one Time; in ſuch manner as that his Head comes to the place where his Tail was, without putting out his Haunches.——In the *Pirouette* of two Treads, or Piſtes, he takes a ſmall Compaſs of Ground, almoſt his Length; and marks both with the fore-part and the hind. See PISTE.

The Word is *French*, and literally ſignifies *Whirligig.*

PIS-ASPHALTUM, a Compound of Bitumen and Pitch. See BITUMEN, *&c.*

There are two Kinds; the one Natural, the other Artificial.

The Natural is the ſame with what we otherwiſe call *Aſphaltum*, or *Jewiſh Pitch.* See ASPHALTUM.

The Artificial is prepared with equal Parts of the *Jewiſh*-Pitch and common Black-Pitch melted together. See PITCH.

This latter Kind is what is uſually ſold in the Shops for the former.—The Coarſeneſs of the black Colour, and the Fetidneſs of the Smell ſerves to diſtinguiſh it.

The Ancients uſed both kinds in embalming their Dead. See EMBALMING.

The Word is form'd from the *Greek* πίσσα, Pitch; and ἀσφαλτος, Bitumen.

PISCARY, in our ancient Statutes, the Liberty of Fiſhing in another Man's Waters. See FISHING.

PISCES, in Aſtronomy, the twelfth Sign, or Conſtellation of the Zodiac. See SIGN and CONSTELLATION.

The Stars in *Piſces*, in *Ptolomy*'s Catalogue, are 38. In *Tycho*'s, 33. In the *Britannic* Catalogue, 109.——The Longitudes, Latitudes, Magnitudes, *&c.* whereof are as follow.

Stars in the Sign PISCES.

Names and Situations of the Stars.	Sign.	Longit.			Latitud.				Magn.
		°	′	″	°	′	″		
	♓	11	06	22	7	22	49	B	7
		12	06	15	6	51	40	B	6
		12	04	48	6	01	09	B	6
In the Mouth of the South. Fiſh.		14	15	56	9	03	19	B	4
		14	41	18	7	01	31	B	6
5.									
South. of two in the hind part of the Head		17	03	44	7	16	43	B	4
North. in the hind part of the Head.		18	42	17	8	32	36	B	5 6
Preced. of two in the Belly.		18	34	33	4	26	26	B	5
A ſmall one contiguous to it.		18	35	20	4	16	40	B	6 7
Preced. in the Back.		20	52	27	9	01	58	B	5
10.									
		17	56	47	1	22	54	B	6
		18	16	05	2	04	20	B	6
		18	48	28	1	46	36	B	6
		19	13	58	1	24	53	B	6
		20	34	43	3	37	54	B	6
15.									
		21	05	46	4	15	34	B	6
Subſeq. in the Back.		23	18	38	7	12	12	B	5
Subſeq. of two in the Belly.		22	16	36	3	25	07	B	5
		26	00	11	11	07	22	B	7
		23	56	55	4	32	43	B	5 6
20.									
1ſt. of thoſe preced. the Square under the South. Fiſh.)		21	48	21	1	19	43	A	6 7
		23	41	07	2	01	47	B	6
		24	59	44	3	28	57	B	6
Second.		22	47	44	2	11	39	A	6 7
		27	22	55	6	58	13	B	6
25									
Preced. of North. in the Square.		23	57	34	3	07	49	A	5
In the Tail of the South. Fiſh.		28	14	55	6	22	15	B	5
Subſeq. of the North in the Square.		24	53	04	2	57	45	A	5
Preced. of the South. in the Square.		23	42	36	5	42	33	A	5
		29	49	12	7	57	50	B	6
30									
That which follows over the Tail.		29	38	45	7	31	43	B	5 6
Subſeq. the South. of thoſe in the Square under *Piſces*)		24	36	38	5	46	55	A	5 4
	♈	2	26	23	9	12	37	B	6
		2	37	16	6	36	03	B	6
		2	45	08	5	54	26	B	6
35									
		5	04	06	11	05	36	B	6
		3	11	38	6	24	02	B	7
		6	18	45	13	12	04	B	6
		6	46	18	12	55	03	B	6
In the Line next the Tail of *Piſces.*		3	39	16	5	27	36	B	6
40									
		6	09	48	10	09	08	B	6
		7	01	13	10	41	48	B	6
		2	16	10	0	44	49	A	6
		4	36	55	4	30	42	B	6
	♈	9	57	40	15	06	45	B	6
45									
	♈	9	16	43	13	37	31	B	6
		8	43	31	12	16	56	B	7
		9	08	47	11	39	13	B	7
Second from the Tail in the Line.		5	49	42	3	10	38	B	6
		11	18	56	15	23	53	B	6
50		8	50		0	10		B	7
		10	08	47	10	21	41	B	7
		13	25	40	15	43	24	B	7
		12	26	42	9	38	42	B	6
		11	08	49	6	22	25	B	7
		14	16	36	13	19	58	B	7
55									
		9	12	22	1	31	48	B	7
		14	57	38	14	30	43	B	7
		9	37	31	1	37	28	B	7
Preced. of the bright Stars in the Line		9	49	17	2	09	44	B	4
		13	34	02	10	44	49	B	6

Names and Situations of the Stars.	Sign.	Longit. ° ′ ″	Latitud. ° ′ ″		Magn.
60					
eced. of 3 in the Head of the		18 17 46	20 30 43	B	6
North. Fiſh.)		15 43 29	12 17 13	B	6
iddle of thoſe in the Head.		19 23 22	19 29 38	B	6
ſt of 3 in the Head of the North. Fiſh.		20 33 53	20 57 08	B	6
eced. of 2 againſt the Eye of the		22 53 41	23 03 47	B	5
North. Fiſh.) 65					
iddle of the bright Stars in the		13 12 11	1 04 07	B	4
South. Line.)		16 23 36	7 23 22	B	6
		12 46 09	1 10 40	A	6
eced. of 3 in the Fin of the Back.		19 06 00	13 21 08	B	5
		15 43 21	5 31 13	B	6
70					
bſeq. againſt the Eye of the North.		23 46 30	23 06 23	B	5
Fiſh.)		12 41 48	1 55 32	A	6
		24 04 18	22 47 51	B	6
iddle, in the Fin of the Back.		19 18 25	12 28 46	B	6
		12 06 37	4 49 08	A	7
75					
pper, in the Fold of South. Line.		13 37 12	1 30 24	A	5
ſt of 3 in the Fin of the Tail.		19 17 47	11 18 09	B	6
orth. of 2 againſt the Mouth of		24 27 32	21 59 06	B	6
North. Fiſh.) South. of the ſame.		23 58 26	20 42 19	B	5
		12 52 27	4 40 45	A	7
80					
hat follow the Fin of the Back.		20 11 43	12 25 29	B	5
		13 21 16	4 50 30	A	7
outh. of 2 in the Belly.		22 08 31	15 29 02	B	5
ſt of 3 bright ones in the South.		15 32 13	0 13 25	A	4
Line.)		18 53 15	7 39 27	B	7
85					
		15 32 53	0 51 50	A	6 7
outh. of 2 in the Fold of South. Line.		15 00 04	4 17 13	A	6
orth. in the Belly.		24 27 10	17 26 56	B	5
nother following it.		25 25 21	18 39 53	B	6
		21 40 54	8 20 43	B	7
90					
eced. of the contiguous in the bend-		22 45 12	9 22 03	B	5
ing of the Line) Subſeq. of the ſame.		22 52 27	9 23 58	B	5
to the Tail of)		17 56 00	3 34 52	A	7
the North. Fiſh.)		18 56 45	1 57 39	A	6 7
		23 14 23	8 17 49	B	6 7
95 Knot.)					
d of thoſe in North. Line before the		18 46 40	3 04 25	A	5
orth. of 3 in North. Line.		22 29 20	5 21 07	B	4 3
		23 11 35	4 20 47	B	6
iddle of thoſe in the North. Line.		22 35 18	1 52 05	B	5 4
		24 41 39	5 51 46	B	8
100					
		23 50 06	3 40 32	B	7
		24 42 55	5 38 07	B	6 7
d of thoſe in South. Line before the		21 10 37	4 43 12	A	5
Knot.)		26 47 42	9 01 34	B	6 7
		27 14 27	8 36 20	B	8
105					
That next the Knot in the North. Line.		23 24 40	1 38 58	A	5
ſt before the Knot in South. Line.		23 11 18	7 55 45	A	5
		24 42 05	8 35 05	A	6 7
In the Knot of each the two Lines.	♈	25 02 33	9 05 10	A	3

PISCIS *Volans*, in Aſtronomy, is a Conſtellation of the Southern Hemiſphere, unknown to the Ancients, and inviſible to us in theſe Northern Regions. See CONSTELLATION.

PISCINA, in Antiquity, *Fiſh-Pond*; a large Baſon, in an open publick Place, or Square; where the *Roman* Youth learnt to ſwim; and which was ſurrounded with a high Wall, to prevent the caſting of Filth into it. See SWIMMING.

PISCINA was alſo the ſquare Baſon in the middle of a Bath. See BATH.

The Word is form'd from the *Latin Piſcis*, Fiſh; becauſe Men here imitated Fiſhes in ſwimming; and becauſe Fiſhes were actually kept in ſome of them.

PISCINA *Probatica*, was a Pool, or Reſervoir of Water, near the Court of *Solomon*'s Temple; ſo call'd from the *Greek* πρόβατον, Sheep, becauſe they here waſh'd the Beaſts deſtin'd for Sacrifice. See SACRIFICE.

By this *Piſcina* it was that our Saviour wrought the miraculous Cure of the Paralytic.

Daviler obſerves, there are ſtill remaining five Arches of the Portico, and part of the Baſon of this *Piſcina*.

PISCINA, or *Lavatory*, among the *Turks*, is a large Baſon in the middle of the Court of a Moſque, or under the Portico's that encompaſs it. See MOSQUE.

Its Form is uſually a long Square, built of Stone or Marble, furniſh'd with a great Number of Cocks; wherein the Muſſulmen waſh themſelves before they make their Prayers; as being perſuaded that Ablution effaces Sin. See ABLUTION.

PISSELÆUM *Indicum* ſeems to be what paſſes in the Shops for *Barbadoes* Tar.—It has a ſtrong Smell not unlike the common Tar, and is not very pleaſant to Sight or Taſte. It is accounted a good Balſamick, and where the Stomach can diſpenſe with it will do great Service in many Diſorders of the Breaſt, which has alſo been experienced of common Tar. See TAR.

PISTACHO, or PISTACH *Nut*, a Fruit brought from ſeveral Parts of *Aſia*, chiefly *Aleppo* and *Perſia*.—When wrapt in all its Coats, 'tis of the Size of a green Almond; but when ſtript of all but its Shell it reſembles a ſmall-Nut. The Kernel is red without and green within, its Taſte very agreeable.

The Tree that produces it is a kind of Turpentine-Tree: The Nuts are to be choſen new, heavy, and full; as to thoſe that are broken, ſuch as have kept their Colours beſt are to be preferr'd; for as to the Size 'tis a Fancy.

Piſtachos are apertive, proper to give Vigour, and are uſed in Emulſions, *&c.* in Phthiſical and Nephritical Caſes. They alſo enter ſeveral Ragouſts; are comfited, made into Conſerves, *&c.*

The Word is form'd from the *Latin Piſtacium*, of the *Greek* πιστάκιον; whence according to *Menage* the City *Pſittacus* took its Name.

There is likewiſe a kind of falſe *Piſtacho*, brought from the *Caribbee* Iſlands, which ſome confound with the real ones, tho' very different, both with regard to the Plant that produce them, and their Quality. The Plant does not grow above a Foot high. Nor does the Fruit grow on the Branches, but is found in Pods adhering to the Root.—The Pod ſometimes only contains a ſingle Nut, which it reſembles an Olive; but uſually, ſeveral; and in that Caſe they are irregular. The Subſtance is white, compact and heavy.

This Fruit is rarely eat raw, becauſe of the ill Effects it produces; 'tis uſually roaſted or comfited; is uſed in Ragouts; and to make Ratifia's.

PISTE, in the Manage, the Track, or Tread, which a Horſe makes upon the Ground he goes over; and which may be either ſingle or double.

If the Rider makes him go but an ordinary Gallop, in a Circle, or rather Square, he will make but one; if he either makes him gallop with his Haunches in, or go *Terra à Terra*, he will make two *Piſtes*, one with the fore-part, another with the hind.——And the ſame if the Rider makes him paſſage, or go ſide ways, either in a ſtrait Line, or upon a Circle.

The Word is *French*, and literally ſignifies a Track.

PISTIL, in Botany, a little upright Part in the middle of the Calyx, or the Leaves of Flowers; call'd alſo the *Style*. See STYLE.

The *Piſtil* is an eſſential Part of a Flower; and the principal female Organ of Generation; it being in this that the Seeds or young Plants are form'd. See FLOWER.

It ariſes from the Pedicle of the Flower, or the Center of the Calyx, and at length becomes the young Fruit, which is ſometimes hid in the Calyx, and ſometimes quite out. See FRUIT, CALYX, *&c.*

The Figure of the *Piſtil* is very different in different Flowers: Sometimes 'tis a little Stalk, which enlarges at the two Ends like a Peſtle; ſometimes 'tis a mere Stamen or Thread: Sometimes 'tis round, ſometimes ſquare, triangular, oval, *&c.*

Almoſt all *Piſtils* are furniſh'd at top, either with fine Hairs, which make a kind of Velveting; or with little Filaments diſpoſed in Plumes; or are be-ſet with little Veſicles full of a glutinous Juice.

Some Flowers have ſeveral *Piſtils*; or rather the *Piſtils* terminate in ſeveral Branches, or Horns, which have their Riſe from as many young Fruits, or as many different Capſulæ, containing Seeds.

All theſe *Piſtils*, or whatever Form they be in, have certain Apertures at their Tops, or certain Clefts continued the whole Length, to the Baſe or Embryo's of the Fruit.—This is very viſible in the Lilly, Daffodil, and Melon, by cleaving the *Piſtils* length-wiſe, or cutting them tranſverſely.—If after cutting the *Piſtil* of the Lilly, you immerge one Extremity in Water, and ſuck thro' the other End, the Water will riſe thro' it, as through a Pipe.

By opening the *Piſtils* in their different States or Growths, it appears evidently, that 'tis theſe form the young Fruits; and contain within them the Embryo's of the Seeds; whether thoſe Seeds be diffuſed thro' the whole Length of the *Piſtil*; or whether they be all incloſed in its Baſe: And that they are always open a-top, and perforated, either more or leſs ſenſibly, to the Bottom: Though this Cavity is frequently effaced as the young Fruit grows; and ſometimes a Part of the *Piſtil*, which *Malpighi* calls the *Style*, or Needle, drys and falls off.

The *Piſtil*, we have obſerved, is the Female Organ of Generation; its Baſe does the Office of the *Uterus*, or Womb, in Women; and its Length that of the *Vagina*. See UTERUS and VAGINA.

It is encompaſſed with the Stamina, the Apices whereof are full of a fine Duſt, call'd the *Farina Fecundans*; which burſting its Veſiculæ, or Apices, when mature, is ſhed on the upper Part of the *Piſtil*, and thence convey'd by the

Cavity thereof to the Baſe or Uterus; where being fed with a fine Juice, ſeparated by the Flowers, it grows, expands, and thus forms the Embryo of a young Fruit. See Stamina, Farina, &c.

For a more diſtinct Account of the Proceſs of Generation of Plants. See Plant.

PISTOL, a little Fire-Arm, bore at the Saddle-Bow, the Girdle, or in the Pocket. See Fire-Arm.

The *Piſtol* is ſaid to have taken its Name from *Piſtoya* a City in *Italy*; where, as *Fauchet* tells us, they were firſt made.—*Borel* derives the Word from *Fiſtula*, Pipe, the Barrel of this Piece bearing ſome Reſemblance to a Flute, &c.

Pistole, or *Doublon*, in Commerce, a Gold Coin, ſtruck in *Spain*, and ſeveral Parts of *Italy*, *Switzerland*, &c. See Coin.

It has its Augmentations, and Diminutions; which are *Quadruple Piſtoles*, *Double Piſtoles*, and *Half Piſtoles*.

The *Piſtole* is about the ſame Weight, Fineneſs, and Value, with the *French* Louis d'ors, *viz.* equal to Sixteen Shillings and Six Pence, Sterling.

In *Spain* the *Piſtole* is accounted equal to four Pieces of Eight, 32 Rials, 1088 Maravedis, old Money; 1360 Maravedis, new Money; and 2040 Maravedis of *Billon*, the old Money current at *Seville*, *Cadiz*, in *Andaluſia*, &c. being 25 *per Cent.* better than the imaginary Money they reckon by at *Madrid*, *Bilboa*, &c. which Augmentation was made by *Charles* II. in 1686. to prevent the Exportation of Money out of the Kingdom. See Money.

Moſt of the Exchanges in *Italy* are made on the Foot of the *Piſtole*. See Exchange.

PISTON, a Part, or Member in ſeveral Machines, particularly Pumps, Air-Pumps, Syringes, &c. call'd alſo *Embolus*, and popularly the *Sucker*. See Embolus.

The *Piſton* of a Pump is a ſhort Cylinder of Metal, fitted exactly to the Cavity of the Barrel or Body; and which being work'd up and down alternately therein, raiſes the Water; and when rais'd preſſes it again, ſo as to make it force up a Valve, wherewith it is furniſhed, and ſo eſcape thro' the Noſe of the Pump. See Pump.

The *Piſtons* of Air-Pumps, Syringes, &c. See deſcribed under Air-Pump, and Syringe.

PIT and *Gallows*, in our ancient Cuſtoms. See Furca & Fossa.

PITANCIARIUS, an Officer in the ancient Monaſteries, whoſe Buſineſs it was to provide and diſtribute the Pitances of Herbs and Meat, amongſt the Monks. See Pittance.

PITCH, Pix, a kind of tenacious Juice, or Gum, drawn from fatty Woods, chiefly Pines and Firs; uſed in Shipping, in Medicine, and various other Arts.

Pitch is properly a Juice of the Bark; and is conceived to be no other than the Oil thereof inſpiſſated and turned black, farther than in the Balm. See Bark and Balm.

The Method of drawing, or procuring, it, is by cleaving the Tree into little Billets, which they lay in a Furnace having two Apertures, thro' one of which the Fire is put, and thro' the other the *Pitch* is gathered; which oozing from the Wood runs along the bottom of the Furnace into Baſons or Receptacles for the Purpoſe.——The Smoak which is here very thick, gives it the black Colour we find it withal.——Some will only have our common *Pitch* to be the laſt Running, and Tar to be the firſt. See Tar.

Wheeler gives us another Manner of drawing *Pitch*, uſed in the *Levant*.—A Pit is dug in the Ground two Ells in Diameter a-top, but contracting as it goes deeper: This they fill with Branches of Pine, cloven into Shivers.—The top of the Pit is then covered over with Fire, which burning down to the bottom, the *Pitch* diſtils and runs out at a Hole made therein.

Pitch acquires different Names according to its different Preparations, Colours, and Qualities. As it diſtils from the Wood it is called *Barras*, but afterwards aſſumes a double Name, the fineſt and cleareſt being called *Galipot*, and the coarſer, *marbled Barras*.

Of the Galipot is made what we call *white Pitch*, or *Burgundy Pitch*, which is nothing but the Galipot melted with Oil of Turpentine; tho' ſome will have it a native *Pitch*, diſtilling from a Reſinous Tree growing in the Mountains of the *Franche-Compte*.

Of the ſame Galipot is likewiſe prepared what we call *Roſin*; by boiling the *Pitch* to a certain Conſiſtence, and making it up in Cakes. See Rosin.

The black *Pitch*, which is what we properly call *Pitch*, is the liquid Galipot burnt and reduced into the Form and Conſiſtence we ſee it in by mixing Tar with it while hot.

The beſt is that brought from *Sweden* and *Norway*.—Its Goodneſs conſiſts in its being of a ſhining black, dry, and brittle.

Naval Pitch, *Pix Navalis*, is that drawn from old Pines, rang'd and burnt like Charcoal.—This, with the Mixture of Tow or beaten Cables, ſerves for the pitching of Veſſels.

Naval Pitch is alſo that ſcraped from off the Sides of old Veſſels; and which is ſuppoſed to have acquired an aſtringent Virtue, by means of the Salt-Water.—It ſerves to make Plaſters; tho' 'tis certain the Apothecaries uſually ſubſtitute the common *black Pitch* in its ſtead.

Greek-Pitch, or *Spaniſh Pitch*, is that boil'd in Water till it have loſt its natural Smell; upon which it becomes dry and pliable.

The Ancients call'd it *Colophony*, from *Colophon* a City in *Greece*, whence great Quantities were brought. See Colophony.

Oil of Pitch, *Oleum Picinum*, is an Oil procured from Pitch, by ſeparating the aqueous Matter that ſwims a-top of the melted Pitch.—This for the great Virtues attributed to it alſo call'd *Balm of Pitch*.

Pitch, in Building, is the *Angle*, a Gable End, and conſequently the whole Roof of a Building, is ſet to. See Gable.

If the Length of each Rafter be ¾ of the Breadth of the Building; the Roof is ſaid to be *true pitch*.

If the Rafters are longer, 'tis ſaid to be a *high* or *ſharp pitch'd* Roof; if ſhorter, which ſeldom happens, it is ſaid to be a *low* or *flat pitch'd* Roof. See Roof, Rafter, &c.

Pitch is alſo a Sea-Term.——When a Ship falls with her Head too much into the Sea, or beats againſt it ſo as to endanger her Top-Maſts, they ſay, ſhe will *pitch her Maſts by the board*.

PITCHING-*Pence*, a Duty, commonly of one Penny, paid for pitching or ſetting down every Sack of Corn, or Pack of Merchandize, in a Fair or Market.

PITH, Pit, or Pitte, the inward, central Part of a Tree, or Plant; anſwering to the Medulla, or Marrow, of an Animal. See Plant, Tree, &c.

Some will have the Circulation of the Sap to be effected by means of the *Pith*; others by the Bark; and others by the Wood. See Sap, Circulation, &c.

PITHIA, and Pithian. See Pythia and Pythian.

PITT, *Cavea*, of a Theatre, all that Space between the Amphitheatre, or Galleries, and Theatre or Stage; call'd by the Ancients *Orcheſtra*, and by the *French Parterre*. See Theatre, &c.

This being the moſt commodious Part, it was here the *Roman* Senate was placed. See Orchestra.

It has its Name *Pitt*, in *Latin Cavea*, from its being ſunk below the Level of the Stage. See Stage.

PITTACIUM, πιττάκιον, in Chirurgery, a Name which ſome Authors give to a little Cloth ſpread with a Salve, to be laid on a Part affected.

PITTANCE, or Pitance, Pietance, Pitanica, the Commons, or Allowance of Meat, be it Fiſh, Fleſh, or the like, ſtatedly eaten at Meals, beſides Bread.

The Word is not much uſed except among Religious, and thoſe who live in College or Community.——*Du Cange* derives it from *Pinctantia*, uſed in the lower *Latin* for a Monachal Portion given to two Monks in the ſame Diſh, conſiſting of ſomething better than Pulſe.

Hence we ſometimes alſo find it denote a Meal, or Commons, better than ordinary; ſuch as is allowed in Communities on Feaſt Days.

Others derive the Word *à pietate*; and others, with *Salmaſius*, from *Pittacia*, a Meſs, or Portion, allowed the Soldiers, mentioned in ſeveral Laws of the *Theodoſian* Code.—'Tis added, that the Word *Pittacia* properly ſignified a Title, or written Label, added a-top of the Veſſels, to ſhew what was within-ſide, or how it was intended.

PITUITA, one of the four Humours found in the Bodies of Animals, on which their Temperament is commonly ſuppoſed to depend. See Humour and Temperament.

The *Pituita*, call'd alſo Phlegm, is properly the moſt viſcid, and glutinous Part of the Blood, ſeparated in the largeſt Glands, where the Contortions of the Arteries are greateſt, and give the greateſt Retardation to the Blood's Velocity; as in the Glands about the Mouth and Head. See Secretion and Phlegm.

The Claſs of Phlegmagogues, as Manna, &c. are ſuppoſed to purge *Pituita*. See Phlegmagogue, Purgative, Manna, &c.

The Phyſicians give ſeveral Epithets to the *Pituita*, according to its Condition or Qualities, as *Saline*, *Vitreous*, *Gypſous*, *Acid*, &c.

The *Pituita* is ſuppoſed to be the prevailing Humour in cold, heavy, ſlow People, inclined to Serioufneſs and Study; as the Bile in thoſe inclined to War, &c. See Phlegmatic.

The *Pituita* diſcharged at the Noſtrils, is ſeparated in the Membrane that lines the Cavities of the Noſe, Cheeks, &c. See Nose.

Its Uſe is to keep the Membrane ſoft, and defend it from Injuries of extraneous Bodies, eſpecially thoſe of the Air, which paſſes this Way in Inſpiration when the Mouth is ſhut.

PITUITARY *Gland* is a Gland in the Brain, ſomewhat difficult to be ſeen without removing it out of its Place. See BRAIN.

It is of the Size of a very large Pea, in the Sella of the Os Sphenoides, under the Infundibulum, wherewith it communicates; receiving from it a Lympha, or Juice, which the Infundibulum derives from the Plexus Choroides and pineal Gland; and from this Lympha does the Gland take its Name. See INFUNDIBULUM, *&c.*

It alſo filtrates a Juice itſelf; ſeparating from the Blood, a white Liquor very ſubtile, and apparently very ſpirituous. See SPIRITS.

M. *Littre* obſerves a Sinus, or Reſervoir, of Blood, which touches this Gland; and which is open to it in the Place of Contact, ſo that the Gland lies partly in the Blood.—This, that Author takes to do the Office of a *Balneum Marie*, in keeping the Gland in the Degree of Warmth neceſſary for the Diſcharge of its Functions.

This Gland is found in all Quadrupeds, Fiſhes, and Fowls, as well as in Men.

M. *Littre* gives an Inſtance of a tedious Diſeaſe, and at length Death, ariſing from an Obſtruction and Inflammation of this Gland.

PIVOT, a Foot, or Shoe of Iron, or other Metal, uſually conical, or terminating in a Point; whereby a Body, intended to turn round, bears on another fix'd at Reſt, and performs its Circumvolutions.

Large Gates, *&c.* uſually turn on *Pivots.*—The Ancients tell us, they had Theatres in *Rome* that held Eighty thouſand People; which yet turn'd on a ſingle *Pivot*. See THEATRE and AMPHITHEATRE.

PLACARD, or PLACART, or PLACAERT, a foreign Term, frequent in Gazettes, tho' ſcarce yet naturaliz'd.

It ſignifies a Leaf, or Sheet of Paper, ſtretch'd and applied upon a Wall, or Poſt.——Edicts, Regulations, *&c.* are to be made publick in *Placards.*

The Word *Placard* is alſo uſed for a Libel, or Lampoon.—At *Rome*, *Placards* againſt the Pope are frequently fix'd in the Night-time, to the Statue of *Paſquin*. See PASQUINADE.

PLACARD, in Architecture, the Decoration of the Door of an Apartment; conſiſting of a Chambranle, crown'd with its Frieze or Gorge; and its Corniche ſometimes ſupported by Conſoles. See DOOR.

PLACARD, in our Cuſtoms, a Licence whereby a Perſon is permitted to ſhoot in a Gun, or to uſe unlawful Game. See GAME.

PLACE, *Locus*, in Philoſophy, that Part of immovable Space which any Body poſſeſſes. See BODY and SPACE.

Ariſtotle and his Followers, divide *Place* into External and Internal.

Internal Place is that Space or Room which the Body fills or contains.——*External* is that which includes or contains the Body; call'd by *Ariſtotle*, the firſt or concave and immovable Surface of the ambient Body.

'Tis controverted in the Schools, whether *Internal Place* be a real Entity, or only an imaginary Being; *i. e.* whether it be any thing intrinſically; or only an Aptitude and Capacity of receiving Bodies.

Some maintain it a poſitive Being, Incorporeal, Eternal, Independant, and Infinite; and aſſert it to be no other than the Immenſity of the Godhead.

The *Carteſians*, on the contrary, hold *Internal Place*, abſtractly conſider'd, to be no other than the very Extenſion of the Bodies contained therein; and therefore in no wiſe different from the Bodies themſelves.

The Schoolmen likewiſe diſpute whether *External Place* be movable or immovable. Its Immobility is argued from this Conſideration, that what moves muſt neceſſarily leave its *Place*, which it cannot do if it go along with the movable. Others charge an Abſurdity on this Opinion of *Ariſtotle*, *viz.* That hence it follows, that a Body really at reſt is continually ſhifting *Place:* A Tower, for inſtance, on a Plain, or a Rock in the middle of the Sea, in regard the one and the other are continually incloſed with new Air or new Water, muſt be ſaid to be in Motion, or to change *Place.*

To ſalve this Difficulty, and ward off the Abſurdity which follows from *Ariſtotle*'s laying down External Space as immovable; infinite Expedients have been had recourſe to.—The *Scotiſts* contend for *Place*'s being immovable, by Æquivalence.——Thus, when the Wind blows, the Air which inveſted the Surface of the Tower does indeed recede, but then other ſimilar and equivalent Air takes place.—The *Thomiſts* chuſe to deduce the Immobility of *External Place*, from keeping the ſame Diſtance from the Center, and the Cardinal Points of the World.——The *Nominaliſts*, from a Correſpondence with certain virtual Parts of the Divine Immenſity.

The *Carteſians* deny *External Place* to be either a ſurrounding Surface, or a Body ſurrounded, or a mean Term between the two; and conceive it to be the Situation of a Body among adjacent Bodies conſider'd as at reſt.——Thus the Tower ſhall be deemed to remain in the ſame *Place*, tho' the ambient Air be changed, ſince it retains the ſame Situation, with regard to the neighbouring Hills, Trees, and other Parts of the Earth.

Sir *Iſaac Newton* better and more intelligibly diſtinguiſhes *Place* into *Abſolute* and *Relative.*

Abſolute and *Primary Place* is that Part of infinite and immovable Space which a Body poſſeſſes. See ABSOLUTE.

Relative or *Secundary Place* is the Space it poſſeſſes conſidered with regard to other adjacent Objects.——Dr. *Clarke* adds another kind of *relative Place*, which he calls *relatively common Place*, and defines it that part of any movable or meaſurable Space which a Body poſſeſſes, which *Place* moves together with the Body. See MOTION.

Place, Mr. *Locke* obſerves, is ſometimes likewiſe taken for that Portion of infinite Space poſſeſs'd by the material World; tho' this, he adds, were more properly call'd Extenſion. See EXTENSION.

The proper Idea of *Place*, he ſays, is the relative Poſition of any thing, with regard to its Diſtance from certain fix'd Points; whence we ſay, a thing has or has not chang'd *Place*, when its Diſtance is not alter'd with reſpect to thoſe Bodies.

For the *Viſion of* PLACE. See VISION.

PLACE, in Opticks, or Optic PLACE, is the Point to which the Eye refers an Object. See OPTIC.

Thus the Points D and E (*Tab.* Optics, *fig.* 68.) to which two Spectators in D and E refer the Object C, are call'd *Optic Places.* See VISION.

Here, if a right Line joining the *Optic Places* D and E, be parallel to a right Line paſſing thro' the Eyes of the Spectators A, B; the Diſtance of the *Optic Places* D, E will be to the Diſtance of the Spectators A and B, as the Diſtance of one of the *Optic Places* from the *Place* of the Object E C, to the Diſtance of the other Spectator from the ſame Object A C.

Optic PLACE *of a Star*, is a Point in the Surface of the Mundane Sphere, as C or B, (*Tab. Aſtronomy Fig.* 27.) wherein a Spectator in E, or T, ſees the Center of the Star S. See STAR and PLANET.

This is divided into *true* and *apparent.*

True or *real Optic* PLACE is that Point of the Surface of the Sphere, B, wherein a Spectator, placed in the Center of the Earth C, ſees the Center of the Star or Phænomenon.——Or a Point among the fix'd Stars, determined by a Line drawn from the Center of the Earth, through that of the Star, and terminated in C among the Stars. See SPHERE.

Apparent or *viſible Optic* PLACE is the Point of the Surface of the Sphere, wherein a Spectator, placed on the Surface of the Earth E, ſees the Center of the Star S.——Or a Point found by a Line paſſing from the Spectator's Eye through the Star, and terminated in the Sphere of the Stars.

The Diſtance between the *two Optic Places* is what we call the *Parallax.* See PARALLAX.

PLACE *of the Sun*, a *Star*, or *Planet*, ſimply, denotes, the Sign and Degree of the Zodiack, which the Body is in. See SUN, STAR, *&c.*

Or, it is that Degree of the Ecliptic, reckoned from the Beginning of *Aries*, which the Planet's, or Star's Circle of Longitude cuts; and therefore coincides with the Longitude of the Sun, Planet, or Star. See LONGITUDE.

As the Sine of the Sun's greateſt Declination, 23°. 30′: to the Sine of any preſent Declination given or obſerved, *v. g.* 23° 15′ : : ſo is Radius : 10. To the Sine of his Longitude 81° 52′; which if the Declination were North, would give 20° 52′ of *Gemini*, If South 20° 52′ of *Capricorn*, for the Sun's Place. See PLANET.

Moon's PLACE is that Point of her Orbit wherein ſhe is found at any Time. See MOON and ORBIT.

This, by reaſon of the great Inequalities in the Lunar Motions, which render a Number of Equations and Reductions neceſſary e'er the juſt Point be found, is of various kinds; *viz.* her *fictitious Place*, which is the Moon's *Place* once equated; her *Place nearly true*, which is her *Place* twice equated; and the Moon's *true Place*, which is her *Place* thrice equated. See EQUATION.

Eccentric PLACE *of a Planet in its Orbit*, is the *Place*, or Point of its Orbit, wherein a Planet would appear if ſeen from the Sun.

Thus ſuppoſe N E O R the Ecliptic, N P O Q the Planet's Orbit, the Sun in S, the Earth in T, and the Planet in P: the right Line S P expreſſes the *Eccentric Place* in the Orbit.

Heliocentric PLACE, of a Planet, or its PLACE *reduced to the Ecliptic*, or the *Eccentric Place in the Ecliptic*, is that Point of the Ecliptic to which a Planet, view'd from the Sun, is referr'd. See HELIOCENTRIC.

This coincides with the Longitude of a Planet view'd from the Sun. See LONGITUDE.

Thus the right Line RS (*ſame Fig.*) deſigns the *Heliocentric Place*, or *Place* reduc'd to the Ecliptic.

Geocentric PLACE is that Point of the Ecliptic, to which a Planet view'd from the Earth is referr'd. See GEOCENTRIC.

Thus, NEOR (*ſame Fig.*) repreſenting the Ecliptic, *&c.* TR will repreſent the the *Geocentric Place*.

PLACE of Radiation, in Optics, is the Interval, or Space in a Medium or tranſparent Body, thro' which any viſible Object radiates. See RADIATION, *&c.*

PLACE, in Geometry, is a Line uſed in the Solution of Problems; more uſually call'd by the *Latin* Name *Locus*.

See the Doctrine of *Geometrical Places*, under the Article LOCUS.

PLACE, in War, is a general Name for all kinds of Fortreſſes, where a Party may defend themſelves; and may be defined to be a *Place* ſo diſpoſed, as that the Parts which encompaſs, it defend and flank one another. See FORT and FORTIFICATION.

A *ſtrong Place*, is a Place flank'd and cover'd with Baſtions. See BASTION.

Regular Place, is that whoſe Angles, Sides, Baſtions, and other Parts are equal; and is uſually denominated from the Number of its Angles, as a *Pentagon*, a *Hexagon*, &c. See PENTAGON, HEXAGON, *&c.*

Palma nova, built by the *Venetians*, is a Dodecagon. See DODECAGON.

Irregular Place is that whoſe Sides and Angles are unequal.

PLACE *of Arms*, in Fortification, is a ſtrong City, or Town, pitch'd upon for the chief Magazine of an Army. See ARMS.

PLACE *of Arms* in a City, is a large open Spot of Ground, where the Garriſon holds its Rendezvous at Reviews, and in Caſes of Alarm, to receive Orders from the Governor. See GARRISON.

PLACE *of Arms* in a Siege is a ſpatious Place cover'd from the Enemy, where the Soldiers are kept ready to ſuſtain thoſe at work in the Trenches, and to be commanded to the Places where they are wanted.

PLACE *of Arms particular*, in a Garriſon, is a Place near every Baſtion, where the Soldiers, ſent from the grand Place to the Quarters aſſigned them, relieve thoſe that are either upon the Guard, or in fight.

PLACE *of Arms without*, is a Place allowed to the Covert Way, for the planting of Cannon, to oblige thoſe who advance in their Approaches to retire.

PLACE *of Arms* in a Camp, is a large Space at the Head of the Camp, for the Army to be rang'd in and drawn up in Battalia.

There is alſo a *Place* for each particular Body to aſſemble in. See CAMP.

PLACE *of Arms* of a Troop, or Company, is the Spot of Ground on which the Troop, or Company, is drawn up. See TROOP, *&c.*

PLACE, among Logicians, Orators, *&c.* is the Seat of an Argument, or that from which it is taken. See ARGUMENT and TOPIC.

There are two ſorts of *Places*, viz. *Inartificial* and *Artificial*.—The firſt, the *Place* of Teſtimony, Authority, *&c.* The ſecond, that of Reaſon; as when we argue from Univerſals, *e. gr.* from Genus, Species; from Cauſes, as the End, Efficient, Matter, Form, *&c.*

Common PLACE. See COMMON *Place*.

PLACE *of Units*, Tens, *&c.* See UNIT and NUMERATION.

PLACENTA, in Anatomy, a ſoftiſh Maſs, found in the Womb of a pregnant Woman; wherein the Ancients ſuppoſed, the Blood was purified and prepared for the Nouriſhment of the Fœtus. See FOETUS.

Hence they alſo call'd it *Hepar Uterinum*, the Liver of the Womb; as if it did the Office of a Liver in preparing the Blood. See LIVER.

It is call'd by the Moderns *Placenta, q. d.* Cake or *Cheeſe-Cake*; becauſe in Form of a Cake.

The *Placenta* is ſuppoſed by ſome to be only a Maſs of coagulated Blood; for in the preſſing, or waſhing it, it diſſolves; and its real Uſe to be, to ſerve as a Pillow for the Umbilical Veſſels to reſt on. See UMBILICAL.

Its Figure is not unlike that of a Plate without Brims; three quarters of a Foot over, and ſometimes a Foot. It is round, generally Concave or Convex. The Concave Side adheres to the Uterus, and is uneven, having divers Protuberances and Pits, by which it makes Impreſſions upon, and receives them from, the Uterus.——Its Place in the Uterus, whatever ſome pretend, is not certain.

In Women, unleſs in caſe of Twins, *&c.* there is but one: However, the Number generally anſwers the Number of the Fœtus.——In ſome Brutes, eſpecially Oxen or Sheep, they are vere numerous, ſometimes near an hundred, even for one Fœtus, ſmall, and reſembling pretty large conglomerate Glands.

From the external or concave Side, which likewiſe has its Protuberances, tho' cover'd with a ſmooth Membrane, iſſue the Umbilical Veſſels, which are in great Plenty diſtributed thro' the whole Subſtance of it. See UMBILICAL.

Some even imagine this Part to be nothing elſe but a Plexus of the Vein and Arteries, by whoſe Extremities opening into the Sides of the Hypogaſtrick Veſſels, the Circulation is perform'd between the Mother and the Fœtus; for that ſide of the *Placenta*, which adheres to the Womb, appears to be nothing but the Extremities of an infinite Number of ſmall Threads, which, in Labour, dropping out of the Pores in the ſides of the Hypogaſtrick Blood-Veſſels, into which they had inſinuated themſelves, is the occaſion of the flowing of the Lochia, 'till the Uterus collapſes, or the Pores, by the natural Elaſticity of the Veſſels, contract by Degrees. See LOCHIA.

'Tis a great Diſpute among the Anatomiſts of the Royal Academy of *Paris*, whether the *Placenta* have any external Coat, whereby it is connected to the Womb.—M. *Mery* maintains it has none; and that nothing hinders the Blood of the Mother from paſſing out of the Womb into the *Placenta* and thence to the Fœtus: In which Opinion he is ſeconded by M. *Rohault*. Meſſ. *Vieuſſens* and *Winſlow* maintain the contrary; in a ſubſequent Memoir M. *Rohault* endeavours to ſhew, that the *Placenta* is no particular Part, but only a Portion of the Chorion condens'd or thicken'd. See CHORION.

PLACITA, *Pleas*, a Term frequent in our Laws and Cuſtoms. See PLEA.

Originally, *Placita* ſignified certain publick Aſſemblies, of all Degrees of Men, wherein the King preſided, and where the great Affairs of the Kingdom were conſulted upon.

Theſe Aſſemblies were call'd *Placita generalia*; becauſe *Generalitas univerſorum majorum tam Clericorum quam Laicorum ibidem conveniebat.*—And, hence, the Decrees, Ordinances, Sentences, *&c.* of the Aſſembly were alſo call'd *Placita*.

Sim. Dunelmenſis tells us they were held in the open Fields; for, ſays he, *Nullam oportet Regem in literis aſſignare curiam, quia ubi rex judicat in aperto, ibi eſt Curia ſua.* See COURT and CURIA.

Some will have theſe *Placita generalia*, and *Curiæ Regis*, to be much the ſame with what we now call a *Parliament*. See PARLIAMENT.

The Lords Courts came hence alſo to be call'd *Placita generalia*, tho' oftener *Curiæ generales*; becauſe all their Tenants and Vaſſals were obliged to appear in them. See LORD VASSAL, *&c.*

We alſo meet with *Placitum nominatum*, for the Day appointed a Criminal to appear in and make his Defence, *Leg. Hen.* I.——And *Placitum fractum*, *i. e.* when the Day is laps'd.

My Lord *Coke* derives the Word *a placendo*, *quia bene placitare ſuper omnia placet.* Indeed this ſeems a very fanciful Definition; and others have more Reaſon in deriving it from the *German Plats*, or the *Latin Plateis*, Fields, or Streets, where theſe Aſſemblies were originally held.

PLACITARE, in the old Law-Books, ſignifies to plead Canſes. See PLEADING.

Mos placitandi *ante conqueſtum, fuit coram aldermanno, & proceribus, & eorum Hundredariis*, ſc. *Baronibus*, *Majoribus*, *Melioribus*, *Senioribus & Urbanis.* Mſ. in Bibl. Cott. ſub Tit. Vitellius.

Hence, *Placitator*, a Pleader.—*Ralph Flambard* is recorded to be *totius Regni Placitator*, in *William* the ſecond's Time.

PLACITUM, in Law, a Sentence of the Court; or an Opinion, Ordinance, or Decree. See SENTENCE, DECREE, CANON, *&c.*

PLAFOND, or PLATFOUND, in Architecture, the Ceiling of a Room, whether it be flat or arched; lin'd with Plaſter, or Joiners-Work, and frequently enriched with Paintings, *&c.* See CIELING.

PLAFOND is alſo more particularly uſed for the Bottom of the Projecture of the Larmier of the Corniche; call'd alſo *Sofit*. See SOFIT and LARMIER.

PLAGIARY, in Philology, *Author-Theft*; or the Practice of purloining other Peoples Works, and putting them off for a Man's own.

Among the *Romans*, *Plagiarius* was properly a Perſon who bought, ſold, or retain'd, a free Man for a Slave; ſo call'd, becauſe the *Flavian* Law condemned ſuch a Perſon to be whipp'd, *ad plagas*. See SLAVE.

Thomaſius has an expreſs Treatiſe *de plagio litterario*; wherein he lays down the Laws and Meaſures of the Right which Authors have to one anothers Commodities.—Dictionary-Writers, at leaſt ſuch as meddle with Arts and Sciences, ſeem exempted from the common Laws of *Meum* and *Tuum*; they don't pretend to ſet up on their own bottom, nor to treat you at their own Coſt.

Their Works are ſuppoſed, in great Meaſure, Aſſemblages of other Peoples; and what they take from others they do it avowedly, and in the open Sun.—In effect, their Quality gives them a Title to every thing that may be for their pur- oſe, wherever they find it; and if they rob, they don't do any otherwiſe, than as the Bee does, for the publick Ser- ice. Their Occupation is not pillaging, but collecting Con- ributions; and if you ask them their Authority, they'll pro- uce you the Practice of their Predeceſſors of all Ages and Nations. See DICTIONARY.

PLAGUE, PESTIS, PESTILENCE, a very acute, deſtructive, malignant, and contagious Diſeaſe; uſually proving mortal. See DISEASE.

The *Plague* is commonly defined by a malignant Fever; but *Diemerbroek* thinks the two ought to be diſtinguiſhed; the Fever not being the Eſſence, but only a Symptom, or Effect, of the *Plague*. See FEVER.

The *Plague* is reckoned by Dr. *Liſter*, and many others, as an Exotic Diſeaſe, never bred or propagated in *England*, but always imported from abroad, and particularly from the *Levant*, the Coaſts of *Aſia* the leſſer, *Egypt*, &c. where it is familiar.——*Sydenham* obſerves, that it rarely infeſts *England* oftener than once in 40 Years; but, thro' the Mercy of GOD, 'tis now 60 Years ſince we have been viſited.

The Origin, and Cauſe of the *Plague* has been a celebrated Subject of Controverſy among Phyſicians.——The Diſorder is generally ſuppoſed to be communicated by the Air; but how, and in what manner the Air becomes thus deadly, is the Queſtion. Some will have Inſects the Cauſe of *Plagues* as of Blights; which being brought in Swarms from other Parts by the Winds, are taken into the Lungs in Reſpiration, mix with the Blood and Juices, and attack and corrode the Viſcera. See BLIGHT.

Mr. *Boyle* attributes it principally to the Effluvia or Exhalations breathed into the Atmoſphere, from noxious Minerals. See EXHALATION, *&c.*

The Air, in effect, is depraved in far more Places than improved, by being impregnated with ſubterraneous Expirations.—Indeed among the Minerals known to us, there are many more noxious than wholeſome; and the Power of the former to do Miſchief, is more efficacious than of the latter to do good, as we gueſs by the ſmall Benefit Men receive in point of Health, by the Effluvia of any Mineral or other known Foſſil, in compariſon of the great and ſudden Damage often done by the Expirations of Orpiment, Sandarack, and white Arſenic. See POISON.

Amongſt the various ſorts of Particles wherewith the Atmoſphere is replete, ſome may be ſo ſmall, and ſolid, or ſo conveniently ſhaped, as to enter many of the numerous Orifices of the minute Glandules of the Skin, or at other Pores thereof. Thus, tho' neither Paper, nor Bladder, be pervious to the Elaſtic Parts of the Air; yet may either of them be eaſily penetrated by other Corpuſcles of the Atmoſphere; and Mr. *Boyle* has prepared a dry Body, which being incloſed in either, would, without wetting or diſcolouring or any ways ſenſibly altering them, paſs in a trice thro' the Pores thereof, in ſuch Plenty, as to exert a manifeſt Operation on Bodies placed at ſome Diſtance beyond them.

This is confirmed from the ſudden Check almoſt every Summer given to the *Plague* at *Grand Cairo*; for ſince morbific Cauſes operate more effectually than curative ones, it ſeems more than probable, that Exhalations aſcending from under Ground, may produce peſtilential Fevers, and the *Plague* itſelf; ſince the Corpuſcles which impregnate the *Egyptian* Air upon the ſwelling of the *Nile*, put a ſpeedy ſtop not only to the Contagion, but to the Malignity of the *Plague*, aſſiſted even by the Summer's Heat, which there is exceſſive. See INUNDATION.

'Tis poſſible there may be noxious Minerals in a Country, that are not often able to produce Peſtilences; they may be in Strata, or Beds, ſo deep, that even a ſmall Earthquake ſhall not affect them, tho' a more violent Shock may. See STRATA, EARTHQUAKE, *&c.*

And hence may we account for the *Plague*'s raging in ſome Parts of *Africa* once in thirty, or once in a hundred Years; ſince there may be periodical Paroxyſms, or grand and vehement Commotions in ſubterraneal Parts, tho' not yet obſerved in them.

'Tis probable peculiar kinds of venomous Exhalations may ſometimes be emitted, eſpecially after Earthquakes; and thus occaſion mortal Diſeaſes in Animals of one kind and not of another, and in this or that Place, and not elſewhere.——*Fernelius* gives us an Account of a *Plague*, or Murrain, in 1514, which invaded none but Cats. *Dionyſius Halicarnaſſeus* mentions a *Plague* which attacked none but Maids: And that which raged in the Time of *Gentilis* killed ſcarce any Women, and very few but luſty Men. *Boterus* mentions another *Plague*, which aſſaulted none but the younger ſort; and we have Inſtances of the ſame kind of a later ſtanding. *Cardan* ſpeaks of a *Plague* at *Baſil*, with which the *Switzers*, and not the *Italians*, *Germans*, or *French* were infected; and *Joh. Utenhovius* takes notice of a cruel *Plague* at *Copenhagen*, which, tho' it raged among the *Danes*, ſpared the *Germans*, *Dutch*, and *Engliſh*, who went with all Freedom, and without the leaſt Danger, to the Houſes of the infected.

The *Plague*, according to *Sydenham*, uſually begins with a Chillineſs, and ſhivering, like the Acceſs of an intermitting Fever; then comes on a Nauſea, with vehement Vomitings, an intenſe Pain about the Region of the Heart, as if pinch'd in a Preſs, and a burning Fever, which continually preys on the Patient, 'till either Death, or the Eruption of ſome Bubo, Parotis, or other Tumor, in the Inguina or Axillæ, or behind the Ears, relieve him, and diſcharge the Matter of the Diſeaſe. Sometimes, indeed, it attacks without any Fever; purple Spots appearing all at once, the certain Signs of preſent Death; but this rarely happens except at the beginning of ſome terrible *Plague*. It has alſo been known to make its firſt Appearance in Tumors, without any Fever, or other violent Symptom.

Heavineſs, Pain in the Stomach Head and Back, Cardialgy, broken Sleep, Anxiety, Alteration in the Look, Difficulty of breathing, Hiccough, Syncope, Delirium, convulſive Twitchings, Diarrhæa, Eyes ſunk or inflamed, Tongue black and dry, vehement Drought, fetid Breath, Carbuncles, Spots livid purple green, *&c.* are alſo Symptoms uſually attending this Diſeaſe.

A great deal depends on the Circumſtances of the Tumors, or *Plague Sores:* as they appear, and increaſe, the Fever abates; and as they ſink, or diminiſh, renews again. When they happen about the Time of the Criſis, and ſuppurate kindly, they are good Prognoſticks of a happy Recovery. See CRISIS.

In Acute Diſeaſes, ſays *Hippocrates*, Prognoſticks are ever fallacious. However, in the terrible *Plague* at *Nimeguen*, *Diemerbroek*, who attended the Sick through the whole Progreſs thereof, relates, That thoſe taken ill about New and Full Moon rarely eſcaped; that Faintings, Swoonings, and Palpitations of the Heart, were uſually deadly Signs; an intermitting Pulſe always mortal; Drowſineſs, Sneezings, tremulous Motions, Doting, ſore Throat, *&c.* were ill Omens: Pleuriſies, always mortal; Coſtiveneſs a good Sign; a Diarrhæa almoſt conſtantly fatal: Bloody Stools or Urines always preſaged ill.

As to the Cure, Phyſicians are much divided. It is generally attempted with Alexipharmachicks and Cardiacs, with the Aſſiſtance either of Sudorifics, or Phlebotomy, or both. ——Many eminent Phyſicians, both ancient and modern, highly commend Blood-letting; *Sydenham*, particularly, ſays, that if uſed copiouſly, and in time, it never yet did harm; but that Sudorifics often prove pernicious: *Diemerbroek*, on the contrary, with other very experienced Writers, proteſt againſt Phlebotomy as very dangerous, and often deadly; The chief Hopes they build in Diaphoretics and Sudorifics; Emetics and Purgatives are abſolutely forbid: and yet Dr. *Sayer* uſed the former with good Succeſs, in the Beginning of the Diſeaſe in the *Plague* at *London*, *Ann.* 1640. See ALEXIPHARMIC, *&c.*

The Juice of Lemons is commended as of ſingular Efficacy in the *Plague*, and peſtilential Fevers. *Piſo* relates that it is the principal Remedy of the *Indians*, and proteſts he never knew any thing come up to it. Dr. *Harris* obſerves that the ſame is what the *Turks* have principally Recourſe to.——Camphor is alſo much extoll'd. This, *Etmuller* aſſures us, was the Baſis of *Heinſius*'s Antipeſtilential Oil, who had a Statue erected to him when dead, in the City of *Verona*, for the Service he had done hereby.—It was prepared of equal Quantities of Camphor, Citron Bark, and Amber. —The Viperine Salt and Rob of Elder-Berries are alſo commended.

For Preſervatives againſt this Diſeaſe, they are uſually ſumm'd up in the popular Diſtich;

Hæc tria labificam tollunt abverbia peſtem,
Mox, longe, tarde, cede, recede, redi.

Cauteries, and eſpecially Iſſues, and Setons in the Inguina, are found of great Service in preſerving from Infection. A Piece of Myrrh held in the Mouth in contagious Places, is alſo commended. But *Diemerbroek* aſſures, that there is nothing better in this Intention, than ſmoaking Tobacco; but he adds, that it was only ſo to ſuch as had not made the Practice familiar to them. The other Preſervatives uſed by that great Author, were the *Rad. Helenii*, Cardomums; White-Wine Vinegar, and Chearfulneſs; and when he found his Spirits low, as if the Diſeaſe were taking Poſſeſſion, a Cup of generous Wine, ſometimes to a Degree of Drunkenneſs.

PLAGUE *Water*, *Aqua Epidemica*, is one of the Compound Waters of the Shops. See WATER.

PLAIN, an Epithet applied to various Things, generally importing them to be *ſmooth*, *even*, *level*, or *ſuperficial*, or *ſimple*, or *obvious*, or the like.

In this Senſe the Words ſtand oppoſed to *rough*, *ſolid*, *labour'd*, *enrich'd*, &c.

It is a Maxim in Heraldry, that the *plainer* the Coat the nearer to Antiquity.——*Plain* Coats are ſuch as are leaſt encumber'd. See COAT, *&c.*

PLAIN *Figure*, in Geometry, is an uniform Surface, from every Point of whoſe Perunietera, right Lines may be drawn to every other Point in the ſame. See FIGURE; ſee alſo PLANE and SURFACE.

PLAIN *Angle* is an Angle contain'd under two Lines, or Surfaces. See ANGLE.

It is ſo call'd in contradiſtinction to a ſold Angle. See SOLID.

PLAIN *Triangle* is a Triangle included under three right Lines, or Surfaces; in oppoſition to a ſpherical, and a mixt Triangle. See TRIANGLE.

PLAIN *Trigonometry* is the Doctrine of plain Triangles, their Meaſures, Proportions, *&c.* See TRIGONOMETRY.

PLAIN *Glaſs*, *Mirror*, &c. in Optics, is a Glaſs or Mirror, whoſe Surface is flat or even. See the Phænomena Laws of *plain Mirrors*, under the Article MIRROR.

Plain Mirrors are what we popularly call *Looking-Glaſſes*; ſee the manner of grinding, poliſhing, and preparing them, under the Article *Looking-Glaſs* GRINDING.

PLAIN *Tyle*. See TYLE.

PLAIN *Scale*, is a thin Ruler, whereon are graduated the Lines of Chords, Sines, Tangents, Secants, Leagues, Rhumbs, *&c.* of ready Uſe in moſt Parts of the Mathematicks, chiefly in Navigation. See LINE, *&c.*

See its Deſcription and Uſe under the Article SCALE.

PLAIN *Chart*, in Navigation, is a Sea-Chart, wherein the Meridians and Parallels are repreſented by parallel ſtrait Lines; and where, of Conſequence, the Degrees are the ſame in all the Parallels of Latitude.

See the *Properties*, *Conſtruction*, &c. of this *Chart* under the Article CHART.

PLAIN *Sailing*, in Navigation, is the Art of working the ſeveral Caſes and Varieties in a Ship's Motion, on a *plain Chart*. See *Plain* CHART.

Plain Sailing is founded on the Suppoſition of the Earth being a Plane or flat; which, tho' notoriouſly falſe, yet Places being laid down accordingly, and a long Voyage broke into many ſhort ones; the Voyage may be tolerably perform'd by it, near the ſame Meridian.

In *Plain Sailing* it is imagined, that by the Rhumb-Line, Meridian, and Parallel of Latitude, there always will be formed a Right-angled Triangle; and that ſo poſited, as that the Perpendicular may repreſent Part of the Meridian, or North and South Line, containing the Difference of Latitude: The Baſe of the Triangle, repreſents the Departure; and the Hypothenuſe the Diſtance ſailed.—The Angle at the Top is the Courſe, and the Angle at the Baſe the Complement of the Courſe; any two of which, with the Right-Angle being given, the Triangle may be protracted, and the other three Parts found. See TRIANGLE.

For *the Doctrine of* Plain Sailing, *ſee* SAILING.

PLAIN *Table*, in Geometry, *&c.* an Inſtrument uſed in the Surveying of Land; whereby the Draught, or Plan, is taken on the Spot, without any future Protraction or plotting. See SURVEYING, PLOTTING, *&c.*

The *Plain Table*, repreſented *Tab. Surveying*, *Fig.* 31. conſiſts of a Parallelogram of Wood, about 15 Inches long and 12 broad; round this goes a Boxen jointed Frame, by means whereof a Sheet of Paper is faſten'd tight to the Table, ſo as Lines may be conveniently drawn upon it.

On each ſide the Frame, which may be put on either ſide upwards, towards the inward Edge, are Scales of Inches, ſubdivided, for the ready drawing of Parallel Lines.—Beſide which, on one ſide are projected the 360 Degrees of a Circle, from a Braſs Center in the middle of the Table, (each Degree halved) with two Numbers to every 10th Degree, the one expreſſing the Degree, the other its Complement to 360, to ſave Subtraction: On the other ſide are projected the 180 Degrees of a Semicircle, from a Braſs Center in the middle of the Table's Length, and at $\frac{1}{4}$ of its Breadth; each Degree halv'd, and every Tenth noted with two Numbers, *viz.* the Degree and its Complement to 180°.

To one ſide of the Table is fitted a Compaſs, for placing the Inſtrument by; and the whole is fix'd by a Socket, upon a three legg'd Staff for a Stand, on which it is turn'd round, or faſten'd by a Screw, as occaſion requires.—Laſtly, to the Table belongs an Index, which is a Ruler at leaſt 16 Inches long, and 2 broad; and uſually graduated with Scales, *&c.* and having two Sights perpendicularly placed on its Extremities. See SIGHT, STAFF, BALL, and SOCKET, *&c.*

Uſe of the PLAIN-*Table.*

To take an Angle by the Plain Table: Or *to find the Diſtance of two Places acceſſible from the ſame third.*—Suppoſe D A, D S (*Tab. Surveying*, *fig.* 32.) the ſides of the Angle required; or A B the Diſtance required. Place the Inſtrument horizontally as near the Angle as poſſible; and aſſume a Point in the Paper on the Table, *v. g.* C. To this Point apply the Edge of the Index, turning it about this and that way, 'till thro' the Sights you ſee the Point B, and in this Situation of the Ruler, draw by its Edge the Line C E indefinitely. After the ſame manner turn about the Index, on the ſame Point, 'till thro' the Sights you ſee the Point A; and draw the right Line *c d* indefinitely.—Thus have you the Quantity of the Angle laid down.

Meaſure the Lines *c* A, *c* B, with a Chain; (ſee CHAIN.) and from a Scale, ſet off the Meaſures thus found, (ſee SCALE) on the reſpective Lines; which ſuppoſe to reach from *c* to *b*, and from *c* to *a*.—Thus will *c b* and *c a* be proportional to *c* B and *c* A.

Transfer the Diſtance *a b* to the ſame Scale, and find its Length; the Length thus found, will be the Length, or Diſtance, of A B required.

2° *To find the Diſtance of two Places, one whereof is inacceſſible, by the* Plain Table.—Suppoſe the Diſtance required A B; (*Fig.* 33.) and A the acceſſible Point 1° Place the *Plain Table* in C; look thro' the Sights 'till you ſee A and B; and draw *a c* and *c b*. Meaſure the Diſtance from your Station to A; and ſet it off from the Scale, upon *c a*. 2° Remove the Table to A, where place it ſo, as that the Point *a* repreſenting A, and the Index laid along the Line *a c*, you ſee, backwards, the former Station C. (*Note*, in this fixing the Inſtrument, lies the Uſe of the Compaſs; for the Needle will hang over the ſame Degree of the Card in the firſt and the ſecond Caſe; ſo that ſome ſet the Inſtrument by the Needle alone; others only uſe it to ſhorten the Trouble, by bringing the Inſtrument nearly to its due Poſition by means thereof; and then fixing for good by the Back-Sight.) 3° The Inſtrument fix'd, turn the Sights to B; and draw the Line *a b*. 4° On the Scale, meaſure the Interval *a b*; which will be the Diſtance of A B required.

3° *To find the Diſtance of two inacceſſible Places by the Plain Table.*—Suppoſe the Diſtance of A B (*Tab. Surveying*, *Fig.* 34.) required. 1° Chuſing two Stations in C and D; in the firſt C, place the *Plain Table*; and thro' the Sights look to D, B and A; drawing by the Edge of the Index, the Lines *c d*, *c b*, *c a*.—2° Meaſure the Diſtance of the Stations C D; and ſet this off, from a Scale, on *c d*.—3° Removing the Table from C, fix it in D; ſo as the Point *d* hanging over the Place D, and the Index lying along the Line *c d*, thro' the Sights you ſee the former Station C. The Inſtrument thus fix'd, direct the Sights to A and B, and draw the right Lines *d a* and *d b*. Laſtly, find the Diſtance of *a b*, on the Scale; this will be the Diſtance of A B required.

After the ſame Manner, may the Diſtance of any Number of Places be found from two Stations; and thus may a Field, part of a Country, *&c.* be ſurvey'd.

4° *To take the Plot of a Field from one Station, whence all the Angles may be ſeen; with the Plain Table.*—Placing the Inſtrument in the Station, aſſume a Point in the Paper, to repreſent the ſame, *v. g.* C. (*Fig.* 21.) Laying the Edge of the Index to this Point; direct it to the ſeveral Angles of the Field, A B C D E F, *&c.* and draw indefinite Lines by its Edge, towards every Angle, *viz.* C *a*, C *b*, C *c*, &c. meaſure the Diſtance of each Angle from the Station, *viz.* C A, C B, C C, C D, *&c.* and from a Scale ſet it off from C on its correſponding Line; the Extremities hereof will give Points, which being connected by Lines will repreſent the Field.

5° *To take the Plot of a Field, Wood, or the like, by going round the ſame; with the Plain Table.*—Place the Inſtrument horizontally at the firſt Angle, *v. g.* A. The Needle on the Meridian of the Card; and aſſuming a Point on the Paper, to repreſent it, to that Point lay the Index, directing it 'till thro' the Sights you ſee a Mark in the Angle B. And draw an indefinite Line along it; meaſure the Diſtance of A and B, and from a Scale ſet it off on the Line thus drawn; the Extremity of this Diſtance will repreſent the Point B. Remove the Inſtrument to B, where ſet it ſo as that the Needle hang over the Meridian of the Card; and ſo as the Index lying along the Line laſt drawn, you ſee the former Station A thro' the Sights: here faſten it, lay the Index to the Point B, and turn it, 'till thro' the Sights you ſee the next Angle C; in this Situation draw a Line as before, meaſure the Diſtance B C, and ſet it off from a Scale on the Line.—Remove the Inſtrument to C, where, fixing it by the Needle, and the Back-Sight, as before, turn the Index on the Point C, 'till you ſee the next Angle D; draw the Line, meaſure, and ſet off the Diſtance C D as before, and remove the *Plain Table* to E; where fix it, as before, look to the next Angle F, draw the Line, meaſure, and ſet off the Diſtance, *&c.*

In this manner having compaſs'd the whole Field, you'll have its whole Perimeter plotted on the Table; which may be now caſt up and its Contents found, as in the Article of SURVEYING.

Manner of ſhifting Paper on the Plain Table.

When in large Parcels of Ground, the Plot is found to exceed the Dimenſions of the *Plain Table*, and to run off from the Paper; the Sheet muſt be taken off the Table, and a freſh one put on; The way of managing which ſhifting, is as follows.—Suppoſe H, K, M, Z, (*Fig.* 35.) the Limits of the

Plain Table; ſo that having laid down the Field from A to B, thence to C and D; you want room, the Line D E running off the Paper: Draw as much of the Line D E as the Paper will well hold, *viz.* DO. And by means of the Diviſions on the Edge of the Frame, draw the Line P Q thro' O, parallel to the Edge of the Table H M; and thro' the Point of Interſection O, draw O N parallel to M Z. This done, take off the Frame, remove the Sheet, and clap a freſh one (*Fig.* 36.) in its ſtead; drawing on it a Line R S near the other Edge parallel thereto. Then lay the firſt Sheet on the Table, ſo as the Line P Q lie exactly on the Line R S, to the beſt Advantage, as at O. Laſtly, draw as much of the Line O D, on the freſh Sheet, as the Table will hold; and from O continue the Remainder of the Line D, to E. From E proceed with the Work as before to F, G, and A.

Uſe of the Plain Table, *as a Theodolite, Semicircle, or Circumferentor.*

The great Inconveniency of the *Plain Table* is, that its Paper renders it impracticable in moiſt Weather. Even the Dew of the Morning and Evening is found to ſwell the Paper conſiderably, and of conſequence to ſtretch and diſtort the Work.——To avoid this Inconvenience, and render the Inſtrument uſeful in all Weathers; by leaving off the Paper, and ſetting up a Pin in the Centre, it becomes a *Theodolite*, a *Semicircle*, or a *Circumferentor*, and practicable like them.

The *Plain Table* ſtripp'd of its Paper, becomes either a *Theodolite*, or a Semicircle, or as that ſide of the Frame which has the Projection of the Degrees of a Circle, or a Semicircle, is turn'd upwards. If it be to ſerve for a *Theodolite*; the Index, which as a *Plain Table* turns on any Point as a Center, is conſtantly to turn about the Braſs Center Hole in the Middle of the Table.

If for a *Semicircle*, it muſt turn on the other Braſs Center Hole; in both Caſes 'tis done by means of a Pin rais'd in the Holes.

When the *Plain Table* is to ſerve as a *Circumferentor*; ſcrew the Compaſs to the Index, and both of them to the Head of the Staff, with a Braſs Screw-Pin fitted for the Purpoſe; ſo as the Staff and Table ſtanding fix'd, the Index, Sights, *&c.* may be turn'd about and *vice verſa.*

To take an Angle by the Plain Table, conſidered as a Theodolite.——Suppoſe the Quantity of the Angle E K G (*Fig.* 20.) required. Place the Inſtrument at K, the Theodolite Side of the Frame upwards, laying the Index on the Diameter. Turn the whole Inſtrument about, the Index remaining on the Diameter, 'till thro' the Sights you ſpy E. Screw the Inſtrument faſt there, and turn the Index on its Center, 'till thro' the Sights you ſpy G.

The Degree here cut on the Frame by the Index, is the Quantity of the Angle ſought; which may be laid down on Paper by the Rules of common Protraction. See PROTRACTION.

Thus may you proceed to do every thing with the *Plain Table*, as with the common Theodolite. See THEODOLITE.

To take an Angle with a Plain Table, conſidered as a Semicircle.——Proceed in the ſame manner with the Inſtrument conſider'd as a *Semicircle*, as when conſidered as a Theodolite; only laying the Semicircular Side upwards, and turning the Index on the other Center Hole in the middle of the Length, and at about ¼ of the Breadth of the Table. See SEMICIRCLE.

To take an Angle with the Plain Table, conſidered as a Circumferentor.——Suppoſe the former Angle E K G required. Place the Inſtrument at K, the Flower-de-luce towards you. Direct the Sights to E, and obſerve the Degree cut by the South End of the Needle which ſuppoſe 296. Turn the Inſtrument about, the Flower-de-luce ſtill towards you, and direct the Sight to G, noting the Degree cut by the other End of the Needle, which ſuppoſe 182. Subtract the leſs from the greater, the Remainder 114° is the Quantity of the Angle ſought. If the Remainder chance to be more than 180° then it muſt be again ſubtracted from 360. This ſecond Remainder will be the Angle required; which may be protracted, *&c.* as under the Article PROTRACTION.

Thus may you proceed to do every thing with the *Plain Table*, as with the common Circumferentor. See CIRCUMFERENTOR.

PLAIN *Number*, is a Number that may be produced by the Multiplication of two Numbers into one another.—— Thus 20 is a *plain Number*, produced by the Multiplication of 5 into 4. See NUMBER.

PLAIN *Problem*, in Mathematicks, is ſuch an one, as cannot be ſolved Geometrically, but by the Interſection either of a Right Line and a Circle; or of the Circumferences of two Circles. See PROBLEM.

Such is the Problem following——Given, the greateſt Side, and the Sum of the other two Sides, of a Right-angled Triangle; to find the Triangle.——Such alſo is this, To deſcribe a Trapezium that ſhall make a given Area of four given Lines. Such Problems can only have two Solutions, in regard a Right Line can only cut a Circle, or one Circle cut another in two Points.

PLAIN *Place*, in Geometry, *Locus planus*, or *Locus ad planum*, a Term which the ancient Geometricians uſed for a Geometrical Locus, when it was a right Line, or a Circle; in oppoſition to a ſolid Place, which was an Ellipſis, Parabola, or Hyperbola.

Theſe *plain Loci* the Moderns diſtinguiſh into *Loci ad rectam*, and *Loci ad Circulum.* See LOCUS.

PLAIN, in Heraldry, is ſometimes uſed for the Point of the Shield, when couped ſquare; a Part remaining under the Square, of a different Colour, or Metal, from the Shield.

This has been ſometimes uſed as a Mark of Baſtardy, and call'd *Champagne*: For when the legitimate Deſcendants of Baſtards have taken away the Barr, Fillet, or Traverſe bore by their Fathers, they are to cut the Point of the Shield, with a different Colour call'd *Plain.* See BASTARD, DIMINUTION.

PLAIN, or PLANE, in Perſpective, in Mechanics, Aſtronomy, *&c.* See PLANE.

PLAINT, in Law, is the propounding or exhibiting any Action, real or perſonal, in Writing. See ACTION.

Hence, the Party making this *Plaint*, is call'd Plaintiff. See PLAINTIFF.

PLAINTE, in the ancient Cuſtoms of *France*, was a Requeſt, or Petition, preſented to the King, againſt the Judges of the Provinces, and afterwards againſt Bailiffs and Seneſchals; for denying Juſtice, or for rendering Judgment contrary to the Laws of the Realm.

For in thoſe Days there was no Appeal from their Deciſions; but they all pronounced at the laſt hand: So that the *Plainte* was not directed againſt the Party, but againſt the Judge; who was ajourn'd to ſee his own Sentence declared null.

This was a kind of Supplement to the Way of Appeals, which was then ſhut up.—Theſe *Plaintes*, in the Capitularies of *Charlemaign*, are call'd *Blaſphemia.*

PLAINTIFF, in Law, he that ſues, or complains, in an Aſſize, or in an Action perſonal; as, in an Action of Debt, Treſpaſs, Deceit, Detinue, and the like. See ACTION.

PLAISTER, in Building. See PLASTER, MORTAR, *&c.*

PLAISTER, in Medicine. See EMPLASTER.

PLAIT. See FOLD.

PLAN, a Repreſentation of ſomething drawn on a Plane. See PLANE; ſee alſo MAP, CHART, *&c.*

Such are Maps, Charts, Ichnographies, *&c.* See PLANISPHERE.

PLAN, in Architecture, *&c.* is particularly uſed for a Draught of a Building, ſuch as it appears, or is intended to appear, on the Ground; ſhewing the Extent, Diviſion, and Diſtribution of its Area into Apartments, Rooms, Paſſages, *&c.* See BUILDING.

The *Plan* is the firſt Device or Sketch the Architect makes; it is alſo call'd the *Ground-Plot*, *Plat-Form*, and *Ichnography* of the Building. See ICHNOGRAPHY, *&c.*

The *Geometrical Plan* is that wherein the ſolid and vacant Parts are repreſented in their natural Proportion.

Rais'd Plan is that where the Elevation, or Upright, is ſhewn upon the *Geometrical Plan*, ſo as to hide the Diſtribution. See ELEVATION.

Perſpective Plan is that conducted and exhibited by Degradations, or Diminutions, according to the Rules of Perſpective. See PERSPECTIVE.

To render the *Plans* intelligible, 'tis uſual to diſtinguiſh the Maſſives with a black Waſh. The Projectures on the Ground are drawn in full Lines, and thoſe ſuppoſed over them in dotted Lines. The Augmentations or Alterations to be made, are diſtinguiſhed by a Colour different from what is already built; and the Feints of each *Plan* made lighter as the Stories are rais'd.

In large Buildings 'tis uſual to have ſo many ſeveral *Plans* for the firſt three Stories.

For the Perſpective of a PLAN. See PERSPECTIVE.

PLANCERE, in Architecture, the under Part of the Corona, or Drip; making the ſuperior Part of the Cornice, between two Cymatiums. See CORONA, CORNICE, *&c.*

PLANE, or PLAN, PLAIN, PLANUM, in Geometry, a *plain Figure*; or a Surface, lying evenly between its bounding Lines. See PLAIN.

Wolfius defines it a Surface, from every Point of whoſe Perimeter a Right Line may be drawn to every other Point in the ſame.

As the right Line is the ſhorteſt Extent from one Point to another; ſo is a *Plane* the ſhorteſt Extenſion between one Line and another. See LINE and SPACE.

PLANES are frequently uſed in Aſtronomy, *&c.* for imaginary Surfaces, ſuppoſed to cut, and paſs thro' ſolid Bodies; and on this Foundation is it that the whole Doctrine of Conic Sections and of the Sphere turn. See SECTION.

When a *Plane* cuts a Cone parallel to one of its ſides, it makes a Parabola; when it cuts the Cone parallel to its Baſe, it makes a Circle. See CONICKS.

The Sphere is wholly explained by *Planes*, imagin'd to cut the Celeſtial Luminaries, and to fill the Areas or Circumferences of their Orbits. See SPHERE.

Aſtronomers ſhew, that the *Plane* of the Moon's Orbit is inclined to the *Plane* of the Earth's Orbit, or the Ecliptic, by an Angle of about 5 Deg. and paſſes thro' the Center of the Earth. See ORBIT.

The Interſection of this *Plane* with that of the Ecliptic, has a proper Motion of $3' 11''$ each Day, from Eaſt to Weſt; ſo that the Nodes anſwer ſucceſſively to all the Degrees of the Ecliptic, and make a Revolution round the Earth in about 19 Years. See NODE.

The *Planes* of the Orbits of the other Planets, like that of the Ecliptic, paſs thro' the Center of the Sun.——The *Plane* of the Orbit of *Saturn*, is inclined to the Ecliptic by $2^{\circ} 33' 30''$, and cuts it, at preſent, in the 22d Degree of *Cancer* and *Capricorn*. See INCLINATION; ſee alſo MOON and PLANET.

The Centre of the Earth, then, being in the *Plane* of the Moon's Orbit, the Circular Section of that Plan in the Moon's Disk, is repreſented to us in Form of a Right Line paſſing thro' the Center of the Moon.—This Line is inclined to the *Plane* of the Ecliptic by 5° when the Moon is in her Nodes: But this Inclination diminiſhes as that Planet recedes from the Nodes; and at three Degrees diſtance, the Section of the Moon's Orbit in its Disk. becomes parallel to the *Plane* of the Ecliptic. The ſame Appearances attend the primary Planets, with regard to the Sun.

But the Caſe is very different in the Planets ſeen from one another, eſpecially from the Earth.—The *Planes* of their Orbits only paſs thro' the Center of the Earth when they are in their Nodes: In every other Situation, the *Plane* is rais'd above the Orbit of the Planet, either to the North or the South. And the Circular Section of the *Plane* of the Orbit on its Disk, or in the Orbit of one of its Satellites, does not appear a Right Line, but an Ellipſis, broader or narrower as the Earth is more or leſs elevated above the *Plane* of the Orbit of the Planet.

PLANE, in Mechanicks.—A *Horizontal* PLANE, is a *Plane* level or parallel to the Horizon. See HORIZON.

The determining how far any given *Plane*, &c. deviates from a Horizontal one, makes the whole Buſineſs of Levelling. See LEVELLING.

Inclined PLANE, in Mechanicks, is a *Plane* which makes an oblique Angle with an Horizontal *Plane*. See OBLIQUE.

The Doctrine of the Motion of Bodies on *Inclined Planes* makes a very conſiderable Article in Mechanicks; the Subſtance whereof is as follows:

Laws of the Deſcent of Bodies on an INCLINED PLANE.

If a Body be placed on an *inclined Plane*, its relative Gravity will be to its abſolute Gravity, as the Length of the *Plane*, *e. gr.* AC (*Tab. Mechanicks*, *Fig.* 58.) to its Height AB. See GRAVITY.

Hence, 1° ſince the Ball D only gravitates on the *inclined Plane*, with its relative Gravity; the Weight L, applied in a Direction, parallel to the Length of the Plane, will retain or ſuſpend it, provided its Weight be to that of the Ball, as the Altitude of the *Plane* BA is to its Length AC.

2° If the Length of the *Plane* CA be taken for the whole Sine; AB will be the Sine of the Angle of Inclination ACB.—The abſolute Gravity of the Body, therefore, is to its reſpective Gravity applied on the *inclined Plane*; and therefore, alſo, the Weight D to the Weight L acting according to the Direction DA which ſuſtains it; as the whole Sine to the Sine of the Angle of Inclination.

3° Hence the reſpective Gravities of the ſame Body on different *inclined Planes*, are to each other as the Sines of the Angle of Inclination.

4° The greater therefore the reſpective Gravity is, the greater is the Angle of Inclination.

5° As, therefore, in a vertical *Plane*, where the Inclination is greateſt, *viz.* perpendicular, the reſpective Gravity degenerates into abſolute; ſo in a horizontal *Plane*, where there is no Inclination, the reſpective Gravity vaniſhes.

II. To find the Sine of the Angle of Inclination of a *Plane*, on which a given Power will be able to ſuſtain a given Weight.——Say, as the given Weight, is to the given Power, ſo is the whole Sine to the Sine of the Angle of Inclination of the *Plane*. Thus, ſuppoſe a Weight of 1000 be to be ſuſtained by a Force of 50; the Angle of Inclination will be found $2^{\circ} 52'$.

III. If the Weight L deſcend according to the perpendicular Directon AB, and raiſe up the Weight D in a Direction parallel to the *inclined Plane*; the Height of the Aſcent of D will be to that of the Deſcent of L, as the Sine of the Angle of Inclination C, to the whole Sine.

Hence, 1° The Height of the Deſcent CD of the Weight L is to the Height of Aſcent DH of the Weight D; reciprocally as the Weight D to the equivalent Weight L.

2° Since then $CDL = DHD$, and the Actions of the equiponderating Bodies D and L are equal; the Moments of the Weights D and L are in a Ratio compounded of their Maſſes, and Altitudes, thro' which they aſcend or deſcend in a *Plane*, either inclined or perpendicular.

3° The Powers that raiſe Weights thro' Altitudes reciprocally proportional to them, are equal.——This *Des Cartes* aſſumes as a Principle whereby to demonſtrate the Powers of Machines. Hence we ſee why a loaden Waggon is drawn with more Difficulty on an *inclined* than an horizontal *Plane*; as being preſs'd with a Part of the Weight which is to the whole Weight in a Ratio of the Altitude to the Length.

IV. Weights E and F, equiponderating upon *inclined Planes* AC and CB of the ſame Height CD, are to each other as the Lengths of the Planes AC and CB.

S. Stevinus gives a very pretty Demonſtration of this Theorem, which, for its Eaſineſs and Ingenuity, we ſhall here add.—Put a Chain, whoſe Parts do all exactly weigh in Proportion to their Length, over a Triangle, GIH: (*Fig.* 59.) 'Tis evident the Parts GK and KH do balance each other. If then IH did not balance GI, the præponderating Part would prevail; and there would ariſe a perpetual Motion of the Chain about GIH; but this being abſurd, it follows, that the Parts of the Chain IH and GI; and conſequently all other Bodies which are as the Lengths of the *Planes* IH and I, G will balance each other.

V. A heavy Body deſcends on an *inclined Plane*, with a Motion uniformly accelerated. See ACCELERATION.

Hence, 1° The Spaces of Deſcent are in a duplicate Ratio of the Sines, and likewiſe of the Velocities; and therefore in equal times increaſe according to the unequal Numbers 1, 3, 5, 7, 9, *&c.*

2° The Space paſs'd over by a heavy Body deſcending on an *inclined Plane*, is ſubduple of that which it would paſs over in the ſame Time, with the Velocity it has acquired at the End of its Fall.

3° Heavy Bodies, therefore, deſcend by the ſame Laws on *inclined Planes*, as in perpendicular *Planes*. Hence it was, that *Gallileo*, to find the Laws of perpendicular Deſcent, made his Experiments on *inclined Planes*, in regard of the Motions being ſlower in the latter than the former; as in the following Theorem.

VI. The Velocity of a heavy Body deſcending on an *inclined Plane*, at the End of any given Time; is to the Velocity which it would acquire in falling perpendicularly, in the ſame Time; as the Height of the *inclined Plane* is to its Length.

VII. The Space paſs'd over by a heavy Body on an *inclined Plane* AD, (*Fig.* 60.) Is to the Space AB, it would paſs over in the ſame time in a perpendicular *Plane*: As its Velocity on the *inclined Plane* is to its Velocity in the perpendicular Deſcent, at the End of any given time.

Hence, 1° The Space paſs'd over in the *inclined Plane*, is to the Space it would deſcend in the ſame time in the perpendicular *Plane*, as the Altitude of the *Plane* AB to its Length AC; and therefore as the Sine of the Angle of Inclination to the whole Sine.

2° If, then, from the Right Angle B, a Perpendicular be let fall to AC; AC : AB :: AB : AD. So that in the ſame time wherein the Body would fall perpendicularly from A to B; in an *inclined Plane* it will deſcend from A to D.

3° The Space, therefore, of perpendicular Deſcent being given in the Altitude of the *Plane* AB; by letting fall a Perpendicular from B to AC, we have the Space AD to be paſs'd over in the ſame time on the *inclined Plane*.

4° In like manner, the Space AD, paſs'd over on the *inclined Plane*, being given; we have the Space AB, thro' which it would deſcend perpendicularly in the ſame time, by raiſing a Perpendicular meeting the Side of the *Plane* in B.

5° Hence in the Semicircle ADEFB, the Body will deſcend thro' all the *Planes* AD, AE, AF, AC, in the ſame time; *viz.* in that time wherein it would fall thro' the Diameter AB, ſuppoſing that perpendicular to the horizontal *Plane* LM.

VIII. The Space AD, paſs'd over in an *inclined Plane* AC, being given; to determine the Space which would be paſs'd over in any other *inclined Plane* in the ſame time.

From the Point D erect a Perpendicular DB, meeting the Altitude AB in B; then will AB be the Space, thro' which the Body would fall perpendicularly in that time. Wherefore if from B a Perpendicular BE be let fall to the *Plane* AF; AE will be the Space in the *inclined Plane* which the Body will paſs over, in the ſame time wherein it falls perpendicularly from A to B; and conſequently AD will be the Space in the other *inclined Plane* AC, which it paſſes thro' in the ſame time.

Hence, ſince A B is to A D, as the whole Sine to the Sine of the Angle of Inclination C. And A B is to A E as the whole Sine to the Sine of the Angle of Inclination F; the Spaces A D and A E, which the Body will paſs over in the ſame Time on different *inclined Planes*, are as the Sines of the Angles of Inclination, C and F, and reciprocally as the reſpective Gravities on the ſame Planes. And conſequently, alſo, reciprocally as the Lengths of Planes equally high A C and A F.—Whence the Problem may be reſolved various Ways by Calculation.

IX. The Velocities acquired in the ſame time on different *inclined Planes*, are as the Spaces paſs'd over in the ſame Time.—Hence, alſo, they are as the Sines of the Angles of Inclination C and F; reciprocally as the reſpective Gravities on the ſame *Planes*; and reciprocally as the Lengths of equally high *Planes*, A C and A F.

X. A Body deſcending on an *inclined Plane* A C, when it arrives at the horizontal Line C B, has acquired the ſame Velocity which it would have acquired in a perpendicular Deſcent A B, to the ſame horizontal Line C F.

Hence, 1° A heavy Body deſcending thro' different *inclined Planes*, A C, A G, A F, has acquired the ſame Velocity when it arrives at the ſame horizontal Line C F.

Hence alſo a Body continuing its Deſcent thro' ſeveral contiguous *inclined Planes* acquires the ſame Velocity which it would acquire in deſcending perpendicularly to the ſame horizontal *Plane*.

XI. The Time of Deſcent along an *inclined Plane* A C, is to the Time of perpendicular Deſcent thro' A B, as the Length of the *Plane* A C, to its Altitude A B: But Times of Deſcents thro' different *inclined Planes* equally high A C and A G, are as the Lengths of the *Planes*.

XII. If the Diameter of a Circle A B, (*Fig.* 60.) be parallel to the horizontal Line L M; a Body will deſcend from any Point of the Periphery D, E, or C to B, along an *inclined Plane* D C, E B, and C B, in the ſame Time wherein it will deſcend thro' the Diameter A B. Hence,

XIII. The Deſcents of a Body thro' a Semicycloid D E F, (*Fig.* 61.) and thro' any Arch thereof B A K, are always equidiurnal, or perform'd in the ſame Time; on which Principle is built the Doctrine of Pendulums vibrating in a Cycloid. See CYCLOID and PENDULUM.

Laws of the Aſcent of Bodies on Inclined-Planes.

I. If a Body aſcend in a Medium void of Reſiſtance, in any Direction, whether perpendicular, or along an *inclined Plane*; its Motion will be uniformly retarded. See RETARDATION.

Hence, 1° A Body aſcending either perpendicularly or obliquely, in ſuch a Medium paſſes over a Space which is ſubduple of that it would paſs over in the ſame Time on a horizontal Plane, with an uniform Celerity equal to that it has at the Beginning of its Motion.

2° Such Spaces, therefore, perform'd in equal Times, decreaſe in a retrograde Order, as the uneven Numbers 7, 5, 3, 1: and therefore the Aſcent is ſo much impeded; conſequently, when the impreſs'd Force is exhauſted, the Body will deſcend again by the Force of Gravity.

3° They are therefore, inverſely, as the Spaces deſcrib'd in the ſame Times by a Body deſcending thro' the ſame Altitude.—For, ſuppoſe the Time divided into four Parts; In the firſt Moment, the Body A deſcends thro' the Space 1, and B aſcends thro' 7; in the ſecond, A deſcends thro' 3, B aſcends thro' 5, *&c.*

4° Hence, a Body riſing with an impreſs'd Force, aſcends to that Altitude, from which it muſt fall to acquire that Velocity in falling, wherewith it aſcended.

5° Hence, by falling it acquires a Force to riſe again to the Height whence it fell. See PENDULUM.

II. The Time wherein a Body aſcends to a given Altitude, being given; to determine the Spaces paſs'd over each Moment.——Suppoſe the ſame Body to deſcend from the ſame Altitude in the ſame time; and find the Spaces paſs'd over each Moment. (See MOTION.) Theſe, taken inverſely, are the ſame with the Spaces of Aſcent required.

Suppoſe, *v.g.* a Body projected perpendicularly, to aſcend thro' a Space of 240 Feet in 4 Seconds; and the Spaces of Aſcent perform'd in the ſeveral Times required? If, now, the Body had deſcended, the Deſcent in the firſt Minute had been 15 Feet, in the ſecond 45, in the third 75, in the fourth 105, *&c.* The Deſcent therefore will be in the firſt Moment 105, in the ſecond 75, *&c.*

III. If a Body deſcend either perpendicularly thro' D A, (*Fig.* 61.) or in any other Surface F E D, and with the Velocity it has there acquired, again aſcend along another Surface D C, at Points equally high, *e. gr.* at G and H, and Q and D, it will have the ſame Force and the ſame Velocity.

Hence, if a Body deſcend along any Surface, F E D, and again aſcend along another ſimilar and equal Surface D G C; 'tis the ſame as if it paſs'd over the ſeveral Parts of the ſame Line twice.

Whence, the Times of Aſcent and Deſcent thro' equal Spaces are equal.

On this Principle is founded the Conſtruction and Uſe of Pendulums. See PENDULUM and OSCILLATION.

PLANE *of Gravity*, or *Gravitation*, is a *Plane* ſuppoſed to paſs thro' the Center of Gravity of the Body, and in the Direction of its Tendency; that is, perpendicular to the Horizon. See GRAVITY and GRAVITATION.

PLANE *of Reflection*, in Catoptrics, is a *Plane* which paſſes through the Point of Reflection; and is perpendicular to the *Plane* of the Glaſs, or reflecting Body. See REFLECTION.

PLANE *of Refraction* is a *Plane* drawn thro' the incident and refracted Ray. See REFRACTION.

Perſpective PLANE, is a plain pellucid Surface, ordinarily perpendicular to the Horizon, and placed between the Spectator's Eye and the Object he views; thro' which the optic Rays, emitted from the ſeveral Points of the Object, are ſuppoſed to paſs to the Eye, and in their Paſſage to leave Marks that repreſent them on the ſaid *Plane*. See PERSPECTIVE.

Such is the *Plane* H I; (*Tab. Perſpective Fig.* 1.) ſome call it the *Table*, becauſe the Draught, or Perſpective of the Object, is ſuppoſed to be thereon; others, the *Section*, from its cutting the viſual Rays; and others, the *Glaſs*, from its ſuppoſed Tranſparency.

Geometrical PLANE, in Perſpective, is a *Plane* parallel to the Horizon, whereon the Object to be delineated is ſuppoſed to be placed.

Such is the *Plane* L M. (*Fig.* 1. *Tab. Perſpective*)—This *Plane* is uſually at right Angles with the *Perſpective Plane.*

Horizontal PLANE, in Perſpective, is a *Plane* paſſing thro' the Spectator's Eye, parallel to the Horizon, cutting the Perſpective *Plane* when that is perpendicular to the Geometrical one, at right Angles.

Vertical PLANE, in Perſpective, a *Plane* paſſing thro' the Spectator's Eye, perpendicular to the Geometrical *Plane*; and uſually parallel to the Perſpective *Plane*. See VERTICAL.

Objective PLANE, in Perſpective, is any *Plane* ſituate in the horizontal *Plane*, whoſe Repreſentation in Perſpective is required. See OBJECT.

PLANE *of the Horopter*, in Optics, is a *Plane* that paſſes thro' the Horopter, A B, (*Tab. Optics Fig.* 67.) and is perpendicular to a *Plane* paſſing thro' the Optic Axes I G H. See HOROPTER.

PLANE *of the Projection*, in the Stereographic Projection of the Sphere, is the ſame with the perſpective *Plane*, which ſee. See alſo PROJECTION, *&c.*

PLANE *of a Dial*, or *Dial* PLANE, the Surface whereon a Dial is drawn. See DIAL.

We have Horizontal, Vertical, Inclining, Declining, Reclining, Deinclining, Direct, *&c. Dial Planes.* See INCLINING, DECLINING, RECLINING, DIRECT, *&c.*

PLANE *Glaſs*, *Mirror*, &c. See PLAIN *Glaſs*, *Mirror*, &c.

PLANE, in Joinery, *&c.* an Edge-Inſtrument, uſed to pare or ſhave Woods ſmooth, even, *&c.*

It conſiſts of a Piece of Wood, very ſmooth at bottom, ſerving as a Stock, or Shaft; in the middle whereof is an Aperture, thro' which paſſes a Steel Edge, or Chiſſel, obliquely placed, and very ſharp, which takes off the Inequalities of the Wood it is ſlid along.

The *Plane* acquires various Names according to its various Forms, Sizes and Uſes: as, 1° The *Fore-Plane*, which is very long, and is that commonly firſt uſed. The Edge of its Iron is not ground ſtreight, but riſes with a Convex-Arch in the middle, to bear being ſet the ranker; its Uſe being to take off the greater Irregularities of the Stuff, and to prepare it for the Smoothing *Plane*.

2° The *Smoothing Plane* is ſhort and ſmall, its Iron, fine; it takes off the greater Irregularities left by the Fore-Plane, and prepares the Wood for the Jointer.

3° The *Jointer* is the longeſt of all; its Edge very fine, not ſtanding out above a Hair's Breadth; it comes after the Smoothing-Plane, and is chiefly intended to ſhoot the Edge of a Board perfectly ſtreight for jointing ſmooth Tables, *&c.*

4° The *Strike-Block* is like the Jointer, but ſhorter; its Uſe, to ſhoot ſhort Joints, *&c.*

5° *Rabbet-Plane*, uſed to cut the upper Edge of a Board, ſtrait or ſquare, down into the Stuff; ſo as the Edge of another, cut after the ſame manner, may join in with it on the Square; it is alſo uſed to ſtrike Faſcia's in Mouldings. Its Iron is full as broad as its Stock, that the Angle may cut ſtrait; and it delivers its Shavings at the Sides, not, like the others, at the Top.

6° The *Plow*, a narrow Rabbet-Plane, with the Addition of two Staves, whereon are Shoulders, and on the Shoulders a Fence.—Its Uſe is to plow a narrow ſquare Groove on the Edge of a Board, *&c.*

7° *Moulding-Planes*; of theſe there are various Kinds, accommodated to the various Forms and Profiles of the Mouldings; (See MOULDING) as the *Round Plane*, the *Hollow*, the *OG*, the *Snipe's Bill*, *&c.* which are all of ſeveral Sizes, from half an Inch to an Inch and half. See MOULDING, *&c.*

To uſe the *Moulding Planes* on ſoft Wood, as Deal, Pear-Tree, *&c.* they ſet the Iron to an Angle of 45° with the Baſe or Sole of the *Plane.* On hard Wood, *v. gr.* Ebony, Box, *&c.* they ſet to an Angle of 80°; ſometimes quite upright. To work on hard Wood, the Edge or Baſil is ground to an Angle of 18 or 20 Deg: on ſoft Wood, to an Angle of about 12°. For the more acute the Baſil, the ſmoother the Iron cuts; but the more obtuſe, the ſtronger.

PLANE, among Fowlers.—To *plane*, is to fly or hover as a Bird does, without moving its Wings. See FLYING, HAWK and HAWKING.

PLANET, PLANETA, in Aſtronomy, a Celeſtial Body, revolving round the Sun as a Centre, and continually changing its Poſition, with reſpect to the other Stars; whence its Name πλανήτης, Wanderer; in oppoſition to a fix'd Star. See STAR.

The *Planets* are uſually diſtinguiſhed into *Primary* and *Secundary.*

The *Primary* PLANETS, call'd alſo, ſimply, *Planets*, by way of Eminence, are thoſe which move round the Sun as their proper Center.—Such are *Saturn*, *Jupiter*, *Mars*, the *Earth*, *Venus*, and *Mercury.*

Secundary PLANETS are ſuch as move round ſome *Primary Planet*, as their reſpective Center, in the ſame manner as the *Planets* do round the Sun.—Such are the *Moon* moving round our Earth; and thoſe others moving round *Saturn* and *Jupiter*, properly call'd *Satellites. See the Doctrine of Secundary Planets, under the Article* SATELLITES.

The *Planets*, or *Primary Planets*, are in Number ſix; which are again diſtinguiſhed into *Superior* and *Inferior.*

The *Superior* PLANETS are thoſe further off the Sun than our Earth is.—Such are *Mars*, *Jupiter*, and *Saturn.*

The *Inferior* PLANETS are thoſe nearer the Sun than our Earth, and ſituate between the Earth and Sun.—Such are *Venus* and *Mercury.* See *the Order*, *Poſition*, &c. *of the Planets repreſented to the Eye*, *Tab. Aſtronomy*, *Fig* 44.

The *Planets* are repreſented by the ſame Characters as the Chymiſts uſe to repreſent their Metals by, on account of ſome ſuppoſed Analogy between thoſe celeſtial and ſubterraneous Bodies. See METAL and CHARACTER.

Saturn is repreſented by the Character ♄.—This *Planet*, by reaſon of its great Diſtance appears to the Eye with a feeble Light.—It performs its Revolution round the Sun in about 30 Years. See SATURN.

Jupiter, mark'd ♃, is a bright reſulgent Star, finiſhing its Courſe round the Sun in about 12 Years. See JUPITER.

Mars, characteris'd ♂, is a ruddy fiery colour'd *Planet*, finiſhing its Courſe in about two Years. See MARS.

Venus, ♀, is the brighteſt of all the *Planets*, conſtantly attending the Sun, and never diſtant from him above 47 Degrees.—It finiſhes its Courſe in about ſeven Months. See VENUS.

When it goes before the Sun, 'tis call'd *Phoſphorus*, and *Lucifer*; and when it follows him *Heſperus.* See PHOSPHORUS, *&c.*

Mercury, ☿, a little bright *Planet*, the Sun's conſtant Companion, from whoſe ſide it never departs above 28°, and by that means uſually hid in his Splendor.—It performs its Courſe in about three Months. See MERCURY.

To which we now add, *Tellus*, the Earth, mark'd ⊕ or ♁, performing its Courſe about the Sun, between *Mars* and *Venus*, in the Space of a Year. See EARTH.

From theſe Definitions, a Perſon may eaſily diſtinguiſh all the *Planets.*—For if after Sun-ſet he ſee a *Planet* nearer the Eaſt than the Weſt, he may conclude 'tis neither *Mercury* nor *Venus*; and may determine whether 'tis *Saturn*, *Jupiter*, or *Mars*, by the Colour and Light: By which alſo he may diſtinguiſh between *Mercury* and *Venus.*

Nature of the PLANETS.

From the ſeveral Phaſes and Appearances of the *Planets*, they are found to be all perfectly like the Moon; which, we have ſhewn to be perfectly like our Earth; whence it follows, that the *Planets*, too, are dark, opake, ſpherical, *&c.* Bodies, like our Earth. See MOON.

This may be ſhewn almoſt a to Demonſtration.—1° *Venus*, obſerv'd with a Teleſcope, is rarely found full, but with variable Phaſes like thoſe of the Moon; her illumined Part ſtill turn'd towards the Sun, *viz.* toward the Eaſt when ſhe is the Morning-Star, and the Weſt when the Evening-Star. —And the like Phaſes are are obſerv'd in *Mercury* and *Mars.*

2° *Gaſſendus* firſt, and after him others, have obſerved *Mercury* on the Face of the Sun, a-croſs which he appeared to paſs like a black round Spot. See TRANSIT.—*Horrox* in 1639, alſo obſerv'd *Venus* in the Sun; where ſhe made the ſame Appearance.

3° *De la Hire*, in 1700, with a Teleſcope of 16 Foot, diſcover'd Mountains in *Venus*, larger than thoſe of the Moon. See MOUNTAIN.

4° *Caſſini* obſerv'd two Spots in *Venus*; four in *Mars*, likewiſe obſerv'd by *Campani*; and ſeveral, at ſeveral times, in *Jupiter*: and from his Obſervations of theſe Spots found that they had a Rotation round their Axes; and even determin'd the Velocity of that Rotation, or the Period wherein it was effected, *v. g.* That of *Jupiter*, 9 Hours 56′. That of *Mars* 24 Hours 40′. And that of *Venus*, 24 Hours. See SPOT.—And ſince the *Sun*, *Moon*, *Jupiter*, *Mars*, *Venus*, and the *Earth*, are found to revolve on their Axes, *i. e.* to have a diurnal Rotation; no doubt *Mercury* and *Saturn* have the ſame; tho' the great Nearneſs of the former to the Sun, and the great Diſtance of the latter, prevent any Spots from being obſerv'd on them, whence that Rotation might be demonſtrated.

5° In *Jupiter* are obſerv'd two Swaths, or Belts, brighter than the reſt of his Disk, and moveable; ſometimes found in one part ſometimes in another, ſometimes broader ſometimes narrower. See BELT.

6° In 1609 were firſt obſerv'd three little Stars, or Moons, moving about *Jupiter* by *Sim. Marius*; and in 1610 the ſame were obſerv'd by *Gallilæo:* Theſe are now frequently obſerved to diſappear in a clear Sky, when *Jupiter* happens to be diametrically interpoſed between them and the Sun.—Whence it appears they are void of Light, at ſuch Time when the Sun's Rays, intercepted by *Jupiter*, cannot be propagated to them in right Lines; and hence alſo, that, like the Moon, they are opake Bodies, illumined by the Sun; and hence, again, ſince *Jupiter* does not illumine his Satellites when found behind him, he himſelf, in that Part turn'd from the Sun, may be argu'd to be void of Light.

7° When *Jupiter*'s Moons are diametrically interpoſed between *Jupiter* and the *Sun*, there is ſeen a round Spot on *Jupiter*'s Disk, which is ſometimes larger than the Satellite itſelf.—Whence it appears, that the Satellites are opake Bodies, illumined by the Sun, that they project a Shadow upon the Sun, and that the round Spots ſeen in *Jupiter* are the Shadows of the Satellites. Whence, alſo, the Interſection of the Shadow being found to be a Circle, the Shadow muſt be conical; and therefore the Figure of the Satellites, at leaſt as to Senſe, is ſpherical.

8° The Earth being between *Jupiter* and the Sun; if, at the ſame time, any of the Satellites happen to be between *Jupiter* and the Sun, it is loſt in *Jupiter*'s Light; tho' ſometimes appearing like a black Spot.—This Phænomenon has been frequently obſerved by *Caſſini* and *Maraldi*, who have likewiſe noted very conſiderable Alterations in the apparent Magnitudes of the Satellites; for which no Reaſon could be given from the Diſtance of *Jupiter*, the *Sun*, or the *Earth: e. gr.* That the fourth, which is uſually ſeen the ſmalleſt, is ſometimes the largeſt; and the third, which is uſually the largeſt, ſometimes the ſmalleſt.—Hence, as the Satellites are illumined by the Sun, even then when immerg'd in *Jupiter*'s Light, yet do appear obſcure, there muſt be ſome Alterations in their Atmoſpheres, to prevent the Sun's Rays being equally reflected from every Part of their Surface; which muſt likewiſe be the Cauſe why their Shadow is ſometimes larger than themſelves.

Now, to ſum up the Evidence,—1° Since in *Venus*, *Mercury*, and *Mars*, only that Part of the Disk illumined by the Sun, is found to ſhine; and, again, *Venus* and *Mercury*, when between the *Earth* and the *Sun*, appear like dark Spots or Maculæ, on the Sun's Disk; 'tis evident, that *Mars*, *Jupiter*, and *Mercury*, are opake Bodies, illumined with the borrow'd Light of the Sun. And the ſame appears of *Jupiter*, from its being void of Light in that Part to which the Shadow of the Satellites reaches, as well as in that Part turn'd from the Sun; and that his Satellites are opake, and reflect the Sun's Light, is abundantly ſhewn. Wherefore ſince *Saturn*, with his Ring and Satellites, do only yield a faint Light, fainter conſiderably than that of the fix'd Stars; tho' theſe be vaſtly more remote; and than that of the reſt of the *Planets*: 'tis paſt doubt, he, too, with his Attendants, are opake Bodies.

2° Again, ſince the Sun's Light is not tranſmitted thro' *Mercury* and *Venus*, when placed againſt him; 'tis plain they are denſe opake Bodies; which is likewiſe evident of *Jupiter*, from his hiding the Satellites in his Shadow; and, therefore, by Analogy, the ſame may be concluded of *Saturn.*

3° From the variable Spots in *Venus*, *Mars*, and *Jupiter*, 'tis evident thoſe *Planets* have a changeable Atmoſphere; which changeable Atmoſphere may, by a like Argument, be inferr'd of the Satellites of *Jupiter*; and therefore, by ſimilitude the ſame may be concluded of the other *Planets.*

4° In like manner, from the Mountains obſerved in *Venus*; the ſame may be ſuppoſed in the other *Planets.*

5° Since then *Saturn*, *Jupiter*, both their Satellites, *Mars*, *Venus*, and *Mercury*, are opake Bodies, ſhining with the Sun's borrow'd Light, are furniſh'd with Mountains, and encompaſs'd with a changeable Atmoſphere; they have, of conſequence, Waters, Seas, *&c.* as well as dry Land, and are Bodies like the Moon, and therefore like the Earth. *Q. E. D.*

And hence, nothing hinders but that the *Planets* may be concluded to be inhabited.

As to the *Planetary* Inhabitants; *Huygens* in his *Coſmotheoros* argues very plauſibly for their Exiſtence, from the ſimilitude of the *Planets* with our Earth; thoſe, like this, being opake, denſe, uneven, round, heavy, illumined and warm'd by the Sun; having Night and Day, Summer and Winter, *&c.*

Wolfius deduces ſomething relating hereto from Arguments of another kind.—Thus *e. gr.* 'Tis ſcarce to be doubted, that the Inhabitants of *Jupiter* are much larger than thoſe of the Earth; and in effect of the Giant Kind. For it is ſhewn in Optics, that the Pupil of the Eye dilates in a ſtrong Light, and contracts in a weak one; wherefore, ſince in *Jupiter* the Sun's Meridian Light is much feebler than on the Earth, by reaſon of *Jupiter*'s greater Diſtance from the Sun; the Pupil will need to be much more dilatable in the Inhabitants of *Jupiter*, than in thoſe of the Earth. But the Pupil is obſerv'd to have a conſtant Proportion to the Ball of the Eye; and the Eye to the reſt of the Body ſo that in Animals, the larger the Pupil the larger the Eye, and the larger the Body.

To aſcertain the Size of theſe jovial Inhabitants, it may be obſerv'd that the Diſtance of *Jupiter* from the Sun, is to the Earth's Diſtance from the ſame, as 26 to 5; the Intenſity of the Sun's Light in *Jupiter* is to its Intenſity on the Earth, in a duplicate Ratio of 5 to 26; but 'tis found by Experience, that the Pupil dilates in a Ratio greater than that wherein the Intenſity of Light decreaſes; otherwiſe, a Body at a great Diſtance might be ſeen as clearly as a nearer: The Diameter, therefore, of the Pupil in its greateſt Dilatation, in *Jupiter*, is to its Diameter in the like ſtate in the Earth, in a Ratio greater than that of 5 to 26.——If then we put it, as 10 to 26, or as 5 to 13: ſince the ordinary Stature of the Inhabitants of the Earth is computed at 5 *Engliſh* Feet, 4 Inches and $\frac{3}{10}$; (which *Wolfius* tells us is his own Height) the ordinary Stature of *Jupiter*'s Inhabitants will be found 14 Feet $\frac{2}{3}$, which is very nearly the ſize of the Giant *Og*, mention'd by *Moſes*, whoſe Iron Bed was 9 Cubits long and its Breadth 4. See GIANT.

The Motion of the PLANETS.

That the *Planets* do all revolve round the Sun as their Center, and not round the Earth, is evident from a thouſand Phænomena.—— 1° The Orbit wherein *Venus*, *e. gr.* moves, does certainly encompaſs the Sun, and therefore in deſcribing that Orbit, the *Planet* muſt turn round the Sun. See ORBIT.

That her Orbit includes the Sun, appears hence that ſhe is ſometimes above the Sun, ſometimes below it, ſometimes beyond it, and ſometimes on this ſide; all which are evident from the Circumſtances of her Phaſes. See PHASES.

That ſhe does not move round the Earth is no leſs apparent from her being ever obſerved in the ſame Quarter with the Sun, never receding from him above 45°.——She never therefore comes to be in oppoſition to the Sun; no, not to be in a Quartile Aſpect, or to have a Quarter of the Heavens between them; both which, like the Earth, ſhe muſt frequently have, did ſhe attend and move round the Earth.

2° That *Mercury* revolves round the Sun appears in like manner from his Phaſes, which reſemble thoſe of *Venus* and the Moon; and from its Neighbourhood to the Sun, from whom *Mercury* never recedes ſo far as *Venus* does.

3° That the Orbit of *Mars* includes the Sun, is evident from that *Planet*'s being found both in Conjunction and Oppoſition with the Sun; and in both Caſes ſhining with a full Face.——Indeed, from the ſame Circumſtances it appears, that the Orbit of *Mars* encompaſſes the Earth; but then, it follows, likewiſe, from *Mars*'s Diameter appearing ſeven times as big when in Oppoſition, as when in Conjunction, that he is ſeven times nearer the Earth, in the latter than the former Poſition. The Earth therefore is far from being the Center of *Mars*'s Motion; but *Mars* is ever nearly at the ſame Diſtance from the Sun.——Again, *Mars* view'd from the Earth moves very irregularly; is ſometimes ſeen to proceed ſlower, ſometimes faſter; ſometimes ſtands ſtill, ſometimes goes backward; (*the Reaſons whereof, ſee under the Article* OPTIC *Irregularity*) but view'd from the Sun, will ever appear to move with the ſame conſtant uniform Tenor; whence 'tis evident, he reſpects the Sun, not the Earth, as the Center of his Motion.

4° The ſame Appearances whence *Mars* is ſhewn to revolve round the Sun as a Center, are likewiſe obſerv'd in *Jupiter* and *Saturn*; whence the ſame Concluſion may be made of them.

Laſtly, that the Earth revolves round the Sun, as a Center, is evident from her Place which we have obſerv'd to be between the Orbits of *Mars* and *Venus*; and from the Phænomena of the ſuperior *Planets* view'd therefrom.——If the Earth ſtood ſtill we ſhould never ſee thoſe *Planets* either ſtationary or retrograde; the Earth therefore moves, but it is ſtill found between the Orbits of *Mars* and *Venus* which encompaſs the Sun; therefore the Earth too encompaſſes the Sun.

To this Aſtronomical Demonſtration, may be added a Phyſical Demonſtration, of the Earth's Motion from Sir *Iſaac Newton.*—It appears from abundant Obſervation, that either the Earth turns round the Sun, or the Sun round the Earth, ſo as to deſcribe equal Area's in equal times: But he demonſtrates, that Bodies revolving about one another by ſuch Law, do of Neceſſity gravitate towards each other. (See GRAVITATION. Whence if the Sun gravitate to the Earth, Action and Re-action being ſtill equal, the Earth will likewiſe gravitate toward the Sun. (See RE-ACTION.) But he proves, further, that two Bodies gravitating towards each other, without directly approaching one another in right Lines, muſt both of them turn round the common Center of Gravity of both.—The Sun and Earth, therefore, do both revolve round one common Center.—But the Earth being but a Point in compariſon of the Sun, the common Center of Gravity of the two, will be within the Sun's Body, and not far from its Center.—*The Earth, therefore, revolves round a Point, within the Body of the Sun; and therefore round the Sun.* See EARTH and SUN.

The Orbits of the Planets are all Ellipſes; one of whoſe Foci is in the Sun.—This, *Kepler* firſt found from *Tycho*'s Obſervations; before him all Aſtronomers took the Planetary Orbits for eccentric Circles. See ORBIT, ELLIPSIS, ECCENTRIC.

The Planes of theſe Orbits do all interſect in the Sun; nor are their Extremities far a-part.—In effect, they are but little inclined to one another; and the greateſt Angle any of them makes with the Plane of the Earth's Orbit, *i. e.* of the Ecliptic, is that of *Mercury*, which lies at an Angle of 6° 52′; that of *Venus* is 3° 23′; that of *Mars* 1° 52′; that of *Jupiter* 1° 20′; and that of *Saturn* 2° 30′.

The Line wherein the Plane of each Orbit cuts that of the Earth, is call'd the *Line of the Nodes*; and the two Points wherein the Orbits themſelves touch that Plane, *the Nodes.* See NODE.

The Diſtance between the Center of the Sun, and the Center of each Orbit, is call'd *the Eccentricity of the Planet.* See ECCENTRICITY.

And the Angle at which each Plane cuts that of the Ecliptic, *the Inclination of the Plane.* See PLANE, INCLINATION, and ECLIPTIC.

To account for the Motion of the *Planets* about the Sun; there needs nothing but to ſuppoſe an uniform projectile Motion, in ſtrait Lines, at firſt given them; and a Power of Attraction or Gravitation, ſuch as we obſerve in all the great Bodies in our Syſtem.—For a Body A, (*Tab. Aſtronomy, Fig.* 6.) proceeding uniformly along the Line AB; will, by the Intervention of the attracting Body C, be every Moment diverted out of its rectilinear, and bent into a curvilinear, Path; according to the Laws of Central Forces. See CENTRAL *Force.*

If, then, the projectile Motion be perpendicular to a Line CA, drawn from the attracting Body C; and its Velocity ſo proportion'd to the Force of Attraction of A, as that the centripetal and centrifugal Forces are equal, *i. e.* that the Conatus to fall to the central Body C, in a right Line, AC; and that to proceed in the Direction of the Tangent, AB, balance each other: The Body will revolve in a circular Orbit Aβ, γ, δ, *&c.* See CENTRIPETAL and CENTRIFUGAL.

'Tis not improbable, that at the Beginning, this was the State of things; and that the Velocities impreſs'd on the ſeveral *Planets* were ſo combin'd with their reſpective Maſſes and Diſtances from the Sun at which they were to roll; as that their Momenta ſhould counter-balance the Sun's attractive Force, and be preciſely counter-balanced thereby: whence the primitive Orbits muſt have been perfect Circles, from which they don't even now deviate very far; the Eccentrity of the Earth's Orbit being only $\frac{69}{1090}$ of its Semidiameter. See ECCENTRICITY.

If the *Planet*'s projectile Motion be not perfectly adjuſted to the Sun's Attraction; the Orbit deſcribed will be an Ellipſis.——If it be too ſwift, the Orbit will be greater than a Circle, and the nearer Focus coincide with the central Body; if too ſlow, the Orbit will be leſs than a Circle, and the further Focus coincide with the central Body.

Indeed the Form of the Planetary Orbits, does not only depend on the Adjuſtment of the firſt projectile Velocity with the Sun's Attraction, but alſo on the Direction wherein that Motion was originally impreſs'd.——If that Direction were according to the Tangent AB, as above ſuppoſed, and the central Forces exactly balanced, the Orbit would be circular; but if that Direction were oblique, in any manner, whether aſcending to or deſcending from the Sun, the *Planet*, notwithſtanding any Adjuſtment of its Velocity to the Attraction, would be an Ellipſis. See PROJECTILE.

The Motions of the *Planets* in their elliptic Orbits are not equable, by reaſon the Sun is not in their Centers but their Focus.——Hence they move, ſometimes faſter and ſometimes ſlower, as they are nearer or further from the Sun; but yet theſe Irregularities are all certain, and follow according to an immutable Law.——Thus; ſuppoſe the Ellipſis BEP, *&c.* (*Tab. Aſtronomy, Fig.* 61.) the Orbit of a *Planet*; and the Focus S, the Sun's Place; AP the Axis of the Ellipſis, is called the *Line of the Apſides*; the Point A the *higher Apſis* or *Aphelion*; P the *lower Apſis* or *Perihelion*; SC the *Eccentricity*; and ES the mean Diſtance of the *Planet* from the Sun. See APSIS, APHELION, PERIHELION, *&c.*

Now the Motion of the *Planet* in its Perihelion, is ſwifteſt; in its Aphelion, ſloweſt; at E the Motion as well as the Diſtance is mean, *i. e.* ſuch as would deſcribe the whole Orbit in the ſame time it is really deſcribed in.

The Law whereby the Motion is regulated in every Point of the Orbit, is, that *a Line, or Radius, drawn from the Center of the Sun to the Center of the Planet, and thus carried along, with an angular Motion, does always deſcribe an Elliptic Area proportional to the Time.*——Suppoſe, *e. gr.* the *Planet* in A, and thence in a certain Time to proceed to B; the Space or Area the Ray SA deſcribes, is the Triangle ASB; when, at length the *Planet* arrives at P, if from the Center of the Sun S there be drawn SD, in ſuch manner as that the elliptic Area PSD is equal to that ASB; the *Planet* will here move thro' the Arch PD, in the ſame time wherein it moved thro' the Arch AB; which Arches are unequal, and nearly in a reciprocal Proportion to their Diſtance from the Sun. For from the Equalities of the Areas it follows, that the Arch PD muſt exceed AB as much as SA exceeds SP.

This Law was firſt demonſtrated by *Kepler*, from Obſervation; and is ſince accounted for from Phyſicks: And to this all Aſtronomers, now, ſubſcribe, as of all others that which beſt ſolves the Planetary Phænomena.

Computation of a PLANET'*s Motion and Place.*

As to the Periods and Velocities of the Planets, or the Times wherein they perform their Courſes; they are found to have a wonderful Harmony with their Diſtances from the Sun, and with one another. The nearer each *Planet* is to the Sun, the quicker ſtill being its Motion; and its Period the ſhorter.——The great Law they here all immutably obſerve is, that *the Squares of their periodical Times are as the Cubes of their Diſtances from the Centre of their Orbits.* See PERIOD, DISTANCE, *&c.*

This Law we owe to the Sagacity of *Kepler*, who found it to obtain in all the primary *Planets*; as Aſtronomers have ſince found it to do in the ſecundary ones. See SATELLITE.

Kepler deduced this Law, meerly from Obſervation and Compariſon of the ſeveral Diſtances of the *Planets* with their Periods: The Glory of inveſtigating it from Phyſical Principles, is due to Sir *Iſaac Newton*, who has demonſtrated that, in the preſent ſtate of things, ſuch a Law was inevitable. See GRAVITATION.

A *Planet*'s Motion or Diſtance from it Apogee, is call'd the *mean Anomaly* of the *Planet*; and is meaſur'd by the Arch, or Area, it deſcribes in the Time.—When the *Planet* arrives at the middle of its Orbit, or the Point G, the Diſtance or Time is call'd the *true Anomaly.*——When the *Planet*'s Motion is reckon'd from the firſt Point of *Aries*, 'tis call'd its *Motion in Longitude*, which is either *mean*, *viz.* ſuch as the *Planet* would have were it to move uniformly in a Circle; or *true*, which is that wherewith the *Planet* actually deſcribes its Orbit, and meaſur'd by the Arch of the Ecliptic it deſcribes. See ANOMALY, LONGITUDE, *&c.*

Hence may the *Planet*'s Place in its Orbit for any given Time after it has left the Aphelion, be found.—For ſuppoſe the Area of the Ellipſis ſo divided by the Line SG, that the whole elliptic Area may have the ſame Proportion to the Area ASG as the whole periodical Time wherein the *Planet*, deſcribes its Orbit, has to the Time given: In this Caſe G will be the *Planet*'s Place in its Orbit. See PLACE.

The Phænomena of the inferior Planets, are their Conjunctions, Elongations, Stations, Retrogradations, Phaſes, and Eclipſes. See CONJUNCTION, ELONGATION, STATION, RETROGRADATION, *&c. under their reſpective Articles.*

The Phænomena of the ſuperior Planets are the ſame with thoſe of the inferior; with an Additional one, *viz. Oppoſition.* See OPPOSITION, *&c.*

The particular Phænomena, Cirumſtances, &c. of each *Planet*, ſee under the Name of the reſpective *Planet*, &c.

The general Proportions, Diameters, Surfaces, Solidities, Diſtances, Gravities, Degrees of Light, &c, *of the ſeveral Planets*; ſee under the Articles *Solar* SYSTEM, DIAMETER, SEMIDIAMETER, *&c.*

PLANETARY, ſomething that relates to the Planets. In this Senſe we ſay *Planetary Worlds, Planetary Inhabitants*, &c. See PLANET.

PLANETARY *Syſtem*, is the Syſtem, or Aſſemblage of the Planets, primary and ſecundary, moving in their reſpective Orbits, round their common Center, the Sun. See *Solar* SYSTEM.

PLANETARY *Hours* in Chronology. See HOUR.

PLANIMETRY, PLANIMETRIA, that Part of Geometry which conſiders Lines and plain Figures; without any Conſideration of Heights or Depths. See GEOMETRY; ſee alſo LINE and FIGURE.

The Word is particularly reſtrained to the Menſuration of Planes, or Surfaces; in oppoſition to *Stereometry*, or the Menſuration of Solids. See MEASURING.

PLANISPHERE, a Projection of the Sphere and the ſeveral Circles thereof, on a Plane; as, upon Paper, *&c.* See PLANE, SPHERE, and PROJECTION.

In this Senſe, Maps of the Heavens and the Earth, wherein are exhibited the Meridians, and other Circles of the Sphere, are called *Planiſpheres.* See MAP.

PLANISPHERE is ſometimes conſider'd as an Aſtronomical Inſtrument, uſed in obſerving the Motions of the heavenly Bodies; conſiſting of a Projection of the Celeſtial Sphere upon a Plane, repreſenting the Stars, Conſtellations, *&c.* in their proper Situations, Diſtances, *&c.* See STAR and CONSTELLATION.

Such is the Aſtrolabe, which is a common Name for all ſuch Projections. See ASTROLABE.

In all *Planiſpheres*, the Eye is ſuppoſed to be a Point viewing all the Circles of the Sphere, and referring them to a Plane whereon the Sphere is as it were flatten'd.—This Plane is call'd the *Plane of the Projection.*

A Perſpective Plane is only a Plane of Projection placed between the Eye and the Object, ſo as to contain all the Points which the ſeveral Rays drawn from the Object to the Eye impreſs thereon. (See PERSPECTIVE *Plane.*)—But in *Planiſpheres*, or Aſtrolabes, the Plane of the Projection is placed beyond the Object; which is the Sphere.

The Plane of the Projection is always ſome of the Circles of the Sphere. See CIRCLE.

Among the infinite Number of *Planiſpheres*, which the different Planes of Projection, and the different Poſitions of the Eye, would furniſh; there are two or three that have been preferr'd to the reſt.—Such are that of *Ptolomy*, where the Plane of Projection is parallel to the Equator.—That of *Gemma Friſius*, where the Plane of Projection is the Colure, or Solſtitial Meridian, and the Eye the Pole of the Meridian.—That of *John de Royas*, a *Spaniard*, whoſe Plane of Projection is a Meridian, and the Eye placed on the Axis of that Meridian, at an infinite Diſtance. This laſt is call'd the *Analemma.* See ANALEMMA.

The common Defect of all theſe Projections is, that they diſtort and alter the Figures of the Conſtellations, ſo as it is not eaſy to compare them with the Heavens; and that the Degrees in ſome Places are ſo ſmall, that they afford no Room for Operation.

All theſe Faults M. *de la Hire* has provided againſt in a new Projection, or *Planiſphere*; where 'tis propoſed the Eye ſhall be ſo placed, as that the Diviſions of the Circles projected ſhall be ſenſibly equal in every Part of the Inſtrument.——The Plane of his Projection is that of a Meridian.

PLANO-*Concave Glaſs*, or *Lens*, is that, one of whoſe Surfaces is concave, and the other plain. See GLASS.

The Concavity is here ſuppoſed to be ſpherical, unleſs the contrary be expreſs'd.——For the Properties, Grinding, *&c.* of *Plano-Concave Lens*'s, ſee LENS; ſee alſo GRINDING, *&c.*

PLANO-*Convex Glaſs*, or *Lens*, is that, one of whoſe Surfaces is convex, and the other plain. See CONVEX.

The Convexity is ſuppoſed to be ſpherical, unleſs the contrary be expreſs'd. For the Properties, Grinding, *&c.* of *Plano-Convex* Len's. See LENS, *&c.*

PLANT, PLANTA, an Organical Body, conſiſting of a Root, eſſentially, and probably too, a Seed; and producing uſually Leaves, a Stem, Branches, and Flowers. See ROOT, *&c.*

Or, a *Plant* may be defined, in *Boerhaave*'s manner, to be an Organical Body compoſed of Veſſels and Juices; to which Body belongs a Root or Part whereby it adheres to ſome other Body, and particularly the Earth, from which it derives the Matter of its Life, and Growth. See VEGETABLE.

A *Plant* is diſtinguiſhed from a *Foſſil* by its being organical, and conſiſting of Veſſels and Juices; (See FOSSIL.) and from an Animal, by its adhering to another Body, and deriving its Nouriſhment therefrom. See ANIMAL.

Plant is a general Name, under which are comprized all vegetable Bodies, as *Trees*, *Shrubs*, and *Herbs.* See TREE, SHRUB, and HERB.

From the Obſervations of *Malpighi*, Dr. *Grew*, M. *Reneaume*, *Bradley*, and others, there appears a great Similitude between the Mechaniſm of Plants, and Animals; the Parts of the former ſeem to bear a conſtant Analogy to thoſe of the latter; and the Vegetable and Animal Oeconomy appear both form'd on the ſame Model.——To give an Idea hereof, it will be neceſſary to deſcribe the Parts whereof *Plants* conſiſt.

Structure and Oeconomy of PLANTS.

The Parts of *Plants* are——1° The *Root*, a ſpongy Body, whoſe Pores are diſpoſed to admit certain humid Particles prepared in the Ground: On the Size of the Veſſels and Pores of the Root, the Quality of the Root is found much to depend.——*Boerhaave* conſiders the Root as compos'd of a Number of abſorbent Veſſels, analogous to the Lacteals in Animals. And M. *Reneaume* takes it to do the Office of all the Parts in the Abdomen which miniſter to Nutrition; as the Stomach, Inteſtines, *&c.* See ROOT.

2° The *Wood*, which conſiſts of Capillary Tubes, running parallel from the Root throughout the Stalk.——The Apertures of theſe Tubules are ordinarily too minute to come under the cognizance of the Eye; unleſs in a Piece of Charcoal, Cane, or the like. Theſe Tubes Mr. *Bradley* calls *Arterial* Veſſels; it being thro' theſe that the Sap riſes from the Root. See WOOD.

3° Beſide theſe, are other larger Veſſels, diſpoſed on the out ſide of the Arterial Veſſels between the Wood and the inner Bark, and leading down to the Covering of the Root.—Theſe the ſame Author calls the *Venal* Veſſels, and ſuppoſes them to contain the liquid Sap found in Plants in the Spring, *&c.* See VEIN, SAP, *&c.*

4° The *Bark*, which is of a ſpongy Texture, and, by many little Strings paſſing between the Arteries, communicates with the Pith. See BARK.

5° The *Pith*, or *Pecten*, which conſiſts of little tranſparent Globules, chain'd together ſomewhat like the Bubbles that compoſe the Froth of Liquor. See PITH.

Add, that the Trunk and Branches of a Tree bear a Reſemblance to the exterior Members or Limbs of an Animal, which it may ſubſiſt without, tho' their rotting and Mortification frequently occaſion a total Deſtruction thereof.—Accordingly, we find the like Effects from the wounding or lopping of a Tree, as that of a Limb, *viz.* an Extravaſation, Callus, *&c.*

Now, for the Oeconomy or Uſe of theſe Parts.—The Root having imbibed the ſaline and aqueous Juices of the Earth, and fill'd itſelf therewith for the Nouriſhment of the Tree; thoſe are put in Motion by Heat, *i. e.* are made to evaporate into Steam, which from the Root enters the Mouths of the Arterial Veſſels, and mounts to the top with a force anſwerable to the Heat that puts it in Motion.—By this means it gradually opens the minute Vaſcules roll'd up in the Buds, and expands them into Leaves.—Now, as all Vapours, upon feeling the Cold, naturally condenſe; ſo this, when arrived at the extreme Parts of the Arteries, *i. e.* the Buds of the Tree, meeting the cold Air condenſes into a Liquor, in which Form it returns by its own Weight, thro' the Venal Veſſels, to the Root; leaving behind it ſuch Parts of its Juice, as the Texture of the Bark will receive, and requires for its Suſtenance.

Thus does the Juice continue to circulate; till the Winter's Cold congealing it into the Conſiſtency of a Gum, it ſtagnates in the Veſſels; in which State it remains till the freſh Warmth of the ſucceeding Spring puts it in Motion again: upon which it renews its former Vigour, puſhes forth Branches, Leaves, *&c.*

This ſhort View of the Vegetable Oeconomy will bear ſome further Illuſtration; there being ſeveral curious Points here couched, and, as it were, folded up *in Semine.*—The Principle, then, whereby the Root, after imbibing its Food, determines it to mount upward, contrary to its natural Gravity, is ſomewhat obſcure: Some will have it effected by means of the Preſſure of the Atmoſphere, in the ſame manner as Water is rais'd in Pumps: But this is precarious, as being founded on a Suppoſition that the abſorbent Tubules are void of Air; beſides, that the Atmoſphere could not raiſe the Juice 32 Foot high, whereas there are Trees much higher. See ATMOSPHERE.——Others have recourſe to the Principle of Attraction, and ſuppoſe the Power that raiſes the Sap in Vegetables to be the ſame with that whereby Water aſcends in Capillary Tubes, or in Heaps of Sand, Aſhes, or the like; but neither will this alone ſuffice to raiſe Water to the Tops of Trees. See ATTRACTION, ASCENT, CAPILLARY, *&c.*

One would ſuſpect, therefore, that the firſt Reception of the Food, and its Propagation thro' the Body, were effected by different Means; which is confirmed by the Analogy of Animals. See FOOD, HEART, *&c.*

The Motion of the Nutricious Juices of *Plants* is produced much like that of the Blood in Animals, by the Action of the Air; in effect, there is ſomething equivalent to Reſpiration throughout the whole *Plant.* See RESPIRATION.

The Diſcovery of this we owe to the admirable *Malpighi*, who firſt obſerved that Vegetables conſiſt of two Series or Orders of Veſſels.——1° Thoſe abovementioned, which receive and convey the alimental Juices; anſwering to the Arteries, Lacteals, Veins, *&c.* of Animals.——2° Tracheæ, or Air-Veſſels, which are long hollow Pipes, wherein Air is continually received and expelled, *i. e.* inſpired and expired; within which Tracheæ, the ſame Author ſhews, all the former Series of Veſſels are contained. See TRACHEA.

Hence it follows, that the Heat of the Year, nay, of a Day, of a ſingle Hour, or Minute, muſt have an effect on the Air included in theſe Tracheæ, *i. e.* muſt rarify it, and conſequently dilate the Tracheæ; whence alſo muſt ariſe a perpetual Spring, or Source of Action, to promote the Circulation in *Plants.* See HEAT, RAREFACTION, *&c.*

For, by the Expanſion of the Tracheæ, the Veſſels containing the Juices, are preſſed; and by that Means the Juice contained is continually propelled and ſo accelerated; by which ſame Propulſion, the Juice is continually comminuted and rendred more and more ſubtile, and ſo enabled to enter Veſſels ſtill finer and finer; the thickeſt Part of it being at the ſame time ſecreted and depoſited into the lateral Cells, or Loculi of the Bark, to defend the Plant from Cold, and other external Injuries. See BARK.

The Juice having thus gone its Stage, from the Root to the remote Branches, and even the Flower; and having in every Part of its Progreſs depoſited ſomething both for Aliment and Defence; what is redundant paſſes out into the Bark, the Veſſels whereof are inoſculated with thoſe wherein the Sap mounted; and thro' theſe it redeſcends to the Root, and thence to the Earth again.—And thus is a Circulation effected. See CIRCULATION *of the Sap.*

Thus is every Vegetable acted on by Heat during the Daytime, eſpecially while the Sun's Force is conſiderable; and the Sap-Veſſels thus ſqueez'd and preſſed, and the Sap protruded, and raiſed, and at length evacuated, and the Veſſels exhauſted: And in the Night again, the ſame Tracheæ being contracted by the Cold of the Air, the other Veſſels are eaſed and relaxed, and ſo diſpoſed to receive freſh Food for the next Days Digeſtion, and Excretion.—And thus *Plants* may be ſaid to eat and drink in the Night-time. See NUTRITION.

The Veſſels or containing Parts of *Plants*, conſiſt of meer Earth, bound or connected together by Oil, as a Gluten; which being exhauſted by Fire, Air, Age, or the like, the *Plant* moulders, or returns again into its Earth, or Duſt.—Thus in Vegetables burnt by the intenſeſt Fire, the Matter of the Veſſels is left entire, and indiſſoluble by its utmoſt Force; and, conſequently, is neither Water, nor Air, nor Salt, nor Sulphur, but Earth alone. See EARTH.

The Juice, or Sap, of a *Plant*, is a Humour furniſhed by the Earth, and changed in the *Plant*; conſiſting of ſome foſſil Parts, other Parts derived from the Air, and Rain; and others from putrified Animals, Plants, *&c.* conſequently, in Vegetables are contained all kind of Salts, Oil, Water, Earth; and probably all kinds of Metals too, inaſmuch as the Aſhes of Vegetables, always yield ſomewhat which the Loadſtone attracts. See IRON, MAGNET, *&c.*

This Juice enters the *Plant* in Form of a fine and ſubtile Water, which the nearer it is to the Root, the more it retains of its proper Nature; and the further from the Root, the more action it has ſuſtained, and the nearer it approaches to the Nature of the Vegetable. See DIGESTION.

Conſequently, when the Juice enters the Root, the Bark whereof is furniſhed with excretory Veſſels fitted to diſcharge the excrementitious Part; it is earthy, watry, poor, acid, and ſcarce oleaginous at all. See SAP.

In the Trunk and Branches it is further prepared; tho' it ſtill continues acid, as we ſee by the tapping or perforating of a Tree in the Month of *February*, when it diſtils a watry Juice apparently acid. See TAPPING.

The Juice being hence carried to the Germs, or Buds, is more concocted; and here having unfolded the Leaves, theſe come to ſerve as Lungs for the Circulation and further Preparation of the Juice.——For thoſe tender Leaves being expoſed to the alternate Action of Heat and Cold, moiſt Nights and hot ſcorching Days, are alternately expanded and contracted; and the more on the account of their reticular Texture. See LEAVES.

By ſuch means the Juice is ſtill further altered and digeſted; as it is further yet in the *Petala*, or Leaves of the Flowers, which tranſmit the Juice, now brought to a further Subtility, to the *Stamina.*——Theſe communicate it to the *Farina*, or Duſt in the *Apices*; where having undergone a further Maturation, it is ſhed into the *Piſtil*; and here having acquired its laſt Perfection, it give Riſes to a new Fruit or *Plant.* See PETALA, STAMINA, APICES, FARINA, PISTIL, *&c.*

Generation of PLANTS.

The Generation of Plants does alſo bear a cloſe Analogy to that of ſome Animals; particularly ſuch as want Local Motion; as Muſſels, and other immoveable Shell-Fiſh, which are Hermaphrodites, and contain both the Male and Female Organs of Generation. See HERMAPHRODITE.

The Flower of the *Plant*, for all its Finery, is found to be the Pudendum, or principal Organ of Generation; but the Uſe of ſo much Mechaniſm, and ſo many Parts has been but little known.——We ſhall inſtance in a Tulip.

Its Flower conſiſts of ſix *Petala*, or Leaves; from the Bottom whereof, at the middle, ariſes a kind of Tube called the *Piſtil*; and around this are diſpoſed pretty fine Threads called *Stamina*, ariſing likewiſe from the Bottom of the Flower, and terminating in little Bunches a-top, call'd *Apices*, replete with a fine Duſt call'd *Farina*.—For the further Explanation of the Parts of Generation ſee PISTIL, STAMEN, FARINA, *&c.*

This is the general Structure of the Flowers of *Plants*, tho' diverſified infinite Ways, and to ſuch degree, that ſome have no ſenſible Piſtil, others no Stamina; others have Stamina without any Apices; and what exceeds all the reſt ſome *Plants* have no Flowers.—But, allowing the Structure now repreſented to be, as in effect it is, the moſt common; and that theſe Parts which ſeem wanting are uſually only leſs apparent: The Generation of *Plants*, in general, may be well accounted for.

The Fruit is uſually at the Baſis of the Piſtil, ſo that when the Piſtil falls, with the reſt of the Flower, the Fruit appears in its ſtead.—Indeed, frequently, the Piſtil is the Fruit itſelf; but ſtill they have both the ſame Situation in the Center of the Flower, whoſe Leaves diſpoſed around the little Embryo, only ſeem deſtined to prepare a fine Juice in their little Veſſels, for its Support, during the little Time they laſt, and it requires: tho' Mr. *Bradley* takes their chief Uſe to be to defend the Piſtil, *&c.*

The Apices of the Stamina are little Capſulæ, or Bags full of a Farina or Duſt, which upon the Capſulæ growing ripe and burſting, fall out.

M. *Tournefort* took this Duſt to be only an Excrement of the Food of the Fruit, and the Stamina to be no more than a kind of excretory Ducts, which filtrated this uſeleſs Matter, and thus diſcharg'd the Embryo-*Plant*. But Mr. *Morland*, M. *Geoffroy*, and others, find nobler Uſes for this Duſt.——According to their Syſtem, 'tis this Duſt that falling on the Piſtil fecundifies the Grain or Fruit incloſed therein; and hence they call it the *Farina fœcundans*.—Thus the Farina ſhould be the Male Part of the *Plant*, and the Piſtil the Female.

Mr. *Bradley*, at the bottom of the Piſtil of the Lilly, obſerves a Veſſel which he calls the *Uterus*, or *Womb*, wherein are three Ovaries fill'd with little Eggs, or Rudiments of Seed, like thoſe found in the Ovaria of Animals; which, he adds, always decay and come to nothing, unleſs impregnated by the Farina of the ſame Plant, or ſome other of the ſame Kind.—The Stamina, he ſays, ſerve for the Conveyance of the Male Seed of the *Plant*, to be perfected in the Apices; which when ripe, burſting forth in little Particles like Duſt, ſome of them fall into the Orifice of the Piſtil, and are either conveyed thence into the Utricle, to fecundify the female Ova, or lodg'd in the Piſtil, where, by their magnetic Virtue, they draw the Nouriſhment from the other Parts of the *Plant* into the Embryo's of the Fruit, making 'em ſwell, grow, *&c.*

The Diſpoſition of the Piſtil, and the Apices about it, is always ſuch, as that the Farina may fall on its Orifice.—'Tis uſually lower than the Apices; and when we obſerve it to be grown higher, we may conjecture the Fruit has begun to form itſelf, and has no further occaſion for the Male Duſt. Add to this, that as ſoon as the Work of Generation is over, the Male Parts, together with the Leaves, fall off, and the Tube leading to the Uterus begins to ſhrink. Nor muſt it be omitted, that the top of the Piſtil is always either cover'd with a ſort of Velvet Tunicle, or emits a gummy Liquor, the better to catch the Duſt of the Apices.—In Flowers that turn down, as the Acanthus, Cyclamen, and the Imperial Crown, the Piſtil is much longer than the Stamina; that the Duſt may fall from their Apices in ſufficient Quantity on the Piſtil.

This Syſtem ſavours much of that admirable Uniformity found in the Works of Nature; and carries with it all the ſeeming Characteriſticks of Truth; but 'tis Experience alone muſt determine for it.—Accordingly, M. *Geoffroy* tells us, that all the Obſervations he had ever made, the *Plant* was rendred barren, and the Fruits became abortive, by cutting off the Piſtils before the Duſt could impregnate them; which is ſince confirm'd by other Experiments of Mr. *Bradley*.

In many kinds of *Plants*, as the Willow, Oak, Pine, Cypreſs, Mulberry-Tree, *&c.* the Flowers are ſterile, and ſeparate from the Fruit. But theſe Flowers, M. *Geoffroy* obſerves, have their Stamina and Apices, whoſe Farina may eaſily impregnate the Fruits, which are not far off.

Indeed there is ſome Difficulty in reconciling this Syſtem to a Species of *Plants* which bear Flowers without Fruits, and another Species of the ſame Kind and Name which bear Fruits without Flowers; hence diſtinguiſh'd into *Male* and *Female*: of which kind are the Palm-Tree, Poplar, Hemp, Hops, *&c.*—For how ſhould the Farina of the Male, here come to impregnate the Seed of the Female?

M. *Tournefort* conjectures, that the fine Filaments, Tomentum, or Down, always found on the Fruits of theſe *Plants*, may ſerve inſtead of Flowers, and do the Office of Impregnation.—But M. *Geoffroy* rather takes it, that the Wind, doing the Office of a Vehicle, brings the Farina of the Males to the Females.

In this opinion he is confirm'd by a Story in *Jovianus Pontanus*; who relates, That in his Time there were two Palm-Trees, the one Male, cultivated at *Brindes*, the other Female, in the Wood of *Ottrantum*, 15 Leagues a-part; that this latter was ſeveral Years without bearing any Fruit; till at Length riſing above the other Trees of the Foreſt, ſo as it might ſee (ſays the Poet) the Male Palm-Tree at *Brindes*, it then began to bear Fruit in abundance.

Here, M. *Geoffroy* makes no doubt, the Tree then only began to bear Fruit, becauſe in a Condition to catch on its Branches the Farina of the Male, brought thither by the Wind.

For the manner wherein the Farina fecundifies; M. *Geoffroy* advances two Opinions.——1° That the Farina being always found of a ſulphurous Compoſition, and full of ſubtile penetrating Parts, (as appears from its ſprightly Odour) falling on the Piſtils of the Flowers; there reſolves, and the ſubtileſt of its Parts penetrating the Subſtance of the Piſtil and the young Fruit, excite a Fermentation ſufficient to open and unfold the young *Plant* incloſed in the Embryo of the Seed.—In this Hypotheſis the Seed is ſuppoſed to contain the *Plant* in Miniature, and only to want a proper Juice to unfold its Parts and make them grow.

The 2d Opinion is, that the Farina of the Flower is the firſt Germ, or Bud of the new *Plant*, and needs nothing to unfold it and enable it to grow, but the Juice it finds prepared in the Embryo's of the Seed.

Theſe two Theories of Vegetable Generation, the Reader will obſerve, bear a ſtrict Analogy to thoſe two of Animal Generation: *viz.* either that the young Animal is in the *Semen Maſculinum*, and only needs the Juice of the Matrix to cheriſh and bring it forth; or that the Animal is contained in the Female Ovum, and needs only the Male Seed to excite a Fermentation, *&c.* See CONCEPTION, GENERATION, *&c.*

M. *Geoffroy* rather takes the proper Seed to be in the Farina; inaſmuch as the beſt Microſcopes don't diſcover the leaſt Appearance of any Bud in the little Embryo's of the Grains, when examined before the Apices have ſhed their Duſt.—In leguminous *Plants*, if the Leaves and Stamina be removed, and the Piſtil, or that Part which becomes the Pod, be viewed with the Microſcope, e'er yet the Flower be opened; the little green tranſparent Veſiculæ, which are to become the Grains, will appear in their natural Order; but ſtill ſhewing nothing elſe but the mere Coat, or Skin of the Grain. If the Obſervation be continued for ſeveral Days ſucceſſively, in other Flowers, as they advance, the Veſiculæ will be found to ſwell, and by degrees to become replete with a limpid Liquor; wherein, when the Farina comes to be ſhed, and the Leaves of the Flower to fall, we obſerve a little greeniſh Speck, or Globule, floating about at large.—At firſt there is not any Appearance of Organization in this little Body; but in time, as it grows, we begin to diſtinguiſh two little Leaves like two Horns. The Liquor diminiſhes inſenſibly, as the little Body grows, till at length the Grain becomes quite opake; when, upon opening it, we find its Cavity fill'd with a young *Plant* in Miniature; conſiſting of a little Germ or *Plumula*, a little Root, and the Lobes of the Bean or Pea.

The manner wherein this Germ of the Apex enters the Veſicula of the Grain, is not very difficult to determine.—For, beſides that the Cavity of the Piſtil reaches from the top, to the Embryo's of the Grains, thoſe Grains, or Veſiculæ, have a little Aperture correſponding to the Extremity of the Cavity of the Piſtil, ſo that the ſmall Duſt, or Farina, may eaſily fall thro' the Aperture into the Mouth of the Veſſels, which is the Embryo of the Grain.—This Cavity, or Cicatricula, is much the ſame in moſt Grains, and 'tis eaſily obſerved in Peaſe, Beans, *&c.* without the Microſcope. The Root of the little Germ is juſt againſt this Aperture, and 'tis thro' this it paſſes out when the little Grain comes to germinate.

The Proceſs of Nature in the Generation of Vegetables, and the Apparatus ſhe has contrived for that Purpoſe are ſo curious, and withal ſo little and ſo lately known among us, that we ſhall illuſtrate them further with Figures; taking the Melon for our Example, in regard the Parts of Generation are here very diſtinct.

By the way it muſt be obſerved, that tho' the Melon contains both Sexes, yet the Diſpoſition of the Organs differs, here, from the general one above rehears'd in the Inſtance of the Tulip: In effect, in the Melon are two diſtinct Flowers, or Bloſſoms, the one doing the Male Office, the other the Female; which we ſhall therefore call the *Male* and *Female Flower*.

Fig. 13. (*Tab. Nat. Hiſtory*) repreſents the Male Flower, or Bloſſom, of the Melon, the Leaves being ſtripp'd from off the Circle F F;——A B E repreſent the Head, placed in the Center of the Flower, and form'd of the Circumvolutions of the Apices B, and ſuſtained by four Columns G G G G. —The Part B of the Head repreſents the Circumvolutions of the Apices while yet ſhut; and the Part E repreſents them open, and covered with the Farina, which they before contained, but which is diffuſed on the outſide when the *Plant* arrives at Maturity. Each Apex forms a kind of Canal ſeparate by a Partition into two. A Grain of the Farina is repreſented by D. ——*Fig.* 14. H, in the former Figure, repreſents the Pedicle that ſuſtains the Flower, and which in the Male-Flower produces nothing.

Fig. 15. repreſents the Female Flower or Bloſſom of the Melon, or that which bears the Fruit.——The Leaves are ſtripp'd off the Circle F F, as before, the better to ſhew the other Parts. The Knot of the Flower, or the Embryo of the Fruit is repreſented by A. The Piſtil is repreſented by B B; and is only a Continuation of the Embryo of the Fruit A. The top of the Piſtil ſpreads, in B B, into ſeveral oblong Bodies, each ſeparable into two Lobes. Theſe Bodies are very rough, furniſh'd with Hairs and little Veſicles proper to catch the Duſt of the Male Flower, and to conduct them to the Mouths of the Canals, which communicate as far as the Cells of the Grains contained in the young Fruit. Upon cutting the Piſtil tranſverſely in its ſmalleſt Part, we find as many Canals as there are Diviſions in its Head; which Canals correſpond to as many little Cells, each including two Orders of Grains, or Seeds, ranged in a ſpongy Placenta.

This Doctrine of Generation, affords us a Hint how to alter, improve, *&c.* the Taſte, Form, Flowers, Quality of Fruits, *&c. viz.* by impregnating the Flower of one, with the Farina of another of the ſame Claſs.

To this accidental coupling and intermixing it is, that the numberleſs Varieties of new Fruits, Flowers, *&c.* produced every Day; with many other Phænomena in the vegetable Kingdom; are to be aſcribed. See MULE.

The Affectation of Perpendicularity obſerved in the Stalks or Stems of *Plants*, as well as in their Branches and Roots makes a fine Speculation.——'Tis a Phænomenon never attended to till very lately. The Cauſe is very ſubtile, and has employ'd the Wits of ſeveral of the preſent Set of Philoſophers, particularly *Aſtruc*, *de la Hire*, *Dodart*, and *Parent*; ſee their ſeveral Syſtems under the Article PERPENDICULARITY.

Nor is that conſtant Paralleliſm obſerved in the Tufts of Trees, to the Soil or Ground they grow upon; a Circumſtance to be over-look'd. See PARALLELISM.

For the Fecundity of Plants, &c. See FECUNDITY, &c.

Diſtribution of PLANTS.

Plants may be divided, with regard to the manner of their generating, into 1° *Male*, or ſuch as bear no Fruit or Seed, and have only the Male Organ of Generation, *viz.* the Farina.—Of this kind are the Male Palm-Tree, Willow, Poplar, Hemp, Nettle, and Hop-Tree.

2° *Female*, or ſuch as bear Fruit, and have the female Organ, *viz.* the Piſtil, or Uterus, but want the Farina.—Such are the female Palm, Willow, Poplar, *&c.*

3° *Hermaphrodites*, or ſuch as have both male and female Parts, the Farina and Piſtil.

Theſe are again ſubdivided into thoſe in whoſe Flower both Sexes are united; as the Lilly, Gilliflower, Tulip, and much the greater Part of the vegetable Species; whoſe Piſtil is ſurrounded by the Stamina.——And thoſe whoſe male and female Parts are diſtinct, and at a Diſtance from each other; ſuch is the Roſe, whoſe Uterus is beneath the Petala; the Melon, and all of the Cucumber Kind, which have their male and female Flowers a-part; and all Fruit, Nut, and Maſt-bearing Trees, as the Apple, Plum, Gooſberry; the Walnut, Hazle, Philbud, Oak, Beech, Pine, Cypreſs, Cedar, Juniper, Mulberry, Plantane, *&c.* which have Catkins.

Plants may be again diſtinguiſhed, with regard to their Food, and the Element they live in; into—1° *Terrene*, which are thoſe that live only on Land; as Oaks, Beech, *&c.*

2° *Aquatic*, which live only in Water; either in Rivers, as the Water-Lilly, Water-Plantane, *&c.* or in the Sea, as the Fucus, Coral, Coralline, *&c.*

3° *Amphibious*, which live indifferently either in Land or Water; as the Willow, Alder, Minths, *&c.*

Plants are again diſtributed, with regard to their Age or Period, into 1° *Annual*, which are thoſe whoſe Root is form'd and dies in the ſame Year; ſuch are the leguminous *Plants*, Wheat, Rye, *&c.* 2° *Biſannuals*, which only produce Flowers and Seeds, the ſecond or even third Year after their being rais'd, and then die; ſuch are Fennel, Mint, *&c.* 3° *Perennial*, which are thoſe that never die after they have once bore Seed; of theſe ſome are Ever-Greens, as the Aſarabacca, Violet, *&c.* others loſe their Leaves one Part of the Year, as Fern, Colts-foot, *&c.*

Plants again are diſtinguiſhed with regard to their Magnitude, *&c.* into, 1° *Trees*, Arbores; as the Oak, Pine, Fir, Elm, Sycamore, *&c.*—2° *Shrubs*, Suffrutices; as the Holly, Box, Ivy, Juniper, *&c.* and—3° *Herbs*, as Mint, Sage, Sorrel, Thyme, *&c.* See TREE, SHRUB, and HERB.——But this Diviſion is rather popular, than juſt and philoſophical.

The Botaniſts give us more accurate and minute Arrangements, or Diſtributions, of the Vegetable Kingdom, into Claſſes, Genera, Species, *&c.* with regard to their Nature, Characters, *&c.* 'Tis a Point they are not well agreed upon from what Conſideration the Diviſion into Genera is beſt taken; ſome, as *Geſner*, *Columna*, *Tournefort*, &c. chuſing the Flower and Fruit; and others taking in the Roots, Leaves, Stems, *&c.* See farther under the Article GENUS.

Our ingenious Mr. *Ray* diſtributes *Plants* into 25 Genera, or Claſſes, under the following Denominations.

1° *Imperfect Plants* which are ſuch as appear to want the Flower and Seed.—Such are, Corals, Sponges, Fungus's, Truffles, Moſs. See CORAL, SPUNGE, MUSHROOM, TRUFFLE, and MOSS.

2° *Plants* producing an *imperfect Flower*, and *whoſe Seed is too ſmall to be diſcerned* by the naked Eye;—ſuch are Fern, Polypody, *&c.* See FLOWER.

3° Thoſe whoſe *Flowers want Petala*;——ſuch are Hops, Hemp, Nettles, Docks. See PETALA, HOPS, *&c.*

4° Thoſe with a *compound Flower*, and which emit a milky Juice when cut or broke; as Lettuce, Dandelion, Succory, *&c.* See *Compound* FLOWER.

5° Thoſe with a *compound Flower of a diſcous Form*, and whoſe *Seed is winged* with Down; as Colts-foot, Flea-bane, *&c.* See WINGED.

6° *Herbæ capitatæ*, or thoſe whoſe Flower is compoſed of long fiſtulous Flowers gathered into a round Head, and covered with a ſcaly Coat; as the Thiſtle, great Burdock, Blue-bottle, *&c.*

7° *Corymbiferous Plants* with a diſcous Flower, but no Down; as the Daiſy, Yarrow, Corn-Marygold, *&c.* See CORYMBUS.

8° *Plants* with a *perfect Flower*, but only one Seed to each Flower, as Valerian, Agrimony, Burnet, *&c.*

9° *Umbelliferous Plants*, with a Flower of five Petala, and two Seeds to each Flower, See UMBELLÆ.——This being a large Genus is ſubdivided into ſeven Species, *viz.* thoſe with a broad flat Seed like a Leaf, as wild Garden Parſnip: with a longiſh and larger Seed, ſwelling in the middle, as Cow-weed, and wild Chervil: with a ſhorter Seed, as Angelica: with a tuberous Root, as the Earth-nut: with a ſmall ſtriated Seed, as Caraways, Saxifrage, and Burnet: with a rough hairy Seed, as Parſly, and wild Carrot: with intire Leaves ſubdivided into Jags, as Senicle, and Thoro-Wax.

10° *Stellate Plants*, whoſe Leaves grow round the Stalks, at certain Intervals, in form of Stars; as Mug-Weed, Madder, *&c.* See STELLATE.

11° *Rough leaved Plants*, which have their Leaves placed alternately, or in no certain Order along the Stalks; as Hounds-Tongue, Mouſe-Ear, *&c.*

14° *Suffrutices*, or *Verticillate Plants*, whoſe Leaves grow by pairs, on their Stalks, one Leaf right againſt another, the Flower being monopetalous, and uſually in form of a Helmet; as Thyme, Mint, Pennyroyal, Vervain, *&c.* See VERTICILLATE.

13° *Polyſpermous*, or thoſe with many naked Seeds, at leaſt five, ſucceeding their Flower; as Crows-foot, Marſh-Mallows, Cinquefoil, Strawberries, *&c.* See POLYSPERMOUS.

14° *Bacciferous Plants*, or ſuch as bear Berries; as Briony, Honeyſuckle, Solomon's-Seal, Lilly of the Valley, Nightſhade, Aſparagus, *&c.* See BACCIFEROUS, BERRY, *&c.*

15° *Multiſiliquous*, or *Corniculate Plants*, which after each Flower produce ſeveral long ſlender Siliquæ, or Caſes wherein their Seed is contained; as Orpine, Navel-wort, Bears-foot, Columbines, *&c.* See MULTISILIQUOUS, *&c.*

16° *Vaſculiferous Plants*, or thoſe with a *Monopetalous Flower*, and which, after each Flower, have a Veſſel beſide the Calyx, containing the Seed; as Henbane, Bindweed, Rampions, Fox-Glove, Eye-Bright, *&c.* See VASCULIFEROUS, *&c.*

17° Thoſe with an *uniform tetrapetalous Flower*, bearing their Seeds in oblong ſiliquous Caſes; as Stockgilly-Flower, Muſtard, Radiſh, *&c.*

18° *Vaſculiferous Plants*, with a *ſeeming tetrapetalous Flower*, but of an anomalous or uncertain kind, and in reality only monopetalous, falling off altogether in one; as Speedwell, Fluellin, Plantane, yellow and wild Poppy, *&c.*

19° *Leguminous Plants*, or ſuch as bear Pulſe, with a Papilionaceous Flower, conſiſting of four Parts joined at the Edges; as Peaſe, Beans, Vetches, Tares, Lentils, Liquorice, Trefoil, *&c.* See LEGUMINOUS.

20° *Vaſculiferous Plants*, with a *pentapetalous* or five headed *Flower*; as Maiden-Pinks, Campions, Chickweed, St. Johns-Wort, Flax, Primroſe, Wood-Sorrel, *&c.*

21° *Plants* with a *true bulbous Root*; as Garlick, Daffodil, Hyacinth, Saffron, *&c.* See BULB.

22° Thoſe whoſe *Roots approach nearly to the bulbous Form*; as Flower-de-luce, Cuckoo-pint, Baſtard Hellebore, *&c.*

23° *Culmiferous Plants*, with a graſſy Leaf, and an imperfect Flower, having a ſmooth hollow jointed Stalk, with a long ſharp pointed Leaf at each Joint, and the Seeds contained in a chaffy Husk; as Wheat, Barley, Rye, Oats, and moſt kinds of Graſs. See CULMIFEROUS.

24° *Plants* with a *graſſy Leaf*, but *not Culmiferous*, with an imperfect or ſtamineous Flower; as Ruſhes, Cats-Tail, *&c.*

25° *Plants* whoſe *Place of Growth is uncertain*; chiefly Water-Plants, as the Water-Lilly, Milk-Wort, Mouſe-Tail, *&c.*

For the Tranſmutation of one Species of Plants *into another.* See TRANSMUTATION, DEGENERATION, *&c.*

The Properties and Virtues of *Plants* have been obſerved by ſome Naturaliſts to bear an Analogy to their Forms.—— In the *Philoſophical Tranſactions*, we have a Diſcourſe of Mr. *James Pettiver*, to ſhew, That *Plants* of the ſame or like Figure, have the ſame or like Virtues and Uſes.——Thus, the Umbelliferous Tribe, he obſerves, have all a Carminative Taſte and Smell, are powerful Expellers of Wind, and therefore good in all flatulent Diſorders.——The Galleate or Verticillate Kind are a Degree warmer, and more powerful than the laſt, and therefore may be reputed Aromatick, being proper for Nervous Diſorders.——The Tetrapetalous Kind are hot like the two former, but exert their Power in a different Way, *viz.* by a Diuretick Volatile Salt, which makes them of Uſe in Chronical Diſeaſes, Obſtructions, Cacochymias, *&c.*

PLANTA, in Anatomy, the loweſt Part, or Sole of the Foot of Man. See FOOT and SOLE.

PLANTAGENET, in Hiſtory, an Addition, or Sur-Name, bore by many of our ancient Kings. See SURNAME, *&c.*

The Term *Plantagenet* has given infinite Perplexity to the Criticks and Antiquaries, who could never ſettle its Origin and Etymology.——'Tis allowed it firſt belonged to the Houſe of *Anjou*, and was brought to the Throne of *England* by *Henry* II. where his Male Poſterity preſerved it till the Time of *Henry* VII. a Space of above 400 Years.

'Tis diſputed who it was that firſt bore the Name. Moſt of our *Engliſh* Authors conclude, that our *Henry* II. inherited it from his Father *Geoffrey* V. Earl of *Anjou*, Son of *Fulk* V. King of *Jeruſalem*, who died in 1144.——This *Geoffrey* they will have the firſt of the Name; and our *Henry* II. the Iſſue of *Geoffrey* by *Maud* only Daughter of *Henry* I. the ſecond.

Yet *Menage* will not allow *Geoffrey* to have bore the Name; and in effect the old Annaliſt of *Anjou*, *J. Bourdigne*, never calls him ſo.—The firſt, *Menage* adds, to whom he gives the Appellation, is *Geoffrey* third Son of this *Geoffrey* V.

Yet muſt the Name be much more ancient than either of theſe Princes, if what *Skinner* ſays of its Origin and Etymology be true.—That Author tells us, that the Houſe of *Anjou* derived the Name from a Prince thereof, who having kill'd his Brother to enjoy his Principality, took to Repentance, and made a Voyage to the *Holy Land* to expiate his Crime; diſciplining himſelf every Night with a Rod made of the Plant *Genêt*, *Geniſta*, Broom; whence he became nick-named *Planta-genêt*.

Now, 'tis certain that our *Geoffrey* made the Tour of *Jeruſalem*; but then he did not kill his Brother; nor did he go there out of Penance, but to aſſiſt King *Amauris* his Brother.—Who then ſhould this Prince of the Houſe of *Anjou* be? Was it *Fulk* IV? 'Tis true he diſpoſſeſs'd his elder Brother *Geoffrey*, and clapt him in Priſon, but did not kill him; nay, *Bourdigne* obſerves, he was even releaſed out of the ſame by his Son *Geoffrey* V. already mentioned.

Further, this *Fulk* did make a Journey to *Jeruſalem*, and that, too, partly out of a penitential View; we are aſſured by *Bourdigne*, he did it out of Apprehenſion of the Judgments of God and eternal Damnation, for the great Effuſion of Chriſtian Blood, in the many mortal Battles he had been in. ——The Annaliſt adds, that he made a ſecond Voyage; but 'twas to return God Thanks for his Mercies, *&c.* To which we may add, that *Fulk* was never call'd *Plantagenet*; ſo that what *Skinner* advances appears to be a Fable.

There is another common Opinion which appears no better founded; and 'tis this, that the Name *Plantagenet* was common to all the Princes of the Houſe of *Anjou*, after *Geoffrey* V; whereas in Fact the Name was only given to a few; and that, as it ſhould ſeem, to diſtinguiſh them from the reſt. Thus *Bourdigne* never applies it to any but the third Son of *Geoffrey* V; and diſtinguiſhes him by this Appellation from the other Princes of the ſame Family.——Tho' 'tis certain it was likewiſe given to the elder Brother, *Henry* of *England*, as before obſerved.

PLANTARIS, in Anatomy, a Muſcle which has a fleſhy Beginning, from the back part of the external Protuberance of the Thigh-bone, and deſcending a little way between the Gemellus and Soleus, becomes a long and ſlender Tendon, which marches by the inſide of the great Tendon over the Os Calcis to the bottom of the Foot; and expands itſelf under the Sole, upon the Muſculus perforatus, to which it adheres cloſely, as the Palmaris does in the Hand. See FOOT, PALMARIS, *&c.*

Some reckon this among the Extenders of the Foot. See EXTENSOR.

PLANTATION, in the Colonies, a Spot of Ground which ſome Planter or Perſon arrived in a new Colony, pitches on to cultivate and till for his own Uſe. See COLONY.

PLANTING, in Agriculture and Gardening, the ſetting of a Tree, or Plant, taken up from its former Place, in a new Hole or Pit proportionable to its Bulk; throwing freſh Earth over its Root, and filling up the Hole to the Level of the other Ground. See PLANT, TRASNSPLANTING, GARDENING, *&c.*

PLANTING *an Orchard*. See ORCHARD.

PLANTING *of Foreſt-Trees*. See SEMINARY, TREE, *&c.*

PLANTING *of Wall-Fruit-Trees*.——After 2 Years Growth in the Nurſery, Stone-Fruit, being firſt inoculated or grafted, are ready for Removal; which is beſt done in *October* or *November*.

To prepare the Soil for its new Gueſt; a Hole is dug 2 foot deep; or if the Soil be not very good, the Pit is made ſhallower, and Earth rais'd above it.—With the Soil dug up, they frequently mix either a rich Soil from elſewhere; or a Manure, ſo as the Mixture be at leaſt as rich as the Soil out of which the Plant came.

The Hole being half fill'd up with this Compoſt, it is trodden down, to afford a firm Reſt to the Root, all the Extremities whereof are cut off, and the Tree fitted to the Wall by cutting off ſuch Branches as grow directly either towards or from-wards the Wall, and leaving only the ſide Branches, which are to be nailed to it.

This done, the Tree is ſet in its Hole, as far from the Wall as is conſiſtent with the Heads ſpreading thereon; that the Root may have the more room backwards, and the Hole then fill'd up with the Compoſt.

If the Soil be poor 'tis proper to manure round the Tree; and in the end of *February*, to cover it with Fern or Straw. —'Twill be neceſſary to prune and nail the Tree to the Wall, at leaſt twice or thrice every Year. See WALL-*Fruit*.

Reverſe-PLANTING, is a Method of Planting wherein the ordinary Poſition of the Plant, or Shoot, is inverted; the Branches being ſet in the Earth, and the Roots rear'd into the Air.

Agricola mentions this monſtrous Way of *planting*, which he aſſures us ſucceeds very well in moſt, or all ſorts of Fruit-Trees, Timber-Trees, *&c.* foreign and domeſtick.

Bradley affirms us to have ſeen a Lime-Tree in *Holland* growing with its firſt Roots in the Air, which had ſhot out Branches in great Plenty; at the ſame time that its firſt Branches were turned into Roots and fed the Tree.

The induſtrious Mr. *Fairchild* has practiſed the ſame at home; and gives us the following Directions for the Performance thereof.

Chuſe a young Tree of one Shoot, of Alder, Elm, Willow, or any other Tree that takes root readily by laying. Bend the Shoot gently down till the extreme Part be in the Earth, and ſo let it remain till it has taken good Root.— This done, dig about the firſt Root, and gently take it up out of the Ground till the Stem be nearly upright, in which ſtate ſtake it up

Then prune the Roots, now erected in the Air, from the Bruiſes and Wounds they received in being dug up; and anoint the pruned Part with a Compoſition of 4 Parts of Bees-Wax, 2 of Roſin, and 2 of Turpentine, melted together and applied pretty warm.—Then prune off all the Buds or Shoots upon the Stem, and dreſs the Wounds with the ſame Compoſition, to prevent any collateral Shootings; and leave the reſt to Nature. See FECUNDITY.

PLANTING, in Architecture, denotes the diſpoſing of the firſt Courſes of ſolid Stone on the Maſonry of the Foundation, laid level according to the Meaſures, with all the Exactneſs poſſible. See FOUNDATION, BUILDING, HOUSE, *&c.*

PLASM, PLASMA, a *Mould*, wherein any Metal, or ſuch like running Matter, which will afterward harden, is caſt. See MOULD; ſee alſo PLASTIC.

PLASTER, or PLAISTER, in Building, a Compoſition of Lime, ſometimes with Hair, ſometimes with Sand, *&c.* to parget or cover the Nudities of a Building. See PARGETING.

PLASTER *of Paris*, is a Foſſil-Stone, of the Nature of a Lime-ſtone; ſerving many Purpoſes in building; and uſed likewiſe in Sculpture, to mould and make Statues, Baſſo

Relievo's, and other Decorations in Architecture. See STONE, STATUE, *&c.*

It is dug out of Quarries, in ſeveral Parts of the Neighbourhood of *Paris*; whence its Name.—The fineſt is that of *Montmartre*.

This *Plaſter* is of two kinds, *viz. Crude*, or in the Stone; and *burnt*, or beaten.

The *crude* is the native *Plaſter* as it comes out of the Quarry; in which ſtate 'tis uſed as Shards in the Foundations of Buildings.

The *burnt Plaſter* is a Preparation of the former, by calcining it like Lime in a Kiln or Furnace, and then beating it into Powder, and diluting and working it. See LIME, *&c.* In this ſtate it is uſed as Mortar or Cement in Buildings. See MORTAR.

This, when well ſifted and reduced into an impalpable Powder; is uſed to make Figures and other Works of Sculpture; and is beſides of ſome Uſe in taking out Spots of Greaſe, *&c.* in Stuffs and Silks. See FIGURE, SCULPTURE, *&c.*

In the *Plaſter*-Quarries is alſo found a kind of falſe Talc, wherewith they counterfeit all kinds of Marble. See MARBLE, GYPSUM STUC, *&c.* See alſo PLASTICE.

PLASTIC-*Virtue*, a Faculty of forming, or faſhioning any thing. See FACULTY.

The Word comes from the *Greek* πλαστικὸς, of πλάσσω, fingo, *I faſhion, form*, &c.

Some of the ancient *Epicureans*, and perhaps the Peripateticks too, imagined, a *Plaſtic Virtue* to reſide in the Earth; or at leaſt to have anciently reſided therein; and that 'twas by means hereof and without any extraordinary Intervention of a Creator, that it firſt put forth Plants, *&c.* See EARTH, WORLD, *&c.*

Nay, ſome of them, whether ſeriouſly or not we don't undertake, taught, that Animals, and even Man, were the Effect of this *Plaſtic Power*. See PLATONIST, PERIPATETIC, *&c.*

PLASTICE, or the PLASTICK *Art*, a Branch of Sculpture; being the Art of forming Figures of Men, Birds, Beaſts, Fiſhes, Plants. *&c.* in Plaſter, Clay, Stuc, *&c.* See SCULPTURE, PLASTER, *&c.*

The Workmen concerned herein are called *Plaſtæ*.

Plaſtice differs from Carving, in that here the Figures are made by Addition of what wants: But in Carving always by Subtraction of what is ſuperfluous. See CARVING.

The *Plaſtic Art* is now chiefly uſed among us in Fret-Work-Cielings; but the *Italians* apply it to the Mantlings of Chimnies with great Figures. See FRET-WORK, CIELING, *&c.*

PLAT, a popular Term among Mariners, *&c.* for a *Sea Chart*. See CHART.

PLATA, PLATE, in Commerce, a *Spaniſh* Term, ſignifying *Silver*; as Vellon, which they pronounce Veillon, ſignifies *Copper*. See SILVER, COIN, *&c.*

Theſe two Terms are not only uſed to expreſs the Species of thoſe Metals ſtruck in *Spain*, but alſo to diſtinguiſh between ſeveral of their Monies of Account.—Thus they ſay a Ducat of *Plata*, and a Ducat of Vellon; a Rial of *Plata*, and a Rial of Vellon; which Denominations augment and diminiſh the Value by almoſt one half; 34 Maravedis of *Plata* being equal to 63 of Vellon; and the Piece of Eight being only 272 Maravedis of *Plata*, but 510 of Vellon. See DUCAT, PIECE *of Eight*, RIAL, and MARAVEDIS.

PLATE, in Commerce, denotes Gold or Silver wrought into Veſſels for domeſtick Uſes. See GOLD, SILVER, MARK, PUNCHION, *&c.*

PLATE, in Heraldry, is a round, flat Piece of Silver, without any Impreſſion; but as it were form'd ready to receive it.

The Term is uſed only by *Engliſh* Heralds: for in other Nations they are known by the Name of Bezants, Argent. See BEZANTS.

PLAT-BAND, in Gardening, a Border, or Bed of Flowers, along a Wall, or the ſide of a Parterre; frequently edg'd with Box, *&c.* See BORDER, PARTERRE, EDGING, *&c.*

PLAT-BAND, in Architecture, is any flat ſquare Moulding, whoſe Height much exceeds its Projecture. See MOULDING.

Such are the Faces or Faſciæ of an Architrave, and the *Plat-band* of the Modillions of a Cornich. See ARCHITRAVE, CORNICH, *&c.*

The *Plat-band* is ſignified in *Vitruvius*, and others, by the Words *Faſcia*, *Tænia*, and *Corſa*. See FASCIA, TÆNIA, *&c.*

PLAT-BAND, of a Door or Window, is uſed for the Lintel, where that is made ſquare, or not much arch'd. See LINTEL.

Theſe *Plat-bands* are uſually croſs'd with Bars of Iron, when they have a great *Bearing*: But 'tis much better to eaſe them by Arches of Diſcharge built over them. See DOOR, WINDOW, *&c.*

PLAT-BANDS of *Flutings*, the Liſts or Fillets between the Flutings of Colums. See FLUTING.

PLAT-FORM, in War, is a Place prepared on the Ramparts, to raiſe a Battery of Cannons upon. See RAMPART, BATTERY, *&c.*

It is made by the heaping up of Earth on the Rampart; or by an Arrangement of Madriers, riſing inſenſibly for the Cannon to roll on; either in a Caſemate, or on an Attack in the Out-works.

PLATFORM, in Architecture, is a Row of Beams, which ſupport the Timber-Work of a Roof, and lie on the top of the Wall, where the Entablature ought to be raiſed.

The Word is alſo uſed for a kind of Terraſs-Walk, or even Floor, on the top of a Building, from whence we may take a fair Proſpect of the adjacent Country.

Hence an Edifice is ſaid to be cover'd with a '*Platform*, when it is flat a-top, or has no Ridge. See ROOF.

Moſt of the Oriental Buildings are thus cover'd; as were all thoſe of the Ancients.—*Cæſar* was the firſt among the *Romans* who procured Leave to Build his Houſe with a Ridge, or Pinnacle. See PINNACLE.

PLATFORM, or *Orlop*, in a Man of War, is a Place on the lower Deck, abaft the Main-Maſt, and round about the main Capſtan; where Proviſion is made, for the wounded Men, in time of Service.—It is between the Main-Maſt and Cockpit.

PLATONIC, ſomething that relates to *Plato*, his School, Philoſophy, Opinions, or the like. See PLATONISM.

PLATONIC *Bodies*, are the ſame with what we otherwiſe call *Regular Bodies*. See REGULAR *Bodies*.

PLATONIC *Love*, denotes a pure ſpiritual Affection, ſubſiſting between the different Sexes, abſtracted from all carnal Appetites, and regarding no other Object but the Mind, and its Beauties; or a ſincere diſintereſted Friendſhip, ſubſiſting between the ſame Sex, abſtracted from any ſelfiſh Views, and regarding no other Object but the Perſon.

The Term took its Riſe from the Philoſopher *Plato*, a ſtrenuous Advocate for each Kind. See PLATONISM.

The World has a long time laugh'd at *Plato*'s Notions of Love and Friendſhip.—In effect, they appear arrant Chimæras, contrary to the Intentions of Nature, and inconſiſtent with the great Law of Self-Preſervation; which Love and Friendſhip are both ultimately reſolvable into. See PASSION.

PLATONIC *Year*, or the *great Year*, is a Period of Time determined by the Revolution of the Equinoxes; or the Space wherein the Stars and Conſtellations return to their former Places, with regard to the Equinoxes. See YEAR, STAR, PRECESSION *of the Equinoxes*, *&c.*

The *Platonic Year*, according to *Tycho Brahe*, is 25816; according to *Ricciolus* 25920; according to *Caſſini* 24800 Years.

This Period, which is more than five times the Age of the World, once accompliſh'd; it was an Opinion among the Ancients, that the World was to begin a-new, and the ſame Series of things turn over again. See PERIOD.

PLATONISM, the Doctrine and Sentiments of *Plato* and his Followers, with regard to Philoſophy, *&c.* See PHILOSOPHY.

The Founder of this Syſtem of Philoſophy, *Plato*, the Son of *Ariſtocles*, was an *Athenian*; born about the Year of the World 3625; who after having ſpent his Youth in Exerciſes of the Body, Painting, and Poetry, became a Diſciple of *Socrates*.—After his Maſter's Death, he applied himſelf to *Cratylus* and *Hermogenes*; 'till being a Maſter of the *Greek* Philoſophy, he travelled into *Italy*, where he learnt that of the *Pythagoreans*. See PYTHAGOREAN.

Thence he proceeded into *Egypt*; where, in thirty Years Reſidence he became fully acquainted with the Secrets of the *Egyptian* Prieſts. See SYMBOL.

At his Return to *Athens* he began to retale the Stock of Learning he had collected, among his Countrymen; philoſophizing daily in the Academy, a delicious Villa in the Neighbourhood of that City. See ACADEMY.—And hence his Diſciples were called *Academicks*.

In Phyſicks, he chiefly followed *Heraclitus*; in Ethicks and Politicks, *Socrates*; in Metaphyſicks, *Pythagoras*.

After his Death, two of the principal of his Diſciples, *Ariſtotle* and *Xenocrates*, continuing his Office, and teaching, the one in the Academy, the other in the Lyceum; form'd two Sects, under different Names, tho' in other reſpects the ſame; the one retaining the Denomination of *Academicks*; ſee ACADEMICK. The other aſſuming that of *Peripateticks*. See PERIPATETICK.

In after-times, about the firſt Ages of the Chriſtian Church; the Followers of *Plato* quitted the Title of *Academiſts*, and took that of *Platoniſts*.

'Tis ſuppoſed to have been at *Alexandria* in *Egypt* that they firſt aſſumed the new Title; after having reſtored the ancient Academy, and re-eſtabliſh'd *Plato*'s Sentiments; which in proceſs of Time had many of them been laid aſide.

Porphyry, *Plotin*, *Iamblichus*, *Proclus*, and *Plutarch*, are thoſe who acquired the greateſt Reputation among the *Greek* Platoniſts. And among the *Latins*, *Apuleius*, and *Chalcidius*.—Among the *Hebrews*, *Philo Judæus*.—The modern Platoniſts own *Plotin* the Founder, at leaſt the Reformer, of their Sect.

The *Platonic Philoſophy* appears very conſiſtent with the *Moſaic*; and a great Party of the primitive Fathers follow the Opinions of that Philoſopher, as being favourable to Chriſtianity.——*Juſtin* is of Opinion, *Plato* could not learn many things he has ſaid in his Works, from mere Natural Reaſon; but thinks he might have learnt them from the Books of *Moſes* which he read when in *Egypt*.

Hence *Numenius*, the *Pythagorean*, expreſsly calls *Plato* the *Attic Moſes*; and upbraids him with Plagiariſm in that he ſtole his Doctrine about the World and God, from the Books of *Moſes*.

Theodoret ſays expreſsly, that he has nothing good and commendable about the Deity, and his Worſhip, but what he ſtole from the *Hebrew* Theology; and *Clemens Alexandrinus* calls him the *Hebrew Philoſopher*.

Gale is very particular in his Proof of the Point, that *Plato* borrowed his Philoſophy from the Scriptures, either immediately, or by means of Tradition; and, beſide the Authority of ancient Authors, brings ſome Arguments from the thing itſelf.——As, *e. gr. Plato*'s Confeſſion that the *Greeks* borrowed their Knowledge of the one infinite God, from an ancient People, better and nearer to God than they; by which People, our Author makes no doubt, he meant the *Jews*: from his Account of the State of Innocence; as, that Man was born of the Earth, that he was naked, that he enjoy'd a truly happy State, that he converſed with Brutes, *&c.*——In effect, from an Examen of all the Parts of *Plato*'s Philoſophy, Phyſical, Metaphyſical, and Ethical; this Author finds in every one, evident Characters of its ſacred Original.

As to the Manner of the Creation, *Plato* teaches that the World was made according to a certain Exemplar, or Idea, in the Divine Architect's Mind. And all things in the Univerſe, in like manner, he ſhews, do depend on the Efficacy of eternal Ideas.

This Ideal World is thus explained by *Didymus*: "*Plato* "ſuppoſes certain Patterns, or Exemplars of all ſenſible "things, which he calls *Ideas*; and as there may be various "Impreſſions taken off from the ſame Seal; ſo is there a vaſt "Number of Natures exiſting from each Idea." This Idea he ſuppoſes to be an eternal Eſſence, and to occaſion the ſeveral being in Nature to be ſuch as itſelf is: And that moſt beautiful and perfect Idea which comprehends all the reſt, he maintains to be the World.

Further, *Plato* teaches that the Univerſe is an intellgent Animal, conſiſting of a Body and a Soul.——The firſt Matter whereof this Body was form'd, he obſerves, was a rude indigeſted Heap, or Chaos: Now, adds he, the Creation was a mixt Production; and the World is the Reſult of a Combination of Neceſſity and Underſtanding, *i. e.* of Matter, which he calls Neceſſity, and the Divine Wiſdom.

For the *Anima Mundi*, or Soul of the World; ſee ANIMA *Mundi*.

The Principles, or Elements, which *Plato* lays down, are Fire, Air, Water, and Earth. See ELEMENT.

He ſuppoſes two Heavens, the *Empyrean*, which he takes to be of a fiery Nature, and to be inhabited by Angels, *&c.* And the *Starry* Heaven, which he teaches is not adamantine or ſolid, but liquid and ſpirable. See HEAVEN.

His Phyſicks, or Doctrine *de Corpore*, is chiefly laid down in his *Timæus*; where he argues on the Properties of Body, in a Geometrical Manner; which *Ariſtotle* takes occaſion to reprehend in him.——His Doctrine *de Mente* is delivered in his 10th Book *of Laws*, and his *Parmenides*.

St. *Auguſtin* commends the *Platonic Philoſophy*; and even ſays, that the *Platoniſts* were not far from Chriſtianity: He adds, that the Generality of the new Platoniſts of his Time embraced the Faith.

Juſtin Martyr profeſſes, that *Plato*'s Doctrine was of the utmoſt Advantage to him, in helping him to believe the Myſteries of the Chriſtian Faith.—To which it may be added, that it was in good Meaſure by *Plato*'s Help that *Origen* confuted *Celſus*. See TRINITY, *&c.*

Indeed the late Author of *Platoniſme devoile*, carries things to an extravagant Length when he contends, that the Dogma's of our Religion are only the Opinions of *Plato*; that the Fathers give us nothing of the Myſteries thereof but what they learnt from him; and that Chriſtiany is only a palpable Platoniſm.——To which Opinion M. *le Clerc* ſeems a little inclined. See GOD, FATHERS, *&c.*

PLATONISTS. See PLATONISM, and ACADEMICKS.

PLATTOON, in War, a ſmall, ſquare Body of 40 or 50 Men, drawn out of a Battallion of Foot, and placed between the Squadrons of Horſe, to ſuſtain them; or in Embuſcades, Streights, and Defiles, where there is not room for whole Battallions, or Regiments.—*Plattoons* are uſed when they form the hollow Square to ſtrengthen the Angles. See MUSQUETEER, HOLLOW *Square*, BATTALLION, *&c.*

The Grenadiers are generally poſted in *Plattoons*. See GRENADIER.

The Word is form'd, by Corruption, of the *French Pelaton*, a Bottom, or Clue of Thread.

PLATTS, on board a Ship, are flat Ropes, made of Rope-Yarn, and woven one in another. See ROPE, *&c.*

Their Uſe is to ſave the Cable from galling in the Hauſe; or to wind about the Flukes of the Anchors, to ſave the Pendant of the Fore-ſheet from galling againſt them.

PLATYSMA, *Myoides*, in Anatomy. See QUADRATUS *Genæ*.

PLAY, *Luſus*. See GAME, and GAMING.

PLAY, in Poetry, *&c.* See DRAMA, TRAGEDY, COMEDY, &c.

PLAY-*Houſe*. See THEATRE, AMPITHEATRE, &c.

PLEA, *Placitum*, in Law, that which either Party in a Cauſe alledgeth for himſelf in Court. See PLACITUM, CAUSE, and COURT; ſee alſo PLEADING, *&c.*

Pleas, are either *of the Crown*, or *Common Pleas*.

Pleas of the Crown, are all Suits in the King's Name, for Offences committed againſt his Crown and Dignity, or againſt his Crown and Peace.—Such are Treaſons, Felonies, Miſpriſions of either, and Mayhem. See TREASON, FELONY, *&c.*

Edward I. enfeoffed *Walter de Burgo* in the Land of *Ulſter* in *Ireland*, &c. excepting the Pleas of the Crown, *viz.* Rapeſtal, willful Firing, and Treaſure-trove. *Cam. tit. Ireland.*

Common Pleas are thoſe agitated between common Perſons; tho', by the Definition above laid down, they ſhould compriſe all other except thoſe there enumerated, notwithſtanding the King be a Party.

Plea may farther be divided into as many Branches as *Action*; in as much as they are in reality the ſame thing. See ACTION.

There is alſo *Foreign Plea*, whereby Matter is alledged in any Court, that ought to be tried by another.—As if one lay Baſtardy to another in a Court-Baron. See FOREIGN.

PLEAS *of the Sword.*—*Ranulph* Earl of *Cheſter*, 2° *Hen.* III. granted to his Barons of *Cheſhire*, an ample Charter of Liberties, *exceptis placitis ad gladium meum pertinentibus.*

The Reaſon of the Exception was, that *William the Conq.* gave the Earldom of *Cheſter* to his half-Brother *Hugh*, commonly called *Lupus*, Anceſtor of this *Ranulph*, *Tenere ita libere ad Gladium*, *ſicut ipſe Rex tenuit Angliam ad Coronam.*

Accordingly in all Indictments for Felony, Murther, *&c.* in the County Palatine, the Form was, *Contra pacem Domini Comitis*, *gladium & dignitatem ſuam*; or *contra dignitatem Gladii Ceſtriæ.*—Such were the Pleas of the Dignity of the Earl of *Cheſter*. See GLADIUS.

Court of Common PLEAS, call'd alſo *Common Bench.* See COMMON *Pleas.*

PLEADING, a Diſcourſe ſpoke at the Bar, in Defence of the Cauſe of a Party. See PLEA and BAR.

From the Time of the Conqueſt, all *Pleading* was perform'd in *French*, 'till the Time of *Edward* III. when it was appointed that the Pleas ſhould be *pleaded* in *Engliſh*, but to be enter'd, or recorded, in *Latin.* See LATIN.

At *Athens*, and even in *France* and *England*, it was prohibited to have any form'd or prepared Pleading, or to amuſe the Court with long artificial Harangues; only, in important Matters, 'twas the ſettled Cuſtom to begin the *Pleading* with a Paſſage in holy Scripture. See TEXT.

'Tis but of late Years that Eloquence was admitted to the Bar; and it may be ſaid there is ſcarce any Nation in *Europe* where it is leſs practiced or encouraged than among us.—The Elocution of the Bar, like that of the Pulpit, deſpiſes the Rules of Rhetoric. See ACTION, ELOQUENCE, ORATORY, *&c.*

PLEADINGS are properly the Allegations of the Parties to the Suits, made after the Count, or Declaration. See DECLARATION.

In this Senſe the *Pleadings* expreſs what is contained in the Bar, Replication, and Rejoinder; and not what is in the Declaration itſelf.—Hence Defaults in the Matter of Declaration, are not comprized within the *Miſpleading*, or inſufficient *Pleading*, which only extends to that committed in the Bar, Replication, or Rejoinder. See BAR, REPLICATION, and REJOINDER.

PLEASURE, the Effect of a Senſation or Perception agreeable to the Mind, or of the Gratification of ſome Appetite. See APPETITE, SENSATION, *&c.*

Pleaſures may be diſtinguiſhed into two Kinds.—The firſt, thoſe which anticipate, or go before, the Reaſon; ſuch are all agreeable Senſations.——Theſe are popularly called *Pleaſures of Senſe*, or *of the Body*. See SENSE.

The ſecond are thoſe which do not precede or anticipate either the Senſes or Reaſon.—Theſe we call *Pleaſures of the Mind.*—Such is the Joy ariſing from a clear Perception of ſome future Good, or confuſed Senſation of a preſent one. See MIND.

For an inſtance of either.——A Man frequently finds *Pleaſure* in eating a Fruit he was before unacquainted withal: This is *anticipating Pleaſure*, which he feels e'er he knows the Fruit to be good.

On the other hand, a hungry Hunter expects, or perhaps actually finds, Victuals; where the Joy he conceives, is a *Pleaſure* that follows from the Knowledge of his preſent or future Good. See PAIN.

Pleaſure and *Pain* ſeem to be no other than Engines in Nature's Hand; whereby we are directed to conſult our own Preſervation, and avoid our Ruin.—To things that may contribute to the one, as Food, Venery, *&c.* ſhe has annexed *Pleaſure*; and to thoſe that may conduce to the other, as Hunger, Diſeaſes, *&c.* Pain: She durſt not leave it to our Diſcretion, whether we'd preſerve and propagate the Species or not; but, as it were, conſtrains us to both: Were there no *Pleaſure* in eating, nor Pain in Hunger, what Numbers would be ſtarved, thro' Negligence, Forgetfulneſs, or Slothfulneſs. What is it induces People to the Office of Generation, but *Pleaſure*? without this the World had ſcarce ſubſiſted to this Time.

Among the Multiplicity of things to be done, and to be avoided for the Preſervation of animal Life, *&c.* how ſhould we have diſtinguiſhed between the one and the other, but for the Senſations of *Pleaſure* and Pain? Theſe are not only Spurs, to urge us on, but alſo Guides to direct us whither we are to go. Wherever Nature has fix'd a *Pleaſure*, we may take it for granted, ſhe there enjoins a Duty; and ſomething is to be there done, either for the Individual or the Species.

Hence it is that our *Pleaſures* vary at different Stages of Life; the *Pleaſures*, *e. gr.* of a Child, a Youth, a grown Man, an old Man, *&c.* all tending to thoſe particular things required by Nature in that particular State of Life, either for the Preſervation, ſimply, or for that and Propagation, *&c.*

Hence, from the different Conſtitutions of the Body, at different Ages, it were very eaſy to account for all the particular Taſtes and Pleaſures thereof: Not by deducing the *Pleaſures* mechanically from the Diſpoſition of the Organs in that State; but by conſidering what is neceſſary for the Perfection, and well-being of the Individual in that State, and what it is to contribute to that of the Species.——In a Child, *e. gr.* mere Preſervation in the preſent State is not enough; it muſt likewiſe grow: to bring this to paſs, Nature has made the Returns of Hunger, *&c.* more frequent, as well as more acute; and the *Pleaſures* of feeding more exquiſite. And that the Exceſs of Aliment in Proportion to the Bulk of the Body may be diſpens'd withal, ſhe has made one of the great *Pleaſures* of that State, to conſiſt in a Series of ſportive Exerciſes, by means whereof the Parts of the Body come to be opened and expanded, and arrive at Maturity. This done, the *Pleaſures* that conduced thereto diſappear; and others ſuited to the new State, ſucceed. See NATURAL *Inclination*; ſee alſo PASSION.

For the Pleaſures of Beauty, *Muſic*, &c. See BEAUTY, MUSIC, *&c.*

PLEBEIAN, PLEBEIUS, a Perſon of the Rank of the Populace, or Common People. See POPULACE, and COMMON.

The Term is chiefly uſed in ſpeaking of the ancient *Romans*, who were divided into *Senators*, *Knights*, and *Plebeians.* See SENATOR, KNIGHT, *&c.*

PLEBANUS, was anciently the Title of a Rural Dean. See RURAL *Dean.*

The Denomination aroſe hence, that theſe Deaneries were then affixed to the *Plebania*, or chief Mother-Church within ſuch a Diſtrict, which at firſt was uſually ten Pariſhes.

The Term ſeems alſo to have been uſed for a Pariſh-Prieſt, of ſuch a large Mother-Church, as was exempt from the Juriſdiction of the Ordinary, ſo that he had the Authority of a Rural Dean committed to him by the Archbiſhop, to whom the Church was immediately ſubject.

PLEBISCITUM, among the *Romans*, a Law enacted by the Common People, at the Requeſt of the Tribune, or ſome other Plebeian Magiſtrate. See LAW.

The Word *Plebiſcitum* is particularly applied to the Law which the People made, when upon a Miſunderſtanding with the Senate, they retired to the *Aventine* Mount. See CIVIL *Law.*

PLEDGE, PLEGIUS, or PLEGGS, in Common-Law, a Surety, or Gage, either real or perſonal, which the Plaintiff finds to proſecute his Suit. See GAGE and SURETY.

The Word is ſometimes alſo uſed for *Frank Pledge*, which ſee. See alſo PLEDGERY.

To Pledge, in Drinking, denotes to warrant, or be Surety to one that he ſhall receive no harm while he is taking his Draught.

The Phraſe is referr'd by our Antiquaries, to the Practice of the *Danes*, heretofore in *England*, who frequently uſed to ſtab, or cut the Throats of the Natives while they were drinking.

PLEGERY, or PLEGGERY, Suretiſhip, or an Undertaking, or anſwering, for another. See SURETY and PLEDGE.

The Appellant ſhall require the Conſtable and Mareſchal to deliver his Pleggs, and to diſcharge them of their *Pleggery*; and the Conſtable and Mareſchal ſhall ask leave of the King to acquit his Pleggs, after that the Appellant is come into the Liſts to do his Devoir. *Orig. Jur. ex Vet. Cod. MS. in Bibl. Selden.*

PLEGIIS *acquietandis*, a Writ that lies for a Surety, againſt him for whom he is Surety, in caſe he pay not the Money at the Day. *Fitz. Nat. Brev.*

PLEDGET, in Chirurgery, a kind of flat Tent, made, not to enter a Wound, but to be laid upon it, to imbibe the ſuperfluous Humours, and keep it clean and dry. See TENT and WOUND.

PLEIADES, in Aſtronomy, an Aſſemblage of ſeven Stars, in the Neck of the Conſtellation *Taurus.* See STAR.

They are thus call'd from the *Greek* πλεῖν, *navigare*, to ſail; as being terrible to Mariners, by reaſon of the Rains and Storms that frequently riſe with them.

The *Latins* call them *Vergilliæ*, from *Ver*, Spring; becauſe of their riſing about the Vernal Equinox. See VERGILIÆ.

The largeſt is of the third Magnitude, and call'd *Lucida Pleiadum. See their ſeveral Longitudes, Latitudes, Magnitudes,* &c. *under the Article* TAURUS.

Poetical PLEIADES, is a Name which the *Greeks* gave to ſeven celebrated Poets, flouriſhing under the Reign of *Ptolomy Philadelphus.*

In Imitation of the *Greeks*, *Ronſard* form'd a *Pleiades* of the *French* Poets, under the Reign of *Henry* II.——It conſiſted of *Daurat*, *Ronſard*, *du Bellay*, *Belleau*, *Baif*, *Tyard*, and *Jodelle.*

On the ſame Model, ſome of their Authors are projecting a new *Pleiades* of the *Latin* Poets of the preſent time; But they are not yet agreed about the Names of thoſe that are to compoſe it; much leſs on him who ſhall be the *Lucida Pleiadum.*—M. *Baillet* has named *F. Rapin*, *F. Commire*, *F. de la Rue*, M. *de Santeuil*, M. *Menage*, M. *du Perier*, and M. *Petit.*

PLENARTY, in Law, a Term uſed in Matters of Benefices, in oppoſition to *Vacancy.* See VACANCY, VACATION, &c.

Inſtitution is a good *Plenarty* againſt a common Perſon, but not againſt the King, without Induction. See INSTITUTION. *Coke on Litt.*

PLENARY, ſomething compleat, or full.—Thus we ſay the Pope grants *Plenary Indulgences*, i. e. full and entire Remiſſions of the Penalties due to all Sins. See INDULGENCE.

The Word is form'd of the *Latin Plenarius*, of *plenus* full.

PLENILUNIUM, in Aſtronomy, that Phaſis or ſtate of the Moon popularly call'd the *Full-Moon.* See MOON.

The Word is a Compound of the *Latin plenus*, and *Luna.*

PLENIPOTENTIARY, a Perſon who has full Power and Commiſſion to do any thing.

The Word is chiefly underſtood of the Miniſters or Embaſſadors ſent from Princes or States, to treat of Peace, Marriages, and other important Matters. See MINISTER, EMBASSADOR, *&c.*

The firſt thing done in Conferences of Peace, is, to examine the Powers of the *Plenipotentiaries.* See TREATY.

The Word is compounded of *plenus* full, and *Potentia* Power.

PLENITUDE, the Quality of a thing that is full; or that fills another.

In Phyſic, it is chiefly uſed for a Redundancy of Blood and Humours. See REPLETION.

Phyſicians reckon two kinds of *Plenitude.*—The one call'd *ad Vires*, when the Abundance of the Blood oppreſſes the Patient's Strength.

The other *ad Vaſa*, when it fills the Veſſels too much; ſwelling to a Degree of burſting. See PLETHORA.

PLENUM, in Phyſics, a Term uſed to ſignify that ſtate of things, wherein every Part of Space, or Extenſion, is ſuppoſed to be full of Matter.——In oppoſition to a *Vacuum*, which is a Space ſuppoſed devoid of all Matter. See VACUUM.

The *Carteſians* adhere firmly to the Doctrine of an abſolute *Plenum.*——This they do on this Principle, that the Eſſence of Matter conſiſts in Extenſion; from whence, indeed, the Conſequence is very eaſy, that wherever there is Space or Extenſion, there is Matter. See EXTENSION.

But this Principle we have ſhewn to be falſe; and therefore the Conſequence drawn from it falls to the Ground. See MATTER.

But that there is a real Vacuum in the Nature of things, is likewiſe demonſtrated by Arguments *a poſteriori*, under the Article VACUUM.

PLEONASM, PLEONASMUS, in Rhetoric, a Figure of Speech, whereby we make uſe of Words ſeemingly needleſs and ſuperfluous, in order to expreſs a Thought with the greater Force and Energy. Such is, *I ſaw it with my own Eyes*, &c. See FIGURE.

The *Pleonaſm* is call'd by the *Latins*, *Redundancy*. See REDUNDANCY.

PLEONASM, in Grammar, is uſually defined a Fault in Diſcourſe, wherein we ſay more than needs,——As, *he heard it with his Ears.*

M. *Vaugelas* will not allow the Phraſe, *I ſaw it with my own Eyes*, to be a *Pleonaſm*; inaſmuch as there are no ſuperfluous Words in it; none but what are neceſſary to give a ſtronger Aſſurance of the thing affirmed.——'Tis ſufficient that one of the Phraſes ſay ſomewhat more than the other, to avoid the Imputation of a *Pleonaſm*.

In effect, tho' we give the Name *Pleonaſm* to any thing that is not neceſſary, or that enters the Diſcourſe independently of the Senſe, or Conſtruction; yet there are frequently Words which in that View would be impertinent yet are uſed to good purpoſe to give a greater Force, or Grace to Diſcourſe.

He ſpoke with his Mouth, is a *Pleonaſm* in *Engliſh*; 'tis none in *Latin*; *Virgil* ſays, *ſic ore locutus.*——Some *French* Authors deny *unir enſemble*, to unite together, to be a *Pleonaſm.*

The Word is form'd from the *Greek* πλεοναςμὸς, *Super-Abundancy.*

PLEROTICKS, in Medicine, a kind of Remedies, otherwiſe call'd *Incarnatives.* See INCARNATIVE.

The Word is form'd from the *Greek* πληρόω, I fill.

PLETHORA, in Medicine, ſuch an Abundance of any good and laudable Humour as proves hurtful to the animal Functions. See HUMOUR, *&c.*

Plethora is chiefly underſtood of the Blood; tho' ſometimes of the other Humours. See BLOOD.

The *Plethora* is the Conſequence of a good Chylification, Sanguification, *&c.* attended with a too ſparing Diſcharge by Perſpiration, *&c.*

It is uſually deſcribed as either *ad vires*, or *ad vaſa.* See PLENITUDE.

The *Plethora* is chiefly produced in a Body whoſe Organs of Digeſtion are ſtrong, Blood-Veſſels lax, Diet full of good Juice, Temperament ſanguine, Mind at eaſe and indolent, at a middle Age, and in a moiſt Air.——It renders Heat and Motion intolerable; ſtretches the great Veſſels, and compreſſes the ſmaller. And hence Stiffneſs, and Heavineſs, and on the leaſt occaſion, Ruptures in the Veſſels, Suffocations, *&c.* See DISEASE.

Dr. *Freind* makes the Catamenia, or Menſes, the mere Reſult of a *Plethora*; and will have them only an Evacuation for Relief againſt the Quantity of the Blood, which he ſuppoſes to be natural to Women, from the Humidity of their Temperature, the Smallneſs of their Veſſels, *&c.* Hence a Coacervation in the Blood-Veſſels, of a Superfluity of Aliment remaining over and above what is excreted by the common Ways. See MENSES.

PLEVIN, in Law, a Warrant, or Aſſurance. See REPLEVIN, WARRANT, *&c.*

PLEURA, in Anatomy, a Membrane which lines the Breaſt and encloſes all the Parts contained therein; being of the ſame Figure and Extent with the Thorax itſelf, and of the ſame Subſtance with the Peritonæum. See THORAX.

'Tis very fine and thin, yet manifeſtly double; thickeſt about the Back, where it is faſtened to the Ligaments of the Vertebræ.——In the middle of the Thorax it is doubled, which Duplicature forms what we call the *Mediaſtinum*, which divides the Thorax longitudinally into two Parts. See MEDIASTINUM.

The Uſe of the *Pleura* is to defend the Inſide of the Thorax, and render it ſmooth, that the Lungs may not be hurt in their Motion. See LUNGS.

The Word is derived from the *Greek* πλευρὰ, *Side.* The *Latins* call it *Succingens.*

PLEURITIS, PLEURISY, in Medicine, a violent Pain in the Side, attended with an acute Fever, a Cough, and a Difficulty of breathing.

The *Pleuriſy* ariſes from an Inflammation of ſome Part of the Pleura, to which is frequently joined that of the exterior and ſuperficial Part of the Lungs. See INFLAMMATION and PLEURA.

It uſually ariſes upon cooling too haſtily, after violent Heat; as by drinking cold Water, lying open to the Air, *&c.*

This Inflammation ſeizes any part of the Integuments of the Thorax, *viz.* either the Pleura or Mediaſtinum; and therefore the pricking Pain may be felt in any Part of the Thorax: but the place it moſt ordinarily infeſts is the Side; ſometimes the right, ſometimes the left, ſometimes higher, ſometimes lower.

This makes what we call the *Pleuritis vera*, or *true or internal Pleuriſy*; in oppoſition to the *Notha*, or *ſpurious or external Pleuriſy*, which is a Pain in the Side, without any Fever, and frequently without any Cough; and is ſuppoſed to ariſe from a ſharp Seroſity lodg'd on the Pleura, or higher among the intercoſtal Muſcles.

The great Remedy in the true *Pleuriſy* is copious and repeated Bleeding. In Adults, *Sydenham* obſerves, it is ſeldom cured with leſs than the Loſs of forty Ounces of Blood.——By omitting Phlebotomy the Patient is frequently ſuffocated.

The *Pleuriſy* ſometimes ſucceeds another Fever; occaſion'd by a Precipitation of the Febrile Matter upon the Pleura.

When it riſes to an Impoſthume, it is call'd *Empyema.* See EMPYEMA.

When it happens in the Mediaſtinum, or Diaphragma, it is called *Paraphrenitis.* See PARAPHRENITIS.

Etmuller recommends Sudorifics in the *Pleuriſy*; and obſerves, that much more Regard is to be had to the Sputum that attends the Cough than the Urine.——*Baglivi* notes, that *Pleuriſies* are frequently occult; and gives this Method of diſcovering them.—Make the Patient lie on his right or left Side, and bid him breath ſtrongly and Cough: If he feel any Pain or Heavineſs after it, he's certainly pleuritick.—The ſame Author adds, that a hard Pulſe is a certain Attendant of the *Pleuriſy.*

Riverius gives us Inſtances of notable Cures perform'd herein by Cupping and Scarrification.

PLEXUS, in Anatomy, a Name common to ſeveral Parts in the Body, conſiſting of little Veſſels interwove in form of Net-work. See VESSEL.

The Nerves, in their Progreſs, form ſeveral *Plexus's*; eſpecially the Par Vagum, or eight Pair, the Intercoſtals, and the fifth. See NERVE.

The Par Vagum, at its Interſection with the intercoſtal Nerve, forms the *Plexus Ganglioformis* ſuperior and inferior. See GANGLIOFORMIS.——A Branch of this Nerve joining near the Heart, with others from the Intercoſtals, form the *Plexus Cardiacus ſuperior.* See CARDIACUS.——A little further it ſends off ſeveral Branches, which reuniting, form the *Plexus Pneumonicus.* See PNEUMONICUS,——In each Trunk of the Intercoſtal, before it arrives at the Thorax, are two *Plexus Ganglioformes*, call'd *Plexus Cervicales.*——When arrived in the Thorax, it receives three or four Twigs from the Vertebral Nerves, together with which it conſtitutes the *Plexus Intercoſtalis*, whence deſcending into the Abdomen, it forms that famous Piece of Network, call'd on the Right Side *Plexus Hepaticus*, and on the Left *Plexus Splenicus.*—From the Hepatic *Plexus* ariſe a Number of Branches, proceeding ſome to the Liver, others to the Panchreas, others to the Capſula of *Gliſſon*, and other larger ones to the Right Kidney.—The Splenic *Plexus* ſends out Branches to the left Part of the Ventricle and Panchreas, the Spleen, the left Atrabilary Capſula and left Kidney.——Laſtly, ſeveral Branches both from the Hepatic and Splenic *Plexus* paſſing along the Meſenteric Arteries, eſpecially the upper to which they ſerve as a kind of Cover, form the *Meſenteric Plexus*, which bears ſome Reſemblance to a Sun, from the Circumference whereof proceed ſeveral little Branches or Threads in manner of Rays, continued thence to the Inteſtines; tho' ſtill accompanying the Arteries. See MESENTERIC, *&c.*

PLEXUS *Choroides* is a wonderful Contexture of ſmall Arteries and Veins, and, as ſome ſay, Lymphaticks, in the Brain, on each ſide of the Thalami Nervorum Opticorum, and juſt over the Pineal Gland. See CHOROIDES and BRAIN.

It is ſometimes alſo called *Plexus Reticularis*, from its net-like Structure. See RETICULARIS.

PLICA, in Medicine, a Diſeaſe of the Hair, peculiar to *Poland*, and hence denominated *Polonica*; tho' there are Inſtances of it in *Hungary*, *Alſatia*, *Switzerland*, &c. See HAIR.

The *Plica* is a ſevere, malignant, and dangerous Diſeaſe, wherein the Hair of the Head is matted and glu'd together beyond all Poſſibility of being extricated; attended with a grievous Diſorder of all the Limbs of the Body; and before the Hair become complicated, a violent Pain; a Sweat uſually attending it.

An unſeaſonable cutting off of the Hair in this Caſe is dangerous; nor is there any proper and adequate Remedy for the Diſeaſe yet diſcover'd.

PLIGHT, in our old Law-Books, a Term which ſignifies ſometimes, the Eſtate with the Habitude and Quality of the Land; tho' ſometimes it extends to the Rent-Charge, and a Poſſibility of a Dower. *Cokes Inſt. fol.* 221.

PLINTH, in Architecture, a flat ſquare Member, in form of a Brick; whence its Name.

The Word comes from the *Greek* πλίνθος, *Brick.*

The *Plinth* is uſed as the Foot, or Foundation of Columns; being that flat ſquare Table, under the Mouldings of the Baſe and Pedeſtal, at the Bottom of the whole Order; ſeeming to have been originally intended to keep the

Bottom of the primitive wooden Pillars from rotting. See Baſe, Pedestal, Column, &c.

The *Plinth* is alſo called *Orlo.* See Orlo.

Vitruvius calls the *Tuſcan Abacus*, *Plinth*; from its reſembling a ſquare Brick. See Abacus.

Plinth of a Statue, &c. is a Baſe, or Stand, either flat, Round, or ſquare; ſerving to ſupport a Statue, &c. See Statue, &c.

Plinth *of a Wall*, is a Term uſed for two or three Rows of Bricks advancing out from the Wall; or, in the general, for any flat high Moulding, ſerving in a front Wall to mark the Floors; or to ſuſtain the Eaves of a Wall, and the Larmier of a Chimney. See Wall, &c.

PLOCE, in Rhetoric, a Figure whereby a Word is repeated, by way of Emphaſis; in ſuch manner as not only to expreſs the ſubject, but the Quality thereof.

Cruelty! yes, Cruelty beyond all Example. See Repetition.

PLOK-*Penin*, a Term uſed in the publick Sales at *Amſterdam*, or a little Sum given to the laſt Bidder.

The *Plok-Penin* is a kind of Earneſt, whereby 'tis ſignified, that the Commodity is adjudg'd to him. See Earnest.

The *Plok-Penin* differs according to the Quality of the Commodity, and the Price of the Lot.——Sometimes it is arbitrary, and depends on the Pleaſure of the Buyer; and ſometimes regulated by the Ordinances of the Burgomaſters.

For inſtance, the *Plok-Penins* of *French* Wines are fix'd at two Florins; thoſe of *Frontignac* at 20 Sols; thoſe of *Rheniſh* at two Florins; thoſe of Vinegar at 20 Sols, and thoſe of Brandy at 30.

There are alſo Merchandizes where there are no *Plok-Penins*; and others where 'tis double to what we have mentioned.

PLOT, or Plott, in Gardening. See Green-*Plot*, Graſs-*Plot*, &c.

Plott, in Dramatic Poetry, the Fable of a Tragedy or Comedy; or the Action repreſented therein. See Fable and Action.

Plot is more particularly uſed for the Knot or Intrigue which makes the Difficulty, and Embarraſs of a Piece. See Knot and Intrigue.

The unravelling puts an end to the *Plot*. See Unravelling.

Plott, in Surveying, the Plan, or Draught, of any Parcel of Ground, *e. gr.* a Field, Farm, or Manor, ſurvey'd with an Inſtrument, and laid down in the proper Figure and Dimenſions. See Plotting.

PLOTTING, among Surveyors, the Art of deſcribing, or laying down on Paper, &c. the ſeveral Angles and Lines of a Tract of Ground ſurvey'd by a Theodolite, or the like Inſtrument, and a Chain. See Surveying.

In ſurveying with the Plain-Table, the *Plotting* is ſaved; the ſeveral Angles and Diſtances being laid down on the Spot as faſt as they are taken. See Plain-*Table*.

But in working with the Theodolite, Semicircle, or Circumferentor, the Angles are taken in Degrees; and the Diſtances in Chains and Links. See Theodolite, Circumferentor, &c.

So that there remains an After-Operation, to reduce thoſe Numbers into Lines; and ſo to form a Draught, Plan, or Map. See Map.——This Operation is call'd *Plotting*.

Plotting, then, is perform'd by means of two Inſtruments, the Protractor, and *Plotting*-Scale.—By the firſt, the ſeveral Angles obſerved in the Field with a Theodolite, or the like, and entred down in Degrees in the Field-Book, are protracted on Paper in their juſt Quantity. See Protractor.

By the latter, the ſeveral Diſtances meaſured with the Chain, and entered down, in like manner in the Field-Book, are laid down in their juſt Proportion. See Plotting-*Scale*.

Under thoſe two Articles, are found, ſeverally, the Uſe of thoſe reſpective Inſtruments in the laying of Angles and Diſtances: We ſhall here give their Uſe conjointly, in the *Plotting* of a Field, ſurvey'd either with the Circumferentor, or Theodolite.

Method of Plotting, *from the Circumferentor.*

Suppoſe an Incloſure, *e. gr.* ABCDEFGHK (*Tab. Surveying Fig.*21.) to have been ſurvey'd: And the ſeveral Angles, as taken by a Circumferentor in going round the Field, and the Diſtances as meaſured by a Chain, to be found entered in the Field-Book, as in the following Table:

	Deg.	*Min.*	*Cha.*	*Link.*		*Deg.*	*Min.*	*Cha.*	*Link.*
A	191	00	10	75	F	324	30	7	54
B	297	00	6	83	G	98	30	7	54
C	216	30	7	82	H	71	00	7	78
D	325	00	6	96	K	161	30	8	22
E	12	00	9	71					

1° On a Paper of the proper Dimenſions, as LMNO, (*Fig.* 31.) draw a Number of parallel and equidiſtant Lines, repreſenting Meridians, expreſs'd in dotted Lines.——Their Uſe is, to direct the Poſition of the Protractor; the Diameter whereof muſt always be laid either upon one of them, or parallel thereto; the Semicircular Limb downwards for Angles greater than 180°, and upwards for thoſe leſs than 180°.

The Paper thus prepared; aſſume a Point on ſome Meridian, as A, whereon lay the Centre of the Protractor, and the Diameter along the Line.—Conſult the Field-Book for the firſt Angle, *i. e.* for the Degree cut by the Needle at A, which the Table gives you, 191°.

Now, ſince 191° is more than a Semicircle or 180°, the Semicircle of the Protractor is to be laid downwards; where, keeping it to the Point, with a *Protracting-Pin*, make a Mark againſt 191; thro' which Mark, from A, draw an indefinite Line A*b*.

The firſt Angle thus protracted, again conſult the Book, for the length of the firſt Line A B.—This you find 10 Chains 75 Links.—From a convenient Scale, therefore, on the *Plotting Scale*, take the Extent of 10 Chains, 75 Links, between the Compaſſes; and ſetting one Point in A, mark where the other falls in the Line A*b*, which ſuppoſe in B: draw therefore the full Line A B, for the firſt ſide of the Incloſure.

Proceed then to the ſecond Angle: and laying the Center of the Protractor on the Point B, with the Diameter as before directed, make a Mark, as *c*, againſt 297°, the Degrees cut at B; and draw the indefinite Line B*c*.—On this Line, from the *Plotting Scale*, as before, ſet off the length of your ſecond Line, *viz.* 6 Chains 83 Links; which extending from B to the Point C, draw the Line B C; for the ſecond Side.

Proceed now to the third Angle or Station: Lay then the Center of the Protractor, as before, on the Point C, make a Mark as *d* againſt the Number of Degrees cut at C, *viz.* 216. draw the indefinite Line C*d*, and thereon ſet off the third diſtance, *viz.* 7 Chains 82 Links; which terminating *e. gr.* at D, draw the full Line C D, for the third Side.

Proceed now to the fourth Angle, D; and laying the Center of the Protractor, over the Point D, againſt 325° the Degree cut by the Needle, make a Mark *e*; draw the dry Line D*e*, and thereon ſet off the Diſtance 6 Chains 96 Links, which terminating in E draw DE for the fourth Line: And proceed to the fifth Angle, *viz.* E.

Here the Degrees cut by the Needle, being 10° 24′, (which is leſs than a Semicircle) the Center of the Protractor muſt be laid on the Point E, and the Diameter on the Meridian, with the ſemicircular Limb turn'd upwards.——In this ſituation make a Mark, as before, againſt the Number of Degrees, *viz.* 12° 24′, cut by the Needle at E; draw the dry Line E*f*, on which ſet off the fifth Diſtance, *viz.* 9 Chains, 7 Links, which extending from E to F draw the full Line FF for the fifth ſide of the Incloſure.

After the ſame manner proceeding orderly to the Angles F, G, H, and K; placing the Protractor, making Marks, againſt the reſpective Degrees, drawing indefinite dry Lines, and ſetting off the reſpective Diſtances, as above, you'll have the *Plott* of the whole Incloſure ABC, &c.

Method of Plotting *from the Theodolite.*

It muſt be obſerv'd, that in this Proceſs, the ſtationary Lines, *i. e.* the Lines wherein the Circumferentor is placed to take the Angles, and wherein the Chain is run to meaſure the Diſtances, are, properly, the Lines here plotted.——When, therefore, in ſurveying, the ſtationary Lines are at any diſtance from the Fence or Boundaries of the Field, &c. Off-ſets are taken, *i. e.* the diſtance of the Fence from the ſtationary Line is meaſured at each Station; and even at intermediate Places, if there prove any conſiderable Bends in the Fence.

In *Plotting*, therefore, the ſtationary Lines being laid down, as above; the Off-ſets muſt be laid down from them, *i. e.* Perpendiculars of the proper Lengths let fall at the proper Places from the ſtationary Lines. The Extremes of which Perpendiculars being connected by Lines, give the *Plott* deſired.

If inſtead of going round the Field, the Angles and Diſtances have been all taken from one Station; the Proceſs of *Plotting* is obvious, from the Example above: All here required, being to protract, after the manner already deſcribed, the ſeveral Angles, and Diſtances, taken from the ſame ſtationary Point in the Field; from the ſame Point or Center on the Paper.—The Extremities of the Lines thus determined, being thus connected by Lines; will give the *Plott* required.

If the Field have been ſurvey'd from two Stations; the ſtationary Line, to be firſt plotted, as above; then, the Angles and Diſtances taken from each, to be laid down from each reſpectively.

The Method of *Plotting*, where the Angles are taken by the Theodolite, *i. e.* by *Back-ſight* and *Fore-ſight*, (as 'tis call'd, ſee BACKSIGHT, *&c.*) is ſomewhat different.—To prepare the Angles for *plotting*, the Quantity of each muſt firſt be found; by ſubtracting the Degrees of the Foreſight and Backſight from each other: The Remainder is the Angle to be protracted. See THEODOLITE.

The Uſe of parallel Lines is here excluded, and inſtead of laying the Protractor conſtantly on, or parallel to, Meridians; its Direction is varied at every Angle.——The Practice is thus: Suppoſe the former Incloſure to have been ſurvey'd with the Theodolite, after the manner of Backſight and Foreſight; and ſuppoſe the Quantity of each Angle to be found by Subtraction. An indefinite Line is drawn at random as AK *Fig.* 21; and on this the meaſured Diſtance, *e, gr.* 8 Chains, 22 Links, ſet off, as in the former Example If now the Quantity of the Angle A have been found 140°; the Diameter of the Protractor is to be laid on the Line AK, with the Center over A, and againſt the Number of Degrees, *viz.* 140, a Mark made, an indeterminate dry Line drawn thro' it, and the Diſtance of the Line AB laid down from the Scale thereupon.

Thus we gain the Point B; upon which laying the Center of the Protractor, the Diameter, along the Line AB; the Angle B is protracted, by making a Mark againſt its Number of Degrees, drawing a dry Line and ſetting off the Diſtance BC as before.

Then proceed to C; laying the Diameter of the Protractor on BC, the Center on C protracts the Angle C, and draw the Line CD: Thus proceeding, orderly, to all the Angles and Sides, you'll have the Plot of the whole Incloſure ABC, *&c.* as before.

PLOTTING *Scale*, a Mathematical Inſtrument uſually of Wood, ſometimes of Braſs, or other Matter; and either a Foot, or half a Foot long. See SCALE.

It is denominated from its Uſe in plotting of Grounds, *&c.* See PLOTTING.

On one ſide of the Inſtrument (repreſented *Tab. Surveying, Fig.* 32.) are ſeven ſeveral Scales, or Lines, divided into equal Parts.——The firſt Diviſion of the firſt Scale is ſubdivided into ten equal Parts, to which is prefix'd the Number 10, ſignifying that 10 of thoſe Subdiviſions make an Inch; or that the Diviſions of that Scale are Decimals of Inches.

The firſt Diviſion of the ſecond Scale is likewiſe ſubdivided into 10, to which is prefix'd the Number 16, denoting that 16 of thoſe Subdiviſions make an Inch.—The firſt Diviſion of the third Scale is ſubdivided in like manner into 10, to which are prefix'd the Number 20.——To that of the fourth Scale is prefix'd the Number 24; to that of the fifth 32; that of the ſixth 40; that of the ſeventh 48; denoting the Number of Subdiviſions equal to an Inch, in each, reſpectively.

The two laſt Scales are broke off before the end, to give room for two Lines of Chords mark'd by the Letters *cc.* See CHORD.

On the back ſide of the Inſtrument is a Diagonal Scale, the firſt of whoſe Diviſions, which is an Inch long if the Scale be a Foot, and half an Inch, if half a Foot, is ſubdivided, diagonally, into 100 equal Parts.——At the other end of the Scale is another Diagonal Subdiviſion, of half the length of the former, into the ſame Number of Parts, *viz.* 100. See DIAGONAL.

Next the Scales, is a Line divided into hundredth Parts of a Foot, number'd 10, 20, 30, *&c.* and a Line of Inches ſubdivided into tenth Parts mark'd 1, 2, 3, *&c.*

Uſe of the PLOTTING *Scale.*

1. *Any Diſtance being meaſured with the Chain, to lay it down on Paper.*——Suppoſe the Diſtance to be 6 Chains 50 Links. Draw an indefinite Line; ſet one foot of the Compaſſes at Figure 6 on the Scale, *e. g.* the Scale of 20 in an Inch, and extend the other to 5 of the Subdiviſions, for the 50 Links: This Diſtance being transferr'd to the Line, will exhibit the 6 Chains, 50 Links, required.

If 'tis deſired to have 6 Chains 50 Links take up more or leſs Space, take 'em off from a greater or leſſer Scale, *i. e.* from a Scale that has more or fewer Diviſions in an Inch.

To find the Chains and Links contain'd in a right Line, e. gr. *that juſt drawn, according to any Scale,* e. gr. that of 20 in an Inch.—Take the Length of the Line in the Compaſſes; and applying it to the given Scale, you'll find it extend from the Number 6 of the great Diviſions, to 5 of the ſmall ones: hence the given Line contains 6 Chains 50 Links.

PLOUGH, or PLOW, in Agriculture, a popular Machine for the breaking up of Ground; conſiſting of a Train or Carriage, with two large Irons; the one pointed the other edg'd; ſerving to cut and open the Ground, and draw Furrows therein. See AGRICULTURE, PLOUGHING, *&c.*

The Parts of the Plough are, the *Plough-Beam*, the *Handle*, *Tail*, *Stilts*, *Hales* or *Staves*, *Neck* or *Share-Beam*, *Earth-board*, *Mould-board*, *Breaſt-board*, *Furrow-board*, *Shield-board*, &c. The *Sheath*, *Share-Iron*, *Coulter*, *Plough-Pin* and *Collar-Links*, *Plough-Pillow* and *Bolſter*, and ſometimes *Wheels*.

The Structure and Contrivance of the *Plough* is various in various Kinds of Grounds: A particular Deſcription of all would be endleſs.—The moſt uſual are

1° The *double wheel'd Plough* uſed throughout *Hertfordſhire*, &c.——This is apparently one of the beſt, ſtrongeſt, and of eaſieſt Draught, of any; and ſuits all kinds of Lands except miry Clays in Winter; which are apt to clog the Wheels, which are about 18 or 20 Inches high; and the Furrow-Wheel ſometimes larger than the other.

2° The *Lincolnſhire Plough* is ſingular in its Shape, and very good for Marſh or Fenny Lands, ſubject to Weeds and Sedges, but free from Stones; by reaſon of its Coulter and the Largeneſs of its Share, which is often a Foot broad and very ſharp.

3° The *Suſſex ſingle Wheel Plough* is of a clumſy Make, very wide in the Breach; ſo that the Draught of it muſt be very hard.——It is chiefly remarkable for its Shape.

4° The *Caxton* or *Trenching Plough*, invented to cut Drains about *Caxton* in *Cambridgeſhire*, in ſtiff miry Clay-Grounds.——It is larger than ordinary, and has two Coulters one before the other; which bending inwards cut each Side of the Trench.—The Mould-board is three times the uſual Length, to caſt the Turf a great way off from the Trench.

It cuts a Trench a Foot wide at bottom, a Foot and half at top, and a Foot deep; and is drawn with twenty Horſes.

5° The *Dray-Plough* is the moſt common.——It is made without either Wheel or Foot; of an eaſy Draught; beſt in Winter, for miry Clays, where the Land is ſoft.

6° The *Spaniſh Plough* varies much in its make from our common *Ploughs*. 'Tis a kind of Semicircle, pitch'd on one End, with the convex Side turn'd to the Plowman, and the concave Side (a little inclined) to the Horſe. Its Tail is in a right Line with the Share.

With this *Plough* and one Horſe the *Spaniards* plough two or three Acres of their light Ground in a Day.

7° The *Colcheſter Plough* is a fine light Wheel *Plough*, with which two Horſes will cut up two Acres of their light Land in a Day.——It is peculiar for its Iron Earth-board made rounding, which turns the Turf better than any other *Plough* yet invented.

8° *One Wheel Plough* may be uſed in almoſt any kind of Ground; being lighter and nimbler than other Wheel-*Ploughs*.

9° The *Double Plough*. In this, there is one *Plough* fix'd to the ſide of another; ſo that by means of four Horſes and two Men a double Furrow is plough'd, the one by the ſide of the other.

10° Add to theſe another kind of *Double Plough*, whereby two Furrows are plough'd at once, one under another, by which the Earth is ſtirr'd up 12 or 14 Inches Depth, which is of great Benefit.

PLOUGH, among Bookbinders, is a Tool wherewith they cut the Leaves of Books ſmooth. See *Book*-BINDING.

PLOUGH-*Monday*, the next Monday after *Twelfth-day*, when the Plough-men in the North Country draw a *Plough* from Door to Door, and beg Plough-Money to drink.

PLOUGHING, one of the principal Operations in Agriculture, perform'd with the Plough. See PLOUGH.

Ploughing is principally either that of Layes, or of Fallows.——*Ploughing of Layes* is the firſt cutting up of Graſs-Ground for Corn; which is uſually done in *January*, when the Earth is wet and the Turf tough, ſo as to hold turning without breaking; in which the Perfection of this kind of ploughing conſiſts.

Ploughing of Fallows, call'd alſo *fallowing*, is a Preparing of Land by *ploughing*, long before it be *plough'd* for Seed.—This is a conſiderable Benefit to Lands, few of which will bear above two Crops ſucceſſively without ſuch Reſpite. Hence Landlords uſe to bind their Tenants to it once in 3 Years.

When this is done twice, 'tis call'd *twifallowing*, when thrice *trifallowing*, &c.

The firſt is as ſoon as the Husbandman has done ſowing his Corn; and this is to be very ſhallow, well turn'd, and clapp'd cloſe together.—The ſecond is in *June*; when they go the full Depth.—The third, about the beginning of *Auguſt*.—If it riſe full of Clods they harrow it down; but ſoon *ſtrick Size*, or plough it up again into Ridges.

In *Staffordſhire*, beſide the three Summer Fallowings, they uſually give their Land a Winter fallowing. *Pliny* commends the *ploughing* of Lands four times; and ſo does *Virgil*:

> *Illa demum ſeges votis reſpondet avari*
> *Agricolæ bis quæ ſolem, bis frigora ſenſit.*
>
> Georg. lib. 1.

This is an antient Piece of Husbandry, *Xenophon*, *Pindar*, and *Virgil* recommend it: witneſs thoſe Verſes of *Virgil*.

Alternis idem tonſas, ceſſare Novaleis,
Et ſegnem patiere ſitu dureſcere campum.
Georg. lib. 1.

PLOW, or **Plow**, in Navigation, an ancient Mathematical Inſtrument, made of Box, or Pear-tree, uſed to take the Height of the Sun or Stars, in order to find the Latitude. See HEIGHT, LATITUDE, *&c.*

It admits of the Degrees to be very large, and is much eſteemed by many Artiſts; tho' now generally diſuſed among us. See ALTITUDE.

Plow-*Land*, or **Plough-*Land***. See CARUCATA *Terræ*.

Plow-*Alms*, a Duty anciently of a Penny, paid to the Church for every *Plough-Land*, or Hide of Land. See HIDE.

De qualibet Carucata juncta inter Paſcha & Pentechoſtem unum denarium, qui dicitur Plou-Almes. *Monaſt. Ang.*

PLUG, a large wooden Peg wherewith to ſtop the Bottom of a Ciſtern, Caſk, Pipe, or the like.

PLUMAGE, the Feathers, or Covering of Birds; *For the Mechaniſm*, &c. whereof, ſee FEATHER.

In Falconry, *Plumage* is particularly underſtood of the Feathers under a Hawk's Wing. See HAWK and HAWKING.

The Falconers alſo give their Hawks Parcels of ſmall Feathers to make them caſt; and theſe they call *Plumage*. See CASTING.

PLUMB, in Matters of Spicery. See CURRANTS and RAISINS.

PLUMB-*Line*, a Term among Artificers for a *Perpendicular Line*. See PERPENDICULAR.

It is thus call'd becauſe uſually deſcribed by means of a Plummet. See PLUMMET.

PLUMBAGO, among the Ancients, was the Oar of the Black-Lead, uſed in making Pencils for deſigning, *&c.* See BLACK-LEAD.

Pomet adds, that *Plumbago* was the Sea-Lead of the Ancients; who, he notes, took that Drug for a Production of the Sea, not a Mineral, as it really is; but this is ſcarce credible.

PLUMBERY, the Art of caſting, preparing, and working Lead; and of uſing it in Buildings, *&c.* See LEAD.

The Word is form'd of the *Latin Plumbum*, Lead.

The Lead uſed in *Plumbery* is furniſh'd from the Lead-Works in large Ingots, or Blocks, call'd Pigs of Lead, ordinarily weighing about an hundred Pounds a-piece.

As this Lead melts very eaſily, 'tis eaſy to caſt Figures hereof, of any kind, by running it into Moulds of Braſs, Clay, Plaſter, *&c.* See FOUNDERY and STATUE.

But the chief Article in *Plumbery*, is the Sheets and Pipes of Lead.—'Tis theſe make the Baſis of the Plumbers Work in Building; the Proceſs of theſe, therefore, we ſhall give a Deſcription of:

Method of caſting large Sheets of Lead.

The Lead deſtined for this uſe is melted in a large Cauldron or Furnace, uſually built with free-Stone and Earth, fortified on the out-ſide with a Maſſive of Shards and Plaſter. At the bottom hereof is a Place ſunk lower than the reſt, wherein is diſpoſed an Iron Pot, or Peel, to receive what may remain of the Metal after the Sheet is run. The Furnace is ſo rais'd above the Area of the Floor as that the Iron Pot juſt reſts thereon.

To Uſe the Furnace they heat it with Wood laid within it; that done they throw in the Lead, pell-mell with the burning Coals, to melt.—Near the Furnace is the Table, or Mould, whereon the Lead is to be caſt.——It conſiſts of large pieces of Wood, well jointed, and bound with Bars of Iron at the ends. Around it runs a Frame, conſiſting of a Ledge or Border of Wood two or three Inches thick, and one or two high from the Table. The ordinary Width of the Tables is from three to four Foot; and their Length from 18 to 20 Foot.

The Table is cover'd with fine Sand; prepared, by moiſtening it with a Watering-Pot, then working it with a Stick; and at laſt, to render it ſmooth and even, beating it flat with a Mallet, and planing it with a Ruler or Slip of Braſs.

Over the Table is a kind of Rake of Wood, which bears and plays on the Edges of the Frame by means of a Notch cut in either End thereof; and ſo placed, as that between it and the Sand is a Space proportionable to the intended Thickneſs of the Sheet.——The Uſe of this Rake is to drive the Matter, while yet liquid, to the Extremity of the Mould.

A-top of the Table is an Iron Pan, Peel, or Shovel, bearing, before, on the Edge of the Table itſelf, and behind on a Treſtle ſomewhat lower than the Table.——Its Uſe is in conveying the Metal into the Mould; and the Deſign of its oblique Diſpoſition is, that it may by that means be able to retain the Metal, and keep it from running off at the fore-ſide, where it has no Ledge.——Some of theſe Peels are big enough to hold fifteen or ſixteen hundred Weight of Lead, and even more.

Things being thus diſpoſed, with a large Iron Ladle they take out the melted Lead, Coals and all, out of the Furnace; and with this, mix'd as it is, fill the Iron Peel.—When full, they take out the Coals, and clear the Lead with another Iron Spoon pierced after the manner of a Scummer.

This done, they hoiſt up the lower Part of the Peel by its Handle; upon which the liquid Matter running off and ſpreading it ſelf on the Mould, the Plumber conducts and drives it to the Extremity of the Table by means of the Rake, which the Workman paſſes along the Ledges, and thus renders the Sheet of an equal Thickneſs.—The Sheets thus caſt there remains nothing but to edge them, *i. e.* to take off the two Sides with a Plane, in order to render them ſmooth and ſtrait.

Method of caſting thin Sheets of Lead.

The Table or Mould here uſed is of a Length and Breadth at diſcretion, only ledg'd on one ſide.—Inſtead of Sand they cover it with a Piece of woolen Stuff, nailed down at the two Ends to keep it tight; and over this lay a very fine linnen Cloth.—The Feet of the Table are uneven, ſo that it does not ſtand horizontal, but moderately inclined.

Great Regard is had to the Lead while melting, that it have the juſt Degree of Heat, ſo as it may run well, yet not burn the Linnen.—This they judge of by a Piece of Paper; for if the Paper take fire in the liquid Lead, 'tis too hot, and if it be not ſhrunk and ſcorch'd a little, 'tis not hot enough.

Being then in its juſt degree, they have a Rake, but different from that deſcribed in the former Article; as ſerving both for Peel and Rake, to contain, and to conduct the liquid Lead.—'Tis in effect a wooden Box without any bottom, only cloſed on three Sides. It is pretty high behind, but the two ſides, like two acute Angles, ſtill diminiſh to the tip, from the Place where they are joined to the third or middle Piece where they are of the ſame Height therewith, *viz.* 7 or 8 Inches high.—The Width of the middle makes that of the Rake, which again makes that of the Sheet to be caſt.

The Rake is placed a-top of the Table, which is, before, cover'd in that Part, with a Paſte-board that ſerves as a bottom to the Box, and prevents the Linnen from being burnt while the liquid Lead is pouring in.—The Rake is ſo diſpoſed on the Table, as that the higheſt Part looks to the lower end of the Table, and the two ſloping Sides to the higher End.

The Rake is now fill'd with Lead according to the Quantity to be uſed; which done, two Men, one at each ſide the Table, let the Rake deſcend down the Table, or elſe draw it down with a Velocity greater or leſs, as the Sheet is to be more or leſs thick; the Thickneſs of the Sheet ſtill depending on the Promptitude wherewith the Rake ſlides down the Inclining Mold.

Theſe fine ſmooth Sheets of Lead are ſometimes uſed between the Joints of large Stones in great Buildings, *&c.*

Method of making Pipes without ſoldering.

To make theſe Pipes they have a kind of Furnace, conſiſting of a large Iron Furnace or Cauldron, ſupported on a pretty high Iron Stand. The Cauldron is encompaſſed with a Maſſive of Bricks and Loam; only leaving a Mouth or Paſſage for the Conveyance of Wood underneath, and lighting the Fire; and another little Aperture behind, to ſerve as a Vent-hole.

In this Furnace they melt the Lead, after firſt heating it with a Fire underneath: To forward the Fuſion they put in burning Faggots along with the Metal.—The Metal is skimmed and laden off with the Inſtruments mentioned above.

Near the Furnace is a Bench, furniſh'd at one End with a little Mill, with Arms or Levers to turn it withal.—A ſtrong Girt, arm'd with an Iron Hook at one Extremity, is faſtened by the other to the Axis of the Mill, around which it turns when in Motion. On this Bench the Moulds of the Pipes are placed horizontally; and the Mill and the Girt ſerve to draw out the Iron Core after the Pipe is caſt.

The Moulds of theſe Tubes are of Braſs, and conſiſt of two Pieces which open and ſhut by means of Hooks and Hinges their inner Calliber, or Diameter, is according to the Size of the Pipe to be made; their Length is uſually two Foot and a half.

In the middle is placed a Core, or round Piece of Braſs or Iron, ſomewhat longer than the Mould, and of the Thickneſs of the Inner Diameter of the Pipe.—This Core is paſs'd thro' two Copper Rundles, one at each end of the Mould, which they ſerve to cloſe, and to theſe Rundles is join'd a little Copper Tube about two Inches long, and of the Thickneſs the leaden Pipe is intended to be of.—By means of theſe Tubes the Core is retained In the middle of the Cavity of the Mould.

The Core being in the Mould, with the Rundles at its two Ends, and the Lead melted in the Furnace; they take it up in a Ladle and pour it into the Mould by a little Aperture at one End, made in form of a Funnel.

When the Mould is full, and the Metal cold, they paſs the Hook of the Girt into a Hole at the End of the Core, and turning the Mill with the Hand, draw out the Core.—They then open the Mould, and take out the Pipe.

If they deſire to have the Pipe lengthened; they put one End thereof in the lower End of the Mould, and paſs the End of the Core into it; then ſhut the Mould again and apply its Rundle and Tube as before, the Pipe juſt caſt ſerving for Rundles, *&c.* at the other End.

Things thus replaced, they pour in freſh Metal into the Mould; thus repeating the Operation till they have got a Pipe of the Length required.

Pipes made of Sheet-Lead ſoldered.

The *Plumbers* have wooden Cylinders, or Rollers, of the Length and Thickneſs required; and on theſe they form their Pipes, by wrapping the Sheet around 'em; ſoldering up the Edges all along, thus——After grating the Lead well with a Grater, they rub Roſin over the Part thus grated; then pour on it ſome Solder melted in a Ladle, or elſe melt it with a hot ſoldering Iron, ſmeering thoſe Parts where they would not have the Solder catch with Chalk, or the Soil of the Hand.

The Solder which the *Plumbers* uſe, is a Mixture of two Pounds of Lead with one of Tin. See SOLDER, ſee alſo TIN and TINNING.

PLUMBUM. See LEAD.

PLUMBUM-*uſtum*, among Chymiſts, a Compoſition made of two Parts of Lead, and one Part of Sulphur. See LEAD.

PLUME *Allum, Alumen Plumoſum.* See ALUM.

PLUMES, a Set or Bunch of Oſtrich-Feathers, pull'd out of the Tail and Wings, and made up to ſerve for Ornament in Funerals, *&c.*

PLUME, in Falconry, is the general Colour or Mixture of the Feathers of a Hawk; which ſhews her Conſtitution. See HAWK.

When a Hawk ſeizes her Prey and diſmantles it of its Feathers, ſhe is ſaid *to plume it.*

The Word is form'd of the Latin *Pluma*, Feather.

PLUME, or **PLUMULE,** in Botany, a little Member of the Grain, or Seed of a Plant; being that which in the Growth of the Plant becomes the Stem or Trunk thereof. See SEED and STEM.

The *Plume* is incloſed in a Cavity form'd in the Lobes on Purpoſe for its Reception.——'Tis almoſt of the ſame Colour with the *Radicle*, or little Root, on the Baſis whereof it is ſuſtain'd. See RADICLE.

The *Plume* is the firſt Part that appears out of the Earth; as, in effect, 'tis the Part that firſt appears out of the Membrane or Cover of the Seed; there being a Hole over againſt it in the Membrane, thro' which it makes its Eſcape.

'Tis the Appearance of the *Plume* without the Cavity of the Grain, that makes what we call the *Bud* or *Germ* of a Plant. See GERMINATION; ſee alſo PLANT.

The *Plume* is ſo call'd, becauſe conſiſting of ſeveral Pieces bound together in manner of a Feather.——In Corn, the *Plume* is that which after the Radicle is ſhot forth, ſhoots out towards the ſmaller End of the Seed; whence ſome call it the *Acroſpire.* See ACROSPIRE, MALT, *&c.*

PLUMMET, PLUMB-*Rule*, or **PLUMB-*Line*,** an Inſtrument uſed by Maſons, Carpenters, *&c.* to draw Perpendiculars withal; in order to judge whether Walls, *&c.* be upright, Planes, horizontal, and the like.

It is thus call'd from a Piece of Lead, *Plumbum*, faſtened to the End of a Thread or Cord, which uſually conſtitutes this Inſtrument.

Sometimes the String deſcends along a Ruler of Wood or Metal rais'd perpendicularly on another; in which Caſe it becomes a Level. See LEVEL.

At Sea the *Plummet* is uſed by the Pilot to ſound the Depth of the Sea. See SOUNDING.

PLURAL, in Grammar, a particular Inflexion of Nouns, and Verbs, whereby they come to expreſs a Plurality or Number of things. See NUMBER.

The *Latins*, *Engliſh*, &c. have only two Numbers, *Singular* and *Plural*; the *Greeks* and *Hebrews* have three, *Singular*, *Dual*, and *Plural.* See DUAL.

In *Latin*, &c. both Nouns and Verbs have uſually diſtinct Terminations to their different Numbers; in *Engliſh*, Nouns Subſtantives uſually become *plural* by the Addition of an *s* or *es* to the Singular. See SINGULAR.

Nouns Adjectives are the ſame in both Numbers; and in Verbs, the Number is diſtinguiſh'd by that of the Pronouns. See NUMBER, ADJECTIVE, VERB, PRONOUN, *&c.*

PLURALITY, a diſcrete Quantity, conſiſting of two, or a greater Number.

A *Plurality of Worlds* is a thing which Mr. *Huygens* has endeavoured to prove in his *Coſmotheoros.*—The ſame is likewiſe contended for in a very pretty Treatiſe of M. *Fontenelle*, under that Title.

See the chief Arguments for a *Plurality* of Worlds, under the Articles MOON, PLANET, and EARTH.

The greateſt Abſurdity in the Pagan Theology, is, the *Plurality of Gods.* See GOD.

The *Plurality of Benefices* is a thing tolerated in the Church, but never approved of. See BENEFICE.

'Twas the Smallneſs of ſome Benefices that firſt gave occaſion to *Pluralities*; for an Eccleſiaſtic not being able to ſubſiſt on a ſingle one, was allowed to hold two: at length the Number increaſed without Bounds.

The Abuſe was endeavoured to be remedied at the Council of *Lateran* under *Alexander* III. and *Innocent* III. when the holding more than one Benefice was expreſsly forbid by a Canon; but the ſame Canon granting the Pope a Power to diſpenſe with it in Favour of Perſons of diſtinguiſh'd Merit, there were ſo many found a Title to this Merit, that the Prohibition became uſeleſs.

In *Germany*, the Pope grants Diſpenſations for poſſeſſing a *Plurality of Benefices*, on Pretence that the Eccleſiaſtic Princes there, need large Revenues to bear up againſt the Proteſtant Princes.

PLUS, in *Algebra*, a Term commonly uſed for *majus*, more.

Its Character is $+$. See CHARACTER.

Thus $4 + 10 = 14$ is read, four, *plus*, or more, 10, is equal to 14. See QUANTITY; ſee alſo ADDITION, *&c.*

PLUSH, in Commerce, *&c.* a Kind of Stuff, having a Sort of Velvet Nap or Shag on one Side; compoſed of a Woof of a ſingle woolen Thread, and a double Warp, the one Wool, of two Threads twiſted, the other Goats-hair.

Pluſh is manufactured like Velvet, on a Loom with three three Steps or Treddles.——Two of theſe ſeparate and depreſs the woolen Warp, and the third raiſes the Hair-Warp; upon which the Workman throwing the Shuttle, paſſes the Woof between the woolen and Hair-Warp; and, afterwards, laying a braſs Broach under that of the Hair, he cuts it thereon with a Knife deſtined for that Uſe, conducting the Knife on the Broach which is made a little hollow, all its Length; and thus gives the Surface of the *Pluſh* an Appearance of Velvet. See VELVET.

Some aſcribe the Invention of *Pluſh* to the *Engliſh*; others ſay it was firſt made in *Holland*, and particularly at *Haerlem.*——Be this as it will; 'tis certain, the *French* are the People who make the moſt of it; there being ſeveral very conſiderable *Pluſh Manufactures* at *Amiens*, *Abbeville*, and *Compiegne.*

There are other Kinds of *Pluſh*, all of Silk; ſome of which have a pretty long Nap on one Side, ſome on both.

PLUSH, among Botaniſts, a Name given to the middle of Roſes, Anemonies, *&c.* call'd *Thrum*, or *Thrummy Heads*; by others, *hairy Heads*, *Buttons*, *Boſs*, *Tuſt*, or *Wort.*

PLUVIAL, PLUVIALE, anciently ſignified a Hood, or Cloak, which Eccleſiaſticks, chiefly Religious, wore in the Country; to ſhelter themſelves from the Rain: by the *Latins* call'd *Pluvialis Lacuna.*

The Word is now uſed in the *Romiſh* Church, for a large Hood wore by the Chantor and Sub-Deacon, at Maſs and Veſpers, *&c.*——It covers the whole Man, and is fixed before with two Claſps.

PLUVIUS, in Antiquity, an Attribute of *Jupiter*; implying him the Author of Rain: *q. d.* he that ſends Rain. See RAIN.

Among the Baſſo Relievo's of the *Anthonine* Column, in the Place where the Miracle of the Thundering Legion is repreſented; we ſee a flying Man in the Air, his Arms ſpread out, and with a very long Beard, which ſeems to diſſolve into Rain.——The Learned take this to be a Repreſentation of *Jupiter Pluvius.* See FULMINATING *Legion.*

PNEUMATICKS, PNEUMATICE, call'd alſo PNEUMATOLOGY and PNEUMATOSOPHY, the Doctrine and Contemplation of Spirits and Spiritual Subſtances. See SPIRIT.

The Word is form'd of the *Greek* πνεῦμα, Spiritus, *Breath*; whence, from the different Acceptations of that Word, either as an incorporeal Subſtance, or as Air, there ariſe two ſorts of *Pneumaticks.*

PNEUMATICKS, in the Schools, is frequently uſed for the Doctrine of Spirits; as GOD, Angels, the human Mind. See SPIRIT, GOD, ANGEL, SOUL, *&c.*

Tab PNEUMATICKS

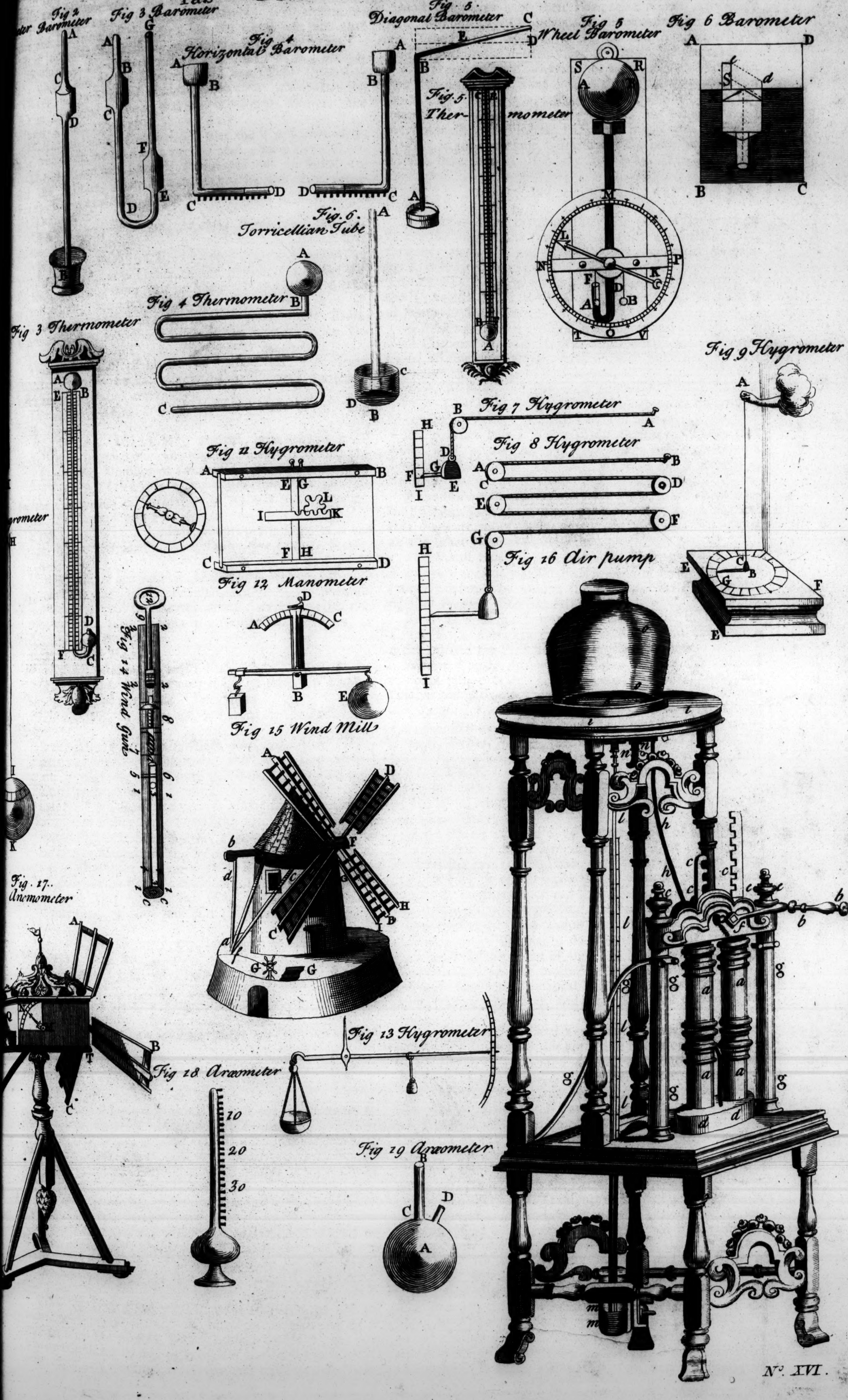


Fig 2
ter Barometer
Fig 3 Barometer
Fig 4 Horizontal Barometer
Fig 5 Diagonal Barometer
Fig 5 Wheel Barometer
Fig 6 Barometer
Fig. 5. Thermometer
Fig. 6. Torricellian Tube
Fig 4 Thermometer
Fig 3 Thermometer
grometer
Fig 7 Hygrometer
Fig 8 Hygrometer
Fig 9 Hygrometer
Fig 11 Hygrometer
Fig 12 Manometer
Fig 16 Air pump
Fig 14 Wind Gun
Fig 15 Wind Mill
Fig. 17. Anemometer
Fig 13 Hygrometer
Fig 18 Aræometer
10
20
30
Fig 19 Aræometer

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In this Senſe the Word coincides with what we otheriſe call *Metaphyſicks.* See METAPHYSICKS.

PNEUMATICKS is more commonly uſed among us, or the Doctrine of the *Air*; or the Laws wherein that luid is condens'd, rarified, gravitates, *&c.* See AIR.

Some make *Pneumaticks* a Branch of Mechanicks; becauſe t conſiders the Air in Motion, with the Effects thereof.—Tis certainly a Siſter of Hydroſtaticks; the one conſidering ir in the ſame manner that the other does Water. See MECHANICKS, and HYDROSTATICKS.

Wolfius, in lieu of *Pneumaticks*, uſes the Word *Aerometry*, *q.d.* the Doctrine of *Meaſuring the Air.* See AEROMETRY.

The Doctrine and Laws of *Pneumaticks* will be found under the Articles, AIR, ATMOSPHERE, ELASTICITY, GRAVITY, COMPRESSION, CONDENSATION, RAREFACTION, EXPANSION, *&c.*

PNEUMATICK Engine, *Machina Pneumatica*, the *Air-Pump.* See AIR-PUMP.

PNEUMATOCELE, in Medicine, a flatulent or Windy *Hernia*; or a Tumor of the Membranes of the Teſticles, proceeding from pent up Vapours; and attended with a tenſive Pain. See HERNIA.

Sometimes, one of the *Teſtes* only is thus inflated, ſometimes both, and ſometimes likewiſe the Scrotum. See TESTICLE.

This *Hernia* is of all others the lighteſt, and leaſt dangerous.—It is cured by Diſcutients internally, and Fomentations and Cataplaſms externally.

The Word is form'd from the *Greek* πνεῦμα, Wind, and χήλη, *Tumor.*

PNEUMATOMACHI, ancient Hereticks ſo call'd becauſe they oppoſed the Divinity of the Holy Spirit; placing him in the Number of Creatures. See *Epiphanius.*

PNEUMATOSIS, a Term which ſome Authors uſe for the Generation or Formation of Animal Spirits, in the Brain. See SPIRIT and BRAIN.

PNEUMONICKS, Medicines proper in Diſeaſes of the Lungs, where Reſpiration is affected. See LUNGS, RESPIRATION, *&c.*

Of this Number are Sulphur, Lung-wort, Hyſſop, Ground-Ivy, and Cats-foot; uſed in Phthiſes, Aſthma's, Peripneumonies, Pleuriſies, *&c.* See ASTHMATIC, ANTIPHTHISIC, *&c.*

The Word is form'd from the *Greek* πνεύμων, Lungs, or πνεῦμα, *Spiritus*, Breath.

POCK. See POX.

POCKET *of Wool*, is half a Sack. See PACK *of Wool.*

POD, probably of the *Dutch Boede* or *Bode*, an Habitation; the Husk of any Pulſe. See PULSE.

PODAGRA, in Medicine, the Gout in the Feet. See GOUT.

It is thus called from the *Greek* πούς, *Foot*, and ἀγρεύω, *I ſeize.*

PODAGRA *dentium*, ſometimes, tho' with Impropriety enough, is uſed for the *Tooth-ach.* See ODONTALGIA and TOOTHACH.

PODESTATE, or PODEST, a Magiſtrate, or Officer of Juſtice and Policy, in a free City.

The Word is originally *Italian*, *Podeſta*; and is chiefly uſed for certain Magiſtrates of *Venice* and *Genoa*, whoſe Function is to adminiſter Juſtice in thoſe Republicks.

The *Podeſtate* in *Venice* correſponds to the Prætor in ancient *Rome*; tho' Appeals lie from his Deciſions, to the New Auditors, or the new Civil Quaranty. See QUARANTIA.

PODEX, in Anatomy, *&c.* the ſame as the Anus, or Fundament. See ANUS.

PODOMETER, or PEDOMETER. See PEDOMETER.

POEM, POEMA, a Compoſition in Verſe, of a due Length and Meaſure. See VERSE.

Poems are of as many kinds as there are Branches of Poetry. See POETRY.

We have Epic-Poems, Dramatic-Poems, *&c.* See EPIC, DRAMATIC, LYRIC, *&c.*

POESY, POESIS. See POETRY.

The Word is form'd from the *Greek* ποίησις, of ποιέω, facio, fabricor, fingo, *I make*, *I frame*, *I invent.*

Hence, Alchymy, or the Art of making Gold, was anciently call'd *Poeſy*, *Chryſopoeſy*, &c. See ALCHYMY, &c.

POETICAL, ſomething that relates to Poetry or Poets. See POETRY and POET.

In this ſenſe we ſay, a *Poetical* Genius, a *Poetical* Phraſe, *Poetical* Licence, *Poetical* Fury, *&c.*

POETICAL *Juſtice*, is chiefly uſed in reſpect of the Drama, to denote a Diſtribution of Rewards and Puniſhments to the ſeveral Perſons, at the Cataſtrophe or cloſe of the Piece, anſwerable to the ſeveral Characters they have appear'd in.

Whatever Difficulties and Diſtreſſes the Virtuous and Innocent may labour under, and how proſperouſly ſoever it may go with the wicked, in the Courſe of the Piece; the Poet uſually takes care to give each of 'em their due e'er he parts with them.—'Tis controverted whether this Piece of Juſtice be indiſpenſible, and whether it mayn't be allowed to have Virtue oppreſs'd and Vice flouriſhing? See TRAGEDY, *&c.*

Moſt Languages have their POETICAL *Words*, which are never uſed on other Occaſions.—Theſe prove of great Advantage to the Poets; who are hereby enabled to raiſe the Style and Diction into the *Poetical* Character, with the greater Eaſe.

The *French* lament the want of a Set of ſuch Words in their Language; for want hereof their Poetry appears in a too familiar Garb, not ſufficiently diſtinguiſhed from the common Language. 'Tis too reſerved; not being allowed any Boldneſſes, or Flights, but what might paſs in Proſe. To this, in good meaſure, is attributed the little Succeſs their Authors have met withal in the Epic Way. See FRENCH. EPIC, *&c.*

POETICAL *Riſing* and *Setting.* See RISING and SETTING.

The ancient Poets referring the riſing, *&c.* of the Stars to that of the Sun; make three kinds of riſing and ſetting; *viz. Coſmical*, *Acronycal*, and *Heliacal.* See each under its proper Article COSMICAL, *&c.*

POETICKS, POETICE, the Doctrine of Poetry; or the Laws and Rules of conducting Pieces or Compoſitions of Poetry. See POETRY.

Ariſtotle's *Poeticks* is a Work infinitely valued; and M. *Dacier*'s Comment thereon is one of his beſt Pieces.—*Horace*, *Vieta*, *Voſſius* and *Scaliger*, have likewiſe publiſhed *Poeticks* in *Latin.* The Duke of *Buckingham*, in *Engliſh*: And *Menardiere*, *Hedelin*, and *Deſpreaux* in *French.*

POET, POETA, an Author who compoſes Poems, or Diſcourſes in Verſe. See POETRY and VERSE.

Cicero relates it as a Saying of *Democritus* and *Plato*, that there could be no good Poet *ſine afflatu furoris*, without a Tincture of Madneſs; and *Ariſtotle* calls Poets expreſsly, *Maniaci*, Maniacs, Madmen. See ENTHUSIASM.

M. *Spanheim* tells us, that the Arab-Authors are more poetically given than thoſe of any other People; and adds, that that there are more Verſes among the *Arabians* than among all the other Nations put together.

The Word Ποιητὴς, *Poet*, ſignifies *Maker*; whence the *Poets* were anciently call'd *Fatiſts.*——The Name they were properly denoted by among the *Romans*, was *Vates*, which ſignifies *Prophet.* See PROPHET.

By a Law of the Emperor *Philip*, inſerted in the Code L. 10. T. 52. *Poets* are expreſsly excluded from the Immunities granted the Profeſſors of all other Sciences.

Homer, *Virgil*, *Milton*, and *Taſſo*, are the chief, almoſt the only juſt, Epic Poets.——*Sophocles*, *Euripides*, *Shakeſpear*, *Otway*, and *Racine*, Tragic *Poets.*——*Ariſtophanes*, *Menander*, *Plautus*, *Terence*, *Fletcher*, *Johnſon*, *Moliere*, &c. Comic *Poets.*——*Horace*, *Cowley*, and *Malherb*, Lyric *Poets.*——*Juvenal*, *Perſius*, *Regnier*, *Boileau*, *Dryden*, and *Oldham*, Satyrick *Poets.* See EPIC, TRAGIC, COMIC, *&c.*

POETRY, POESY, the Art of compoſing Poems, or Pieces in Verſe. See POEM and VERSE.

The Word is form'd from the *Greek* Ποιητεια; of ποιέω, facio. See POESY.

If a Verſe be conſider'd as a mere Series of juſt ſix Feet following one after another in the ſame Line; *Poetry* and Verſification will appear two very different Things: But *Boſſu*, in his Idea of Verſe, includes Cadences, peculiar Conſtructions Arrangements and Expreſſions, unknown in common Diſcourſe; and above all, a certain noble, bold, elevated, metaphorical Turn and manner of Diction.—Theſe, he obſerves, are ſo eſſential to *Poetry*, that without them the moſt exact Arrangement of long and ſhort Syllables, makes little elſe but a kind of meaſur'd Proſe: whereas theſe, in a Diſcourſe that has no poetical Feet or Meaſures, do yet give it the poetical Character, and make it a kind of *unmeaſured Poetry.*

The Rules of *Poetry* and Verſifying are taught by Art, and acquired by Study; but this Force and Elevation of Thought, which *Horace* calls *ſomething divine*, and which alone makes the *Poetry* of any Value, muſt be derived from Nature; or, according to *Ariſtotle*, from ſome happy Tranſports to which that Author gives the Name of Madneſs Εὐφυῦς ἡ Ποιητικὴ ἐστὶν, ἢ Μάνικῦ.—But there muſt ever be conceived a juſt ſolid Judgment at the Head of this Fury of the Poets Imagination.

Hence, the Critic concludes that, *the End* of *Poetry* is to pleaſe; *its Cauſe*, either the Excellence of the Poet's Genius, or a poetical Fury, and Tranſport of the Soul manageable by the Judgment; *its Matter*, long and ſhort Syllables, and Feet compoſed hereof, with Words furniſh'd by Grammar; and *its Form*, the Arrangement of all theſe things in juſt and agreeable Verſe, expreſſing the Thoughts and Sentiments of the Author after the manner already mentioned.

But, after all, how narrow are theſe Bounds, if we conſider *Poetry* in the Light wherein the Works of *Homer* and *Virgil* have ſet it? What is here laid down pretends to no Praiſe which a mere Tranſlator may not riſe to, and which the War of *Cataline* might not merit if turn'd out of the Proſe of *Saluſt.*—'Tis with reaſon, therefore, that we diſtinguiſh the *low* and *ſimple*, from the *grand Poetry*; by giving the former the Title of *Verſification*: and that we make *Poetry* and *Verſification* two diſtinct Arts. In effect, there is not more difference between Grammar and Rhetoric, than between the Art of making Verſes and that of inventing Poems. See VERSIFICATION.

The *Grand Poetry*, then, conſiſts principally in Fiction, or the Inventions of Fable; in the expreſſing of things by Allegories and Metaphors; and in the inventing of Actions under which the Truths which the Poet has to teach, may be agreably diſguis'd. See FABLE.

In this view, ſcarce any Poems retain the Nature and Eſſence of the grand *Poetry*, but the *Epopea*, *Tragedy* and *Comedy*; the reſt, be they Elegies, Satires, Song, or what they will, come under *Verſification*.

The antient Eloquence, 'tis obſerv'd, was full of Myſteries and Allegories.——The Truth was by them uſually diſgus'd under thoſe ingenious Inventions call'd Fables, *q. d. Words*; as if there were as much difference between theſe fabulous Diſcourſes of the Learned, and the common Language; as between the Speech peculiar to Man, and the Voice of Brutes. See FABLE.

At firſt, Fables were chiefly uſed in treating of the Divine Nature, after the manner they then conceived of it: This occaſioned the firſt Poets to be called Divines, and *Poetry* the *Language of the Gods*.—The divine Attributes they ſeparated into a Number of Perſons; by reaſon the Weakneſs of the human Mind could not conceive ſo much Power, and ſo much Action, in a ſimplicity ſo ſtrict and indiviſible as that of God. See GOD.

Nor could they ſpeak of the Operation of this almighty Cauſe, without ſpeaking likewiſe of its Effects.—They therefore added Phyſicks to their Theology, handling both after the ſame Manner, without quitting their Veils or Allegories. See ALLEGORY.

Now, Man being the moſt conſiderable of all the Works of the Deity; and there being nothing ſo proper for Poets, or of ſuch general Uſe to Mankind, as ſuch a Subject; they therefore added Ethicks to the former, and treated the Doctrine of Manners in the ſame way as they had done Divinity and Phyſiology.—And hence aroſe the Epopea, or Epic Poem. See EPIC.

The Epic Poets have done, with regard to Morality, juſt the contrary of what the Divine Poets did for their Theology.—As the too great Diverſity of Divine Actions and Perfections, ſo little proportionate to our Underſtanding, occaſioned the latter to divide the ſingle Idea of the ſimple Eſſence of God into ſeveral Perſons under different Names; as *Jupiter*, *Juno*, *Neptune*, &c. So, on the contrary, the Nature of Moral Philoſophy, which never gives any Rules for particular things, occaſioned the Epic Poets to unite in one ſingle Idea, in the ſame Perſon, and even in a ſingle Action, whatever of the like kind occurs in different Perſons, and different Actions.

Thus, ſays *Ariſtotle*, *Poetry* teaches Moral Philoſophy, not by reciting hiſtorically what *Alcibiades* has done, or ſuffered; but by propoſing what ſuch a Perſon, whom the Poet calls by any Name he pleaſes, would neceſſarily or probably have done or ſaid on the like occaſion.—'Tis in this manner, it repreſents either the unhappy Conſequences of Deſigns ill concerted, of wicked Actions, *&c.* or the Reward of good Actions, and the Pleaſure reap'd from a Deſign laid in Virtue, and conducted by Prudence.

Thus, according to our Critic, the poetical Actions and Perſons are all feign'd, allegorical, and univerſal; not hiſtorical and ſingular.—This is likewiſe the Sentiment of *Horace*, who adds, that Poets teach Morality as well as Philoſophy; but the Preference herein he gives to *Homer*. See MANNERS.

This Advantage of the Poets over mere Philoſophers ariſes hence, that all *Poetry* is an Imitation.—Now Imitation is a thing extremely natural; and hence this manner of propoſing things becomes better fitted to engage the Auditors. Again, Imitation is an Inſtruction given by Examples; and Examples are the more proper to perſuade, in regard they prove the thing poſſible.——In effect, Imitation is ſo much the Nature of *Poetry*, that *Ariſtotle* tells us 'tis to this the Art owes its Riſe. See IMITATION.

But the Poets by becoming Philoſophers did not ceaſe to be Divines; on the contrary, the Morality they taught obliged them frequently to introduce the Deity in their Works; and the Share ſo auguſt a Being had in the Action, obliged the Poet to make it grand, important, and conducted by Perſons of Kings and Princes. See MACHINE.

Add to this, that it likewiſe obliged the Poets to think, and ſpeak after a manner elevated above the common Pitch of Men, and to equal, in ſome meaſure, the divine Perſons he introduced; and to this purpoſe ſerv'd the poetical, figurative Language, and the Majeſty of Heroic Verſe.

To convey their Truths to the beſt Advantage, and adapt them to the particular Purpoſes they were intended for; Poets found out various Forms.—Hence the Epopea and Drama.

Epic *Poetry* is more for the Manners and Habitudes, than the Paſſions; theſe laſt riſe all at once, and their Violence is but of a ſhort Duration; but the Habitudes are cooler and more gentle, and riſe and fall more ſlowly. See HABITUDE.

The Epic Action, therefore, could not be reſtrained to a Day, or two, as that of the Drama; a longer and a juſter Space was required for this, than for Tragedy, which is only for the Paſſions.—And hence aroſe a ſtill greater difference between Tragedy and the Epopea.

For the Tragic Violence required a ſtronger and more lively Repreſentation than the Epic; and accordingly it conſiſts wholly in the Action, the Poet never ſpeaking; as he does in the Epopea, where there are no Actors.

The Laws of Epic and Dramatic Poetry; See under EPIC, CHARACTER, INVOCATION, DRAMATIC, THEATRE, TRAGEDY, COMEDY, ACT, SCENE, CHARACTER, SENTIMENT. For the lower *Poetry*, ſee each under its proper Article, ODE, SONG, EPIGRAM, ELEGY, SATIRE, *&c.*

POINT, PUNCTUM, in Geometry, is defined by *Euclid* to be, that which has no Parts, or is indiviſible. See PART, INDIVISIBLE, *&c.*

Wolfius defines it, that which terminates itſelf on every ſide; or which has no Terms or Boundaries diſtinct from itſelf. See TERM.

This is what we otherwiſe call the *Mathematical Point*; and is only conceived by the Imagination; yet is it in this that all Quantity begins and ends; the Flux or Motion of the *Point* generating a Line, that of a Line a Surface, *&c.* See QUANTITY; ſee alſo LINE, *&c.*

Hence ſome define a *Point* to be Inceptive of Magnitude. See INCEPTIVE and MAGNITUDE.

A Line can only cut another in a *Point*. Any three *Points* being given, out of a right Line, a Circle, or part of a Circle, may be drawn that ſhall paſs thro' them all. See CIRCLE.

To *draw a parallel Line*, *a Perpendicular*, *a Tangent*, &c. *to a given Point*, are popular Problems in Geometry. See PERPENDICULAR, PARALLEL, *&c.*

Proportion of Mathematical Points.

'Tis a current Maxim, that all Infinites, whether infinitely great or infinitely ſmall, are equal; yet is the Maxim falſe in both Caſes.—Dr. *Halley* ſhews ſeveral infinite Quantities which are in a finite Proportion to one another; and ſome infinitely greater than others. See *Infinite* QUANTITY.——The like, the Honourable Mr. *Robartes* ſhews of infinitely ſmall Quantities, *viz. Mathematical Points.*

He demonſtrates, for inſtance, that the Points of Contact between Circles, and their Tangents, are in a ſubduplicate Proportion to the Diameters of the Circles. That the *Point* of Contact between a Sphere and a Plane is infinitely greater than that between a Circle and a Tangent; and that the *Points* of Contact in Spheres of different Magnitude are to one another as the Diameters of the Spheres. See CONTACT, *&c.*

POINT *of contrary Flexure*, in the higher Geometry, is a *Point* of a Curve, wherein it is bent, or inflected to a Part contrary to that it before tended to: ſo, *e. gr.* as to turn its Convexity towards its Axis, or any other fix'd Point which before it turn'd its Concavity towards. See CURVE.

If the Curve turn back again towards the Point whence it firſt ſet out, the *Point of the Flexure* is particularly call'd the *Point of Regreſſion*, or *Retrogradation*. See RETROGRADATION *of Curves*.

Wolfius illuſtrates the Uſe of the Calculus differentialis in finding the *Point* of *Contrary Flexion* in various kinds of Curves. See FLEXION.

POINT, *Punctum*, in Phyſicks, is the ſmalleſt, or leaſt ſenſible Object of Sight, mark'd with a Pen, Point of a Compaſs, or the like. See OBJECT.

This is what we popularly call a *Phyſical Point*; which in reality has Parts; tho' thoſe Parts are not here regarded.—Of ſuch *Points* does all Phyſical Magnitude conſiſt. See MAGNITUDE.

This *Phyſical Point* coincides with what Mr. *Locke* calls the *Point ſenſible*, and which he defines to be the leaſt Particle of Matter, or Space, we can diſcern.—He adds, that to the ſharpeſt Eye this is ſeldom leſs than 30 Seconds of a Circle, whereof the Eye is the Centre. See VISION.

POINT, in Grammar, is a Character uſed to mark the Diviſions of a Diſcourſe. See CHARACTER.

The *Point* proper, is what we otherwiſe call a *Full-Stop*, or Period, and ſerves to denote the Senſe compleat, and the Period ended. See PERIOD.

Two *Points* uſually mark the middle of a Period, and ſhew a Conſtruction compleat, and the Senſe to be perfect, yet intimating ſomething to come after it;—this we call a *Colon.* See COLON.

A *Point* with a Virgula, call'd a *Semicolon*, marks a Senſe leſs compleat than the Colon; tho' Authors ſeem to uſe them indifferently; nor are Grammarians agreed about their preciſe Difference. See SEMICOLON.

The Virgula, call'd *Comma*, marks a Sub-diviſion of a Member of a Period. See COMMA.

A *Point of Interrogation*, as? marks ſomething to be pronounced in a higher Tone, as intimating a Queſtion ask'd. See INTERROGATION.

A *Point of Admiration!* marks a ſudden Surprize and Wonderment. See ADMIRATION.

Our *Points* and Accents were entirely unknown to the Ancients. And in the ancient *Greek* Manuſcripts, the whole ſeems wrote with the ſame ſtroke of the Pen; the Words and Letters being join'd throughout.

In after-times, *Points* were invented and added a-top of the Letters, to ſhew when the Senſe was finiſh'd; hence the Grammarians coming to retouch the old Manuſcripts thought fit to add the Points and Accents.——*Salmaſius* affirms, that he has even obſerved, plainly, where they have been added, by the difference of Hands. See ACCENT.

POINTS, in the *Hebrew* Learning, are certain Characters, which, in the Writings of that Language, ſerve to mark the Vowels; which, in effect, are only *Points.* See VOWEL.

The Antiquity of the *Points* in the *Hebrew* Tongue makes the Subject of a celebrated Controverſy among the Learned; ſome maintaining their Origin to be the ſame with that of the *Hebrew* Language; and others aſſerting them to have been firſt introduced by *Eſdras*, after the *Babyloniſh* Captivity, when he compiled the Canon, tranſcribed the Books into the preſent *Chaldee* Character, and reſtored the Purity of the *Hebrew* Text.

Others will have them invented by the Doctors of the School of *Tiberias*, uſually called the *Maſſoretes*, five or ſix hundred Years after Chriſt.——The Rabbin *Elias Levita* was the firſt who ſtarted this queſtion in the laſt Century; and maintain'd them to have been an Invention of the *Maſſoretes*, for the Eaſe of thoſe who were to learn the *Hebrew* Tongue. See MASSORETES.

This Sentiment was eſpous'd by *Capella*, to whom adher'd *Luther*, *Calvin*, *Caſaubon*, *Scaliger*, &c.—*Buxtorf* attack'd *Capella* violently on this Article, and gain'd a great Number of Divines on his Side, who took the Alarm; imagining it a grievous Wound to the holy Text, to allow the Vowel-Points to have been added by the *Maſſoretes*, and not to have been found in the ancient Text; becauſe without theſe 'tis very difficult to fix the reading thereof.—Yet in the *Samaritan* Text there is no *Point* or Vowel, nor in many of the moſt ancient *Hebrew* Manuſcripts. See HEBREW, *&c.*

POINT, in Muſick, a Mark or Note anciently uſed to diſtinguiſh the Tones. See NOTE.

Hence we ſtill call it *Simple Counter-Point*, when a Note of the Baſs, anſwers preciſely to that of the Treble; and *Figurative Counter-Point*, when a Note is ſyncopeed, and one of the Parts makes ſeveral Inflexions of the Voice or Tone, while the other only makes one. See COUNTER-POINT.

We ſtill uſe a *Point* to raiſe the Value of a Note, and prolong its Time by one half, *e.gr*, a *Point* added to a Semibreve, inſtead of two Minims, makes it equal to three. See TIME, and CHARACTERS *in Muſick*.

POINT, in Aſtronomy, is a Term applied to certain Parts or Places mark'd in the Heavens; and diſtinguiſhed by proper Epithets.

The four Grand *Points* or Diviſions of the Horizon, *viz.* the *Eaſt*, *Weſt*, *North*, and *South*, are call'd *Cardinal Points.* See CARDINAL; ſee alſo EAST, WEST, *&c.* each under its proper Article.

The *Zenith* and *Nadir* are the *Vertical Points.* See VERTICAL, ZENITH and NADIR.

The *Points* wherein the Orbits of the Planets cut the Plane of the Ecliptic, are call'd the *Nodes.* See NODE.

The *Points* wherein the Equator and Ecliptic interſect, are call'd the Equinoctial *Points.* See EQUINOCTIAL.——Particularly, that whence the Sun aſcends towards the North-Pole, the *Vernal Point*; ſee VERNAL: And that by which he deſcends to the South-Pole, the *Autumnal Point.* See AUTUMNAL.

The *Points* of the Ecliptic, where the Sun's Aſcent above the Equator, and Deſcent below it, terminate, are call'd the *Solſtitial Points*; ſee SOLSTITIAL.—Particularly, the former of them the *Eſtival* or *Summer Point*, ſee SUMMER; the Latter the *Brumal* or *Winter Point*, ſee WINTER, *&c.*

POINT, in Navigation and Geography.—*Points of the Horizon*, or *of the Compaſs*, are certain *Points* form'd by the Interſections of the Horizon, with Vertical Circles. See HORIZON.

The Number of theſe *Points*, therefore, is really the ſame with that of the *Points* conceiv'd in the Horizon, *i. e.* infinite: Tho' in Practice we only diſtinguiſh 32 of them. See COMPASS.

Some uſe *Point*, for the Interſection of a Vertical Circle, with a Circle parallel to the Horizon; and even ſome, for the Segment of a Vertical intercepted between the Meridian and Horizon, or a Circle parallel thereto.

The *Points* are ſhewn by right Lines drawn from a *Point* aſſumed in a horizontal Plane.

So that a *Point of the Compaſs*, is popularly taken for a 32d Part of the whole; or for an Arch of 11 Degrees 15 Minutes; half of which, *viz.* 5° 38′ is call'd a *half a Point*; and half of that, or 2° 49′ a *Quarter Point.* See COMPASS.

Theſe *Points of the Compaſs* are divided into Cardinal and Collateral.

Cardinal Points are the Interſections of the Horizon and Meridian, call'd the *North* and *South Points*; and the Interſections of the Horizon with the Prime Vertical, call'd the *Eaſt* and *Weſt.* See NORTH, SOUTH, *&c.*

Theſe coincide with what the *Latins* call *Cardines Mundi*; and are a Quadrant, or 90 Degrees, diſtant from each other. See CARDINAL.

Collateral or *Intermediate Points*, are thoſe lying between the Cardinal *Points.*—Which are either *Primary*, *viz.* thoſe equi-diſtant from the two Cardinals, as North-Eaſt, South-Weſt, *&c.*

Or *Secundary*, which are again, either of the *firſt Order*, *viz.* ſuch as are equidiſtant from a Cardinal and the next Primary, as North-North-Eaſt; or of the *ſecond Order*, *i. e.* equidiſtant between a Cardinal or Primary, and firſt Secundary, as North-Eaſt by North.

The *Primary Collateral Points*, therefore, are 45° diſtant from the Cardinals; the firſt Secundaries 22° 30′ from the Cardinal and next Primary Collateral; and the Secundaries of the *ſecond Order* 11° 15′ from a Cardinal, or firſt Collateral, and a Second. See COLLATERAL.

POINT, among Seamen, is alſo uſed for a Cape, or Head-Land, jetting out into the Sea. See CAPE.

They ſay, two *Points* of Land are one in another, when they are ſo in a right Line againſt each other, as that the innermoſt is hindered from being ſeen by the outermoſt.

POINT, in Perſpective, is a Term uſed for various Parts or Places, with regard to the Perſpective Plane. See PERSPECTIVE *Plane.*—Such are, the

POINT *of Sight*, or *View*, or *of the Eye*, is a *Point* on the Plane, as F, (*Tab. Perſpective Fig.* 12.) mark'd out by a right Line BF, drawn from the Eye, perpendicular to the Plane, call'd alſo the *Principal Point.* See VISION; ſee alſo PRINCIPAL.

This *Point* is in the Interſection of the Horizontal and Vertical Planes. See PLANE.

Some Authors call the *Point* wherein the Eye is actually placed, and where all the Rays terminate, as O, the *Point of Sight* or *Viſion*; and define the *Principal Point* to be that wherein all the Lines drawn from the horizontal Plane to the Line of View or Diſtance, terminate. See PRINCIPAL.

POINT *of Diſtance* is a *Point*, v. gr. P or Q, in the horizontal Line PQ, at the ſame Diſtance from the principal *Point* F, as the Eye O, is from the ſame. See DISTANCE.

Third POINT is a *Point* taken at Diſcretion in the Line of Diſtance, wherein all the Diagonals drawn from the Diviſions of the Geometrical Plane, concur.

Objective POINT, a *Point* on a Geometrical Plane, whoſe Repreſentation is required on the Perſpective Plane.

POINT, in Opticks—The POINT *of Concourſe*, or *Concurrence*, is that wherein converging Rays meet; more uſually call'd the Focus. See FOCUS.

POINT *of Diſperſion*, is that wherein the Rays begin to diverge; uſually call'd the *Virtual Focus.* See VIRTUAL.

POINT *of Incidence*, is a Point on the Surface of a Glaſs, or other Body, wherein a Ray falls. See INCIDENCE.

POINT *of View*, with regard to Building, Painting, *&c.* is a *Point* at a certain Diſtance from a Building, or other Object, wherein the Eye has the moſt advantageous View, or Proſpect of the ſame.

This *Point* is uſually at a Diſtance equal to the Height of the Building.—For an inſtance,—To conſider with Judgment, the whole of the famous Church of the *Invalides* at *Paris*; we muſt not ſtand at above 340 Foot diſtance from it, which is nearly its Height. To be able to judge of the Ordonnance of its Facade or Frontiſpiece, and the Regularity of its Order, the Eye ſhould be as far off as the Frontiſpiece is high, *viz.* 100 Foot.

But to examine the Correctneſs of its Profiles, and the Spirit of its Ornaments; the Eye ſhould only be diſtant the Height of the *Doric* Order, which is about 40 Foot; if it be nearer, the Parts too much ſhortened will appear out of Proportion.

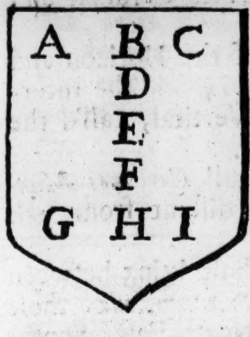
A Vague or indeterminate *Point* has a different Effect from the *Point of View*, in that, in looking at a Building from an indeterminate *Point*; the Eye can only form an Idea of the Magnitude of its Maſs, by comparing it with other Buildings adjacent to it.

Point *of Reflexion*, is a *Point* on the Surface of a Glaſs or other Body whence a Ray is reflected. See **Reflexion.**

Point *of Refraction*, is a *Point* in the Surface of a Glaſs or other refracting Surface, wherein the Refraction is effected. See **Refraction.**

Points, in Heraldry, Diviſions of the Eſcutcheon into ſeveral Squares, ſometimes to the Number of 9, ſometimes to 15; ſome whereof are of one Colour or Metal, the others of another; called alſo *Equipollent Points.*

There is alſo another Diviſion of the Eſcutcheon into *Points*, which have ſeveral Names and Values, according to their ſeveral Places.



There are nine Principal *Points* in an Eſcutcheon; as mark'd in the Figure adjoining— A repreſents the *dexter Chief Point.*—B the *middle Chief Point.*—C the *ſiniſter Chief.*—D the *Honour Point.*—E the *Feſs Point*, call'd alſo the Center.—F the *Nombril* or *Navel Point.*—G the *Dexter Baſe.* I the *Siniſter Baſe.*—H the preciſe middle Baſe. *See each further deſcribed in its Place.*

Colombiere makes the *Points* and their Situations ſymbolical.——As the ſeveral Bearings in an Eſcutcheon are ſo many Types repreſenting the commendable Actions of the Perſon they are given to; ſo the Eſcutcheon itſelf repreſents the Body of the Man that perform'd them, and the *Points*, or Parts, ſignified by theſe Letters, the principal Parts of his Body.—Thus, A, B, C repreſent the Head, in which the three great Faculties reſide: D, the Neck where Ornaments are chiefly bore: E, the Heart, *&c.* See **Escutcheon.**

Point is alſo an Ordinary, ſomething like the Pile, riſing from the bottom of the Eſcutcheon to the Top; very narrow, and only taking up two Thirds of the Point of the Eſcutcheon.—When it thus riſes from the Baſe, it is peculiarly call'd *Point-in-point.*

Point inverted, is when it deſcends from the Chief downwards; poſſeſſing two thirds of the Chief, but diminiſhing as it approaches the Point of the Eſcutcheon, tho' without touching it.

Point en Band, or *Point en Barre*, is when the *Point* is placed tranſverſe, in the Situation of a Bend or Bar.——When it comes from the Sides of the Eſcutcheon, it is alſo call'd a *Point Dexter* or *Siniſter*, according to its Situation.

The *Point Dexter* is commonly reputed an Abatement due to a Braggadocio.—*Point-Champion-Ten* due for killing a Priſoner after Quarter demanded.——*Point in Point*, a Diminution belonging to a Coward.——*Point plain*, an Abatement belonging to a Lyar, *&c.* See **Abatement, Diminution,** *&c.*

Point is alſo uſed in Heraldry, for the lower part of the Eſcutcheon, which uſually terminates in a Point. See **Escutcheon.**

In the *French* Arms the Flower de Lys's are two in Chief and one in *Point.*

Point, is alſo an Iron or Steel Inſtrument, uſed with ſome Variety in ſeveral Arts.

Engravers, Etchers, Wooden Cutters, Stone Cutters, *&c.* uſe *Points* to trace their Deſigns on the Copper, Wood, Stone, *&c.* See **Engraving, Etching,** *&c.*

Statuaries, *&c.* have likewiſe *Points* in manner of little Chiſſels, uſed in the firſt forming or ſketching out their Works. See **Statue, Foundery,** *&c.*

Turners work or faſhion their common Works between two *Points* faſtened to the Puppets.——Lapidaries have Iron *Points*, to the Ends whereof are faſtened Pieces of Diamonds, ſerving to pierce the precious Stones withal. See **Turning, Lapidary,** *&c.*

Point, in the Manufactories, is a general Term uſed for all kinds of Laces wrought with the Needle;—Such are *Point de Venice*, *Point de France*, *Point de Genoa*, &c. which are diſtinguiſh'd by the particular Œconomy and Arrangement of their *Points.*

The Word is ſometimes alſo uſed for Lace wove with Bobbins; as, *Engliſh Point*, *Point de Malines*, *Point de Havre*, &c.

Point, in Poetry, is a briſk lively Turn, or Conceit, uſually found or expected, at the Cloſe of an Epigram. See **Epigram.**

Point-*Blank*, in Gunnery, denotes a Shot or Bullet to go directly forward, in a ſtrait Line, to the Mark; and doth not move in a Curve, as Bombs and highly elevated random Shots do. See **Mortar, Projectile, Gunnery,** *&c.*

POINTED—A Croſs *pointed*, is that which has the Extremities turn'd off into Points by ſtrait Lines. *Colombiere* calls it *aiguiſee* See **Cross.**

POINTING *the Cable*, is a Sea-Term, denoting the untwiſting it at the End, and leſſening the Yarn, and twiſting them again, making all faſt with a Piece of Marline, to keep it from ravelling out. See **Cable.**

Pointing, in Grammar, the Art of dividing a Diſcourſe, by Points, into Periods and Members of Periods; to facilitate the Pronunciation and Underſtanding thereof. See **Punctuation.**

Pointing, among Seamen, the marking on the Chart in what Point or Place the Veſſel is. See **Chart, Rhumb,** *&c.*

All the Difficulty in *pointing* a Chart ariſes from our Ignorance of the Longitude.—The Pilot eaſily finds the Latitude by taking the Height of the Pole; but for the Longitude there is no coming at it but by Computation which is ever uncertain. See **Longitude, Latitude, Sailing,** *&c.*

Pointing, in War, the levelling or directing of the Cannon or Mortar-Piece, ſo as to play againſt any certain Point. See **Levelling, Cannon, Ordnance, Mortar, Projectile,** *&c.*

This is done by means of a Quadrant with a Plummet. See **Gunners Quadrant.**

POISON, in Medicine, a malignant Quality in ſome Animal, Vegetable or Mineral Body, which renders it hurtful, and even mortal to thoſe who take it.

Some define a *Poiſon* to be any thing taken inwardly, whoſe Properties are contrary to thoſe of a Food, or to what they ſhould be in order to Nutrition. See **Food.**

Poiſons are of various kinds; and operate in various manners: ſome by diſſolving the Blood, others by coagulating it; and others by corroding and deſtroying the ſolid Parts. See **Blood, Dissolution, Coagulation, Corrosion,** *&c,*

Some attack, equally, all the Parts; ſome only a particular one.——Thus the *Lepus Marinus* is an Enemy to the Lungs, *Cantharides* to the Bladder, *&c.*

Some again, which prove *Poiſon* to Man ſerve for Food to other Animals.——Thus *Mandragora* and *Juſquiamnus* feed Hogs, kill Man; and thus that deadly *Poiſon* Hemlock is wholeſome for Goats, Buſtards, and, as *Galen* ſays, for Starlings too. The *Caſſada* Plant, Sir *Hans Sloane* tells us, poiſons, unprepared; but prepared is the very Bread of the *Weſt Indies*; particularly *Jamaica* and the hotter Parts; and is uſed to victual Ships.

Nay, what is more, ſome *Poiſons* are not only Food, but even Phyſick to other Animals.——In the *Phil. Tranſact.* we have an Inſtance of a Horſe troubled with the Farcy, which could not be cured by the moſt famed Remedies, which yet cured himſelf in a ſhort time, by feeding greedily on Hemlock. —*Fontanus* tells us of a Woman who eat Hemlock for ſome time to procure Sleep; and with very good Effect; tho' repeated Doſes of Opium had no Operation.

Dr. *Tanc. Robinſon*, in a Letter to Mr. *Ray*, gives an Account of ſeveral poiſonous Plants, which if truly corrected, or exactly doſed, he ſays, may prove the moſt powerful Remedies known.——Thus the Hellebores incorporated with a Sapo, or Alkaly-Salts alone, are ſucceſsful in Epilepſies, Vertigo's, Palſies, Lethargies, and Mania's. Doſe from ℈j. to ʒſs. The Roots of *Cicuta*, *Aſſarum*, and *Napellus*, in Agues and periodical Pains: Doſe ℈j. to ʒſs. The *Hyoſcyamus* in Hæmorrhagies, violent Heats and Inflammations: Doſe ℈j. to ʒſs. The *Semen Stramoniæ* is a good Anodyne, uſeful in Vigilia's, Rheumatiſms, Hyſteric Caſes, *&c.* Doſe ℈j. to ʒſs. *Elaterium*, *Soldanella & Gratiola*, in Hydropic Caſes. Opium corrected loſes its Narcotic Quality, and is ſafely given in great Doſes in convulſive Caſes, Fluxes, Cartarrhs, *&c.*

The Word *Poiſon* is derived from the Latin *Potio*, Draught, and was antiently uſed in an innocent Senſe. See **Potion.**

Phyſicians diſtinguiſh three Kinds of *Poiſons*: *Animal Poiſons*; i. e. thoſe drawn from Animals; as the *Viper*, *Aſpic*, *Scorpion*, *Lepus Marinus*, &c. See **Viper.**

Vegetable Poiſons, as *Aconite*, *Cicuta*, or *Hemlock*, *Hellebore*, *Napellus*, &c. See **Aconite, Cicuta, Hellebore,** *&c.*

And *Mineral Poiſons*, as *Arſenic*, *Corroſive Sublimate*, *Ceruſſe*, *Orpiment*, *Realgal*, &c. See **Arsenic,** *&c.*

The Theory of the Effects, Operations, *&c.* of *Animal Poiſons*, is very accurately and mechanically delivered by Dr. *Mead*; in thoſe remarkable Caſes, the Bites of a *Viper*, *Tarantula*, and a *mad Dog*. See his Doctrine under the reſpective Articles, **Tarantula, Viper,** and **Hydrophobia.**

The Operation of *vegetable Poiſons*, ſee deliver'd under the Article **Opiates.**

As to *Mineral Poiſons*, they all bear ſo much Analogy to that made of Quickſilver in the common Sublimate, that their Operation will eaſily be conceiv'd from what we have already laid down under the Heads, **Mercury** and **Sublimate.**

They are all more or leſs dangerous, as their Salts receive a greater or leſs Force from the metallick Particles; and hence, as the moſt virulent may be mitigated by breaking the Points of the ſaline Cryſtals; the moſt innocent Minerals may become corroſive by combining them with Salts, as is ſeen in the Preparations of Silver, Antimony, Iron, *&c.* See **Mephites, Grotto,** *&c.*

The general Remedies againſt *Poiſons* are known by the Name of *Antidotes*, *Alexipharmicks*, *Alexiterials*, &c. See **Antidote, Alexipharmic,** *&c.*

Counter-POISON, See COUNTER-*Poiſon.*

To POISON *a Piece*, among Gunners, is the ſame as to clog and nail it up.

POISONING, in Law, the Crime of adminiſtring Poiſon to a Perſon.

This, by a Law of *Henry* VIII. was made High-Treaſon; but that Law was afterwards repealed; and the Puniſhment made for it was to be put alive into a Cauldron of Water, and boil'd to Death.——At preſent it is only Felony without Benefit of Clergy. See PUNISHMENT.

POLAR, ſomething belonging to the Poles of the World. See POLE.

In this Senſe we ſay, *Polar* Virtue, *Polar* Tendency, *&c.* See POLARITY.

POLAR *Circles*, are two Circles parallel to the Equator, at the Diſtance of 23 Deg. from each Pole; ſerving to mark the beginning of the Frigid Zone. See CIRCLE and ZONE.

The *Polar* Circles are particularly denominated from their reſpective neighbouring Poles, the *Arctic* and *Antarctic.* See ARCTIC and ANTARCTIC.

POLAR *Dials* are thoſe whoſe Planes are parallel to ſome great Circle paſſing through the Poles, or to ſome one of the Hour-Circles; ſo that the Pole is neither elevated above, nor depreſſed below the Plane.

Such Dial therefore can have no Center, and conſequently its Style, Subſtyle, and Hour-Lines are parallel. See PLANE.

This therefore will be an Horizontal Dial to thoſe who live under the Equator or Line.

To conſtruct a POLAR *Dial.* See DIAL.

POLAR *Projection* is a Repreſentation of the Earth or Heavens, projected on the Plane of one of the Polar Circles. See PROJECTION.

POLARITY, the Quality of a Thing conſidered as having Poles. See POLE.

By heating an Iron Bar, and letting it cool in a vertical Poſture, it acquires a *Polarity.*——The lower End becomes the North End; the upper the South. See IRON.

Iron Bars acquire a *Polarity*, by being kept a long time in an erect Poſture, even without Heating.——Thus the Bars of Windows, *&c.* are frequently found to have Poles. Nay a Rod of Iron acquires a *Polarity*, by the mere holding it erect; the lower End in that Caſe attracting the South End of a magnetic Needle; and the upper the North End.——But theſe Poles are mutable, and ſhift with the Situation of the Rod. See MAGNET and MAGNETISM.

POLE, POLUS, in Aſtronomy, the Extremity of the Axis whereon the Sphere revolves. See AXIS and SPHERE.

Theſe two Points are called, by way of Excellence, the *Poles of the World.* See WORLD.

The Word is form'd from the Greek πολεῖν, *vertere*, to turn.

Wolfius defines the *Poles*, thoſe *Points* on the Surface of the Sphere through which the Axis paſſes: ſuch are the Points P Q, (*Tab. Aſtronomy*, *Fig.* 52.)——whereof, that viſible to us, or rais'd above our Horizon P, is called the *Arctic* or *North Pole*; and its Oppoſite Q, the *Antarctic* or *South Pole.* See ARCTIC and ANTARCTIC.

POLE in Geography, is the Extremity of the Earth's Axis; or the Points on the Surface of our Globe, thro' which the Axis paſſes. See EARTH.

Such are the Points P Q, (*Tab. Geography*, *Fig.* 7.) whereof that Elevated above our Horizon P, is called the Arctic or North *Pole*; and its Oppoſite Q, the *Antarctic* or *South Pole.* See GLOBE.

Dr. *Halley* ſhews, that the ſoliſtitial Day, under the *Pole*, is as hot as under the Equinoctial, when the Sun is in the Zenith; in regard all the 24 Hours of that Day under the *Pole*, the Sun's Beams are inclined to the Horizon with an Angle of 23½ Degrees; whereas, under the Equinoctial, tho' he becomes vertical, yet he ſhines no more than 12 Hours, and is abſent 12 Hours.——beſides, that for 3 Hours 8 Minutes of that 12 Hours he is above the Horizon there, he is not ſo much elevated as under the *Pole.* See HEAT.

The *Altitude or Elevation of the Pole*, is an Arch of the Meridian, intercepted between the *Pole* and the Horizon. See ALTITUDE.

To find this Elevation is a very popular Problem in Aſtronomy, Geography, and Navigation; This and the Latitude of the Place being ever the ſame. See LATITUDE.

To obſerve the ALTITUDE *of the* POLE.

With a Quadrant, obſerve both the greateſt and leaſt Meridian Altitude of the *Pole*-Star. See MERIDIAN.

Subſtract the leaſt from the greateſt, and divide the Difference by two; the Quotient is the Star's Diſtance from the *Pole*; which added to the leſſer Altitude found, gives the Elevation of the *Pole* required.

Thus M. *Couplet* the younger, at *Uliſyppo*, in 1697, at the End of *September*, obſerv'd the greateſt Meridian Altitude 40° 5′ 40″, The ſmalleſt; 36° 28′ 0″. The Difference whereof is 4° 37′ 40″; one half whereof, 2° 18′ 50″, added to the leſs, gives 38° 46′ 50″; The Altitude of the *Pole* of *Ulyſſippo.* See ALTITUDE.

The Altitude of the *Pole*, together with the Meridian Line, being the Baſis of all Aſtronomical Obſervations; to determine it with the greater Accuracy, the Meridian Altitudes muſt be corrected from the Doctrine of Refractions, hereafter delivered. See REFRACTION, MERIDIAN, *&c.*

By Means hereof, M. *Couplet* ſubſtracting 1′ 25″ in the propoſed Example, leaves the corrected Altitude 38° 45′ 25″.

Hence 1. The Altitude of the Pole being ſubſtracted from 90°, leaves *the Altitude of the Equator.* See EQUATOR.

2. If the greateſt Meridian Altitude of this Star exceed the Altitude of the Equator, the latter ſubſtracted from the former, leaves the Declination of the Star Northward; If the Altitude of the Star be leſs than that of the Equator, the former ſubſtracted from the latter leaves the Star's Declination Southward. See DECLINATION.

Dr. *Hook*, and ſome others, imagined, the Height of the Pole, and the Poſition of the Circles of the Heavens, in reſpect of thoſe on the Earth, to be changed from what they anciently were: But M. *Caſſini* thinks there is no Ground for ſuch Surmiſe; but that all the Difference we now find in the Latitudes of Places, *&c.* in reſpect of the ancient Accounts, ariſes from the Inaccuracies of the ancient Obſervations.

Indeed 'tis no wonder they ſhould err in their Obſervations, conſidering what Inſtruments they uſed: He adds, 'tis probable there may be ſome Variation in the Height of the *Pole*; but thinks this never exceeds two Minutes; and that even this will vaniſh, after it is arrived to its higheſt Difference. See EQUATOR, *&c.*

POLE, in Sphericks, is a Point equally diſtant from every Part of the Circumference of a greater Circle of the Sphere; as the Center is in a plain Figure. See CENTER.

Or, *Pole* is a Point 90° diſtant from the Plane of a Circle, and in a Line paſſing perpendicularly thro' the Center, called the Axis. See CIRCLE.

The Zenith and Nadir are the *Poles* of the Horizon——The *Poles* of the Equator are the ſame, with thoſe of the Sphere or Globe. See ZENITH, NADIR, *&c.*

POLES of the Ecliptic are Points in the Solſtitial Colure 23° 30′ diſtant from the *Poles* of the World. See SPHERE, EQUATOR, HORIZON, *&c.*

POLES in Magneticks, are two Points in a Loadſtone, correſponding to the *Poles* of the World; the one pointing to the North, the other to the South. See MAGNET.

If the Stone be broke in ever ſo many Pieces, each Fragment will have its two *Poles.*——If a Magnet be biſſected by a Line perpendicular to the Axis; the two Points before join'd will become oppoſite *Poles*, one in each Segment.

To touch a Needle, *&c.* that Part intended for the North End is touch'd with the South *Pole* of the Magnet, and that intended for the South End with the North *Pole.* See NEEDLE.

A Piece of Iron acquires a Polarity, by only holding it upright, *&c.* See POLARITY. But its *Poles* are not fix'd; but ſhift, and are inverted as the Iron is.——A fix'd North *Pole* may be made all the Ways a fix'd South *Pole* is made; but not *vice verſa*; and whatever Way we get a fix'd South *Pole*, 'tis always weaker than a fix'd North *Pole* got the ſame Way.

Fire deſtroys all fix'd *Poles*; but ſtrengthens the mutable ones. See FIRE.

The End of a Rod being heated, and left to cool Northward, Dr. *Gilbert* ſays, becomes a fix'd North *Pole*; if Southward, a fix'd South *Pole*: yet this does not hold in all Caſes.——If the End be cool'd held downward or to the Nadir, it acquires ſomewhat more Magnetiſm, than if cool'd horizontally towards the North. But the beſt Way is to cool it a little inclined to the North. Repeated Ignitions don't avail more than a ſingle one.

Dr. *Power* ſays, that if we hold a Rod Northwards, and hammer the North End in that Poſition; it will become a fix'd North *Pole*; and, contrarily, if you hammer the South End.——What is ſaid of Hammering is to be likewiſe underſtood of Filing, Grinding, Sawing; nay, a gentle rubbing, provided it be continued long, will produce *Poles.* See FRICTION.

The more heavy the Blows are, *cæteris paribus*, the Magnetiſm is the ſtronger.——A few hard Blows do as much as many. Old Drills and Punches are fix'd North *Poles*, becauſe almoſt conſtantly uſed downwards. New Drills are either mutable *Poles* or weak North *Poles.* Drilling with ſuch a one Southward horizontally, 'tis a Chance if you produce a fix'd South *Pole*, much leſs if you drill South downwards; but if you drill South upwards, you make a fix'd South *Pole.*

A weak fix'd *Pole* may degenerate into a mutable one in a Day; nay in a few Minutes, by holding it in a Poſition contrary to its *Pole.* The Loadſtone itſelf will not make a fix'd *Pole* in any Iron. 'Tis required the Iron have a length, if it be thick. Mr. *Ballard* tells us, that in ſix or ſeven Drills made before his Face, the Bit of each became a North *Pole*, merely by hardening.

POLE *of a Glaſs* in Opticks, is the thickeſt Part of a Convex, or the thinneſt of a Concave Glaſs. See CONVEX and CONCAVE.

If the Glaſs be truly ground, the *Pole* will be exactly in the Middle of its Surface. See OPTIC, GLASS, GRINDING, *&c.*

This is ſometimes alſo called the *Vertex* of the Glaſs. See VERTEX.

POLE in Surveying, is a Meaſure, containing 16 Foot and an half; called alſo *Perch*. See PERCH.

POLE-*Star*, or POLAR-*Star*, is a Star of the ſecond Magnitude; the laſt in the Tail of Urſa Minor, or Little Bear. See URSA MINOR.

Its Longitude Mr. *Flamſtead* makes 24° 14′ 41″, its Latitude, 66° 64′ 11″.

The Nearneſs of this Star to the *Pole*, whence it happens that it never ſets; renders it of vaſt Service in Navigation, *&c.* for determining the Meridian Line, the Elevation of the *Pole*, and conſequently the Latitude of the Place, *&c.* See POLE; ſee alſo MERIDIAN and LATITUDE.

POLEM, *Anno* 4. *Edw.* IV. *cap.* 7. was a ſharp or picked Top, ſet in the Fore-part of the Shoe or Boot. This Faſhion was firſt taken up in the Time of King *William Rufus*; the Picks being made ſo long, that they were tied up to the Knees with Silver or Golden Chains: They were forbidden by *Edw.* IV. *Tunc fluxus Crinium, tunc luxus Veſtium, tunc uſus Calceorum cum arcuatis aculeis inventus eſt.* Malmſ. in Will. II.

POLEMICAL, an Epithet applied to Books of Controverſy; eſpecially thoſe in Divinity.

Hence alſo we ſay *Polemical Divinity*, for Controverſial, *&c.* See DIVINITY.

The Word comes from the Greek πολεμος, War, Battle. ——*Scaliger*'s Exercitations againſt *Cardan* make a pure *polemical* Book.

POLEMOSCOPE, in Opticks, a kind of crooked or oblique Proſpective Glaſs, contrived for the ſeeing of Objects that don't lie directly before the Eye.

It was invented by *Hevelius*, in 1637, who gave it this Name from the Greek πολεμος, *pugna*; becauſe it may be of Uſe in War, in Engagements, Duels, *&c.*

Something of this Kind are thoſe now known among us under the Name of Ogling Glaſſes, or Opera-Glaſſes, thro' which one ſees a Perſon in appearing to look at another.

Conſtruction of the Polemoſcope.

Any Teleſcope will be a *Polemoſcope*, if the Tube be but crooked, like a rectangular Syphon A B D M (*Tab. Opticks, Fig.* 70.) And between the Object Glaſs, A B, and firſt Eye-Glaſs G H (if there be ſeveral) be placed a plain Mirror, in ſuch manner as that the Mirror is inclined to the Horizon, at an Angle of 45°, and its reflected Image found in the Focus of the Eye-Glaſs G H.

For, by this means, Objects ſituate over againſt the Lens A B will appear the ſame as if the Mirror K were away, and the Object-Glaſs with the Objects were directly oppoſite to the Eye-Glaſſes.

If 'tis deſired to look in at O, not at M, another plain Mirror, N muſt be added. See TELESCOPE.

POLETA, in our ancient Law-Books, ſignifies the Ball of the Foot.——*Tres ortilli ſcindantur de pede anteriori ſine Poleta.* Mat. Par. *Anno* 1215. See EXPEDITATE.

POLICY, or POLITY, the Laws, Orders, and Regulations preſcribed for the Conduct and Government of States and Communities. See GOVERNMENT.

In the general, *Policy* is uſed in oppoſition to Barbariſm. ——Different States have different Kinds of Policy; thus the Policy of *Athens* differ'd from that of *Sparta.*

Loyſeau obſerves, that *Policy* properly ſignifies the Courſe and Adminiſtration of Juſtice in a City.——The Direction of the Policy of *London* is in the Hands of the Lord-Mayor. See MAYOR.

At *Paris* they have a *Chamber of Policy*, where People are verbally accuſed for Contraventions of *Policy.*

Some divide *Policy* into two Parts, *Agaronomy*, that relating to the Affairs of Merchandiſe; and *Aſtinomy*, that concerning the Civil and Judiciary Government of the Citizens: Some add a third Branch, *viz.* what relates to the Eccleſiaſtical Government. See ECCLESIASTICAL.

Biſhop *Hooker* has a fine Treatiſe of the Laws of Eccleſiaſtical *Polity.*

The Word is of Greek Original; being derived from the Greek πολις, *Civitas*, City.

POLICY *of Aſſurance*, or *Inſurance* of Ships, is a Contract or Convention whereby a Perſon takes upon himſelf the Riſques of a Sea-Voyage; obliging himſelf to make good the Loſſes and Damages that may befal the Veſſel, its Equipage, Tackle, Victualling, Lading, *&c.* either from Tempeſts, Shipwrecks, Pirates, Fire, War, Repriſals, *&c.* in Part or in whole; in Conſideration of a certain Sum of Seven, Eight, or Ten *per Cent.* more or leſs, according to the Risk run; which Sum is paid down to the Aſſurer by the Aſſuree, upon his ſigning the Policy. See ASSURANCE.

There are ſome Aſſurances for the Going, ſome for the Returning, and ſome for both; or for a limited Time; though ſome maintain, that the Time ought never to be limited, in that the Contract thereby becomes Uſurary.

The *Policy* is to contain the Name and Dwelling of the Perſon aſſured; his Quality, whether as Proprietor or Agent; the Effects, Name of the Veſſel, and of the Maſter; thoſe of the Place where the Goods are to be loaden or unloaden; the Port whence and whither, the Time, the Riſques, and the Conditions.

If the Veſſel or Merchandizes aſſured be loſt, the Aſſuree muſt notify the ſame by an Act in form; declaring he ſurrenders the whole to the Aſſurer, on his paying the Sums aſſured in the Time expreſſed.

The Origin of theſe Aſſurances is aſcribed to the Jews, at the Time they were expelled *France*, in 1182; who are ſaid to have uſed this as a Means to facilitate the tranſporting of their Effects.

The Term *Policy* is *Spaniſh*, and comes from *Polica*, Schedule; but the Practice comes from the *Italians* and the *Lombards*, who, again, derived it originally from the Latin *Policitatio*, Promiſe.—Some ſay, the Merchants of *Marſeilles* were the firſt who ſet on Foot this Kind of Commerce.

Anciently, *Policies* were given by Word of Mouth, called *Policies of Credit*; it being ſuppoſed the Aſſurer would enter them in his Leidger: but of late that Honeſty is become leſs frequent among Traders, they have been conſtantly in Writing.

The Grand Mart for the Aſſurance of Ships is the City of *Amſterdam*. 'Tis here not only the *Dutch* Traders aſſure their Veſſels, but, what is infinitely more conſiderable, ſuch is the Riches, Reputation, *&c.* of the Inhabitants, as to engage the Generality of Merchants of other Countries to prefer them to their own Countrymen, and to aſſure with the *Dutch*, when it would be much eaſier for them to find Aſſurers at Home, or in the Ports where the Veſſels are laden.

The Number of Aſſurers at *Amſterdam* is not above Fifty or Sixty Perſons; yet is their Wealth and Character ſuch, that a Man never fails of an Aſſurer, be the Countries or Ports what they will, the Cargo ever ſo rich, or the Dangers ever ſo imminent.

POLICY *of Aſſurance*, or *Inſurance of Houſes*, is an Inſtrument form'd on the Model of that for Veſſels; whereby a Perſon, or Community of Perſons, take on themſelves the Riſques and Damages that may befal Houſes, their Furniture, in whole or in Part, *&c.* from Fire; on Conſideration of a certain Sum or Sums, to be paid by the Aſſurer, according to the Terms of the Agreement. See ASSURANCE.

The Aſſurance from Fire is now a popular Piece of Commerce; and we have a Number of Societies erected into Corporations, for that very Purpoſe. See FIRE-OFFICE.

POLICY *of Aſſurance of Lives*, is an Inſtrument whereby a Society of Perſons erected into a Corporation, *&c.* oblige themſelves to pay a certain Sum of Money, *e. g.* an Hundred Pounds upon the Death of a Perſon whoſe Life they aſſure; in Conſideration of a Sum of Money, *e. g.* one Guinea, paid Quarterly, to the Aſſurers during the Life of the ſaid Perſon aſſured.

The *Policy* is under the Seal of the Office, and entitles the Perſon, in whoſe Favour 'tis granted, to make good his Claim, according to the Tenor of the Articles, or By-Laws of the Society.

There have alſo been lately ſet on Foot, *Policies* of Aſſurance of Horſes, from Death, Damages in Travelling, Diſeaſes, being ſtolen, *&c.* In which Caſes the Aſſurers are to make them good to the Aſſurees, *&c.*

POLICY in Letter-Foundery, is ſometimes uſed, for a Rule that regulates the Number of Letters of each Kind in a compleat Font; *i. e.* to determine how many, in Proportion to the whole Set, there are to be of each particular Kind. See LETTER, *&c.*

For inſtance, in a Font of an hundred thouſand Characters, there are to be a thouſand for the *e*, five thouſand for *a*, three thouſand for the *m*, thirty only for *k*, as many or a little more for the *x*, the *y*, and *z*; and in Proportion for the other Letters, the great and little Capitals, the initial Letters, Points, Comma's, double Letters, *&c.* See *Letter*-FOUNDERY.

POLIOPTRUM, or POLYOPTRON, in Opicks. See POLYOPTRON.

POLISHER, an Inſtrument call'd alſo a *Burniſher*, uſed for poliſhing and burniſhing Gold, Silver, and other Metals, when gilt or ſilver'd; and Matters of other Kinds proper to take a Poliſh. See BURNISHER and POLISHING.

The *Poliſher* is different in the different Arts and Manufactories.——The Gilders uſe an Iron *Poliſher* to prepare their Metals before Gilding, and the Blood Stone to give them the bright Poliſh after Gilding. See GILDING.

The *Poliſher* uſed by the Makers of Spurs, Bits, *&c.* is part Iron, part Steel, and part Wood.——The Inſtrument conſiſts of an Iron Bar, with a wooden Handle at one End, and a Hook at the other, to faſten it to another Piece of Wood held in the Vice, while the Operator is at Work. In the Middle of the Bow, within ſide, is what they properly call the *Poliſher*, which is a triangular Piece of Steel with a Tail, whereby it is riveted to the Bow.

What the Cutlers call their *Poliſhers*, are a kind of wooden Grindſtones (if we may be allow'd the Word) made of Wallnut-tree, an Inch thick, and of a Diameter at Pleaſure. They are turn'd by the Great Wheel; and 'tis on theſe they poliſh and ſmooth their Works with Emery and Putty.

The *Poliſhers* uſed in the Manufactures of Glaſs are very different from all theſe.——They conſiſt of two Pieces of Wood, the one flat, cover'd with old Hat; the other long and half round, is faſten'd on the former, whoſe Edge it exceeds on both Sides by ſome Inches, which ſerve the Workman to take hold of, and to work it backwards and forwards by. See GLASS.

The Poliſhers uſed by Spectacle-Makers are Pieces of Wood a Foot long, ſeven or eight Inches broad, and an Inch and half thick, cover'd with old Caſtor-Hat, whereon they poliſh the Shell and Horn Frames their Spectacle Glaſſes are to be ſet in. See SPECTACLE.

POLISHING, the Art of giving a Gloſs, Luſtre, or Brillant to a thing, particularly a precious Stone, Marble, Glaſs, Mirror, or the like. See LUSTRE, *&c.*

POLISHING *of Glaſſes, Lens's, &c.* ſucceeds the Grinding thereof. See GRINDING; ſee alſo GLASS, LENS, *&c.*

The *Poliſhing* of a Mirror is the laſt Preparation given it, with Emery or Putty. See MIRROR.

For the *Poliſhing* of Diamonds, *&c.* ſee DIAMOND, *&c.*

POLITICAL, ſomething that relates to Policy or Civil Government. See POLICY and GOVERNMENT.

In this Senſe we ſay, *Political Intereſts*, *Political Views*, *Political Diſcourſes*, &c.

The Word is form'd from the Greek πολις, *Civitas*, City.

POLITICAL *Arithmetick* is the Application of arithmetical Calculations to *Political* Uſes; as, the publick Revenues, Number of People, Extent and Value of Lands, Taxes, Trade, Commerce, Manufactures, or whatever relates to the Power, Strength, Riches, *&c.* of any Nation, or Commonwealth. See ARITHMETICK.

The chief Authors who have attempted Calculations of this Kind, are Sir *William Petty*, Major *Grant*, Dr. *Halley*, Dr. *Davenant*, and Mr. *King*; and the principal Points ſettled by each hereof are as follows.

According to Sir *William Petty*'s Computations, tho' the Land of *Holland* and *Zealand* be not above 1000000 Acres, nor that of *France* leſs than 80,00000, yet the former are near a third Part as rich and ſtrong as the latter.——That the Rents of Lands in *Holland* are to thoſe in *France*, as 7 or 8 to 1.——That the People of *Amſterdam* are $\frac{2}{3}$ of thoſe of *Paris* or *London*; which, according to him do not differ above a 20th Part from one another.—That the Value of the Shipping of *Europe* is about Two Millions of Tuns, whereof the *Engliſh* have 500000, the *Dutch* 900000, the *French* 100000; the *Hamburghers*, *Danes*, *Swedes*, and *Dantzickers* have 250000; and *Spain*, *Portugal*, *Italy*, &c. about as much.—That the Value of Goods exported yearly from *France* into all Parts, is quadruple of that exported into *England* alone, and conſequently in all about 5000000: What is exported out of *Holland* into *England* is worth 300000 *l.* and what is exported thence into all the World 18000000 *l.*—That the Money yearly raiſed by the *French* King, in Time of Peace, is about 6 $\frac{1}{2}$ Millions Sterling; And that the Monies raiſed in *Holland* and *Zealand* are about 2100000 *l.* And in all the Provinces together about 3000000 *l.*—That the People of *England* are about 6000000, and their Expences at 7 *l. per Annum* a Head, 42000000 *l.* or 800000 *l.* a Week.—That the Rent of the Lands is about 8 Millions, and the Intereſts and Profits of the perſonal Eſtates as much.—The Rent of Houſes in *England* 4000000 *l.* That the Profits of the Labour of all the People is 26000000 *l.* yearly—That in *Ireland* the People amount to about 1200000—That the Corn ſpent in *England*, at 5 *s.* the Buſhel for Wheat, and 2 *s.* 6 *d.* for Barley, amounts to Ten Millions *per Annum*.—That the Navy of *England* (then) required 36000 Men to man it, and other Trade and Shipping about 48000.—That in *France*, to manage the whole Shipping Trade, there are required 15000 Men. That the whole People of *France* are about Thirteen Millions and a half; and thoſe of *England*, *Scotland*, and *Ireland*, together, about Nine Millons and a half.—That in the three Kingdoms are about 20000 Churchmen; and in *France* above 270000.——That in the Dominions of *England* above are 40000 Seamen, and in *France* not above 10000.—That in *England*, *Scotland*, and *Ireland*, and all other Dominions depending thereon, there was then about 60060 Tun of Shipping; which is worth about Four Millions and a half in Money.——That the Sea-Line round *England*, *Scotland*, and *Ireland*, and the adjacent Iſles, is about 3800 Miles.—That in the whole World are about 300 Millions of People; whereof thoſe with whom the *Engliſh* and *Dutch* have any Commerce, are not above 80 Millions.——That the Value of Commodities traded for in the whole is not above 45000000. That the Manufactures exported out of *England* amount to about 5000000 *l. per Annum.* Lead, Tin, and Coals to 500000 *l. per Ann.*——That the Value of the *French* Commodities (then) brought into *England* did not exceed 1200000 *l. per Ann.*—That the whole Caſh of *England*, in current Money, was then about 6000000 *l.* Ster.

Dr. *Davenant* gives ſome good Reaſons, why many of Sir *Wm. Petty*'s Numbers are not to be entirely depended upton; and therefore advances others of his own, founded on the Obſervations of Mr. *Greg. King*.

Some of the Particulars are,—That the Land of *England* is 39 Millions of Acres.—That the Number of People, according to his Account, is about 5545000 Souls, they increaſing about 9000 every Year, Allowances being made for Plagues, *&c.* Wars, Shipping, and the Plantations.—The People of *London* he reckons at 530000. Thoſe in the other Cities and Market-Towns in *England* 870000, and thoſe in the Villages and Hamlets at 4100000——The yearly Rent of the Land he accounts to be 10,000000 *l.*—That of the Houſes and Buildings 2,000000 *l. per Ann.*——The Produce of all Kinds of Grain he reckons to be worth 9,075000 *l.* in a Year moderately plenty.——The Rent of the Corn Lands annually, 2,000000 *l.* and the neat Produce above 9,000000 *l.*——The Rent of the Paſture, Meadows, Woods, Foreſts, Commons, Heaths, *&c.* 7,000000 *l.*——The annual Produce by Cattle, in Butter, Cheeſe, and Milk, he thinks, is about 2,500000 *l.*——The Value of the Wool yearly ſhorn about 2,000000 *l.*—Of Horſes yearly bred about 250000 *l.*—Of the Fleſh yearly ſpent as Food, about 3,350000 *l.*—Of the Tallow and Hides about 600000 *l.*—Of the Hay yearly conſumed by Horſes about 1,300000 *l.* Of Hay conſumed by other Cattle 1,000000 *l.*—Of the Timber yearly fell'd for Building, 500000 *l.* Of the Wood yearly ſpent in Firing, *&c.* about 500000 *l.*—The Land of *England* to its Inhabitants is now about 7 $\frac{1}{4}$ Acres *per* Head.——The Value of the Wheat, Rye, and Barley, neceſſary for the Suſtenance of *England*, amounts to at leaſt 6,000000 *l. Sterl. per Annum.*—The Value of the Woollen Manufacture made here is about 8,000000 *l. per Annum*; and our Exports of all Kinds of the Woollen Manufacture amount to above 2,000000 *l. per Ann.*—The annual Income of *England*, on which the whole People live and ſubſiſt, and out of which Taxes of all Kinds are paid, is now about 43,000000 *l.*——that of *France* 81,000000 *l.* and that of *Holland* 18,250000 *l.*

Major *Grant*, in his Obſervations on the Bills of Mortality, computes that there are 39000 ſquare Miles of Land in *England*.—That in *England* and *Wales* there are 4,600000 Souls.—That the People of *London* are about 640000; one fourteenth Part of the People of *England*.——That in *England* and *Wales* are about 10,000 Pariſhes.—That there are 25 Millions of Acres in *England* and *Wales*; *viz.* about 4 Acres to every Head.—That but 64 out of 100 of the Children born, are living at 6 Years old.—That but 40 of 100, are alive at 16 Years End.—That but 25 of 100 at 26 Years End.—That but 16 at 36 Years End.—That but 10 out of 100 at 46 Years End.—That but 6 out of 100 at 56 Years End.—That but 3 out of 100 at 66 Years End. And that but 1 out of 100 at 76 Years End.—And that *London* doubles itſelf in about 64 Years.

Sir *William Petty*, in his Diſcourſe about Duplicate Proportion, further tells us, that it is found by Experience, that there are more Perſons living between 16 and 26 than of any other Age; and laying down that as a Suppoſition, he infers, That the ſquare Roots of every Number of Mens Ages under 16 (whoſe Root is 4) ſhews the Proportion of the Probability of ſuch Perſons reaching the Age of 70 Years.

Thus, It is 4 times more likely, that one of 16 Years Age lives to be 70, than a Child of one Year old.—It is thrice as probable, that one of 9 Years lives to be 70, as ſuch a new-born Child, *&c.*—That the Odds is 5 to 4, that one of 25 dies before one of 16 Years.—That it is 6 to 5, (ſtill as the ſquare Roots of the Ages) that one of 36 Years old dies before one but of 25 Years of Age. And ſo on according to any declining Age to 70, compared with 4. 6: which is nearly the Root of 21, the Law-Age.

Dr. *Halley* has made a very exact Eſtimate of the Degrees of the Mortality of Mankind, from curious Tables of the Births and Burials, at the City of *Breſlau*, the Capital of *Sileſia*; with an Attempt to aſcertain the Price of Annuities upon Lives.—From a Table which he has calculated thence, publiſh'd in the *Phil. Tranſ.* he derives the following Uſes.

1°. To find in any Multitude or Body of People, the Proportion of Men able to bear Arms; which he reckons from 18 to 56 Years old; and accounts about $\frac{1}{4}$ of the whole.—2°. To ſhew the different Degrees of Mortality, or rather Vitality, in all Ages; by which means he finds the Odds there is, that any Perſon of any Age doth not die in a Year's Time, or before he attains ſuch an Age.—3°. To ſhew of what Number of Years it is an even Lay that ſuch a Perſon ſhall die; and finds, for inſtance, that it is an even Lay, that a Man of thirty Years of Age lives between twenty ſeven and twenty eight Years.—4°. To regulate the Price of Inſurance upon Lives. 5°. And the Valuation of Annuities upon Lives. 6°. How to value two or three Lives after the ſame Manner. See Annuity.

From the whole, he makes two very good Obſervations. 1. How unjuſtly we uſe to complain of the Shortneſs of our Lives; for that it appears, that one half of thoſe that are born, do not live above ſeventeen Years.

2. That the Growth and Increaſe of Mankind is not ſo much ſtinted by any thing in the Nature of the Species, as it is from the curious Difficulty moſt People make of venturing on the State of Marriage: And therefore that Celibacy ought to be every way diſcouraged by all wiſe Governments; and thoſe who have numerous Families of Children to be countenanced and encouraged by good Laws; ſuch as the *Jus trium liberorum*, *&c.* among the *Romans*.

Farther Particulars relating to the Number of *Births*, and *Burials*, the *Proportion of Males and Females*, &c. *See under the Article* Marriage, Birth, Male, *&c.*

POLITICKS, Politice, the firſt Part of Oeconomy or Ethicks, conſiſting in the governing and regulating of States, for the Maintenance of the Publick Safety, Order, Tranquility, and good Morals. See Ethicks, Philosophy, Government, *&c.*

My Lord *Bacon* divides *Politicks* into three Parts; with regard to the three grand Ends thereof, or the three Offices incumbent on thoſe who have the Adminiſtration; *viz.* the *Preſervation* of the State, the Happineſs and *Flouriſhing* of the State, and the *Enlargement* of its Bounds, *&c.*

The two firſt Parts he obſerves are well handled by ſeveral Authors; but about the third there is a deep Silence.—He ranks this therefore in the Number of the *Deſiderata*, and gives us a Specimen of an Eſſay to ſupply it.

We have ſeveral Syſtems of *Politicks* by *Ariſtotle*, *Machiavel*, *Lipſius*, *&c.* In which laſt we have nothing but Particles, and Conjunctions of the Author's own; the Body of the Book being all Quotations.

The Word is form'd from the Greek πολις, *Civitas*.

POLITY, or Policy. See Policy.

POLIUM, a medicinal Plant, which makes an Ingredient in the Treacle of Andromachus. See Treacle.

It grows in mountainous Places, and is thence denominated *Montanum*.—The Tops of its Flowers are eſteem'd Cephalick, proper to promote Urine and the Menſes, and to prevent Corruption.

It has its Name from the *Greek* πολιὸς, *White*; in regard the Heads of the *Polium* of the Ancients, according to *Dioſcorides*, and the Leaves according to *Pliny*, were white.

POLL, a Term uſed in ancient Writings for the Head. See Head.

The Word is doubtleſs form'd from *Pole*; this Part being as it were the Pole of the Microcoſm. See Pole.

Hence, *to poll*, is to enter down the Names of Perſons, who give their Votes or Voices at an Election. See Vote, Voice, Suffrage, Election, *&c.*

POLLARD, among Hunters, a Stag or Male Deer, which has caſt its Head. See Head, Hunting, *&c.*

Pollard, or *Pollenger*, in Agriculture, an old Tree which has been often lopp'd. See Tree.

POLL-*Money*, or *Capitation*, a Tax impoſed by Authority of Parliament, on the Perſon or Head; either on all indifferently, or according to ſome known Mark of Diſtinction, as Quality, Calling, *&c.* See Tax and Capitation.

Thus, by the Statute 18 *Car.* II. every Subject in the Kingdom was aſſeſs'd by the *Head* or *Poll*, according to his Degree; every Duke 100 *l.* Marquis 80 *l.* Baronet 30 *l.* Knight 20 *l.* Eſquire 10 *l.* *&c.* and every ſingle private Perſon 12 *d.*

This was no new Tax; as appears by former Acts of Parliament, particularly that *Anno* 1380, where, *Qui libet tam conjugatus quam ſolutus, utriuſq; ſexus, pro Capite ſuo ſolvere cogebatur.* Walſingh.

Camden, in his Remains, *of Coins*, ſays there was anciently a perſonal Tribute, call'd *Captitatio*, *Poll*-Silver, impoſed on the *Poll*, or Perſon of every one; on Women from the Age of 12 Years, and on Men from 14.

POLLUTION, Pollutio, the Act of profaning a Temple or Holy Place. See Propanation.

The Romaniſts hold a Church to be polluted by the Effuſion of Blood, or of Seed therein; and require its being conſecrated a-new.

The Jews were held polluted by the touching of a dead Body, or of the Menſes of Women; and were to be purified in From. See the Laws hereof in *Leviticus*.

The *Indians* are ſo ſuperſtitious on the Head of *Pollution*, that they break all the Veſſels which thoſe of another Religion have drunk out of, or even touch'd; and drain all the Water out of a Pond a Stranger has bath'd in.

Pollution, or *Self*-Pollution, is alſo uſed for the abuſing or defiling of one's own Body, by Means of laſcivious Frictions and Titillations, rais'd by Art, to produce an Emiſſion. See Emission.

We read in Scripture, that *Err* and *Onan* were ſeverely puniſh'd for having polluted themſelves by ſpilling their Seed on the Ground; whence the Crime has been denominated by ſome Emperics, *Onania*. See Onania.

Of *Pollutions* ſome are *Voluntary*, others *Involuntary*, and *Nocturnal*.

Nocturnal-Pollution is an involuntary Emiſſion of Seed, from a too great Turgeſcency of the Seminal Veſſels, or from the Seed's being too ſharp and irritating, or from a Weakneſs of the Parts. See Seed.

The Romiſh Church puts up Prayers in the Cloſe of the Evening Office, to be preſerved from Nocturnal *Pollutions*.

POLLUX, in Aſtronomy, the Hind Twin; or Hind Part of the Conſtellation *Gemini*. See Gemini.

Pollux is alſo a Star of the 2d Magnitude in the Conſtellation *Gemini*, or the Twins. See Gemini.

Its Place is in the Head of the Hind-Twin, named *Pollux*. —Its Longitude 18° 56′ 09″. Its Latitude 6° 39′ 27″ N.

Pollux is alſo uſed in Meteorology. See Castor.

POLTROON, or Poltron, a *Coward*, or Daſtard; wanting Courage to perform any thing great, or noble. See Coward.

The Word we borrow from the *French*, who, according to *Salmaſius*, derive it a *Pollice truncato*; becauſe antiently thoſe who would avoid going to the Wars, cut off their Thumbs. See Thumbs.

But *Menage*, with more Probability, derives it from the *Italian*, *Poltrone*, and *Poltro*, a Bed; becauſe timerous, puſillanimous People take Pleaſure in lying a Bed.—He adds, that the *Italian*, *Poltro*, is again derived from the *German*, *Polſter*, a Pillow or Cuſhion.

Others derive the Word from the *Italian*, *Poltro*, Colt; becauſe of that Creature's Readineſs to run away.

Poltron, in Faulconry, is a Name given to a Bird of Prey, when the Nails and Talons of his Hind-Toes are cut off, wherein his chief Force and Armour lay; in order to intimidate him, and prevent his flying at great Game. See Hawk and Hawking.

POLYACOUSTICKS, Inſtruments contrived to multiply Sounds; as multiplying Glaſſes, or Polyſcopes do Images of Objects. See Phonicks, Sound, *&c.*

The Word is compounded of the Greek πολυ, *much*, and ακυω, *audio*, I hear. See Acousticks.

POLYANTHEA, a famous Collection of Common-Places, in Alphabetical Order; of great Service to Orators, Preachers, *&c.* of the lower Claſs. See Common-Place.

Its firſt Author was *Dominic Nanni de Mirabella*.

The Word is form'd from the *Greek*, πολὺ, *much*, and ἄνθος, *Flower*.—And is of much the ſame Significancy with *Anthology*, *Florilege*, &c. See Anthology.

Polyanthus, or *Polyanthium*, is alſo uſed to denote a Plant, which bears or produces ſeveral or many Flowers. See Plant and Flower.

The Word is compounded of πολῦ, *multus*, much, and ἄνθος, *Flos*, Flower.

The Word is more particularly uſed for a Species of the Hyacinth.

POLYGAMY, a Plurality of Wives, or of Husbands, held by the ſame Man or Woman, at the ſame time. See Wife and Husband.

Polygamy is prohibited among Chriſtians, but was allow'd by divine Appointment among the Jews; as it ſtill is among the *Mahometans*.

Maj. *Grant* obſerves, that the Males and Females brought into the World are nearly on a Balance; only abating for a little Exceſs on the Side of the Males, to make up for the extraordinary Expence thereof in War, and at Sea: whence it follows, that Nature only intends one Wife, or one Husband for the ſame Perſon; ſince, if they have more, ſome others muſt go without any at all — Hence he concludes, that the Chriſtian Law, which prohibits, is more agreeable to the Law of Nature than the *Mahometan*, and we may add, than the *Jewiſh* Law, which tolerates, *Polygamy*. See Marriage.

Yet *Selden* has proved, in his *Uxor Ebraica*, that Plurality of Wives was allow'd of, not only among the *Hebrews*, but almoſt among all other Nations, and in all Ages.—'Tis true, the ancient *Romans* were more ſevere in their Morals; and never practis'd it, tho' 'twas not forbid among them: And *Mark Anthony* is mentioned as the firſt who took the Liberty of two Wives. See Concubine.

From that Time it became pretty frequent in the Empire, till the Reigns of *Theodoſius*, *Honorius*, and *Arcadius*, who firſt prohibited it by expreſs Law in 393.—After this the

Emperor *Valentinian*, by an Edict, permitted all the Subjects of the Empire to marry ſeveral Wives; nor does it appear from the Eccleſiaſtical Hiſtory of thoſe Times that the Biſhops made any Oppoſition to this Introduction of *Polygamy*.

In effect, there are ſome even among the Chriſtian Caſuiſts who don't look on *Polygamy* as in itſelf criminal.—*Jurieu* obſerves, that the Prohibition of *Polygamy* is a poſitive Law, from which a Man may be exempted by ſoveraign Neceſſity.—*Baillet* adds, that the Example of the Patriarchs is the moſt preſſing Argument in favour of *Polygamy*.

At *London* we had ſome Years ago an artful Treatiſe publiſh'd in behalf of a Plurality of Wives, under the Title of *Polygamia Triumphatrix*; the Author whereof aſſumes the Name of *Theophilus Aletheus*; but his true Name was *Lyſerus* a Native of *Saxony*.—It has been anſwered by ſeveral.

Polygamy is alſo uſed in the Canon Law, for a Plurality of Wives, tho' only had ſucceſſively, or one at a Time. See Wife.

In the *Romiſh* Church this ſtill diſqualifies a Man for the Epiſcopate. See Bigamy.

The Word is form'd from the *Greek* πολὺ, *multum*, and γυνὴ, *Uxor*, Wife.

POLYCHRESTON, Polychrest, in Pharmacy, a Medicine that ſerves for many Uſes, or cures many Diſeaſes. See Panacea.

The Word is compounded of the *Greek* πολὺ, *multum*, much, and χρηστὸς, *utilis*, *uſeful*.

Sal-Polychrest is a compound Salt, made of equal Parts of Salt-Petre and Sulphur, laid on a Crucible firſt heated red hot for the Purpoſe. See Salt.

POLYEDRON. See Polyhedron.

POLYGLOTT, or Polyglotte, among Divines and Criticks, a Bible printed in ſeveral Languages. See Bible.

It is thus call'd from the *Greek* πολὺ, and γλῶττα, Tongue.

The firſt *Polyglott*-Bible is that of Cardinal *Ximenes*, printed in 1515, at *Alcala de Henares*; and commonly call'd the *Bible of Complutum*, or *Complutenſian Bible*.

It contains the *Hebrew* Text, the *Chaldee* Paraphraſe on the Pentateuch, the *Greek* Verſion of the LXX. and the ancient *Latin* Edition. See Pentateuch, Paraphrase, &c.

In this *Polyglott* there is no other *Latin* Verſion from the *Hebrew* beſide this laſt, but there is added another literal one from the *Greek* Septuagint.——The *Greek* Text of the New Teſtament is here printed without Accents, to bring it nearer to the Original of the Apoſtles, or at leaſt to the moſt ancient Copies, wherein there are no Accents found. See Accent.

At the End is added an Apparatus of Grammars, Dictionaries, and Indices or Tables.——The chief Author, *Ximenes de Cineros*, Cardinal and Archbiſhop of *Toledo*, in his Dedication to Pope *Leo* X. obſerves, that it was neceſſary to give the Holy Scriptures in their Originals; there being no Tranſlation, how perfect ſoever, that can render them perfectly.

The ſecond *Polyglott* is that of *Philip* II. printed by *Plantin* at *Antwerp*, in 1572. and the Care of the Edition impoſed on *Arias Montanus*.

In this, beſides every thing in the Bible of *Complutum*, are added the *Chaldee* Paraphraſes on the reſt of the Old Teſtament beſide the *Pentateuch*, with a *Latin* Tranſlation of thoſe Paraphraſes. In this *Polyglott* is likewiſe a very literal *Latin* Verſion of the *Hebrew* Text, for the Uſe of thoſe who have a mind to learn the *Hebrew* Language.

As to the New Teſtament, beſide the *Greek* and *Latin* of the Bible of *Alcala*, in this Edition is added an antient *Syriac* Verſion, both in *Syriac* and *Hebrew* Characters, with Points, to facilitate the reading thereof to thoſe accuſtomed to read *Hebrew*.—To the *Syriac* is likewiſe added a *Latin* one, compoſed by *Guy le Fevre*, who had the Care of the *Syriac* Verſion of the New Teſtament.

Laſtly, in the *Polyglott* of *Antwerp* is added a more copious Apparatus of Grammars, Dictionaries, *&c.* than in that of *Complutum*; with ſeveral little Treatiſes judg'd neceſſary for clearing up the more difficult Paſſages in the Text.

The third *Polyglott* is that of *M. Jay*, printed at *Paris* in 1645. which has this Advantage over that of *Philip* II. that it has the *Syriac* and *Arabic* Verſions of the Old Teſtament with *Latin* Interpretations.——In the *Pentateuch* it has likewiſe the *Hebrew* and *Samaritan* Text; and the *Samaritan* Verſion in *Samaritan* Characters.

As to the New Teſtament, beſide every thing in the *Polyglott* of *Antwerp*; here is added an *Arabic* Tranſlation, with a *Latin* Interpretation.—But here wants the Apparatus, and the Grammars and Dictionaries, which are in both the former *Polyglots*, which renders this great Work very imperfect.

The fourth *Polyglott* is that of *London*, printed in 1657, call'd *Walton's Polyglott*, from the Author of the Edition Dr. *Brian Walton* afterwards Biſhop of *Wincheſter*.

This is indeed leſs magnificent than that of M. *Jay*, with regard both to the Size of the Paper, and the Beauty of the Characters; but is in all other reſpects preferable; being both much more ample and more commodious.

In this, the Vulgate is printed according to the reviſed and corrected Edition of *Clement* VIII. which is not done in that of *Paris*, where the Vulgate is printed as it ſtands in that of *Antwerp* before the Correction. See Vulgate.

It likewiſe contains an interlineary *Latin* Verſion of the *Hebrew* Text; whereas the *Paris* Edition has no other *Latin* Verſion from the *Hebrew* beſide the common Vulgate: again, the *Greek Septuagint* printed in this *Polyglott* is not the ſame with that printed in the Bible of *Complutum*, which was retained in the Editions of *Antwerp* and *Paris*; but the *Greek* Text of the Edition of *Rome*: to which are added the various Readings of another very antient *Greek* Copy call'd the *Alexandrian*, becauſe brought from *Alexandria*. See Septuagint.

The *Latin* Verſion of the *Greek* of the Seventy is that publiſh'd by *Flaminius Nobilius*, by Authority of Pope *Sixtus* V. Add, that in this *Polyglott* are found ſome Parts of the Bible in *Ethiopian* and *Perſian*, nothing whereof appears in any of the reſt.

Laſtly, this Edition has the Advantage of Preliminary Diſcourſes call'd *Prolegomena*, on the Text both of the Originals, and Verſions; with a Volume of various Readings of all the different Editions.

To the Number of *Polyglotts* may likewiſe be added the two Pentateuch's printed by the *Jews* of *Conſtantinople*, in four Languages; but all in *Hebrew* Characters.

In one of theſe Pentateuch's, printed in 1551, is found the Hebrew Text in large Characters; on one ſide whereof is the *Chaldee* Paraphraſe of *Onkelos* in moderate Characters; and on the other ſide a Paraphraſe in the *Perſian*, compoſed by a Jew, one *Jacob de Tous*, ſo call'd from the City where he lived.——Beſide theſe three Columns, the *Arabic* Paraphraſe of *Saadias Gaon* is printed in ſmall Characters a-top of the Pages; and at bottom is added the Commentary of *Raſei*.

The other *Polyglott* is printed at *Conſtantinople* in 1547, in three Columns like the former.——The *Hebrew* Text of the Law is in the middle, a Tranſlation into the Vulgar *Greek* on one ſide, and a *Spaniſh* Tranſlation on the other. Theſe Verſions are both in *Hebrew* Characters, with Points to determine the Pronunciation. A-top of the Page is added the *Chaldee* Paraphraſe of *Onkelos*, and at the bottom the Commentaries of *Raſei*.

To theſe may be added as a ſeventh *Polyglott*, the Pſalter publiſhed by *Aug. Juſtinian*, a Dominican, and Biſhop of *Nebio*, at *Genoa* 1516; containing the *Hebrew*, *Greek*, *Arabic*, and *Chaldee*, with *Latin* Interpretations and Gloſſes. See Psalter.

There are various other Editions of the Bible either in whole or in part, which might be rang'd under the Article of *Polyglotts*; tho' they are not ſo denominated—ſuch are the *Hexapla*, and *Octapla*, of *Origen*. See Hexapla and Octapla.

And the Bible of *Hutter* printed at *Hambourg*, in *Hebrew*, *Chaldee*, *Greek*, *Latin*, *German*, *Saxon*, *Italian*, *French*, *Sclavonic*, *Daniſh*, &c. See Bible.

POLYGON, in Geometry, a multilateral Figure; or a Figure whoſe Permeter conſiſts of more than four Sides, and Angles. See Figure, Perimeter, *&c.*

If the Sides and Angles be equal, the Figure is call'd a *Regular Polygon*. See Regular.

The Word is form'd from the *Greek* πολὺ and γόνυ, *Knee*, Angle.

Polygons are diſtinguiſh'd according to the Number of their Sides.——Thoſe of fives Sides are call'd *Pentagons*; thoſe of ſix, *Hexagons*; thoſe of ſeven, *Heptagons*; thoſe of eight, *Octagons*, &c. The particular Properties, *&c.* of each whereof, ſee under its proper Article, Pentagon, Hexagon, *&c.*

General Properties of POLYGONS.

Euclid demonſtrates theſe which follow.——1° That every *Polygon* may be divided into as many Triangles as it hath Sides. See Triangle.

This is done by aſſaulting a Point as F, (*Tab. Geometry, Fig.* 29.) any where within the *Polygon*, and thence drawing Lines to every Angle F*a*, F*b*, F*c*, F*d*, *&c.*

2° The Angles of any *Polygon* taken together, make twice as many right ones, abating four, as the Figure hath Sides. See Angle.

Thus, if the *Polygon* have five Sides; the double of that is 10; whence ſubtracting 4 there remains 6 right ones.

3° Every *Polygon* circumſcribed about a Circle is equal to a rectangled Triangle, one of whoſe Legs is the Radius of the Circle, and the other the Perimeter or Sum of all the Sides of the *Polygon*.

Hence, every Regular *Polygon* is equal to a Rectangle Triangle, one of whoſe Legs is the Perimeter of the *Polygon*, and the other a Perpendicular drawn from the Centre to one of the Sides of the *Polygon.* See TRIANGLE.

Hence alſo every *Polygon* circumſcribed about a Circle is bigger than it; and every *Polygon* inſcribed, leſs than the Circle.—The ſame likewiſe appears hence, that the thing containing is ever greater than the thing contain'd.

And hence again, the Perimeter of every *Polygon* circumſcribed about a Circle, is greater than the Circumference of that Circle; and the Perimeter of every *Polygon* inſcribed, leſs: whence it ſollows, that a Circle is equal to a Right Angle Triangle, whoſe Baſe is the Circumference of the Circle, and its Height the Radius; ſince this Triangle is leſs than any *Polygon* circumſcribed, and greater than any inſcribed. See CIRCUMSCRIBING.

Nothing therefore is wanted to the Quadrature of the Circle, but to find a right Line equal to the Circumference of a Circle. See CIRCLE, CIRCUMFERENCE, QUADRATURE, *&c.*

To find the Area of a Regular Polygon.——Multiply a Side of the *Polygon,* as A B, by half the Number of the Sides, *e. gr.* the Side of a Hexagon by 3. Again, multiply the Product by a Perpendicular let fall from the Centre of the circumſcribing Circle to the Side A B; the Product is the Area required. See AREA.

Thus, ſuppoſe A B, 54; and half the Number of Sides $2\frac{1}{2}$; the Product or Semiperimeter is 135. Suppoſing then the Perpendicular F*g*, 29; the Product of theſe two, 3915, is the Area of the Pentagon required.

To find the Area of an irregular Polygon, or *Trapezium.*——Reſolve it into Triangles; find the ſeveral Areas of the ſeveral Triangles, ſee TRIANGLE; the Sum of theſe is the Area of the *Polygon* required. See TRAPEZIUM.

To find the Sum of all the Angles in any Polygon.—Multiply the Number of Sides by 180°: From the Product ſubtract 360; the Remainder is the Sum required.

Thus in a Pentagon, 180 being multiplied by 5 gives 900; whence ſubtracting 360 there remains 540; the Sum of the Angles of a Pentagon.

Hence, if the Sum found be divided by the Number of Sides; the Quotient will be the Angle of a regular *Polygon.*

Or, the Sum of the Angles is more ſpeedily found thus: Multiply 180 by a Number leſs by two than the Number of Sides of the *Polygon*; the Product is the Quantity of the Angles required: thus 180 being multiplied by 3, a Number leſs by 2, than that of its Sides; the Product is 540, the Quantity of Angles as before.

The following Table exhibits the Sums of the Angles in all rectilinear Figures, from a Triangle to a Dodecagon; and is of good uſe both for the deſcribing of regular Figures, and for proving whether or no the Quantity of Angles have been truly taken with an Inſtrument. See REGULA, FIGURE, *&c.*

Numb. Sides.	*Sum. Ang.*	*Ang. of Reg. Fig*	*Numb. Sides*	*Numb Angl.*	*Ang. of Reg. Fig*
III	180°	60°	VIII	1080°	135
IV	360	90	IX	1260	140
V	540	108	X	1440	144
VI	720	120	XI	1620	$147\frac{3}{11}$
VII	900	$128\frac{4}{7}$	XII	1800	150

To inſcribe a regular Polygon in a Circle.——Divide 360 by the Number of Sides in the *Polygon* required, to find the Quantity of the Angle E F D. Set off the Angle at the Centre, and apply the Chord thereof E D, to the Periphery, as often as 'twill go.——Thus will the *Polygon* be inſcribed in the Circle.

The Reſolution of this Problem, tho' it be Mechanical; yet is not to be deſpis'd, becauſe both eaſy and univerſal.—*Euclid,* indeed, gives us the Conſtruction of the Pentagon, Decagon, and Quindecagon; and other Authors give us thoſe of the Heptagon, Enneagon, and Hendecagon; but they are far from Geometrical Strictneſs.

Renaldinus lays down a Catholic Rule for the deſcribing of all *Polygons,* which many other Geometricians have borrow'd from him; but *Wagnerus* and *Wolfius* have both demonſtrated the Falſity thereof.

On a Regular Polygon to circumſcribe a Circle: or to *circumſcribe a regular Polygonupon a Circle.*—Biſſect two of the Angles of the given *Polygon* A and E, by the right Lines A F and E F, concurring in F. And from the Point of Concourſe with the Radius E F deſcribe a Circle.

To circumſcribe a *Polygon,* &c. Divide 360 by the Number of Sides required, to find *e* F *d*; which ſet off from the Centre F, and draw the Line *e d*; on this Conſtruct the *Polygon* as in the following Problem:

On a given Line, E D, *to deſcribe any given regalar Polygon.*——Find an Angle of the *Polygon* in the Table; and in E ſet off an Angle equal thereto, drawing E A = E D. Thro' the three Points A E D deſcribe a Circle. See CIRCLE. In this apply the given right Line as often as it will go.—Thus will the required Figure be deſcribed.

To inſcribe or circumſcribe a Regular Polygon, Trigonometrically.——Find the Sine of the Arch produced by dividing the Semi-Periphery 180 by the Number of Sides of the *Polygon*: the double of this is the Chord of the double Arch, and therefore the Side A E to be inſcribed in the Circle.——If then the Radius of a Circle wherein, *e. gr.* a Pentagon is to be inſcribed, be given in any certain Meaſure *e. gr.* 345. the Side of the Pentagon is found in the ſame Meaſure by the Rule of Three, Thus as Radius 10000 is to 1176 : : ſo is 3450, to 4057. The Side of the Pentagon. —With the given Radius therefore deſcribe a Circle; and therein ſet off the Side of the *Polygon* as often as 'twill go; thus will a *Polygon* be inſcribed in the Circle.

To ſave the trouble of finding the Ratio of the Side of the *Polygon* to radius, by the Canon of Sines; we ſhall add a Table expreſſing the Sides of *Polygons* in ſuch Parts whereof Radius contains 100000000. In practice, as many Figures are cut off from the Right-Hand, as the Circumſtances of the Caſe render needleſs.

Numb. Sides	*Quantity Side*	*Numb. Sides*	*Quantity Side*
III	17320508	VIII	7653668
IV	14142135	IX	6840402
V	11755705	X	6180339
VI	10000000	XI	5634651
VII	8677674	XII	5176380

To deſcribe a Regular Polygon, on a given right Line, and to circumſcribe a Circle about a given Polygon, Trigonometrically.—Taking the Ratio of the Side to the Radius out of the Table; find the Radius in the ſame Meaſure wherein the Side is given. For the Side and Radius being had, a *Polygon* may be deſcribed by the laſt Problem. And if with the Interval of the Radius, Arches be ſtruck from the two Extremes of the given Line the Point of Interſection will be the Centre of the circumſcribing Circle.

POLYGON, in Fortification, is the Figure or Perimeter of a Fortreſs or fortified Place. See FORTIFICATION.

Exterior-POLYGON is a right Line drawn from the *Vertex* or Point of a Baſtion, to the *Vertex* or Point of the next adjacent Baſtion. See BASTION.

Such is the Line C F, *Fab. Fortification, Fig.* 1.

Interior-POLYGON is a right Line drawn from the Center of one Baſtion to the Centre of another, ſuch is the Line G H.

Line of POLYGONS, is a Line on the *French* Sectors, containing the homologous Sides of the firſt 9 regular *Polygons,* inſcribed in the ſame Circle, *i. e.* from an Equilateral Triangle to a Dodecagon. See SECTOR.

POLYGONAL *Numbers,* in Algebra, are the Sums of Arithmetical Progreſſions, beginning from Unity. See SERIES, NUMBER, PROGRESSION, *&c.*

Polygonal Numbers are divided, with reſpect to the Number of their Terms, into *Triangular,* which are thoſe whoſe difference of Terms is 1; *quadrangular* or *ſquare,* where 'tis 2; *Pentagonal,* where 3; *Hexagonal,* where 4; *Heptagonal,* where 5; *Octagonal,* where 6, *&c.*

They have their Names from the Geometrical Figures into which Points correſponding to their Units, may be diſpoſed *e, gr.* three Points correſponding to the three Units of a triangular Nnmber may be diſpoſed into a Triangle; and ſo of the reſt. See TRIANGULAR, *&c.*

The Geneſis of the ſeveral kinds of *Polygonal* Numbers from the ſeveral Arithmetical Progreſſions, may be conceived from the following Examples.

Arithmetical Progreſſion	1,	2,	3,	4,	5,	6,	7,	8
Triangular Numbers	1,	3,	6,	10,	15,	21,	28,	36
Arithmetical Progreſſion	1,	3,	5,	7,	9,	11,	13,	15
Square Numbers	1,	4,	9,	16,	25,	36,	49,	64
Arithmetical Progreſſion	1,	4,	7,	10,	13,	16,	19,	21
Pentagonal Numbers	1,	5,	12,	22,	35,	51,	70,	92
Arithmetical Progreſſion	1,	5,	9,	13,	17,	21,	25,	29
Hexagonal Numbers	1,	6,	15,	28,	45,	66,	91,	120

The Side of a Polygonal Number is the Number of Terms of the Arithmetical Progreſſion that are ſumm'd up to conſtitute it: And the *Number of Angles* is that which ſhews how many Angles that Figure has whence the *Polygonal* Number takes its Name.

The Number of Angles, therefore, in Triangular Numbers is 3. In Tetragonal 4. In Pentagonal 5, *&c.* conſequently the Number of Angles exceeds the difference of Terms ſumm'd up, by two Units.

To find a Polygonal Number, the Side and Number of its Angles being given. The Canon is this.——The *Polygonal*

Number is the Semi-difference of the Factums of the Square of the Side into the Number of Angles, diminiſhed by two Units; and of the Side itſelf into the Number of Angles diminiſh'd by four Units.

The Sums of *Polygonal Numbers* collected in the ſame manner as the *Polygonal* Numbers themſelves are out of Arithmetical Progreſſions; are called *Pyramidal Numbers.* See PYRAMIDAL.

POLYGRAPHY, POLYGRAPHIA, POLYGRAPHICE, the Art of writing in various unuſual, Manners or Cyphers; as alſo of decyphering the ſame. See WRITING.

The Word is uſually confounded with *Steganography* and *Cryptography.* See STEGANOGRAPHY and CRYPTOGRAPHY.

The Antients ſeem to have been very little acquainted with this Art; nor is there any Mark of their having gone beyond the *Lacedemonian Scytala.* See SCYTALA.

Trithemius, Porta, Vigenere, and Father *Niceron,* have wrote on the ſubject of *Polygraphy* or Cyphers. See CYPHER.

The Word is form'd from the *Greek* πολὺ, *multum,* and γράφω, ſcriptura, *writing.*

POLYHEDRON, POLYEDRON, in Geometry, a Body comprehended under ſeveral Faces or Sides. See BODY and SOLID.

Such are all the five regular Bodies; *viz.* the Tetrahedron, Octahedron, Cube or Exahedron, Dodecahedron, and Icoſihedron. *See each under its proper Article.*

If the Sides of the *Polyhedron* be regular Polygons, all ſimilar and equal; the *Polyhedron* becomes a *regular Body,* and may be inſcribed in a Circle. See REGULAR *Body,* &c.

Gnomonic POLYHEDRON, is a Stone with ſeveral Faces, whereon are projected various kinds of Dials. See DIAL.

Of this kind that in the *Privy-Garden, London,* now gone to ruin, was anciently the fineſt in the World.

The Word is form'd from the *Greek* πολυ, *much,* and ἕδρα, *Seat.*

POLYHEDRON, or POLYSCOPE, in Opticks, is a Glaſs or Lens conſiſting of ſeveral plain Surfaces, diſpoſed into a Convex Form; popularly call'd a *Multiplying-Glaſs.* See LENS and MULTIPLYING *Glaſs.*

The Phænomena of the *Polyhedron* are as follow.

Doctrine of the POLYHEDRON, *or Multiplying-Glaſs.*

If ſeveral Rays, as E F, A B, C D, (*Tab. Opticks, Fig.* 71.) fall parallel on the Surface of a *Polyhedron*; they will continue parallel after Refraction. See RAY and REFRACTION.

If then the *Polyhedron* be ſuppoſed regular; L H, H I, I M, will be as Tangents cutting the Spherical Convex *Lens* in F, B and D; conſequently Rays falling on the Points of Contact interſect the Axis.——Wherefore, ſince the reſt are parallel to theſe, they alſo will mutually interſect each other in G.

Hence, if the Eye be placed where the parallel Rays decuſſate; Rays of the ſame Object will be propagated to it ſtill parallel from the ſeveral Sides of the Glaſs. Wherefore ſince the Cryſtalline Humour, by its Convexity, unites parallel Rays; the Rays will be united in as many different Points of the Retina, *a, b, c,* as the Glaſs has Sides.

Conſequently, the Eye, thro' a *Polyhedron,* ſees the Object repeated as many times as there are Sides.—And hence, ſince Rays, coming from remote Objects, are parallel; a remote Object is ſeen as often repeated thro' a *Polyhedron* as that has Sides.

2. If Rays, A B, A C, A D, (*Fig.* 72.) proceeding from a Radiant Point A, fall on ſeveral Sides of a regular *Polyhedron*; after Refraction they will decuſſate in G; and proceed on a little diverging.

Hence, if the Eye be placed where the Rays coming from the ſeveral Planes, decuſſate; the Rays will be propagated to it from the ſeveral Planes a little diverging, *i. e.* as if they proceeded from different Points. But ſince the Cryſtalline Humour by its Convexity, collects Rays from ſeveral Points into the ſame Point; the Rays will be united in as many different Points of the Retina, *a, b, c,* as the Glaſs has Sides. Conſequently the Eye being placed in the Focus G, will ſee even a near Object repeated as often thro' the *Polyhedron* as that has Sides.

Thus may the Images of Objects be multiplied in a Camera obſcura; by placing a *Polydron* at its Aperture, and adding a Convex-Lens at a due Diſtance therefrom.——And it really makes a very pleaſant Appearance, if a Priſm be applied ſo as the colour'd Rays of the Sun refracted therefrom be received on the *Polyhedron.* Form by this means they will be thrown on a Paper, or Wall near at hand in little lucid Specks, much exceeding the brightneſs of any precious Stone; and in the Focus of the *Polyhedron,* where the Rays decuſſate, (for in this Experiment they are received on the convex Side) will be a Star of ſurprizing Luſtre.

If Images be painted in Water-Colours in the Areolæ or little Squares of a *Polyhedron,* and the Glaſs applied to the Aperture of a Camera obſcura; the Sun's Rays paſſing thro' it will carry with them the Images thereof, and project them on the oppoſite Wall.

This Artifice bears a Reſemblance to that other, whereby an Image on Paper is projected on the Camera, *viz.* by wetting the Paper with Oil, and ſtraining it tight on a Frame; then applying it to the Aperture of the Camera obſcura, ſo as the Rays of a Candle may paſs through it upon the *Polyhedron.* See CAMERA.

To make an Anamorphoſis or deform'd Image, which thro' a Polyhedron or Multiplying Glaſs ſhall appear regular and beautiful.

At one End of a Horizontal Table erect another at right Angles, whereon a Figure may be deſign'd; and on the other End erect another; to ſerve as a Fulcrum or Support, moveable on the horizontal one.——To the Fulcrum apply a Plano Convex *Polyhedron,* conſiſting *e. gr.* of 24 plain Triangles; let the *Polyhedron* be fitted in a Draw Tube, whereof that End towards the Eye to have only a very ſmall Aperture, and a little further off than the Focus.——Remove the Fulcrum from the other perpendicular Table, till it be out of the Diſtance of the Focus; and that more, as the Image is to be greater.—Before the little Aperture place a Lamp; and trace the Luminous Areolæ projected from the Sides of the *Polyhedron,* with a black Lead Pencil, on the vertical Plane, or a Paper apply'd thereon.

In theſe ſeveral Areolæ, deſign the ſeveral Parts of an Image, in ſuch manner as that when join'd together they may make one whole; looking a-freſh, every now and then thro' the Tube, to guide, correct, *&c.* the Colours, and to ſee that the ſeveral Parts match aptly together.

The intermediate Space fill up with any Figures or Deſigns at Pleaſure; contriving it ſo as that to the naked Eye the whole may exhibit ſome Appearance very different from that intended to appear through the *Polyhedron.*

The Eye, now, looking thro' the little Aperture of the Tube, will ſee the ſeveral Parts and Members diſpers'd among the Areolæ to exhibit one continued Image; all the intermediate ones diſappearing. See ANAMORPHOSIS.

POLYHISTORES. See HISTORY, POLYMATHY, *&c.*

POLYMATHY, POLYMATHIA, the Knowledge of many Arts and Sciences; or an Acquaintance with a great Number of different Subjects. See ENCYCLOPÆDIA.

The Word comes from the *Greek* πολὺ, *multum,* and μάθησις, Knowledge, Learning.

Lipſius, Scaliger, Kircher, Petavius, Politian, Salmaſius, &c. were famous for *Polymathy.*

Among the Ancients, ſuch as were eminent this Way were called Polyhiſtores. See HISTORY.

Polymathy is frequently little more than a confuſed Heap of uſeleſs Knowledge occaſionally detail'd, either pertinently or impertinently, for Parade.—The genuine *Polymathy* is an extenſive Erudition, or a Knowledge of a great Number of Things, well digeſted, and applied to the Purpoſe, and never but out of Neceſſity.

POLYMYTHY, POLYMYTHIA, in Poetry, a Multiplicity of Fables, in an Epic or Dramatic Poem; in lieu of an Unity, or a ſingle one. See FABLE, UNITY, *&c.*

Polymythia is a very great Fault.—It conſiſts in aſſembling a Number of diſtinct Actions or Fables into one complex Body. See ACTION.

Such a Work *Boſſu* compares to the Batrachomymachiao; or one of the Fables of *Eſop*: and ſuch would be the Idea of a Theſeid, an Heracleid, an Achilleid, or the like Poems, which ſhould comprehend all the Actions of thoſe Heroes; compared with the Iliad, or Æneid. See HERO, EPIC, *&c.*

POLYNOMIAL, or rather *Multinomial, Roots,* in Mathematicks. See MULTINOMIAL and ROOT.

POLYOPTRUM, in Opticks, a Glaſs through which Objects appear multiplied, but diminiſhed. See MULTIPLICATION.

The *Polyoptrum* differs both in Structure and Phænomena from the common Multiplying-Glaſſes, call'd *Polyhedra.* See POLYHEDRON.

The Word *Polyoptrum* is form'd from the *Greek* πολὺ, *much, many,* and ὄπτομαι, *I ſee.*

Conſtruction of the Polyoptrum.

In a Glaſs, plain on both Sides, A B, (*Tab. Opt. Fig.* 73.) and about three Fingers thick, cut out ſpherical Segments, ſcarce a fifth Part of a Digit in Diameter.

If then the Glaſs be removed from the Eye, till you can take in all the Cavities at one View, you will ſee the ſame Object as if thro' ſo many ſeveral concave Glaſſes, as there are Cavities, and all exceedingly ſmall.

Fit this, as an Object Glaſs, in a Tube A B C D, whoſe Aperture A B is equal to the Diameter of the Glaſs, and the other C D equal to that of an Eye Glaſs; *e. gr.* about a Finger's Breadth. The Length of the Tube A C to be accommodated to the Object and Eye-Glaſs, by Trial.

In C D fit a Convex Eye-Glaſs, or in lieu thereof a Meniſcus, having the Diſtance of its principal Focus a little larger than the Length of the Tube; ſo that the Point, from which the Rays diverge after Refraction in the Object-Glaſs may be in the Focus.—If then the Eye be applied near to the Eye-Glaſs, a ſingle Object will be ſeen repeated as often as there are Cavities in the Object-Glaſs, but ſtill diminiſhed.

POLYPETALOUS, in Botany, a Flower conſiſting of ſeveral Petala or Leaves. See PETALA.

The Covers or Defences of Flowers conſiſt either of a ſingle continued Petalon, thence call'd *monopetalous*; or of ſeveral diſtinct Pieces, call'd *Polypetalous*. See FLOWER and MONOPETALOUS.

The Word comes from πολὺ, *multum*, and πέταλον, *Petalum*.

Polypetalous Flowers are either *regular* or *irregular*.——The *Regular*, according to ſome Botaniſts, are either thoſe conſiſting of two Pieces, as the Cercea; or of four, thence called *Croſs-Flowers*, as the Clove Tree; or of five, called *Umbelliferous*, as Fennel; or of ſix, as the White *Lilly*, thence call'd the *Lilly-kind*. See UMBELLIFEROUS, *&c.*

Thoſe exceeding this Number, in any Quantity, equal or unequal, form a new Claſs of *polypetalous* Flowers, called the *Roſe* Kind; among which are rank'd all thoſe of three, four, five, or ſix Pieces, whoſe Fruits differ ſo from the reſt, that 'tis required they be diſtinguiſh'd from them.

Such is the Flower of the Water Plantane, which tho' it has only three Leaves, yet by the Relation of its Seed with that of the Ranuncula, is ranged in this laſt Claſs.——Such, alſo, is the Flower of Tormentille; which by Reaſon of the Difference of its Fruit from the Siliquæ or Siliculæ of the Croſs-Flowers, cannot be ranged among them.——Such alſo is the Pink, which tho' conſiſting of five Pieces, yet is excluded the Claſs of umbelliferous Plants, becauſe its Fruit is not divided into two Parts.—Such, laſtly, are the Flowers of ſome Ranuncula's, Houſe-leek, and Anemonies; which though they have ſix Petala, yet never produce Fruits divided into three Lodges, as thoſe of the Lilly Kind, and therefore cannot belong to their Claſs.

The *irregular polypetalous Flowers* are ſo called from the odd Figure and Diſpoſition of their Petala, what Number of them ſo ever they have.

Such are thoſe of two Pieces reſembling two Chaps, as in Fumitory; or thoſe of five Pieces reſembling Butterflies, common to all leguminous Plants.

POLYPODY, in Botany, a Plant of the paraſitaical Kind, popularly called Many-feet; of conſiderable Uſe in Medicine, *&c.* See PARASITE.

There are two Kinds.——*Common Polypody*, and *Polypody of the Oak*. The firſt uſually grows on old Walls in the Country, among Moſs, *&c.* the latter call'd alſo *Oak-fern* from the Reſemblance it bears to Fern, grows on the Branches of that Tree, in the Places where they ſhoot or ſpread out, feeding on a little Earth collected there from the Duſt blown about with the Wind, and water'd with the Rain.

Polypody of the Oak is much the better of the two.—It muſt be choſen new, well-fed, dry, brittle, of a Tan-red without, green within, of a ſweet Taſte reſembling Liquorice.

The Root is what is chiefly uſed in Medicine, being eſteem'd Cathartic; tho' Dr. *Quincy* ſays 'tis no more ſo than a common Detergent; in which Capacity it is much preſcribed; in Medicated Ales againſt the Jaundice, Scurvy, Obſtructions of the Viſcera, Hypochondriacks, *&c.*

The Word is form'd from the *Greek* πολὺ, and ποὺς, *Foot*, in regard the Root of the Plant clings to Walls and Trees, by a great Number of little Fibres like Claws.

POLYPTOTON, in Rhetorick, a Figure wherein the ſame Word is repeated in different Caſes, Genders or Numbers, *i.e.* with different Terminations. See FIGURE.

Such is that of *Cicero*, *pro Arch. Sed pleni ſunt omnes libri, plenæ ſapientum voces, plena exemplorum vetuſtas.*

POLYPUS, in Medicine, a fleſhy Tumor or Excreſcence ariſing on the inſide of the Noſtrils, prejudicial to Reſpiration and Speech; call'd alſo, by way of Diſtictinon, *Polypus Narium*. See NOSE, EXCRESCENCE, *&c.*

This *Polypus* ariſes by ſeveral Roots from the *Os Criboſum*, and hangs down, ſometimes, as low as the Lip; growing, likewiſe, backwards, ſo as to ſtop the Hole of the Palate, whereby the Air and Pituita deſcend out of the Noſe down into the Throat; and by this means ſtrangles the Patient.

It has it Name from the reſemblance it bears to the Fiſh *Polypus*, call'd in *Engliſh*, *Pourcontrel*, or many-feet.—Tho' ſome derive the Name from the Reſemblance its Subſtance bears to that of the *Polypus*; and others, from the reſemblance its many roots bear to the many feet of the Fiſh, *&c.*

If it have no Roots, or only one continued Root, it is call'd a *Sarcoma*; which is only a beginning *Polypus*. See SARCOMA.

Polypus's are chiefly found in ſcrophulous or cancerous Conſtitutions, along with Venereal Caſes, Ulcers, Ozænas, *&c.*—Cauſtics, Cauſticks, emollient Fomentations, Extirpation, and diſſective Powders and Lotions are the uſual Remedies.

POLYPUS, is alſo uſed for a morbid Excreſcence in the Heart; conſiſting of a tough Concretion of grumous Blood lodg'd therein. See HEART.

Malpighi gives a very accurate Deſcription of this *Polypus*. In the right Ventricle of the Heart, he obſerves, 'tis uſually larger, and of a paler Colour like Pituita, with rediſh or blackiſh Streaks; in the left Ventricle it is ſmaller, blacker and denſer.——He adds, that it ſeems to have a ſort of Organiſm, and appears like a Congeries of Pellicles ſtretch'd over one another, which form a kind of nervous Compages.

Polypus's are frequently found upon opening the Bodies of Perſons dying apoplectic; and are doubtleſs frequently the occaſion of ſudden Death.——They are ſeldom diſcover'd till they have diſpatch'd the Patient.

'Tis a diſpute among Phyſicians, whether *Polypus's* be produced any conſiderable time before, or always immediately after, Death.—Mr. *Gould* has an expreſs Diſcourſe in the *Philoſoph. Tranſact.* to evince the former.

POLYPUS *of the Lungs.*——In the *Philoſophical Tranſactions* Dr. *Rob. Clarke* gives us a very odd Inſtance of a Patient who cough'd up, at times, ſeveral hundred *Polypus's of the Lungs*.

They ſeem'd to have ſome Organization, and were all perfectly alike.—The Patient ſaid, tho' they had no Life, he had frequently preſs'd a ſlimy matter out of the Body.

Dr. *Liſter* obſerves, that ſuch *Polypus's* are form'd in the remoter and deeper Branches of the *Aſpera Arteria*, whence they are very difficult to get up.—The Patient abovemention'd never brought them up till after a continued coughing of half a Day and Night.

He adds, that they are nothing but viſcous Excretions of the ſmall Glands, hard bak'd in thoſe Glands whoſe Form they receive.—M. *Buſſiere* obſerves, they are frequently miſtaken for pieces of the Blood-Veſſels or Lungs.

POLYPYRENEOUS *Fruits*, in Botany, are ſuch as contain ſeveral Kernels, or Seeds. See FRUIT.

They are thus call'd from the *Greek* πολὺ, *much*, and πυρην, *Nucleus*, Kernel. See POLYSPERMOUS.

POLYSCOPE, a Multiplying-Glaſs, *i. e.* a Glaſs which repreſents one Object to the Eye, as if it were many; call'd alſo *Polyhedron*. See MULTIPLYING *Glaſs* and POLYHEDRON.

POLYSPASTON, POLYSPAST, in Mechanicks, a Machine ſo denominated by *Vitruvius*; conſiſting of an Aſſemblage of ſeveral Pullies; uſed for raſiing of huge Weights in a little time. See MACHINE.

The Word comes from the *Greek* πολυ, and σπαω; q. d. *That may be turn'd many ways.*

The Multiplication of Pullies in the *Polyſpaſton* is to very good purpoſe; it being demonſtrated in Mechanicks, that the Force required to ſuſtain a Weight by means of a *Polyſpaſton*, is to the Weight itſelf, as Unity to the Number of Ropes, or of the Pullies; thoſe Ropes or Pullies being ſuppoſed parallel to each other. See PULLEY.

Hence, the Number of Pullies, and the Power being given; the Weight that will be ſuſtained thereby is eaſily found; *viz.* by multiplying the Power by the Weight.

E. gr. Suppoſe the Power 50 Pounds, and the Number of Pullies 5. The Weight they will balance is 250.

In like manner the Number of Pullies being given, together with the Weight ſuſtain'd; the Power is found by dividing the Weight by the number of Pullies; Thus, if the Weight be 900 Pounds, and the Number of Pullies 6, the Power will be 150.

Dechales obſerves, that 'tis found by experience, that a moderate Man ſtanding barely en the Ground will lift 150 Pound; whence the ſame Man by means of a *Polyſpaſton* conſiſting of 6 Pullies, will be able to ſuſtain 900 Pounds.

The Power of the Pullies will be ſtill exceedingly increas'd by joining ſeveral *Polyſpaſtons*.

To find the Number of Pullies a *Polypaſton* is is to conſiſt of to raiſe a given Power.—Divide the Weight by the Power; the Quotient is the Number required.

Suppoſe, *e. gr.* the Weight 600 Pounds, and the Power 150; the Pullies will be 4, whoſe Diameters are to be all equal, ſuppoſing two of them upper and two lower, moveable on the ſame common Axes.

POLYSPERMOUS, in Botany, is applied to ſuch Plants as have more than four Seeds ſucceeding each Flower, without any certain Order or Number. See PLANT.

Theſe, Mr. *Ray* makes a diſtinct kind of Herbs; calling them *Herbæ ſemine nudo polyſpermæ*; where, by *Semine nudo*, is meant ſuch Seeds as do not put off ſpontaneouſly the Integuments or Coverings, which they either have, or appear to have, but fall off cover'd from the Mother-Plant. See SEED.

The Word is form'd from the *Greek* πολὺ, *much*, and σπέρμα, *Seed*.

Polyſpermous Herbs are ſubdivided into 1° Such as have a Calyx or Perianthium, conſiſting either firſt of *three Leaves*, and the Flower Tripetalous, as the Plantago Aquatica, and the Sagittaria, both Water-Plants; or the Flower Polypetalous, and the Calyx falling with it, as the Chelidonium minus; or remaining after the Flower is dropp'd, as in the Hepatica Mobilis. 2° Of *five Leaves*, in ſome deciduous with the Flower, as in the Ranunculus; in others Perennial, as in the Helleborus niger ferulaceus; or annual, as in the Flos Adonis. 3° Of *eight Leaves*, as the Malva and Alcea. 4° Of *ten Leaves* as the Carrophylla, Fragrarius, Pentaphyllum, Tormentilla, Argentina, Althea, and Pentaphylloides.

2° Such as have no Calyx, or Perianthium; as the Clematis, Filipendula, Ulmaria, Anemone Nemorum, Pulſatilla, *&c.*

POLYSYLLABICAL *Ecchoes*, thoſe which repeat many Syllables, or Words. See ECCHO.

POLYSYLLABLE, in Grammar, a Word conſiſting of more than three Syllables. See WORD and SYLLABLE.

A Word of one Syllable is called a *Monoſyllable*; one of two, *Diſyllable*; one of three, *Triſyllable*; one of four or more, *Polyſyllable*. See MONOSYLLABLE, *&c.*

The Word comes from the *Greek* πολυ, *multum*, and συλλαβὴ, *Syllable*.

POLYSYNDETON, in Rhetoric, a Figure conſiſting in an abundance of Conjunctions Copulative. See FIGURE and COPULATIVE.

Such is, *Me, præ ceteris & colit & obſervat & diligit.*—— In oppoſition to this ſtands *Aſyndeton*. See ASYNDETON.

POLYTHEISM, the Doctrine or Belief of a Plurality of Gods. See GOD.

The Word comes from the *Greek* πολὺ, *multum*, and Θεὸς, *Deus*. See IDOLATRY, *&c.*

POMADA, an Exerciſe of vaulting the wooden Horſe, by laying one Hand over the Pommel of the Saddle.

POMATUM, or POMADO, a Compoſition of Apples, with Lard and other fatty Subſtance; uſed by way of Unguent on many Occaſions, particularly for Diſeaſes of the Skin, Pimples, Scurfs, *&c.* to ſoften the Hands, render the Skin ſmooth, the Complexion freſh, *&c.* See UNGUENT.

Pomatums are occaſionally made with Jeſſamines, Oranges, Jonquills, Tuberoſes, *&c. i. e.* they are perfumed with the Odours of thoſe Flowers.

The beſt is ſaid to be that prepared of Kid's Greaſe, Pippins, an Orange ſlic'd, with a Glaſs of Roſe-Water, and half a Glaſs of White-wine, boil'd and ſtrain'd, and at laſt ſprinkled with Oil of ſweet Almonds.

The Unguentum *Pomatum* preſcribed in the College Diſpenſary conſiſts of Hog's Lard, Sheep's Suet, the Apple call'd Pomewater, Roſe Water, and Orrice Root, boil'd till the Apples are ſoft, ſtrain'd and perfumed with Oil of Rhodium.

Dr. *Quincy* obſerves, that the Apple is of no Significancy at all in the Recipe; and that the common *Pomatum* ſold in the Shops is only Lard beat into a Cream, with Roſe-Water, and ſcented with Lemons, Thyme, or the like.

POME, among Gardeners.——To *Pome* is to grow or knit into a round Head, ſomewhat like an Apple.

Thus, they ſay a *Cabbage begins to Pome*, &c.——They ſometimes uſe the Term *to cabbage* in the ſame Senſe.

POMEGRANATE, *Granatum*, a medicinal Fruit, in Form of an Apple or Quince; full of Seeds or Kernels, encloſ'd within a reddiſh Pulp, ſometimes ſweet, ſometimes acid. See FRUIT.

It is denominated from its Abundance of Grains or Kernels; *q. d. Pomum Granatum*, a *Kernel'd Apple*; or from the Country where it was anciently produced, *viz. Granada*.

The *Granada* Tree is of two Kinds; the one wild, which produces a Kind of Flowers uſed in Pharmacy, called *Balauſtia*. See BALAUSTIA.

The other cultivated in Gardens; whereof there are again two Kinds; the one only bearing Flowers; the other, both Flowers and Fruit.——The Flowers of each are incloſed in an oblong purple Calyx, reſembling a Bell.

The Trees never grow high; their Branches are a little prickly; their Leaves reſemble thoſe of the greater Myrtle, and their Fruit, which is compoſed of a great Number of red angular Grains, ſometimes ſweet, ſometimes ſour, and ſometimes vinous, according to the Quality of the Tree, are all incloſ'd in little diſtinct Cells, and cover'd, in common, with a thick browniſh Rind; over this grows a Kind of Crowning, of the ſame Nature with the Rind, form'd of a Production of the Calyx.

In the general, *Pomegranates* are not only agreeable to the Taſte, but good for the Stomach; and of conſiderable Uſe in Medicine.

Of the Grains are made Syrups and Conſerves; and the Rind, which is held very aſtringent, is an Ingredient in ſeveral Remedies and Ptiſans, for Dyſenteries, Diarrhea's, Lienteries, Hæmorrhagies, and Relaxations of the Gums. ——The Ancients uſed the Rind as the Moderns do Sumac, in the Preparation of Leather.

The Rind ought always to be dry'd, after the Grains are taken out; that dry'd without ſcouping always taſting muſty, and more likely to increaſe the Diſtempers than cure them.

As to the Conſerve, there is but little of the true ſold; being very difficult to make.—That which ordinarily paſſes for it is only Sugar melted down; to which they give the Colour and ſharp Taſte, with Cochineal, Cream of Tartar, and Alumn.

POMEIS, in Heraldry, are green Roundles; ſo called by the *Engliſh* Heralds, who expreſs different colour'd Roundles by diſtinct Names. The *French*, who content themſelves to denote the different Colour of the Roundle, call them *Torteaux Vert*. See TORTEAUX.

POMIFEROUS; *q. d. Apple-bearing*, in Botany, a Name given to thoſe Plants which have the largeſt Fruit, and are cover'd with a thick hard Rind; by which they are diſtinguiſh'd from the Bacciferous, which have only a thin Skin over the Fruit. See PLANT and BACCIFEROUS.

The *Pomiferous* Kind have a naked monopetalous Flower, divided into five Partitions, and growing on the Top of the ſucceeding Fruit.——They are divided into 1°. *Capreolate*, or thoſe creeping along the Ground, *&c.* by means of Tendrills; as the Cucurbita, Melo Cucumis, Cepo, Belſamina, Anguria, and Colocynthis. See CAPREOLI.

And, 2°. without Capreoli, or Tendrils, as the Cucurbita Clypetea, or Melo-Cepo Clypelformis.

The Word is form'd from *Pomum*, Apple, and *fero*, I bear.

POMMEE, or POMMETTE in Heraldry.—a *Croſs-Pommee* or *Pommette*, call'd alſo a Trophee, is a Croſs with a Ball or Knob at each End. See CROSS.

POMMEL, or PUMMEL in the Manage, a Piece of Braſs or other Matter a-top and in the Middle of the Saddle-Bow; to which are faſten'd the Holſters, Stirrup Leathers, *&c.* See SADDLE.

POMMEL is alſo a round Ball of Silver, Steel, or the like, fix'd at the End of the Guard and Graſp of a Sword; to ſerve in ſome meaſure as a Counterpoiſe.

Balzac obſerves, that there are ſtill extant Charters and Privileges granted by *Charlemaign*, and ſealed with the *Pommel* of his Sword, which, ordinarily, he promiſes to defend with the ſame Sword. See SEAL, SIGNATURE, *&c.*

POMP. See CIRCUS, CAVALCADE, *&c.*

POMPHOLYX, or *white Calamine*, in Pharmacy, the Flowers of Braſs; or a white, light and friable Subſtance, found adhering to the Lid or Covercle of the Crucibles or Furnaces, wherein Copper is melted with Calamine Stone, for the making of Braſs. See BRASS, CALAMINE, *&c.*

It is eſteem'd deterſive and deſiccative, tho' only apply'd externally; and much uſed in divers Kinds of Fevers: tho' its Violence requires its being uſed with great Precaution.

The Apothecaries ſometimes call it *Nil* or *Nihili Album*, and ſometimes *white Tutty*, in regard of its Reſemblance thereto in Virtue. See TUTTY.

The Word is form'd from the *Greek* πομφόλυξ, q. d. *Bubble ariſing on Water*.

POMUM *Adami*, in Anatomy, a Protuberance in the Fore-part of the Throat. See THROAT.

Some fancy it thus called upon a ſtrange Conceit, that a Piece of the forbidden Apple, which *Adam* eat, ſtuck by the Way, and was the Occaſion of it.

In reality, it is only the Convex Part of the firſt Cartilage of the Larynx, called *Scutiformis*. See LARYNX and SCUTIFORMIS.

POND, in Geography, a little Lake, which neither receives nor emits any River. See LAKE and RIVER.

PONDERARE, in our ancient Cuſtoms, a Method of curing ſick Children.

The Practice was, *ponderare*, to weigh, the ſick Child, at the Tomb of ſome Saint, counterpoiſing, or ballancing the Scale with Money, Wheat-Bread, or any other thing the Parents were willing to offer to God, his Saints, or the Church.—— But a Sum of Money was always to make Part of the Counter-balance. By this Means the Cure was effected.——*Ad ſepulchrum Sancti, Nummo ſe ponderabat.*——

PONDUS, *Weight*. See WEIGHT.

PONDUS, in ancient Records, is a Duty paid to the King according to the Weight of Merchandizes. See POUNDAGE.

PONDUS *Regis*, the Standard-Weight, anciently appointed by the King. See STANDARD.

PONE, a Writ, whereby a Cauſe depending in the County, or other inferior Court, is removed to the *Common Pleas*. See WRIT, *&c.* COURT, *&c.*

PONE *per Vadium*, is a Writ commanding the Sheriff to take Surety of one for his Appearance at a Day aſſign'd. See SURETY, VADIUM, *&c.*

PONIARD, a little pointed Dagger, very ſharp-edg'd; bore in the Hand, or at the Girdle, or hid in the Pocket.

The *Poniard* was anciently in very great Uſe, but is now in good meaſure ſet aſide, except among Aſſaſſins. See ASSASSIN.

Sword and *Poniard* were the ancient Arms of Dueliſts; and are ſaid to continue ſtill ſo among the *Spaniards*.—The Practice of Sword and *Poniard* ſtill make a part of the Exerciſe tanght by the Maſters of Defence.

The Word is form'd from the *French Poignard*, and that from *Poignee*, Handful.

PONS *Varoli*, or *Varolii*, or PONS *Cerebri*, in Anatomy, the upper Part of a Duct in the third Ventricle of the Brain; ſituate in the Cerebellum, and leading to the Infundibulum. See BRAIN, VENTRICLE, INFUNDIBULUM, *&c.*

It is thus called from its Diſcoverer *Varolius*, an *Italian* Phyſician, who flouriſh'd in the Univerſity of *Padua* about the Year 1572.

PONTAGE, a Contribution towards the Maintenance Repairing, and Rebuilding of Bridges. See BRIDGE.

This was, antiently, one of three general National Charges, whence no Perſon of any Degree whatever was exempted.

The three Things call'd *Trinoda Neceſſitas*, whence, *Ingulfus* tells us, *Nulli poſſunt laxari*, were, the Expedition to the Wars, the Building of Caſtles, and the Building and Repairing of Bridges. See TRINODA.

Mr. *Selden*, in his Notes on *Eadmerus*, obſerves, that *ne quidem Epiſcopi, Abbates, & Monachi immunes erant.*——And *Mat. Paris* adds, *Anno* 1244, that in all Grants of Privileges to the Monaſteries, thoſe three Things were always excepted, for the Publick Good, and that the People might be better able to reſiſt an Enemy.

PONTAGE is alſo a Due anciently belonging to the Lord of the Fee, for Perſons or Merchandizes, that paſs over Rivers, Bridges, *&c.* call'd in the later Latin *Pontagium*, or *Pontonagium*, Pontage.

PONTIBUS *reparandis*, a Writ directed to the Sheriff, willing him to charge one or more to repair a Bridge, to whom it belongs.

PONTIFICAL, PONTIFICALE, a Book of the Rites and Ceremonies belonging to Pontiffs, Biſhops, Popes, *&c.* See RITUAL and CEREMONIAL.

PONTIFICALIA, the Robes and Ornaments, wherein a Biſhop performs Divine Service. See EPISCOPAL.

PONTIFICAT, the State or Dignity of a Pontiff.

Cæſar reform'd the Calendar in the Time of his *Pontificate*. See CALENDAR.

The Concordat was paſs'd in the *Pontificate* of *Leo* X. See CONCORDAT.

There was a *Pontificate* that only laſted twenty four Hours.

PONTIFEX, PONTIFF, *High-Prieſt*; a Perſon who has the Intendence and Direction of divine Worſhip, as the offering Sacrifices and other Religious Solemnities. See PRIEST, SACRIFICE, *&c.*

The *Romans* had a College of *Pontiff*, and over thoſe a Soveraign *Pontiff*, or *Pontifex Maximus*, inſtituted by *Numa*; whoſe Function it was to preſcribe the Ceremonies each God was to be worſhipped withal, compoſe the Rituals, direct the Veſtals, and for a good while to preform the Buſineſs of Augury; till on ſome ſuperſtitious Occaſion he was prohibited intermeddling therewith. See AUGUR.

He conſecrated the Statues of the Gods, e're they were put up in Temples; bleſs'd the Figures of ſome of *Jove*'s Thunderbolts, to preſerve the People from Harms; and compiled their Statutes. See ANNALS.

The Jews too had their *Pontiff* or High-Prieſt; and among the *Romaniſts* the Pope is ſtill ſtiled the *Soveraign Pontiff*. See POPE.

Authors differ about the Etymology of this Word: Some derive it from *poſſe facere*, that is, from the Authority the *Pontiffs* had to ſacrifice; others, as *Varro*, from *Pons*, becauſe they built the *Sublicial* Bridge, that they might go and offer Sacrifice on the other ſide of the *Tiber*.

PONTON, or PONTOON in War, a little floating Bridge, made of Boats and Planks. See BRIDGE.

The *Ponton* is a Machine conſiſting of two Veſſels, at a little Diſtance, join'd by Beams; with Planks laid croſs for the Paſſage of the Cavalry, the Canon, Infantry, *&c.* over a River, an Arm of the Sea, *&c.*

The late invented *Ponton* is of Latten, furniſh'd with an Anchor, *&c.* to fix it.——To make a Bridge ſeveral of theſe are diſpoſed two Yards aſunder, with Beams a-croſs them, and over thoſe, Boards.

They are alſo link'd to each other, and faſten'd on each Side the River, by a Rope rung thro' a Ring in each of their Heads, and fix'd to a Tree or Stake on either Shore. ——The whole makes one firm, uniform Bridge, over which a Train of Artillery may paſs.

Cæſar and *Aulus Gellius* both mention *Pontons*; but theirs were no more than a Kind of ſquare flat Veſſels, proper for the carrying over of Horſe, *&c.* Ours however take their Names from them; thoſe Authors call them *Pontones*, of *Ponto*.

PONT-*Volant*, q. d. *Flying Bridge*; a Kind of Bridge uſed in Sieges; made of two ſmall Bridges laid one over another, and ſo contrived by means of Cords and Pullies placed along the Sides of the under Bridge, that the upper may be puſh'd forwards, till it joins the Place where it is fix'd: the whole Length of both however not to be above five Fathom long, leaſt they ſhould break with the Weight of the Men. See BRIDGE.

POOL, is properly a Reſervoir of Water, ſupply'd with Springs, and diſcharging the Overplus by Sluices, Defenders, Wears, and other Cauſe-ways. See SLUICE, *&c.*

Mill-POOL is a Stock of Water, by whoſe Force, *&c.* the Motion of a Mill is effected. See MILL.

POOP, *Puppis*, the Stern or uppermoſt Part of a Ship's Hull. See PUPPIS and STERN.

POPE, PAPA, the Chief or Head of the Roman Catholick Church. See PAPA.

Father *le Cointe* in his Annals obſerves, from St. *Jerom*, St. *Cyprian*, St. *Gregory*, St. *Auguſtin*, and *Sidonius Apollinaris*; that the Title *Pope* was anciently given to all Biſhops. See BISHOP.

They were alſo addreſs'd under the Term *Holineſs*, and *Beatitude*; and their Churches call'd *Apoſtolical* Sees. See HOLINESS, APOSTOLICAL, *&c.*

He adds, that 'twas only in the Eleventh Century, that *Gregory* VII. firſt appointed, in a Synod held at *Rome*, that the Title *Pope* ſhould be reſtrain'd to the Biſhop of *Rome*, as a particular Diſtinction and Prerogative.

In the Council of the Lateran, held under *Innocent* III. the *Pope* was declared *Ordinary of Ordinaries*. See ORDINARY.

The *Pope* is choſe by the Cardinals, out of their own Body. See ELECTION, CARDINAL, *&c.*

His See is at *Rome*, whence he iſſues out his Orders, call'd *Briefs* and *Bulls*, throughout the Catholic World. See BULL, *&c.*

Hiſtory mentions a *Popeſs*, *Joan.*——The Reality hereof has been oppoſed and defended by many learned Men.——The Tradition might poſſibly take its Riſe from the Weakneſs of Pope *John* VIII. in reſtoring *Photius* to his Communion, and owning him as true Patriarch: For he hence got the Appellation of Woman; as that Prince call'd King *Mary* did, by leaving himſelf to be govern'd by Q. *Mary* his Wife. See KING and QUEEN.

M. *Spanheim*, Profeſſor of Theology at *Leiden*, has lately wrote very amply on the Subject; and ſhews it to be a Queſtion *de facto*, ſcarce determinable at this Time of Day.

POPE, *Papa*, among the *Romans*, was the Name of certain Inferior Officers, or Miniſters of Sacrifice. See SACRIFICE.

The Buſineſs of the *Papæ* was to whet the ſacrificing Knife, to bind the Victim, prepare the Water, and other Neceſſaries, to ſmite the Victim, *&c.*

They did their Office naked to the Girdle, and crowned with Laurel.

POPLES in Anatomy, that Part where the Thigh is joined to the Tibia. See THIGH and TIBIA.

POPLICANI, *Populicani*, or PUBLICANS, a Name given in the Weſt to the *Manichees*; or to a particular Branch thereof, called in the Eaſt *Paulicians*. See PAULICIAN.

POPLITEA, in Anatomy, is the third Vein of the Leg. See VEIN.

It ariſes from the Heel, where it is form'd out of ſeveral Branches, coming both from the Heel and Ankle.

It lyes pretty deep in the Fleſh; and aſcending up to the Ham, terminates in the Crural Vein. See CRURAL, *&c.*

POPLITÆUS, or *Sub*-POPLITÆUS, a Muſcle, which ariſes from the external and inferior Protuberance of the Thigh-Bone, and paſſing over the Joint obliquely, is inſerted into the ſuperior and internal Part of the Tibia.—It aſſiſts in bending of the Leg, and turns it inwards. See LEG.

POPPY, *Papaver*, a medicinal Plant, famed for its Narcotic Quality. See NARCOTIC.

There are divers Kinds; ſome wild, ſome cultivated, white, purple, ſcarlet; *&c.* But thoſe moſt uſed are the white, *Papaver Hortenſe ſemine albo*; and black, *Papaver Hortenſe ſemine nigro.*

The Heads of theſe Plants are of ſingular Virtue to promote Sleep, aſſwage Pain, *&c.* they ſtop Diarrhæa's, Hæmorrhages, *&c.*

Of the Juice of theſe is prepared the *Meconium* ſold in the Shops. See MECONIUM.

The Opium brought from *Turky* is an Extract of the Juice of *Turky* Poppies. See OPIUM.

POPULAR, POPULARIS, ſomething relating to the People.

The *Roman* Nobility was diſtinguiſh'd into two Factions; the *Optimates*, who adhered ſtrenuouſly to the Miniſtry, the Senate, *&c.* in oppoſition to the People.

And the *Populares*, who favour'd the Rights and Pretenſions of the People, in oppoſition to the *Nobleſſe*.

POPULAR *Diſeaſes*, are ſuch as become common, and run thro' the Body of the People, call'd alſo *Epidemic Diſeaſes*. See EPIDEMIC.

Hippocrates has wrote expreſsly *de Morbis Popularibus.* See DISEASE.

POPULAR *Errors*, are ſuch as People imbibe from one another, by Cuſtom, Education, and Tradition, without having conſider'd the Reaſons or Foundations thereof. See ERROR.

POPULEUM, or POPULNEUM, in Pharmacy, an Unguent prepared of the Buds of black Poplar, Violet Leaves, Navel-wort, and Lard, bruis'd and macerated; to which are added Bramble-tops, Leaves of black Poppies, Mandragora, Henbane, Nightſhade, Lettice, and Burdock, boil'd in Roſe-water, and ſtrain'd.

It is much uſed as a Cooler, in Burns, Scalds, and all Sorts of Inflammations; and to aſſuage arthritic Pains.

PORRACEOUS, in Medicine, a Term applied to the Bile, when its Colour is green, approaching that of a Leek. See BILE.

The Word is form'd from the Latin, *Porrum*, Leak.

PORCELAIN, or **PURCELAIN**, a delicate ſort of Earthen-Ware, chiefly manufactured in *China*, and thence, alſo, call'd *China*, or *China-Ware*; but brought into *Europe* from other Parts of the Eaſt, eſpecially *Japan*, *Siam*, *Surat*, and *Perſia*. See POTTERS-*Ware*.

Scaliger, and *Cardan*, tho' generally of contrary Sentiments, are yet agreed, that what the *Romans* call'd *Vaſa Myrrhina*, which were firſt ſeen at *Rome* in *Pompey*'s Triumph, and which afterwards became ſo very precious; were the ſame with the *Porcelain* of our Times. See MYRRHINE.

This may be true: But if the Opinion be only founded on *Pliny*'s Deſcription of theſe Veſſels, one would rather take 'em for a kind of precious Stones, of a whitiſh Colour, but variouſly vein'd and variegated; found in ſome Parts of *Perſia*.

Be this as it will, 'tis certain both thoſe Authors are miſtaken, when they tell us, that *Porcelain* is made of Egg and Oſter Shells beaten ſmall, and buried under ground for 80 or 100 Years. The Account we ſhall here give, will put that out of queſtion.

'Tis not known who was the Inventor of *Porcelain*; the *Chineſe* Annals, which uſe to contain every thing in any wiſe memorable, are perfectly ſilent about it; nor do we know much more of the Time of its Invention. Only, 'tis certain it muſt have been before the beginning of the fifth Century: The Annals of *Feouldam* relating, that from the ſecond Year of the Reign of the Emperor *Tam*, about the Year of Chriſt 442, the Workers in *Porcelain* of that Province had alone furniſh'd the Emperors therewith.

There is *Porcelain* made in ſeveral Provinces of *China*; particularly thoſe of *Fou-Kien*, *Canton*, and *Kimtetchim*; but that of the laſt is moſt eſteem'd.

The *Chineſe* call the *Porcelain*, *Thski*: The word *Porcelain* is but little known there, except among a few Workmen and Merchants; and ſeems derived from the *Portugueſe Porcellane*, a Cup, or Porringer.

Porcelain makes a very curious Article in Commerce, and even in Natural Hiſtory. Its Manufacture has hitherto paſs'd for a Myſtery in *Europe*: and that in ſpite of all the Endeavours of the Jeſuit-Miſſionaries to penetrate into the Secret. The Veil, however, is at length drawn; and in a Letter of F. *Entrecolles* to F. *Orry*, from *Jaotcheou*, dated *September* the 1ſt, 1712, and lately publiſhed in *French*, the whole Proceſs is deſcribed in all its Circumſtances; with an Extract whereof we ſhall here gratify the curious Reader.

The Art of making Porcelain, *or China-Ware; from a Letter of F.* d'Entrecolles, *a Jeſuit-Miſſionary in* China.

In the Manufacture of *Porcelain*, there are four eſſential things to be conſider'd; *viz.* The Matter it is made of. The Art of forming the Veſſels, and other Works. The Colours wherewith it is painted. And, laſtly, the Baking, or giving it the proper degree of Fire. Each of which will make the Subject of a ſeveral Article.

Matter, whereof Porcelain, *or China-Ware, is made.*

There are two kinds of Earths, and as many kinds of Oils or Varniſhes uſed in the Compoſition of *Porcelain*. The firſt Earth, call'd *Kaolin*, is beſet with glittering Corpuſcles; the ſecond, call'd *Petunſa*, is a plain white, but exceedingly fine, and ſoft to the Touch. They are both found in Quarries twenty or thirty Leagues from *Kimtetchim*, a City which produces the fineſt *Porcelain-Works* in all *China*; and hither theſe Earths, or rather Stones, are brought in an infinite Number of little Barks, inceſſantly paſſing up and down the River *Joatcheou* for that purpoſe. The *Petunſa's* are brought in form of Bricks; having been ſo cut out of the Quarries, where they are naturally Pieces of a very hard Rock. The white of the beſt *Petunſa* is to border a little on green.

The firſt Preparation of theſe Bricks, is to break and pound 'em, firſt into a coarſe Powder with Iron-Mallets; then in Mortars with Peſtles that have Stone-Heads, arm'd with Iron, and wrought either with the Hand, or with Mills.

When the Powder is almoſt render'd impalpable, they throw it in a large Urn full of Water, ſtirring it briskly about with an Iron Inſtrument. After the Water has reſted a little while, they skim off from the Top a white Subſtance form'd there, of the thickneſs of four or five Fingers; and diſpoſe of this Scum or Cream in another Veſſel of Water. They then ſtir again the Water of the firſt Urn, and again skim it, and thus alternately till there remain nothing but the Gravel of the *Petunſa's* at bottom; which they lay a-freſh under the Mill, for a new Powder.

As to the ſecond Urn, wherein are put the Skimmings of the firſt; when the Water is well ſettled, and become quite clear, they pour it off; and with the Sediment, collected at bottom in form of a Paſte, fill a kind of Moulds: whence, when almoſt dry, they take it out, and cut it into ſquare Pieces, which are what they properly call *Petunſa's*; reſerving 'em to be mix'd with the *Kaolin* in the Proportion hereafter aſſign'd.

Theſe Squares are ſold by the hundred, but 'tis very rare to meet with 'em un-falſify'd: The Workmen, who, like the reſt of the *Chineſe*, are errant Knaves in their Dealings, uſually mixing Refuſe along with 'em; ſo that they are uſually obliged to purify 'em e'er they can be employ'd.

The *Kaolin*, which is the ſecond Earth uſed in *Porcelain*, is much ſofter than the *Petunſa*, when dug out of the Quarry; yet is it this, which, by its mixture with the other, gives the Strength and Firmneſs to the Work. F. *Entrecolles* obſerves, that ſome *Engliſh* or *Dutch*, having procured ſome *Petunſa's* to be bought, privately; upon their attempting to make *Porcelain* at their Return into their own Country, could not ſucceed for want of taking *Kaolin* along with it. Which the *Chineſe* being appriſed of, ſaid, drolling, "That the *Europeans* were wonderful People to go about to make a Body, whoſe Fleſh was to ſuſtain itſelf without Bones."

The Mountains whence the *Kaolin* is dug, are cover'd without-ſide with a reddiſh Earth; the Mines are deep, and the Matter is found in Glebes, or Clods, like the Chalk in ours. The Author is of opinion, that the white Earth of *Malta* is not much different from the *Kaolin*, except that it wants the ſilver'd Particles. The Preparation of *Kaolin* is the ſame with that of the *Petunſa's*, except that the Matter being leſs hard, leſs Labour is required.

The *Oil* or *Varniſh*, which makes the third Ingredient in *Porcelain*, is a whitiſh, liquid Subſtance, drawn from the hard Stone whereof the *Petunſa's* are form'd; that which is whiteſt, and whoſe Stains are the greeneſt, being always choſen for this purpoſe.

The Manner of preparing the Oil, is thus: The *Petunſa's* being waſh'd, undergo the ſame Preparations as for making the Squares; excepting that the Matter of the ſecond Urn is not put in Moulds, but the fineſt Part of it taken to compoſe the Oil. To an hundred Pounds of this Matter they caſt a Mineral Stone call'd *Chekao*, reſembling our Alum: this Stone is firſt heated red-hot, and thus reduced in a Mortar into an impalpable Powder; and ſerves to give the Oil a Conſiſtence; which, however, is ſtill to be kept liquid.

The Oil of Lime makes the fourth Ingredient; the Preparation whereof is much more tedious and circumſtantial. They firſt diſſolve large Pieces of quick Lime, and reduce it to a Powder by ſprinkling Water on it; on this Powder they lay a Couch of dry Fern, and on the Fern another of the ſlack'd Lime, and thus alternately, till they have got a moderate Pile; which done, they ſet fire to the Fern: the whole being conſumed, they divide the Aſhes that remain on new Couches of dry Fern; ſetting 'em on fire as before. And this they repeat five or ſix times ſucceſſively, or even more; the Oil being ſtill the better as the Aſhes are oftner burnt.

In the Annals of *Feouldam* 'tis ſaid, inſtead of Fern they antiently uſed the Wood of a kind of Medlar-Tree; and that 'twas this gave the antient *Porcelains* that admirable Hue, which the Moderns cannot come up to for want of that Wood. 'Tis certain, however, the Quality of the Fern and Lime contribute very much to the goodneſs of the Oil.

A Quantity of theſe Aſhes of Fern and Lime are now thrown into an Urn full of Water; and to an hundred Pounds of Aſhes is added a Pound of *Chekao*, which diſſolves therein. The reſt being performed after the ſame manner as in preparing the Earth of the *Petunſa's*; the Sediment found at the bottom of the ſecond Urn, and which is to be kept liquid, is what they call the Oil of Lime; which the *Chineſe* eſteem as the Soul of the former Oil, and which gives the *Porcelain* all its Luſtre. This Oil is eaſily ſophiſticated by adding Water to increaſe the Quantity; adding at the ſame time proportionably of the ſame *Chekao* to maintain the Conſiſtence. Ten Meaſures of Oil of *Petunſa* uſually go to one of Lime. To have the Mixture juſt, the two Oils ſhould be equally thick.

Manner of forming the Veſſels, and other Works of Porcelain.

The firſt thing is to purify the *Petunſa* and *Kaolin*; which, for the firſt, is done after the manner already deſcribed in preparing the Squares. For the ſecond, as its ſoftneſs makes it diſſolve eaſily, 'tis ſufficient, without breaking it, to plunge it in an Urn full of Water in an open Basket. The

Dregs that remain are perfectly uſeleſs, and are emptied out of the Work-houſe when a quantity is got together.

Theſe Work-Houſes are properly vaſt Yards wall'd round, with Sheds, and other Conveniencies for the Workmen to work under; as well as other Buildings for 'em to live in: It is almoſt inconceivable what number of Perſons are employ'd in theſe Works; there being ſcarce a Piece of *Porcelain* but paſſes thro' above twenty hands, e'er it come to the Painter's Work-Houſe; and above ſixty e'er it be brought to Perfection.

To make a juſt Mixture of *Petunſa* and *Kaolin*, regard muſt be had to the Fineneſs of the *Porcelain* to be made: For the finer *Porcelains*, they uſe equal Quantities; four Parts of *Kaolin* to ſix of *Petunſa*, for moderate ones; and never leſs than one of *Kaolin* to three of *Petunſa*, for the coarſeſt.

The hardeſt Part of the Work is the Kneading and Tewing the two Earths together; which is done in a kind of large Baſons, or Pits, well paved and cemented, wherein the Workmen trample continually with their Feet, relieving one another, till the Maſs be well mixed, grow hard, and become of the Conſiſtence required to be uſed by the Potter.

The Earth, when taken out of the Baſons, is kneaded a ſecond time, but piece-meal, and with the Hands, on large Slates for the purpoſe; and on this Preparation, in effect, it is, that the Perfection of the Work depends; the leaſt heterogeneous Body remaining in the Matter, or the leaſt Vacuity that may be found in it, being enough to ſpoil the whole. The ſmalleſt Grain of Sand, nay, ſometimes a ſingle Hair, ſhall make the *Porcelain* crack, ſplinter, run, or warp.

The *Porcelain* is faſhion'd or form'd either with the Wheel, like Earthen-Ware; or in Moulds. See POTTERY. Smooth Pieces, as Cups, Urns, Diſhes, &c. are made with the Wheel. The reſt, *i. e.* ſuch as are in Relievo, as Figures of Men, Animals, &c. are form'd in Moulds, but finiſh'd with the Chiſſel.

The large Pieces are made at twice; one half of the Piece is raiſed on the Wheel by three or four Workmen, who hold it till it have acquired its Figure; which done, they apply it to the other half, which has been form'd in the ſame manner; uniting the two with *Porcelain-Earth*, made liquid by adding Water to it, and poliſhing the Juncture with a kind of Iron Spatula.

After the ſame Manner it is that they join the ſeveral Pieces of *Porcelain* formed in Moulds, or by the Hand; and after the ſame Manner they add Handles, &c. to the Cups and other Works form'd with the Wheel.

The Moulds are made after the Manner of thoſe of our Sculptors, *viz.* of divers Pieces which ſeverally give their reſpective Figure to the ſeveral Parts of the Model to be repreſented; and which are afterwards united to form a Mould for an entire Figure. The Earth they are made of is yellow and fat, dug out of its proper Quarries, whereof there are abundance about *Kimtetchim*. It is kneaded like glaz'd Earth, and when ſufficiently mellow, fine, and moderately dry, beating it ſtoutly, they form it into Moulds, according to the Works required, either by Hand, or on the Wheel. Theſe Moulds are ſold very dear, but laſt a long time. See MOULD.

All the Works made in Moulds are finiſh'd by the Hand, with ſeveral Inſtruments proper to dig, ſmooth, poliſh, and to touch up the Strokes that eſcape the Mould; ſo that 'tis rather a Work of Sculpture than of Pottery. There are ſome Works whereon Relievo's are added, ready made, as Dragons, Flowers, &c. Others that have Impreſſions in Creux; which laſt are engraven with a kind of Puncheons. In the general, all *Porcelain* Works are to be ſhelter'd from the Cold; their natural Humidity making 'em liable to break when they dry unequally.

To conceive the Number of Hands each Piece of *Porcelain* paſſes thro' e'er perfect; we ſhall cloſe this Article with what F. *Entrecolles* inſtances of a common Cup, e'er it be fit for the Painter: The Cup begins with the Potter, who has the Management of the Wheel, where it acquires its Form, Height, and Diameter. This Operator has not above a Farthing *Sterling* for a Plate furniſh'd with twenty ſix Cups; accordingly, they go out of his Hands exceedingly imperfect, eſpecially towards the Feet, which are only unform'd Lumps of Earth, to be afterwards cut with the Chiſſel when the Cup is dry. When it comes from the Wheel, the Cup is received by a ſecond Workman, who fits it on its Baſe. A third takes it immediately from him, and applies it on a Mould to bring it to its true Form. This Mould is on a kind of Lathe. A fourth Workman poliſhes the Cup with a Chiſſel, eſpecially about the Edges; and brings it to the thinneſs neceſſary to make it tranſparent; in doing which, he moiſtens it from time to time, leſt its dryneſs ſhould make it break. When of its proper thickneſs, another Workman turns it gently on a Mould, to ſmooth its inſide; taking a deal of Care it be done equably, leſt any Cavity be form'd, or it warp. Other Workmen add, ſome, Ornaments in Relievo; others, Impreſſions in Creux; others, only Handles, as the quality of the Cup requires. At laſt, they round and hollow the Foot on the inſide with a Chiſſel; which is the Function of a particular Artiſt, who does nothing elſe.

This Multiplicity of Workmen, ſo far is it from retarding the Work, that it is found, by Experience, to go on the faſter for it; as well as to be the better done; each Workman, by a continual Attention to the ſame thing, becoming very dextrous at it: beſides ſaving the time of changing Inſtruments, &c.

Painting of Porcelain, *and the Colours uſed therein.*

The *Chineſe* Painters, eſpecially thoſe that meddle with human Figures, our Author obſerves, are all ſorry Workmen: He adds, that the defect is ſcarce any where ſo ſenſible as in the *Hoapei*, or *Porcelain-Painters*, among whom, ſetting aſide Flowers and Landskips, which are ſometimes tolerable, the greateſt Maſters are not to be compared to ordinary Apprentices among the *Europeans*, for the Beauty and Juſtneſs of Deſign. But it is otherwiſe with the Colours theſe *Hoapei* uſe; which are ſo exceedingly lively and brillant, that there is but little hopes our Workmen ſhould ever come to vye with 'em.

The Painting Work is diſtributed among a great Number of Workmen, in the ſame Laboratory: To one it belongs to form the colour'd Circle about the Edges of the *Porcelain*; another traces out Flowers, which another paints: This is for Waters, and Mountains alone; that for Birds, and other Animals; and a third for human Figures.

There are *Porcelains* made of all Colours; both with regard to the Grounds, and to the Repreſentations thereon. As to the Colours of Landskips, &c. ſome are ſimple; ſuch are all Blues, which are thoſe moſt uſually ſeen in *Europe*; others are mixed up of ſeveral Teints; and others, again, heighten'd with Gold.

The *Blue* is made of *Lapis Lazuli*, prepared by burning it the ſpace of twenty four Hours, in a Furnace, where it is buried up in Gravel, to the height of half a foot; when burnt, they reduce it into an impalpable Powder in *Porcelain* Mortars, not varniſh'd, and with Peſtles of the ſame Matter.

For the *Red*, they uſe Copperas, which they call *Haoſan*; a Pound of this they put in a cover'd Crucible, in the Lid whereof is left a little Aperture, thro' which the Matter on occaſion may be ſeen. The Crucible is heated with a Reverberatory Fire, till the black Smoke ceaſe to aſcend, and a fine red one ſucceeds it. A Pound of Copperas yields four Ounces of red Liquor, which is found at the bottom of the Crucible, tho' the fineſt part is that uſually adhering to the Lid and the Sides of the Crucible.

Beſide the natural Whiteneſs of the *Porcelain*, which is ſtill improved by the Oil wherewith they cover it, they have an artificial White, ſerving for the Grounds of *Porcelains* of ſeveral Colours; and made of a tranſparent Flint calcined like the *Lapis Lazuli*, and mixed with pulverized Ceruſs: The Proportion is an Ounce of the latter to half an Ounce of the former.

This Powder of Flint is likewiſe an Ingredient in moſt of the other Colours; *e. gr.* for *Green*, to three Ounces of *Tomhoapien*, or Scoria of beaten Copper, they uſe half an Ounce of Powder of Flint, and an Ounce of Ceruſs. *Violet* is made by adding a Doſe of White to the Green already prepared; the more Green is added, the deeper is the Violet. For *Yellow*, they uſe ſeven Drachms of White, and three of the Copperas-Red.

Moſt of theſe Colours are mixed up with Gum-Water, for Application; a little Saltpetre, ſometimes Ceruſs or Copperas, but more uſually Copperas alone, being firſt diſſolved in the Water. Indeed for *Porcelains* that are to be quite red, the Colour is uſually applied with Oil; *i. e.* with the common Oil of the *Porcelain*, or another made of the white Flints.

There is alſo another Red, call'd *blown Red*, becauſe in reality applied by blowing with a Pipe, one of whoſe Orifices is cover'd with a very fine Gauze. The bottom of this Tube is lightly applied to the Colour wherewith the Gauze is ſmear'd; when, blowing againſt the *Porcelain*, it becomes all ſprinkled over with little Points. This *Porcelain* is very rare, and of great Price.

Black Porcelain, which they call *Oumian*, has likewiſe its beauty: This Colour has a leady Caſt, like our Metal-burning Mirrors; and is uſually heighten'd with Gold. It is made of three Ounces of *Lapis Lazuli*, with ſeven of the common Oil of Stone; tho' that Proportion is varied, as the Colour is deſigned to be more or leſs deep. The Black is not given the *Porcelain* till it be dry, nor muſt the Work be put to the Fire till the Colour be dry.

The *Gold* is not apply'd till after the baking, and is re-baked in a Furnace for the purpoſe: To apply the Gold, they break and diſſolve it in Water at the bottom of a *Porcelain*, till a thin gilded Cloud ariſe on the Surface; it is uſed with Gum-Water, and to give it a Body, they add three parts of Ceruſs to thirty of Gold.

There is likewiſe a kind of *marbled Porcelain*, which is not made by applying the Marblings with the Pencil; but for Oil to varniſh it withal, uſing that of white Flints, which hatches and cuts the Work with a thouſand humourous Strokes, in manner of *Moſaic* Work. The Colour this Oil gives, is a white, ſomewhat aſhy: The *Porcelain* is call'd *Tſoniki*.

There are ſeveral other kinds of *Porcelain*; but they are ſuch as are rather for Curioſity than Uſe: The prettieſt are the Magic *Porcelains*, whoſe Colours only appear when fill'd with ſome Liquor. Theſe are made double: The outſide is white, and all laid out in Compartiments; the inſide is a ſolid Cup, of colour'd *Porcelain*; tho' the Cup is ſometimes of Glaſs, which has a better Effect than *Porcelain*. The Secret of theſe Magic *Porcelains*, which the *Chineſe* call *Kiatſim*, is almoſt loſt; yet F. *Entrecolles* has furniſh'd us with the following Account.

The *Porcelain* to be painted thus, muſt be very thin; and the Colours, which in other *Porcelains* are apply'd on the Outſide, are here apply'd on the Inſide: When the Colour is dry, they lay over it a light Couch of a Size made of the *Porcelain* Earth; by which means the Colour is inclos'd between two earthen *Laminæ*. When the Size is dry, they throw Oil within the *Porcelain*; and when it has enough, they return it to the Mould, and the Wheel, to render it as thin and tranſparent as poſſible. When dry, 'tis baked in the Common Furnace. The Colours here uſed are always the fineſt, and the Figures painted are Fiſhes; as the moſt ſuitable to the Liquor put within them, and in which they ſeem to ſwim.

The ſeveral Kinds of *Porcelains* above-mention'd, being quite painted, with their ſeveral Colours, and all the Colours dry, are to be poliſh'd, to prepare them to receive the Oil or Varniſh; which is done with a Pencil of very fine Feathers, moiſten'd with Water, and paſs'd lightly over, to take off even the ſmalleſt Inequalities.

The Oiling or *Varniſhing*, is the laſt Preparation of the *Porcelain*, before it be carry'd to the Furnace: This is apply'd more or leſs thick, and ſeldomer or oftener repeated, according to the Quality of the Work. For thin, fine *Porcelains*, they give two very thin Couches; to others one; but that one equivalent to the other two. There is a deal of Art in applying the Varniſh; both that it be done equally, and not in too great quantity. The Couches on the Inſide are given by Aſperſion, *i. e.* by caſting in as much Varniſh as is neceſſary: Thoſe on the Outſide, by Immerſion, or by plunging the Pieces in a Veſſel of Oil.

It muſt be obſerv'd, that the Foot is not yet form'd, but continues in a mere Maſs, till the Work has been varniſh'd: 'Tis at length finiſh'd on the Wheel; and when hollow'd, a little Circle is painted in it, and ſometimes a *Chineſe* Letter. This Painting being dry, the Foot is varniſh'd, and the Work now carry'd to the Furnace to be baked.

Our curious Author omits nothing; not even the Dexterity of the People, who carry the *Porcelain* to the Bake-houſe: He has been frequently ſurpriz'd, he tells us, to ſee a Man paſs thro' ſeveral Streets full of People, with two very long, narrow Boards, rang'd with *Porcelains* on his Shoulders; ſtill preſerving the Equilibrium ſo accurately, as not to do any damage to ſo frail a Commodity.

Manner of Baking Porcelain.

There are two Kinds of Ovens uſed in baking of *Porcelain*: Large ones, for Works that are only to come to the Fire once, which is the common way; and ſmall ones, for ſuch as require a double baking. The large ones are two *Chineſe* Fathoms deep, and almoſt four wide. They are form'd of a Mixture of three Earths; one whereof, Yellow and Common, makes the Baſis; the two others are ſcarcer, and dug out of deep Mines, wherein People can only work in Winter. One of them, call'd *Laotou*, is a very ſtrong, ſtiff Earth; the other *Yeoutou*, oily.

The Sides and Roof of the Ovens are ſo thick, that one may lay the Hand on them, when the Fire is at its height, without danger of burning. At the Top of the Vault, which is in form of a Tunnel, is a large Aperture to give vent to the Flames and Smoke, which mount up inceſſantly, as ſoon as Fire is once ſet to the Furnace. Beſide the principal Aperture, there are four or five ſmall ones around; which, by being open'd and ſhut, ſerve to augment or diminiſh the Heat: like the Holes in the Chymiſts Furnaces, call'd *Regiſters*. The Hearth, which takes up the whole Breadth of the Furnace, is placed in Front, preciſely againſt the opening of the Door, and is two or three Foot deep, and two broad; People paſſing over it on a Plank, to go into the Furnace to diſpoſe the *Porcelain*.

As ſoon as the Fire is lighted, the Door is wall'd up; only leaving an Aperture for the Conveyance of Wood. Laſtly, the Bottom of the Oven is cover'd with Sand, wherein part of the firſt *Porcelain* Caſes are buried. The Furnace itſelf is uſually placed at the Extremity of a long, narrow Veſtible, which ſerves in lieu of Bellows; the cold Air and Wind being thus driven directly in the face of each Furnace.

Each Piece of *Porcelain* of any Note, is diſpoſed, in the Furnace, in its ſeparate Caſe, or Coffin. Indeed, as to Tea-Diſhes, *&c.* the ſame Caſe ſerves for ſeveral. The Caſes are all of the ſame Matter with the Furnace: They have no Lids; but ſerve each other mutually, the Bottom of a ſecond Caſe fitting into the Aperture of the firſt; and thus ſucceſſively, to the Top of each Column. Each Coffin, which is uſually of a Cylindrical Form, that the Fire may communicate itſelf more equably to the *Porcelains* incloſed, has, at bottom, a little Lay of very fine Sand, cover'd over with Duſt of *Kaolin*, that the Sand may not ſtick to the Work; and care is taken that the *Porcelain* may not touch the Sides of the Caſe. In the larger Caſes, which hold the ſmall Pieces; they leave the Middle vacant; in regard *Porcelains* placed there would want the neceſſary Heat. Each of theſe little Pieces is mounted on a little Maſſive of Earth, the thickneſs of two Crowns, cover'd with Powder of *Kaolin*.

F. *Entrecolles* obſerves, that the *Porcelains* are put in Caſes, to prevent any Diminution of Luſtre from the too violent Effect of a naked Fire; adding, that 'tis owing to theſe thick Veils, that the Beauty, or, as he calls it, the Complection of the *Porcelains*, is not tann'd by the Heat of the Fire.

As faſt as the Caſes are fill'd, a Workman ranges them in the Cavity of the Furnace; forming them into Piles or Columns; whereof thoſe in the middle are at leaſt ſeven Foot high: The two Caſes at the bottom of each Column are left empty; becauſe being partly ſunk in the Sand, the Fire has the leſs effect on them; and for the ſame reaſon, the uppermoſt one is left empty. In this manner is the whole Cavity of the Furnace fill'd with Columns, excepting that part preciſely under the grand Aperture.

In ranging the Caſes, they obſerve always to place the fineſt Piles of *Porcelain* in the Centre; the coarſeſt at Bottom; and thoſe that are high-colour'd, and conſiſt of as much *Petunſa* as *Kaolin*, and wherein the worſt Oil is uſed, at the Mouth.

Theſe Piles are all placed very near one another, and are bound together at top, at bottom, and in the middle, by Pieces of Earth; in ſuch manner, as that the Flame may have a free Paſſage among them, and inſinuate equally on all ſides: in which a great part of the Workman's Art lies, and on which the Perfection of the *Porcelain* much depends. Another thing to be obſerv'd, is, that a Furnace muſt never be ſet altogether with new Coffins; but half one, half t'other: the old ones at the bottoms and tops of the Pile, and the new ones in the middle. Indeed 'twere better to have them all burnt in a Furnace a-part, e'er they come to be uſed for *Porcelain*; as was antiently done. The Caſes, our Author obſerves, are brought ready prepared from a large Village on the River, a League diſtant from *Kimtetchim*. E'er burnt, they are yellow; and afterwards of a dark red.

When the Furnace is fill'd, they wall up the Door; only leaving a little Aperture for the throwing in of little Pieces of Wood, a Foot long, but very ſlender, to keep up the Fire. 'Tis then heated, by degrees, for the ſpace of a Day and Night; after which two Men, who relieve one another, continue to throw in Wood without any interruption. To know when the *Porcelain* is baked enough, they open one of the leſſer Holes of the Furnace, and with a pair of Tongs take off the Lid of one of the Piles. If the Fire appear very brisk and clear, and the Piles equally inflam'd; and eſpecially if the Colours of the *Porcelains* that are uncover'd, dart forth a noble Luſtre; the Coction is ſufficient, they diſcontinue the Fire, and wall up what remain'd of the Door of the Furnace.

If the Furnace be only fill'd with ſmall *Porcelains*, they take them out twelve or fifteen Hours after the Fire is extinct: If it be fill'd with larger, they defer opening it for two or three Days. In this the modern Practice differs from the antient; wherein the Door was not open'd till after ten Days for the large Pieces, and five for the ſmall ones.

One thing very ſurprizing, and almoſt inconceivable, F. *Entrecolles* obſerves, is, that there are never found any Aſhes on the Hearth of the Furnace; what Quantity of Wood ſoever is conſum'd. He adds another thing, which with him paſſes for equally ſtrange, that the Workmen employ'd about the Furnaces, ſlake their Thirſt, by continually drinking hot Tea, with Salt diſſolv'd in it.

The *Chineſe* make another Kind of *Porcelain*, which they paint and bake twice; and for this ſecond Baking they have a kind of little Ovens on purpoſe. When very ſmall, they are made of Iron; otherwiſe, of a kind of Bricks an Inch thick, a Foot high, and half a Foot broad; made of the ſame Earth with the *Porcelain* Caſes. The biggeſt of theſe Furnaces does not exceed five Foot in Height, and three in Diameter; and being made much in form of Bee-Hives, the Bricks are arch'd a little, to form the Curvity the better. The Hearth is of Earth half a Foot high, form'd of two or three Ranges of Bricks; and on this Maſſive is the Furnace built. Around the Furnace, at the diſtance of about half a Foot, is rais'd a Shell of common Bricks, join'd to the Furnace itſelf, by a kind of Arcboutant of Earth, which ſerve to ſtrengthen it. They uſually build four or five of theſe Furnaces at equal Diſtances from each other. At the bottom of the Shell are Holes to give Air to the Fire when lighted: A-top is an Aperture, which they cover up with a piece of the baked Earth, when the *Porcelains* are laid in the Furnace.

The *Porcelains*, here, are not inclos'd in Coffins, as in the common Furnaces; the Furnace, itſelf, ſerving that purpoſe; and being ſo exactly cloſ'd, that they receive no other Impreſſion of the Fire, but that of the Heat of the Charcoal diſpos'd in the Hearth, at the bottom of the Furnace, as well as a-top of the Vault, and in the Interval between the Furnace and the Shell, or Brick-Wall.

To prepare the *Porcelains* for a ſecond Baking, they muſt have had their Varniſh in the common manner, and have paſs'd the great Furnace: In this State they are painted with various Colours, after which, without giving them any new Varniſh, they are rang'd in Piles in the little Furnace; ſetting the little ones over the larger, in form of Pyramids.

This ſecond Baking is ſometimes intended to preſerve the Luſtre of the Colours the better, and at the ſame time to give them a kind of *Relievo*. But more uſually, its Deſign is to hide defective Places, by covering them over with Colours: But the Artifice is eaſily found out, by paſſing the Hand over them.

When the Workman judges his *Porcelains* enough baked, he takes off the Piece that covers the Aperture; and if the Works appear glittering, and the Colours glowing, he takes out the Charcoal; and when the Furnace is cold, the *Porcelain* too.

How beautiful ſoever the modern *Porcelain* may be; the Taeſt for Antiquity, which reigns in *China*, as well as in *Europe*, gives the antient *Porcelain* a Value far above that of the modern: It muſt be own'd, the Antient ſeems finer as to the Matter, more perfect as to the Baking, and of a more pleaſant Caſt, both as to the White of the Ground, and the other Colours; yet 'tis certain the moſt able and diſcerning may be deceiv'd herein: And there are Workmen who make it their buſineſs to counterfeit the antient *Porcelain*, call'd *Koutom*, in the modern.

The Matter of theſe falſe *Koutoms* is a yellowiſh Earth, found near *Kimtetchim*: There is nothing particular in the firſt part of the Proceſs, except that they are made thicker, and that they are varniſh'd with an Oil drawn from the yellow Stone, mix'd with the common Oil, which gives them a kind of Sea-green Hue. When taken out of the Furnace, they throw it into a fatty Broth, made of Capons, *&c.* in which they boil it a ſecond time; they then bury it in the filthieſt Sink they can find for a Month or ſix Weeks, or more, according as they would give it the greater appearance of Antiquity. Beſides their Thickneſs and their Colour, theſe falſe Antiques reſemble the true ones in this; that they do not reſound when ſtruck, nor even give the leaſt buz, when held to the Ear.

Notwithſtanding the vaſt Quantity of *Porcelains* made in almoſt all the Provinces of the Empire of *China*; they ſtill continue very dear; tho' not near ſo dear, as antiently. The *Chineſe* Annals tell us of Times wherein a ſingle Urn coſt ninety or an hundred Crowns on the ſpot. What chiefly occaſions the extraordinary Price of this Commodity, eſpecially in *Europe*, is, beſide the great Profits of the Merchants in *Europe*, and their Factors in *China*; that it rarely happens a Furnace ſucceeds throughout; that it is frequently quite ſpoilt, ſo that upon opening it, in lieu of fine *Porcelains*, is found a hard unform'd Maſs, into which both the *Porcelains*, and their Coffins, are converted either by Exceſs of Heat, or ſome ill Qualities in the Matter.

Another reaſon of the Dearneſs of *Porcelain*, is, that the Ingredients it is made of, and the Wood wherewith it is burnt, grow more and more ſcarce: One may add a third reaſon for the exceſſive Price of *Porcelains* to the *Europeans*; and 'tis this, that moſt of thoſe ſent to *Europe* are form'd on new Models, frequently very odd, and difficult to ſucceed in; which, yet, for the ſmalleſt Defects, are turn'd on the Manufacturer's hands: and he not being able to diſpoſe of them to the *Chineſe*, becauſe not to their Taſte, nor for their Uſe, is forc'd to charge the *Porcelain* he delivers, the higher, to pay himſelf for thoſe refus'd.

The *French* have been theſe fifteen Years attempting to imitate *Porcelain*: The firſt Eſſays made at *Rouen*, are ſaid to have ſucceeded tolerably well; and M. *Savary* tells us, are now carry'd to ſuch a point in the Manufacturies of *Paſſi*, and *S. Cloud*, that the *French* *Porcelains* want nothing to make them of equal Value with the *Chineſe*, but to be brought five or ſix thouſand Leagues. In effect, for the Fineneſs of the Grain of the Matter, the Beauty and Form of the Veſſels, the Exactitude of the Deſign, and the Luſtre of the Colours, at leaſt the Blues; the *French* are not much behind the *Chineſe*. But their grand Defect is in the White of the Ground, which is uſually dingy and dull; and eaſily diſtinguiſhes itſelf from the pure ſprightly White of the *Chineſe*.

Porcelain, is alſo a kind of little white Sea-ſhell, found along with the Sponges; and current in ſeveral Parts of *Aſia*, *Africa*, and *America*, by way of Money. See Coin.

Authors have hitherto been of opinion, that theſe Shells were the Matter whereof the *Porcelain*, or *China*-Ware, was made. They are of ſome uſe in Medicine, and are preſcribed pounded or broken, in manner of Pearls. See Pearl.

PORCH, a kind of Veſtible ſupported by Columns; much uſed at the Entrance of the antient Churches, Temples, *&c.* See Vestible.

In the antient Architecture, *Porch* was a Veſtible, or a Diſpoſition of inſulated Columns, uſually crown'd with a Pediment, forming a Covert Place before the principal Door of a Temple or Palace.

When it had four Columns in Front, it was call'd a *Tetraſtyle*; when ſix, *Exaſtyle*; when eight, *Octoſtyle*; when ten, *Decaſtyle*, *&c.*

Vitruvius calls it *Pronaos* and *Prodomos*. When it has Iron Gates, it is call'd *Propylæum*.

PORE, a little Interſtice, between the Particles of Matter which conſtitute Bodies; either empty, or fill'd with ſome inſenſible Medium. See Body and Matter.

Condenſation, and Rarefaction, are only perform'd by cloſing and opening the *Pores*. See Rarefaction and Condensation.

The Tranſparency of Bodies is uſually ſuppos'd to ariſe from their *Pores* being directly oppoſite to one another. See Transparency.

The Matter of inſenſible Perſpiration is convey'd thro' the *Pores* of the *Cutis*. See Perspiration.

The Word *Pore* is form'd from the *Greek* πόρος, *Aperture*, or *Duct*, thro' which a Thing paſſes.

Sir *Iſaac Newton* ſhews, that Bodies are much more rare, and *porous*, than is commonly believ'd: Water, *e. gr.* is 19 times lighter, and conſequently rarer than Gold; and Gold itſelf is ſo rare, as very readily, and without the leaſt oppoſition, to tranſmit Magnetic Effluvia, and eaſily to admit Quickſilver into its *Pores*, and to let Water paſs thro' it: for a concave Sphere of Gold hath, when fill'd with Water, and ſolder'd up, upon preſſing with a great Force, let the Water ſqueeze thro' it, and ſtand all over its outſide, in multitudes of ſmall Drops like Dew, without burſting or cracking the Gold: whence it may be concluded, that Gold hath more *Pores* than ſolid Parts; and by conſequence that Water hath above forty times more *Pores* than Parts. See Gold.

The Magnet tranſmits its Virtues without any Diminution or Alteration, thro' all cold Bodies that are not magnetic; as Gold, Silver, Braſs, Glaſs, Water, *&c.* See Magnet.

The Rays of Light, let them be either Bodies actually coming to us from the Sun, or only Motions or Impreſſions upon the Medium, move in right Lines, and are hardly ever, unleſs by great chance, reflected back again in the ſame right Line, after their Impingence upon Objects; and yet we ſee that Light is tranſmitted to the greateſt Diſtances thro' pellucid Bodies, and that in right Lines. See Ray, *&c.*

Now how Bodies ſhould have *Pores* ſufficient for theſe Effects, may be difficult to conceive, but not impoſſible: For Sir *Iſaac* ſhews, that the Colours of all Bodies ariſe from their Particles being of ſuch a determinate Size or Magnitude. Wherefore, if we conceive thoſe Particles to be ſo diſpos'd, as that there is as much *Poroſity*, as there is of Matter; and in like manner thoſe Particles to be compos'd of others much leſs, and that have as much interſpers'd Vacuity or Space, as their Quantity of Matter amounts to; and ſo on, till we come to ſolid Particles without *Pores*: then, if in any Body there be (for inſtance) three of theſe Sizes of Particles, and that the laſt be of the ſolid, or leaſt ſort; that Body will have ſeven times as much Vacuity as ſolid Matter. If four ſuch Degrees, and the laſt be leaſt, and ſolid, that Body will have fifteen times as much Poroſity as Solidity: If five ſuch Degrees, it will have thirty-one times as much Space as Solidity: And if ſix Degrees, then it will have ſixty-three times as much Vacuity, as ſolid Matter.

And perhaps in the wonderful Conformation and Fabrick of natural Bodies, there may be other Proportions of Space to Matter, to us wholly unknown; whence it is poſſible, there may be yet farther great Quantities of interſpers'd Vacuity. See Vacuum.

Pores, in Anatomy, are certain permeable Spaces, between the Parts of the Skin; whereby we ſweat, or perſpire, *&c.* See Cutis and Perspiration.

The *Pores* are moſt remarkable in the Hands and Feet: By viewing the Palm of the Hand with a moderate Glaſs, after waſhing it well, we perceive innumerable little Ridges, of equal Size and Diſtance, running parallel to each other; eſpecially on the Tips and Joints of the Fingers, *&c.* where they are regularly diſpos'd into ſpherical Triangles and Ellipſes.

On theſe Ridges ſtand the *Pores*, in even Rows, big enough to be ſeen by a good Eye without a Glaſs; but with one, every *Pore* looks like a little Fountain; and the Sweat may be ſeen to ſtand therein, clear as Rock-Water; aud as often as it is wiped off, ſprings up again. See Sweat.

The *Pores* are plac'd on the Ridges, not in the Furrows between them; that they might be leſs liable to be ſtopped by Compreſſion: For the ſame reaſon, the *Pores* of the Hands and Feet are larger than the reſt; thoſe Parts being more uſed and preſs'd than the reſt: and hence again, there are no Ridges on other Parts.

Theſe Pores are a very convenient Out-let for the more noxious Parts of the Blood, which by the continual Uſe of the Hands, and Feet, are plentifully brought into them: Whence in Hypochondriac and Hyſteric People, there is a continual Burning in the Palms and Soles.

In the Stoppage or Conſtriction of the *Pores* of the Skin, conſiſts that Diſeaſe we popularly call a *Cold.* See Cold.

In the *Philoſophical Tranſactions*, we have an Inſtance of a Student near *Leyden*, much addicted to Aſtronomy, who ſpending many Nights in Star-gazing, had by the nocturnal Wet, and Cold, ſo obſtructed the *Pores* of his Skin, that little or nothing exhaled from his Body; as appear'd hence, that the Shirt he had wore five or ſix Weeks, was then as white as if it had only been wore one Day. In the mean while, a Water was collected under the Skin, whereof he was afterwards cured.

PORIMA, in Geometry, a Theorem, or Propoſition, ſo eaſily demonſtrated, that it is almoſt ſelf-evident. See Axiom.

Such, *e.gr.* is this, That a Chord is wholly within the Circle.

On the contrary, an *Aporima*, is a Propoſition ſo difficult, as to be almoſt impoſſible to be demonſtrated; as the Quadrature of the Circle is now, and as the Squaring of any aſſign'd Portion of *Hippocrates*'s *Lunes* formerly was.

The *Porima* coincides nearly with the *Lemma*, or Aſſumption. See Lemma.

The Word is form'd from the *Greek* πορυμος, a Thing eaſy to conceive; and which opens the way to ſomething more difficult.

PORISMA, in Mathematicks, a general Theorem, or Canon, deduc'd from a local Problem. See Theorem.

Proclus derives it from the *Greek* ποειϛω, to eſtabliſh, and conclude, from ſomething already done and demonſtrated; and accordingly defines *Poriſma*, a Theorem drawn occaſionally from ſome other Theorem already demonſtrated.

PORISTICK *Method*, in Mathematicks, is that which determines when, by what means, and how many different ways, a Problem may be ſolved. See Problem and Resolution.

PORPHYRY, in Natural Hiſtory, *&c.* a precious Kind of Marble, of a browniſh red Colour; frequently interſpers'd with white Stains; antiently brought from *Egypt*, and exceeding all others in Hardneſs. See Marble.

The Art of cutting *Porphyry*, practis'd among the Antients, is loſt. In effect, 'tis hard to conceive what kind of Tools they muſt have uſed for the faſhioning of theſe huge Columns, and other *Porphyry*-Works found in ſome of the antique Buildings in *Rome*.

One of the moſt conſiderable Pieces, now remaining entire, is a Tomb of *Conſtantia*, Daughter of the Emperor *Conſtantine*, in the Church of *St. Agnes* without the Walls; ordinarily call'd, *The Tomb of Bacchus*, becauſe of ſeveral Boys repreſented herein, playing among the Vine-Leaves. Add to this *Apollo*'s, and the Buſts of twelve Emperors, all in *Porphyry*, in the Palace of the *Tuilleries*.

Some of the antient Pieces appear to have been wrought with the Chiſſel, others with the Saw, others with Wheels, and others ground by degrees with Emery. Yet the modern Tools will ſcarce touch *Porphyry*: either the Antients, therefore, had the Secret of tempering Steel better than we; or, as ſome incline to think, they had the Art of ſoftening the *Porphyry*: Tho', 'tis more probable, that Time and Air have contributed to increaſe its Hardneſs.

Mr. *Addiſon* tells us, he ſaw a Workman at *Rome* employ'd in the cutting of *Porphyry*; but his Advances were exceedingly ſlow, and almoſt inſenſible.

All the way the *Italian* Sculptors have to work the Pieces of old *Porphyry* Columns ſtill remaining (for the *Porphyry* Quarries are long ſince loſt) is with a Braſs Saw without any Teeth. With this, together with Emery and Water, they rub and wear, with infinite patience. See Emery.

Yet have many excellent Perſons endeavour'd to retrieve the antient Art, particularly *Leon Baptiſta Alberti*; who ſearching for the neceſſary Temper, ſays, he found Goats Blood the beſt of any: yet even this avail'd but little; for in working with Chiſſels temper'd herein, Sparks of Fire came much more plentifully, than Pieces of the Stone. By means hereof, the Sculptors were able to make a flat or oval Form; but could never attain to any thing like a Figure. See Temper.

'Tis true; in 1555, *Coſmo de Medici* is ſaid to have diſtill'd a Water from certain Herbs, wherewith his Sculptor *Franceſco Tadda*, gave his Tools ſuch an admirable Hardneſs and Temper, as that he perform'd ſome fine Works with them; particularly, our Saviour's Head in *Demi-relievo*, *Coſmo*'s Head, and his Dutcheſs's. Even the very Hair, and Beard, how difficult ſoever, are here well conducted; and there is nothing of the Kind, better in all the Works of the Antients: But the Secret ſeems to have died with him.

The *French* have lately found another Method of cutting *Porphyry*, *viz.* with an Iron Saw without Teeth, and *Grez*, or a kind of Free-Stone pulveriz'd, and Water. The Authors of this Invention pretend, they could form the whole Contour of a Column hereby; had they Matter to work on.

PORPHYRIANS, a Name given to the *Arians*, in the fourth Century; by Authority of *Conſtantine*. See Arians.

That Prince publiſhing an Edict againſt *Arius* and his Writings, declares, That as *Arius* has imitated *Porphyry* in compoſing Books againſt Religion, he deſerves to be noted with his Infamy; and that as *Porphyry* is become the Reproach of Poſterity, and his Writings ſuppreſs'd; ſo he wills, that *Arius* and his Followers be call'd *Porphyrians*, &c.

The Propriety of the Name ſeems to conſiſt in this, that the *Arians* endeavour'd to reſtore Idolatry: For in ſaying that the Son, whom they call a begotten God, is a Creature; they put a Creature in the Rank of God: And only differ from the Heathens in this, that the one give the Quality of God to one Creature, the other to a great many.

PORPHYROGENETES, in Antiquity, a Name given the Children of the Eaſtern Emperors; implying, *born in the Purple.*

Cedrenus will have the Word to ſignify *born in the Palace of Porphyry*, a Palace ſo call'd in *Conſtantinople.*

PORRETANS, a Religious Sect, the Followers of *Gilbert de la Porree*, Biſhop of *Poictiers*, condemn'd in the XIIth Century, for admitting a Phyſical Diſtinction between God and his Attributes; or, as *Marſham* ſays, for having wrote too curiouſly on the Subject of the Trinity: For his real Sentiments, we are not over well acquainted withal.

However, he gave occaſion for thoſe Suſpicions, by maintaining that this Propoſition, *Deus eſt bonitas*, is not true; unleſs reduc'd to this, *Deus eſt bonus.* And there are ſome Paſſages noted by St. *Bernard*, who wrote warmly againſt him, wherein he ſeems to admit a real Diſtinction between the Nature of God, and his Attributes.

The *Porretans* are ſet in oppoſition to the *Nominals.* See Nominal.

PORRIDGE, of *Porreau*, *French*, of *Porrum*, *Latin*, a Leek or Herb frequently put in Broth; a liquid Food of Herbs, Fleſh, *&c.*

PORT, or *Haven*, a commodious Place ſituate on the Sea-Coaſt, or at the Mouth of a River, with depth of Water ſufficient for Ships of Burthen, and convenient Bottom for Anchorage; where Veſſels lie by, to load or unload; ſcreen'd from the Wind, and ſafe from any Enterprize of Enemies; either by the diſpoſition of the Place, or by means of a Mole, a Dike, or the like, with a Chain and Light-Houſe.

Ports are either *Natural* or *Artificial.*

Natural are thoſe which Providence ſeems to have form'd, for the Communication of Commerce.

Artificial Ports are thoſe form'd with Moles or Projectures into the Sea. See Mole.

The *Engliſh* Coaſts are exceedingly thin of Ports. *France* has the Advantage of all other Countries in the Number and

and Excellence of Ports; that of *Breſt* is the fineſt natural *Port* in the World, as that of *Dunkirk* was lately the ſtrongeſt artificial one.

Ports *de Barre* are ſuch as can only be enter'd with the Tide; as that of *Goa*. *Cloſe Ports* are thoſe within the Body of a City; as thoſe of *Rhodes*, of *Venice*, *Amſterdam*, *Rochel*, *Bayonne*, and *St. John de Luz*.

Free Port, in Commerce, a *Port* open and free for Merchants of all Nations to load and unload their Veſſels in, without paying any Duties or Cuſtoms. See Free and Duty.

Such is the *Port* of *Genoa*. The Emperor, ſince his being in poſſeſſion of the States in *Italy*, formerly belonging to *Spain*, has ſeem'd determined to eſtabliſh a *Free-Port* in ſome of the Cities he poſſeſſes on the *Adriatic Sea*.

Marſeilles was declared a *Free Port* by an Edict of *Louis* XIV. bearing Date 5 *March*, *1669*.

Free Port is alſo uſed for a total Exemption, and Franchiſe, which any Sett of Merchants enjoy, for Goods imported into a State, or thoſe of the Growth of the Country, exported.

Such was the Privilege the *Engliſh* enjoy'd for ſeveral Years after their Diſcovery of the *Port of Archangel*; and which was taken from 'em on account of the Regicide in 1648.

Port is alſo uſed for the Burthen of a Ship. See Burthen.

The Capacity of a Veſſel is eſtimated in Tuns; each whereof may contain about two thouſand Pounds Weight of Sea-Water. When, then, we ſay a Veſſel is of the *Port* or Burthen of a thouſand Tuns; it is not meant, as ſome imagine, that it bears ſo many Casks full of Merchandize; but that the Sea-Water, which would be contained in the Space which the Capacity of the Veſſel poſſeſſes in the Sea, weighs a thouſand Tuns fill'd therewith, which at the rate of 2000 Pounds each, is as much as to ſay, it bears a Burthen of two Millions Weight.

Port is alſo uſed for the Court of the Grand Seignor, or Emperor of the *Turks*.

Port is alſo uſed for a ſtrong Wine brought from *Oporto*, or *Port-a-port* in *Portugal*; whence its Name. See Wine.

PORT *of the Voice*, in Muſic, the Faculty and Habitude of making the Shakes, Paſſages, and Diminutions; wherein the Beauty of a Song, or piece of Muſic conſiſts, and which the *Italians* comprehend under the Terms *Trilli*, *Gioppi*, *Straſcini*.

Bacilli calls *Port of the Voice*, the tranſlating or paſſing of a lower to a higher Note. It conſiſts in three things: The lower Note, which is to be ſuſtain'd; the doubling made on the higher Note, and the ſuſtaining of that ſame Note after it has been doubled. Some call it *Anticipation*.

PORT, among Sailors, the Larboard, or left Side of the Ship. See Larboard.

To Port the Helm, is to put the Helm on the left Side the Ship. See Helm.

PORT-GREVE, was antiently the principal Magiſtrate in ſeveral Maritime Towns; thus called from the *Saxon*, *Port*, City; and *Greve*, a Collector of Rents in divers Lordſhips at this day.

Cambden obſerves, that the chief Magiſtrate of *London* was antiently call'd *Port-greve*; inſtead of whom, *Richard* I. ordained two Bailiffs; and ſoon afterwards King *John* granted them a Mayor for their yearly Magiſtrate. See Mayor.

The Charter of *William the Conqueror* to the City of *London* run thus: " *William* King, grete *William* Biſhop, " and *Godfrey Port-greve*, and all the Burgeis within " *London*, *French* and *Engliſh*. I grant you that I will " that ye be all your Law-worth that ye were in *Edward*'s " day the King. And I will that each Child be his " Fader's Eyer, and I will not ſuffer that ony Man you any " wrongs breed, and God you keepe."

PORTA, in Anatomy, or *Vena* Porta, a very conſiderable Vein, employ'd in bringing the Blood from ſeveral Parts, by an infinite number of Branches which it is divided into, to the Liver, thro' the whole Subſtance whereof it is diſſeminated. See Vein and Liver.

The *Vena Porta* is form'd of two large Veins; the *Meſenteric* and *Splenic*; which are again form'd of ſeveral other minuter Veins coming from the Stomach, Inteſtines, Spleen, Epiploon, &c. See Mesenteric and Splenic.

The Antients gave it the Name *Porta*, as imagining it to bring the Chyle, by its Meſenteric Branch, from the Inteſtines to the Liver; but ſome of the Moderns have found another uſe for it.

It is remarkable of the *Porta*, that, after the manner of the Arteries, it ſhoots itſelf from a Trunk into Branches, and being at laſt loſt in Capillaries, it delivers the Blood into the Cava, by which it is immediately reconvey'd to the Heart. See Cava.

The *Porta* is formed out of the concurrence of divers Veins, which, meeting together, make one of the moſt conſiderable Venous Trunks of the Body, as to its Bulk; tho', contrary to the Courſe of other Veins, it runs not far in a Trunk, but is, as before obſerved, ſoon diſtributed again, by Ramifications, into the Liver.

This Vein is vulgarly divided into *Branches without* the *Liver*, and *Branches within*, and a *Trunk intermediate*: But this Diviſion is not very clear, the Branches, as they are call'd, without the Liver, not being ſo properly Branches as Roots; which have, by Anatomiſts, been dignify'd with diſtinct Names from the Parts whence they come.

The Veins which conſpire towards the Formation of this Trunk, which having been deſcribed in their proper Places, or being to be deſcribed there, we ſhall not here enlarge upon; are, from the *Placenta Uterina*, in a Fœtus, the *Vena Umbilicalis*; from the Gall-Bladder the *Cyſticæ Gemellæ*; from the upper Part of the Stomach the *Pylorica*, or *Gaſtrica dextra*, which goes to the Trunk; the *Gaſtrica major*, and *minor Siniſtra* from the Stomach, (of which the major is formed out of the *Coronaria Ventriculi*;) the *Epiplois ſiniſtra*, and *Poſtica* from the Omentum; the *Vas*, or *Vaſa brevia* from the Stomach; the *Splenica* from the Spleen: All which join to form the *left*, or *Splenic Branch of the* Porta.

The *right*, or *Meſenteric Branch*, conſiſts of the *Gaſtrica* and *Epiploica dextra*, from the Stomach and Omentum; the *Duodena* from the Duodenum and Jejunum; the *Hemorrhoidalis interna* from the Inteſtinum Rectum and Colon; the *Meſaraics* from the Meſentery.

By means of all theſe Veſſels, the *Porta* receives the Blood from moſt of the Viſcera of the Abdomen; and, after the coaleſcence of its Branches, enters the Liver in a Trunk; immediately under the Surface whereof, having firſt form'd a kind of a Sinus, it is divided into two principal Branches, and thoſe again into five, which ſcatter innumerable Ramifications thro' the whole Subſtance of the Liver.

The true Uſe of this Vein, hitherto unknown, Dr. *Keil* thinks he has diſcover'd. And 'tis this: The Bile, ſays he, being to be mix'd with the Chyle, as it comes out of the Stomach into the Duodenum, could no where be ſo conveniently ſecerned from the Blood as where the Liver is placed. But if all the Branches of the *Cœliac* Artery carried all the Blood to the Liver from which the Gall was to be ſeparated; 'tis evident, conſidering the Nearneſs of the Liver to the Heart, and the inteſtine Motion of the Blood, that ſo viſcid a Secretion as the Gall is, could never have been formed. See Gall.

Nature, therefore, is forced to alter her conſtant Method of ſending the Blood to all Parts of the Body by Arteries: She here forms a Vein, by which ſhe ſends the Blood from the Branches of the Meſenteric and Cœliac Arteries to the Liver.

By this means the Blood is brought a great way about e'er it arrive at the Liver; ſo that its Celerity being diminiſhed, all the Corpuſcles that are to form, may have time to attract one another, and unite e'er they come to their ſecerning Veſſel. *Keil*'s *Anim. Secret.* p. 36, &c. See Secretion.

PORTABLE, ſomething eaſy of Carriage.

Books in 12° are valued for their being *Portable*; eaſily put in the Pocket. This Machine is the better, as being *Portable*. Armies carry with 'em *Portable* Bridges, *Portable* Mills, Boats, Ovens, Forges, &c.

Portable *Barometer*, a Barometer ſo contrived as that it may be carried from Place to Place without being diſordered. See Barometer.

A *Portable Barometer* was an extraordinary thing a little while ago: At preſent the common Barometers are *Portable*; being ſo made as that the Mercury may be ſcrew'd quite up to the ſeal'd end of the Tube; by which means it is ſecured from ſwagging, and ſo endangering the breaking of the Tube. A Contrivance for which we are indebted to Mr. *Patrick*.

PORTAL, in Architecture, a Term uſed for a little ſquare Corner of a Room, cut off from the reſt of the Room, by the Wainſcot; frequent in the antient Buildings, but now diſuſed.

The Word ſeems a Diminutive of the *French*, *Port*, Door, Gate; it being thro' this that they enter'd into the Room.

Portal is ſometimes alſo uſed for a little *Gate*, *Portella*; where there are two Gates of a different bigneſs. See Gate.

The Word ſometimes alſo ſtands for a kind of Arch of Joiner's Work, before a Door.

PORTAIL, in Architecture, the Face or Frontiſpiece of a Church, view'd on the ſide wherein is the great Door.

Portail is alſo uſed for the great Door itſelf of a Palace, Caſtle, *&c.*

PORTATE, in Heraldry, a *Croſs*-PORTATE is a Croſs which does not ſtand upright, as Croſſes generally do; but lies athwart the Eſcutcheon, in Bend, as if it were carry'd on a Man's Shoulder. See CROSS.

Colombiere tells us, it is by ſome call'd *Portée*, that is, carried; becauſe when our Saviour went to ſuffer Death, he was obliged to carry his Croſs, which is always thus repreſented ſloping, and inclin'd after this manner.

PORTCULLICE, *Herſe*, or *Sarazine*, in Fortification, an Aſſemblage of ſeveral great Pieces of Wood laid, or joined a-croſs one another, like an Harrow; and at the bottom pointed at the end of each Bar with Iron.

Theſe formerly uſed to hang over the Gate-ways of fortify'd Places, to be ready to let down in caſe of a Surprize, when the Enemy ſhould come ſo ſoon, as that there was not time to ſhut up the Gates.

But now a-days the Orgues are more generally uſed, as being found much better. See ORGUES.

PORT-*Dieu*, among the *French*, is a Pariſh-Prieſt, whoſe Buſineſs is to carry the Viaticum, or Sacrament, to ſick People. See VIATICUM.

PORT-*Royal*, a Term that makes a conſiderable Figure in the Republic of Learning. Its Origin is this:

Philip Auguſtus wandering from his Company in Hunting near *Chevreuſe*, Weſtwards of *Paris*, found a little Chappel, where he put up, expecting ſome of his Attendants might meet him. This happening accordingly, he gave the Place the Name of the *King's Port*, *Port du Roi*, or *Port Royal*; and to give thanks for his Deliverance, reſolved to erect a Monaſtery there.

Odo, Biſhop of *Paris*, apprized of his Intention, prevented him; and, with the concurrence of *Mathilda*, Wife of *Matth. Montmorenci*, firſt Lord of *Marly*, built a Nunnery in 1204, filling it with *Ciſtercians*, who continued under the Juriſdiction of the General of that Order till the Year 1627; when they were removed to a Houſe given 'em in the *Fauxbourg St. Jacques* at *Paris*.

In 1647, they quitted the Habit of *Ciſtercians*, and embraced the Inſtitution of the perpetual Adoration of the Sacrament. In 1647, the Archbiſhop of *Paris* allowed 'em to remand ſome of their Religious to their former Abbey, and to re-eſtabliſh the ſame.

Some time after, the Formulary of *Alexander* VII. being appointed to be ſubſcribed throughout the Kingdom; the Religious of *Port Royal* in the City ſign'd it; thoſe remitted to the former Abbey ſcrupled it extremely, and at laſt only ſign'd it with great Reſtrictions.

Still perſiſting in the ſame Sentiments, the King finding no way to reduce 'em but by diſperſing 'em; that was executed in 1709, and the Revenues given to the other Monaſtery.

Upon this Evacuation, ſeveral Eccleſiaſtics, and others, who had the like Sentiments with regard to the Subſcription, as the Religious; retir'd to *Port Royal*, and had Apartments there; and there publiſhed ſeveral Books both on the Subject of this Diſpute, and other Topics; whence all who adhered to that Party, took the Name of *Port Royaliſts*, and their Books, *Books of Port Royal*.

Hence we ſay the *Writers of Port Royal*, Meſſieurs *de Port Royal*, the Tranſlations of *Port Royal*, the *Greek* and *Latin* Methods of *Port Royal*, which are Grammars of that Language.

PORT-GLAIVE, q. d. *Sword Bearer*, an Order of Knights in *Poland*, call'd by the *Latins Enſiferi*. See KNIGHT.

It was confirm'd by Pope *Innocent* III. and by him ſent into *Livonia* to defend the Preachers of the Goſpels againſt the Infidels at the firſt Converſion of that Country. Being too weak to effect that Buſineſs, they united themſelves with the *Teutonic*, or *Marian* Knights, by the Pope's Authority; and inſtead of Knights of the Sword, were call'd Knights of the Croſs.

They ſeparated again in the time of *Univus*, their Great Maſter, *Anno* 1541.

The *Teutonic* Knights being then diſpoſſeſs'd of *Pruſſia*, and the *Port-glaives* going into *Luther*'s Opinions, ſoon dwindled away; for in the Year 1557, they fell out with the Biſhop of *Riga*, of the Houſe of *Brandenburgh*, becauſe he would not embrace their Notions; and he, to ſecure his own Eſtate, put *Riga* into the hands of the *Polanders*.

Afterwards, the Knights having moſt of *Livonia* taken from them by the *Muſcovites*, they put themſelves under the Protection of *Sigiſmond Auguſtus*, King of *Poland*, *An.* 1559; but *William* of *Furſtembourg*, their Great Maſter, being betray'd by his own Mercenaries into the hands of the *Muſcovites*, *Gothard* his Succeſſor, following the Example of *Albert*, the Great Maſter of *Pruſſia*, tranſacted with the aforeſaid *Sigiſmond* for the whole Eſtate, which he ſurrender'd to his own uſe in the Caſtle of *Riga*, together with his Croſs, the Seal of the Order, the Charters and Grants of the ſeveral Popes and Emperors, which concerned the ſame; as alſo the Keys of the City and Caſtle of *Riga*, the Office of Great Maſter, the Rights of Coinage, and all the Powers and Privileges appertaining to it; receiving back again from *Ratſivil*, the King's Commiſſioner, the Dukedom of *Courland* to him and his Heirs for ever.

PORT-FIRE, a Paper-Tube, about ten Inches long, fill'd with a Compoſition of Meal-Powder, Sulphur, and Saltpetre, ramm'd moderately hard; uſed to fire Guns and Mortars inſtead of Match. See MATCH.

PORT-MANTEAU, a piece of Joiner's Work, faſten'd to the Wall, in a Wardrobe, Armory, *&c.* proper for the hanging on of Cloaks, Hats, *&c.*

Port-manteau is alſo uſed for a Cloak-Bag, of Cloth, Leather, or the like, wherein the Cloak and other Habiliments of Travellers are diſpoſed, and laid on the Horſe's Crupper.

Port-manteau is alſo an Officer under the King of *France*, whereof there are twelve: Their Buſineſs is to keep the King's Hat, Gloves, Cane, Sword, *&c.* to take 'em from him, and to bring 'em to him again when wanted.

The *Dauphin* has alſo his *Port-manteau*. Anſwerable to theſe are the Cardinal's *Cauditaries*, or Tail-Bearers.

The *Romiſh* Biſhops have their *Port Croix*, *Port Mitres*, &c.

PORT-VENT, in an Organ, is a wooden Pipe, well cloſed, which ſerves to convey the Wind from the Bellows to the Sound-Board of the Organ. See ORGAN.

PORT-CRAION, a *Pencil-Caſe*; an Inſtrument ſerving to incloſe a Pencil, and to ſerve both as a Handle for holding it, and a Cover to make it portable.

'Tis uſually four or five Inches long, and contrived ſo as the Pencil may be ſlid up and down it by means of a Spring and Button. Its outſide is filed into eight Sides or Faces, whereon are drawn the Sector-Lines: Its inſide, round; ſometimes it is made round or cylindrical both withoutſide and within, and has its length divided into Inches and parts of Inches.

PORT-LAST, in a Ship, the Gun-wale. Hence when a Yard is down on the Deck, they ſay, the Yard is down a *Port-laſt*.

PORTMANNIMOTE, in old Records, the Portmen's Court, held in any City or Town.

PORT-*Ropes*, in a Ship, thoſe which ſerve to haul up the *Ports* of the Ordnance.

PORT-*Sale*, *Ann.* 35 *Hen.* 8. *cap.* 7. is the Sale of Fiſh preſently upon its Arrival in the Port or Haven. See PORTMEN.

PORT-*Nails*, in a Ship, ſuch as are uſed to faſten the Hinges to the Ports. See NAIL.

PORT-*Holes*, in a Ship, are the Embraſures, or Holes in the ſides of the Veſſel, thro' which the Muzzles of the Cannons are put. Sea EMBRASURE.

Large Ships have three Rows of *Port-Holes*, or Batteries; each uſually conſiſting of fifteen *Port-Holes*.

In Storms, they uſe to ſhut up the *Port-Holes*, to prevent the Water's driving thro' them.

In *Engliſh*, *Dutch*, and *French* Ships, their Valves or Caſements are faſten'd a-top of the Aperture; in *Spaniſh* Veſſels a-ſide of 'em.

PORTER, in the Circuit of Juſtices, is an Officer that carries a Verge, or white Rod before the Juſtice in *Eyre*; ſo call'd *à portando Virgam*. See VERGER.

PORTER *of the Door of the Parliament Houſe*, is a neceſſary Officer belonging to that High Court; who enjoys the Privileges accordingly. *Cromp. Juriſd.*

PORTICO, in Architecture, a kind of Gallery built on the Ground; or a Piazza incompaſs'd with Arches, ſupported by Columns; where People walk under Covert. See PIAZZA.

The Roof is uſually vaulted, ſometimes flat. The Antients call'd it *Lacunar*. See LACUNAR.

Tho' the Word *Portico* be derived from *Porta*, Gate, Door; yet is it apply'd to any diſpoſition of Columns which form a Gallery; without any immediate relation to Doors, or Gates.

The moſt celebrated *Portico's* of Antiquity were thoſe of *Solomon*'s *Temple*, which form'd the *Atrium*, and encompaſs'd the Sanctuary: That of *Athens*, built for the People to divert themſelves in; and wherein the Philoſophers held their Diſputes and Converſations; which occaſion'd the Diſciples of *Zeno* to be call'd *Stoicks*, from the *Greek*, ϛοα, *Porticus*: And that of *Pompey* at *Rome*, raiſed merely for Magnificence; conſiſting of ſeveral Rows of Columns ſupporting a Plat-Form of vaſt Extent: a Deſign whereof, *Serlio* gives us in his Antique Buildings.

Among the modern *Portico's*, the moſt celebrated is the Piazza of St. *Peter* of the *Vatican*. That of *Covent-Garden*, *London*, the Work of *Inigo Jones*, is alſo much admired.

PORT-*Men*, the twelve Burgeſſes of *Ipſwich* are thus call'd in the Stat. 13 *Eliz.* *Cambden* adds, that the Name was common to the Inhabitants of all the Cinque-Ports. See QUINQUE *Portus*.

PORTMOTE, ſignifies a Court kept in Port or Haven-Towns; as *Swain-Mote* in the Foreſt. It is call'd the *Portmote-Court*. See PORT and COURT.

Portmotes are alſo held in ſome Inland-Towns; as at *Knolſt* in *Cheſhire*.

The Word is form'd from the *Saxon*, *Porte*, Port, and *Gemot*, *Conventus*, Meeting.

PORT-SOKA, the Suburbs of a City, or a Place within the Liberties and Juriſdiction thereof.

The Word is form'd from the *Saxon*, *Port*, City; and *Soka*, Juriſdiction. *Conceſſi quod nullus de Civitate, vel* Port-Soka *ſua captus*, &c. *Somner's Gavelkind.*

PORTIO *Dura*, and *Mollis*, in Anatomy, a Partition of the fifth Pair of Nerves of the Brain; which, before its egreſs out of the *Dura Mater* is apparently divided into two Branches; the one pretty tough and firm, call'd *Portio Dura*; the other ſoft and lax, call'd *Portio Mollis*. See NERVE.

PORTIO, *Portion*, a Part, or Diviſion of any thing. See PART and DIVISION.

PORTION, in the Canon-Law, is that Allowance, or Proportion, which a Vicar ordinarily has out of a Rectory or Impropriation, be it certain, or uncertain. See VICAR and IMPROPRIATION.

PORTIONER. Where a Parſonage is ſerved ſometimes by two, ſometimes by three Miniſters, alternately; as *Bromyard*, *Burford*, &c. in *Shropſhire*; the Vicars or Incumbents are call'd *Portioners*; becauſe they have but their Portion, or Proportion of Tythes, or Profits of the Living.

PORTLAND-*Stone*, ſee STONE.

PORTRAIT, or PORTRAITURE, in Painting, the Repreſentation of a Perſon, and eſpecially a Face, done from the Life. See PAINTING.

In this ſenſe we ſay, *Portrait-Painting*, in oppoſition to Hiſtory-Painting, where all Reſemblance of Perſon is diſregarded.

Portraits are uſually painted in Oil-Colours, ſometimes in Water; ſometimes in Miniature, with Crayons, Pens, Paſtels, &c. See LIMNING, MINIATURE, &c.

It was ſaid of a great Painter, who never ſucceeded in the Likeneſs, (Sir *Peter Lely*, if we miſtake not) that he made a great many fine Pictures, but all poor *Portraits*.

PORUS *Bilarius*, *Bilary Pore*, or *Hepatic* Duct, in Anatomy, a Duct, which, with the Cyſtic, or Cholcidic, forms the common Canal of the Bile. See BILE.

Fallopius was miſtaken in imagining that the *Porus Bilarius* carried the Bile into the Gall-Bladder. Its Office is to convey it into the Inteſtines, by the *Ductus Communis*; for in blowing into it, that Inteſtine is found to ſwell. See BILARY and DUCTUS *Communis*.

POSE, in Heraldry, denotes a Lion, Horſe, or other Beaſt ſtanding ſtill, with all four Feet on the Ground; to denote thereby that it is not in a moving Poſture.

POSITION, in Phyſics, *Site*, or *Situation*; an Affection of Place, which expreſſes the Manner of any Body's being therein. See BODY, PLACE, &c.

POSITION, in Architecture, the Situation of a Building, with regard to the Points of the Horizon. See BUILDING.

Vitruvius directs the *Poſition* of a Building to be ſuch, as that the four Corners point directly to the four Winds.

POSITION, in Aſtronomy. The *Poſition* of the Sphere is either right, parallel, or oblique; whence ariſes the Inequality of our Days, Difference of Seaſons, &c. See SPHERE.

Circles of POSITION, are ſix great Circles paſſing thro' the Interſection of the Meridian and Horizon, and dividing the Equator into twelve equal Parts. See CIRCLE.

The Spaces included between theſe Circles, are what the Aſtrologers call the *twelve Houſes*; and which they refer to the twelve Triangles mark'd in their Themes. See THEME.

Theſe Circles are repreſented on the Globe by the Semicircle of *Poſition*. See GLOBE.

POSITION, in Dancing, the Manner of diſpoſing the Feet, with regard to each other.

There are four regular *Poſitions*: The firſt, when the Feet are join'd in a Line parallel to the Shoulders: The ſecond, when the Heels are perpendicularly under the Shoulders; and of conſequence, the width of the Shoulder a-part: The third, when one Foot is before the other, in ſuch manner, as that the Heel is in the Cavity form'd by the *Rotula* and *Carpus* of the Foot: The fourth, when one Foot is the width of the Shoulders a-part from the other; the Heel ſtill anſwering to the Cavity of the former: which is the only regular manner of Walking.

POSITION, in Arithmetic, a Rule ſo call'd, for *Suppoſition*.

Rule of *falſe Poſition*, or of *Falſhood*, conſiſts in the calculating on ſeveral falſe Numbers, taken at random, as if they were the true ones; and from the Differences found therein, determining the Number ſought.

Poſition is either *ſingle* or *double*.

Single POSITION is, when there happens in the Propoſition, ſome Partition of Numbers into Parts proportional; in which Caſe, the Queſtion may be reſolv'd at one Operation by this Rule:

Imagine a Number at pleaſure, and work therewith according to the Tenour of the Queſtion, as if it were the true Number; and what Proportion there is between the falſe Concluſion, and the falſe *Poſition*; ſuch Proportion the given Number, has to the Number ſought.

Therefore, the Number found by Argumentation, ſhall be the firſt Term of the Rule of Three; the Number ſuppos'd, the ſecond Term; and the given Number, the third. See GOLDEN *Rule*.

POSITION *Double*, is, when there can be no Partition in the Numbers to make a Proportion.

In this Caſe, therefore, you muſt make a Suppoſition twice; proceeding therein according to the Tenour of the Queſtion.

If neither of the ſuppos'd Numbers ſolve the Propoſition, obſerve the Errors, and whether they be greater or leſſer than the Reſolution requireth; and mark the Errors accordingly, with the Signs + and —.

Multiply, contrariwiſe, the one *Poſition* by the other Error; and if the Errors be both too great, or both too little, ſubſtract the one Product from the other, and divide the Difference of the Products by the Difference of the Errors.

If the Errors be unlike, as the one +, and the other —, add the Products, and divide the Sum thereof, by the Sum of the Errors added together. For the Proportion of the Errors, is the ſame with the Proportion of the Exceſſes or Defects of the Numbers ſuppos'd, to the Numbers ſought.

POSITION, in Geometry, &c. a Term uſed in contradiſtinction to *Magnitude*, &c. Thus, a Line is ſaid to be *given in Poſition*, *Poſitione data*, when its Situation, Bearing, or Direction, with regard to ſome other Line, is given: On the contrary, a Line is given in Magnitude, when its Length is given, but not its Situation.

Sir *Iſaac Newton* ſhews how to find a Point, from which three Lines, perpendicularly let fall to three other Lines *given in Poſition*, have any given Ratio, &c.

POSITION, is alſo uſed for a Theſis, or Propoſition, maintain'd in the Schools. See THESIS.

POSITIVE, a Term of Relation; ſometimes oppos'd to Negative.

Thus, we ſay, the Commandments are ſome of them *Poſitive*, others Negative. See NEGATIVE.

Poſitive is alſo uſed in oppoſition to *Relative*, or *Arbitrary*.

Thus, we ſay, Beauty is no *poſitive* Thing, but depends on the different Taſtes of the People. See RELATIVE.

Poſitive is alſo uſed in oppoſition to *Natural*: Thus we ſay, a Thing is of *poſitive* Right; meaning, it is founded on a Law, which depends abſolutely on the Authority of him who gave it.

Thus, *e. gr.* the Prohibition of eating certain Beaſts, under the Old Law, was of *Poſitive* Right; the Command to honour Father, and Mother, of Natural Right. See RIGHT.

POSITIVE *Quantity*, in Algebra, a real, or affirmative Quantity; or a Quantity greater than nothing: thus called, in oppoſition to a privative or negative Quantity, which is leſs than nothing. See QUANTITY.

Poſitive Quantities are deſign'd by the Character +, prefix'd to them, or ſuppos'd to be prefix'd. See CHARACTER.

POSITIVE *Degree*, in Grammar, is the Adjective in its ſimple Signification; without any Compariſon. See DEGREE.

Or, *Poſitive Degree*, is that Termination of an Adjective, which expreſſes its Subject ſimply, and abſolutely; without comparing it with any other. Thus, good, *bonus*, fair, *pulcher*, &c. are in the *poſitive Degree*; better, fairer, in the Comparative. See COMPARATIVE.

POSITIVE *Theology*, is that which conſiſts in the ſimple underſtanding, or expounding of the Dogma's, and Articles of Faith; as contain'd in the Holy Scriptures, or explain'd by the Fathers and Councils; clear of all Diſputes and Controverſies. See THEOLOGY.

In this ſenſe, *Poſitive* Theology ſtands oppos'd to *Scholaſtic*, and *Polemical* Theology. See SCHOLASTIC and POLEMICAL.

Poſitive, in Muſic, the little Organ uſually behind, or at the foot of the Organiſt, play'd with the ſame Wind, and the ſame Bellows, and conſiſting of the ſame Number of Pipes with the large one; tho, thoſe much ſmaller, and in a certain Proportion. See Organ.

In the Organs of the Jeſuits, the *Poſitive* is in the grand Body.

Poſitive *Levity.* See Levity.

Poſitive *Cold.* See Cold.

POSSE *Comitatus*, *Power of the County*, a Phraſe in Law, ſignifying the Aid, and Attendance of all Knights, Gentlemen, Yeomen, Labourers, Servants, Apprentices, Villains, and others, above the Age of fifteen Years, within the County; becauſe all above that Age are bound to have Harneſs by the Statute of *Wincheſter*: Only Women, Eccleſiaſtical Perſons, and ſuch as are decrepid, and infirm, are excus'd. For the Statute of 2 *Hen.* 5. ſays, That *Perſons able to travel, ſhall be aſſiſtant to this Service.* See Service.

It is uſed, where a Poſſeſſion is kept upon a forcible Entry, or any Force of Reſcue uſed, contrary to the Command of the King's Writ, or in oppoſition to the Execution of Juſtice.

POSSESSION, in Law, *quaſi pedis poſitio*; an Action whereby we hold, or occupy, any thing, either *de Jure*, or *de Facto.* See Occupancy.

Poſſeſſion de Facto, is when there is an actual, and effectual Enjoyment of the Thing. See De Facto.

Poſſeſſion de Jure, or in Law, is the Title a Man has to enjoy a thing, tho' it be ſometimes uſurp'd, and in the actual *Poſſeſſion* of another. See De Jure.

Unity of Poſſeſſion, is what the Civilians call *Conſolidation. E.gr.* If a Lord purchaſe a Tenancy, held of himſelf by Herriot-Service; the Service becomes extinct by *Unity of Poſſeſſion*, *i. e.* by the Seignory and Tenancy's coming to the ſame hand. See Consolidation.

A *Poſſeſſion* of three Years, in Matters perſonal, begets a Right; and in real Eſtates, a *Poſſeſſion* of ten Years, among Perſons living near the Premiſes, and twenty Years among thoſe that live elſewhere. See Prescription.

Possession, is ſometimes alſo uſed for the Act of taking *Poſſeſſion*; which is perform'd with certain Formalities, whereby a Perſon is juſtify'd to be in the Enjoyment of any thing.

Antiently, upon buying an Eſtate, *Poſſeſſion* was taken with a deal of Ceremony: In ſome places, by a Stick, a Branch, or a Straw, put in the hands of the Buyer by the Seller. See Investiture.

Poſſeſſion of a Benefice, in ſome Cuſtoms, is taken, by entring the Church, kneeling down, kiſſing the Altar, and ringing the Bell.

In ſome Caſes, *Poſſeſſion* is taken by the Sight of the Steeple.

The Emperors antiently put Prelates in *Poſſeſſion*, by giving them a Ring and a Staff.

Posession is alſo uſed for the Title, or Preſcription, that gives a Right to hold any thing: Annual *Poſſeſſion* is the *Uſucaptio*, which gives a Right to Moveables: A triennial and peaceable *Poſſeſſion* of a Benefice, is ſufficient to maintain it; provided it be founded on a plauſible Title.

A *Poſſeſſion* of an Eſtate for ten Years by a Perſon preſent, and of twenty Years by one abſent, with a Title; or of thirty Years, without any; gives a full Right. See Prescription.

Centenary *Poſſeſſion*, conſtitutes *Poſſeſſion* Immemorial; the beſt and moſt indiſputable of all Titles.

Possession, is alſo uſed for the State of a Perſon *poſſeſſed* by the Devil.

It differs from *Obſeſſion*; in that in the former, the Devil acts inwardly; and in the latter, outwardly. See Obsession.

POSSESSIVE, in Grammar, a Term apply'd to Pronouns, which denote the Enjoyment or Poſſeſſion of any thing, either in particular, or in common. See Pronoun.

Thus, *mine*, *thine*, *his*, *ours*, *&c.* are Pronouns *Poſſeſſive.*

POSSIBILITAS, in our old Law-Books, is uſed for a thing done wilfully, or wittingly; in oppoſition to *Impoſſibilitas*, a thing done againſt the will.——*Si autem Oculos aſnaſſet reddat weram ejus*, & Impoſſibilitatis *accuſetur in eo facto.* Leg. Alfred. Again, ——*Si quis agat* impoſſibiliter, *non eſt omnino ſimile ac ſi voluntarie faciat.* Leg. Sax. Ed. Senior.

POSSIBILITY, Possibilitas, a Non-Repugnance to Exiſting, in a thing that does not any way exiſt. See Possible.

This Non-Repugnance of Exiſting is no other than the Producibility of any thing; which conſiſts in this, that there are ſufficient Cauſes actually exiſting, or at leaſt poſſible, whereby the thing may be produc'd, or be brought to exiſt; principally as there is a God, or an Almighty Cauſe.

So that *Poſſibility* does not imply any thing in the thing poſſible, but is a mere extrinſic Denomination taken from the Power of the Cauſe, and principally of God.

In effect, if a creditable thing had any intrinſic *Poſſibility*, it would follow that ſuch thing muſt exiſt even without the Cauſe.

And yet we may allow an intrinſic *Poſſibility* of a thing; if by *Poſſibility*, we do not underſtand its Producibility, or its Non-Repugnance to exiſt; but only the Non-Repugnance of the Attributes contain'd in its Idea. But ſuch *Poſſibility* is merely Logical.

POSSIBLE, Possibile, is ſometimes oppos'd to real Exiſtence, and underſtood, in the Schools, of a Thing, which tho' it does not actually exiſt, yet may exiſt; as a new Star, another World, *&c.* which are particularly ſaid to be *phyſically poſſible.*

It is alſo oppos'd to *Impoſſible*; in which ſenſe it is applicable to any thing that does not contradict itſelf, or involve contradictory Predicates; whether it actually exiſt or not: As Man, Fire; theſe are alſo ſaid to be *Logically poſſible.*

'Tis a great Point of Controverſy among the School Philoſophers, whether, and how far Things may be ſaid to have any Entity, while only in a State of *Poſſibility.* See Possibility.

Poſſibles are ordinarily conceiv'd to be three-fold; *future*, *potential*, and *merely poſſible.*

Future, is that of a Thing, whoſe Production is decreed, and aſcertain'd: *V.gr.* the Futurition of all thoſe Events, fix'd by the Immutable Decree of the Immutable Will of the Almighty.

Potential, or *in potentia*, is that which is contain'd, or lies hid in its Cauſes; as the Tree in the Seed, the Fruit in the Tree, *&c.*

A *mere Poſſible*, is that which might exiſt, tho' it never ſhall.

Others diſtinguiſh *Poſſibles* into *Metaphyſical*, *Phyſical*, and *Poſſible.*

Metaphyſical, is that which may at leaſt be brought to Being by ſome ſupernatural and divine Power; as the Reſurrection of the Dead: In which ſenſe the Word is oppos'd to an Impoſſible even to God himſelf; as a crooked Straitneſs, a ſquare Circle, an infinitely perfect Creature, a mortal God.

Phyſical, or *Natural*, is that which may be effected by a natural Power; as to overturn the *Turkiſh* Empire. In oppoſition to ſuch Things as cannot be produc'd by any finite Power; as, to reſtore the Dead, *&c.*

Ethical, or *Moral*, is that which may be done by prudent Perſons; uſing all the proper means they have for the ſame: And again, it is uſed for any thing done according to right Reaſon, and conſiſtently with the Laws. In the firſt ſenſe, it is *poſſible* for the *Venetians* to beat the *Turks* at Sea: In the ſecond, whatever is right and juſt, is *poſſible.*

POST, in the Military Art, any Ground, or Place, fortify'd or not, where a Body of Men make a Stand, fortify themſelves, or remain in a Condition to fight an Enemy.

Hence they ſay, the *Poſt* was reliev'd, the *Poſt* was quitted, the *Poſt* was taken Sword in hand, *&c.*

A Spot of Ground ſeiz'd by a Party to ſecure the Front of an Army, and to cover the *Poſts*, that are behind, they call an *advanc'd Poſt*: And the Advance Guard, or the Right of the two Lines of an Army, *&c.* they call the *Poſt of Honour.*

The Word is form'd from the *Latin poſitus*, placed; ſome derive it from *Poteſtas*, Power.

Posts, in Building, pretty big Pieces of Timber, plac'd upright in Houſes, *&c.*

The corner *Poſts* are call'd the *principal Poſts*; and the *Poſts* framed into Breſſummers between principal *Poſts* for ſtrengthening the Carcaſs of the Houſe, are call'd the *Prick-Poſts.*

An excellent Method to preſerve *Poſts* from rotting, is to burn the Ends that are to be ſet in the Ground; the Outſide to a very Coal.

Post, the Diſpatch a Courier, or Letter-Carrier, makes, by changing Horſes from time to time. See Courier.

The Word is alſo apply'd to the Perſon himſelf; the Houſes where he takes up, and lays down his Charge; and the Stages or Diſtances between Houſe and Houſe.

The Name is borrow'd hence, that the Horſes are *poſiti*, placed, or diſpoſed from diſtance to diſtance.

We find mention made of *Poſt*-Horſes in the *Theodoſian Code, de Curſu publico*; but theſe were very different from the preſent Eſtabliſhment, and were only public Horſes, firſt appointed by *Trajan*; till whoſe Time, the Meſſengers ſeiz'd any Horſes that came in their way.

Louis Hornigk has an expreſs Treatiſe on *Poſts*, whereof he makes four kinds; *viz.* on *Horſeback*, in *Chariots*, in *Boats*, and on *Foot*: which laſt kind is in uſe in *Italy*, *Turkey*, and *Peru.*

Herodotus aſcribes the Origin of *Poſts* to *Cyrus* or *Xerxes*; but the *Poſts* inſtituted by thoſe Princes were no more than Couriers. See Courier.

In effect, *Poſts* on the preſent footing are but a modern Invention; tho' ſome go back as high as *Charlemaign*.

'Tis certain it was the Policy, or rather the Diffidence of *Louis* XI. of *France*, that they owed their Riſe to; that uneaſy Prince firſt ſettling them by an Ordonnance of the 19th of *June*, 1464. to be the ſooner, and the more ſurely advertis'd of what paſs'd in his own Kingdom, and in the neighbouring States.

From *France*, the Inſtitution propagated itſelf, by degrees, thro' the ſeveral other Parts of *Europe*: In *Germany*, *Hornigk* obſerves, *Poſts* were firſt ſettled by the Count *de Taxis* at his own Expence; in acknowledgment whereof, the Emperor *Matthias* in 1616, gave him, in Fief, the Charge of *Poſt*-Maſter under him and his Succeſſors.

In *England*, *Poſts* were firſt eſtabliſh'd by Act of Parliament 12 *Car*. 2. which enabled the King to ſettle a *Poſt*-Office, and appoint a Governour.

The *Engliſh Poſt*-Office is now manag'd by two Commiſſioners, who have under them about forty other Officers, of their own appointing, who are all ſworn, and give Security for their faithful Diſcharge, *&c.* as the *Receiver*, *Comptroller*, *Accomptant*, ſix *Clerks* of the ſeveral Roads, a *Window-Man*, and ſixteen *Sorters*, for the Inland Office. For the Foreign Office, are a *Comptroller* and *Alphabet-keeper*, ſix *Clerks*, and a Foreign Officer. Beſides Sollicitor and Clerks, and ſixty-ſeven Letter-Carriers.

From this Office, Letters and Packets are diſpatch'd every *Monday*, to *France*, *Spain*, *Italy*, *Germany*, *Sweden*, *Kent*, and the *Downs*; every *Tueſday* to all Parts of *England*, *Scotland*, and *Ireland*; alſo to *Holland*, *Germany*, *Sweden*, *&c.* every *Wedneſday* to *Kent* only, and the *Downs*; every *Thurſday* to all Parts of *England* and *Scotland*; as alſo to *France*, *Spain*, and *Italy*; every *Friday* to *Flanders* and *Holland*, *Germany*, *Sweden*, *Kent*, and the *Downs*; and every *Saturday* to all Parts of *England*, *Scotland*, and *Ireland*.

Again, Letters are return'd to *London* from all Parts of *England* and *Scotland*, *Wales* only excepted, every *Monday*, *Wedneſday*, and *Friday*: From *Wales* every *Monday* and *Friday*; and from *Kent* and the *Downs*, every Day.

On this grand Office depend 182 *Poſt*-Maſters in *England* and *Scotland*, who keep regular Offices in their Stages, and Sub-Poſt-Maſters in their Branches.

Tho' the Number of Letters in *England* was antiently very inconſiderable; yet is it now ſo increaſed, that this Office, before the Addition of the *Penny-Poſt*, was farm'd at 50000 *l. per Ann.*

The Charge of a Letter of a Sheet of Paper 80 Miles, is 3 *d.* of two Sheets, 6 *d.* for above 80 Miles, a Sheet 4 *d.* two, 8 *d.* An Ounce of Letters for 80 Miles, 1 *s.* for above, 1 *s.* 6 *d.*

Note, The *Poſt* travels at the rate of 120 Miles in 24 Hours. For thoſe who chuſe to travel with the *Poſt*, Horſes are ready, at the Rate of 3 *d. per* Mile, and 4 *d.* to the Boy every Stage.

The Great Mogul performs part of his *Poſtage* by Pigeons, kept in ſeveral places, for the Conveyance of Letters on extraordinary Occaſions. They will carry them from one end of that vaſt Empire to another. The ſame Vehicles have been uſed by the *Dutch* in Sieges. And at this day, *Tavernier* obſerves, the Conſul of *Alexandretta* ſends News daily to *Aleppo*, in five Hours time, by means of Pigeons; tho' thoſe two Places are three Days Journey on horſeback a-part.

Penny-Poſt, a *Poſt* eſtabliſh'd for the Benefit of *London*, and the Parts adjacent; whereby, any Letter or Parcel, not exceeding one Pound Weight, or ten Pound Value, is ſpeedily and ſafely convey'd to and from all Parts within the Bills of Mortality, to moſt Towns and Villages within ten Miles of *London*.

This Office is managed by a Comptroller, under whom are an Accomptant, Collector, ſix Sorters, ſeven Sub-Sorters, and above an hundred Meſſengers.

Posts, in Sculpture, *&c.* Ornaments form'd after the manner of Rolls, or Wreathings; thus call'd, becauſe they ſeem to run after one another.

Some are ſimple; others enrich'd, or flouriſh'd.

Post, *after*, is alſo a *Latin* Prepoſition, uſed, in Compoſition, with ſeveral *Engliſh* Words; and generally implying a Relation of *Poſteriority*.

Post-*Communion*, a Prayer which the Prieſt recites after the Communion. See Communion.

Post *Diem*, a Fee, by way of Penalty, on a Sheriff, for his Neglect in returning a Writ after the Day aſſign'd. See Return.

For this the *Cuſtos Brevium* has four Pence; whereas he has nothing, if it be return'd at the Day. See Writ.

Post-*Nati*, in our Statutes, is particularly uſed for ſuch Perſons as were born in *Scotland*, after the Acceſſion of King *James* I. to the Crown of *England*.

7 *Jac.* 1. it was by all the Judges ſolemnly adjudg'd, That ſuch Perſons were no Aliens in *England*; as, on the contrary, the *Ante-Nati*, or thoſe born in *Scotland* before that Acceſſion, were Aliens here in reſpect to the Time of their Birth.

Poſt-Natus is alſo uſed by *Bracton*, *Fleta*, *Glanville*, *&c.* for the ſecond Son: Thus in *Brompton*, lib. 2. *Eſt conſuetudo in quibuſdam partibus quod* Poſt-Natus *præfertur primogenito.*

Post-*poning*, the putting any thing after, or behind another; with regard either to the Order of Time, or Place.

Sometimes it is taken in an ill part; as when we ſay, The Book-binder has *poſt-poned* a Sheet, *&c.* of a Book.

Post-*Script*, an After-Thought, or Article added to a Letter or Memoir; containing ſomething learnt, or recollected after the Subſcription, or Concluſion of the Piece.

It is uſually mark'd thus, *P. S.* The *Spectator* obſerves, that a Woman's Mind is ever better learnt from her *P. S.* than her Letter.

Post *Date*. See Date.

Post *Diſſeiſin*, a Writ given by the Statute of *Weſtminſter*, for him who having recover'd Lands or Tenements, by *præcipe quod reddat*, upon Default or Reddition, is again diſſeiz'd by the former Diſſeizor. See Disseisin.

Post *Fine*, a Duty belonging to the King for a Fine formerly acknowledg'd before him, in his Court; paid by the Cognizee after the Fine is fully paſs'd, and all things touching the ſame accompliſh'd.

The Rate is ſo much, and half ſo much, as was paid to the King for the *Præ-Fine*; and is collected by the Sheriff of the County where the Land lies, and to be anſwer'd by him into the Exchequer. See Fine.

Post *Term*, a Fee, or Penalty, taken by the *Cuſtos Brevium* of the Court of Common-Pleas only, for the filing any Writ by an Attorney, after the Term or uſual Time in which ſuch Writs are returnable: for which the *Cuſtos Brevium* has twenty Pence. See Writ.

POSTEA, in Law, a Return or Certificate of the Proceedings by *Niſi Prius* into the Court of Common-Pleas; after a Verdict; and there afterwards recorded.

POSTSCENIUM, in the antient Theatre. See Parascenium.

Post *Prædicaments*, in Logic, are certain general Affections, or Properties, ariſing from a Compariſon of *Prædicaments* with each other; or, Modes following the *Prædicaments*, and often belonging to many.

Such, according to *Ariſtotle*, are *Oppoſite*, *prius*, *ſimul*, *motus*, and *habere*; the three firſt of which are in all *Prædicaments*.

POSTERIOR, a Term of Relation, implying ſomething behind, or that comes after another. In which ſenſe it is uſed in oppoſition to *Prior* and *Anterior*.

The Back and Hips are the *Poſterior Parts* of Man. *Ariſtotle* gives *Prior* and *Poſterior* Analytics. A Date is *Poſterior* to another, when it is later, or freſher. See Date.

POSTERIORITY, in Law, a Term of Compariſon and Relation in Tenure, oppoſite to *Priority*.

A Man holding Lands, or Tenements of two Lords, holds of his antienter Lord by *Priority*; and of his later Lord by *Poſteriority*.

POSTERN, in Fortification, a *falſe Door*, uſually made in the Angle of the Flank, or of the Curtain, or near the Orillon; deſcending into the Ditch, for the Convenience of private Sallies.

The Word is alſo uſed in the general for any private or back Door. *Poteſtas habere poſternam in omni Curia penitus inhibeatur, ſed unicus ſi Ingreſſus*, &c. Fleta.

POSTHUMUS, or Posthumous, a Child born after the Death of his Father, or even of his Mother.

Among the *Romans*, *Poſthumus* was alſo uſed for a Child born after the making of a Teſtament, which occaſion'd the Teſtator to alter it.

The Word is compoſed of the *Latin*, *Poſt*, and *Humus*, ground. Hence the Word comes to be uſed figuratively for the Works of an Author that were not publiſhed till after his death

POSTILLA, a Word antiently uſed for a Note, or Remark, wrote in the Margin of the Bible; and afterwards for a Note wrote in any other Book poſterior to the Text.

Trivet, in his Chronicle, ſpeaking of *S. Langton*, Archbiſhop of *Canterbury*, ſays, *Super Bibliam* Poſtillas *fecit*; *& eam per Capitula quibus nunc utuntur moderni diſtinxit*: And that *Alexander* Biſhop of *Cheſter*, *Super Pſalterium* Poſtillas *ſcripſit*. *Knighton*, another of our Hiſtorians, ſpeaking of one *Hugh*, Dominican and Cardinal, ſays, *Totam bibliam* poſtillavit.

POSTING, among Merchants, the putting an Account forward, from one Book to another. See Book-*Keeping*.

POSTIQUE, or **Postic**, in Architecture, *&c.* An Ornament of Sculpture is ſaid to be *Poſtique*, when it is added after the Work itſelf is done.

A Table of Marble, or other Matter, is alſo ſaid to be *Poſtique*, when it is incruſtated in a Decoration of Architecture, *&c.*

The Word is form'd from the *Italian*, *Poſticcio*, added.

POSTLIMINIUM, **Postliminy**, among the *Romans*, the Return of one who had gone to ſojourn elſewhere, had been baniſh'd, or been taken by the Enemy; to his own Country, and State. Thus call'd, according to *Au. Gellius*, from *Poſt* and *limen*, *q. d.* a Return to the ſame *Limen*, *i. e.* the ſame Bounds or Threſhold.

Some, from *Amm. Marcell.* will have it thus call'd, becauſe Perſons were reſtored to the Houſe thro' a Hole in the Wall, *Poſt limen*, not by going over the Threſhold, which was eſteemed ominous.

Poſtliminium was alſo a Law whereby one recovered an Inheritance or other Matter that had been loſt.

POSTULATE, in Mathematics, a clear, evident Propoſition; wherein it is affirm'd or deny'd, that ſomething may or may not be done. See PROPOSITION.

A thing immediately deduced from the Conſideration of one ſingle Definition, if it expreſs ſomething to agree, or diſagree to another, is call'd an *Axiom*: If it affirm that ſomething may or may not be done, it is call'd a *Poſtulate*.

Thus, *e. gr.* from the Geneſis of a Circle, 'tis evident that all right Lines drawn from the Centre to the Circumference, are equal; ſince they only repreſent one and the ſame Line, in a different Situation: This Propoſition, therefore, is eſteem'd an Axiom. See AXIOM.

But, ſince it is evident from the ſame Definition, that a Circle may be deſcribed with any Interval, and from any Point; this is accounted a *Poſtulate*.

Axioms, and *Poſtulates*, therefore, ſeem to have nearly the ſame relation to each other, that Theorems and Problems have. See THEOREM, *&c.*

POSTULATION, in the Canon-Law, the Nomination of a Perſon to a Dignity in the Church; to which, by the Canons, he cannot be elected; as, for want of Age, of Birth, becauſe already poſſeſs'd of a Benefice incompatible therewith, or the like Impediment.

Thus the formal Election of ſuch a Perſon being faulty, they are obliged to proceed by way of *Poſtulation*; that is, the Chapter beſeeches the Perſon to whom the Confirmation of the Election belongs, to approve of it, tho' it be not Canonical.

The Perſon to whom the Supplication is made by the Proteſtants in *Germany*, is the Emperor; by the Papiſts, the Pope.

Wicquefort obſerves, that when a part of the Chapter elects, and another *Poſtulates*, the Number of *Poſtulants* muſt be twice as great as that of the Electors, to bring the Matter to a *Poſtulation*.

POSTURE, in Painting, Sculpture, *&c.* the Situation of a Figure, with regard to the Eye; and of the ſeveral principal Members thereof, with regard to one another; whereby its Action is expreſs'd. See ATTITUDE.

A good part of the Painter's Art conſiſts in adjuſting the *Poſtures*; in giving the moſt agreeable *Poſtures* to his Figures; in accommodating them to the Characters of the reſpective Figures, and the part each has in the Action; and in conducting them and purſuing them throughout.

Poſtures are either Natural, or Artificial. The former are ſuch as Nature ſeems to have had a View to in the Mechaniſm of the Body; or rather ſuch as the ordinary Actions and Occaſions of Life lead us to exhibit, while young, and the Joints, Muſcles, Ligaments, *&c.* flexible

Artificial are thoſe which ſome extraordinary Views, or Occaſions lead us to exhibit: Such, *e. gr.* are thoſe of our *Poſture-Maſters*.

A Painter would be ſtrangely puzzled with the Figure of *Clark*, (the late famous *Poſture-Maſter* of *Pall-Mall*) in a Hiſtory-piece. This Man, as we find in the *Philoſ. Tranſact.* had ſuch an abſolute Command of his Muſcles, *&c.* that he could disjoint almoſt his whole Body; ſo that he impos'd on that great Surgeon, *Mullens*; who look'd on him in ſuch a miſerable Condition, he would not undertake his Cure. Tho' a well-made Man, he would appear with all the Deformities imaginable: Hunch-back'd, Pot-belly'd, Sharp-breaſted, *&c.* He disjointed his Arms, Shoulders, Legs, and Thighs; and render'd himſelf ſuch an Object of Pity, that he has frequently extorted Money, in quality of a Cripple, from the ſame Company he had the Minute before been in, in quality of a Comrade. He would make his Hips ſtand a conſiderable way out from his Loins; and ſo high as to invade the place of his Back. Yet his Face was the moſt changeable part about him; and ſhew'd more *Poſtures* than all the reſt of himſelf; he could exhibit all the uncouth odd Faces of a Quaker's Meeting.

POT-*Aſhes*, are properly the Aſhes of certain Vegetables uſed in the making of Glaſs and Soap. See ASHES.

Such are the Aſhes of the Herb *Kali*, call'd alſo Salt-Wort, Glaſs-Weed, *&c.* from its great uſe in Glaſs-making. See GLASS.

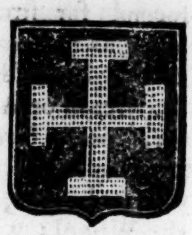
Pot-Aſhes are alſo call'd *Cineres clavellati*, and make the Baſis of Salt of Tartar, and moſt of the lixivial Salts, as our Chymiſts of late manage 'em for Cheapneſs. See KALI, *&c.*

The *Engliſh* and *Dutch* make a conſiderable Commerce of *Pot-Aſhes* which they bring from about the *Black Sea*; uſing great Quantities thereof in the Preparation of their Cloths, *&c.* thoſe Aſhes being found excellent to ſcour withal. See FULLING.

The Name *Pot-Aſhes* is alſo popularly apply'd to all kinds of Aſhes bought up and down the Country, and mixed together, for the making of green Glaſs: But the beſt of *Engliſh Pot-Aſhes* are thoſe made of the ſmaller common Highway-Thittle; tho' all Thiſtles are good. Fern alſo makes excellent *Pot-Aſhes*.

POTABLE, ſomething that may be taken, or ſwallow'd, by way of Drink. See DRINK.

The Chymiſts talk much of *Potable Gold*, *Aurum Potabile*. See AURUM and GOLD.



POTENT, or **Potence**, in Heraldry, a Term for a kind of a Croſs in the Figure adjoining. See CROSS.

He beareth Sable, a Croſs *Potent*, *Or*, by the Name of *Aleyn*.

This Form repreſents the upper end of a Crutch; for antiently Crutches were call'd *Potents*.

POTENTIA, *Power*, or that whereby a thing is capable either of acting, or being acted on. See POWER.

Hence, Power is of two kinds, *Active*, and *Paſſive*.

Active Power, call'd alſo by a barbarous, but ſignificant School-Term, *Operativity*, is the Efficacy, or Faculty of any Being, in virtue whereof ſomething ariſes, or is produced by it. Such is the Power of ſpeaking, in Man.

Paſſive, or *Receptive Power*, is a Capacity of receiving ſome Act; *e. gr.* the Capacity of Knowing a Man.

This is alſo call'd *Subjectiva Potentia*, Subjective Power.

To exiſt in POTENTIA, is uſed among the School-Writers, to denote that Exiſtence which a thing has in a Cauſe capable of producing it, but which has not actually produced it: In which it ſtands oppoſed to Exiſtence *in actu*. See POSSIBILITY and EXISTENCE.

POTENTIAL, in the Schools, is uſed to denote, and diſtinguiſh a kind of Qualities, which are ſuppoſed to exiſt in the Body *in Potentia* only; by which they are capable, in ſome manner, of affecting and impreſſing on us the Ideas of ſuch Qualities, tho' not actually inherent in themſelves.

In this ſenſe we ſay *Potential Heat*, *Potential Cold*, &c. Brandy and Pepper, tho' cold to the Touch, are *Potentially* hot.

POTENTIAL *Cold* is a relative Term, by which we mean that ſuch a thing is not actually cold to the Touch, but in its Effects and Operations, if taken inwardly. See COLD.

This Quality is ſuppoſed to ariſe from the Size, Shape, *&c.* of its component Particles, which give ſome check or retardation to the Blood's Motion, whereby it is leſs agitated, and upon which the ſenſible parts of the Body are not ſo briſkly ſtruck by it; the perception of which diminution or change of Motion in the Organs of Feeling, is call'd *Cold*.

Hence every thing that leſſens the Blood's Motion, with relation to the Senſation before made, is cold; and every thing which increaſes it, may be call'd *Potential Heat*. See HEAT.

POTENTIAL, in Medicine, *&c.* Cauteries are either Actual, *viz.* a Button of red-hot Iron; or *Potential*, as Lime, and other Cauſtic Drugs. See CAUTERY.

POTENTIAL, in the Schools, is alſo uſed for ſomething that has the Quality of a Genus. See GENUS.

Grotius uſes the Phraſe *Potential Parts of a State*, in oppoſition to the *Subjective Parts*.

By *Potential*, he means thoſe Parts which have the Sovereign Power: By Subjective, thoſe ſubject thereto; which are that, with regard to the Sovereign Power, that ſeveral Species are with regard to the Genus, whereof they are the ſubjective Parts.

For in the Schools, a *Potential* Whole is that which has its Parts under it, as a Genus has its Species: to diſtinguiſh it from an Actual Whole, which has its Parts in itſelf; as a Body compoſed of Matter and Form.

Grotius maintains, that tho' the Sovereign Power be one and indiviſible, yet it may have ſeveral *Potential* Parts: For, as in the *Roman* Empire, there have been two *Potential* Heads, the one ruling in the Eaſt, the other in the Weſt; yet the Imperial Authority all the while ſingle and in-

indiviſible: So is it poſſible the Subjective Parts combining to give away their Sovereignty, may not give it intire, but reſerve a part of it for certain Emergencies. In which Caſe the Subjective part becomes *Potential.* And thus there are two *Potential* parts, yet the Sovereignty ſingle.

POTENTIAL, in Grammar, gives the Denomination to one of the Moods. See MOOD.

The *Potential* Mood is the ſame in Form, with the Subjunctive; but differs from it in this, that it hath always implied in it, either *poſſum*, *volo*, or *debeo*; as *Roget*, that is *Rogare poteſt*, a Man may ask. See SUBJUNCTIVE.

It is ſometimes called the permiſſive Mood, becauſe it often implies a Permiſſion, or Conceſſion to do a thing; as, *Habeat, valeat, vivat, cum illa* Terent.

POTION, a liquid Medicine, in form of a *Draught*, to be taken at one time.

There are purging *Potions*, Emetic *Potions*, Diaphoretic, Pectoral, Cephalic, Cardiac, Stomachic, Hyſteric, Vulnerary, Carminative, *&c. Potions.*

POTTERY, the Art of making Earthen-Pots, and Veſſels; or, the Manufactory of Earthen-Ware. See EARTH.

The *Wheel* and *Lathe* are the Chief, almoſt the only Inſtruments, uſed in *Pottery*; the firſt for large Works, the ſecond for ſmall: Tho, in reality, they are much the ſame as to the manner of uſing them.

The *Potter's Wheel* conſiſts principally in its Nut, which is a Beam or Axis, whoſe Foot or Pivot plays perpendicularly on a Free-ſtone Sole or Bottom. From the four Corners a-top of this Beam, which does not exceed two foot in height, ariſe four Iron Bars, call'd the Spokes of the Wheel; which forming diagonal Lines with the Beam, deſcend, and are faſten'd at bottom to the Edges of a ſtrong wooden Circle, four foot in Diameter, perfectly like the Felloes of a Coach-Wheel, except that it has neither Axis nor Radii; and is only join'd to the Beam, which ſerves it as an Axis, by the Iron Bars. The Top of the Nut is flat, of a circular Figure, and a foot in diameter. On this is laid a piece of glaz'd Earth, to be turn'd and faſhion'd.

The Wheel thus diſpoſed, is encompaſſed with four Sides of four different pieces of Wood, ſuſtain'd on a wooden Frame: The hind-piece, which is that whereon the Workman ſits, is made a little inclining towards the Wheel: On the fore-piece are placed the pieces of prepared Earth. Laſtly, the ſide-pieces ſerve the Workman to reſt his Feet againſt; and are made inclining to give him more or leſs room, according to the Size of the Veſſel to be turn'd. By his ſide is a Trough of Water, wherewith from time to time he wets his Hands, to prevent the Earth's ſticking to 'em.

To uſe the Wheel. The Potter having prepared his Earth, and laid a piece of it ſuitable to the Work he intends, on the Top of the Beam; ſits down; his Thighs and Legs much expanded, and his Feet reſted on the ſide-pieces, as is moſt convenient.

In this Situation he turns the Wheel round, till it has got the proper Velocity; when, wetting his Hands in the Water, he bores the Cavity of the Veſſel, continuing to widen it from the middle; and thus turns it into Form: turning the Wheel a-freſh, and wetting his Hands, from time to time.

When the Veſſel is too thick, they uſe a flat piece of Iron with a Hole in the middle, and ſomewhat ſharp on one Edge, to pare off what is redundant. Laſtly, when the Veſſel is finiſh'd, they take it off from the circular Head by a Wire paſs'd underneath the Veſſel.

The *Potter's Lathe*, is alſo a kind of Wheel, but ſimpler and ſlighter than the former. Its three chief Members are an Iron-Beam or Axis, three foot and an half high, and two Inches in Diameter; a little wooden Wheel all of a piece, an Inch thick, and ſeven or eight in Diameter, placed horizontally a-top of the Beam, and ſerving to form the Veſſel on; and another larger wooden Wheel, all of a piece, three Inches thick, and two or three Foot broad, faſten'd to the ſame Beam at bottom, parallel to the Horizon. The Beam or Axis turns by a Pivot at bottom, in an Iron Stand.

The Workman gives the Motion to the Lathe with his Feet, by puſhing the great Wheel alternately with each Foot; ſtill giving it a greater or leſs degree of Motion, as his Work requires.

They work with the Lathe, with the ſame Inſtruments, and after the ſame manner, as the Wheel.

But neither the one nor the other ſerve for any more than the forming of the Body of the Veſſel, *&c.* The Feet, Handles, and Ornaments, if there be any, beſide the Mouldings, being to be made and ſet on by Hand; if there be any Sculpture in the Work, 'tis uſually done in Earthen or Wooden Moulds, prepared by a Sculptor, unleſs the Potter have Skill enough to do it himſelf, which is very rare.

As to the Glazing, or Varniſhing of the Work 'tis uſually done with mineral Lead, *i.e.* Lead pulveriz'd by throwing Charcoal-Duſt into the melted Lead, and the Aſhes of Lead; which, in effect, are only its Scum and Scoria. See LEAD.

For the Chineſe POTTERY, ſee PORCELAIN.

POTTLE, an *Engliſh* Meaſure, containing two Quarts. See MEASURE.

Two of theſe *Pottles*, in the Liquids, make a Gallon; but in dry Meaſure three go to a Gallon. See GALLON.

POUDER, or POWDER, in Pharmacy, a dry Medicine pulveriz'd, or prepared by being broken and reduced into almoſt imperceptible Atoms, either in a Mortar, or by Chymical Operations, *&c.* See PULVERIZATION.

POUDER *of Viper*, Viperine Pouder, has of late days come much in requeſt. See VIPERINE.

Styptic *Pouder*, Sympathetic *Pouder*, &c. See STYPTIC, SYMPATHETIC, *&c.*

POUDER *for the Hair*, is Flower of Wheat, or Beans, well ſifted and prepared, to give it an agreeable Odour.

That wherein Starch Grounds is mixed, is the worſt. See STARCH.

Jeſuits POUDER, *Pulvis Patrum.* See CORTEX *Peruvianus.*

Gun-POUDER, ſee GUN-*Powder.*

POUDER *Cheſts*, in the Sea-Language, are Boards join'd in form of a Triangle, and fill'd with Gun-powder, Pebbles, *&c.* which they ſet fire to when the Ship is boarded by an Enemy, and ſoon make all clear before 'em.

POUDERINGS, in Building, a Term ſometimes uſed for Devices ſerving to fill up vacant Spaces, in carv'd Works: As alſo, in Eſcutcheons, Writings, *&c.*

POUDERINGS, in Heraldry, ſee FUR.

POULTICE, or POULTIS, a Form of Medicine call'd alſo *Cataplaſm.* See CATAPLASM.

POULTRY, ſee FOWL.

POUNCE, among Artificers, a little Heap of Charcoal-Duſt, incloſed in ſome open Stuff; to be paſs'd over Holes prick'd in a Work, in order to mark the Lines or Deſigns thereof on a Paper placed underneath; to be afterwards finiſh'd with a Pencil, a Needle, or the like.

Pounce is much uſed by Embroiderers, to transfer their Patterns upon their Stuffs; by Lace-Makers, and ſometimes alſo by Engravers, and Writing-Maſters.

The Word is form'd from the *French*, *Pounce*, Pumice-ſtone; in regard they antiently uſed Pumice-ſtone powder'd for this purpoſe.

POUNCES, in Falconry, the Talons, or Claws of a Bird of Prey.

POUND, a Weight, of a certain Proportion, much uſed as a Standard for determining the Gravities and Quantities of Bodies. See WEIGHT.

The Word is derived from the *Saxon*, *Pund*, *Pondus*, Weight.

We have two different *Pounds* in *England*; the *Pound Troy*, and the *Pound Averdupois.*

The *Pound Troy* conſiſts of 12 Ounces, each Ounce of 20 Penny-weights, and each Penny-weight of 24 Grains; ſo that 480 Grains make an Ounce, and 5760 Grains a *Pound.* See OUNCE, *&c.*

This *Pound* is uſed in the weighing of Silver, Gold, precious Stones, all kinds of Grains, *&c.*

It is alſo uſed by the Apothecaries, tho' differently divided: Among them 24 Grains make a Scruple, 3 Scruples a Drachm, 8 Drachms an Ounce, and 12 Ounces a Pound. See SCRUPLE, *&c.*

The *Pound Avoirdupois* conſiſts of 16 Ounces; but then the Avoirdupois Ounce is leſs by 42 Grains than the Troy Ounce, which amounts to nearly a 12th part of the whole; ſo that the Ounce Avoirdupois only contains 438 Grains, and the Troy Ounce 480.

The difference whereof is nearly as that of 73 to 80; *i.e.* 73 Ounces Troy make 80 Ounces Avoirdupois. 112 Avoirdupois *Pounds* make the Hundred Weight, or Quintal. See QUINTAL.

By this *Pound* are weigh'd all large and coarſe Commodities, Fleſh, Butter, Cheeſe, Iron, Hemp, Lead, Steel, *&c.*

An Avoirdupois *Pound* is equal to 14 Ounces $\frac{5}{8}$ of a *Paris Pound.* So that 100 of the former *Pounds* make 91 of the latter.

The *French Pound* contains 16 Ounces; but one *French Pound* is equal to one *Pound* one Ounce $\frac{3}{8}$ of an Avoirdupois *Pound*; ſo that 100 *Paris Pounds* make 109 *Engliſh* Avoirdupois *Pounds.*

The *Paris Pound* is divided in two manners; the firſt diviſion is into two Marcs, the Marc into eight Ounces, the Ounce into eight Groſs, the Groſs into three Deniers, the Denier into twenty four Grains, each weighing a Grain of Wheat.

The ſecond Diviſion of the *Pound* is into two half *Pounds*; the half *Pound* into two Quarters; the Quarter into two Demi-quarters; the Demi-quarter into two Ounces; the Ounce into two half Ounces, *&c.*

The firſt Diviſion is uſually follow'd in weighing Gold, Silver, and other precious Wares; and the latter in thoſe of leſs value.

At *Lyons* the *Pound* is 14 Ounces. One hundred *Paris Pounds* make 116 *Lyon Pounds.*——At *Venice*, the *Pound* is equal to eight Ounces, three Quarters of the *French Pound*, &c.

For the ſeveral Pounds *of the ſeveral Cities and Countries, their Proportion, Reduction, Diviſion*, &c. ſee WEIGHT.

POUND is alſo an imaginary Money, uſed in accounting; containing more or leſs, according to the ſeveral Names added to it, and the ſeveral Countries it is uſed in. See MONEY.

Thus in *England* we ſay a *Pound Sterling*; in *France*, a *Pound*, or *Livre Tournois* and *Pariſis*; in *Holland* and *Flanders* a *Pound*, or *Livre de Groſs*, &c.

The Term took its riſe hence, that the antient *Pound Sterling*, tho' it only contain'd 240 Pence, as ours does, yet each Penny being equal to five of ours, the *Pound* of Silver weigh'd a *Pound Troy*. See PENNY.

The *Pound Sterling*, or *Engliſh Pound*, contains twenty Shillings, the Shilling twelve Pence, and the Penny four Farthings. See SHILLING, PENNY, *&c.* See alſo COIN.

Antiently there were three ways of paying a *Pound* of Money into the Exchequer. 1°. The payment of a *Pound de numero*, which was juſt twenty Shillings in Tale. 2°. *Ad ſcalam*, which was 6 *d.* over and above the 20*s.* 3°. *Ad penſam*, which was giving the full Weight of twelve Ounces.

The *French Pound*, or *Livre*, *Tournois*, contains twenty Sols or Shillings, and the Sol 12 Deniers or Pence *Tournois*; which was the Value of an antient *French* Coin call'd *Franc*, a Term ſtill ſynonomous with Livre. See FRANC.

The *Pound*, or *Livre Tournois* contains, in like manner, 20 Sols or Shillings, and the Sol 12 Deniers or Pence *Pariſis*. Each Sol *Pariſis* is equal to 15 Deniers *Tournois*; ſo that a *Pound Pariſis* is equal to 25 Sols *Tournois*. Thirteen one third Deniers *Tournois* is equal to a Penny *Sterling*; ſo that the *Pound Sterling* is equal to 13 *Pounds* or Livres, 6 Sols, and 8 Deniers of *French* Money; and the *Pound French* to 18 *d. Engliſh*; which is to be underſtood when the Exchange is on the foot of fifty four Pence *Sterling* for a *French* Crown, or *Ecu* of 60 Sols *Tournois*; which is the Par between *France* and *England*. See LIVRE and PAR.

The *Pound* or *Livre de Gros* of *Holland* is divided into 20 Shillings Gros, and the Shilling into 12 Pence Gros. It is equal to ſix Florins; the Florin valued at 24 Sols *Tournois*; ſuppoſing the Exchange on the footing of 100 Pence Gros for a *French* Crown of 3 Livres *Tournois*; ſo that the *Pound Gros* amounts to 10 Shillings and 11 Pence Farthing *Sterling*. The *Pound Gros* of *Flanders* and *Brabant* is divided like that of *Holland*; and like that too, is equal to three Florins: but the Florin is equal to 25 Sols *Tournois*; ſo that the *Flanders Pound* is equal to 7 Livres, 10 Sols *Tournois*, or 11 *s.* 3 *d.* Sterling.

Merchants, Factors, Bankers, *&c.* uſe Characters, or initial Letters to expreſs the ſeveral kinds of *Pounds* of Account, as *L.* or *L. St. Pounds Sterling*. *L. G. Pounds Gros*; and *L.* or ℔. *Pounds Tournois*.

POUND is alſo an Incloſure, or ſtrong Place, where Cattle diſtrained, or caught in any Treſpaſs, are put till they are replevied or redeemed. See TRESPASS, REPLEVY, *&c.*

The *Pound* is either *overt* or *cloſe*.

POUND *Overt*, or *Open Pound*, is that built upon the Lord's Waſte; and thence alſo call'd the *Lord's Pound*; becauſe he provides it for the uſe of himſelf and his Tenants.

Pound Overt alſo includes Back-ſides, Court-Yards, Paſture-Grounds, or any Place whatever.

To this *Pound* the Owner of the Beaſts impounded may come to give them Meat and Drink, without Offence of their being there, or his coming thither.

POUND *Cloſe*, on the contrary, is ſuch an one as the Owner cannot come to for the ſaid purpoſe without Offence; as ſome cloſe Houſe, Caſtle, Fortreſs, *&c.*

POUNDAGE, a Subſidy granted to the King upon all manner of Merchandize, and of all Merchants, Denizens, and Strangers; whether imported, or exported. See DUTY.

It is call'd *Poundage*, becauſe fixed at the Rate of ſo much *per Pound*; *viz.* one Shilling in every *Pound*, or 20*s.*

It was firſt granted to *Henry* VI. for Term of his Life; and afterwards to K. *Charles* II. *Anno* 12 *Car.* 2.

POUP, *Puppis*, in Navigation, the hind-part of a Veſſel, or that where the Helm is fixed; call'd alſo *Stern*. See STERN.

The *French* frequently call it *Queue*, Tail; becauſe the Helm, here apply'd, ſerves the ſame purpoſes in a Ship as the Tail does to Fiſhes. See HELM.

It is divided into three or four Stories. The loweſt, at the bottom of the Keel, is the Biſant Room: The ſecond in the firſt Deck is for the Gunnery; here the Helm is uſually found; tho' the Perſon who guides it, is above, and turns it by a Bar paſs'd thro' a Hole: over this is the Captain's Apartment, before which is the Armory, wherein is the Compaſs, the Hour-Glaſs, *&c.* over this is the Pilot's Cabbin, and that of ſome other Officers; over, is the Pharos or Lanthorn, with the Flag.

All theſe together form the *Poup-Caſtle*, or Hind-Caſtle; the outſide whereof is richly adorned with Balconies, Galleries, Pilaſters, Trophies, the Arms of the Prince, *&c.*

To have the Wind in *Poup*, is to have it behind, or favourable. See WIND.

Some Veſſels have their *Poup* ſquare, others round.

The Word is form'd from the *Latin*, *Puppis*.

In the Sea-Language, the *Poup* is ſtrictly the Floor, or Deck over the Round-Houſe, or Maſter's Cabbin; being the higheſt part of her Hull a-ſtern.

POUR-*Partie*, or *Pour-Party*, in Law, a Term uſed in oppoſition to *pro Indiviſo*. See PRO *Indiviſo*.

To make *Pour-partie*, is to divide and ſever the Lands that fall to Parceners; which before Partition, they held jointly and *pro Indiviſo*.

POUR-*Preſture*, in Law, is defined by *Glanville* to be, when any thing is unjuſtly occupied, that properly belong'd to the King; as in encroaching on his Grounds, obſtructing the King's High-ways, diverting publick Rivers from their proper Courſe, or building any thing over the High-Streets of a City; and in the general, where any thing is done to the prejudice of the King's Tenements, High-ways, or Cities.

Crompton in his *Juriſd.* ſays, *Pour-preſture* is properly when a Man takes to himſelf, or encroaches any thing which he ought not; whether it be in Juriſdiction, in Land, or in Franchiſe; and, generally, where any thing is done to the Nuiſance of the King's Tenants.

Some Authors divide *Pour-preſture* into three kinds: The firſt againſt the King, the ſecond againſt the Lord, the third againſt a Neighbour.

Pour-preſture againſt the King, *lib. Nig. in Schac. fol.* 38. is that happening thro' the Negligence of the Sheriff, or the long Continuance of Wars, *&c.* when thoſe that have Lands near the Crown-Lands, incloſe part of them, or lay them to their own.

Pour-preſture againſt the Lord, is when the Tenant neglects to perform what he is bound to do for the chief Lord, or deprives him of his Right.

Pour-preſture againſt a Neighbour, is a Nuiſance againſt a Neighbour, *&c.* mention'd in the *Monaſt. Tom.* 1.

POURSUIVANT, a Meſſenger, antiently attending the King, in his Wars, or at Council-Table, or in the Exchequer; to be diſpatch'd upon any Occaſion or Meſſage: as for the Apprehenſion of a Perſon ſuſpected, or accuſed, *&c.*

Many of the Nobility, too, had their *Pourſuivants*: A Knight Banneret was allow'd a *Pourſuivant*, with the Conſent of a Herald.

The Word is form'd from the *French pourſuivre*, *to purſue*. There were alſo *Pourſuivants* particularly employ'd in Martial Cauſes, call'd

POURSUIVANTS at Arms; a Term antiently apply'd to Gentlemen, who attended the Heralds, and aſpir'd to their Office; to which they could not riſe, till after ſeven Years Apprenticeſhip paſs'd in this Quality. See HERALD.

They were entirely dependant on the Heralds, and aſſiſted at their Chapter; officiating for them in preparing and aſſigning Tournaments, and all other parts of their Miniſtry.

They were baptiz'd at ſolemn Feaſts with ſome gallant Name; as *Jolicœur*, *Verluiſant*, *Sanſmentir*, *&c.*

Their Coats of Arms were different from thoſe of the Heralds, and they bore plain Staffs without Ornament.

Of the great Number of *Pourſuivants* antiently on foot, there are now only four remaining; *viz. Blue-Mantle*, *Rouge-Croſs*, *Rouge-Dragon*, and *Portcullice*.

Their Buſineſs is to attend with the Heralds in marſhalling and ordering public Solemnities, Funerals, Interviews, Cavalcades, *&c.* See COLLEGE *of Arms*.

Upton, *de Re Militari*, calls the *Pourſuivants*, *Milites Linguares*; becauſe, ſays he, their chief Honour was *in Cuſtodia Linguæ*.

He divides them into Foot and Horſe *Pourſuivants*, *Curſores Equitantes & Proſecutores*. *Stow*, ſpeaking of *Richard* the Third's End, has theſe Words: "His Body was " naked to the Skin; not ſo much as one Clout about him, " and was truſs'd behind a *Pourſuivant at Arms*, like a " Hog, or a Calf.

POURVEYANCE, the providing of Corn, Victuals, Fuel, and other Neceſſaries, for the King's Houſe.

By a Stat. 12 *Car.* 2. no Perſon under colour of *Pourveyance* ſhall take any Timber, Cattle, Corn, or other Matter from any Subject, without his free Conſent. See POURVEYOR.

POURVEYOR, an Officer of the Houſhold, who provides Corn and other Victuals, &c. for the King's Houſe; mention'd in *Magna Charta*, and ſeveral Statutes.

The Name of *Pourveyor* became ſo odious in times paſt, that by Stat. 36 *Edw.* 3. the heinous Name *Pourveyor* was chang'd into that of *Buyer*. The Office itſelf was much reſtrain'd by the Stat. 12 *Car.* 2. See POURVEYANCE and ACHAT.

POUZZOL, or POZZOLANE, a reddiſh Earth, uſed in *Italy* for Sand. See SAND.

The beſt is found about *Pouzzoli*, *Bayæ*, and *Cumæ*, in the Kingdom of *Naples*.

Mix'd with Lime, it makes the beſt Mortar in the World. See MORTAR.

It hardens and petrifies in Water: It penetrates black Flints, and whitens them. It is of particular ſervice in making Moles, and other Buildings, in Maritime Places. *Agricola* takes it to be of an aluminous and ſulphurous nature. See *Vitruvius*, *Pliny*. *de Lorm.* &c. who ſet a great Value on it.

POWER, *Potentia*, in Phyſics, a natural Faculty of doing or ſuffering any thing. See POTENTIA.

Mr. *Locke* explains the Origin of our Idea of *Power* to the following effect: The Mind being daily inform'd by the Senſes, of the Alteration of the ſimple Ideas of things without; and reflecting on what paſſes within itſelf; and obſerving a conſtant Change of its Ideas, ſometimes by the Impreſſions of outward Objects, upon the Senſes; and ſometimes by the Determinations of its own Choice: and concluding from what it has ſo conſtantly obſerv'd to have been, that the like Changes will for the future be made in the ſame Things, by the ſame Agents, and by the like Ways; conſiders, in one Thing, the poſſibility of having any of its ſimple Ideas chang'd; and in another, the poſſibility of making that Change: and ſo comes by that Idea, which we call *Power*.

Thus we ſay, Fire has a *Power* to melt Gold, and make it fluid; and Gold a *Power* to be melted.

Power thus conſider'd, is two-fold, *viz.* as able to *make*, or able to *receive* any Change: the one may be call'd *active*, the other *paſſive Power*.

Of *paſſive Power*, all ſenſible Things abundantly furniſh us with Ideas; nor have we of *active Power* fewer Inſtances: ſince whatever Change is obſerv'd, the Mind muſt ſuppoſe a *Power* ſomewhere able to make that Change.

But yet if we attentively conſider it, Bodies, by our Senſes, do not afford us ſo clear and diſtinct an Idea of active *Power*, as we have from Reflection on the Operations of our Minds. For all *Power* relating to Action; and there being but two ſorts of Action, *viz.* Thinking and Motion; it may be conſider'd whence we have the cleareſt Ideas of the *Powers*, which produce theſe Actions.

Of Thinking, Body affords us no Ideas at all; it is only from Reflection that we have that: neither have we from Body any Idea of the beginning of Motion. A Body, at reſt, affords us no Idea of any active *Power* to move; and when it is ſet in motion itſelf, that Motion is rather a Paſſion, than an Action in it. The Idea of the beginning of Motion, we have only by Reflection on what paſſes in ourſelves; where we find by Experience, that barely by willing it, we can move the parts of our Bodies, which before were at reſt.

We find in ourſelves a *Power* to begin or forbear, continue or end, ſeveral Actions of our Minds, and Motions of our Bodies, barely by a Thought or Preference of the Mind: This *Power*, which the Mind has, thus to order the Conſideration of any Idea, or the forbearing to conſider it; or to prefer the Motion of any part of the Body to its Reſt, and *vice verſa*, in any particular Inſtance, is what we call the *Will*. The actual Exerciſe of that *Power*, is that which we call *Volition*, or *Willing*. See WILL.

The Forbearance or Performance of that Action, conſequent to ſuch Order or Command of the Mind, is called *Voluntary*; and whatſoever Action is perform'd without ſuch a Thought of the Mind, is call *Involuntary*. See VOLUNTARY, &c.

The *Power* of Perception, is what we call the *Underſtanding*. See UNDERSTANDING.

Perception, which we make the Act of the Underſtanding, is of three ſorts; firſt, the Perception of Ideas in our Minds; the Perception of the Signification of Signs; and the Perception of the Agreement or Diſagreement of any diſtinct Ideas. See PERCEPTION.

Theſe *Powers of the Mind*, *viz.* of perceiving, and preferring, are uſually call'd by another Name; and the ordinary way of ſpeaking is, that the *Underſtanding* and *Will* are two Faculties or *Powers* of the Mind. A Word proper enough, if uſed ſo, as not to breed any Confuſion in Mens Thoughts, by being ſuppos'd (as there is room to ſuſpect it has been) for ſome real Beings in the Soul, that perform thoſe Actions of Underſtanding and Volition. See FACULTY.

From the Conſideration of the Extent of the *Power* of the Mind over the Actions of the Man, which every one finds in himſelf, ariſe the Ideas of Liberty and Neceſſity.

So far as a Man has a *Power* to think, or not to think; to move or not to move, according to the Preference or Direction of his own Mind; ſo far is a Man free. See LIBERTY.

Wherever any Performance or Forbearance are not equally in a Man's *Power*; wherever doing or not doing will not equally follow upon the preference of his Mind; there he is not Free, tho' perhaps the Action may be Voluntary. See NECESSITY.

So that the Idea of Liberty, is the Idea of a *Power* in any Agent, to do or forbear any Action according to the Determination or Thought of the Mind whereby either of them is preferred to the other: where either of them is not in the *Power* of the Agent to be produced by him according to his Volition, there he is not at Liberty; that Agent is under Neceſſity. So that Liberty cannot be where there is no Thought, no Volition, no Will: But there may be Thought, there may be Will, there may be Volition, where there is no Liberty. Thus a Tennis-Ball, whether in motion by the Stroke of a Racket, or lying ſtill at reſt, is not by any one taken to be a free Agent; becauſe we conceive not a Tennis-Ball to think, and conſequently not to have any Volition, or Preference of Motion to Reſt, or *vice verſa*. So a Man ſtriking himſelf or his Friend by a convulſive Motion of his Arm, which is not in his *Power* by Volition, or the Direction of his Mind, to ſtop or forbear; no body thinks, he has Liberty in this; every one pities him, as acting by Neceſſity and Conſtraint. Again, ſuppoſe a Man be carry'd, whilſt faſt aſleep, into a Room, where there is a Perſon he longs to ſee, and be there lock'd faſt in, beyond his *Power* to get out; he awakes, and is glad to ſee himſelf in ſo deſirable Company, which he ſtays willingly in; that is, he prefers his ſtaying to going away: Is not this Stay voluntary? No body will doubt it; and yet being lock'd faſt in, he is not at liberty to ſtay, he has not freedom to be gone.

Liberty, therefore, is not an Idea belonging to Volition, or Preferring; but to the Perſon having the *Power* of doing, or forbearing to do, according as the Mind ſhall chuſe or direct.

As it is in the Motions of the Body, ſo it is in the Thoughts of our Minds: Where any one is ſuch, that we have *Power* to take it up, or lay it by, according to the Preference of the Mind, there we are at liberty.

A waking Man is not at liberty to think, or not to think, no more than he is at liberty, whether his Body ſhall touch any other or no: but whether he will remove his Contemplation from one Idea to another, is many times in his choice; and then he is, in reſpect of his Ideas, as much at liberty, as he is in reſpect of Bodies he reſts on. He can at pleaſure remove himſelf from one to another.

Yet, ſome Ideas to the Mind, like ſome Motions to the Body, are ſuch, as in certain Circumſtances it cannot avoid nor obtain their abſence, by the utmoſt effort it can uſe: Thus a Man on the Rack is not at liberty to lay by the Idea of Pain, and entertain other Contemplations.

Wherever Thought is wholly wanting, or the *Power* to act or forbear according to the Direction of Thought, there Neceſſity takes place: This, in an Agent capable of Volition, when the Beginning or Continuation of any Action is contrary to the Preference of his Mind, is call'd *Compulſion*; when the hindering or ſtopping any Action is contrary to his Volition, it is call'd *Reſtraint*. Agents that have no Thought, no Volition at all, are in every thing neceſſary Agents.

POWER, in Mechanics, a Force, which being apply'd to a Machine, tends to produce Motion; whether it actually produce it or not. See MACHINE.

In the former Caſe, it is call'd a *moving Power*; in the latter, a *ſuſtaining Power*.

If the *Power* be a Man, or a Brute, it is call'd an *animate Power*; if the Air, Water, Fire, Gravity, or Elaſticity, and *inanimate Power*. See MECHANICS.

POWER is alſo uſed in Mechanics, for one of the ſix ſimple Machines; *viz.* the *Lever*, *Balance*, *Screw*, *Axis in Peritrochio*, *Wedge*, and *Pully*; which are particularly call'd the *Mechanic Powers*. See MECHANIC *Power*.

See alſo each *Power* under its proper Article, LEVER, BALANCE, &c.

POWERS, in Pharmacy, the Reſult of a Combination or Union of the eſſential Oils with the Spirit of a Plant;

wherein, it is ſuppoſed, are contained all the principal Virtues thereof: whence the Name.

POWER, in the Feodal Juriſprudence, a Right which the Lord has to re-unite to his Fief, a Dependant Fee held of him; when the Vaſſal has alienated it; upon reimburſing the Money given for it, with the Legal Coſts. See FEE.

The Lord is to exerciſe his *Power* over the Fee, within a Year after he has notice of the Fall; otherwiſe he loſes it.

The Word is alſo uſed for the Right a Lord has to ſeize a Dependant Fee, to compel the Payment of all Dues, Services, *&c.*

POWERS, in Theology, a Term uſed among the Fathers, *&c.* for the ſixth Order in the Hierarchy of Angels; commencing from Seraphim. See SERAPHIM.

Theſe they ſuppoſe to be the Spirits who bridle and reſtrain the *Power* of the Devils; preſide over inferior Cauſes; and prevent contrary Qualities from diſturbing the Oeconomy of the World. See HIERARCHY.

POWER, in Optics. The *Power* of a Glaſs, is the Diſtance of the Convexity, from its ſolar Focus. See FOCUS.

POWER, in Arithmetic, the Produce of a Number multiply'd into itſelf. See NUMBER.

Thus the Produce of the Number 3, multiply'd by itſelf, *viz.* 9, is the ſecond *Power* of 3; the Factum of 9, multiply'd by 3, *viz.* 27, is the third *Power*; and the Product of 27, again multiply'd by 3, *viz.* 81, is the fourth *Power*; and ſo on to Infinity. In reſpect hereof, the firſt Number, 3, is called the *Root*, or *firſt Power*. See ROOT.

The ſecond *Power* is call'd the *Square*; with reſpect to which, 3 is the Square-Root. See SQUARE.

The third *Power*, 27, is call'd the *Cube*; with reſpect to which, the 3 is the Cube-Root. See CUBE.

The fourth *Power*, 81, is call'd the *Biquadrate*, or *Quadrato-Quadratum*; with reſpect to which, 3 is the Biquadratic Root. See BIQUADRATIC.

The Number which ſhews how oft the Root is multiply'd into itſelf, to form the *Power*; or how oft the *Power* is to be divided by its Root, to come at the Root, is call'd the *Exponent of the Power*. See EXPONENT.

The Moderns, after *Des Cartes*, are contented to diſtinguiſh moſt of their *Powers* by the Exponents; as, *firſt*, *ſecond*, *third*, *&c.*

The particular Names of the ſeveral *Powers* were introduced by the *Arabs*; viz. *Square*, *Cube*, *Quadrato-Quadratum* or *Biquadrate*, *Surdeſolid*, *Square of the Cube*, *ſecond Surdeſolid*, *Quadrato-quadrato-quadratum*, *Cube of the Cube*, *Square of the Surdeſolid*, *third Surdeſolid*, &c.

The Names given by *Diophantus*, follow'd by *Vieta* and *Oughtred*, are, the *Side* or *Root*, *Square*, *Cube*, *Quadrato-quadratum*, *Quadrato-cubus*, *Cubo-cubus*, *Quadrato-quadrato-cubus*, *Quadrato-cubo-cubus*, *Cubo-cubo-cubus*, &c.

The Characters wherewith the ſeveral *Powers* are denoted, both in the *Arabic* and *Carteſian* Notation, are as follow.

	2	4	8	16	32	64	128	256	512	1024
Arab.	R	*q*	*c*	*bq*	*s*	*qc*	*ſſ*	*tq*	*bc*	*ſr*
Carteſ.	a	a^2	a^3	a^4	a^5	a^6	a^7	a^8	a^9	a^{10}

Hence, to raiſe a Quantity to a given *Power*, or Dignity, is the ſame as to find the Factum ariſing upon its being multiply'd a given Number of Times into itſelf: *E. gr.* to raiſe 2 to the 3d *Power*, is the ſame as to find the Factum 8; whoſe Factors are 2, 2, 2. See SQUARE, CUBE, *&c.*

Powers of the ſame Degree, are to one another in a Ratio of the Roots as manifold as their Exponent contains Units: Thus, Squares are in a duplicate Ratio; Cubes in a triplicate Ratio; Quadrato-quadrata, or fourth *Powers*, in a quadruple Ratio. See RATIO.

The *Powers* of proportional Quantities, are alſo proportional to one another. See PROPORTION.

From a given Power to extract the Root, or Side; is the ſame as to find a Number, *e. gr.* 2, which multiply'd any Number of times, *e. gr.* twice, produces the given *Power*, *e. gr.* the 3d *Power*, or 8. See ROOT.

To multiply or divide any Power by another of the ſame Root. 1°. For Multiplication, add the Exponents of the Factors; the Sum is the Exponent of the Factum. Thus:

$$\begin{array}{lccccc} \text{Factors}\left\{\begin{array}{l} \\ \\ \end{array}\right. & x3 & y^m & y^m & a^m & x^n \\ & x4 & y^m & y^n & a^r & x^s \\ \hline \text{Prod.} & x7 & y^{2m} & y^{m+n} & a^{m+r} & x^{n+s}. \end{array}$$

2°. For Diviſion, ſubſtract the Exponent of the *Power* of the Diviſor, from the Exponent of the Dividend; the Remainder is the Exponent of the Quotient. Thus:

$$\begin{array}{ll} \text{Divid.} & x7 \\ \text{Diviſ.} & x4 \end{array}\Big(x3 \;\Big\|\; \begin{array}{l} y^{m+n} \\ y^n \end{array}\Big(y^m \;\Big\|\; \begin{array}{ll} a^m & x^n \\ a^r & x5 \end{array}\Big(\begin{array}{ll} a^{m-r} & {}^{n-5} \\ & x \end{array}$$

M. *de la Hire* gives us a very odd Property common to all *Powers*: M. *Carre* had obſerv'd, with regard to the Number 6, that all the natural cubic Numbers, 8, 27, 64, 125, whoſe Root is leſs than 6, being divided by 6, the Remainder of the Diviſion is the Root itſelf: And if we go further, 216, the Cube of 6, being divided by 6, leaves no Remainder; but the Diviſor 6, is itſelf the Root. Again, 343, the Cube of 7, being divided by 6, leaves 1; which, added to the Diviſor 6, makes 7 the Root, *&c.*

M. *de la Hire*, on conſidering this, has found that all Numbers, rais'd to any *Power* whatever, have Diviſors, which have the ſame effect with regard thereto, that 6 has with regard to Cubic Numbers.

For the finding of theſe Diviſors, he diſcover'd the following general Rule:

If the Exponent of the *Power* of a Number be even, *i. e.* if the Number be rais'd to the 2d, 4th, 6th *Power*, *&c.* it muſt be divided by 2; the Remainder of the Diviſion, in caſe there be any, added to 2, or to a Multiple of 2, gives the Root of this Number, correſponding to its *Power*, *i. e.* the 2d, 6th, *&c.* Root.

If the Exponent of the *Power* be an uneven Number, *i. e.* if the Number be rais'd to the 3d, 5th, 7th, *&c.* *Power*; the Double of this Exponent will be the Diviſor, which has the Property mention'd.

Thus is it found in 6, double of 3, the Exponent of the *Power* of all the Cubes: Thus, alſo, 10 is the Diviſor of all Numbers rais'd to the 5th *Power*, *&c.*

POWER, of an Hyperbola, in Conics, is the Square of the right Line C I, or A B (Tab. CONICS, fig. 27.)

The *Power* of the Hyperbola, is the ſixteenth part of the Squares of the conjugate Semi-Axes; or the fourth part of the Squares of the conjugate Axes. See HYPERBOLA.

POWER *of the County*. See POSSE *Comitatus*.

POX, in Medicine, a Diſeaſe, whereof the Phyſicians admit ſeveral kinds; as the *Small Pox*, *French Pox*, *Chicken Pox*, and *Swine Pox*.

Small POX, *Variolæ*, is a contagious Diſeaſe appearing on the *Cutis*, which it covers with Puſtles or Ulcerous Eruptions, that leave Eſchars behind 'em. Or, it is a general Eruption of particular Puſtles tending to Suppuration. See PUSTLE and SUPPURATION.

The Origin of the Diſeaſe is uncertain: We find no mention of it before the *Arabic* Phyſicians. See DISEASE.

The *Small Pox* bear a great reſemblance to the Meaſles; ſo that for the two or three firſt days 'tis difficult to diſtinguiſh 'em: They both ariſe from an impure Blood, and corrupt Humours; with this difference, that in the *Small Pox*, the peccant Matter is more thick and viſcid; in the Meaſles more ſubtile, hot, and bilious; and neither of 'em are known to return after having paſs'd 'em once. See MEASLES.

Dolæus ſays, that the Cauſe of the *Small Pox* is brought into the World with us; and lies hid till it find an opportunity of burſting forth: He adds, that there is ſcarce one in many thouſands that eſcapes it all his Life.

Dr. *Drake* obſerves, that the *Small Pox* not being founded in any permanent habitual Diſpoſition, has its Period within a limited time neceſſary for the extruſion of the peccant Matter out of the Pores of the Skin. For the ſalt Serum of the Blood being in this Diſeaſe, by an accidental Fever, thrown out in great quantities on the Glands of the Skin, acts much after the manner of the *Lepra Arabum*; but when the Blood is deſpumated, the Scales dry, and fall off. So that he thinks it would be no great Impropriety to call the *Small Pox*, a temporary critical *Lepra*. See LEPRA.

The *Small Pox* are of two kinds; the *Diſtinct*, where the Puſtles ſtand a-part; and the *Confluent*, where they run into one continued Cake.

The *diſtinct*, or *regular Small* Pox, *Sydenham* obſerves, begin with a Shuddering and Chillineſs, which is ſucceeded by an intenſe Heat, violent Pain of the Head and Back, Vomiting, Drowſineſs, eſpecially in Children, and ſometimes Epileptic Fits; which ſhew the *Pox* to be ready to burſt forth, and that they will be mild.

The Eruptions are uſually on the fourth day; upon which the feveriſh Symptoms vaniſh, except that Adults are prone to ſweat. The Puſtles firſt appear in the Face, then the Neck, *&c.* They are at firſt reddiſh, by degrees ſwell and grow whiter; on the eleventh day the Swelling and Inflammation of the Face vaniſh; and the Puſtles begin to wither. If ever this kind kill, 'tis on the fourteenth or fifteenth day.

The Symptoms of the *diſtinct Small Pox*, as enumerated by Dr. *Shaw*, are, 1. A Pain in the Head, Back, and *Scrobiculum Cordis*. 2. A Fever, which decreaſes as the Eruptions increaſe, with redneſs of the Eyes. 3. *Nauſea* and Retchings. 4. Little reddiſh Spots, or beginning Puſtules, appearing on the Neck, Face, Breaſt, *&c.* about the third or fourth day incluſive, from the beginning of the Illneſs. 5. Reſtleſſneſs. 6. About the ſeventh or eighth day, other little red Spots uſually appear between the growing Puſtules. 7. The Puſtules about the ninth day are at their State; being then generally as big as a large Pea, the

Matter in them well concocted, of a whitiſh Colour inclined to yellow; at which time, 8. The Patient is uſually light-headed and feveriſh. 9. About the tenth day the Puſtules begin to dry on the Face. 10. And about the fifteenth they appear ſhrunk, and begin to ſcale off; and now the danger is eſteem'd to be over.

The *diſtinct* kind is here conſider'd unattended with a Looſeneſs, and other Symptoms, which ſometimes happen in it, as well as in the other.

The Confluent, or *Flux Small* Pox have the ſame Symptoms with the *diſtinct*, only in a more violent degree: They uſually come out on the third day; not ſeparate, as in the *diſtinct* kind, but ſpread into one another; and at length appear all like one whitiſh Pellicle, over the whole Skin. After the eighth day, the Pellicle darkens. In Adults this kind is attended with a Salivation; in Children with a Diarrhæa. The Salivation frequently ſucceeds immediately after Eruption; the Diarrhæa later. The *Confluent* kind uſually kill on the eleventh day.

The Symptoms of the *Confluent* kind, according to Dr. *Shaw*, are, 1. Violent Pain in the Head, Back, and *Scrobiculum Cordis*. 2. Nauſea and Retching, with a Fever, which rather increaſes than decreaſes after the Eruption. 3. In Children a Diarrhæa, which uſually precedes the Eruption, and attends the Diſtemper throughout. 4. A *Ptyaliſmus* in Adults, and but ſeldom a Diarrhæa. 5. Deliria, Convulſions, Hoarſeneſs, Difficulty of Breathing, Fixedneſs of the Eyes, and Reſtleſſneſs; which may alſo in a leſſer degree attend the *diſtinct* ſort. 6. The Spots are here more red, thick, and cloſe than in the *diſtinct*; and the Spaces between them more inflamed and ſwell'd; purple or livid Spots alſo often appear in theſe Spaces; whence the *Small Pox with Purples*. At other times in theſe Spaces, or on the Heads of the Eruptions, appear Bladders full of clear Water, vulgarly call'd the *white Hives*. Laſtly, theſe Eruptions are frequently depreſs'd in the middle; and there turn black; whence the *black Small Pox*.

The Eruptions often riſe and ſink in the Progreſs of the Diſtemper. They uſually firſt appear about the fourth or fifth day, and come to their State about the fifteenth.

Morton divides the Diſeaſe into four Stages: The *Apparatus* or Preparation, from the time of the firſt Infection to the Eruption of the Puſtles. The *Eruption*, which comprehends three States: *Eruption*; *Maturation*; and *Declenſion*, wherein the Puſtles are firſt incruſtated with a Scab, then wither and dry off.

When the Eruptions are very round, diſtinct, encompaſs'd with a red Margin, &c. they are ſaid to be *benign*; otherwiſe *malignant*.

There are four degrees of Malignancy: *viz.* when they are univerſally confluent; particularly confluent; diſtinct, but very ſmall and coherent; and diſtinct, with Petechiæ and miliary Eruptions. See PETECHIÆ, &c.

Dr. *Friend*, Dr. *Cade*, &c. recommend Purging and Phlebotomy after an imperfect Criſis of the *Small Pox*; *i. e.* where the Fever remains after the Puſtles decline. Many oppoſe it: Indeed Reaſon ſeems on its ſide; but Preſcription is againſt it. *Alſaharavius*, in the firſt Stage of the *Small Pox*, preſcribes Phlebotomy, even to a Swooning, and great Quantities of cold Water to be drunk. In the malignant *Small Pox*, Dr. *Liſter* found the Blood, when cold, exceſſively tender and friable, ſo as the ſofteſt Feather would eaſily divide its Globules. *Etmuller* ſays there is nothing to be more regarded than the Breath and Voice; where theſe are good, 'tis an excellent Sign. He adds that Horſe-Dung is an admirable Medicine, in that it promotes Sweat, ſaves the Throat, &c.

A Method of managing the *Small Pox*, lately introduced from abroad, is by Inoculating them. *For the Reaſon, Proceſs, and Advantages whereof*, ſee INOCULATION.

Why the *Small Pox* ſcarce ever viſit a Perſon above once, is a famous Problem; long canvaſs'd, and with little ſucceſs. Dr. *Drake* accounts for it very plauſibly from the Alteration made in the Skin by that Diſeaſe. For the Diſtenſion the Glands and Pores of the Skin ſuffer therein is ſo great, that they ſcarce ever recover their Tone again, ſo as to be able any more to arreſt the Matter in its Courſe outwards long enough, or in quantity enough, to create thoſe Ulcerous Puſtles which are the Diagnoſtics of the Diſeaſe. For tho the ſame feveriſh Diſpoſition ſhould ariſe again in the Blood, yet the Paſſages thro' the Skin being more open, the Matter will never be ſtop'd, ſo as to exhibit the Appearance of the *Small Pox*.

Accordingly we find that in Perſons ſeverely handled with this Diſeaſe, the Face (which is uſually the fulleſt, from the extraordinary obſtruction the Matter meets with by the great Conſtipation of the Pores) ſeldom returns to its former Dimenſions; which Enlargement he accounts for from the Dilatation of the *Areolæ* of the Glands and Pores of the Skin, not from any Augmentation of the Subſtance itſelf.

What confirms this Hypotheſis, is, that Nurſes, &c. who attend Perſons ſick of the *Small Pox*, are frequently a little affected with it; and have now and then two or three Eruptions: That they have no more, ſeems to follow from the free Courſe of the Matter thro' the Skin. With this, too, agrees that conſtant Obſervation, That People of coarſe Skins, in whom the Pores are largeſt, are always more favourably treated by this Diſtemper than others; and that it conſtantly leaves fine Skins coarſer than it found 'em.

This Solution would ſeem more probable, were it not that ſome have ſo very few of theſe Eruptions, perhaps not above twenty or thirty; which cannot fairly be allow'd ſo far to enlarge the Pores of the Skin.

Others hold, That in a genuine Eruption, the Cauſe of the Diſtemper is ſo far evacuated, as ſcarce to leave a poſſibility of a Return; and that if part of the original Cauſe did remain behind, it might, when the Air favours it, or when by other Accidents 'tis ſecreted from the Blood, appear in the form of Eruptions, and ſo prove to be the Meaſles, Chicken-Pox, &c.

It may, indeed, be objected, that theſe laſt mention'd often happen before the *Small Pox*: But whatever be the Cauſe of the *Small Pox*, the ſeparating Power muſt be in ſuch a determined Proportion, or it will fail to cauſe a regular *Small Pox*; and ſo acting proportionably, may produce any of the other Diſtempers juſt mentioned.

The *occaſional Cauſes* of the *Small Pox* may be, 1. Some Alteration in the Air; ſince they happen moſt frequently about the Spring Seaſon; and both in *Europe*, and elſewhere, are more Epidemical and Mortal at particular times. 2. From Fear; which appears more evident than eaſy to explain. 3. From Surfeits, as by eating any thing too chilling to the Blood, as Cucumbers, Oranges, &c. in hot Seaſons, or when the Body is heated by Motion, the drinking of cold Liquors. 4. From too plentiful feeding. 5. From any over-heating the Blood, or too ſuddenly cooling it after it is heated, whereby a ſudden Check is given to Perſpiration; and this more eſpecially if the Air favours ſuch an Eruption.

As to the *prognoſtic Signs of the Small Pox*; 1. The ſooner they appear in the Spring, and the more the Air is diſpoſed to favour the Diſtemper, the more fatal they prove. 2. The confluent Species both in Adults and Children, is dangerous; and the more ſo, if attended with a ſuppreſſion of Urine, Nauſea, Retching, Delirium, purple Spots, Cryſtallines, bloody Urine, &c. after the Eruption; but the blackneſs of 'em is not dangerous before the Criſis. 3. Diarrhæa's in the confluent kind, are not ſo bad in Children as in Adults. 4. A *Ptyaliſmus* is a regular Attendant of the confluent kind in Adults from the ſixth or ſeventh day till after the Criſis; and is ſo neceſſary, that if it ſtop ſuddenly, and return not for twenty four Hours, the Patient is ſuppoſed to be in great danger. 5. A Quincy here is highly dangerous. 6. The Eruptions ſwelling, and ſinking ſuddenly, are bad Signs. 7. The danger is not over till about the twentieth day in the confluent Species. But if the Eruptions be diſtinct, few, round, plump, riſe full, and grow up ſharp at the top; if the Sickneſs, Vomiting, &c. go off, or remit upon the appearance of the Eruptions, and the Patient be under no dreadful Apprehenſions; the danger is uſually over about the tenth day in the diſtinct kind. Convulſions attending the firſt Symptoms of the *Small Pox* in Children, are ſaid to foreſhew the appearance of Eruptions within twelve Hours; which then generally prove diſtinct, and the Patient does well. The *Small Pox* ſucceeding a Debauch in Liquors, or happening upon an irregular Courſe of Life, is uſually mortal.

Chicken POX, a cutaneous Diſeaſe, frequent in Children, wherein the Skin is cover'd with Puſtles like thoſe of the Small Pox, as to Figure and Magnitude; and only diſtinguiſhable therefrom, in that thoſe of the Small Pox appear with a redneſs and inflammation; and thoſe of the *Chicken Pox* whiter, reſembling *Veſiculæ* full of a ſerous Humour; which in three days time burſt, and dry away, without any danger, and uſually without any Fever.

The *Chicken Pox* and *Swine Pox* ſeem to be the Small Pox in a leſs degree, tho' they ſome times precede, and ſometimes ſucceed the Small Pox. The Puſtles appear to be of the ſame kind, only in the Swine Pox they are much larger, and in the *Chicken Pox* ſomewhat leſs than in the Small Pox. There commonly appear five or ſix, ſometimes twenty or thirty on the Face, and but very few on the Body.

The Patient is very little indiſpoſed, either before, at, or after their appearance; tho' the ſudden ſinking of them often cauſes ſome diſorder; but 'tis preſently relieved by a little Sack and Saffron, or a Doſe of Treacle-Water.

Grown Perſons ſeldom keep within Doors for either; and upon that account the Eruptions may continue the longer, becauſe the cold Air is ſuppoſed to hinder their ripening; ſo that 'tis ſometimes three Weeks or a Month before they totally diſappear.

French POX, a contagious Diſeaſe contracted by a poiſonous Humour, uſually in Coition; and manifeſting itſelf n Ulcers and Pains. See VENEREAL *Diſeaſe.*

The *French* call it *Mal de Naples*, the *Neapolitan* Diſeaſe, becauſe firſt obſerved among the Soldiery at the Siege of *Naples* under *Charles* VIII. The *Italians* call it *Mal Franceſe*, and we the *French Diſeaſe*, becauſe firſt caught by the *French*. The *Spaniards* call it *Sarva das Indias*, becauſe firſt brought from the *Weſt-Indies*.

POYNING's *Law*, an Act of Parliament made in *Ireland*, by *Henry* VII. whereby all the Statutes of force in *England* were made of force in *Ireland*; which before that time they were not.

Nor are any now in force there, made in *England* ſince that time.

The Law took its Name from Sir *Edward Poyning*, Lord Lieutenant at the time of its making.

PRACTICE, in Arithmetic, PRACTICA *Italica*, or *Italian Uſages*; certain compendious ways of working the Rule of Proportion, or Golden Rule. See GOLDEN *Rule.*

They were thus call'd from their expediting of *Practice*, and Buſineſs; and becauſe firſt introduced by the Merchants, and Negotiants of *Italy*. See RULE.

The moſt uſeful of theſe *Practices* are as follow:

1°. Since the Uſe of the Rule of Three is to find a fourth Proportional, to three given Numbers; divide the firſt and ſecond, or the firſt and third by ſome common Number, if that can be done exactly; and work with the Quotients in their ſtead: As in the following Example.

Price of 3 ℔ is 9 Shil. What's the Price of 7 ℔?

3) 1 3 3

Facit 21 Shil.

Price of 14 ℔ is 26 Shil. What's the Price of 7 ℔?

7) 2 2) 1

Facit 13 Shil.

2°. If the firſt Term be 1, and the ſecond an aliquot part of a Pound, Shilling, or Penny; divide the third by the aliquot Part: The Quotient is the Anſwer. *Note*, To find the aliquot part; thoſe who cannot do it otherwiſe, may ſee the Table of aliquot parts of a Pound under the Article MULTIPLICATION.

E.gr. If 1 Ell coſt 10 Shil. What coſt 957 Ells.

Facit l. 478: 10 *s.*

3°. If the firſt or third Number be 1; the other not exceeding large; and the middle Term a Compound, *i. e.* conſiſt of ſeveral Denominations; it may be wrought without Reduction thus:

Price of 1 ℔ is 3 *s.* 8 *d.* 3 *q.* What's the price of 5 ℔?

5

Facit 18 *s.* 7 *d.* 3 *q.*

For 4 Farthings making a Penny, 5 times 3 Farthings make 3 *d.* 3 *q.* and 12 Pence making 1 Shilling, five times eight Pence make 3 *s.* 4 *d.* which with 3 *d.* from the place of Farthings, make 3 *s.* 7 *d.* Laſtly, five times 3 Shillings makes 15 Shillings, and with the 3 Shillings from the place of Pence, 18 *s.* The price required therefore is 18 *s.* 7 *d.* 3 *q.*

4°. If the middle Term be not an *aliquot*, but an *aliquant* part; reſolve the aliquant part into its aliquot parts; divide the middle Term by the ſeveral aliquots, the Sum of the Quotients is the Anſwer. To find the aliquot parts contain'd in an aliquant; ſee the Table of aliquant parts of a Pound under the Article MULTIPLICATION.

For an Inſtance of this Rule:

If 1 Ell coſt 15 Shil. What coſt 124 Ells?

$\frac{1}{2}$ $\frac{1}{2}$) 62

$\frac{1}{4}$ 31

Facit 93 *l.*

5°. If the firſt, or ſecond Term be 1; and in the former caſe, the ſecond, or third, in the latter the firſt, be reſolvable into Factors; the whole Operation may be performed in the Mind without writing down any Figures: As in the following Example.

Price of 1 ℔ is 24 Shil. What is the price of 20 ℔?

4 4

6

80

6

Facit 48|0 *s.*—24 *l.*

6°. Where one of the given Numbers is 1; we have ſeveral compendious Uſages, to ſave Multiplication, and Diviſion. *E.gr.*

If 9 Pounds coſt 20 *s.* What does 1 Pound coſt?

'Tis obvious the Sum required is had by adding to the tenth part of 20 *s. viz.* 2 *s.* the ninth part of that tenth, *viz.* 3 *d.* $\frac{1}{2}$, and $\frac{2}{9}$ of a Penny: The Anſwer therefore is 2 *s.* 3 *d.* $\frac{1}{2}$ and $\frac{2}{9}$.

Again: If 5 ℔ coſt 54 Shillings, What coſts 1 ℔?

Since 5 is half of 10; the double of the tenth part of the given price, *viz.* 10 *s.* 9 *d.* $\frac{3}{4}$ *q.* is the Sum required.

Again: If 1 ℔ coſt 18 *d.* What will 19 ℔ coſt?

Since 19=20—1; from the given price doubled, and increaſed by a Cypher, *viz.* 360, ſubſtract the ſimple 18; the Remainder is 342 *d.*=28 *s.* 6 *d.* the Sum required.

7°. If two Terms of the ſame Denomination differ by an Unit, we have a peculiar kind of Compend; which will be clear from the following Examples. *E. gr.* If 5 ℔ coſt 30 *s.* What will 4 ℔ coſt?

Since the price of 4 ℔ is one fifth part ſhort of that of 5 ℔. divide the given price 30 by 5; the Quotient 6 being ſubſtracted from the Dividend; the Remainder, *viz.* 24 *s.* is the Sum required.

Again: If 8 ℔ coſt 24 *s.* What coſt 9 ℔?

Since the price of 9 ℔ exceeds that of 8 by one eighth part; divide the given Price 24 by 8; and add the Quotient 3 to the Dividend; the Sum 27 is the Anſwer.

8°. Sometimes one may uſe ſeveral of theſe Compounds, or *Practices* in the ſame Queſtion. *E.gr.* If 100 ℔ coſt 30 *s.* 4 *d.* What coſts 50 ℔?

50) 2. 2

Facit 15 *s.* 2 *d.*

Again: 60 ℔ coſt 4 *s.* What coſts 2520?

6 42

24 6

7 7

168 *l.*

PRÆ, a *Latin* Prepoſition, literally ſignifying *before*; uſed in Compoſition, with ſeveral Words in our Language, to denote the relation of Priority. See PREPOSITION and COMPOSITION.

Of late, our Writers, in Words thoroughly anglicized, for *præ* uſually write *pre*, reſtraining the *Latin* Orthography to Words that are ſtill *Latin*. Hence, for

PRÆADAMITE,		PREADAMITE.
PRÆCESSION,		PRECESSION.
PRÆCIPE,		PRECIPE.
PRÆCONTRACT,		PRECONTRACT.
PRÆCEPTORY,		PRECEPTORY.
PRÆDECESSOR,		PREDECESSOR.
PRÆDETERMINATION,		PREDETERMINATION.
PRÆDESTINATION,	See	PREDESTINATION.
PRÆDICTION,		PREDICTION.
PRÆDOMINANT,		PREDOMINANT.
PRÆEXISTENCE,		PREEXISTENCE.
PRÆFECTUS,		PREFECT.
PRÆEMPTION,		PREEMPTION.
PRÆTOR,		PRETOR.
PRÆTORIAN,		PRETORIAN, *&c.*

PRÆCORDIA, the parts about the Heart; *e. gr.* the Pericardium, the Diaphragm, the Hypochondria, and even the Heart itſelf; with the Lungs, Spleen, *&c.* See HEART.

The Word is ordinarily uſed for the fore-part of the Region of the Thorax. See THORAX.

Pliny, and ſome other Authors, uſe it for all the Viſcera, or Entrails. *Præcordia vocamus uno nomine exta in Homine.* See VISCERA.

One of the principal Differences between Men and Brutes, conſiſts in this; that there is a greater Correſpondence and Communication between the Head and Heart of the former than the latter: Which Correſpondence is effected by means of a greater Number of Nerves, ſent from the Brain to the Heart and *Præcordia*; Brutes only receiving Nerves to the *Præcordia* by the Branches of the *Par Vagum*; and Man, likewiſe, by the Intercoſtal Pair.

The Reaſon, Dr. *Willis* well obſerves, is, that Brutes being void of Diſcretion, and but little ſubject to Paſſions, need not, like Man, a double Paſſage for the Spirits, the one for the Service of the vital Functions, the other for the reciprocal Impreſſion of the Affections. See NERVE, SPIRIT, BRAIN, *&c.*

PRÆMIUM, literally denotes a Reward, or Recompence.

Among Merchants, it is taken for that Sum of Money, *viz.* 8 or 10 *per Cent.* which is given to an Inſurer, for inſuring the ſafe Return of any Ship, or Merchandize. See POLICY *of Inſurance.*

The ſame Term is alſo uſed in the Money and Paper-Trade, for what is given for a thing above *Par*.

Thus, Lottery-Tickets, *&c.* are ſaid to bear ſo much, *e.gr.* 10 or 20 *s. Præm.* when they are ſold for ſo much beyond the prime Coſt at which the Government vended them.

PRÆNOMEN, among the *Romans*, a proper Name; or Name prefixed to the general Name of the Family; as, *Caius*, *Lucius*, *Marcus*, &c. See NAME.

The *Prænomen* anſwers to our Chriſtian Name, *Peter*, *Paul*, &c.

It was not introduced among the *Romans* till long time after the *Nomen*. See NOMEN.

The Name of the Family was given their Children the Day after their Birth; but the *Prænomen* was not given 'em till they took the Virile Habit. See VIRILE.

Varro reckons up thirty *Prænomina* among the *Romans*. The uſual ones may be reduced to eighteen.

The *Greeks* had no *Prænomina*; they had but one Name.

PRÆPARANTIA *Vaſa*, in Anatomy, the *Spermatic Veſſels*; or two Arteries, and as many Veins of the Teſticles; thus call'd by the Antients, from an Opinion that the Seed began to be prepared herein. See SPERMATIC *Veſſels*, SEED, and GENERATION.

PRÆPOSITUS, a Term frequently uſed in our Law-Books: *Præpoſitus Villæ* is ſometimes uſed for the Chief Officer of the King in a Town, Manor, Village, or Reeve. See PREFECT.

Præpoſitus Villæ is ſometimes alſo uſed for the Conſtable of a Town, or petty Conſtable. See CONSTABLE.

Præpoſitus Eccleſiæ, ſee CHURCH-*Reve*.

Quatuor homines PRÆPOSITI, *in Crompton*, &c. Four Men of each Town which are to appear before the Juſtices of the Foreſt, in their Circuit.

PRÆPUTIUM, PREPUCE, in Anatomy, the *Fore-Skin*; a prolongation of the *Cutis* of the *Penis*, covering the Balanus, Glans, or Extremity of the Yard. See PENIS and GLANS.

Dr. *Drake* obſerves, that Nature does not ſeem more various in any part of her Works than in the *Prepuce*; for the Figure and Proportion whereof, there does not ſeem any Standard.

Hence, probably, aroſe the neceſſity of Circumciſion, ſo generally practiſed throughout the Oriental parts; not out of a view to Religion, but to Cleanlineſs, and to prevent Diſeaſes which a detention of the Mucus of the *Sub-preputial* Glands might breed in thoſe hot Countries. For even here the ſame Author adds, he has known ſome, who, having large *Prepuces*, call'd *Filbert-Prepuces*, have been frighted at the appearance of a Mucus oozing out upon a mere plenitude, from between the *Prepuce* and Glans; which 'tis probable the great Legiſlator of the *Jews* might have a view to in the firſt Inſtitution of Circumciſion. See CIRCUMCISION.

The Skin of the *Prepuce* is double; at the connexion of the internal Skin, to the other part, are ſeveral oval and roundiſh Glandules placed irregularly about the joining of the Glans to the *Corpora Cavernoſa*, and on the Glans itſelf.

Their uſe is to ſeparate a Liquor to render the agitation of the *Præputium* on the Glans eaſy. When this Liquor becomes rancid, as upon old Age, or Venereal Contacts, it excoriates the Glans and *Præputium*; and even ſometimes contracts the latter, and renders it neceſſary to be divided to afford a paſſage to the Glans. See PHIMOSIS and PARAPHIMOSIS.

PRÆSEPE, in Aſtronomy, three Nebulous Stars, in the Sign *Cancer*, or the Crab; two of 'em of the 7th, the third of the 6th Magnitude. Their Longitudes, Latitudes, *&c.* ſee among thoſe of the other Stars in CANCER.

PRÆTER *Naturam*, in Medicine, ſee NATURE.

PRAGMATIC *Sanction*, in the Civil Law, is defined by *Hottoman*, a Reſcript, or Anſwer of the Prince, deliver'd by Advice of his Council, to ſome College, Order, or Body of People, upon their conſulting him on ſome Caſe of their Community.

Such an Anſwer to a particluar Perſon, is call'd ſimply *Reſcript*. See RESCRIPT.

The Word is form'd from the *Greek* πρᾶγμα, *Negotium*, Buſineſs.

The Term *Pragmatic Sanction* is chiefly uſed among the Modern Writers, for that famous Ordonnance of *Charles* VII. of *France*, publiſhed in 1268; containing a Regulation of Eccleſiaſtical Diſcipline, conformable to the Canons of the Council of *Baſil*; and ſince uſed by the *Gallican* Church, as a Barrier againſt the Enterprizes and Encroachments of the Court of *Rome*.

The Scope of the *Pragmatic Sanction*, was to regulate the form of Elections made by the Clergy; to declare the Collations to belong to Ordinaries, the Prevention alone reſerv'd to the Pope; to eſtabliſh Prebends; to aſſign a Third of the Benefices to Graduates; to aboliſh Reſervations, Annates, and other like Charges.

Pope *Pius* II. obtain'd an abrogation of this *Sanction* of *Louis* XI. On which occaſion the Court of *Rome*, tranſported with Joy, dragg'd the *Pragmatic* thro' the Streets, whipping it all the way, as *Xerxes* antiently did the *Helleſpont*. But the Parliament oppoſed this Abrogation with a great deal of Vigour, and refuſed its Conſent to the laſt. So that maugre all the Efforts of *Rome*, the *Sanction* ſtill held in force; till the Concordat paſs'd between Pope *Leo* X. and *Francis* I. in 1515, when the *Pragmatic Sanction* was aboliſhed. See CONCORDAT.

The Parliament of *Paris* again oppoſed the Innovation, and refuſed to confirm the Concordat, and was not brought to give its Conſent till after repeated Orders of the King; together with a ſecret Reſolution taken always to judge conformably to the Tenor of the *Pragmatic Sanction*.

PRAGMATICAL, a Term ſometimes uſed in the ſame ſenſe as *Practical*, *Mechanical*, or *Problematical*.

Thus *Stevinus*, in his *Hydroſtatical Elements*, calls certain Mechanical, or Practical Experiments, which he undertakes to inſtruct his Reader how to make, by the Name of *Pragmatical* Examples; and in the ſame ſenſe it is ſometimes uſed by other Naturaliſts.

PRATIQUE, or PRATTICK, in Commerce, a Negotiation or Communication of Commerce, which a Merchant-Veſſel obtains in the Ports it arrives in, and the Countries it diſcovers.

Hence to obtain *Pratique*, is to obtain a Liberty to frequent a Port, to go a-ſhore, buy and ſell, *&c.* We could never have any *Pratique* with the Inhabitants of *Nova Zembla*.

The Word is *French*, and ſignifies, literally, Practice.

PRATIQUE is particularly uſed for a Licence to traffic, granted to the Maſter of a Ship in the Ports of *Italy*, upon a Bill of Health; that is, a Certificate that the Place whence he came is not annoy'd with any infectious Diſeaſe.

PRAXÆANS, a Sect of Heretics, ſo call'd from their Author *Praxeas*.

This Hereſiarch was of *Aſia*, and lived in the ſecond Century. He was at firſt a Diſciple of *Montanus*, but quitted him, and ſoon after ſet up a Sect of his own; teaching, that there was no Plurality of Perſons in the Godhead; and that it was the Father himſelf that ſuffer'd on the Croſs. Which Sentiment was afterwards adopted by the Monarchics, Sabellians, and Patripaſſians. See SABELLIAN, PATRIPASSIAN, *&c.*

PRAYER, in Theology, a Petition put up to God, either for the obtaining of ſome future Favour, or the returning of Thanks for a paſt one.

Divines diſtinguiſh three kinds of Prayer; *Vocal*, which is cloth'd in Words and Sounds to be utter'd with the Mouth; *Mental*, which is only form'd or conceiv'd in the Mind, and not deliver'd in Words; and *Ejaculatory*, which is a ſhort, ſudden flight without Study, Order, or Method. See VOCAL, MENTAL, *&c.*

The Myſtic Divines, again, diſtinguiſh *Prayer* into *Active* and *Paſſive* See ACTIVE and PASSIVE.

Among us, Prayer is frequently conſider'd under the diviſions of *Preconceiv'd* and *Extemporary*. Under the firſt come all ſet Forms, whether public or private, by which the Mind is directed in the Order, Manner, Expreſſion, *&c.* of its Petitions. The ſecond is that where the Mind is left to itſelf, its own Conduct, both as to Matter, Manner, Words, *&c.*

Common PRAYER, ſee LITURGY.

The *Romaniſts* alſo prefer *Prayers* to Saints, the Virgin, the Angel *Gabriel*, &c. See SAINT, OFFICE, AVE *Mary*, &c.

PREACHING, in Theology, the Declaration, or Promulgation of the Word of God, in public; by a Perſon authorized, and in a Place deſtined, for that purpoſe. See SERMON, PRIEST, GOSPEL, *&c.*

Antiently, none but Biſhops were allow'd to preach. Now, not only Prieſts, but Deacons are qualify'd. See BISHOP and DEACON.

Biſhop *Wilkins* has deliver'd the *Art of Preaching* in a Treatiſe call'd *Eccleſiaſtes*, or the Preacher. See ECCLESIASTES.

The Word is derived from the *Hebrew*, *Paraſch*, *expoſuit*, he expounded.

The Religious of the Order of St. *Dominic* aſſume the Quality of *Preaching-Brothers*, Friars-predicant or predicants. See DOMINICAN.

PREADAMITE, *Præadamita*, a Term given to the Inhabitants of the Earth conceived, by ſome People, to have lived before *Adam*.

Iſaac de la Pereyra in 1655, publiſhed a Book to evince the Reality of *Preadamites*, by which he gain'd a conſiderable number of Proſelytes to the Opinion; but the Anſwer of *Demarets*, Profeſſor of Theology at *Groninguen*, publiſhed the Year following, put a ſtop to its Progreſs; tho' *Pereyra* made a Reply.

His Syſtem was this: The *Jews* he calls *Adamites*, and ſuppoſes 'em to have iſſued from *Adam*; and gives the Title *Preadamites* to the *Gentiles*, whom he ſuppoſes to have been a long time before *Adam*.

But this being expreſly contrary to the firſt Words of *Geneſis*, *Pereyra* had recourſe to the fabulous Antiquities of the *Egyptians* and *Chaldeans*, and to ſome idle Rabbins, who imagined there had been another World before that deſcribed by *Moſes*.

He was apprehended by the Inquiſitors in *Flanders*, and very roughly uſed; tho' in the Service of the *Dauphin*. But he appealed from their Sentence to *Rome*; whither he went in the time of *Alexander* VII. and where he printed a Retractation of his Book of *Preadamites*.

PREAMBLE, in Law, the beginning of an Act of Parliament, &c. ſerving, as it were, for a Key, to open the Intent of the Makers of the Acts, and the Miſchiefs deſigned to be prevented or remedied thereby. See ACT.

PREBEND, *Præbenda*, the Portion a Prebendary receives out of the Eſtate of a Cathedral, or Collegiate Church. See PREBENDARY.

The Term *Prebend* is uſually confounded with *Canonicate*, *Canonate*, or *Canonica*; yet there is a real difference. A *Prebend* is properly a Right which an Eccleſiaſtic has in a Cathedral or Collegiate Church where he officiates, to receive certain Eccleſiaſtical Revenues, and to enjoy certain Dues, either in Money or in kind; (ſo call'd *à Præbendo*, q. d. *afforded*, or *allowed* him; not *à Præbendo Auxilium*, or *Concilium Epiſcopo*) whereas a Canonica is a mere Title, or ſpiritual Quality, which a Perſon enjoys independent of any *Præſtation*, or any temporal Revenue: So that the *Prebend* may ſubſiſt without the Canonicate; but the Canonicate is inſeparable from the *Prebend*.

For it is not to the *Prebend* that the Right of Suffrage, and other ſpiritual Rights are annexed, but to the Canonicate; and when the *Prebend* is join'd to the Canonicate, it becomes Spiritual by virtue of the Canonicate to which it is attach'd. See CANONICA.

Antiently the Pope created Canons with a Right of taking place in the Choir, a deliberative Voice in the Chapter, and an expectation of the firſt *Prebend* that ſhould become vacant: But this was prohibited by the Council of *Trent*. Yet the Pope ſtill confers the Canonicate without any *Prebend*, when he would confer a Dignity in a Church, for the obtaining whereof, 'tis required the Candidate be a Canon.

This they call a Canonate *ad effectum*, and ſometimes *jus ventoſum*, which is no more than an empty Title confer'd purely to qualify a Man for a Dignity affected to the Capacity of Canon.

In ſome Churches there are *double Prebends*; and in others *Semi-Prebends*.

Originally the *Prebend* was only a Livery, or Portion of things neceſſary to Life, given daily; at preſent the Rents and Profits of the Church are divided into fixed Portions, call'd *Prebends*, which are enjoy'd independently. The nomination to *Prebends* is in the King. In *France* 'tis one of the honorary Rights of the King, on his joyful Acceſſion to the Crown, to nominate to the firſt *Prebends* vacant by death in the Cathedral and Collegiate Churches.

Prebends are either *Simple*, or with *Dignity*: The latter are ſuch, as, beſide their *Prebends*, have ſome Juriſdiction annexed to 'em.

Theological, or *Divinity Prebend*, is a *Prebend* affected to a Doctor in Divinity, in each Cathedral and Collegiate Church throughout *France*, for preaching on Sundays, and making a public Lecture thrice a Week.

Preceptorial Prebend, a *Prebend*, the Revenues whereof are deſtined for the Support of a Preceptor or Maſter, who is obliged to inſtruct the Youth of the Place *gratis*. The Canonate is not here neceſſary to the *Prebend*.

Panormus obſerves, that in the Cathedral-Church of *Chartres*, there are *Prebends* reſerv'd to Laymen, and for the Subſiſtence of ſome Perſons of Birth and Diſtinction.

PREBENDARY, an Eccleſiaſtic, who enjoys a Prebend. See PREBEND.

Prebendaries, and Canons of Cathedral and Collegiate Churches, have this in common, that they have each a Portion of the Revenues of the Church for their Subſiſtence; the one under the Title of *Præbenda*, *Prebend*; the other under the Title of *Canonica*, or *Canonicate*; and have each Places, and Voices in the Chapter: But they differ in this, that the former receives his Portion or Prebend in Conſideration of his officiating and ſerving in the Church; but the latter without any ſuch Conſideration, merely by his being received into the Cathedral or College, *per aſſignatum ſtallum in Choro, & locum in Capitulo*. See CANON, &c.

Golden PREBENDARY of *Hereford*, call'd alſo *Prebendarius Epiſcopi*, is one of the twenty-eight minor *Prebendaries*, who has, *ex officio*, the firſt Canon's Place that falls.

He was antiently Confeſſor of the Biſhop and Cathedral, and had the Altarages; on which account he was call'd the *Golden Prebendary*.

PRECARIÆ, or *Preces*, in our antient Law-Books, Day's-works, which the Tenants of certain Manors are bound to give their Lords, in Harveſt-time; and which, in ſome places, are corruptly call'd *Bind-days*, for *Biden-days*, from the *Saxon*, *Bidan*, to pray.

Baldwinus una bovata pro ii s. *& dimid. &* ii *Gallinas & xx ova &* iiii Precarias *in Autumno*; *uno cum hominè, bis arare*, &c. Monaſt. Angl.

Magna Precaria, was a great or general Reaping-day. The Lord of the Manor of *Harrow* in *Middleſex* had, 21 *Rich.* 2. a Cuſtom, that by Summons of his Bailiff on a general Reap-day, then call'd *Magna Precaria*, the Tenants ſhould do one hundred ninety-nine days Work for him; every Tenant that had a Chimney ſending a Man.

PRECARIOUS, in Commerce, is properly a kind of Trade carried on between two Nations at War, by the Intervention of a third at Peace with 'em both.

Thus the *Engliſh* hold a *precarious* Commerce with the *Spaniards* by means of the *Portugueſe*; when the two former Nations being at War, the third lends its Veſſels, its Colours, and Name, to continue their Trade.

PRECARIOUS, in Juriſprudence, a Term uſed for a Fund or Stock, whereof a Perſon has not the full Propriety, whereof he cannot diſpoſe abſolutely, and which is moſt of it borrow'd.

PRECE *Partium*, in Law, the Continuance of a Suit by conſent of both Parties.

PRECEDENCE, PRECEDENCY, *Rank*, a Place of Honour, which a Perſon is entitled to in Companies; either for ſitting or walking.

Precedence is either of *Courteſy*, or of Right, *de jure*.

The former is that due to Age, to Eſtate, &c. which is regulated by Cuſtom and Civility; the latter is ſettled by Authority, and where broke in upon, gives an Action at Law. See NOBILTY.

The Point of *Precedency* is thus ordered by the Heralds.

After the King, the Princes of the Blood, *viz.* the Sons, Grandſons, Brothers, and Nephews of the King take place; then the Great Officers of the Church and Crown, *viz.* the ABp of *Canterbury*, then the Lord Chancellor, or Lord Keeper of the Great Seal; next the ABp of *York*; the Lord High Treaſurer; the Lord Preſident of the Privy Council; the Lord Privy-Seal: Next, Dukes, then Marqueſſes, Dukes eldeſt Sons, Earls, Marqueſſes eldeſt Sons, Dukes younger Sons, Viſcounts, Earls eldeſt Sons, Marqueſſes younger Sons, Biſhops, Barons, Viſcounts eldeſt Sons, Earls younger Sons, Barons eldeſt Sons, Privy-Counſellors, Judges, Maſters in Chancery, Viſcounts younger Sons, Barons younger Sons, Knights Bannerets, Baronets, Knights of the Bath, Knights Batchelors, Colonels, Serjeants at Law, Doctors, Eſquires, Lieutenant-Colonels, Majors, Captains, Batchelors of Divinity, Law, &c. Maſters of Arts, Gentlemen, Yeomen, Tradeſmen, Mechanicks.

Note, That great Officers of Court, of what degree ſoever they are, take place above all others of the ſame Degree or Order of Nobility; *viz.* the Maſter of the Horſe, Lord Great Chamberlain of *England*, Lord High Conſtable of *England*, Lord Marſhal of *England*, Lord Admiral of *England*, Lord Steward, and Lord Chamberlain of his Majeſty's Houſhold.

So the Secretaries of State, if Peers, take place of all of that Degree, except the Great Officers aforeſaid.

Dukes, Marqueſſes, Earls, Barons, &c. not having any of the ſaid Offices, take place according to the Seniority of their Creation.

The Ladies take place, or *Precedency*, according to the Degree of Quality of their Husbands.

PRECEDENT, in Law, an original, authentic Inſtrument, or Writing; ſerving as a Form to draw others by. See ORIGINAL, &c.

Hence *Precedent Books*, &c. full of Draughts of Deeds, Conveyances, &c. for Attorneys.

PRECENTOR, or PRÆCENTOR, a Dignitary in Cathedral Churches, popularly call'd the *Chanter*, or *Maſter of the Choir*. See CHANTER.

The *Præcentor* is ſo call'd, from the *Latin præ*, and *cano*; becauſe he is ſuppoſed to lead the Choir, and *ſing before* the reſt.

PRECEPT, in Law, a Command in Writing, ſent by a Chief Juſtice, Juſtice of Peace, or other like Officer, for the bringing of a Perſon, Records, or other Matters, before him.

PRECEPT is alſo uſed for the Command, or Incitement, whereby one Man ſtirs up another to commit Felony, Theft, &c. *Bracton, lib.* 3. *Tract.* 2. *cap.* 19. whence we may obſerve three Diverſities of offending in Murther; *Præception, Fortia, Concilium.*

Preception, is the Inſtigation uſed before-hand; *Fortia*, the Aſſiſtance in the Fact; *Concilium*, the Advice either before or after. See MURTHER.

PRECESSION, PRÆCESSIO, in Aſtronomy, a Term apply'd to the Equinoxes, which, by a very ſlow inſenſible Motion, change their place; going backwards, or weſtward, *i. e. in antecedentia* as the Aſtronomers call it, or contrary to the Order of the Signs. See EQUINOX.

It is ſhewn, in the new Aſtronomy, that the Pole, the Solſtices, the Equinoxes, and all the other Points of the Ecliptic, have a retrograde Motion; and are continually moving from Eaſt to Weſt, or from *Aries* towards *Piſces*, &c. by means whereof, the Equinoctial Points are carry'd further and further back, among the preceding Signs of Stars; at the rate of about 50 Seconds each Year: which retrograde Motion is call'd the *Preceſſion*, *Receſſion*, or *Retroceſſion of the Equinoxes.*

Hence, as the fixed Stars remain immovable, and the Equinoxes go backward; the Stars will ſeem to move more and more Eaſtward with reſpect thereto; whence the Longitudes of the Stars, which are reckon'd from the firſt Point of *Aries*, or the Vernal Equinox, are continually increaſing. See LONGITUDE and STAR.

Hence it is that the Conſtellations have all chang'd the Places aſſign'd them by the antient Aſtronomers: In the Time of *Hipparchus* and the oldeſt Aſtronomers, the Equinoctial Points were fix'd to the firſt Stars of *Aries* and *Libra*; but the Signs are now no longer in the ſame Points; and the Stars which were then in Conjunction with the Sun when he was in the Equinox, are now a whole Sign, or 30 Degrees, to the Eaſt thereof: Thus the firſt Star of *Aries*, is now in the Portion of the Ecliptic call'd *Taurus*; and the firſt Star of *Taurus* now reſides in *Gemini*; and *Gemini* is advanced into *Cancer*, &c. See SIGN and CONSTELLATION.

The Equinoxes will have made their Revolution Weſtward, and will be return'd to *Aries* again; or the Conſtellations will have made theirs Eaſtward, and will again fall into their former places, with regard to the Equinoxes, in 25816 Years, according to *Tycho*; in 25920, according to *Ricciolus*; and in 24800, according to *Caſſini.*

The Antients, and even ſome among the Moderns, have taken the Equinoxes to be immoveable; and aſcribed that Change of Diſtance of the Stars here-from, to a real Motion of the Orb of the fixed Stars; which they ſuppoſe to have a ſlow Revolution about the Poles of the Ecliptic: ſo as that all the Stars perform their Circuits in the Ecliptic, or its Parallels, in the ſpace of 25920 Years; after which, they ſhould all return again to their former places.

This Period the Antients call'd the *Platonic*, or *great Year*; and imagin'd that at its Completion, every thing would begin again as at firſt: and all things come round in the ſame Order they have already done. See *Platonic* YEAR.

The Phyſical Cauſe of the *Preceſſion* of the Equinoxes, Sir *Iſaac Newton* demonſtrates, does ariſe from the broad ſpheroidal Figure of the Earth; which again ariſes from the Earth's Rotation a-round its Axis. See EARTH.

PRECIOUS, or PRETIOUS *Stone*, call'd alſo *Gem*, and *Jewel*, is a Stone extraordinarily hard, durable, tranſparent, and of a beautiful Colour, or Water. See STONE and GEM.

Of theſe we may diſtinguiſh three Kinds: 1°. Such as are entirely tranſparent; which again may be divided into ſuch as are either colour-leſs, as the *Diamond*; or colour'd, as the *Emerald*: Which Diviſion of colour'd Gems may be ſubdivided into thoſe of one Colour, as the *Ruby*; and thoſe with ſeveral, as the *Amethyſt*. 2°. Brilliant, or ſhining, as the *Bohemian Granate*. 3°. Semi-tranſparent, as *Opal*.

Biſhop *Wilkins* divides *precious* Stones into *more* and *leſs tranſparent*. The *leſs tranſparent* he diſtinguiſhes by their Colours: into red, as the Sardius and Cornelian; pale, fleſhy Colour, like that of a Man's Nail, as the Onyx; blueiſh, as the Turquois; pale purple, as the Chalcedony; and thoſe of various Colours, as Opal and Cat's Eye.

The *more tranſparent* he diſtinguiſhes into ſuch as are colourleſs, as the Diamond and white Saphir; and colour'd, which are either red, as the Ruby, Carbuncle, and Granate; yellow, as the Chryſolite, and Topaz; green, as the Emerald, Smaragd, and Beryl; blueiſh, as the Saphir; and purple or violaceous, as the Amethiſt and Hyacinth.

Dr. *Woodward* divides *precious* Stones ſomewhat more preciſely, into *opake*, *ſemi-opake*, and *tranſparent*. Again, 1ſt, the *opake* are either of one Colour, as the Turquois; or of various Colours, as Lazuli and Jaſper. 2d, *Semi-opake*, either have their *Colours permanent*, as the Agat, Chalcedony, Onyx, Sardonix, Cornelian, and Beryl; or their *Colours vary*, according to the Poſition of the Light, as the *Oculus Cati*, and Opal. 3d, *Tranſparent Stones* are either *with Colours*; as the Topaz and Jacinth, yellow, or partaking thereof; Granate, Ruby and Amethyſt, red; Saphire, Water Saphire, and Aquemarine, blue; and Emerald, or Cryſolite, green, or partaking thereof: or *without Colours*, as the Cryſtal, Pſeudo-Diamond, white Saphire, and Diamond.

The natural Hiſtory, Characters, Properties, &c. *of each Stone; ſee under its proper Article:* DIAMOND, CORNELIAN, RUBY, TURQUOIS, ONYX, EMERALD, CRYSOLITE, *&c.*

The Medicinal Virtues of precious Stones, or Gems, in the general; ſee under GEM.

The Origin and Formation of precious Stones, ſee under STONE.

For the Art of engraving on precious Stones, ſee ENGRAVING.

The Art of cutting them, ſee under LAPIDARY.

PRECIPE, or PRÆCIPE *quod reddat*, a Writ of great Diverſity, both as to Form and Uſe. See ENTRY and INGRESSUS.

It extends as well to a Writ of Right, as to other Writs of Entry and Poſſeſſion; and is ſometimes call'd a *Writ of Right, cloſe*, as when it iſſues out of the Court of Chancery, cloſe; ſometimes a *Writ of Right, patent*, as when it iſſues out of Chancery, patent or open, to any Lord's Court, for any of his Tenants deforced, againſt his Deforcer. See RIGHT.

PRECIPITANT, in Chymiſtry, a Term apply'd to any Liquor which, being pour'd on a Diſſolution, ſeparates what is there diſſolved, and makes it *precipitate*, *i. e.* fall to the bottom of the Veſſel. See DISSOLUTION.

Thus Oil of Tartar, and the Volatile Spirit of Sal Armoniac, are *Precipitants*, with regard to the Diſſolution of Gold in *Aqua Regalis*; and common Water is a *Precipitant*, with regard to the Diſſolution of Jalap in Spirit of Wine. See PRECIPITATION.

PRECIPITANT, is alſo uſed in Medicine, for a Remedy which ſeparates and precipitates any heterogeneous Matter contain'd in the Maſs of the Blood; and by this means abates any irregular Fermentations, Effervеſcences, or the like Diſorders, which that Matter had excited.

Among the Number of *Precipitants*, are rank'd Harts-Horn, Crabs-Eyes, Ivory, Bezoard, Barks of Oak, and Guaiacum, Iron, Quinquina, Chalk, *&c.*

PRECIPITATE, in Chymiſtry, a Subſtance which having been diſſolved in a proper Menſtruum, is again ſeparated from its Diſſolvent, and thrown down to the bottom of the Veſſel, by the pouring in of ſome other Liquor. See PRECIPITANT.

The Chymiſts make various *Precipitates* of Mercury, which are of various Colours, as the Precipitants vary; viz. *White*, *Red*, *Yellow*, *Green*, &c. See MERCURY.

The *white Precipitate*, is prepared of Mercury diſſolved in Spirit of Nitre, and precipitated with Salt-Water, or Spirit of Salt, into a white Powder.

If in lieu of the former Precipitants, hot Urine be pour'd on the Diſſolution, we have a *pale Roſe-Colour.*

To make the *red Precipitate*, they take the Diſſolution of Mercury made in Spirit of Nitre, evaporate all the Humidity over a gentle Fire, till nothing remains but a white Maſs; which by increaſing the Fire, they rubify or raiſe to a red Colour.——*Green Precipitate* is made with Mercury, Copper, and acid Spirits——*Yellow Precipitate* with Mercury, and Oil of Vitriol: But theſe three laſt are improperly call'd *Precipitates*; becauſe not procured by Precipitation. See PRECIPITATION.

PRECIPITATION, an Operation in Chymiſtry, being a kind of Separation, whereby a Body diſſolv'd in any Liquor, is detach'd there-from, and falls down to the bottom of the Veſſel. See OPERATION.

Precipitation is either *Spontaneous* or *Artificial.*

Spontaneous Precipitation, is when the Particles of the diſſolved Body, ſeparate of themſelves from their Diſſolvent.

Artificial Precipitation, is when ſome other Body, call'd a *Precipitant*, is added to procure this Separation. See PRECIPITANT.

There is alſo a *total Precipitation*, wherein the diſſolv'd Parts are all ſeparated, and ſunk to the bottom; and a *partial Precipitation*, wherein the Parts diſſolv'd are ſtill ſuſpended in the Fluid; and don't fall down.

Theory of PRECIPITATION.

To account for the Operation of *Precipitation*: It may be obſerv'd, that a fluid Menſtruum may be made to ſuſtain a Body ſpecifically heavier than itſelf, either by making the Reſiſtance, ariſing from the Coheſion of the Parts of the Fluid, equal to the Exceſs of ſpecific Gravity of thoſe Bodies above that of the Menſtruum. See MENSTRUUM.

Or, by the heavy Body's being join'd to ſome lighter one; ſo that the two together only make one whole, equal in weight to the Fluid.

In the firſt caſe, the Reſiſtance, we know, is ſtill proportional to the Surface of the Corpuſcles; ſo that the Surface being diminiſh'd, the Reſiſtance is weaken'd: the Proportion therefore of the Tenacity of the Menſtruum, to the Gravity of the Corpuſcles being thus deſtroy'd, a *Precipitation* muſt enſue.

Precipitation, then, may be effected two ways, on this Foundation; *viz.* either by the dropping in a Liquor ſpecifically lighter, or ſpecifically heavier; in the former Caſe, the Gravity of the Menſtruum, which is always proportional to the compound Gravities of both, will by this Mixture become lighter: Thus, the Menſtruum being diluted, the Force of Coheſion is alſo weaken'd, ſo as to become unable any longer to ſuſtain the Bodies; ſo Hydrometers, which are eaſily ſuſtain'd in Water, upon pouring in a good deal of any burning Spirits ſink to the bottom of the Glaſs.

And this agrees not only with the Laws of Mechanics, but with Experiments: Thus Spirit of Sal Armoniac does very plentifully precipitate the Filings of Metals, diſſolved in acid Menſtruums; tho' it be abundantly lighter than any of them.

The ſame thing is done quicker by Spirit of Wine, whoſe Gravity is known to be almoſt the leaſt of any Liquor.

By this Spirit alſo, all Salts, which are ſuſpended in Water, are precipitated, and ſo unite into Cryſtals. So if you drop in diſtilled Vinegar, the Droſs of Antimony diffuſed in Water, it falls to the bottom, and affords the Golden Sulphur.

After the ſame manner, Water, Vinegar, &c. make a *Precipitation* from Acids, tho' more ſparingly: Nay, Acids themſelves being pour'd upon others which are heavier, will precipitate whatever is ſwimming in them. Thus Spirit of Salt precipitates either Lead, Copper, or Tin, diſſolv'd in Oil of Vitriol: ſo little need is there of Alkalies in this Buſineſs, tho' the Chymiſts have unanimouſly contended for them as abſolutely neceſſary.

In the 2d Caſe, *Precipitation* will ſucceed by the Addition of a heavier Liquor to the Menſtruum. For the Particles of this Liquor, what with their Weight, and what with the Impetus they acquire in their Deſcent, carry down and ſink all the ſolid Corpuſcles they meet with in their way; ſo that the Corpuſcles being thus forced down, and kept there by this adventitious Liquor, cannot mount up into their former Situation.

To try the Truth of this Reaſoning by Experiments; not only acid Spirits, but even mere Water, will be found to precipitate Tinctures of Vegetables extracted by Spirit of Wine: And the very ſame Tinctures, extracted with Water, or Wine, are precipitated very copiouſly by acid Spirits, which are heavier.

Metals, when diſſolved in Spirit of Sal Armoniac, are precipitated with Oil of Vitriol, or Spirit of Nitre. When ſuſpended in *Aqua Fortis*, they are precipitated with Oil of Vitriol, or Bezoartic Spirit of Nitre.

As to Bodies ſuſpended by means of their Union with other lighter ones: This is properly the Caſe of diſſolved Metals; and to this may the laſt Caſe of *Precipitation* be reduced. Here, the Particles of a Metal being ſeparated by a Diſſolvent, and rendred imperceptible by their extreme Littleneſs, only float, becauſe united to very light Particles of the acid Spirit, which keeps them ſuſpended: Tho' the great Surface they have, both on account of their Smallneſs, and of their Union with the Acids, frequently contribute to the Effect.

Now, as they are in a forced Equilibrium with the Fluid wherein they ſwim; and as the Cauſes that ſuſtain them, are only accidental; they muſt of courſe be precipitated to the bottom, when the Acid or Menſtruum abandons them; from whatever Cauſe it be: It is even ſometimes ſufficient, that the Quantity of the Fluid, wherein they are ſuſtain'd, be diminiſh'd. For then, ſeveral of the Metallic Particles, tho' ſtill join'd to their Acid, coming to meet, and unite, aſſume a ſmaller Surface, with regard to their Maſs; thus, being no longer held up by the Largeneſs of their Surfaces, they ſubſide to the bottom.

When the Menſtruum abandons a diſſolved Body; if that Body be lighter than the Menſtruum, the contrary to a *Precipitation* will enſue, *i.e.* the Body will riſe: Thus Camphor being mixed in Oil of Olives, and the whole diſſolved, the Camphor riſes firſt, &c.

If it happen that the Particles, when abandon'd by the Diſſolvent, are equally heavy with the ſuſtaining Fluid; they will neither riſe nor fall; only ſeveral of them now re-uniting, form little Maſſes, ſufficient to ſpoil the Limpidneſs and Tranſparency of the Fluid; as is the Caſe in Reſins diſſolved in Spirit of Wine, and Water pour'd over them: where the Water uniting cloſely with the Spirit of Wine, makes it let go the greateſt part of the reſinous Particles.

Thus is effected what we call an *Imperfect Precipitation*; which, in reality, is no more than a Diſpoſition to precipitate.

If in this Caſe, the Aqueous Particles of the Fluid be hid, and as it were, abſorb'd among the groſs *Moleculæ* of the diſſolved Matter; it forms what they call a *Coagulum*. See COAGULATION.

Sometimes, when the Liquors are pour'd on one another, the Salts with which they abound, being put into Motion, by their attractive Force, they run mutually to embrace one another; and becauſe they don't recoil far back after the Congreſs, they are at length ſo united, as to become like a Solid, there being very little Phlegm remaining, as is very obſervable in *Tartarum Vitriolatum*.

In theſe Experiments there happens ſuch a Conflict and Efferveſcence, as evaporates almoſt all the Moiſture, with which the Salts are diluted. And upon this depends the Rationale of Chymical Coagulation, a thing of very great conſequence in the Buſineſs of *Precipitation*. Nor can we account for Oil of Tartar's precipitating Bodies diſſolv'd in Acids, any otherwiſe than from its making a kind of *Coagulum* with theſe Corpuſcles, and thereby becoming too heavy for, and exceeding the Tenacity of, the Menſtruum.

Such are the general Principles of *Precipitation*.

PRECEPTORY, PRÆCEPTORIA, or *Commandry*, a kind of Benefice held by the more Eminent among the antient Knights-Templars; who were created by the Grand-Maſter, with the Title of *Præceptores Templi*, i.e. *Maſters of the Temple*. See TEMPLAR.

Stephens de Juriſd. lib. 4. ſays, the *Præceptories* were only a kind of Cells, all ſubordinate to their principal Manſion, the *Temple* in *London*. See TEMPLE.

Of theſe *Præceptories*, *Dugdale* ſays, he finds ſixteen recorded, as antiently belonging to the Templars in *England*; viz. *Creſſing Temple*, *Balſhal*, *Shangey*, *Newland*, *Yeveland*, *Witham*, *Temple-Bruere*, *Willington*, *Rotheley*, *Ovenington*, *Temple Comb*, *Trebigh*, *Ribſtane*, *Mount St. John*, *Temple-Newſum*, and *Temple Hurſt*. But there were more. See COMMANDRY.

PRECIPUT, in Juriſprudence, an Advantage belonging to any one, in a thing to be divided; or a Portion taken off, and ſet by, in his favour, e'er the Diviſion be made.

In noble Partition, the Eldeſt has always the principal Fief, or Mannor, for his *Preciput*.

The *Preciput* coincides with the Right of Primogeniture. See PRIMOGENITURE.

The Word is form'd from the *Latin Præcipuus*, Chief, Principal.

PRECISION, PRÆCISIO, in the Schools, the ſame with *Abſtraction*. See ABSTRACTION.

PRECONISATION, a Propoſition or Declaration, which the Cardinal Patron makes in the Conſiſtory at *Rome*, of a Perſon nominated by ſome Prince to a Prelature; by virtue of Letters, whereof he is the Bearer: which the Pope complying with, gives his Collation.

The Date of the Bulls is diſpatch'd on the ſame Day with the *Preconiſation*.

PRECONTRACT, a Contract made before, or prior to another; chiefly uſed in relation to Marriages. See CONTRACT.

PRECURSOR, PRÆCURSOR, *Fore-runner*, in Theology, a Perſon who goes before any one to notify his coming.

The Term is peculiarly apply'd to St. *John Baptiſt*, who is ſtiled the *Precurſor* of Jeſus Chriſt, from what is ſaid of him by St. *Luke*, *Thou, Child, ſhalt* go before *the face of the Lord, to prepare his way.*

PREDECESSOR, a Perſon who has preceded another in the ſame Office, or Employ.

PREDESTINARIAN, a Perſon who adheres to the Doctrine of abſolute Predeſtination. See PREDESTINATION.

St. *Auguſtin* is look'd on as the Founder of the Sect of *Predeſtinarians*; he being the firſt of the Fathers that ſeems to have aſſerted the Doctrine in ſuch expreſs Terms; tho' the Janſeniſts and Jeſuits are ſtill greatly divided about the real Doctrine of St. *Auguſtin*, in this Article; each interpreting him conſiſtently with their own Scheme. See JANSENIST, &c.

Father *Sirmond* contends for an antient Sect of *Predeſtinarians*, cotemporary with St. *Auguſtin* himſelf, and who had their Riſe in *Africa*, in the Monaſtery of *Aſdrumet*; from a Miſunderſtanding of St. *Auguſtine*'s Doctrine. 'Tis added, that the Opinion ſpread thence throughout the *Gauls*; where one of them, a Prieſt named *Lucidus*, was condemn'd by *Fauſtus* Biſhop of *Rhegio*; and his Sentence confirm'd by two Councils.

The Doctrine was again broach'd in the ninth Century by *Godeſchalchus* a *Benedictine*; who, as *Hincmar* in a Letter to Pope *Nicholas*, ſays, maintain'd with the antient *Predeſtinarians* who had been already anathematized, that God predeſtinated ſome to eternal Life, and others to eternal Death; that God did not will all People to be ſaved; that Jeſus Chriſt did not die for all, but only the Elect or thoſe that are ſaved, &c. See GRACE, &c.

This Doctrine was again condemn'd in a Synod held at *Mentz*: But the *Janſeniſts*, particularly the Friends of Meſſ. *de Port-Royal*, and among the reſt, the Preſident *Manquin*, have refuted F. *Sirmond*; and ſhewn, that the Hereſy of the *Predeſtinarians* is a mere Chimæra; adding, that S. *Fulgentius*, S. *Proſper*, and the other Diſciples of S. *Auguſtin*, only look'd on it as an imaginary Hereſy, invented by the Enemies of S. *Auguſtine*'s Doctrine, to traduce it. In effect, the chief Evidence Father *Sirmond* produces to the contrary, is the Prieſts of *Marſeilles*, who are ſuſpected of *Semi-Pelagianiſm*. See SEMI-PELAGIAN.

PREDESTINATION, in Theology, a Judgment, or Decree of God, whereby he has reſolved, from all Eternity, to ſave a certain Number of Perſons, hence named *Elect*. See ELECT.

Other Divines define *Predeſtination*, a Decree to give Faith in Jeſus Chriſt, to a certain Number of Men; and to leave the reſt to their own Malice, and Hardneſs of Heart. See DECREE.

The Remonſtrants define it more laxly, and generally, the Decree of ſaving Believers, and damning Unbelievers. See REMONSTRANTS.

The Difficulties wherewith the modern Theology is clogg'd, turn on the Article of *Predeſtination*; both the *Romiſh* and Reformed Churches are divided about it: The *Lutherans* ſpeak of it with Horrour; the *Calviniſts* contend for it with the greateſt Zeal; the *Moliniſts* and *Jeſuits* preach it down as a moſt dangerous Doctrine; the *Janſeniſts* aſſert it as an Article of Faith: The *Arminians*, *Remonſtrants*, and *Pelagians*, are all avowed Enemies of *Predeſtination*. See ARMINIAN, JANSENIST, MOLINIST, JESUIT, PELAGIAN, &c.

Thoſe ſtrenuous Patrons of *Janſeniſm*, the *Port-Royaliſts*, teach, that God predeſtinates thoſe who he foreſees will co-operate with his Grace to the End. *Du Pin* adds, that Men don't fall into Sin, becauſe not predeſtinated; but they are not predeſtinated, becauſe God foreſaw their Sins. See ELECTION, REPROBATION, &c.

PREDESTINATION, is alſo uſed for a Concatenation of ſecond Cauſes, appointed by Providence; in virtue whereof, things are brought to paſs by a fatal Neceſſity; contrary to all appearances, and maugre all oppoſition. See FATE and DESTINY.

The *Turks* are great *Predeſtinarians*; they eſteem the lighteſt Accident predetermin'd; and on this account, are much more daring in Battel, and run greater riſques of their Lives, than they would otherwiſe do. See MAHOMETANS.

PREDETERMINATION, in Philoſophy and Theology. The Schoolmen call that Concurrence of God, which makes Men act, and determines them in all their Actions, both Good and Evil, *Phyſical Predetermination*, or *Premotion*. See PREMOTION.

Divines hold, that God has no part in Sin; inaſmuch as he only affords his Concurrence to the *phyſical* part of human Actions, not to the *moral* part. See LIBERTY and NECESSITY.

Phyſical Determination, or *Premotion*, if there be any ſuch thing, is that Action of God, whereby he excites a ſecond Cauſe to act; or by which, antecedently to all Operation of the Creature, or before it could operate in conſequence either of the Order of Nature or Reaſon, he really and effectually moves, and occaſions it to produce all its Actions: that is, whatever the Creature does, or acts, is really done, and acted, by the Agency of God on the Creature, who is all the time paſſive. So that without ſuch *Predetermination* of God, all Creatures muſt remain in an eternal State of Inactivity; and with ſuch *Predetermination*, it is impoſſible but they ſhould do what they are thus put upon doing.

'Tis ſtrongly controverted, whether or no ſuch a *Phyſical Predetermination* be neceſſary to the Action of Natural Cauſes. The *Scotiſts* maintain the Negative; urging, that all Natural Cauſes are, of their own Nature, determin'd to a certain Action; whence it ſhould ſeem needleſs to call in a new *Predetermination* of God, *e.gr.* to Fire, to make it warm the hand. For if an Object be, by the Courſe of Divine Providence, apply'd to Fire; what need a ſecond Application of the Fire, to make it warm the Object apply'd thereto? ſince Beings are not to be multiply'd unneceſſarily. See CAUSE.

And ſuch *Predetermination* ſome Philoſophers hold ſtill leſs requiſite to produce the Acts of the Will: At leaſt, ſay they, the human Mind muſt be allow'd the common Power and Privilege of a ſecond Cauſe; and therefore be entitled to produce its own Acts, as well as other ſtrictly natural Agents.

The *Thomiſts*, on the other hand, ſtand up ſtrenuouſly for the *Phyſical Predetermination*: One of their principal Arguments is drawn from the Subordination of ſecond Cauſes to the firſt. Where there are ſeveral ſubordinate Agents, ſay they, the lower Agents do not act, unleſs firſt moved and determined thereto by the firſt; this being the very Eſſence of Subordination.

Again, the like they argue from the Dominion of God over all his Creatures: 'Tis of the Eſſence of Dominion, ſay they, to apply and direct Things ſubject thereto, to its own Operations; and this, if the Dominion be only moral, morally; but if it be alſo phyſical, phyſically. And that this is the Caſe in reſpect of God, and his Creatures, is confeſs'd. See GOD.

PREDIAL *Tithes*, are Tithes paid of Things, which grow from the Ground only; as *Corn*, *Hay*, *Fruit*, &c. See TITHES.

PREDICABLE, PREDICABILE, in Logic, a general Quality, or an Epither which may be *predicated* of, or applied to ſeveral Subjects. Thus Animal is *predicable* both of Man and Beaſt: Man is *predicable* of *Peter*, and *James*: Triangle is *predicable* of an hundred different Kinds of Figures; as right Angles, Scalenes, Iſoſceles's, &c. See PREDICATE.

The Schoolmen reduce the *Predicables* to five *Claſſes*, viz. *Genus*, *Species*, *Proprium*, *Differentia*, and *Accidens*; under one or other of which, all that can be *predicated* of any Subject, is included. See GENUS, SPECIES, PROPRIUM, &c.

A *Predicable* is alſo call'd an *Univerſale Logicum*, as having reſpect to other particular, and interior, or ſubject Things: Thus Animal is an *Univerſal*, with regard to Man and Beaſt.

'Tis call'd a *Logical Univerſal*, to diſtinguiſh it from a *Metaphyſical* one; which is a common Being, conſider'd in itſelf, and therefore denominated univerſal *in Eſſendo*; whereas the Logical one is only univerſal as to our Conception and Application. See UNIVERSAL.

Among the Schoolmen, *Predicable* is uſually defined *unum, aptum Prædicari de multis, univoce, & diviſim*; or, ſomewhat more clearly, a *Predicable* is a Nature which may be predicated univocally of all things to which it is common; and which, as it is dividually multiply'd in all its Subordinates, may be aptly predicated of them all.

Thus, when the Appellation of *Virtue* is attributed to Juſtice, Prudence, Temperance, Fortitude, Charity, &c. the ſame Reaſon may be given why each is diſtinguiſh'd by ſuch Name; as being all founded in a Mediocrity, and being agreeable to right Reaſon, which is the Character of Virtue.

Hence, if there be ſeveral things call'd by ſome common Name; but the Reaſon of ſuch Name is not the ſame in all, but different; theſe do not come under the Number of *Predicables*. As in the Inſtance, *Canis*, Dog, which is both apply'd to a Domeſtic Animal, diſtinguiſh'd by its barking; to a Conſtellation of the Heavens; and to a Sea-Fiſh.

The way by which the Mind comes to form ſuch *Predicables*, or Univerſals, is thus: Among thoſe things which fall under our Obſervation, we find ſome Characters and Properties common to ſeveral; and others peculiar to each: What we find common, we conſider a-part; and thus form an Univerſal equally applicable to all. See GENERAL.

PREDICABLY, PREDICABILITER, is uſed in the Schools in oppoſition to *predicamentally*. Thus, Matter is ſaid to be united to Form *predicably*, or *per accidens*; to exclude the Notion of a predicamental Accident.

PREDICAMENT, PRÆDICAMENTUM, in Logic, a Claſs, or Order of Beings, or Subſtances rang'd according to their Natures; call'd alſo *Category*, or rather *Categorema*. See CATEGORY.

The Word *Prædicamentum* was firſt introduced by *Boethius*, in lieu of the *Greek Categoria*; and is uſed among the School-Writers with a good deal of Latitude and Variety: For it either ſignifies the Act of *predicating*; or, a common *Predicate* itſelf; or, the Genus or Baſis of any Category; or, the Collection of ſeveral common Predicates diſpoſed in a certain Order. Which laſt is its moſt uſual Acceptation.

Hence ſome define it a Series of Predicates drawn from the Genus, or higheſt Term, thro' all the inferior Genera, and Species. Thus, a Series of *Subſtance* drawn from *Subſtance* thro' *Body*, *Living*, *Animal*, *Man*, to *Peter*, is called the *Predicament* of Subſtance.

But the uſual Definition of *Predicament* among Logicians, is, That it is a natural Order, or Scheme, of ſome moſt general or univerſal Thing, and all that is contain'd under the ſame, that is, all the ſubordinate Genera, Species, and Individuals.

The Properties of a *Predicament*, *ex parte vocis*, *i.e.* of the Term, or Word whereby the *Predicament* or *predicamental* Series is denoted, the Logicians hold, are, that it be *one*, *ſimple*, *preciſe*, and *concinnous*.

Vox una, & ſimplex, rebus concinna locandis.

The Conditions requiſite *ex parte rei*, or of the Thing to be ranged in a *Predicament*, are contain'd in the following Verſe:

Entia per ſeſe, Finita, Realia, tota.

i.e. it muſt be a *poſitive Being*, in excluſion of Non-Entities, Negations, Privations, Impoſſibilities, &c. and a Being *per ſe*, to exclude accidental Things, factitious Things, &c. And *finite*, that is, of a limited Nature and Extent, to exclude God and other Tranſcendentals: *Real*, ſince its In-

Intention is for the better and more commodious diſpoſing of Things in their places to be the more diſtinctly known and conceiv'd; and *whole*, or compleat, as not being in the relation of a component Part, or as only acceſſary to ſome other.

PREDICATE, PRÆDICATUM, in Logic, that part of a Propoſition which affirms or denies ſomething of the Subject. See PROPOSITION.

Thus, in God made the World; *made the World*, is the *Predicate*; *God*, the Subject. See SUBJECT.

A *Predicate*, ſay the Schoolmen, is properly a Name *predicated*, or ſpoke, of another, as its Subject. As *Man*, in the Propoſition *Peter* is a Man.

It is a celebrated Rule or Law of *Predicates*, That nothing is eſteem'd to be abſolutely ſpoke or affirm'd of another, unleſs it be affirm'd thereof in ſuch manner, or by ſuch an Affirmation, as wants nothing either in the Subject, *Predicate*, or *Copula*, to make it true.

This alſo is a noted Property of a *Predicate*, That it contains, in ſome meaſure, its own Subject. Thus Metal contains Gold, Copper, Iron, *&c.* of which it is predicated.

The Word *Predicate* is ſometimes uſed indifferently with *Attribute*; but the more accurate Writers make a diſtinction. Every *Predicate* is indeed an Attribute, ſince whatever is predicated of a Thing, is attributed to it: So, if Animated be *predicated* of Man, it is alſo attributed to him. But every Attribute is not a *Predicate*: Thus Soul, Learning, *&c.* are attributed to Man, but not *predicated* of him. See ATTRIBUTE.

PREDICATING, in Logic, is properly the Act of affirming or denying ſomewhat of ſomething: As, Man is not a Stone, Body is Subſtance. The Thing thus predicated, is call'd *Predicate*. See PREDICATE.

In the Doctrine of Univerſals, or Predicables, to *predicate* is to ſpeak or declare a Thing truly, directly, and affirmatively. Thus Man is *predicated* of ſeveral, *i. e.* it is truly, and directly affirm'd that theſe ſeveral are Men; as when I ſay, *Socrates* is Man, *Plato* is Man, *Ariſtotle* is Man, *&c.* See PREDICABLE.

The Things *predicated* of others, are reducible to three Claſſes. *Genera*, as Animal, of Man, *&c.* *Forms*, as Whiteneſs, of a Swan, *&c.* and *Equals*, of Things of equal Extent, as Species, Difference, Proprium, *&c.*

The Schoolmen diſtinguiſh ſeveral ways of *Predicating*; as, 1°. *In quod tantum*, which is to *predicate* eſſentially, both as to the thing and the manner; as Juſtice is a Virtue. 2°. *In quale tantum*, which is to *predicate* accidentally, both as to the thing and the manner; as *Peter is Learned*. And, 3°. *In quale quid*, or *in quale poſt quid*, which is to *predicate* both eſſentially and accidentally; as *Man is rational*.

PREDICTION, PRÆDICTIO, Divination, Prophecy, or Foretelling of what is to come; either by divine Revelation, by Art and human Invention, or by Conjecture. See DIVINATION, REVELATION, *&c.*

Divines labour hard to make the *Predictions* in the Old Teſtament tally with the Events, in the New. See PROPHECY.

The *Predictions* of Oracles were all dark and ambiguous. See ORACLE.

PREDOMINANT, *Reigning*, that which prevails, appears moſt, or has ſome Superiority, or Aſcendance over another thing.

Thus we ſay, Bitterneſs is the *predominant* Quality among Taſtes, or that which is moſt perceiv'd. 'Tis a Rule, that Sugar never *predominate* in Confections, nor Pepper in Ragouſts.

PRE-EXISTENCE, the State of a thing actually in being before another. See EXISTENCE.

The antient *Pythagoreans* and *Platoniſts* all aſſerted the *Pre-exiſtence* of human Souls, *i. e.* that they were in being before their being join'd to our Bodies. See METEMPSYCHOSIS and TRANSMIGRATION.

Origen held the eternal *Pre-exiſtence* of Souls. See SOUL.

We believe that God created the World out of nothing; and not of *pre-exiſtent* Matter. See CREATION.

Some Perſons have held Mankind *pre-exiſtent* to *Adam*. See PRE-ADAMITE.

PREFACE, PRÆFATIO, a Note, or Advertiſement in the beginning of a Book, to inform the Reader of the Order, Diſpoſition, *&c.* obſerved therein; of what is neceſſary to receive its full effect; and facilitate the underſtanding thereof.

The Word is form'd from the *Latin*, *præ* and *fari*, q. d. to ſpeak before.

There is no part of Writing that requires more Art, or that fewer Authors ſucceed in, than *Prefaces*. *Prefacing* is, in effect, a particular Species of Writing, and has its Character and Taſte to diſtinguiſh it from all others. It is neither Argumentation, Diſcourſe, Narration, nor Apology.

The *Romaniſts* call that part of their Maſs which precedes the Conſecration, and which is to be rehearſed in a peculiar Tone, *Preface*. See MASS.

The Uſe of *Prefaces* in the Church, they contend, is very antient; and conjecture, from ſome paſſages of St. *Cyrian*, &c. that it was in uſe in the times of the Apoſtles.

The *Preface* to the Maſs antiently had, and ſtill has, very different Names in different Churches. In the *Gothic*, or *Gallican* Rite, it is call'd *Immolation*; in the *Mozarambic* Rite, *Illation*; antiently among the *French*, it was call'd *Conteſtation*; in the *Roman* Church, alone, it is call'd *Preface*.

PREFECT, PRÆFECTUS, in antient *Rome*, one of their chief Magiſtrates, who govern'd in the Abſence of their Kings, Conſuls, and Emperors.

His Power was ſomewhat different at different times; but was always greateſt under the Emperors. His principal Care was the Government and Adminiſtration of the City of *Rome*.

He took cognizance of all Crimes committed in the City, or within an hundred Miles thereof. He judged capitally and finally, no Appeal lying from him; and even by the 62d Novel, he preſided in the Senate; taking place before all the *Patricii* and *Conſulares*, &c.

He had the Superintendance of the Proviſions, Policy, Buildings, and Navigation. There is ſtill a *Prefect* of *Rome*, who is a kind of Governour; differing little from the antient *Prefect*, except that his Authority only extends to 40 Miles without *Rome*.

PREFECT *of the Pretorium*, PRÆFECTUS *Prætorii*, was the Chief, or Leader of the *Pretorian* Bands or Cohorts, deſtined for the Emperor's Guard. See PRETORIAN.

The *Pretorian* Legion, according to *Dion*, conſiſted of ten thouſand Men. *Suetonius* refers the Inſtitution of *Præfectus Prætorii* to *Auguſtus*. 'Tis added, that he was uſually taken from among the *Roman* Knights.

By the Favour of the Emperors, his Authority grew very conſiderably; inſomuch that he became the Arbiter and ſupreme Judge of all Affairs.

To reduce this extravagant Authority, *Conſtantine* divided the *Prefecture* of the *Pretorium* into four *Prefectures*; and each of theſe he again ſubdivided into Civil and Military; tho' the Name was only reſerved to him who was inveſted with the Civil Authority; and that of *Comes Belli* given him who had the Command of the Cohorts. See COUNT.

Thus the Office of *Prefect of the Pretorium*, which, in its Origin, and till the time of *Conſtantine*, was Military, and ſucceeded to that of *Magiſter Equitum*; now commenced a purely Civil Magiſtrature; and at length became the prime Dignity of the Empire.

The ſucceeding Emperors following *Conſtantine*'s Diviſion, divided the Empire into four *Prefectures Prætorii*, as into four Dioceſes; *viz.* the *Gauls*, *Illyria*, *Italy*, and the *Eaſt*. See DIOCESE.

The Provinces whereof theſe Dioceſes conſiſted, had their particular Governours; at the Head of whom was the *Prefect*, who, tho' he had not the Command of Arms, yet had the Power of the Sword; decided ultimately of all Affairs, and had all the Marks and Honours of Sovereignty.

Juſtinian created a fifth *Prefect of the Pretorium* for the Government of *Egypt*, which had been torn off from the Dioceſe of the Eaſt, by the Invaſion of the *Vandals*, during the Empire of that Prince.

Under *Auguſtus*, the Officer ſent to govern *Egypt* with a proconſular Authority, was call'd *Præfectus Auguſtalis*.

PRE-EMPTION, a Privilege antiently allow'd the King's Purveyor, of having the Choice, and *firſt buying* of Corn, and other Proviſions for the King's Houſe; but taken away by the *Stat.* 19 *Car.* 2. See POURVEYOR.

PREENING, in Natural Hiſtory, the Action of Birds cleaning, compoſing, and dreſſing their Feathers, to enable 'em to glide more eaſily thro' the Air. See FEATHER.

For their uſe herein, Nature has given 'em an admirable piece of Furniture; *viz.* two peculiar Glands which ſecrete an unctuous Matter into an Oil-bag, perforated; out of which the Bird, on occaſion, draws it with its Bill. See OIL-*bag*.

PREGNANCY, the State of a Woman when ſhe has conceiv'd, or is with Child. See CONCEPTION.

The ſame State with a View to the bearing of the Child in the Womb, is call'd *Geſtation*. See GESTATION.

Hence alſo the Act of *Impregnating*. See GENERATION, FLOWER, SEED, *&c.*

PREJUDICE, PREJUDICIUM, a falſe Notion, or Opinion of any thing, conceiv'd without a due previous Examination thereof. See FALSHOOD, OPINION, *&c.*

Prejudice, *q. d.* Pre-judgment, does not import a Judgment merely as prior to another in reſpect of Time, but as being prior thereto in reſpect of Knowledge, or of ſufficient Attention to the thing; the Prepoſition *præ* expreſſing an Anticipation, not ſo much of Time, as of Knowledge, and due Attention. See ERROR.

Hence *Prejudice* is alſo call'd among the Schoolmen *Anticipatio & præventa Cognitio*, a pre-conceiv'd Opinion, *&c.* See JUDGMENT, TRUTH, FALLACY, SENSE, *&c.*

PRELATE, an Eccleſiaſtical Superior, conſtituted in ſome eminent and ſuperior Dignity of the Church. See DIGNITARY.

Patriarchs, Primates, Archbiſhops, Biſhops, Generals of Religious Orders, certain Croſier'd and Mitred Abbots, and even Deans and Archdeacons are ranked among the Number of *Prelates*.

The Word comes from the *Latin*, *Prælatus*, of *præ* and *fero*.

PRELATE *of the Garter*, is the firſt Officer of that Noble Order, and antient as the Inſtitution itſelf. See GARTER.

William de Edynton, then Biſhop of *Wincheſter*, was the firſt *Prelate* at the erection of the Order; and it has been continued in that See ever ſince.

'Tis an Office of great Honour, but has neither Salary nor Fees; only a convenient Lodging allow'd in *Windſor*-Caſtle, and as oft as the *Prelate* comes thither (by the Sovereign's Command) he is to have Court-Livery allow'd for himſelf and Servants.

PRELIMINARY, ſomething to be examined, diſpatch'd, or determined, e'er an Affair can be decided, or treated of thoroughly, and to purpoſe.

Preliminaries of Peace take up the greateſt part of Treaties. They conſiſt in examining of Powers, Qualities of Princes, Ranks of Ambaſſadors, *&c.*

The Word is form'd from the *Latin*, *præ*, and *limen*, Threſhold.

PRELUDE, in Muſic, a *Flouriſh*, or an irregular Air which the Muſician plays off-hand, to ſee if his Inſtrument be in Tune; and to lead him into the piece to be play'd.

PREMISSES, PREMISSES, PRÆMISSÆ, in Logic, the two firſt Propoſitions of a Syllogiſm. See SYLLOGISM.

When a Syllogiſm is in form; the two *Premiſes* being granted, the Concluſion cannot be deny'd. See CONCLUSION.

The *Premiſes*, ſays *Chauvin*, are properly the parts of the Antecedent of an Argument, when complex; and are call'd *Præmiſſæ*, becauſe premiſed to the Concluſion. See ANTECEDENT, *&c.*

Thus in the Argument, Every Man is an Animal, *Peter* is a Man, therefore *Peter* is an Animal; the Propoſitions, Every Man, *&c.* and *Peter*, &c. are the *Premiſes*. See PROPOSITION.

Premiſes are the Principles of our Reaſonings; as being clear, evident, and demonſtrative Propoſitions, from the relations whereof to one another, we draw or infer new Truths, Propoſitions, *&c.* See REASONING, PRINCIPLE, MAXIM, *&c.*

The *Premiſes* are either *equal*, where neither ſuffices alone for the drawing a Concluſion, as in the Inſtance above: or *unequal*, the one *major*, greater, from which alone the Concluſion is drawn; the other *minor*, or leſs, which only ſerves in applying the Antecedent to the Conſequent. See CONSEQUENT.

In the common Practice of the Schools, however, every Syllogiſm, or formal Argument, of what kind ſoever, is ſaid to have a Major and a Minor; how equal ſoever the *Premiſes* may be. See MAJOR and MINOR.

PREMISES, in Law, the Lands, *&c.* before mentioned in a Leaſe, Conveyance, or the like.

PREMONSTRANTES, or PREMONSTRATENSES, a Religious Order of Regular Canons inſtituted in 1120. by *S. Norbert*; and thence alſo call'd *Norbertines*.

The firſt Monaſtery of this Order was built by *Norbert* in the Iſle of *France*, three Leagues to the Weſt of *Laon*; and by him call'd *Premonſtre*, *Premonſtratum*, whence the Order itſelf was denominated; tho' as to the occaſion of that Name, the Writers of that Order are divided.

The Order was approved by *Honorius* II. in 1126. and again by ſeveral ſucceeding Popes. At firſt the Abſtinence from Fleſh was rigidly obſerved; in 1245, *Innocent* IV. complain'd of its being neglected, to a general Chapter; in 1288, their General, *William*, procured leave of Pope *Nicholas* IV. for thoſe of the Order to eat Fleſh on Journies. In 1460, *Pius* II. granted 'em a general Permiſſion to eat Meat, excepting from *Septuageſima* to Eaſter.

The Religious of this Order are clothed in white, with a Scapulary before the Caſſock Out of Doors, they wear a white Cloak and white Hat; within, a little Camail, and at Church a Surplice, *&c.*

In the firſt Monaſteries built by *Norbert*, there were one for Men, and another for Women, only ſeparated by a Wall. In 1137, by a Decree of a General Chapter, this Practice was prohibited, and the Women removed out of thoſe already built, to a greater diſtance from thoſe of the Men.

PREMOTION, in the Schools, the Action of God co-operating with the Creature, and determining him to act. See PREDETERMINATION.

Phyſical Premotion, according to *Alvarez*, *Lemos*, &c. is a Complement of the active Power, whereby it paſſes from the firſt Act to the ſecond; *i. e.* from a compleat, and next Power, to the Action. 'Tis an Influence or participation of the Virtue of the firſt Cauſe which makes the ſecond Cauſe actually active. See CAUSE.

PREMUNIENTES, in Law, Writs diſpatch'd to each Biſhop to call 'em to Parliament, and warning them to bring with them the Deans, and Archdeacons, one Proctor for each Chapter, and two for the Clergy of his Dioceſs. See CONVOCATION.

PREMUNIRE, *Præmunire*, a Term uſed both for an Offence; for a Writ granted thereupon; and for the Puniſhment thereof.

Theſe will all be underſtood from one: Antiently, then, the Church of *Rome*, on pretence of her Supremacy and the Dignity of St. *Peter*'s Chair, took upon her the diſpoſal of moſt of the Biſhopricks, Abbies, and other Eccleſiaſtical Benefices of Worth, by Mandates, or Bulls call'd *Expectative Graces*, and *Proviſiones*, before they became void. See PROVISION and EXPECTATIVE.

Edward III. not brooking ſo intolerable an Incroachment, made ſeveral Statutes againſt thoſe who drew the King's People out of the Realm, to anſwer to things properly belonging to the King's Court; and another to reſtrain the Privilege of the Pope.

The Pontiff, however, ſtill perſiſted in his Preventions; and the flux of People from *England* to *Rome*, to ſue for them, was as great as ever.

This occaſion'd *Richard* II. to make ſeveral Statutes of the like Import with thoſe of *Edward* III. particularly one, where he aſſign'd their Puniſhment to be this; *That they ſhould be out of the King's Protection, attach'd by their Bodies*, i.e. *impriſon'd during Life; and loſe their Lands, Goods, and Chattels*; which is ſince call'd the *Penalty of a Premunire*.

Henry IV. made new Statutes againſt other Abuſes of this kind, not fully obviated in thoſe of his Predeceſſors; adding certain new Caſes, and laying on 'em the ſame Penalty.

By later Statutes, the ſame Penalty is laid on ſome other Offenders; as, *e. gr.* by that 1 *Eliz.* on him who denies the King's Supremacy a ſecond time. By 13 *Eliz.* on thoſe who aſſert the Pope's Authority, or refuſe the Oath of Supremacy; on ſeditious Talkers of the Inheritance of the Crown; and ſuch as affirm the King or Queen to be a Heretic. And by Statute 13 *Car* 2. on thoſe who affirm that the Parliament begun *November* 1640, is not yet diſſolved; or that there is any Obligation in an Oath or Covenant, *&c.* to endeavour a Change of Government either in Church or State; or that the Houſes of Parliament have a legiſlative Authority without the King.

The Word *Premunire* is now chiefly uſed for the Puniſhment appointed by the Statutes above-mentioned: Thus when 'tis ſaid, a Man for an Offence, *ſhall incur a Premunire*, 'tis meant he ſhall incur the Penalty appointed by the Statute 16 *Rich.* 2. commonly call'd the *Statute of Premunire*.

The Word is a Corruption of the *Latin*, *Præmonere*, q. d. to forewarn, or bid the Offender take care; of which a Reaſon may be drawn from the Words of the Statute 27 *Edw.* 3. and the Form of the Writ, *Præmunire facias prefatum præpoſitum, & J. R. procuratorem, &c. quod tunc ſint coram nobis.*

PRENDER, in Law, (from the *French*, *prendre*, to take) a Power or Right of taking a thing before it is offer'd. *It lies in* Render, *but not in* Prender. *Coke*'s *Rep.* 1 *part.* Sir *John Peter*'s Caſe.

PRENDER *de Baron* is an Exception to diſable a Woman from purſuing an Appeal of Murther againſt the Killer of her former Husband; taken from her having married a ſecond. See APPEAL.

PRENOTION, *Prænotio*, or *Præcognitio*, a Notice, or piece of Knowledge preceding ſome other, in reſpect of time. Such is the Knowledge of the Antecedent; which muſt precede that of the Concluſion. See NOTION, KNOWLEDGE, *&c.*

PREPARATION, *Præparatio*, or *Apparatus*, in Mathematics, one of the Parts or Branches of a Demonſtration. See DEMONSTRATION.

If it be a Propoſition in Geometry, the *Preparation* conſiſts in ſome Lines to be drawn in the Figure; if a Propoſition in Arithmetic, in ſome computation to be made to come the more eaſily at the Demonſtration.

PREPARATION, in Chymiſtry and Pharmacy, is uſed for the ſeveral Manners of managing the *Materia Medica*, and of diſpoſing it to ſerve the ſeveral purpoſes.

There are various *Preparations* of Mercury, Antimony, and other Drugs to purify 'em, ſublime, calcine, edulcorate 'em, *&c.* See MERCURY, *&c.*

Crude Antimony is uſed in ſudorific Decoctions; tho', when it has undergone a certain *Preparation*, it becomes a violent Vomitive. See ANTIMONY.

PREPOSITION, in Grammar, one of the parts of Speech, or Diſcourſe. See SPEECH.

The *Prepoſition* is an indeclinable Particle, which yet ſerves to govern the Nouns that follow it. Such are *per, pro, propter*, in, with, thro, from, by, *&c.*

They are call'd *Prepoſitions*, becauſe *præpoſitæ*, placed before the Nouns they govern.

F. *Buffier* does not allow the *Prepoſition* to be a Part of Speech; but merely a Modificative of a Part of Speech, *viz.* of the Noun, ſerving only to modify or circumſtantiate it. See MODIFICATIVE.

PREPENSED, in Law, *Fore-thought*. In this ſenſe we ſay *prepenſed Malice*.

If, when a Man is ſlain upon a ſudden Quarrel, there were Malice *prepenſed* formerly between them, it makes it Murder; and, as it is call'd in ſome Statutes, *prepenſed Murder*. See MURDER.

PREPUCE, *Præputium*, in Anatomy, the Fore-Skin; ſee PRÆPUTIUM.

PREROGATIVE, a Privilege, or Pre-eminence, which a Perſon has over another.

The Word is borrowed from the Name of a Century in antient *Rome*, which gave the firſt Vote, or Suffrage in the *Comitia*, or Aſſemblies, for the Election of Magiſtrates; *quaſi* Prærogati; becauſe firſt aſk'd, or their Suffrage firſt required. See SUFFRAGE and CENTURY.

Their Vote was call'd *Omen Prærogativum*, becauſe the reſt uſually gave their Votes the ſame way. See OMEN.

PREROGATIVE *of the King*, is that Power and Privilege which the King hath over, not only other Perſons, but over the ordinary Courſe of the Common Law, in Right of his Crown.

Such are theſe, That the King may pardon a Perſon condemn'd to die: That the King's Perſon is ſubject to no Man's Suit: His Poſſeſſions cannot be taken from him by any Violence, or wrongful Diſſeiſin: His Goods and Chattels are ſubject to no Tribute, Toll, or Cuſtom, nor diſtrainable, *&c.* See KING.

PREROGATIVE *Court*, is a Court belonging to the Archbiſhop of *Canterbury*, wherein all Wills are proved, and all Adminiſtrations granted, that belong to the Archbiſhop by his *Prerogative*; that is, where the Party at his death had five Pounds or upwards in the Dioceſe, or ten Pounds out of the Dioceſe where he died. See COURT.

The Archbiſhop of *York* hath alſo the like Court call'd, his *Exchequer*.

All Citations and Decrees of this Court run in the Name of the Archbiſhop. See ARCHBISHOP.

This Court, for the Province of *Canterbury*, is kept in the common Hall in Doctor's Commons, in the Afternoon, next day after the Arches.

The Judge is attended by the Regiſter, who ſets down the Decrees and Acts of Court; and keeps, records, *&c.* all original Wills and Teſtaments of Parties dying, having *bona notabilia*.

The Place is uſually call'd the *Prerogative Office*, now kept in *Dean's Court*; where, for a moderate Fee, one may have a Copy of any ſuch Will. See WILL.

PRESAGE, PRÆSAGIUM, an Augury, or Sign of ſomething to come. See AUGURY.

The *Romans* judged of future Events by certain Signs, which their Superſtition, or the Artifice of their Prieſts had invented. Their moſt celebrated *Preſages* were founded on the Flight of Birds, or the Entrails of Victims: All Night-Birds paſs'd for Birds of ill *Preſage*. See VICTIM, *&c.*

'Tis a popular Error, that Comets *preſage* Misfortunes. See COMET.

Cloſe Weather, and a Southern Wind, *preſage* Rain. See WEATHER, *&c.*

PRESBYTER, a *Prieſt*; or a Perſon in Prieſts Orders. See PRIEST.

He is thus call'd from the *Greek* πρεσβυτερος, *Elder*, of πρεσβὺς, *Old*; becauſe, antiently, none were ordained but ſuch as were advanced in Years.

The great Diſpute between the Retainers to the *Geneva*, and the *Roman* Diſcipline, is about the Sameneſs or Difference of *Presbyters* and Biſhops, in the Times of the Apoſtles. The *Presbyteral* Character is indelible.

PRESBYTERIANS, a Name aſſumed by the *Calviniſts* of *Great Britain*. See CALVINIST.

The *Presbyterians*, as to Doctrine agree with the Church of *England*: Their chief Difference lies in the Point of Diſcipline; *viz.* who ſhall appoint the Governours of the Church, and what Subordination there ſhall or ſhall not be between them. See DISCIPLINE.

The *Presbyterians* allow of no Hierarchy; no Subordination in the Perſons of their Miniſters: Biſhops and Prieſts, they maintain, in the Times of the Apoſtles were the ſame; and, therefore, tho' they allow Epiſcopacy as now ſettled in the Church of *England* to be very antient, yet they deny it to be *jure divino*. See BISHOP and EPISCOPACY.

In lieu of a Series of Miniſters one over another, in Quality of *Prieſts, Biſhops*, and *Archbiſhops*, their Polity conſiſts in a Series of Aſſemblies, or Synods: Thus every Miniſter is to be obedient to the *Claſs* under which he lives; and that Claſs to a *Synod, Provincial, Claſſical*, or *Oecumenical*. See CLASS, SYNOD, *&c.*

The Power of Ordination, with them, reſides in a Claſs; and none are admitted to adminiſter the Sacrament, but thoſe ordained by the Impoſition of Hands of other Miniſters.

They make uſe of Deacons to take Care of their Poor, and in the Government of the Church, call in Lay-Elders; whence their Name, from the *Greek* πρεσβύτερος, ſignifying Senior, *Elder*. See ELDER.

This is now the reigning Diſcipline in the Church of *Scotland*; as it was, during the Inter-regnum, in *England*.

PRESBYTERY, *Presbyterium*, an Aſſembly of the Order of Presbyters, or Prieſts, with Lay-Elders; for the Exerciſe of Church-Diſcipline.

The Kirk or Church of *Scotland* is divided into ſixty-nine *Presbyteries*, each conſiſting of a number of Pariſhes, not exceeding twenty-four, nor leſs than twelve.

The Miniſters of theſe Pariſhes, with one Ruling-Elder choſen half-yearly, conſtitute a *Presbytery*; who, meeting in their chief Town whence the *Presbytery* is denominated, chuſe a Moderator, or rather Prolocutor, half-yearly.

They determine all Appeals from Kirk-Seſſions, *i. e.* from the ſeveral Parochial-Aſſemblies; but can try nothing at the firſt Inſtance cognizable before a Kirk-Seſſion. See KIRK-*Seſſion*.

They compoſe all Differences between Miniſters and People; for which end they hold *Presbyterial* Viſitations in each Pariſh, where they examine the Regiſters of the Kirk-Seſſions, *&c.*

They enquire into Repairs of Churches, ſee that the Glebe, *&c.* ſuffer no Dilapidations; appoint Schools in the Pariſhes, and ſee that the Funds ben't miſapply'd.

'Tis they alone can exclude from the Communion, licenſe Probationers, ſuſpend, depoſe, and, in effect, determine all Eccleſiaſtical Matters within their Diſtrict. From the *Presbytery* there lies an Appeal in all Caſes to Provincial Synods. See SYNOD.

PRESBYTERY, *Presbyterium*, is ſometimes alſo uſed for the Choir of a Church, becauſe antiently appropriated to the Presbyters; in oppoſition to the Nave or Body of the Church, which was for the People. See CHOIR and CHURCH.

PRESBYTÆ, in Optics, a Term apply'd to Perſons in whom the Configuration of the Cryſtalline of the Eye is too flat, ſo that they ſee diſtant things clearly, but thoſe near at hand confuſedly. See VISION.

The Reaſon is, that, in near Objects, the viſual Rays paſſing the Retina before they unite, there can be no diſtinctneſs, ſince the diſtinct Baſe falls too far off beyond the Retina. See CRYSTALLINE and RETINA.

This defect is helped only with convex Glaſſes, or Spectacles; which will make the Rays converge ſooner, and if they are well fitted, fall exactly on the Retina. See CONVEX and SPECTACLE.

The Word is form'd from the *Greek* πρέσβυς, *Senex*; becauſe old People are naturally ſubject to this defect; Time and the Friction of the Eye-Lids, *&c.* gradually wearing the Ball flat.

Presbytæ are oppoſed to *Myopes*, in whom the Cryſtalline is too round. See MYOPES.

If the diſtance between the Retina and the Cryſtalline be too ſmall, the Perſon will likewiſe be a *Presbyta*. See CRYSTALLINE, *&c.*

PRESCIENCE, in Theology, *Previſion, Fore-knowledge*; the Knowledge which God has of things to come.

The Doctrine of Predeſtination is founded on the *Preſcience* of God, and on the ſuppoſition of all Futurity's being preſent to him. See PREDESTINATION.

Human Reaſon can ſcarce reconcile the *Preſcience* of God with the Free-Agency of Man. See LIBERTY and NECESSITY.

How are we to admire the depth of the *Preſcience* and Wiſdom of God; who, in giving the firſt Motion to Matter, fore-ſaw all the poſſible Combinations this firſt Impreſſion might undergo during infinite Ages? *Malebr.*

PRESCRIPTION, in Law, a Title introduced for aſſuring the Property of Effects in favour of Perſons who have poſſeſs'd them a certain time; and to keep off any who would diſquiet them, or recover the thing poſſeſs'd, after the Term fixed by the Laws. See POSSESSION.

Tourreil calls *Preſcription* a Penalty impoſed by the Laws upon Negligence; and adds, that Poſſeſſors who have no other Title to plead but *Preſcription*, are only honeſt Uſurpers.

In effect, however, the Law of *Preſcription* does not puniſh the Indolence of Proprietors; but only interprets their Silence for their Conſent; preſuming that a Man who neglects to aſſert his Right for a long Series of Years, gives it up.

There are ſome of the Lawyers who doubt whether Time and unjuſt *Preſcription* be any legitimate Means of acquiring; others, more favourable, call it the *Patron of Mankind*; as being a general Preſumption, under which the Law will have Men live in peace.

In the Common Law, *Preſcription* is uſually underſtood of a Poſſeſſion for Time immemorial; as when my Anceſtors, or his, from whom I have an Eſtate, have enjoy'd and uſed it all the time whereof any Memory remains.

But in the Civil Law, and even in our Common Law, there are *Preſcriptions* of a much ſhorter Date. *Preſcription* of forty Years excludes all Actions whatever. *Reform. Leg. Eccleſ.*

The Cuſtom of *Paris* allows of a *Preſcription* of ten Years, if the Parties be preſent, and twenty if abſent, in favour of peaceable Poſſeſſors of an Inheritance, if they have any Title, however controverted; and of thirty Years in favour of thoſe who poſſeſs without any Title at all.

In *Normandy*, a *Preſcription* of forty Years peaceable Poſſeſſion is equivalent to a Title, to Immoveables; and for Moveables and perſonal Actions, a *Preſcription* of thirty Years ſuffices.

In *Romiſh* Countries, *Preſcription* does not avail againſt the Church, if leſs than a hundred Years. In *France*, *Preſcription* of twenty Years is admitted againſt all Crimes, except Duelling, which was excluded by a Declaration of the Year 1679. In Matters of Adultery, five Years ſuffice, *i.e.* provided there have been a diſcontinuance of Proſecution all that time.

By our Statutes, a Judge or Clerk convicted of falſe entring Pleas, &c. may be fined within two Years; but thoſe elapſed, he *preſcribes* againſt the Puniſhment of the Statute.

The Crime of Maintenance or Embracery, whereby Perjury is committed by a Jury, muſt be proſecuted within ſix days; otherwiſe the Parties *preſcribe*. See JURY.

There is no *Preſcribing* againſt a Man's Lord; no *Preſcription* avails to take off a Servitude or Tenure: A Title is always required there.

The Author of the Hiſtory of the Inquiſition obſerves, that no Time or *Preſcription* avails in Matters of Hereſy; even Death itſelf does not ſecure the ſuſpected from the Reſearches of the Inquiſition. See INQUISITION.

PRESCRIPTION, in Medicine, the Act, or Art of aſſigning a proper and adequate Remedy to a Diſeaſe; from an Examination of the Symptoms thereof, and an Acquaintance with the Virtues and Effects of the *Materia Medica*. See REMEDY and DISEASE.

The *Methodus preſcribendi* is the laſt, finiſhing piece of Furniture of a Phyſician, and is the reſult of all the reſt; join'd with a ready, preſent Thought. See MEDICINE and PHYSICIAN.

To *Preſcribe* with Judgment, Elegance, &c. a moderate Acquaintance with Pharmacy, *i.e.* with the Forms and Preparations of Medicines, is required. See PHARMACY.

The Merits of a Bill or *Preſcription* conſiſt in its being conciſe, pertinent, efficacious, and agreeable; in the beſt and ſuitableſt Materials being pitch'd on; thoſe aſſembled in the moſt judicious Proportions, made up in the beſt and moſt convenient Form, and apply'd in the juſteſt Doſe; a due regard being ſtill had to the Non-naturals, Regimen, Intervals of Application, &c. *Sydenham* excell'd in *Preſcription*. See DOSE, DIET, &c.

Preſcription is either *Officinal* or *Extemporaneous*; the former conſiſts in the ordering of the Medicines which the Apothecaries keep by 'em ready prepared according to their Diſpenſatory. See OFFICINAL and DISPENSATORY.

Extemporaneous is that which the Phyſician frames of himſelf, *pro re nata*, according to the Circumſtances of the Patient, to be made up by the Apothecary according to the Phyſician's Bill. See EXTEMPORANEOUS.

PRESENCE, *Præſentia*, a Term of relation, uſed in oppoſition to *Abſence*; and ſignifying the Exiſtence of a Perſon in a certain Place; or the State of a Perſon conſider'd as co-exiſting with another. See CO-EXISTENCE.

In this ſenſe an Obligation is ſaid to be paſs'd in *Preſence* of a Notary and Witneſſes: At the breaking open of a Seal of a Minor or an abſent Perſon, the *Preſence* of a Subſtitute is neceſſary.

The Schoolmen hold, that *Preſence*, in ſpeaking of Bodies, denotes not only a Co-exiſtence, but a ſort of Contact. They make two kinds of *Preſence*; the one *virtual*, in which ſenſe a Spirit, or Mind, is ſaid to be *preſent* to a Body when it acts thereon; the other *corporeal*, which conſiſts in a phyſical Contact.

The Treaſurers, &c. of *France* have what they call a *Right of Preſence*, a certain Sum due on their actual Attendance in their Offices; to oblige 'em to be the more aſſiduous in their Function. A Perſon abſent in the Service of the King, or a Community, is reputed *preſent*.

The *Roman Catholicks* believe the real *Preſence* of *Jeſus Chriſt* in the Euchariſt, both in Body and Soul. See TRANSUBSTANTIATION.

PRESENT, in Grammar, the firſt Tenſe, or Inflexion of Verbs; expreſſing the Time *preſent*, or that which now is. See TENSE.

'Tis a peculiar piece of Addreſs in Eloquence to make uſe of the *preſent*, for a *paſt* Tenſe, in order to expreſs a paſt Action with the more force and warmth: Thus; The Fleet *is* no ſooner in full Sea, than the Heavens *begin* to lower, the Winds *riſe*, the Waves *daſh* againſt each other, Thunder *rolls*, and Lightning *glares* on all ſides; the Ships *loſe* their Maſts and Rudders, and *are* driven impetuouſly againſt the Rocks.

PRESENTATION, in the Canon Law, the Act of a Patron, nominating and offering his Clerk to the Biſhop, or Collator, to be inſtituted in a Benefice of his Gift. See PATRON, COLLATOR, &c.

The *Preſentation* muſt be tender'd to the Biſhop within an hundred eighty-two days after the living is vacant, elſe it lapſes to the Biſhop; and if the Biſhop do not collate in half a Year more, it lapſes to the Archbiſhop; and from him in a like time to the King, who may ſtay as long as he pleaſes; for *Nullum tempus occurrit Regi*.

By ſome Cuſtoms, a Lay-Patron has only four Months time to make his *Preſentation* in; and if he have preſented a Perſon incapable, he may vary it, and make a new *Preſentation* within the four Months. See BENEFICE.

The Word is form'd from the antient Phraſe *Preſentare ad Eccleſiam*, which originally ſignify'd the Patron's ſending, or placing a Perſon in a Church; and which itſelf is form'd from *Repreſentare*, which, *Selden* obſerves, is uſed in the Council of the *Lateran* and elſewhere, for *Preſentare*. See PARSON.

PRESENTATION, alſo, gives the Title to three Orders of Nuns. See RELIGIOUS.

The firſt, projected in 1618, by a Maid nam'd *Joan of Cambray*. The Habit of the Nuns, according to the Viſion ſhe pretended to have, was to be a grey Gown of natural Wool, &c. but this Project was never accompliſhed.

The ſecond was eſtabliſhed in *France* about the Year 1627, by *Nich. Sanguin*, Biſhop of *Senlis*. It was approved by *Urban* VIII. This Order never made any great progreſs.

The third was eſtabliſhed in 1664; when *Fred. Borrimeo*, being Apoſtolical Viſitor in the *Valteline*, was intreated by ſome devout Maids at *Morbegnobourg* to allow 'em to live in Community in a retir'd place; which he granted, and erected 'em into a Congregation, under the Title of *Congregation of our Lady*. They live under the Rule of St. *Auguſtine*.

PRESENTATION *of the Virgin*, is a Feaſt of the *Romiſh* Church held on the 21ſt of *November*, in memory of the Virgin's being preſented by her Parents in the Temple, to be there educated.

It is pretended, that there were young Women brought up in the Temple of *Jeruſalem*; which ſome endeavour to prove from the ſecond Book of *Maccabees*, *Sed & Virgines quæ concluſæ erant, procurrebant ad Oniam*; which is the Sentiment of *Eutochius* on this Paſſage. And *Lyranus* adds, that other more antient Authors obſerve, that young Women were educated till Marriage, either in the Temple, or at leaſt in Buildings contiguous thereto.

Emanuel Commenius, who began to reign in 1143, makes mention of this Feaſt in his Conſtitution. Some even imagine it to have been eſtabliſhed in the XIth Century among the *Greeks*; and think they ſee evident Proofs of it in ſome Homilies of *George* of *Nicomedia*, who lived in the time of *Photius*; ſo that it ſeems a Miſtake in ſome modern Criticks to refer its Inſtitution to *Gregory* XI. in 1372.

Some take it to have been inſtituted in memory of the Ceremony practiſed among the *Jews* for their new-born Females; correſponding to the Circumciſion on the eighth day for Males. See CIRCUMCISION.

PRESENTEE, in the Canon Law, a Clerk preſented by a Patron to a Collator. See PRESENTATION.

PRESENTMENT, in Law, a mere Denunciation of the Jurors themſelves, or ſome other Officer, as a Juſtice, Conſtable, Searcher, Surveyor, &c. of an Offence, inquirable in the Court whereto it is preſented.

PRESENTS, PRÆSENTIA, *Free-gifts*, or *Gratuities*; eſpecially thoſe given by the Clergy, or the States of a Realm, to a King. See BENEVOLENCE.

They are ſo call'd becauſe given into the Hands of a Perſon *preſent*; by which they are diſtinguiſhed from *Munera*, Gifts which are ſent to the Party, or delivered by the intervention of a third Perſon.

Thus the XVIIIth Law, *de Verb. ſignif. Abſentibus res donari dicantur, munera autem mitti, & præſentia offerri.*

There is no accoſting the Eaſtern Princes without making 'em fine *Preſents.* Kings uſually make rich *Preſents* to Embaſſadors ſent to their Courts.

PRESERVATIVE, in Medicine, a Remedy taken by way of precaution; or to ſecure a Man from a Diſeaſe that threatens him. See REMEDY.

The principal *Preſervatives*, according to *Boerhaave*, are Abſtinence, Eaſe, drinking of warm Water, and after this, a gentle and continued Motion till the firſt appearance of Sweat; then a profuſe ſleeping, the Body well cover'd.

By ſuch means, craſs Humours are diluted, the Veſſels are looſen'd, and noxious Matters excreted. He adds, that the beſt defence againſt the force of external Cold, is to leſſen the Winter's Clothing late in the Spring, and to increaſe the Summer's Clothing ſoon in Autumn.

In time of Plague, *Preſervatives* are very neceſſary againſt the Contagion of the Air, *&c.* See PLAGUE and CONTAGION.

Generous Wines, Cardiacs, and Sudorifics are *Preſervatives.* Dr. *Alprunus* tells us, he made Inciſions with a Lancet *in Inguine dextro* and *ſiniſtro*, and put in Setons, to give paſſage to the Venom; which proved an excellent *Preſervative* againſt the Plague that raged at *Prague* in 1680.

Dr. *Wenceſlaus Dobr. Zensky de Nigro Ponte* gives us an univerſal *Preſervative* againſt Infection in all Diſeaſes. Whoever, ſays he, in converſing with Patients of any kind, would *preſerve* himſelf from Infection, muſt, while he is within the Sphere of the Steams, never ſwallow his Spittle, but ſpit it out: For he conceives it to be the Spittle that firſt imbibes the Infection.

PRESIDENT, an Officer created, or elected, to *preſide* over a Company, or Aſſembly; ſo call'd in Contradiſtinction to the other Members, who are term'd *Reſidents.*

Lord PRESIDENT *of the Council*, is the fourth great Officer of the Crown; as antient as the Time of K. *John*; when he was ſtiled *Conciliarius Capitalis.* See COUNCIL.

His Buſineſs is to attend on the King, to propoſe Buſineſs at the Council-Table, and to report to the King the ſeveral Tranſactions there.

PRESIDIAL, a Tribunal, or Bench of Judges, eſtabliſh'd in the ſeveral conſiderable Cities of *France*, to judge, *en dernier reſſort*, or ultimately, of the ſeveral Caſes brought before them, by way of Appeal from the ſubaltern Judges.

The *Preſidials* make one Company with the Officers of the Bailliages and Seneſchauſſees, where they are eſtabliſhed.

The Edict of 1551, eſtabliſhes *Preſidials* under theſe two Conditions; firſt, that they may judge definitely, and without Appeal, to the Sum of 250 Livres, or 10 Livres *per Annum.* And, 2°. to the Sum of 1500 Livres by Proviſion.

When they judge in the former Caſe, they are obliged to pronounce it with theſe Words, *par Jugement dernier*; in the ſecond, *par Jugement Preſidial.*

When they judge finally of Appeals from inferior Judges, they may not pronounce the Sentence, or Appeal, *au neant*, void; that Form only belonging to the Sovereign Courts: But are to pronounce ſimply, that *it has been well or ill judged.* To judge *preſidially* and finally, they muſt be at leaſt ſeven in number.

PRESS, in the Mechanic Arts, a Machine made of Iron, or Wood; ſerving to ſqueeze, or compreſs any Body, very tightly. See MACHINE and COMPRESSION.

The *Ordinary Preſſes* conſiſt of ſix Members, or Pieces; *viz.* two flat, ſmooth Planks, between which the Things to be preſs'd are laid; two Screws, or Worms, faſten'd to the lower Plank, and paſſing thro' two Holes in the upper; and two Nuts in form of an S, ſerving to drive the upper Plank, which is moveable, againſt the lower, which is ſtable, and without Motion.

PRESSES *uſed for expreſſing of Liquors*, are of various Kinds; ſome, in moſt reſpects the ſame with the common *Preſſes*; excepting that the under Plank is perforated with a great number of Holes, to let the Juice expreſs'd, run thro' into a Tub, or Receiver, underneath.——Others have only one Screw, or Arbor, paſſing thro' the middle of the moveable Plank; which is made to deſcend into a kind of ſquare Box, full of Holes on all ſides, thro' which the Juices flow in proportion as the Arbor is turn'd, by means of a little Lever apply'd thereto.

The PRESS *uſed by Joiners*, to keep cloſe the Pieces they have glued; eſpecially Pannels, *&c.* of Wainſcot, is very ſimple; conſiſting of four Members, *viz.* two Screws and two Pieces of Wood, four or five Inches ſquare, and two or three Foot long, whereof the Holes at the two Ends ſerve for Nuts to the Screws.

The PRESS *uſed by Inlayers*, reſembles the Joiner's *Preſs*, except that the Pieces of Wood are thicker, and that only one of them is moveable; the other, which is in form of a Treſſel or Horſe, being ſuſtain'd by two Legs, or Pillars, jointed into it, at each end.

This *Preſs* ſerves them for the ſawing and cleaving the Pieces of Wood required in Marquetry, or Inlaid Work. See MARQUETRY.

Founders PRESS, is a ſtrong ſquare Frame, conſiſting of four Pieces of Wood, firmly join'd together with Tenons, *&c.* This *Preſs* is of various Sizes, according to the Sizes of the Moulds; two of them are required to each Mould, at the two Extremes whereof they are placed: ſo as that by driving wooden Wedges between the Mould and the Sides of the *Preſſes*, the two parts of the Mould, wherein the Metal is to be run, may be preſs'd cloſe together. See FOUNDERY.

Printing PRESS, is a very complex Machine, ſerving to *preſs* the Sheet of Paper upon the Forms, which the Workman has firſt ſmear'd or *beat* over with Ink; ſo, as that the Characters, or Types, whereof the Forms are compoſed, may leave their Marks or Impreſſions thereon.

The Parts of this *Preſs* are the two *Cheeks*, the four Planks, *viz.* the *Cap*, *Head*, *Shelves* and *Winter*, the *Back* of the *Preſs*, where the Ink is placed, the *Spindle* with its Nut, the *Hoſe* with its *Hooks*, the *Platten-Plate* and its *Plug*, the *Carriage*, the *Coffin*, *Gallows*, *Tympan* with its Joints, *&c.* Laſtly, the *Handle*, to bring the *Plank* on which the *Coffin* is fix'd backwards and forwards; and the *Bar* to work the Spindle, and *preſs* the Platten on the Forms.

See the Form and Uſe of theſe ſeveral Parts deſcribed under the Article PRINTING-*Preſs.*

Rolling-PRESS, is a Machine uſed for the taking off Prints from Copper-Plates. It is much leſs complex than that of the Letter-Printers: See its Deſcription and Uſe under the Article *Rolling-Preſs*-PRINTING.

PRESS, in Coining, is one of the Machines uſed in the ſtriking of Money; differing from the Balancier, in that it has only one Iron Bar to give it Motion, and preſs the Moulds or Coins; is not charg'd with Lead at its Extreme; nor drawn by Cordage. See COINING.

Binders-PRESS, or Cutting-*Preſs*, is a Machine uſed equally by Book-binders, Stationers, and Paſtboard-makers; conſiſting of two large Pieces of Wood, in form of Cheeks, join'd by two ſtrong wooden Screws, which being turn'd by an Iron Bar, draw together, or ſet aſunder the Cheeks, as much as is neceſſary for the putting in of the Books, or Papers, to be cut.

The Cheeks are placed flat on a wooden Stand, in form of a Cheſt, into which the Cuttings fall. A-ſide of the Cheeks are two pieces of Wood, of the ſame length with the Screws; ſerving to direct the Cheeks, and prevent their approaching or opening unequally upon turning the Screw.

Upon the Cheeks is the Shaft or Fuſt, to which the Cutting-Knife is faſten'd by a Screw, which has its Key to diſmount it on occaſion to be ſharpen'd.

The Shaft conſiſts of ſeveral Parts; among the reſt, a wooden Screw or Worm, which catching within the Nuts of the two Feet that ſuſtain it on the Cheeks, bring the Knife to the Book or Paper, which is faſten'd in the *Preſs* between two Boards. This Screw, which is pretty long, has two Directories or Pieces of Wood, which both as to their Form and Effect, reſemble thoſe of the Screws of the Cheeks. To make the Shaft ſlide ſquare and even on the Cheeks, ſo that the Knife, puſh'd along by the Workman, may make an equal paring; that Foot of the Shaft where the Knife is not fix'd, has a kind of Groove, directed by a Thread faſten'd along one of the Cheeks. Laſtly, the Knife is a piece of Steel, ſix or ſeven Inches long, flat, thin and ſharp; terminating at one end in a point like that of a Sword; and at the other in a ſquare form, which ſerves to faſten it to the Shaft. See BOOK-*Binding.*

PRESS, in the Woollen Manufactory, is a large wooden Machine, ſerving to *preſs* Cloths, Serges, Ratines, *&c.* thereby to render them ſmooth and even, and to give them a Gloſs. See CLOTH, *&c.*

This Machine conſiſts of ſeveral Members; the principal whereof are the *Cheeks*, the *Nut*, and the *Worm* or *Screw*, accompany'd with its Bar, which ſerves to turn it round, and make it deſcend perpendicularly on the middle of a thick wooden Plank, under which the Stuffs to be *preſs'd* are placed. See PRESSING.

The Calender is alſo a kind of *Preſs*, ſerving to *preſs* or calender Linens, Silks, *&c.* See CALENDER.

PRESSING, in the Manufactures, the Action of violently ſqueezing a Cloth, Stuff, Linnen, *&c.* in a *Preſs*, to render it even, ſmooth, poliſh'd, and gloſſy. See CLOTH, *&c.*

This, in the Silken and Linnen Manufactures, they properly call *Calendring.* See CALENDER.

There are two manners of *Preſſing*; the one *hot*, the other *cold.*

Method of PRESSING, *Cold.*

After the Stuff has had all its Preparations, *i.e.* has been ſcour'd, full'd, and ſhorn (ſee SCOURING, FULLING, SHEERING:) it is folded ſquare, in equal Plaits; and a Skin of Velom, or fine, ſmooth Paſt-board, put between each Plait. Over the whole is laid a ſquare wooden Plank; and in this Condition it is put in the *Preſs*; which is driven tight down by means of the Screw turn'd full upon it, by the hands, aſſiſted with Levers.

After it has lain a ſufficient time under the *Preſs*, they take it out, remove the Paſt-boards or Veloms; and lay it up to keep. It may be obſerv'd, that ſome do not uſe a Preſs with a Screw in *preſſing cold*; but content themſelves with laying the Stuff on a firm Table, after plaiting and paſt-boarding it as before; covering the whole with a wooden Plank, and loading this with a Weight, greater or leſs, as is judg'd neceſſary.

Method of PRESSING, *Hot.*

The Stuff having receiv'd all its Preparations as before, it is ſprinkled a little with Water, ſometimes with Gum-Water, ſpurted over it with the Mouth; then plaited equally, and between each two Plaits are put Leaves of Paſt-board; and between every ſixth and ſeventh Plait, as well as over the whole, an Iron or Braſs Plate, well heated in a kind of Furnace for the purpoſe.

This done, it is laid under the Preſs; and a Screw brought forcibly down upon it, by means of a long Iron Bar.

Under this Preſs are laid five or ſix Pieces one over another, at the ſame time; all furniſh'd with their Paſt-board, and Iron Plates. When the Plates are well cold, they take the Stuffs from under the Preſs, remove the Paſt-boards and Plates, and ſtitch it a little together, to keep in the Plait.

This manner of *Preſſing* Woollen Stuffs, is very pernicious; and was only invented by the Manufacturers to cover the Defects of the Stuffs; and excuſe their not giving them all the Shearings, Dyes, and Preparations, that are neceſſary to render them perfect: Accordingly it has been frequently prohibited.

PRESSING *to death*; ſee PAINE *Fort & Dure.*

PRESSION, or PRESSURE, in the *Carteſian* Philoſophy, *Truſion*; an impulſive kind of Motion, or rather Endeavour to move, impreſſed on a fluid Medium, and propagated thro' it. See MOTION, FLUID, and CARTESIAN.

In ſuch a *Preſſion*, the *Carteſians* ſuppoſe the Action of Light to conſiſt; ſee LIGHT: And in the various Modifications of this *Preſſion* by the Surfaces of Bodies, whereon that Medium is thus preſs'd, they ſuppoſe the various Colours to conſiſt, &c. See COLOUR.

But Sir *Iſaac Newton* has taught us better: For if Light, *e. gr.* conſiſted only in a *Preſſure*, propagated without actual Motion, it could not agitate and warm ſuch Bodies as reflect, and refract it; as we actually find it does; and if it conſiſted in an inſtantaneous Motion, or one propagated to all Diſtances in an inſtant, as ſuch *Preſſion* ſuppoſes, there would be required an infinite Force to produce that Motion, every moment in every lucid Particle,

And if Light conſiſted either in *Preſſure*, or in Motion propagated in a fluid Medium, whether inſtantaneouſly, or in time, it muſt follow that it would inflect itſelf *ad umbram*; for *Preſſure* or Motion in a fluid Medium, cannot be propagated in right Lines beyond any Obſtacle, which ſhall hinder any part of the Motion; but will inflect and diffuſe itſelf every way into thoſe parts of the quieſcent Medium, which lie beyond the ſaid Obſtacle.

Thus the Force of Gravity tends downwards, but the *Preſſure*, which ariſes from that Force of Gravity, tends every way with an equable Force; and with equal Eaſe and Force, is propagated in crooked Lines, as in ſtraight. Waves on the Surface of Water, while they ſlide by the ſides of any large Obſtacle, do inflect, dilate and diffuſe themſelves by degrees into the quieſcent Water, lying beyond the Obſtacle. The Waves, Pulſes or Vibrations of our Air, in which Sounds conſiſt, do manifeſtly inflect themſelves, tho' not ſo much as the Waves of Water; for the Sound of a Bell, or of a Cannon, can be heard over a Hill, which intercepts the ſonorous Object from our ſight: and Sounds will be propagated as eaſily thro' crooked Tubes, as thro' ſtraight.

But Light is never obſerved to go in Curve Lines, nor to inflect itſelf *ad umbram.* For the fixed Stars do immediately diſappear on the Interpoſition of any of the Planets, as well as ſome parts of the Sun's Body, by the Interpoſition of the *Moon*, *Venus*, or *Mercury*.

PRESSURE *of the Air.* See AIR.

Moſt of the Effects antiently aſcribed to the *Fuga Vacui*, are now accounted for from the Weight and *Preſſure* of the Air. See VACUUM.

The *Preſſure of the Air* on the Surface of our Earth, is balanced by a Column of Water of the ſame Baſe, and about thirty-five Feet high; or one of *Mercury* of about twenty-nine Inches. See TORRICELLIAN *Experiment* and BAROMETER.

The *Preſſure* of the Air on every ſquare Inch on the Surface of the Earth, is computed to be about fifteen Pounds *Avoirdupois.* See BATHING.

PREST, a Duty in Money, to be paid by the Sheriff, upon his account, in the Exchequer; or for Money left or remaining in his hands.

PREST *Money*, from the *French* Word *Preſt*, ready, is a Sum of Money which binds thoſe who receive it, to be ready at command, at all times appointed; chiefly underſtood in the liſting of Soldiers.

PREST-*Sail*, in the Sea-Language, is when a Ship carries all the Sail ſhe can poſſibly croud; which is ſometimes done in giving Chaſe, &c. But 'tis a dangerous Experiment, leſt the Ship over-ſet, or bring her Maſts by the Board; in which latter Caſe ſhe becomes an eaſy Prey.

PRESTATION-*Money*, a Sum of Money paid yearly by Archdeacons, and other Dignitaries, to their Biſhop, *Pro exteriori Juriſdictione.*

Preſtation was alſo antiently uſed for other Payments: *& quieti ſint de* Preſtatione *Muragii*, Chart. *Hen.* 7. and ſometimes for *Purveyance.*

PRESTER, a Meteor, conſiſting of an Exhalation thrown from the Clouds downwards with ſuch Violence, as that by the Colliſion it is ſet on fire. See METEOR.

The *Preſter* differs from the Thunder-bolt in the manner of its Inflammation; and in its burning and breaking every thing it touches with greater Vehemence. See THUNDER-BOLT.

The Word is *Greek*, πρηςὴρ; ſo called from the reſemblance this Meteor has with a kind of Serpent call'd πρηςὴρ, and ſometimes διψὰς.

PRESTER JOHN, or *Jean*, a Term given the Emperor of the *Abyſſinians*; becauſe antiently the Princes of this Country were really *Prieſts*, and the Word *Jean* in their Language ſignifies *King.*

'Twas the *French* who firſt made him known in *Europe* under this Title. His Empire was antiently of vaſt Extent; at preſent it is confined to ſix Kingdoms, each about the bigneſs of *Portugal.*

The Name *Preſter John* is altogether unknown in *Ethiopia*; and took its riſe hence, That the People of a Province where this Prince uſually reſides, when they requeſt any thing, ſay *Jean-Coi*, i. e. *my King.* His proper Title is, *The Grand Negus.*

There is alſo a *Preſter John* of *Aſia*, mention'd by M. *Paolo* the *Venetian.* His State is in the Country of *Cangingu*, between *China*, and *Sifan*, and *Thibet*; a Kingdom mightily valued by the *Chineſe* for its Policy, and the Number of its fortify'd Cities; tho' they have uſually the utmoſt Contempt for foreign Countries.

Some ſay he is ſo call'd from a *Neſtorian* Prieſt, mention'd by *Albericus*, towards the Year 1145, to have mounted the Throne. Others, that he takes his Name from a Croſs which he bears in his hand, as a Symbol of his Religion.

PRESTIMONY, PRÆSTIMONIA, in the Canon Law, a Term about which Authors are much divided; it is derived *à Præſtatione quotidiana*, and is defined a kind of Benefice ſerv'd by a ſingle Prieſt; in which ſenſe, *Preſtimony* is the ſame with a presbyterial Chappel. See BENEFICE.

Others will have *Preſtimony* to be the Incumbency of a Chappel, without any Title or Collation; ſuch as are moſt of thoſe in Caſtles, where Prayers, or Maſs are ſaid; and which are mere Oratories un-endow'd: Whence alſo the Term is given in the *Romiſh* Church to certain perpetual Offices beſtow'd on Canons, Religious, or others, for the ſaying of Maſſes, by way of Augmentation of their Livings.

Others, again, will have *Preſtimony* to be a Leaſe, or Conceſſion of any Eccleſiaſtical Fund, or Revenue belonging to a Monaſtery; to be enjoy'd during Life.

Du Moulin makes *Preſtimony* a prophane Benefice, which, however, has a perpetual Title, and an Eccleſiaſtical Office with certain Revenues attach'd to it; which the Incumbent is allow'd to ſell; and which may be poſſeſs'd without Tonſure: Such as the Lay-Church-Wardens of *Notre-Dame.* He adds, that in Propriety, the Canonrys of Chappels are Benefices of this nature.

Upon the whole, the ſureſt Opinion ſeems to be this, that *Preſtimony* is a Fund or Revenue affected by the Founder for the Subſiſtence of a Prieſt, without being erected into any Title of Benefice, Chappel, Prebend, or Priory; and which is not ſubject either to the Pope or to the Ordinary; but whereof the Patron, and thoſe who have a Right from him, are the Collators; and nominate and confer, *pleno jure.*

PRESUMPTION, in Law, a Suſpicion, or Conjecture founded on a Veriſimilitude.

Preſumption is of three ſorts, 1°. *Violent*, which many times is allow'd a full Proof; as if one be kill'd in an Houſe, and a Man is ſeen to come out of the Houſe with a bloody Sword, and no other Perſon was at that time in the Houſe; this, tho' but a *Preſumption*, is a Proof.

2°. *Probable*, which hath but a ſmall effect.

3°. *Levis*, or *Temeraria*, which is of no prevalency at all.

In Caſes of a Charter or Feoffment, if all the Witneſſes to the Deed be dead; the violent *Preſumption*, that ſtands for a Proof, gives continual and quiet Poſſeſſion: *Stabit* preſumptio *donec probetur in contrarium*. Coke on Lit.

Presumption was alſo antiently uſed for *Intruſion*. See Intrusion.

PRESUMPTIVE *Heir*, the next Relation, or Heir at Law to a Perſon; who is to inherit from him *ab inteſtato*, and who 'tis *preſumed* will be Heir; nothing but a contrary diſpoſition of the Teſtator being able to prevent him. See Heir.

PRETENCE, in Heraldry, ſee Escutcheon *of Pretence*.

PRETENS'D, or Pretended *Right*, in Law, is where one is inpoſſeſſion of Lands and Tenements, which another who is out, claims and ſues for. Here, the *pretens'd Right* is in him who ſo claims or ſues.

PRETER *Naturam*, in Medicine, *&c.* ſee Nature.

PRETER, or Preterit, Præteritus, *Paſt*, in Grammar, an Inflexion of Verbs, expreſſing the Tenſe, or Time paſs'd. See Verb.

Preter, or *Preterit*, is a general Name that comprehends the Inflexions correſponding to the ſeveral Tenſes, or ſeveral Circumſtances and Relations of the Time paſt; all which the *Latins*, &c. diſtinguiſh'd by particular Inflexions, or Terminations of the Verb; which make the proper Notion of Tenſes. See Tense.

The modern Languages, particularly the *Engliſh*, in lieu of different Terminations of the Verbs themſelves, have frequently recourſe to thoſe of their Auxiliaries and Participles. See Participle.

The *Preter*, or paſt Time, is ſubdivided by Grammarians into the *Preter-imperfect*, as, *e.gr. I had*, *I thought*, in the *Latin*, *habebam*, *cogitabam*, in the *French*, *J'avois*, *je penſois*: The *Preter-perfect*; *I have had*, *I have thought*, *habui*, *cogitavi*, *j'ai eu*, *j'ai penſe*: And *Pluſquam Preter-perfect*, *I had thought*, *I had had*, *habueram*, *cogitaveram*, *j'eus eu*, *j'eus penſe*.

The *Engliſh* have properly but two Caſes or Kinds of the *preter* Tenſe; viz. the *preter* Time of the imperfect Action; as, *I was at Supper then*, but had not yet done it. And the *preter* Time of the perfect Action; as, *I had then ſupp'd*, and it was then done.

The *preter* Tenſe is ofteneſt form'd of the preſent Tenſe by adding *ed*; as *I burned*.

The *French* have a particular Caſe of the *preterit-perfect*, which F. *Buffier* calls the *Preterit Simple*, in oppoſition to the former, call'd the *Preterit Compoſite*; others call it the *Preterit Indefinite*, becauſe expreſſing a thing done indeterminately, as *j'ecrivis hier*. This anſwers to the *Aoriſtus* of the *Greeks*; and in the diſtinction of this from the compound *Preterit* does one of the greateſt Niceties in the Practice of the *French* Language conſiſt. See Aoristus.

In the paſſive Voice, the *Latins*, *French*, &c. have recourſe to Participles, and Auxiliaries, like the *Engliſh*, to form their *preter* Tenſes, *I was loved*, *amatus eram*, *j'etois aimée*, &c.

PRETERIT, Præteritus, in the *Roman* Juriſprudence. A *preterit Child*, *Infans præteritus*, is that of whom the Father has forgot to make mention in his Teſtament; which renders it entirely null. See Testament.

A Father may make Inſtitution, or Exheredation of his Son, but never *Preterition*.

PRETER-*Imperfect*,
PRETER-*Perfect*, } in Grammar, ſee Preter.
PRETER-*Pluperfect*,

PRETERITION, or Pretermission, in Rhetoric, a Figure, whereby, in pretending to paſs over a thing untouch'd, we make a ſummary mention thereof.

I will not ſay he is valiant, he is learned, he is juſt, &c.

The moſt artful Praiſes are thoſe given by way of *Preterition*.

PRETEXT, *Pretence*, a Colour, Motive, or Cauſe, either real, or apparent. See Colour.

PRETEXTA, or Prætexta, among the *Romans*, was a long white Gown, or Toga, having a Band, or Border of Purple at bottom. See Toga.

It was wore by Children of Quality till the Age of Puberty, *i. e.* by Boys till ſeventeen, at which time they laid it aſide, and aſſumed the Virile Gown. Girls wore it till Marriage. See Virile.

It took its Name *Pretexta*, according to *Goodwin*, *quod ei purpura Prætexta erat*, becauſe guarded about with purple Silk.

The *Pretexta* at firſt was a Robe of State, or Ceremony, wore only by the Chief Magiſtrates, and the Prieſts; nor was it lawful for ſuch who wore this Gown to be arraigned, or Sentence to paſs againſt 'em, till it was pull'd off.

In continuance of time, it was permitted to Noblemen's Children; and, at length, even to all *Roman* Children in general.

PRETIUM *Sepulchri*, in old Law-Books, *&c.* thoſe Goods accruing to the Church, wherein a Corps is buried.

In the *Iriſh* Canons, *lib.* 19. it is ordered, that along with every Body that is buried, there go his Cow, Horſe, Apparel, and the Furniture of his Bed; none of which may be diſpoſed of otherwiſe than for the payment of Debts, *&c.* as being Familiars and Domeſticks of the Deceaſed. See Heriot, Mortuary, *&c.*

PRETOR, *Prætor*, an eminent Magiſtrate in antient *Rome*.

In the firſt Ages of the Commonwealth, all the Magiſtrates were ſtiled *Pretors*; afterwards, the Title was beſtow'd on all the principal Officers of the Army: At laſt, *Pretor* became reſtrained to a particular Magiſtrate.

About the Year of *Rome* 388, the People ſolliciting to have one of the Conſuls always choſen from among the People; the Senators granted it, on condition that a new Magiſtracy ſhould be erected, to be fill'd wholly from among the Patricians: Such was the Origin of the *Preture*, *Prætura*; which, *Livy* obſerves, was firſt diſcharged by *Spurius Furcus*; and whoſe Office was to look to the adminiſtration of Juſtice and Equity between Man and Man; much in quality of a Lord Chief Juſtice, or Lord Chancellor, or rather both in one.

But Buſineſs increaſing in proportion as the Empire was enlarged, a ſecond *Pretor* was created, to take cognizance of the Affairs of Foreigners reſiding at *Rome*: upon which the former was diſtinguiſhed by the Title of *Prætor Urbanus*, or *major*; and the latter by that of *Prætor Peregrinus*, or *minor*.

The Number, in after-times, was much increaſed; under the Reign of *Auguſtus* there were twelve, and afterwards eighteen; two whereof were call'd *Prætores Cereales*, as being charged with the providing of Corn and Grain; and two others *Prætores Fidei Commiſſarii*. In the Code, *L.* 1. *T.* 39. we find a Law of the Emperors *Valentinian* and *Marcian*, which reduces the *Pretors* to three.

The Office of the *Pretor*, or *Prætor Urbanus*, was to render Juſtice in the City; he had a Power to interpret the Laws, to ſupply, and reform 'em; and even to make new ones, when the public Good required it.

In the Inſtitutes, the Edicts of the *Pretors* are call'd *Jus honorarium*; whence it ſhould ſeem, they had only the force of Laws out of reſpect to that eminent Magiſtrature; the Buſineſs of the *Pretor* being rather to look to the Obſervation of the old Laws, than to make new ones. See Civil *Law*.

Some are of Opinion he had not the Right of the Sword; the cognizance of Crimes being the ſpecial Province of the *Prefect* of *Rome*. See Prefect.

But others are of another Sentiment. In the general, 'tis very difficult to fix preciſely how far his Power extended. When he walk'd, he was preceded by ſix Lictors; and was clothed with the Robe call'd *Trabea*. See Lictor and Trabea.

His Authority, like that of the other Magiſtrates, was very much weaken'd and reduced under the Emperors. In the Digeſt and Code, is a Title *de Officio Pretoris*.

Pretor was alſo a Title among the *Romans* for the Governour of a Province, who had paſs'd the Office of *Pretor*.

Whence Provinces govern'd by *Pretors*, or reſtrained to thoſe who had diſcharged that Office, were call'd *Pretorian Provinces*. See Province.

PRETORIAN *Guards*, or *Cohorts*, were the Soldiers of the Emperor's Guard; ſo call'd, as ſome imagine, from their Place or Station in the Palace or Court call'd *Pretorium*. See Pretorium.

Their Inſtitution is owing to *Scipio Africanus*, who firſt eſtabliſhed a Company of the braveſt Men in his Army, pick'd out for the purpoſe, to be his Guard; and who never ſtirr'd from his ſide in Battel. See Guard.

Their Number was at length increaſed, as *Dion* tells us, to ten thouſand. They were commanded by an Officer created by *Auguſtus*, call'd *Præfectus Prætorii*. See Prefect.

PRETORIUM, among the *Romans*, the Place, Hall, or Court wherein the Pretor liv'd, and wherein that Magiſtrate ſat, to adminiſter Juſtice to the People. See Pretor.

There were of theſe *Pretoriums* in all the Cities of the *Roman* Empire. See Curia, Court, *&c.*

The Scripture mentions that of *Jeruſalem*: and there are ſtill ſome remains of one at *Niſmes* in *Languedoc*.

PRETORIUM was alſo the Tent, or Pavillion of the General of the *Roman* Army; wherein Councils of War, *&c.* were held.

From the time of *Auguſtus*, the Emperor's Tent in the Camp was diſtinguiſh'd by the Titles of *Pretorium Auguſtale.*

PRETORIUM was alſo a Place in *Rome* where the *Pretorian* Guards were lodged. See PRETORIAN.

Some will have the *Pretorium* to be properly the Tribunal of the *Præfectus Pretorii*; or an Auditory deſtined for the rendring of Juſtice in the Emperor's Palace. See PREFECT.

This they argue from St. *Paul*'s Epiſtle to the *Philippians*; and from this place call'd *Prætorium*, they will have the Guards denominated *Prætoriani*, becauſe aſſembled here for the Emperor's Guard.

Others will not allow the *Pretorium* to be any Tribunal, or Seat of Juſtice, but merely the Imperial Guard-houſe.

Perizonius has an expreſs Diſſertation to prove that the *Pretorium* was no Court of Juſtice in St. *Paul*'s time; but the Camp or Place where the *Pretorian Guards* were aſſembled. He adds, that the Name *Pretorium* was not given to Places where Juſtice was adminiſtred, till long time after; when the Office of the *Præfectus Pretorii* was converted into a Civil Function.

PREVARICATION, *Prævaricatio*, in the Civil Law, is where the Informer colludes with the Defendant, and ſo makes only a feign'd Proſecution.

Sylvius, in his Comments on *Cicero*, *pro Cluentio*, gives us the difference between the three Terms, *Calumniari*, *Prævaricari*, and *Tergiverſari*. He who in his Accuſation forges faults never committed, is ſaid *Calumniari*. He who undertakes one's Suit, and either will not urge Reaſons in behalf of his Client, or not anſwer the Objections of his Adverſary, when he is able, is ſaid *Prævaricari*. And he who deſiſts in his Accuſation, and lets the Suit drop, *Tergiverſari*.

PREVARICATION, in our Law, is when a Man falſly and deceitfully ſeems to undertake a thing, *ea intentione*, that he might deſtroy it; *e.gr.* where a Lawyer pleads booty, or acts by colluſion, *&c.*

PREVARICATION is alſo uſed for a ſecret Abuſe committed in the Exerciſe of a public Office, or of a Commiſſion given by a private Perſon.

PREVARICATOR, in the Univerſity of *Cambridge*, is a Maſter of Arts, choſen at a Commencement, to make an ingenious, ſatyrical Speech, reflecting on the Miſdemeanours of the principal Members. See TERRÆ *Filius*.

PREVENTION, in the Canon, *&c.* Law, the Right a ſuperior Perſon, or Officer has to lay hold of, claim, or tranſact an Affair before an inferior to whom it more immediately belongs.

The Word is chiefly uſed for the Pope's *Prevention* of ordinary Collators; and the Royal Judges of ſubaltern ones.

The *Romiſh* Canoniſts maintain, that the Pope, who is the Source of all Juriſdiction, has not tranſmitted it privatively to the ordinary Collators; but that he may ſtill not only collate concurrently with them, but alſo *prevent* them by uſing his original Power as Head of the Church. See COLLATOR.

Theſe *Preventions* are grown odious in ſeveral Countries, where they don't now obtain without a world of Modifications and Reſtrictions; and the Civil Power in *France*, always judges in favour of the ordinary Collators.

The Pope has no *Prevention* to the prejudice of Lay-Patrons; but by the *Concordat* he has reſerved to himſelf the Right of conferring elective Benefices by *Prevention*, and even Cathedral and Collegiate Dignities. See CONCORDAT.

If the Proviſions of the Pope, and Collations of the Ordinary bear Date of the ſame Day; the Ultramontane Canoniſts give the preference to the Pope; the *French* to the Ordinary.

The Cardinals have a particular Indulgence not to be *prevented* by the Pope within ſix Months.

PRIAPEIA, in Poetry, a Name given to certain obſcene Epigrams, and other Pieces, compoſed on the God *Priapus*; whereof we have many Inſtances in the *Greek Catalecta*. See PRIAPUS.

PRIAPISMUS, PRIAPISM, in Medicine, a continual and painful Erection or Tenſion of the Yard. See ERECTION.

The immediate Cauſe of a *Priapiſm*, is the Heat, Pungency, or Acrimony of the Semen; accompanied with a Convulſion of the Muſcles of that part, which compreſſing the Veins and cavernous Bodies, prevent the return of the Blood.

The more remote Cauſes are too hot, ſharp, ſtimulating Foods; Cantharides are alſo found to perform the ſame effect, but with much more violence. There are Inſtances of People, eſpecially old Men, who, making uſe of Cantharides to enable 'em to ſatisfy their Paſſions the better, have been ſeiz'd with a *Priapiſm*, which has been follow'd with univerſal Convulſions, and even Death. See CANTHARIDES.

The Term is derived from *Priapus*, a Heathen God, whom the Poets and Painters repreſent with a Yard always ſtiff and erect.

As Satyrs are uſually painted after the ſame manner, the Diſeaſe is alſo call'd *Satyriaſis*.

Some, however, diſtinguiſh between the *Satyriaſis* and *Priapiſmus*; in that the latter is without any effuſion or deſire; but the former attended with both. See SATYRIASIS.

PRIAPUS, a Term ſometimes apply'd to the genital Parts of Men, *viz.* the Penis and Teſtes. See GENITAL.

The Name took its riſe from *Priapus*, a fabulous Deity, particularly adored at *Lampſachus*, the Place of his Birth; who, for the extraordinary Size of his Parts was exceedingly revered by the Women; inſomuch that the Scripture tells us, King *Aſa* dethroned his Mother *Maachah*, becauſe ſhe had conſecrated a Grove to *Priapus*, and preſided at his Sacrifices.

PRICE, *Pretium*, the Value of a thing. See VALUE.

PRICE-*Current*, in Commerce, a weekly Account of the current Value of moſt Commodities. See CURRENT.

PRICK-*Poſt*, in Building, ſee POST.

PRICKING, in the Sea-Language. To *prick the Plat*, or Chart, is to make a Point therein, near about where the Ship is to be at any time; in order to find the Courſe they are to ſteer. See COURSE, CHART, *&c.*

PRIEST, *Sacerdos*, a Perſon ſet a-part for the performance of Sacrifice, and other Offices, and Ceremonies of Religion. See SACRIFICE, RELIGION, *&c.*

Thus the falſe Gods and Goddeſſes of the Heathens had their *Prieſts*; *Prieſts* of *Mars*, of *Bacchus*, of *Hercules*, of *Iſis*; and ſome of 'em their Prieſteſſes. See PONTIFF, *&c.*

The *Jews* too had an Order of *Prieſts* and *Levites*, who ſerv'd in the Temple. See LEVITE, *&c.*

The *Mahometans* have their *Prieſts* call'd *Scheik* and *Muphti*; and the *Indians* and *Chineſe* their *Bramans* and *Bonzes*. See SCHEIK, MUPHTI, BONZES, and BRAMAN.

PRIEST, *Preſbyter*, in the Chriſtian Church, is a Perſon inveſted with holy Orders; in virtue whereof, he has a Power to preach, pray, adminiſter the Sacraments, *&c.* and, in the *Romiſh* Church, alſo, to bleſs, abſolve, *&c.* See ORDERS.

By the Canons, a Man muſt be twenty-four Years of Age e'er he be admitted to the *Prieſthood*; antiently thirty Years were required. See ORDINATION.

The Holy Scripture uſually confounds the Title of *Prieſt*, Preſbyter, with that of *Biſhop*, Epiſcopos; and does not ſeem to give any Superiority to the one, over the other: and, yet, the abſolute Equality among all the *Prieſts* in the Government of the Church has few Inſtances, but what are conteſted. See PRESBYTER.

Blondel and *Salmaſius* maintain with a world of Reaſon, that in the primitive Church, the *Prieſts* govern'd with perfect Equality, and without any other pre-eminence beſide that of Age; and yet to conſult the Fathers, and Tradition, the *Preſbyterian* Form of Government would ſcarce ſeem to have been known among the Antients. See PRESBYTERIAN.

In effect, the primitive Writers ſpeak of nothing but Epiſcopacy; and of that too, frequently in ſuch Terms, as if they eſteem'd it of Apoſtolical Inſtitution. See EPISCOPACY and BISHOP.

As, in the antient Church, the Deacons had the Management and Adminiſtration of the Revenues of the Church, their Authority grew apace, and in a little time they were got above the *Prieſts*; St. *Jerom* uſed his utmoſt Endeavours to prove that Deacons were originally inferior to *Prieſts*; and the Council of *Nice* decided the Queſtion in favour of the latter. See DEACON.

Indeed, an Order of Deacons having been inſtituted without any other Function than to aſſiſt the *Prieſt* at the Altar; theſe have made no difficulty of owning the Superiority of the *Prieſts*. Add to this, that the Order of a Deacon being now become neceſſary to arrive at that of a *Prieſt*, there is no room to diſpute the precedence: But the Deacons who had retain'd their Function, had the diſpoſal of the Revenues, and paid the *Prieſts* their Penſions, ſtill maintain'd the Superiority. Upon which, the ſixth Council in *Trullo* pronounced once more on the Diſpute, and gave the Pre-eminence to the *Prieſts*.

Cardinal PRIEST, ſee CARDINAL.

High PRIEST, ſee PONTIFEX.

PRIEST's *Cap*, in Fortification, ſee BONNET *a Petre*.

PRIMA *Naturalia*, in Phyſics, *Atoms*, or the firſt Particles, whereof natural Bodies are primarily compoſed; call'd alſo MINIMA *Naturalia*, which ſee: See alſo PARTICLE, ATOM, *&c.*

PRIMÆ *Viæ*, in Medicine, the firſt Paſſages of the

Chyle; as the Stomach, Inteſtines, and their Appendices. See CHYLE, *&c.*

PRIMAGE, a Duty appointed by a Statute of *Henry* VIII. to be paid to the Mariners, and Sailors, for the loading of any Ship, at its ſetting forth from a Haven.

This is different, in different places; in ſome, a Penny *per* Pound; in others, Six-pence *per* Bale or Pack. See DUTY and CUSTOM.

PRIMARY *Planet*, a Planet which revolves round the Sun as a Centre. See PLANET.

Such are *Saturn*, *Jupiter*, *Mars*, the *Earth*, *Venus* and *Mercury*; thus call'd in oppoſition to ſecundary Planets, or Satellites. See SATURN, VENUS, *&c.*

Some Authors reſtrain the *primary Planets* to the ſuperior ones, *viz. Saturn*, *Jupiter* and *Mars*; but very impertinently.

PRIMATE, an Archbiſhop, inveſted with a Juriſdiction over ſeveral Archbiſhops, or Biſhops. See ARCHBISHOP.

Father *Sirmond* derives the Origin of *Primates* hence; That the large Provinces having been divided and ſubdivided by the Emperors; the firſt Diviſions were call'd *Firſts*, others *Seconds*, others *Thirds*, *&c.* and the Title *Primate* given to the Metropolitans, *i. e.* to the Biſhop of the City which was the Capital of the Province, e'er the Diviſion was made. See METROPOLIS and METROPOLITAN.

This Metropolitan *Primate* had ſome Juriſdiction over the Biſhops of the inferior Provinces; and was alſo call'd *Patriarch*. See PATRIARCH.

The Term *Primate* is *Latin*, and ſignifies the *Firſt* or *Preſident* of a Society: The *Greek* Word correſponding to it, is *Exarcha*. See EXARCHA.

Thoſe who hold for a ſtrict Eccleſiaſtical Hierarchy, maintain a *Primate* to be he who has ſeveral Metropolitans under him; as a Patriarch has ſeveral *Primates*: yet 'tis pretty evident from Hiſtory, that *Primates* were at firſt confounded with Patriarchs: Thus *Socrates* enumerating ten Patriarchs, does not make any diſtinction thereof from *Primates*.

In *Africa*, after the Diſtinction was made, the *Primates* were not at all ſubject to the Patriarch: Thus the Biſhop of *Carthage*, who was *Primate*, paid no Obedience to the Biſhop of *Alexandria*, who was Patriarch.

Nor, to be a *Primate*, was it neceſſary to have Metropolitans for Suffragans: Each Province of *Africa*, except thoſe which compoſed the Dioceſe of *Alexandria*, had its *Primate*; this Quality being given to Age.

In *France*, the Subdiviſion of Provinces gave occaſion to the Erection of *Primates*: Thus *Aquitain*, *e. gr.* being divided into two Provinces, the Archbiſhop of *Bourges* became *Primate* of the *Aquitains*, becauſe *Bourges* was the Capital of the firſt.

Thus alſo the Diviſion of *England* into two Provinces, *Canterbury* and *York*, in 1152, gave occaſion to the Introduction of *Primacies* among us; *Canterbury*, which was the Metropolis before, thence giving the Title of *Primate of all England*, to its *Prelate*; tho the Archbiſhop of *York* ſtill claims that of *Primate of England*. And accordingly, the firſt has ſome Juriſdiction over all *England*, relating to Adminiſtrations, *&c.* which the latter has only within his own Province. See PROVINCE.

PRIME, PRIMUS, the firſt in Order, Degree, or Dignity, among ſeveral Things of the ſame, or like kind.

Thus we ſay, *Prime Miniſter*, *Prime Mover*, *Prime Coſt*, *&c.* See MINISTER, MOBILE, *&c.*

PRIME, or PRIME *Minute*, in Geometry, the ſixtieth part of a Degree. See DEGREE.

Prime is ſometimes alſo uſed for the tenth part of an Unit. See DECIMAL.

In Weights it is uſed for the twenty-fourth part of a Grain. See GRAIN.

PRIME *Number*, in Arithmetic, a Number which can only be meaſur'd by Unity; or whereof 1 is the only aliquot part. See NUMBER.

Such are 5, 7, 11, 13, *&c.*

Prime Numbers, *inter ſe*, among themſelves, are thoſe which have no common Meaſure beſides Unity; thus 12 and 19 are *Prime Numbers inter ſe*.

PRIME *Figure*, in Geometry, is that which cannot be divided into any other Figures more ſimple than itſelf. See FIGURE.

Such is a Triangle among Planes; and the Pyramid in Solids: for all Planes are made of the firſt, and all Bodies or Solids compounded of the ſecond.

PRIME *Vertical*, is the Vertical Circle which paſſes thro' the Poles of the Meridian. See VERTICAL.

PRIME *Verticals*, in Dialling, or PRIME *Vertical Dials*, are thoſe projected on the Plane of the *Prime* Vertical Circle, or on Planes parallel thereto. See DIAL *Plane*.

Theſe are what we likewiſe call Direct, Erect, North or South Dials. But ſince every Plane hath that Pole raiſed or depreſſed thereon, which lies open to it; therefore this Plane, (if a direct South) hath the South Pole elevated, and conſequently the Style (whoſe Height muſt be the Complement of the Latitude of the Place) will point downwards. Wherefore to find the Hour's Diſtance from the Meridian upon this Plane, the Proportion is, As the Radius is to the Sine of the Style's Height, or Co-Latitude; ſo is the Tangent of the Hour, or Angle at the Pole: To the Tangent of the ſeveral Hours Diſtance from the Meridian. By this Canon, the Hours requiſite for the Plane, as alſo the Half-Hours, Quarters, *&c.* being calculated and ſet in a Table; the Dial is deſcribed after the ſame manner, as the Horizontal Dial. North Direct Erect Dials, are but the backſide of the South, becauſe lying in the ſame Azimuth with it; therefore it is no more but turning the South Dial upſide-down, and leaving out the ſuperfluous Hours between 5 and 7, and 4 and 8, and the North Dial is made. Only note, that the Style muſt point upwards to the North Pole. See DIALLING.

PRIME *of the Moon*, is the new Moon at her firſt Appearance, for about three Days after her Change. See NEW *Moon*.

PRIME is alſo uſed in the *Romiſh* Church, for the firſt of the Canonical Hours, ſucceeding to *Lauds*. See LAUD.

PRIME, in Fencing, is the firſt, and chief of the Guards, which is that the Body is in, immediately after drawing the Sword; being fitteſt to menace and terrify the Enemy, by reaſon the Point of the Sword is held higher up to the Eye, than in any of the other Guards. See GUARD.

PRIME, or PRIMING *of a Gun*, is the Gun-Powder put in the Pan, or Touch-hole of a Piece, to give it fire by.

The *Priming* is the laſt thing done in Charging. See CHARGE.

For Pieces of Ordnance, they have a pointed Iron Rod, to pierce the Cartridge thro the Touch-hole; call'd *Primer*, or *Priming Iron*.

PRIMING, among Painters, ſignifies the laying on of the firſt Colour. See COLOUR and PAINTING.

PRIMICERIUS, in Antiquity, the firſt, or chief Perſon in any Office, or Dignity.

In this ſenſe the Word occurs frequently in the Code, and even in our old *Engliſh* Laws; tho' it is there alſo occaſionally uſed for the Nobility, as *Primicerius totius Angliæ*: *Mon. Ang.*

The *Romans* had great Variety of *Primicerii*, both in Church, and the Emperor's Court; a *Primicerius of the Empreſs*, a *Primicerius Auguſtalis*, a *Primicerius of the Bardariotæ*, *of the Legions*, *of the Court*, *of the Chamber*, *of the Palace*, &c.

The *Eccleſiaſtical Primicerius*, *Du Cange* obſerves, was the ſame with the *Chanter* among us. See CHANTER.

In the Church of *Metz*, the *Primicerius* is the firſt Dignitary of the Dioceſe, and preſides at Aſſemblies of the Clergy, in prejudice of the Biſhop.

At *Venice*, the Dean of the Church of St. *Mark* is call'd *Primocirio*, or *Primicerius*: He is independent of the Patriarch of *Venice*, and enjoys Epiſcopal Privileges.

PRIMIER *Seiſin*, in Law, *q. d.* the *firſt Seiſin*; a Branch of the King's Prerogative, whereby he had the firſt poſſeſſion of all Lands, and Tenements held of him in chief, whereof his Tenant died ſeized in Fee; and conſequently the Rents and Profits thereof, till the Heir, if he were of Age, did homage; and if under Age, till he became of Age.

But all Charges ariſing by *Primier Seiſin*, are annulled by a Stat. 12 *Car.* 2. See SEISIN.

PRIMIPILARII, or PRIMOPULARII, in Antiquity, the Soldiers of the firſt Company, or Cohort of a Legion. See LEGION and COHORT.

The *Primipilarii* had conſiderable Advantages; one of the chief was, that moſt of the Soldiers who died in the Campaign, left them their Heirs.

PRIMIPILUS, or PRIMOPILUS, in Antiquity, the firſt Centurion, or Captain of a Cohort, who had charge of the *Roman* Banner. See CENTURION and COHORT.

PRIMITIÆ, the *Firſt-Fruits* gather'd of the Earth; whereof the Antients made Preſents to the Gods. See FRUITS.

In *Leviticus*, the *Primitiæ* of all Fruits are enjoin'd to be offer'd to God. See TITHE.

In our Law, the *Primitiæ* are one Year's Profits, after Avoidance, of every Spiritual Living, as rated in the King's Books. See FIRST-*Fruits*.

PRIMITIVE, in Grammar, a *Root*; or a Word in a Language, which is neither derived from any other Language, nor compounded from any other Words of the ſame. See ROOT.

Thus, *God* is a *Primitive*; *Godly*, a Derivative; *God-like*, a Compound. See DERIVATIVE.

PRIMITIVE, in Arithmetic. See PRIME *Number*.

PRIMO *Beneficio Eccleſiaſtico habendo*, in Law, a Writ directed from the King to the Lord Chancellor, appointing him to beſtow the Benefice that ſhall firſt fall in the King's

Gift, above or under ſuch a Value, upon this or that Clerk. See BENEFICE.

PRIMOGENITURE, *Birthright*; the Right of the Firſt-born, or eldeſt Child. See BIRTHRIGHT.

The *Right of Primogeniture* ſeems to be an unjuſt Prerogative, and contrary to natural Right: For ſince 'tis Birth alone gives Children a Title to the paternal Succeſſion, the Chance of *Primogeniture* ſhould not throw an Inequality among them.

Accordingly, the Right of *Primogeniture*, which calls the Elder-born to the Crown, preferably to the other, was not introduced into *France* till very late: 'Twas unknown to the firſt Race of Kings; and even to the ſecond.

The four Sons of *Clovis* ſhared the Kingdom equally among themſelves; and *Louis le Debonnaire* did the ſame: 'Twas not till the Race of *Hugh Capet*, that the Prerogative of Succeſſion to the Crown was affected to the Firſt-born.

By the antient Cuſtom of *Gavelkind*, ſtill preſerv'd in ſome parts of our Iſland, *Primogeniture* is of no account; the paternal Eſtate being equally ſhared by all the Sons. See GAVELKIND.

PRIMUM *Mobile*, in the *Ptolemaic* Aſtronomy, the ninth or higheſt Sphere of the Heavens, whoſe Centre is that of the World, and in compariſon of which, the Earth is but a Point. This they will have to contain all the other Spheres within it, and to give motion to them, turning it ſelf, and all them, quite round in twenty-four hours. See MOBILE.

PRINCE, PRINCEPS, in Politicks, a Perſon inveſted with the ſupreme Command of a State or Country; independent of any Superior. See MONARCH. See alſo KING.

PRINCE is alſo uſed for a Perſon who is Sovereign in his own Territory; yet holds of ſome other, as his Superior, or Lord, and pays Homage or Tribute to him.

Thus all the *Princes of Germany* are Feudataries of the Emperor; they are all as abſolute in their reſpective Principalities, as the Emperor himſelf; yet are all bound in certain Services to him. See EMPEROR. See alſo ELECTOR, and COLLEGE.

In many antient Titles, the Word *Prince* ſignifies no more than *Lord*; *Du Cange* gives a great many Inſtances of it. See LORD.

In effect, the Word *Princeps* in *Latin*, whence *Prince* in *Engliſh*, originally ſignifies the *Chief*, or *Firſt*; it is compounded of the *Latin primus*, and *Caput*; and is properly a Word of Dignity and Office, not of Property and Sovereignty.

Thus, in the Charter of King *Offa*, after the Biſhops had ſubſcribed their Names, we read, *Bordanus Patritius*, *Binnanus Princeps*; and afterwards the Dukes ſubſcribed their Names.

And in a Charter of King *Edgar*, *in Mon. Angl. tom.* 3. *p.* 301. *Ego Edgarus Rex rogatus ab Epiſcopo meo Deorwolfe*, & Principe *meo Aldredo*, *&c.* And in *Mat. Paris*, *p.* 155. *Ego Halden* Princeps *Regis pro viribus aſſenſum præbeo, & ego Turketillus Dux concedo.*

Among the antient *Romans*, it was the Cuſtom for the Emperor in his Life-time to nominate him whom he would have ſucceed in the Empire, under the Title of *Princeps Juventutis*, & *Cæſar*. See CÆSAR.

In the *Ludus Trojanus*, the Youth who was choſe Captain, was alſo call'd *Princeps Juventutis*. See TROJANUS.

PRINCE is alſo a Title given to the Iſſue of *Princes*, or thoſe of the Royal Family; in which ſenſe, they are called, particularly in *France*, *Princes of the Blood*; as partaking of the Blood to which the Sovereignty is affected: and not by any Hereditary Right, but as a Patrimony ſubſtituted to all the Royal Race. See BLOOD.

In *England*, the King's Children are call'd *Sons and Daughters of England*: The Eldeſt is created *Prince of Wales*. See PRINCE *of Wales*.

The Cadets, or Younger, are created Dukes, or Earls, with what Title the King pleaſes. See CADET.

They have no Appannages, as in *France*; but only what the good pleaſure of the King beſtows on them.

The Sons are all by Birth Counſellors of State: The Daughters are ſtiled *Princeſſes*; to violate the Eldeſt of which, unmarried, is at this day High Treaſon.

To all the King's Children belongs the Title of *Royal Highneſs*: All Subjects are to kneel, when admitted to kiſs their Hand; and at Table, out of the King's preſence, they are ſerv'd on the Knee.

The firſt *Prince* of the Blood in *France*, is call'd abſolutely, *Monſieur le Prince*. The Quality of *Prince of the Blood*, gives a Rank and Precedency, but does not include any Juriſdiction; they are *Princes* by Order, not by Office.

Wicquefort obſerves, that 'tis not fifty Years ſince the *Princes* of the Blood of *France* gave place to all Embaſſadors, even thoſe of Republicks; and it was at the King's requeſt, that they were ſince allow'd the Precedency.

The moment the Pope is elected, all his Relations become *Princes*.

PRINCE *of Wales*, the eldeſt Son of *England*. He is born Duke of *Cornwall*; and immediately entitled to all the Rights, Revenues, *&c.* belonging thereto; as being deemed, in Law, at full Age on his Birth-day.

He is afterwards created *Prince of Wales*; the Inveſtiture whereof is perform'd by Impoſition of a Cap of State, and a Coronet, a Verge of Gold, and a Ring. He holds the Principality by Patent, granted him and his Heirs, Kings of *England*.

The Title and Principality were firſt given by King *Edward* the firſt to his eldeſt Son: Till that time, the eldeſt Son of *England* was call'd *Lord Prince*. While *Normandy* remained to the King of *England*, the eldeſt Son was always ſtiled *Duke of Normandy*: Since the Union, his Title is *Magnæ Britanniæ Princeps*.

He is reputed, in Law, the ſame Perſon with the King: To imagine his Death, or to violate his Wife, is High-Treaſon. His Revenues, as Duke of *Cornwall*, are computed at 14000 *l. per Annum.* The Revenues of the Principality were eſtimated 300 Years ago at 4680 *l. per Ann.*

PRINCIPAL, the chief, moſt conſiderable, or neceſſary part of a thing.

Thus we ſay, the Mayor is the *principal* Magiſtrate of a City or Town: A Council of War conſiſts of the *principal* Officers. In a Peroration, the *principal* Points inſiſted on, are to be briefly ſumm'd up. The *Principal* of a College, or Hall, is the Maſter thereof. See COLLEGE, and HALL.

PRINCIPAL, in Commerce, is the Capital of a Sum due or lent; in which ſenſe the Word is uſed in oppoſition to *Intereſt*. See INTEREST.

PRINCIPAL is alſo uſed for the firſt Fund or Sum put by Partners into common Stock; by which it is diſtinguiſh'd from the Calls or Acceſſions ſometimes required, when the former proves inſufficient.

PRINCIPAL *Point*, in Perſpective, is a Point in the perſpective Plane; upon which a Line drawn from the Eye, perpendicular to the Plane, falls. See POINT.

This Point is in the Interſection of the horizontal and vertical Plane, and is alſo call'd *the Point of Sight*, and *Point of the Eye.* See SIGHT, *&c.*

PRINCIPAL *Ray*, in Perſpective, is that which paſſes perpendicularly from the Spectator's Eye to the perſpective Plane. See RAY.

Whence, the Point, where the Ray falls on the Plane, is called *the principal Point*, which ſome Writers call *the Centre of the Picture*, and *the Point of Concurrence.*

PRINCIPAL, *Principalium*, in old Law-Writers, is ſometimes uſed for a *Heir lome*; which ſee: and ſometimes for a *Mortuary*, or *Corſe preſent.*——*Item lego equum meum vocatum* le Bay Gelding, *ut offeratur ante Corpus meum in die ſepulturæ meæ, nomine* Principalii *Teſt. Joh de Macclesfield*, 9 *Hen.* 5. In *Urchenfield Com. Hereford*, certain *Principals*, as the beſt Beaſt, beſt Bed, beſt Table, *&c.* paſs to the eldeſt Child, and are not ſubject to Partition.

PRINCIPLE, PRINCIPIUM, a Term frequently uſed for the Cauſe, Source, or Origin of any thing; in which ſenſe we ſay, the *Principle of Thinking*, *of Willing*, *&c.*

In Phyſics, we muſt ever have recourſe to a firſt *Principle*; which is God. See CAUSE.

The *Manichees* admit of two *Principles*, the one of Good, the other of Evil; which they eſtabliſh in quality of two contrary Deities, conſtantly oppoſing each other. See MANICHEE. See alſo GOOD and EVIL.

According to the Doctrine of *Pelagius*, our Wills are the *Principles* of our good Actions, and we ourſelves the *Principles* of our good Wills. See PELAGIANS.

PRINCIPLE is defined, among the School Philoſophers, to be that from which any thing is, is done, or known: *Unde aliquid eſt, fit, aut cognoſcitur*; which is a very extenſive Signification, and agrees to all kinds of *Principles*.

Thus, the Premiſes are *Principles*, in reſpect of the Concluſion; and thus Fire, and every other Agent, are the *Principles* of Things which they produce.

The *Thomiſts* define *Principle* to the like effect; *id à quo aliquod procedit aliquo modo.*

The Philoſophers uſually diſtinguiſh *Principles*, *Principia*, into thoſe of *Being*, *Eſſendi*; and thoſe of *Knowing*, *Cognoſcendi*: Or *Principia Rei* and *Cognitionis*.

Of the *firſt* they make two Kinds; *viz.* of *Origination*, which are thoſe from which ſomething proceeds really the ſame with the *Principle*; as in the Proceſſion of the Son and Spirit from the Father in the Trinity: And of *Dependency*; in which ſenſe, any Cauſe is a *Principle*, in reſpect of the Thing cauſed; or a Subject, in reſpect of the Accidents inherent in it.

The *ſecond* is that from which we borrow, or derive our Knowledge of ſome other Thing; or, it is that which makes the Thing be known. Such are *Axioms*, *Definitions*, *Hypotheſes*; ſuch alſo are *Examples*, *Explanations*, &c. See KNOWLEDGE.

PRINCIPLE, in Phyſics, or PRINCIPLES *of a natural Body*, is ſomething that contributes to the Eſſence of a Body; or, whereof a natural Body is primarily conſtituted. See BODY.

Ariſtotle defines *Principles* to be thoſe things which are not made or conſtituted of themſelves, nor of other things, but all things of them: *Quæ non fiunt ex ſe invicem, nec ex aliis, ſed ex iis omnia.*

To give an Idea of natural *Principles*, conſider a Body in ſeveral States; a Coal, *e.gr.* that was juſt now a piece of Wood: 'tis evident there is ſomething in the Coal, which before exiſted in the Wood; this, whatever it is, is a *Principle*; and is what we call *Matter*. See MATTER.

Again, there muſt be ſomething join'd with this Matter, to make it Wood rather than Fire; or Fire, rather than Wood: This is another *Principle*; and is what we denominate *Form*. See FORM.

Matter, and Form, then, are univerſal *Principles* of natural Bodies.

The *Peripateticks* add a third *Principle*, viz. *Privation*; for tho', ſay they, a thing is not made from nothing; yet it muſt be made from its not being that thing before: This *Ariſtotle* calls *Privation*, and admits it as a third *Principle*.

But the Moderns reject it; for if Privation be a *Principle*, 'tis at leaſt ſo, in a very different ſenſe from Matter and Form. See PRIVATION.

Some late Philoſophers admit no *Principle's* but *Acid* and *Alkali*. See ACID and ALKALI.

Ariſtotle makes two ſorts of natural *Principles*, as they concur in the Generation, or the Compoſition of Bodies.

The *Principles of Generation*, or of a Body *in fieri*, are thoſe without which a natural Generation can neither be, nor be conceiv'd. Such are the three *Principles* above mention'd; *Matter*, *Form*, and *Privation*.

The *Principles of Compoſition*, or of a Body *in facto eſſe*, already made, are thoſe whereof natural Bodies really conſiſt. Such, according to him, are *Matter* and *Form*; to which ſome add a third, *viz. Union*, to connect the two others together. But this is only neceſſary upon ſuppoſition of ſubſtantial Forms. See *Subſtantial* FORM.

Principles are uſually confounded with *Elements*; yet is there a real difference: Elements are properly the firſt and ſimpleſt Beings, ariſing from the firſt Determination or Aſſemblage of *Principles*. They are the ſimpleſt things in which Matter and Form are combined. Elements and *Principles*, therefore, differ in this, that a *Principle*, as Matter, is only a begun, not a compleat Nature; but an Element is perfect and compleat. See ELEMENT.

To this Head may likewiſe be referred what we call *Mechanical Principles of Bodies*, which explain the Mechaniſm or artificial Structure of Things, and all the Varieties and Differences of Bodies from Motion, Figure, and other common Affections. See MECHANICAL.

Theſe *Principles* are differently maintain'd by three or four different Sects of Philoſophers; *viz.* the antient *Epicureans*, or *Corpuſcularians*; to which may be added the modern *Gaſſendiſts*; the *Carteſians*; and the *Newtonians*. See EPICUREAN, CORPUSCULARIAN, CARTESIAN, and NEWTONIAN.

PRINCIPLES, in Chymiſtry, are the firſt and ſimpleſt parts whereof natural Bodies are compounded; and into which they are again reſolvable by Fire. Theſe are more properly, as well as more commonly, call'd *Elements*. See ELEMENT.

The Chymiſts make five *Principles*; three whereof are call'd *active Principles*, viz. *Salt*; *Sulphur*, or *Oil*; and *Mercury*, or *Spirit*. The Salt they ſuppoſe the Foundation of all Savours; ſee SALT. The Sulphur of Odours; ſee SULPHUR: and the Spirit, or Mercury, of Colours; ſee SPIRIT.

The two *paſſive Principles*, are *Phlegm*, and *Caput Mortuum*; which they alſo call *elementary Principles*. See PHLEGM, &c.

PRINCIPLES, in the *Hermetic* Philoſophy. According to theſe Gentlemen, the two *Univerſal Principles* of ſenſible Nature, are *ſubtile* and *ſolid*, which being join'd in a greater or leſs degree, generate all that beautiful Variety of Beings in the Univerſe.

The three *Natural Principles* are Salt, Sulphur, and Mercury. Theſe *Principles* generate the four Elements; and are, as it were, ſecundary Elements, inaſmuch as they are contain'd in all mix'd Bodies. Sulphur is the firſt, and ſtands in the place of Male; Mercury the ſecond, ſtanding in the place of Female; and Salt the third, which copulates the others together. *Dict. Hermet.*

PRINCIPLE is alſo apply'd to the Foundations of Arts and Sciences. See ART and SCIENCE.

In this ſenſe we ſay, *Principles* are not to be proved; they muſt be common Notions. See NOTION and AXIOM.

There is no diſputing againſt a Man that denies *Principles*. The worſt Reaſoning is that which includes a *Petitio Principii*, i. e. which ſuppoſes a *Principle* that ought to be proved.

The Word *Principle* is alſo uſed by extenſion for the firſt Rules, or Maxims of an Art. In this ſenſe we ſay, a Man is ignorant of the *Principles* of Geometry; meaning, he has not learnt *Euclid*'s Elements.

The *Principles* of all Arts and Sciences are found in this Dictionary, under their reſpective Heads.

PRINTER, a Perſon who compoſes, and takes Impreſſions from, moveable Characters, ranged in Order; or from Plates engraven: by means of Ink, a Preſs, &c. See PRINTING.

Fuſt, *Guttembourg*, *Schoeffer*, *Mantel*, and *Koſter* were the *firſt Printers*. The firſt that practiſed it in *England*, was *Fred. Corſeles*, brought over from *Haerlem*, under King *Henry* VI. In *France*, *Gering*; at *Rome*, *Conrad Sweynheim*, and *Arnold Pannarts*, both *Germans*; at *Naples*, *Sixtus Ruſinger*.

The *great Printers* were *Aldus*, and *Paul Manutius*; the two *Badii*; *William* and *Frederick Morel*; *Oporin*; *Froben*; *Rob. Hen.* and *Char. Stephens*; *Gryphæus*; *Turnebius*, *Torres*, *Commelin*, *Plantin*, *Rapheling*, *Vaſcoſan*, *Bleau*, *Criſpin*, and the two *Elzevirs*.

The *learned Printers* were the *Manutii*, the *Stephens's*, the *Badii*, *Turnebius*, *Wechel*, *Morel*, &c.

Plantin had the Title of *Arch Printer* given him by the King of *Spain*, in conſideration of his printing the *Polyglot* of *Antwerp*.

The Names, Characters, and Eloges of all the famous *Printers* are found in the IId Book of the *Cenſura Authorum*.

The *Printers*, ſince the eſtabliſhment of that Art, are eſteemed a part of the Company of Stationers and Bookſellers: Before that eſtabliſhment, the Company conſiſted only of Bookſellers, Binders, Illuminers, and Parchment-makers.

The *Parchment-Makers* prepared the Skins, and made the Parchment or Velom; which were then almoſt the only Matters Books were wrote on. The Writers, or *Stationarii*, wrote and tranſcribed Books after Copies given 'em by the Bookſellers. The *Binders* were charged with the binding of thoſe days, which was very coarſe; only conſiſting of two ſlight Boards cover'd with ſome paltry Leather. The *Illuminers* painted in Miniature, and gilt initial Letters, Head-pieces, Tail-pieces, and other Compartiments. Laſtly, the *Bookſellers* ſet the Stationers to work, and ſold their Copies in Shops, and other Places, on the days allow'd 'em by the Statutes to expoſe the ſame.

PRINTING-*Houſe*, a Place deſtined for *Printing*, and fitted up for that purpoſe with Preſſes and other Furniture.

The moſt conſiderable *Printing-Houſes* in the World are thoſe of the *Louvre* and *Vatican*.

The firſt began under *Francis* I. carried to its utmoſt Perfection under *Lewis* XIII, by the Care of the Cardinal *Richelieu*; and removed into the Galleries of the *Louvre* by *Louis* XIV. See LOUVRE.

The *Vatican Printing-Houſe*, call'd alſo the *Apoſtolical Printing-Houſe*, becauſe the Pope's Bulls, Decrees, &c. are printed therein, was begun by *Pius* IV. and built with great Magnificence by *Sixtus* V. See VATICAN.

Out of both theſe *Printing-Houſes* have come forth very beautiful and ſplendid Editions of the antient Authors: The *Vatican* was the firſt that printed in *Arabic*.

The *Clarendon Printing-Houſe* at *Oxford*, ſo call'd becauſe open'd with an Edition of the Hiſtory of the Lord of that Name, promiſes well: It has already furniſhed us with a fine *Engliſh* Bible.

PRINTING, the Art of taking Impreſſions with Ink, from Characters and Figures moveable, or immoveable, upon Paper, Velom, or the like Matter. See CHARACTER, INK, PAPER, &c.

There are two kinds of *Printing*; the one for Books; the other from Copper-Plates, for Pictures: The firſt call'd *Common-Preſs-Printing*; the ſecond *Rolling-Preſs-Printing*.

The prime difference between the two conſiſts in this, that the Characters of the former are caſt in Relievo; and thoſe of the latter engraven in Creux. See RELIEVO, ENGRAVING, &c.

The Art of *Printing* is a modern Invention: 'Tis, indeed, of a very antient ſtanding among the *Chineſe*; but then their *Printing* is very different from ours. It muſt be own'd the *European Printing*, in its Original, was much the ſame with the *Chineſe*; yet, as there was at that time no Commerce or correſpondence between *Europe* and *China*, the paſſage into the Eaſt by the *Cape of good Hope* being as yet undiſcover'd by the *Portugueſe*; there is no room to charge the *Europeans* with borrowing their Art from the *Chineſe*: But each muſt be own'd to have fall'n on the ſame thing, tho' at very different times.

Father *Couplet* aſſures us, that *Printing* has been in uſe in *China* from the Year 930. Father *le Compte* ſpeaks more largely; ſaying, that it has been there from, almoſt, all Ages: He adds, that there is this difference between theirs and ours, that, whereas we have but a very ſmall Number of Letters in our Alphabets, and by the various Arrangement of theſe, are able to form infinite Volumes; we have the Advantage, by making our Characters moveable, to print the largeſt Works with an inconſiderable Quantity of Letter; thoſe that ſerved for the firſt Sheets, ſerving over again for the ſucceeding ones: The *Chineſe*, on the contrary, by reaſon of the prodigious Number of their Letters, are precluded this reſource; and find it more eaſy and leſs expenſive to cut all their Letters on wooden Blocks; and thus to make as many Blocks as there are Pages in a Book, and theſe of no further uſe but for that ſingle Work.

Their Method of Printing *ſee hereafter*.

Origin and Invention of the European PRINTING.

Who the firſt Inventors of the *European Printing* were; in what City, and what Year 'twas firſt ſet on foot, is a famous Problem long diſputed among the Learned: In effect, as the *Grecian* Cities contended for the Birth of *Homer*; ſo do the *German* Cities for that of *Printing*.

Mentz, *Haerlem*, and *Strasbourg*, are the warmeſt on this Point of Honour: *Italy* alſo would have enter'd the Liſts; but the Suffrages being at firſt divided between the firſt three Pretenders, they are left in poſſeſſion of the Queſtion, which, in reality is not yet juſtly decided; tho' it muſt be own'd, *Mentz* has always had the Majority of Voices.

We ſhall not enter into a nice Diſquiſition of the Merits of the Cauſe, but only propoſe the Pretenſions of each.

John Mantel of *Strasbourg*, *John Guttembourg* and *John Fuſt* of *Mentz*, and *L. John Koſter* of *Haerlem*, are the Perſons to whom this Honour is ſeverally aſcribed, by their reſpective Countrymen; and have all their Advocates among the Learned.

Mantel, a Phyſician of *Paris*, enters the Liſts in behalf of his Name-ſake of *Strasbourg*; and contends that 'twas he firſt invented *Printing* in the Year 1442, and that in conſideration hereof, the Emperor *Frederic* III. gave him a Coat of Arms correſponding thereto: He adds, that *Guttembourg*, whom he had taken in as a Partner or Aſſociate, carry'd it to *Mentz*, where he took in *Fuſt* a Partner.

The *Haerlemers*, with *Boxhornius*, *Schrevelius*, &c. refer the firſt Invention to *Lawrenzs Janzs Koſter* of *Haerlem*, in the Year 1430. Adding, that his Aſſociate, *Guttembourg*, ſtole away his Tools while he was at Church; and carried 'em to *Mentz*, where he ſet up for the firſt Inventor; tho' others attribute this Theft, *&c.* to his Partner *Fuſt*.

Munſter, *Polydore Virgil*, *Paſquier*, &c. will have *Guttembourg*, or *Guttemburgh*, to have really been the Inventor of *Printing*; and add, that he took in *Fuſt* and *Schoeffer* for Aſſociates.

Naude, in his *Maſcurat*, eſpouſes the Cauſe of *Fuſt*, or *Fauſt*, or *Fauſtus*; and will have him to be the firſt *Printer* in *Europe*, and that he took in *Guttembourg* for a Partner. His reaſon for putting *Fuſt* in poſſeſſion of this Privilege, is, that the firſt Books that were printed, appear to have been all of his Impreſſion. 'Tis more than probable, had *Guttembourg* or *Koſter* had a greater or an equal Share in the Invention, they would not have allow'd him to attribute the whole to himſelf and his Son-in-law *Schoeffer*, as he has done, without ever offering to do the like, or in the leaſt contradicting him, and aſſerting their own Right.

Theſe Editions are, 1°. The *Catholicon Januenſis*, dated in 1460, and now in the King's Library. *Fuſt*'s Name, indeed, is not to this; but 'tis perfectly like the following ones, where it is. 2°. The *Latin Bible* of 1462, now in the *French* King's Library. 3°. *Tully*'s *Offices*, in 4*to*; (the reſt being all *Folio's*) in the Year 1465 and 1466; for there are Copies in the *Bodleian*, and the Library of *C. C.* College, *Oxon*, of both thoſe Dates. 4°. Other Bibles of 1471. 5°. St. *Auguſtine de Civitate Dei*, 1473. 6°. *Mercurius Triſmegiſtus de Poteſtate & Sapientia Dei*, in 1503. 7°. *Titus Livius*, in 1518.

Add to this, that at the beginning of *Livy*, is a Privilege granted by the Emperor *Maximilian*, to *Schoeffer* for the ſole Power of *printing* that Author for ten Years; and for ſix Years to all the other Books he ſhould print thereafter, in conſideration of his Father-in-law, *Fuſt*'s having invented the Art of *Printing*. This Privilege is dated 1518, and ſigned *Jac. Spiegel*.

Eraſmus, however, in the Epiſtle after that Privilege, does not poſitively aver the Fact; he only obſerves, that the firſt, or the chief Inventor of that Art is held to be *J. Fuſt*. In the Advertiſement to the ſaid Book, *Nich. Carbachius* ſpeaks to the ſame effect as the Privilege, and *Eraſmus*.

As to *Guttembourg*, *Mantel*, and *Koſter*, *Naude* obſerves, the Perſon is not yet born that can ſay he has ever ſeen Books printed by any of 'em, before, or as early as thoſe of *Fuſt*. All that is urged on their behalf, is only founded on Reports, Conjectures, Probabilities, forged Authorities, and the Jealouſies of Cities againſt one another.

Yet *Salmuth*, in his Additions to *Pancirollus*, cites a public Act, whereby it appears that *Fuſt*, after having invented *Printing*, and ſuſtain'd it a long time on his own footing; at length took in *Guttembourg* as a Partner, to contribute to the Expence; which was very great, by reaſon the firſt Books were moſt of 'em printed on Vellum, or at leaſt Parchment, and after the *Chineſe* way.

But the Cauſe is not thus decided: The Advocates for *Koſter* urge divers things, to put him in the place here aſſigned to *Fuſt*. Mr. *Ellis*, in the *Philoſ. Tranſact.* fathers Books on him prior to any of thoſe above refer'd to *Fuſt*; and even ſome as early as 1430, and 1432. 'Tis certain, the *Haerlemers*, ſhew printed Books of that Date, which agreeing ſo well with the account given by *Theod. Schrevelius*, and others, leaves little room to doubt, whether the Honour of the Invention be his or the others due. All that belongs to *Fuſt*, according to this Writer, is the honour of eſtabliſhing the Art in greater Luſtre and Perfection at another place many Years after.

But the difficulty lies, either in ſhewing why the Practice ſhould be at a ſtand from 1432, to the reviving of it at *Mentz* by *Fuſt* and *Schoeffer*, in 1465; or elſe in giving ſome account of the Condition and Progreſs of this Invention during that Interval.

Now, *Boxhornius*, *Schrevelius*, and other Authors, expreſly affirm, that ſo large a Work as the *De Speigel*, *Speculum Salutis*, of *Koſter*, ſhewn at *Haerlem* for the firſt printed Book, could never be his firſt Eſſay: He muſt have had the Art in its rougher Rudiments before, and have made many Trials on leſſer Works: No doubt his firſt Attempts were on looſe Sheets, which we may ſuppoſe were eaſily loſt. In effect, it muſt be allow'd no inconſiderable Argument in *Koſter*'s behalf, that the rudeſt and moſt artleſs Performances ſeem to be his: Mr. *Ellis* mentions ſome things of this kind without Date, which he had ſeen in the King's Library at St. *James's*, in that of *Bennet* College and the *Bodleian* at *Oxford*, with all the Marks of the utmoſt Simplicity, and which might fairly bid for firſt Eſſays: There is ſomething ſo aukward and coarſe in 'em, that any body almoſt might have done 'em; mere Nature being ſufficient, without any Art or Experience at all. The Ink was only common writing Ink, unartfully ſpread upon wooden Blocks, very clumſily cut, *&c.*

By this time we have traced up the Art to ſuch a State, that it may, perhaps, ſcarce ſeem worth the conteſting who it was invented it; and no doubt, *Printing* as it now ſtands, owes more to the Genius and Addreſs of ſome of the later Improvers, than it did to its Author.

The ſame Conſideration may make us more eaſy under our preſent Ignorance of the Inventors of moſt other Arts; many of which had ſuch ſimple un-meaning Originals, that you or I ſhould, perhaps, think it no mighty Credit to be eſteem'd the Authors of Inventions nothing leſs Artful and Ingenious.

Progreſs of PRINTING.

The firſt *Printers*, then, whoever they were, whether *Koſter*, *Fuſt*, *Schoeffer*, or *Guttembourg*, made their firſt Eſſays on wooden Blocks, or Forms, after the *Chineſe* manner.

'Tis not improbable, ſays Mr. *Bagford*, they might take the Hint from antient Medals and Seals; but others rather imagine it to have come from the Method of making playing Cards, which, 'tis certain, bears a near reſemblance to the primitive Proceſs of *Printing*; as appears from the firſt Specimens of that Art above-mentioned. See CARD.

The Book at *Haerlem*, the Vocabulary call'd *Catholicon*, and the Pieces in the *Bodleian* and *Bennet*'s College, are all perform'd in this way; and the Impreſſion appears to have been only given on one ſide the Leaves; after which the two blank ſides were paſted together.

But they ſoon found the Inconveniencies of this Method; and therefore bethought themſelves of an Improvement; which was by making ſingle moveable Letters, diſtinct from one another.

Theſe being firſt done in Wood, gave room for a ſecond Improvement; which was the making of 'em, at length, of Metal; and, in order to that, forging Moulds, Matrices, *&c.* for caſting 'em.

From this ingenious Contrivance, we ought to date the Origin of the preſent Art of *Printing*, as practiſed in *Europe*; contra-diſtinguiſh'd from the Methods of the *Chineſe* abroad, and the Card-Makers at home, which were the ſame Art, only practiſed in a diffetent place, or with a different view.

And of this, *Schoeffer*, or *Scheffer*, firſt, Servant, and afterwards Partner, and Son-in-Law, of *Fuſt*, at *Mentz*, abovementioned; is pretty generally allow'd the Inventor. So that he was properly the firſt *Printer*; and, in ſtrictneſs, the Bible, which was printed with moveable Letters in 1450, was the firſt printed Book; the next was *Auguſtin de Civitate Dei*, then *Tully's Offices*, &c. about the Year 1461.

But the Art being yet in its Infancy, there were ſome Imperfections in the Books they printed; among the reſt was the want of Capital Letters: hence they left the places of the initial Letters blank, and gave 'em to the Illuminers to paint in Gold, or Azure: Tho', others ſay, this was done deſignedly, to enable 'em to paſs off their Books for Manuſcripts.

Some Authors tell us, that *Fuſt* carrying a parcel of his Bibles to *Paris*, and offering 'em to ſale as MSS. the *French*, upon conſidering the number of Books, and their exact Conformity with one another, even to a Point; and that the beſt Book-Writers could not be near ſo exact; concluded there was Witchcraft in the caſe; and, by either actually indicting him as a Conjurer, or threatning to do ſo, extorted the Secret. And hence the Origin of the popular Story of Dr. *Fauſtus*.

From *Mentz*, the Art of *Printing* ſoon ſpread itſelf throughout a good part of *Europe*; *Haerlem* and *Straſbourg* had it very early; which, as the current of Authors repreſent it, occaſion'd their pretending to the honour of the Invention.

From *Haerlem* it paſs'd to *Rome* in 1467; and into *England* in 1468, by means of *Tho. Bourchier*, Archbiſhop of *Canterbury*, who ſent *W. Turner*, Maſter of the Robes, and *W. Caxton*, Merchant; to *Haerlem*, to learn the Art: Theſe privately prevailing with *Corſeles*, an Under-workman, to come over, a Preſs was ſet up at *Oxford*; and an Edition of *Ruffinus* on the Creed printed the ſame Year in a broad Octavo on Paper.

From *Oxford*, *Caxton* brought it to *London* about the Year 1470. In the ſame Year it was carried to *Venice*, and to *Paris*, where *Gering*, *Grantz*, and *Friburger*, all *Germans*, invited thither by two Doctors of the *Sorbonne*; ſet up a Preſs in that learned Houſe.

Hitherto there had been nothing printed but in *Latin*, and the vulgar Tongues; firſt in *Roman* Characters, then in *Gothic*, and at laſt in *Italic*. But in 1480, and, as ſome ſay, in 1476, the *Italians* caſt a Set of *Greek* Types; and it was at *Venice*, or, as ſome ſay, at *Milan* or *Florence*, that the firſt Editions in that Language appeared.

The *Italians*, too, have the honour of the firſt *Hebrew* Editions, which were printed about the ſame time with the *Greek*, at *Soucino*, a little City in the Dutchy of *Milan*; under the direction of two *Jewiſh* Rabbins, *Joſhua* and *Moſes*, whoſe Works are dated in the Year of the World 5240, anſwering to the Year 1480 of the Chriſtian *Æra*.

Towards the end of the 16th Century, there appeared various Editions of Books in *Syriac*, *Arabic*, *Perſian*, *Armenian*, *Cophtic*, or *Egyptian* Characters; ſome out of the Curioſity of the Learned, and others for the Liturgic Uſes of the Chriſtians of the *Levant*, printed chiefly at *Paris*; whither Puncheons and Matrices were ſent from *Conſtantinople* by M. *Savary*, then Ambaſſador at the *Port*.

Out of *Europe*, the Art of *Printing* has been carried into the three other Quarters of the World: For *Aſia*, we ſee Impreſſions of Books at *Goa*, and in the *Philippines*; at *Lima*, *Boſton*, *Mexico*, &c. for *America*; and at *Morocco* for *Africa*.

The *Turks*, indeed, rigorouſly prohibit *Printing* throughout their Empire, as imagining that the too free Communication with Books, might occaſion ſome change in Religion or Government; yet the *Jews* have ſeveral Editions of their Books printed at *Conſtantinople*, *Theſſalonica*, &c.

Method of PRINTING.

The *Printing* Letters, Characters, or Types as they are ſometimes call'd, we have already ſpoke of, under the Articles LETTER and CHARACTER.

Of the Method of forming or caſting them, under the Article *Letter*-FOUNDERY.

And of the Art of Engraving the Puncheons, Matrices, *&c.* in order thereto, under the Articles ENGRAVING, PUNCHEON, MATRICE, *&c.*

There are Letters of ſeveral Sizes, or *Bodies*; each of which, again, are ſometimes caſt with the *Roman*, ſometimes an *Italick*, and ſometimes an *Engliſh Face*. There are alſo Bodies with *Greek*, *Hebrew*, and the *Muſic Face*.

The moſt uſual Sizes, or Bodies, with their Proportions, are ſhewn and exemplify'd in the following Table; where, it is to be obſerved, that the Verſe anſwering to each is compoſed in the reſpective Letter

	Which when he knew, and felt our feeble Hearts,
	Emboſt with Bale, and bitter biting Grief.
	Which Love had launced with his deadly Darts;
er.	With wounding Words, and Terms of foul Reprief,
ica.	He pluck'd from us all hope of due relief,
	That erſt us held in love of lingering Life.
b.	The Hopeleſs, heartleſs 'gan the cunning Thief
Primer.	Perſuade to die to ſtint all further ſtrife:
ble Pica.	To me he lent this Rope, to him a ruſty Knife:
lined *liſh.*	With which ſad Inſtrument of haſty Death,
eat *mon.*	That woful Lover lothing--

A Set or *Fount* of any of theſe Sizes, includes current Letters, Capitals, numeral Figures, Points, Spaces, *&c.* See FOUNT.

The Workmen employ'd in *Printing* are of two kinds; *Compoſitors*, who range and diſpoſe the Letters into Words, Lines, Pages, *&c.* according to the Copy deliver'd them by the Author: And *Preſs-men*, who apply Ink upon the ſame, and take off the Impreſſion. See COMPOSITION, *&c.*

Office of the Compoſitor.

The Types being caſt, *&c.* are diſtributed, each kind by itſelf, among the Diviſions of two long wooden Frames, an upper, and under one, call'd *Caſes*; each of which is divided into little Cells, or *Boxes*, of different Sizes.

The Boxes of the upper Caſe are in Number 98; and in theſe are diſpoſed the Capitals, ſmall Capitals, accented Letters, *&c.*

In the Cells of the lower Caſe, which are fifty four, are diſpoſed the common running Letters, with the Points, Comma's, Spaces, Quadrates, *&c.*

Each Caſe is placed a little ſlope, like a reading Desk, that the Operator may reach the upper Boxes the better; and be in leſs danger of mixing the Letters by ſtretching his Arm over them. See CASE.

The Compoſitor's Poſt is againſt the middle of the Caſe, and he works ſtanding: holding an Inſtrument, call'd the *Compoſing-Stick*, in one Hand, with the other he takes out the Letters, Points, Comma's, *&c.* as he needs them, out of the Boxes; ranges them on his Compoſing-Stick; and, putting

ting a Space between each two Words, forms one Line after another; till the Stick being full, he empties it out upon an other Inſtrument, call'd the *Galley*; ſeveral of which ranged in a Frame, call'd a *Chaſe*, are ready for the Preſs.

This ſhort View of Compoſing, we ſhall further illuſtrate and enlarge upon.

The *Compoſing-Stick*, then, (repreſented Tab. MISCELLANY, Fig. 7.) conſiſts of a Plate, or Slip of Braſs, Iron, or Wood, more or leſs broad, and contrived ſo as to be made more or leſs long according to the width of the Page, and the Number of Lines to be compoſed in it.

From the right Side of this Plate ariſes a Ledge *a a*, about half an Inch high, running the whole length of the Plate, and ſerving to ſuſtain the Letters, the ſides of which are to reſt againſt it; from the ſame Plate likewiſe ariſe two other leſſer pieces, *b* and *c*. one of which, *b*, is contrived to ſlide along it, that ſo the two pieces may be either approached or withdrawn at pleaſure, to adjuſt the length of the Line to the Meaſure intended. See COMPOSING-*Stick*.

Add, that where Marginal Notes, References, &c. are required in a Work; a ſecond ſliding Piece is added in the Compoſing-Stick, at the proper diſtance from the former: as at *e*.

E'er the Workman proceeds to compoſe, a *Rule*, or Slip of Braſs-Plate, cut to the length of the Line, and of the ſame height as the Letter, is placed in the Compoſing-Stick againſt the Ledge thereof; for the Letter to bear immediately againſt.

Things thus prepared, and having the Copy lying before him, and the Stick in his left Hand; with the right he picks up the Letters, Spaces, &c. and places 'em againſt the Rule; while with the Thumb of the left he preſſes them cloſe to the upper Screw, or *Check*; and thus keeps them tight and ſteady: while the other Hand is conſtantly employ'd in ſetting in more Letters: The whole performed with a degree of Expedition and Addreſs, not eaſy to be imagined.

A Line being thus compoſed, if it end with a Word or Syllable, and fill the Meaſure; there needs no further Care; otherwiſe more *Spaces* are to be put between the ſeveral Words to *juſtify* the Lines, *i. e.* to make the Meaſure pretty ſtiff; and thus he proceeds to another Line.

The *Spaces* here uſed are a ſort of blank Characters, of the like Dimenſions as the Letters, but leſs high; and whoſe Faces, therefore, when ſet, do not appear, nor give any Impreſſion. They are of ſeveral kinds according to the Dimenſions of the Blanks, or Intervals to be made by them, *viz. Quadrats*, to fill up a Break at the end of a Paragraph, or the like; *M quadrats*, which are ſquare, and of the thickneſs of an *m*, ſerving to make the diſtance after a Peroid, or between Sentence and Sentence; *N quadrats*, of the thickneſs of an *n*, to be placed after Colons, Semicolons, and Comma's; and *thick* or *thin Spaces*, to be uſed between the Words in juſtifying, as above.

For Marginal Notes, in the Spaces reſerved for them, between the two ſliding pieces of the Compoſing-Stick, are put little quadrated pieces of Metal, call'd *Quotations*; which are juſtified by other ſmaller pieces: a Slip of Scaleboard being placed from the top of the Page to the bottom, to keep the Note and Text at a due diſtance.

The firſt Line thus compleatly juſtify'd, the Compoſitor advances to a freſh one; in order to which, he moves the braſs Rule from behind the former, and places it before it, and thus compoſes another Line againſt it, after the ſame manner as the former: and thus he goes on till his Stick be full, which he empties into the Galley, after the manner following.

Taking the Rule from behind the laſt Line, he places it before it; and with his two middle Fingers ſqueezes the Lines in the Stick cloſe; his two Fore-fingers at the ſame time being apply'd on the outſide of the Rule: thus he lifts them out of the Stick, and clapping his two Thumbs behind the firſt Line, lifts them into the Galley; taking care to diſengage his two Thumbs without breaking the Lines.

The Compoſitor having thus ſet the proper Number of Lines in his Stick, *viz.* four, ſix, or eight, and emptied them out into the Galley; he again fills, and empties as before, till a compleat Page be form'd: Remembring at the bottom of every Page to ſet a Line of Quadrats, and at the end thereof the firſt Word of the Page enſuing, for a *Catch-Word*; and, if it be the firſt Page of the Sheet, one of the Letters of the Alphabet for a *Signature*.

The *Galley* is a flat wooden Inſtrument, in form of a long Square; of a length and breadth proportionable to that of the Page: It conſiſts of two Parts, the Upper, call'd the *Slice*, whereby the Pages of large Volumes, when compoſed, are ſlidden upon the Stone; the other, which is the Body of the Galley, is ledged on three ſides, to contain the Slice; the inner Ledge not to exceed half an Inch in height, that the compoſed Page riſing above it by one half the height of the Letter, may be *tyed up*, or bound down, and removed without danger.

This Galley is placed at the Top of the Caſe, and detained by two wooden Pins from ſliding down the Boxes. See GALLEY.

The Page, then, compoſed and ranged in the Galley, he ties it up therein with a *Cord* or Pack-thread; and ſets it by; and proceeds to the next, till the Number of Pages of the Sheet be compleated: which done, he carries them to the *Impoſing* or *Correcting-Stone*, there to range them in Order, in a *Chaſe*; which they call *Impoſing*.

The *Chaſe* is a Rectangular Iron Frame of different Dimenſions, according to the Size of the Paper to be printed on; having two croſs pieces of the ſame Metal, call'd a *long* and *ſhort Croſs*, mortiſed, at each end, into the Frame, ſo as to be taken out occaſionally.

By the different Situations of theſe Croſſes, the Chaſe is fitted for different Volumes; for Quarto's and Octavo's, one traverſes the middle lengthwiſe, the other breadthwiſe, ſo as to interſect in the Centre; which is the moſt cuſtomary Situation: For Twelves and Twenty-fours, the ſhort Croſs is ſhifted nearer to one end of the Chaſe: For Folio's, the long Croſs is left entirely out, and the ſhort one placed in the Middle; and for Broadſides, or Sheets printed on one ſide only, both Croſſes are ſet aſide.

To *dreſs the Chaſe*, or range and fix the Pages therein, they make uſe of a Set of *Furniture*, conſiſting of *Riglets*, or ſlips of Wood of different Dimenſions, and about half an Inch high, that they may be lower than the Letters: Some of theſe are placed at the Top of the Pages, call'd *Head-ſticks*; others between them to form the inner Margin, call'd the *Gutter ſticks*; others at the Sides, call'd *Side-ſticks*; and others at the Bottom, call'd *Foot-ſticks*.

The Pages, then, placed in order on the Stone, the Chaſe is put over 'em, and the Riglets apply'd between the Letter and the Chaſe, in the Poſition above-mentioned; the whole is lock'd up by means of other leſſer pieces, cut in the Wedge-form, call'd *Quoins*, which are driven with a *Mallet* and *Shooting-ſtick*, to a ſufficient Tightneſs.

Before the Form be quite lock'd up, they *dreſs down* the ſame, by paſſing a ſmooth piece of Wood, call'd the *Plainer*, over the Letters, to make their Surfaces ſtand flat and even; and when lock'd up, they ſhake it, to ſee that nothing ſtir.

In this condition the Work is call'd a *Form*, containing more or fewer Pages, according to the Volume. See FORM.

As there are two Forms required for every Sheet, when both ſides are to be printed, 'tis neceſſary they be exactly of the ſame length and breadth, *i. e.* the correſponding Riglets, Head-ſticks, &c. are to be equal in both Forms.

Here, then, properly ends the Compoſitor's Office; the Form, thus finiſh'd, being to be committed to the Preſs-Man.

Indeed, as it is impoſſible but there muſt be Miſtakes in the Work, either thro' the Overſight of the Compoſitor, or by the tranſpoſition of the Letters in the Caſes; after drawing off a Proof, it is deliver'd to the Corrector, who reading it over, and rectifying it by the Copy; it is remanded to the former Operator, to be *corrected* accordingly.

For the Characters uſed in correcting a Sheet for the Compoſitor, ſee CORRECTION.

The Compoſitor, then, unlocking the Form upon the correcting Stone, by knocking out or looſening the Quoins; and ſpreading his corrected Proof ſo, as that the Lines hereof range with the reſpective ones of the Metal; by running his Eye along both, he eaſily ſpies where Corrections are to be made: according to which, he proceeds to pick out the faulty Letters, Points, &c. with a ſharp-pointed Steel-Bodkin, and puts others in their places.

Where the Alterations are conſiderable, and particularly where Inſertions or Omiſſions are to be made, there uſually ariſes a neceſſity of *over-running*; in order to which, they muſt de-compoſe, or return the Lines back from the Chaſe into the Galley, and from the Galley again into the Compoſing-Stick, to be new modell'd and rectify'd accordingly.

If, *e. gr.* one or more Words to be inſerted in a Line, cannot be *got in* by changing the Spaces of the Line for leſſer ones; part of the Line muſt be put back into the cloſe of the preceding one, or forward into the beginning of the ſubſequent one, or both; till room is got. If the Inſertion be large, ſeveral Lines will need to be over-run, either backward or forward, till a Break is arrived at; when, if it be not *got in*, a Line is to be *driven out*; and to get in that Line, the next Pages, either backward or forward, muſt ſometimes be over-run e'er it can come in.

Where an Omiſſion is to be made, the contrary courſe muſt be taken. If it be but little, the Compoſitor takes it out, and *drives out* the Matter; by either enlarging his Spaces, or beſtowing the beginning of the following, or the cloſe of the preceding Line, therein. If it be conſiderable, he may be obliged to over-run ſeveral Pages e'er it can be driven out.

Office of the Preſſman, or PRINTING, *properly ſo call'd.*

To work off the Form thus prepared and corrected by the Compoſitor, there are three things required, *Paper*, *Ink*, and a *Preſs*.

To fit the Paper for uſe, it is to be firſt wet or moiſten'd, by dipping ſeveral Sheets together in Water; theſe are afterwards laid in a heap over one another; and to make 'em take the Water equally, are all preſs'd cloſe down with a Weight a-top. As to the degree of wetting, it muſt be according to the Quality of the Paper, and the Size of the Letter; ſmall Letters, and ſtiff Paper, requiring moſt wetting.

The *Printer's Ink* is of two kinds, black and red. The laſt occaſionally uſed in Title-Pages, Calendars, &c. the firſt for the Body of Books. The Compoſition of each, tho' now reckon'd no part of the Printer's Buſineſs, but uſually furniſh'd 'em by other hands, is as follows.

Method of making the PRINTING-*Inks.*

For black Ink: An hundred Pounds of Nut, or Linſeed-Oil being reduced, by boiling, to the Conſiſtence of a Syrup, is cleans'd and purify'd by throwing into it two Pounds of coarſe Bread, and about a dozen Onions. They then boil thirty or thirty-five Pounds of Turpentine, a-part, till ſuch time as they find, upon its cooling on Paper, that it breaks clean, like Glaſs, without pulverizing; for if it pulverize eaſily, 'tis a ſign it is burnt. The Oil and Turpentine thus prepared, the firſt is gently pour'd, half cold, into the latter; and the two ſtirr'd together with a Stick till they be well mixed; after which, the Compoſition, which is call'd the Varniſh, is ſet by, to be uſed occaſionally.

Now, to proceed to make Ink, they take a quantity of this Mixture, and add to it a certain quantity of Lamp-black; working it up with a kind of wooden Mullet, or *Brayer*, till the whole be incorporated and reduced into a kind of Pulp; which is the Ink for uſe.

Where, Note, that its Thickneſs or Strength are always to be proportion'd to that of the Paper and the Warmth of the Weather; ſtrong Paper and hot Weather requiring ſtrong Ink: and that the Strength or Weakneſs of the Ink depends on the greater or leſs degree of Coction of the Varniſh.

For red Ink: They uſe the ſame Materials as for black, excepting that inſtead of Lamp-black they add a proper Quantity of Vermillion. Some hold, that by mixing and incorporating the bigneſs of a Nut of Fiſh-glue, or Brandy, or the White of an Egg with the Ink; the Vermillion acquires a greater Luſtre.

The Ink is applied upon the Forms by *Balls*, which are a kind of wooden Funnels, the Cavities whereof are furniſh'd with Wool, cover'd with Leather nailed to the Wood. One of theſe the Preſs-man takes in each Hand, and applying them on the *Ink-block*, to charge 'em with Ink, he rubs one againſt t'other to diſtribute the Ink equally; and, at laſt, ſmears over the Form by *beating* or dabbing 'em ſeveral times over the whole Face thereof: This leaves the Form in a condition to be paſs'd under the Preſs, with the moiſten'd Paper laid thereon.

The PRINTING-*Preſs.*

The *Printing-Preſs* (repreſented Tab. MISCELLANY, fig. 8.) is a very complex Machine; its two principal Parts, each whereof conſiſts of ſeveral others, are the *Body* of the Preſs, which ſerves to give the Pinch or Stroke for the Impreſſion; and the *Carriage*, on which the Form is laid to undergo the ſame.

The *Body* conſiſts of two ſtrong *Cheeks b b*, placed perpendicularly, and join'd together by four croſs Pieces or Planks.

The firſt Plank *c c*, call'd the *Cap* of the Preſs, is fixed, and ſerves to keep the two Cheeks together at the due diſtance, at top: The ſecond *d d*, call'd the *Head*, is moveable; being ſuſtain'd by two Iron-Pins or *long Bolts*, that paſs the Cap: In this Plank is fix'd a Female-Screw or *Worm*, with a *braſs Nut*, ſuſtain'd by two *ſhort Bolts* which keep it up: The third Plank *e e*, call'd the *Shelves*, ſerves to keep ſteady a Part call'd the *Hoſe*, in which the *Spindle* (to be ſpoke of hereafter) is encloſed: The fourth Plank *f f*, call'd the *Winter*, is moveable; it bears the *Carriage*, and ſuſtains the Effort of the Preſs beneath, as the Head does above; each giving way a little, the one upwards, the other downwards, to make the Pull the eaſier.

The *Spindle g g*, is an upright piece of Iron pointed with Steel, of different Dimenſions; having a Male-Screw which goes into the Female of the *Head* about four Inches. Thro' the *Eye h*, of this Spindle, is rivetted the *Bar*, by which the Preſs-man works the Preſs.

The lower part of the *Spindle* paſſes thro' the *Shelves*, being incloſed in a ſquare wooden Frame *i*, call'd the *Hoſe*; and its Point works into the *Plug*, fix'd in a *braſs Pan* ſupply'd with Oil: which *Pan* is fix'd to an Iron Plate let into the top of the *Platten*. The Preſs-man, then, by *pulling* or turning the Bar fix'd in the *Eye* by an Iron Key, preſſes upon a ſquare ſmooth Piece of Wood call'd the *Platten*, and enables it to compreſs the Form cover'd with the Paper, Tympans, and its Blankets, which, in order hereto, are brought under the *Platten*.

At each Corner of the *Hoſe*, is an Iron-Hook faſten'd to thoſe at each Corner of the *Platten*, with Cords or Pack-thread very exactly.

The *Carriage l l l*, which makes the ſecond principal Member of the Preſs, is placed a foot below the Platten, having its fore-part ſupported by a wooden Prop *m*, call'd the *Fore-ſtay*, while the other reſts on the Winter. On this Carriage, which ſuſtains the *Plank*, are nail'd two long Iron-Bars or *Ribs o o*, and on the *Plank* are nail'd ſhort pieces of Iron or Steel *p p*, call'd *Cramp-Irons*, equally tempered with the *Ribs*, and which ſlide upon 'em when the Preſs is turn'd in, or out.

Under the Carriage is fix'd a ſmall piece of Iron call'd the *Spit*, with a double Wheel in the middle, round which Leather *Girts* are faſten'd, nail'd to each end of the *Plank*. To the outſide of the *Spit* is fix'd a Handle, or *Rounce*, by which the Preſs-man turns the Plank in or out at pleaſure.

Upon the Plank is a ſquare wooden Frame, or *Coffin q q*, wherein is incloſed a Marble, or poliſh'd *Stone*, for the Form to be laid on: To this Coffin are faſten'd Leather *Stay Girts*, one on each ſide; which being again faſten'd to the Cheeks of the Preſs, prevent the Plank from running too far out, when drawn from under the Platten. On the fore-part of the Plank is a *Gallows r r*, which ſerves to ſuſtain the Tympans, when taken from off the Form.

On the Front of the Coffin are three Frames much alike, tho' ſerving for different purpoſes, *viz.* the two Tympans and Friſket: The *Tympans s s*, are ſquare, made of three Slips of very thin Wood, and a-top of a ſlip of Iron, ſtill thinner, call'd a *Head-Band*: That call'd the *outward Tympan* is faſten'd with *Iron Joints* to the Coffin. They are both cover'd with Parchment; and between the two are placed Blankets, which ſerve to make the Impreſſion of the Platten upon the Surface of the Letters more equable; as alſo to prevent the Letters from being broke by the Force of the Preſs. The *Friſket t t*, is all of Iron, very thin; faſten'd a-top to the great or *outward* Tympan; and ſuſtain'd by a ſlip of Wood hanging from the Cieling, when open'd, to take out the printed Sheets, and put in others. It is alſo cover'd with Parchment, or Paper, cut in the neceſſary places, that the Sheet, which is between the great Tympan and Friſket, may receive the Ink, and that nothing may hurt the Margins. On the Parchment of the great or *outward* Tympan it is, that the blank Sheet is laid to be printed.

To regulate the Margins, and make the Lines and Pages anſwer each other when printed on the other ſide; in the middle of the Wood in the ſides of this Tympan are two Iron Points which make two Holes in the Sheet, to be placed on the ſame Pins when the Sheet is return'd for an Impreſſion on the other ſide, call'd the *Reiteration*.

Every thing now about the Tympans being prepared for printing, and the Preſs-man having ink'd, or *beat* his Form now placed on the Stone; he brings the Tympans and Friſket down from the Gallows upon the Form; and advancing the Plank under the Platten by means of the *Spit*-Handle, or *Rounce*, gives two Strokes or *Pulls* with the Bar; and with the ſame Handle turn'd the contrary way, brings back the Plank, to take out the printed Sheet, and put in a freſh one; and this he repeats till he have taken off the full Number of Sheets the Edition is to conſiſt of.

One ſide of the Sheet thus printed, 'tis remanded to the Preſs for the other; and ſo diſpoſed as that the Iron Points paſs thro' the Holes already made in the Sheet.

Sometimes 'tis required to cut the Friſket a-freſh, where the ſecond ſide is to be more or leſs full of *Printing* than the firſt; as is frequently the caſe at the beginning and ending of Books, &c.

The Number of Sheets of the Edition being compleat, and the Form to be ſeparated, to reſtore the Letters into the Caſes; they firſt waſh it in a boiling Lye to take out the Remains of the Ink, ſcouring it with a Bruſh, and then with fair Water. This done, it is carry'd to a wooden Frame to be unlock'd, and the Furniture, *i. e.* the Sticks, &c. taken off to diſengage it from the Chaſe. Then the Compoſitor taking out ſeveral Lines at once upon a little wooden Ruler, he replaces each Letter in its proper Box, to be again uſed in the remainder of the Impreſſion; which laſt Operation they call *Diſtribution*.

Beſide the ſeveral kinds of Letters and Characters above-mentioned, uſed in *Printing*; they have likewiſe Rules for blank Lines, Borders, and Head and Tail-Pieces, accommodated to the ſeveral kinds of Letters.

The *Rules* for blank Lines are of Braſs, and made exactly the height of the Letter; otherwiſe they will either hinder the neighbouring Letters from *printing*, or will themſelves be hindred by 'em. Theſe the Compoſitor occaſionally cuts into proper Lengths, as his Work requires.

The *Borders* are a kind of Ornaments in form of long Bars, ſerving for the Diviſions of Books, Chapters, *&c.* Their Depth is proportion'd to the Letter, and their Length adjuſted to the Page; for being compoſed of ſeveral moveable Pieces, 'tis eaſy lengthening or ſhortening 'em.

The *Head* and *Tail Pieces*, cut either in Wood or Pewter, are Compartiments uſed at the beginnings and endings of Books.

The initial Letters are ſometimes cut in Wood, and figured; ſometimes caſt like the other Characters.

For the Conveniency of the Binding, the *Printers* had early recourſe to *Signatures*, *i. e.* Letters of the Alphabet placed at the bottom of the Sheet, which ſhew the Order they are to be bound in; as well as whether the Quires be compleat.

The *Catch-Words* ſerve nearly the ſame purpoſe; theſe are the firſt Words of each Page, which are repeated at the bottom of the preceding Pages. The Numbers of the Pages are equally ſerviceable to the Reader and the Binder, to guide to References, and to warrant the Book duly bound and collated: Some *Printers* formerly put 'em at the bottoms of the Pages; but Cuſtom has carried it for the Tops.

In the Infancy of *Printing*, they had likewiſe a *Regiſtrum Chartarum*, for the Convenience of the Binders: To draw this, at the end of each Volume, they collected the Signatures, and the firſt Words of the four firſt Sheets of each Alphabet. To abridge it, they afterwards contented themſelves to expreſs the Signatures, and how oft each Letter was repeated. But the *Regiſtrum* has been long diſuſed.

As to the Faults which eſcape the Corrector, and Compoſitor; they are uſually noted in what they call *Errata*. The antient Editions had no *Errata*; but in lieu thereof they corrected the Faults in each printed Copy with a Pen; which was eaſy enough in thoſe days, tho impracticable now. In effect, we have antiently had *Printers* who did not need an *Errata* of above five Articles in a Volume of five hundred Sheets: How different from ſome of the preſent Set, who might make an *Errata* of five hundred Articles in a Book of five Sheets?

The CHINESE-PRINTING.

There are three Opinions as to the Antiquity of the *Chineſe-Printing*; one fixing it 300 Years before Chriſt; another 900 Years after him; and a third carrying it ſtill farther back, and making it co-eval with that mighty Empire: tho' it muſt be allow'd the laſt is much the leaſt probable of the three.

Their Manner of *Printing*, we have already hinted to be very different from that which now obtains among the *Europeans*: 'Tis true, it has ſome Advantages over ours in Correctneſs, and the Beauty of the Character; but in other Reſpects it comes far ſhort: The ſingle Advantage of moveable Characters making more than amends for all that is urged againſt us by ſome zealous Advocates for this *Oriental Printing*.

Books are printed in *China* from wooden Planks, or Blocks, cut like thoſe uſed in printing of Callico, Paper, Cards, *&c.* among us. See CARD, *&c.*

Theſe Blocks are of a ſmooth, firm, cloſe Wood, and the Size of the Leaf required. On the Face-ſide they glue a Paper, upon which ſome able *Chineſe* Writer draws out the ſeveral Letters and Characters, with a *Chineſe* Pen, which is a kind of Pencil. This is the principal part of the Work, and that whereon the Succeſs of the reſt depends.

When finiſh'd, the Block is put into the Hands of a Sculptor, or Cutter in Wood; who, following the ſeveral Strokes of the Writer with his Gravers, and other ſharp little Inſtruments, makes 'em all appear in Relievo on the Wood. See CUTTING *in Wood*.

When the Engraving is finiſh'd, they moiſten what remains of the Paper, and rub it gently off.

The Ink they uſe in *printing* is the ſame with the common *Chineſe* Ink; wherewith they alſo write; and is made of Lamp-black, mixed up with Oil.

Their Preſs reſembles our Rolling-Preſs, much more than the Letter-Preſs. See ROLLING-*Preſs*.

As to their Paper, it is inferior to ours: It is made of the inner Bark or Rind of a kind of Ruſhes, beat up with Water into a Pulp or Paſte, and form'd in Moulds, much like ours. See PAPER.

The Advantages of the *Chineſe-Printing* conſiſt in this, that they are not obliged to take off the whole Edition at once; but print their Books as they need 'em: That the Blocks are eaſily retouch'd, and made to ſerve a-freſh; and that there needs no Corrector of the Preſs.

Its Diſadvantages are, that a large Room will ſcarce hold all the Blocks of a moderate Volume; that the Colour of the Ink eaſily fades; and that the Paper is apt to tear, and is ſubject to Worms: whence it is that we ſee ſo few antient Books in *China*.

Rolling-PRESS-PRINTING.

Rolling-Preſs-Printing, is employ'd in taking off Prints, or Impreſſions from Copper-Plates engraven, or etch'd. See ENGRAVING and ETCHING.

It differs, as we have before obſerv'd, from Letter-printing; in that the Marks and Characters, whoſe Impreſſions are to be taken, in the former Caſe, are indented, or cut inwards; and in the latter, are *in Relievo*, or ſtand out.

Origin and Progreſs of Rolling-Preſs-PRINTING.

This Art is ſaid to be as antient as the Year 1460; and to owe its Origin to *Finiguerra*, a *Florentine* Goldſmith, who caſting a piece of engraven Plate in melted Brimſtone, found the exact Print of the Engraving left in the cold Brimſtone, mark'd with Black licked out of the Strokes by the liquid Sulphur.

Upon this he attempted to do the ſame on ſilver Plates with wet Paper, by rolling it ſmoothly with a Roller; and this ſucceeded.

This Novelty tempted *Baccio Baldini*, a Goldſmith of the ſame City, to attempt the ſame; which he did with Succeſs; ingraving ſeveral Plates of *Sandro Boticello's* Deſign, and *printing* them off this new way: in which he was follow'd by *Andrew Mantegna*, then at *Rome*.

This knowledge getting into *Flanders*, *Martin* of *Antwerp*, a famous Painter, graved abundance of Plates of his own Invention, and ſent ſeveral Prints into *Italy*, marked thus, *M. C.*

After him *Albert Durer* appear'd, and gave the World a vaſt number of Prints, both in Wood and Copper.

About this time one *Hugo de Carpi*, an *Italian* Painter, found out a way, by means of ſeveral Plates of Wood, to make Prints reſemble Deſigns of *Claro Obſcuro*; and ſome Years after, the Invention of *Etching* was diſcover'd, which was ſoon made uſe of by *Parmeggiano*.

The Art was not uſed in *England* till the Time of King *James* I. when it was brought from *Antwerp* by *Speed*.

The Structure of the *Rolling-Preſs*, and the Compoſition of the Ink uſed therein; with the Manner of applying both in taking off Prints, are as follow.

Structure of the Rolling-Preſs.

This Machine, like the common Preſs, may be divided into two parts; the *Body* and *Carriage*, analogous to thoſe in the other.

The Body conſiſts of two *Cheeks* of different Dimenſions; ordinarily about $4\frac{1}{2}$ foot high, a foot thick, and $2\frac{1}{2}$ apart; join'd a top and bottom by Croſs-pieces. The Cheeks are placed perpendicularly on a wooden Stand, or Foot, horizontally placed, and ſuſtaining the whole Preſs.

From the Foot likewiſe riſe four other perpendicular pieces, join'd by other croſs or horizontal ones; which may be conſider'd as the *Carriage* of the Preſs, as ſerving to ſuſtain a ſmooth, even *Plank*; which is about $4\frac{1}{2}$ foot long, $2\frac{1}{2}$ foot broad, and an inch $\frac{1}{2}$ thick: upon which the engraven Plate is to be placed.

Into the Cheeks go two wooden Cylinders, or *Rollers*, about ſix Inches in diameter, bore up at each end by the Cheeks; thoſe Ends, which are leſſen'd to about 2 Inches diameter, and call'd *Trunnions*, turn in the Cheeks between two pieces of Wood, in form of *Half Moons*, and lined with poliſhed Iron, to facilitate the Motion.

The Space in the half Moons, left vacant by the Trunnion, is fill'd with Paper, Paſtboard, *&c.* that they may be rais'd and lower'd at diſcretion; ſo as only to leave the ſpace between them, neceſſary for the paſſage of the Plank, charg'd with the Plate, Paper, and Blankets.

Laſtly, to one of the Trunnions of the upper Roller, is faſten'd a *Croſs*, conſiſting of two Levers, or Pieces of Wood, traverſing each other. The Arms of this Croſs ſerve, in lieu of the Handle of the common Preſs; giving a Motion to the upper Roller, and that to the under; by which means the Plank is protruded, or paſs'd between them.

Preparation of the Ink.

The Ink uſed in Rolling-Preſs-Printing, is a Compoſition of Black, and Oil mix'd and boil'd together in a due Proportion.

The Black is a factitious Matter, made of the Stones of Peaches and Apricots, Bones of Sheeps-feet, and Ivory; all well burnt; beaten, ſifted, and mix'd together with Spirit of Wine, and ſometimes only with Water.

This Black is uſually brought hither ready prepared from *Francfort on the Main*; whence our Printers call it *Francfort-Black*. See BLACK.

The Oil wherewith they dilute this Black, is Nut-Oil; which is boil'd up differently, according to the different Works it is to be uſed in.

They uſually make three Kinds, *thin*, *thick*, and *ſtrong*; only differing in the degree of Coction: The Strong is that uſed in the fineſt Works, *&c.*

To make the Ink, they pulverize the black Stone very carefully, and paſs it thro' a fine Sieve; then mix it up on a Marble with the proper Oil, by means of a Mullet; after the ſame manner as the Painters do their Colours.

Method of PRINTING *from Copper-Plates.*

The Ink being prepared, they take a little Quantity of it on a *Rubber*, made of Linnen Rags, ſtrongly bound about one another; and therewith ſmear the whole Face of the Plate, as it lies on a Grate, over a Charcoal-fire.

The Plate ſufficiently inked, they firſt wipe it coarſely over with a foul Rag, then with the Palm of the left Hand, then of the right; and, to dry the Hand, and forward the wiping, rub it from time to time on Whiting.

In wiping the Plate perfectly clean, yet without taking the Ink out of the Engraving, conſiſts a good part of the Addreſs of the Workman. The *French* Printers uſe no Whiting, as being detrimental to the Colour of the Ink; nor do they lay the Plate on the Grate to warm, till after inking and wiping it.

The Plate thus prepared, is laid on a thick Paper, fitted upon the Plank of the Preſs: Over the Plate is laid the Paper, firſt moiſten'd, to receive the Impreſſion; and over the Paper, two or three Folds of Blanketing, or other Stuff.

Thus diſpoſed, the Arms of the Croſs are pull'd; and by that means, the Plate with its Furniture paſs'd thro between the Rollers; which pinching very ſtrongly, yet equably, preſſes the moiſten'd Paper into the Strokes of the Engraving, whence it licks out the Ink.

Some Works require being paſs'd twice thro' the Preſs, others only once, according as the Graving is more or leſs deep, or the greater or leſs degree of Blackneſs the Print is deſired to have.

It muſt be obſerv'd, that the ſtronger, and thicker the Ink is, the ſtronger muſt the Rollers pinch the Plate: This tempts many of the Workmen to uſe a thinner Oil, in order to ſave Labour; which proves prejudicial to the Impreſſion.

The wetting of the Paper ought to be done two or three days before *printing* it, to render it the more ſupple and mellow: As the Prints are drawn off, they are hung up to dry on Lines, *&c.*

Laſtly, after the Number of Prints deſired, have been wrought off from the Plate; they rub it over with Oil of Olives, to prevent its ruſting, and ſet it by againſt a new Impreſſion. If the Strokes of the Graving be perceived full of Ink harden'd therein, in the Courſe of the *Printing*; they boil it well in a Lye, e'er the Oil be apply'd.

PRIOR, *before*, ſomething that is nearer the beginning, than another to which it is referred. See PRIORITY.

PRIOR, is particularly uſed for a Superior of a Convent of Monks; or the ſecond Perſon, after the Abbot. See SUPERIOR and CONVENT.

Priors are either *Clauſtral*, or *Conventual.*

Conventual PRIORS are the ſame as Abbots; all the difference between them being in Name; both having the ſame Rights; and both, alike, Governours of Monaſteries. See ABBOT.

A *Clauſtral* PRIOR, is he who governs the Religious of an Abbey, or *Priory, in Commendam*; ſo called, becauſe he has Superiority in the Cloiſter, or Monaſtery. See COMMENDAM.

His Juriſdiction is wholly from the Abbot; and ends with the Abbot's Death, unleſs he has been elected by the whole Convent. See CLAUSTRAL.

Conventual Priors, are of two kinds, *viz. Regular Conventual Priors*, who govern Religious living in Community; and *Secular-commendatary-conventual Priors.*

Conventual *Priors*, are obliged to take up the Prieſthood within a Year, or at moſt two, from the Dates of their Proviſion; in default whereof, their Benefices are declared vacant.

Priors muſt be twenty-five Years old, e'er they can govern the Convent; and twenty, if the Convent be govern'd by another.

Grand PRIOR, is the Superior of a large Abbey, where ſeveral Superiors are required; as in the Abbeys of *Cluny* and *Fecamp*.

In the Monaſtery of *St. Dennis*, there were antiently five *Priors*; the firſt whereof was call'd the *Grand Prior*. In moſt Monaſteries, there is a *Sub-Prior*.

There are alſo *Grand Priors* in the Military Orders; as *Priors of Maltha*, or *of St. John of Jeruſalem*, &c.

PRIORITY, the Relation of ſomething, conſider'd as it is *before*, or *prior* to, another; *i.e.* nearer to the beginning, or the firſt. See POSTERIORITY.

The principal Modes of *Priority* are five, *viz.* in reſpect of *Time*; as when we ſay, that the *Grecian* Empire was *prior* to the *Roman*; *Nature*, as when we ſay one is *prior* to two; *Order*, *Dignity*, and *Cauſality*. Which are ſummed up in the Technical Diſtich:

Tempore, Natura, prius Ordine, dic & Honore;
Effecto Cauſam dicimus eſſe prius.

PRIORITY, in Law, is an Antiquity of Tenure, in compariſon of another leſs antient. See TENURE.

To hold by Priority, is to hold of one Lord more antiently, than of another; in reſpect whereof, the Tenant is ſaid to *hold in Poſteriority*. See POSTERIORITY.

The Lord of the *Priority* ſhall have the Cuſtody of the Body. *Cromp. Juriſd.*

PRIORS *Aliens*, certain Religious, born in *France*, and *Normandy*; Superiours of Religious Houſes, erected for their Country-Folks here in *England*.

Theſe, *Henry* V. deeming no good Members for this Land, ſuppreſs'd; and their Livings were afterwards given by *Henry* VI. to other Monaſteries, and Houſes of Learning; but chiefly, as *Stow* obſerves, to the erecting of thoſe two famous Colleges, call'd *the King's Colleges* of *Cambridge*, and *Eaton*.

PRISAGE, that Share which belongs to the King or Admiral, out of ſuch Merchandizes as are taken at Sea, as lawful Prize; which is uſually a tenth part. See PRIZE.

Priſagium *eſt jus* Priſas *capiendi*; *vel ipſe actus.*

PRISAGE *of Wines*, *Butlerage*; a Cuſtom whereby the King challenges out of every Veſſel laden with Wine containing twenty Tuns, or upwards; two Tun of Wine, the one before, the other behind the Maſt, at his own price; which is twenty Shillings *per* Tun. See DUTY.

This Cuſtom varies a little, in various places: At *Boſton*, *e.gr.* every Bark laden with ten Tuns of Wine, pays *Priſage*.

The Term is now, almoſt grown into diſuſe; and in lieu of *Priſage*, the Cuſtom is popularly call'd *Butlerage*; becauſe 'tis the King's chief Butler that receives it. See BUTLERAGE.

PRISCILLIANISTS, antient Hereticks, who aroſe in *Spain* towards the end of the fourth Century.

The *Priſcillianiſts* were a Branch of the *Manichees* and *Gnoſticks*. See GNOSTICKS, *&c.*

We are at a loſs for their particular Tenets. St. *Leo* ſays, they attributed to Jeſus Chriſt only a fictitious or imaginary Body.

Priſcillian, their Leader, was a Lay-man: He was condemn'd with ſome Biſhops his Adherents, in a Council at *Saragoſſa*, and in another at *Bourdeaux*; but he appeal'd to the Emperor *Maximus*, and had a hearing at *Treves*, where being convicted of broaching Novelties, he was condemn'd to death, with ſeveral of his Followers.

PRISE, or PRIZE, in Navigation, a Veſſel taken at Sea from the Enemies of the State, or from Pirates; by a Man of War, or a Merchant-man, having Commiſſion from the Admiral.

Veſſels are look'd on as lawful *Priſe*, if they fight under any other Standard, than that of the State from whom they have their Commiſſion; if they have no Charter-Party, Invoice, or Bill of Lading a-board them; if they be loaden with Effects belonging to the King's Enemies, or with Contraband Goods.

Thoſe of the King's Subjects recover'd from the Enemy, after having remain'd twenty-four Hours in their hands, are deem'd *Priſe*.

Veſſels that refuſe to ſtrike their Sails, after having been ſummon'd thereto by the King's Ships; may be conſtrain'd to do it; and if they make reſiſtance, and fight, are lawful *Priſe*.

PRISE, in our Statutes, is uſed for Things taken of the Subjects by the King's Pourveyors. See POURVEYOR.

Spelman deſcribes *Priſes* to be Corn and other Proviſions taken from the Country People, at lower Rates than ordinary; for the Maintenance of the King's Houſhold, Garriſons, *&c.*

Roger de Montealto, who married the Siſter of *Hugo de Abeney*, claim'd the following Privileges; *viz.* his Caſtle of *Riſinge cum Priſis* 40 *Dierum*, with *Priſes* of 40 Days: Which Phraſe the ſame Author underſtands of the Liberty of taking Proviſions for the Support of the Garriſon of his Caſtle, upon paying for them within 40 Days. See Stat. 12 *Car.* 2. *cap.* 34.

PRISM, in Geometry, an oblong Solid or Body, whoſe Planes are all rectilinear and regular, and the oppoſite ones equal. See Solid, &c.

It is thus call'd from the *Greek* πρισμα, ſomething *ſawn*, or *cut off*.

The *Priſm* is generated by the Motion of a rectilinear Figure, as ACB (Tab. Geometry, fig. 16.) deſcending always parallel to itſelf, along the right Line A E.

If the Deſcribent be a Triangle, the Body is ſaid to be a *triangular Priſm*; if ſquare, a *quadrangular* one, &c.

From the Geneſis of the *Priſm*, 'tis evident it has two equal and oppoſite Baſes; that it is terminated by as many Parallelograms as the Baſe conſiſts of Sides; and that all the Sections of a *Priſm* parallel to its Baſe, are equal.

Every triangular *Priſm* may be divided into three equal Pyramids. See Pyramid.

To meaſure the Surface and Solidity of a PRISM.

Find the Area of the Baſe, *e.gr.* A B C (ſee Triangle) and multiply it by E; find the Areas of the Planes or Parallelograms, that include or circumſcribe it, and add their Sum to the former Product. The Sum is the whole Surface of the *Priſm*.

Multiply then, the Baſe BAC, by the Altitude CD; the Product is the Solidity of the Cube A B C D E F. See Centro-baric.

All *Priſms* are in a Ratio compounded of their Baſes and Altitudes: If then their Baſes be equal, they are to each other as their Heights; and *vice verſa*. Similar *Priſms*, &c. are in a triplicate Ratio of their homologous Sides, as alſo of their Altitudes.

Prism, in Dioptricks, is a Glaſs in form of a triangular *Priſm*, much uſed in Experiments about the Nature of Light and Colours. See Light, &c.

The Phænomena and Uſe of the *Priſm*, ariſe from its ſeparating the Rays of Light in their Paſſage thro' it. See Ray.

The more general of theſe Phænomena are as follow: For, to enumerate all, would be endleſs; and even theſe are ſufficient to demonſtrate, that Colours don't either conſiſt in the Contorſion of the Globules of Light, as *Des Cartes* imagined; nor in the Obliquity of the Pulſes of the Ætherial Matter, as *Hook* fancied; nor in the Conſtipation of Light, and its greater or leſs Concitation, as Dr. *Barrow* conjectured: but that they are original and unchangeable Properties of Light itſelf.

Phænomena of the PRISM.

1°. The Sun's Rays tranſmitted thro' a *Priſm* to an oppoſite Wall, project an Image like the Rainbow, of various vivid Colours; the chief whereof are red, yellow, green, blue, and violet. See Rainbow.

The reaſon is, that the various colour'd Rays, which were before mixed and blended together, are now, in virtue of their different Refrangibilities, ſeparated by Refraction, in paſſing thro' the *Priſm*, and thrown, each Colour, by itſelf. See Refrangibility.

For the blue Rays, *e. gr.* repreſented by the dotted Lines, (Tab. Opticks, fig. 50.) beginning to be ſeparated from the reſt in the Side *c a*, of the *Priſm a b c*, by the firſt Refraction in *d d*; are again ſeparated further in the other face of the *Priſm b c*, by a ſecond Refraction, the ſame way, in *e e*. Whereas in a plain Glaſs, or even in a *Priſm*, in a different Poſition; the blue Rays ſeparated by the firſt Refraction in the firſt Surface, are again mixed by the ſecond Refraction at the other Surface, which is made a contrary way. See Refraction.

2°. The Image thus projected, is not round; but when the Angle of the *Priſm* is 60 or 65 Deg. about five times as long as broad.

Becauſe ſome of the Rays are refracted more than others, and therefore exhibit ſeveral Images of the Sun, ſtretch'd out in length, as if it were but one.

3°. Thoſe Rays which exhibit the yellow Colour, ſwerve more from the rectilinear Courſe, than thoſe which exhibit the Red; and the Green more than the Yellow; and the Violet moſt of all.

4°. If the *Priſm* thro' which the Rays are tranſmitted, be turn'd about its Axis; ſo as the red, yellow, green, &c. Rays be receiv'd in order, on another *Priſm*, about twelve Foot diſtant from the former, thro a little hole, and thence projected further; the yellow, red, &c. Rays, tho' they fall in the ſame manner on the ſecond *Priſm*, yet will not be projected on the ſame place as the red, but will be deflected further, that way towards which the Refraction is.

And if in lieu of the ſecond *Priſm*, they be receiv'd on a Lens a little gibbous; the yellow, green, &c. Rays, will be collected, each in its order, into a nearer Focus than the red ones: The reaſon of which two laſt Phænomena is, that the yellow Rays are refracted more than the red ones, the green ones more than the yellow ones, and the violet ones moſt of all.

5°. The Colours of colour'd Rays well ſeparated, can neither be deſtroy'd, nor in any manner alter'd by repeated Refractions thro' a number of *Priſms*; nor by paſſing thro' an illumined Space, nor by their mutual Decuſſations, nor by the Neighbourhood of the Shade, nor by being reflected from any natural Bodies.

Becauſe their Colours are not Modifications ariſing from Refraction, but original and immutable Properties thereof. See Colour.

6°. All colour'd Rays collected together in any manner, either by ſeveral *Priſms*, or a convex Lens, or concave Speculum, form Whiteneſs; but being again ſeparated after Decuſſation, each exhibits its proper Colour. See Whiteness.

Becauſe, as the Ray was white e'er its parts were ſeparated by Refraction; ſo thoſe parts being re-mix'd, it recovers its Whiteneſs; and the colour'd Rays when they meet, don't deſtroy one another, but only intermix.

Hence Duſts, or Pouders, red, yellow, green, blue, violet, &c. mix'd in a certain proportion, become grey; or of the Colour ariſing from a Mixture of black and white; and would be perfectly white, but that ſome of the Rays are abſorb'd.

Thus if a Circle of Paper be ſmear'd with all theſe Colours a-part, in a certain proportion, and turn'd ſwiftly about its Centre, ſo that the Species of the ſeveral Colours may be confounded in the Eye by the Velocity of the Motion; the ſeveral Colours will diſappear, and the whole be ſeen of one uniform Colour, between black and white.

7°. If the Sun's Rays ſtrike very obliquely on the inner Superficies of a *Priſm*; the Rays reflected will be violet; thoſe tranſmitted, red.

8°. If there be two *Priſms*, the one full of a red Liquor, the other of a blue one; the two join'd together will be opake: tho' if both be fill'd either with a blue or a red Liquor, they will, together, be tranſparent. For the one tranſmitting none but blue, the other none but red Rays; the two together will tranſmit none at all. See Blue.

9°. All natural Bodies, eſpecially white ones, view'd thro a *Priſm* held to the Eye; ſeem fringed or hemmed, on one ſide with red and yellow, on the other with blue and violet.

10°. If two *Priſms* be ſo placed, that the red of the one, and the purple of the other, meet in a proper Paper encompaſs'd with Darkneſs; the Image will be pale: but view'd thro' a third *Priſm* held to the Eye at a due diſtance, will appear double, red and purple.

And if two kinds of Duſts, the one perfectly red, the other blue, be mixed; a little Body being cover'd thick with the Mixture, will exhibit a double Image, the one red, the other blue, thro' a *Priſm* apply'd to the Eye.

11°. If the Rays tranſmitted thro' a convex Lens, be receiv'd on a Paper before they meet in the Focus, the Confine of Light and Shadow will ſeem tinged with a red Colour; if beyond the Focus, with a blue.

12°. If the Rays about to be tranſmitted thro' one part of the Pupil, be intercepted by the Interpoſition of ſome opake Body near the Eye; the Extremes of Bodies lying beyond it, will ſeem ting'd with Colours, as if ſeen thro' a *Priſm*; tho' leſs vivid.

Becauſe the Rays tranſmitted thro' the reſt of the Pupil, are ſeparated by Refraction into Colours; and the intercepted Rays, which would be refracted a contrary way, are prevented from mixing and diluting them: Whence alſo it is, that a Body viewed with both Eyes thro' two little Holes made in a Paper, does not only appear double, but tinged with Colours too.

PRISMOID, Prismoides, in Geometry, a ſolid Figure, bounded by ſeveral Planes, whoſe Baſes are right-angled Parallelograms, parallel and alike ſituated. See Prism.

PRISON. See Goal.

PRISONER, in Law, one that is reſtrain'd of his Liberty upon any Action, Civil or Criminal; or upon Commandment.

A Man, again, may be *Priſoner* either upon Matter of Fact, or of Record.

Priſoner upon Matter of Record, is he who being preſent in Court, is by the Court committed to Priſon, only upon an Arreſt, be it by the Sheriff, Conſtable, or other.

PRIVATION, the Abſence, Want, or Defect, of ſomething needed.

In the Canon Law, Privation is uſed for an Interdiction, or Suſpenſion. See Deprivation.

The Myſtic Divines call *Privation of God*, the Dryneſſes a Soul experiences, to whom God does not make himſelf felt.

The Church of *Rome* teaches, that Children dying without Baptiſm, go into a *Limbus*, where they undergo a *Privation* of the Sight of God.

Privation, in Phyſics, is a Negative Principle, which, with Matter and Form, the *Peripateticks* ſuppoſe, conſpires to conſtitute natural Bodies. See Matter and Form.

Privation ſignifies no more than the abſence of the future Form: Thus every thing, according to *Ariſtotle*, is form'd of this, that it was not that thing before, *e.gr.* a Chick ariſes hence, that it was not a Chick before it was generated; which is what that Philoſopher calls *Privation.* See Principle.

Ariſtotle is very angry with the Antients, for not admitting *Privation* as a Principle; and imputes it to their Ignorance thereof. But it is an Injuſtice to reproach them with Ignorance, of what it is impoſſible to be ignorant of; and 'tis an Illuſion to produce this poor Principle of *Privation* as ſuch a mighty Myſtery; there being no body but ſuppoſes it a thing known, that a thing *is not* before *it is made.* See Peripatetic, &c.

PRIVATIVE, in Grammar, a Particle, which prefix'd to a Word, changes it into a contrary Senſe. See Particle.

Thus, among the *Greeks*, the α is uſed as a *Privative*; as in ἄ-θεος, *Atheiſt*, *Acephales*, &c.

The *Latins* have their *Privative in*; as, *incorrigibilis*, *indeclinabilis*, &c.

The *Engliſh*, *French*, &c. on occaſion, borrow both the *Latin* and *Greek Privatives*.

Privative *Quantity*, in Algebra, is a Quantity leſs than nothing; call'd alſo a *Negative Quantity*: in oppoſition to Affirmative or Poſitive Quantities. See Quantity, Negative, &c.

Privative Quantities, are denoted by the Character of Subſtraction, —, prefix'd to them. See Character.

PRIVILEGE, in the general, any kind of Right, Prerogative, or Advantage, attach'd to a certain Perſon, Condition, or Employment; excluſive of others.

The Word is form'd from the *Latin privata lex*.

Privilege, in Law, is a particular Right granted to a ſingle Perſon, Place, Community, or the like; whereby they are exempted from the Rigour of the common Laws.

Privilege is either *Perſonal* or *Real*: A *Perſonal Privilege* is that which is granted to any Perſon, either againſt or beyond the Courſe of the Common Law; ſuch, *e.gr.* is that of a Member of Parliament, who may not be arreſted, nor any of his Servants, during the ſitting of Parliament, nor for a certain time before and after. See Parliament.

Privilege Real, is a Franchiſe granted to a Place. See Franchise.

Such is that granted to our Univerſities; by which none, tho' Members thereof, may be call'd to *Weſtminſter-Hall*, upon any Contract made within their own Precincts.

So alſo, a Perſon belonging to the Court of Chancery, cannot be ſued in any other Court; certain Caſes excepted; and if he be, he may remove it by *Writ of Privilege*.

'Tis an antient *Privilege*, for Men to be exempted from Arreſts within the Verge of the Court; *i.e.* in or near the Palace, where the King is reſident: Becauſe, in ſuch Caſes, Quarrels frequently happen; and the Peace ought to be ſtrictly kept there. See Verge.

In the Laws of *Hen.* I. 'tis expreſs'd, that Peace ought to be maintain'd religiouſly and reverently within four Miles of the King's Doors towards the four Quarters; and forty nine Acres, nine Foot, nine Palms, and nine Barley-Corns around. See Peace.

Privilege, in Commerce, is a Permiſſion from a Prince, or Magiſtrate, to make and ſell a certain Merchandize; or to engage in a certain Commerce; either excluſively of others, or concurrently with them.

The firſt is call'd an *excluſive Privilege*; the latter, ſimply, *Privilege*.

Excluſive Privileges are to be granted rarely; by reaſon of the hindrance they are of to Trade: yet they are ſometimes very juſt and reaſonable, by way of Reward for the Invention of uſeful Machines, Manufactures, &c.

Excluſive Privileges for foreign Commerce, are uſually granted on the following Conditions: That the Commodities be brought from remote parts, where there is no going without running great riſques: That the *Privilege* be only for a limited Time: That the *Privilegees* be not allowed to monopolize, *i.e.* to raiſe and lower their Commodities at pleaſure; but that the Sale and Price be always proportionable to the Expence, Intereſts, &c. And, That the *Privilegees* aſſiſt the State, on occaſion, with part of their Gains.

Privilege *for the Impreſſion of Books*. This *Privilege* is properly excluſive; being a Permiſſion which an Author or Bookſeller obtains under the Great Seal, to have alone the Impreſſion of a Book; with a Prohibition of all others to print, ſell, or diſtribute the ſame, within a certain Term of Years, uſually 14; under the Clauſes and Penalties expreſs'd therein.

Theſe *Privileges* were unknown till the Beginning of the 16th Century; when they were introduc'd in *France*: The oldeſt is ſaid to bear Date in the Year 1507. and to have been occaſion'd by ſome Printers counterfeiting the Works of others, as ſoon as they appear'd.

But People were yet at liberty to take or let them alone at pleaſure; till the Intereſts of Religion, and the State, occaſion'd the reſtraining of this Liberty.

In 1563, *Charles* IX. publiſh'd a celebrated Ordonnance, forbidding any Perſon, on pain of Confiſcation of Body and Goods, to print any Letter, Speech, &c. without permiſſion.

The like has been ſince done in *England*: tho at preſent, *Privileges* are not only, not requir'd; but by the late Act for ſecuring the Properties of Books, ſeem needleſs.

PRIVITIES, the natural Parts, of either Sex; or thoſe immediately miniſtring to the Buſineſs of Generation. See Generation, Pudendum, &c.

PRIVITY, an intimate Freedom, or private Familiarity, between two Perſons. See Privy.

The Lawyers ſay, if there be Lord and Tenant, and the Tenant hold of the Lord by certain Services; there is a *Privity* between them in reſpect of the Tenure.

PRIVY, in Law, a Perſon who is Partaker, or has an Intereſt, in an Action or Thing.

In this ſenſe they ſay, *Privies in Blood*: Every Heir in Tail, is *privy* to recover the Land intail'd.

In old Law-Books, *Merchants Privy* are oppoſ'd to Merchants Strangers.

Coke mentions four kinds of *Privies*: *Privies in Blood*, as the Heir to his Father: *Privies in Repreſentation*, as Executors and Adminiſtrators to the Deceaſed: *Privies in Eſtate*, as he in Reverſion, and he in Remainder, when Land is given to one for Life, and to another in Fee; the reaſon is, that their Eſtates are both created at the ſame time. The fourth is, *Privy in Tenure*, as the Lord by Eſcheat, *i.e.* when Land eſcheats to the Lord for want of Heirs.

Privy *Council*, a Council of State, held by the King, to concert Matters for the public Service, the Honour and Safety of the Realm, &c. See Council.

The *Privy Council* is the *Primum Mobile* of the State, and that which gives the Motion and Direction to all the inferior Parts. It is likewiſe a Court of Juſtice of great Antiquity; the primitive and ordinary way of Government in *England* being by the King and *Privy* Council.

It has been frequently uſed by all our Kings, for determining Controverſies of great Importance: The ordinary Judges have ſometimes declined giving Judgment, till they had conſulted the King and *Privy* Council; and the Parliament have frequently referr'd Matters of high moment to the ſame; as being by long Experience better able to judge of, and by their Secrecy and Expedition, to tranſact ſome State-Affairs, than the Lords and Commons.

At preſent, the *Privy* Council takes Cognizance of few or no Matters, except ſuch as may not be well determin'd by the known Laws and ordinary Courts; ſuch as Matters of Complaint, and ſudden Emergencies.

The Oath of a *Privy* Counſellor is to the utmoſt of his power and diſcretion, truly and juſtly to counſel the King, and to keep ſecret the King's Counſels.

Antiently, to ſtrike in the Houſe of a *Privy* Counſellor, or elſewhere in his preſence, was grievouſly puniſh'd: To conſpire his Death, is Felony; and to effect it, High-Treaſon.

With the Advice of this Council, the King iſſues Proclamations that bind the Subject, provided they be not contrary to Law. See Proclamation.

In Debates, the loweſt delivers his Opinion firſt, the King laſt; and thereby determines the Matter.

A Council is never held without the preſence of a Secretary of State. See Secretary.

The Members of the *Privy* Council in the Year 1710, were in Number 57. Their Officers; four Clerks of the Council, three Clerks extraordinary, three Clerks in the Council-Office, a Keeper of the Records, and two Keepers of the Council-Chamber.

Lord Preſident of the Privy Council. See President.

Privy *Seal*, a Seal which the King uſes, previouſly, to ſuch Grants, &c. as are afterwards to paſs the Great Seal.

Yet the *Privy* Seal is ſometimes uſed in Matters of leſs conſequence, which don't require the Great Seal. See Seal.

Lord Privy *Seal*, is the fifth great Officer of the Crown; thro' whoſe hands paſs Charters and Grants of the King, and all Pardons ſign'd by him, before they come to the Great Seal: alſo Matters of leſs moment, which don't paſs the Great Seal, *v.gr.* for Payments of Money, &c.

He is a Lord by Office, and a Member of the *Privy* Council; he was antiently chief Judge of the Court of Requeſts. See Privy *Seal*.

Privy *Chamber*. See Chamber.

PRO *Confeſſo*, in Law: when, upon a Bill exhibited in Chancery, the Defendant appears, and is in Contempt for not anſwering, and in Cuſtody; upon a *Habeas Corpus*, (which is granted by Order) to bring him to the Bar, the Court aſſigns him a Day to anſwer; which being expir'd, and no Anſwer put in, a ſecond *Habeas Corpus* is granted, and a farther Day aſſign'd: by which Day, if he anſwer not, the Bill, upon the Plaintiff's Motion, ſhall be taken *pro confeſſo*, unleſs Cauſe be ſhew'd by a Day, which the Court uſually gives; and for want of ſuch Cauſe ſhew'd, upon Motion, the Subſtance of the Plaintiff's Bill ſhall be decreed, as if it had been confeſs'd by the Defendant's Anſwer: or, after a fourth inſufficient Anſwer made to the Bill, the Matter of Fact not ſufficiently anſwer'd unto, ſhall be taken *pro confeſſo*.

Pro *Indiviſo*, in Law, a Poſſeſſion, or Occupation of Lands, or Tenements, belonging to two or more Perſons; whereof none can ſay which is his ſeveral Portion; each having the whole, *&c.* as Co-parceners before Partition. See Pour-*Party* and Partition.

PROBABILISTS, a Sect, or Diviſion, among the *Romaniſts*, who adhere to the Doctrine of *probable Opinions*; holding, that a Man is not always obliged to take the more probable ſide, but may take the leſs probable, if it be but barely probable. See Probable.

The *Jeſuits* and *Moliniſts* are ſtrenuous *Probabiliſts*. See Jesuit, *&c.*

Thoſe who oppoſe this Doctrine, and aſſert, That we are obliged, on pain of Sinning, always to take the more probable ſide, are call'd *Probabilioriſts*.

The *Janſeniſts*, and particularly the *Port-Royaliſts*, are *Probabilioriſts*. See Jansenist, *&c.*

PROBABILITY, in Reaſoning, a *Veriſimilitude*; or an Appearance of Truth. See Truth.

To define it Philoſophically, *Probability* is the appearance of the Agreement or Diſagreement of two things by the Intervention of Proofs, whoſe connection is not fixed or immutable, or is not perceived to be ſo; but is, or appears, for the moſt part, to be ſo; ſo as to ſuffice to induce the Mind to judge the Propoſition to be true or falſe, rather than the contrary. See Evidence.

That Propoſition, then, is *probable*, for which there are Arguments and Proofs to make it paſs, or be received for true. See Probable.

The entertainment the Mind gives to this ſort of Propoſitions, is call'd *Belief*, *Aſſent*, or *Opinion*. See Faith.

Probability, then, being to ſupply the defect of our Knowledge, is always converſant about Propoſitions, whereof we have no certainty, but only ſome Inducements to receive them for true. See Opinion.

According to *Ariſtotle*, a Propoſition is *probable*, if it ſeems true to all, or moſt People, and thoſe the wiſer, and more reputable Sort. But by *ſeems*, he means, what, after a cloſe Inquiry, ſhall ſeem to be true.

Of *Probability* there are various Degrees, from the Confines of Certainty and Demonſtration, down thro' Improbability and Unlikelineſs, to the Confines of Impoſſibility; and alſo Degrees of Aſſent from certain Knowledge, and, what is next to it, full Aſſurance and Confidence, quite down to Conjecture, Doubt, Diſtruſt, and Diſbelief.

The grounds of *Probability*, are, in ſhort, theſe two following, *viz.* the Conformity of any thing with our own Knowledge, Experience, or Obſervation, call'd *internal Probability*; and the Teſtimony of others, vouching their Obſervation or Experience, call'd *external Probability*. See Credibility.

Probability, in Poetry, the appearance of Truth in the Fable, or Action, of a Poem. See Action and Fable.

There are four Kinds of Actions: For a thing may be either only true, or only probable; or true and probable at the ſame time; or neither the one nor the other. See Action.

Theſe four Kinds of Actions are ſhared between four Arts: Hiſtory takes the firſt, ſtill keeping to Truth, without regard to *Probability*. See History.

Epic and Dramatic Poetry have the ſecond; and ſtill prefer *Probability*, tho' falſe, to an *Improbability*, tho' true: Thus the death of *Dido*, who kills herſelf on her being deſerted by *Æneas*, tho' falſe in itſelf, is a fitter Subject for a Poem, than the Action of *Sampſon*, or the Maid of *Orleans*.

Moral Philoſophy takes the third; and the Fabuliſts, as *Æſop*, &c. the fourth. See Fable.

Boſſu adds, that the *Epopea* in its Nature and Eſſence, uſes Truth and *Probability* like Morality; yet in its Circumſtances and Expreſſions takes a liberty like that of *Æſop*: Inſtances of each we have in the *Æneid*.

Poetical Probability may be ſo either in reſpect of the Rules of Theology, of Morality, Nature, Reaſon, Experience, or Opinion.

As to the Theology, there is ſcarce any thing but is probable, in reſpect hereof; becauſe nothing is impoſſible to God. This is an Expedient they have frequent recourſe to, in order to bring things feign'd contrary to the Order of Nature, within the bounds of *Probability*. See this conſider'd under the Article Machine.

As to *Morality*, we have obſerved, it requires both Truth and Veriſimilitude: An antient Poet was condemn'd on the Theatre for a ſlip herein; *viz.* for making a Perſon, whom he repreſented as an honeſt Man, ſay, that *tho' his Tongue ſwore, his Mind did not.*

Seneca accuſes *Virgil* of an Offence againſt *Natural Probability*, in ſaying, that the Winds were pent up in Caves; for, ſays that Philoſopher, Wind being only Air in Motion, to ſuppoſe it at Reſt, is to deſtroy its Nature. To which *Voſſius* anſwers, that the Poet only ſpeaks of the natural Origin of Winds; which are produced in Mountains by Vapours, *&c.* pent there: Juſt as we ſhould ſay, the Winds are encloſed in an *Æolipile*.

Virgil, likewiſe, committed an Offence againſt *Natural Probability*, by making *Æneas* find Deer in *Africa*; becauſe that Country produces none.

Indeed theſe Faults are excuſable, becauſe, as *Ariſtotle* finely obſerves, they are not Faults in the Poet's Art, but ariſe from his Ignorance of ſomething taught in the other Arts.

However, care muſt be taken they ben't too groſs; there being ſome *Probabilities* of this kind, which *Æſop* himſelf could not diſpenſe withal: He would never be forgiven, were he to repreſent a Lion fearful, a Hare daring, a Fox ſtupid, *&c.*

Probability, in reſpect of *Reaſon*, is frequently broke in upon by thoſe who affect nothing but the *Merveilleux*: Here *Statius* is a notorious Criminal: *Tideus* being ſurpriz'd in an Ambuſcade by fifty Bravoes, who had vow'd his death; kills forty-nine of 'em, and pardons the laſt.

Again, two young Kings, whereof this ſame *Tideus* was one, the other *Polynices*, upon a Quarrel, go together by the ears; and box it out; their Swords all the while by their ſides. *Scrutatur & intima Vultus, unca manus, penituſq; oculis cedentibus inſtat.*

Scaliger accuſes *Homer* of an Offence againſt *Experience*; in ſaying, that *Jupiter thunder'd and ſnow'd at the ſame time.* This, ſays the Critic, was never known; and yet have there been Inſtances hereof even in our time.

But the principal and moſt important Kind of *Probability*, is that in reſpect of *common Opinion*. A thing is probable when it looks like Truth: But, ſometimes, it ſhall appear true to the People, and falſe to the Learned; and *vice verſa*. When, then, the Learned and the People are divided, to which ſide muſt the Poet adhere? Suppoſe, for inſtance, the Adventure of *Penelope*, the Hiſtory of *Medea*, *Helena*, or the like: What *Virgil* and *Homer* have wrote of 'em ſhall appear probable to the Populace; yet the Learned read the contrary in Hiſtory; ſome Authors having wrote that *Dido* was chaſte, and *Medea* innocent; that *Penelope* was divorced and baniſhed by *Ulyſſes* for abuſing his Abſence; and that *Helena* never ſaw *Troy*.

This Point is ſoon decided: *Homer* and *Virgil* make no ſcruple of leaving Hiſtory, to improve their Fables: *Horace* does not ſend the Poets to the Truths of Hiſtory; but either to Fables already invented, or to common Fame.

All which is confirmed by *Ariſtotle*; where he ſays, that a Poet does not tell, like an Hiſtorian, what kind of Perſon *Alcibiades* was, nor what he really did or ſaid on this or that Occaſion; but what he probably might have done or ſaid. Add to this, that *Ariſtotle* approves of the Fable of *Oedipus*, and *Iphigenia*; tho' it can never be imagined the truth of thoſe Stories was believed by the Learned in thoſe days.

In effect, every one finds his Account in this Conduct: The People think they ſee Truth; and the Learned do really ſee Truths, and more ſolid ones too, than thoſe the People look for; and more ſure than thoſe of the Hiſtory which the Poet neglects. The more underſtanding they are, the leſs will they deſire theſe hiſtorical Truths in a Poem, which is intended for other and deeper Ends. The Truths they require, are Moral and Allegorical Truths. The *Æneid* was not wrote to teach us the Hiſtory of *Dido*, but to ſhew, under that Name, the Genius and Conduct of the Republic founded by her, and the Source and Series of its differences with *Rome*. This we ſee with pleaſure; and theſe Truths are more agreeable, more conſtant and notorious than any the Poet could take from a Hiſtory, ſo little known in his time.

To theſe kinds of *Probability*, may be added another; which we call an *Accidental Probability*: It conſiſts, not in the uſing of ſeveral Incidents, each probable a-part; but in diſpoſing 'em ſo as to hang probably together.

A Man, *e.gr.* may probably die of an Apoplexy; but that this ſhould happen juſt in the nick, when the Poet wanted it for an unravelling, is highly *improbable*.

'Tis an Offence againſt this kind of *Probability* to produce an Incident all at once, and without any preparation, which yet needed one. *Virgil* is wonderfully exact in this Point: *Juno* prepares the Tempeſt rais'd in the firſt Book; *Venus* in the ſame Book prepares the Amours of the fourth. The Death of *Dido* in the end of the fourth is prepared on the firſt day of Marriage; *Helenus* in the third diſpoſes the whole Matter of the ſixth; and in the ſixth, the *Sybil* predicts all the Wars that follow.

PROBABLE *Opinion*, a Term long time controverted among the *Romiſh* Caſuiſts.

It is uſually defined an Opinion founded on a grave Motive, or an apparently good Foundation; and which has Authority enough on its ſide to perſuade a wiſe, diſintereſted Perſon. See PROBABILITY.

Others define a *probable Opinion* to be that, which, being compared to the contrary Opinion, becomes Problematic, by a perfect Equality of the Reaſons on each ſide; ſo that there is nothing in Reaſon or Nature to determine a Man to this rather than that.

But the Jeſuits go ſtill farther, and maintain, that to render an *Opinion probable*, it ſuffices that it be either built on a Reaſon of ſome Conſequence, or on the Authority of ſome one grave Doctor. With theſe Qualifications it is allowable to follow it, even tho it be leſs *probable* and leſs ſure than the contrary Opinion. Here it is the Venom of *Probability* lies.

The Doctrine of *probable Opinions* is attack'd with infinite Addreſs by M. *Paſchal* in the *Provincial* Letters.

One of the twenty-four Patriarchs of the Jeſuits, *Caſtro Palaio*, aſſerts, that a Judge, in a Queſtion of Right, may give Sentence according to a *probable Opinion*, againſt a more *probable* one; and this, contrary to the Judgment and Perſuaſion of his own Mind; *imo contra propriam Opinionem.* Eſcobar, Tr. 6. ex. 6. n. 45.

So *Vaſquez* maintains, that it is lawful to follow the leſs *probable* and leſs ſecure *Opinion*, diſcarding the more *probable* and more ſecure one.

Leſſius and *Eſcobar* treating of the Queſtion, Whether a Man may kill another for giving him a Box on the Ear; decide it to be a *probable Opinion*, and ſpeculatively true; tho' there may be ſome inconveniencies in the practice, for which it would be as well to let it alone. *In praxi tutam* & probabilem, *judicarunt—ſed non facile admittendam.* Let. Provinciales, p. 307, 308.

PROBATE, of a *Will* or *Teſtament*, in Law, is the exhibiting and proving a Will and Teſtament, before the Eccleſiaſtical Judges delegated by the Biſhop who is Ordinary of the Place where the Party dies. See WILL and TESTAMENT.

The Ordinary is known by the Quantity of Goods the Deceaſed hath out of the Dioceſe wherein he departed; for if all his Goods be in the ſame Dioceſe, then the Biſhop of the Dioceſe, or the Archdeacon, according as their Compoſition leads, has the *Probate* of the Teſtament. If the Goods be diſperſed in ſeveral Dioceſes, ſo that there be any Sum of Note, as five Pounds, out of the Dioceſe where the Party liv'd; then is the Archbiſhop of *Canterbury* the Ordinary by *Prerogative*. See PREROGATIVE.

This *Probate* may be made two ways; either in common Form, or *per Teſtes*.

The Proof in common Form is only by the Oath of the Executor, or Party exhibiting the Will, who ſwears upon his Belief, that the Will exhibited by him, is the laſt Will and Teſtament of the Deceaſed. See EXECUTOR.

The Proof *per Teſtes, by Witneſſes*, is, when over and beſides his own Oath, he alſo produceth Witneſſes, or makes other Proof to confirm the ſame; and that in the Preſence of ſuch as may pretend ſome Intereſt in the Goods of the Deceaſed; or at leaſt in their Abſence, after they have been lawfully ſummoned to ſee ſuch a Will proved, if they think fit.

The latter Courſe is commonly taken when there is fear of Strife or Diſpute about the Deceaſed's Good s: For ſome hold, that a Will proved in common Form only, may be call'd in queſtion any time within thirty Years after.

Where a Will diſpoſeth of Lands, and Tenements of Freehold, it is now frequently proved by Witneſſes in Chancery.

PROBATION, in a Monaſtic Senſe, a Time of Trial; or the Year of Noviciate, which a Religious muſt paſs in a Convent to prove his Virtue, and Vocation, and whether he can bear the Severities of the Rule. See NOVICIATE.

The Year of *Probation* commences from the Day of Novices taking the Habit.

PROBATION, in the Univerſities, is the Examination and Trial of a Student who is about to take his Degrees. See DEGREE.

PROBATIONER, in the Presbyterian Diſcipline, a Perſon licenſed by a Presbytery to preach; which is uſually done a Year before he be ordain'd. See PRESBYTERY.

A Student in Divinity is not admitted *Probationer* till after ſeveral Trials: The firſt, private, before a Presbytery; the ſecond public, before a Congregation; the Preſbytery being preſent.

The private Trials are a Homily and Exegeſis; *i. e.* a Theological Subject is given into the Presbytery in Theſes, and the Candidate anſwers any Objections ſtarted againſt it.

The public Trials are a popular Sermon, and an Exerciſe and Addition; *i.e.* a Text is handled, half an Hour, Logically and Critically; and half an Hour more, Practically.

If he acquit himſelf to the Satisfaction of the Presbytery, he ſigns the Confeſſion of Faith, owns the Presbyterian Government, *&c.* Upon which he receives a Licence to preach.

PROBATOR, in Law, an Accuſer, or one who undertakes to prove a Crime charged upon another; properly an Accomplice in the Crime.

PROBATUM EST, *q. d.* it is approved; a Term frequently ſubjoin'd to a Receipt, for the Cure of ſome Diſeaſe. See RECIPE.

PROBE, a Surgeon's Inſtrument, to ſound and examine the Circumſtances of Wounds, Ulcers, and other Cavities. See SPECULUM.

PROBLEM, PROBLEMA, in Logic, a doubtful Queſtion; or a Propoſition that neither appears abſolutely true, nor falſe, but which is probable on both ſides, and may be aſſerted either in the Negative or Affirmative, with equal Evidence.

Thus, that the Moon and the Planets are inhabited by Animals in ſome reſpect like us, is a *Problem:* That the fixed Stars are all Suns, and each the Centre of a ſeveral Syſtem of Planets and Comets, is a *Problem.* See PLANET, STAR, *&c.*

The Word is originally *Greek*, πρόβλημα, ſignifying the ſame thing.

PROBLEM is alſo a Propoſition expreſſing ſome natural Effect, propoſed in order to a diſcovery of its apparent Cauſe. Such are the *Problems* of *Ariſtotle*.

A Logical or Dialectical *Problem*, ſay the Schoolmen, conſiſts of two Parts; a Subject, or Subject Matter about which the Doubt is raiſed; and a Predicate or Attribute, which is the thing doubted whether it be true of the Subject or not. See SUBJECT and PREDICATE.

There are four Topical Predicates, *viz. Genus*, *Definitio*, *Proprium*, and *Accidens*; whence ariſe four different kinds of dialectical *Problems*.

The firſt, when the thing attributed to the Subject is in the relation of a Genus: As, whether Fire be an Element or not. See GENUS.

The ſecond, when the thing attributed has the Effect of a Definition: As, when it is ask'd, Whether or no Rhetoric be the Art of Speaking? See DEFINITION.

The third, when the Attribute imports a Propriety: As, Whether it belong to Juſtice to give every one their Due? See PROPER.

The laſt is when the thing attributed is adventitious: As, Whether Juſtice is to be deſired? See ACCIDENT.

Problems, again, may be divided into thoſe relating to things to be done, or avoided, call'd *Ethical*; thoſe relating to the Knowledge of Nature, call'd *Phyſical*; thoſe relating to Spirits, call'd *Metaphyſical Problems*, &c.

PROBLEM, in Geometry, a Propoſition wherein ſome Operation, or Conſtruction is required; as, to divide a Line, to conſtruct an Angle, to draw a Circle thro' three Points not in a right Line, *&c.* See PROPOSITION.

Meſſieurs of the *Port-Royal* define a *Geometrical Problem*, a Propoſition given to be demonſtrated, wherein ſomething is required to be done; and what is done, to be proved to be the thing required.

A *Problem*, according to *Wolfius*, conſiſts of three Parts. The Propoſition, which expreſſes what is to be done. See PROPOSITION.

The Reſolution, or Solution, wherein the ſeveral Steps whereby the thing required is to be effected, are orderly rehearſed. See RESOLUTION.

The Demonſtration, wherein is ſhewn that by doing the ſeveral things preſcribed in the Reſolution, the thing required is obtain'd.

Accordingly, the general Tenor of all *Problems* is this: The things preſcribed in the Reſolution being done; the thing required, is done. See DEMONSTRATION.

PROBLEM, in Algebra, is a Queſtion, or Propoſition which requires ſome unknown Truth to be inveſtigated, or diſcovered; and the Truth of the Diſcovery demonſtrated.

In this ſenſe 'tis a *Problem* to find a Theorem. See THEOREM. See alſo INVESTIGATION.

Algebra is defined to be the Art of Reſolving all *Problems* that are reſolvable. See ALGEBRA.

Kepler's PROBLEM, in Aſtronomy, is the determining of a Planet's Place from the Time. See PLANET.

It took its Name from *Kepler*, who firſt propos'd it.

The *Problem*, ſtated in form, ſtands thus: To find the Poſition of a right Line, which paſſing thro one of the Foci of an Ellipſis, ſhall cut off an Area deſcrib'd by its Motion which ſhall be in any given Proportion to the whole Area of the Ellipſis.

The Propoſer knew no way of ſolving the *Problem* directly, and geometrically; and therefore had recourſe to an indirect Method; for which he was tax'd with an αγεωμετρησία, or want of Geometry; and his Aſtronomy charged with not being Geometrical. But the *Problem* has ſince been ſolved directly and geometrically ſeveral ways, by ſeveral Authors; particularly Sir *Iſ. Newton*, Dr. *Keill*, *&c.* See PLANET, PLACE, *&c.*

Deliac PROBLEM, in Geometry, is the doubling of a Cube. See CUBE, *&c.*

This *Problem* was ſo call'd from the People of *Delos*, who, upon conſulting the Oracle for a Remedy againſt a Plague they were then infeſted with, were anſwer'd, that the Plague ſhould ceaſe, when *Apollo*'s Altar, which was in form of a Cube, ſhould be doubled. See DUPLICATURE.

This *Problem* coincides with that for finding two mean Proportionals between two given Lines; whence that, alſo, is call'd the *Deliac Problem*. See PROPORTIONAL.

PROBLEMATICAL *Reſolution*, in Algebra, a Method of ſolving difficult Queſtions by certain Rules, call'd *Canons*. See SOLUTION and CANON.

PROBOSCIS, in Natural Hiſtory, the *Trunk*, or Snout of an Elephant; and ſome other Animals. See TRUNK.

The *Proboſcis* is a Member iſſuing out of the middle of the Forehead, ſerving inſtead of a Hand; and having a little Appendix faſten'd to the end thereof, in form of a Finger.

By the *Proboſcis*, the She-Elephant ſucks herſelf; and by the ſame, conveys the Milk to her Young.

The *Proboſcis*, Mr. *Derham* obſerves, is a Member ſo admirably contrived, ſo curiouſly wrought, and with ſo great agility apply'd by that unwieldy Animal; that it may paſs as an Inſtance of the Creator's Skill, *&c.*

All Quadrupeds have the length of their Neck equal to that of their Feet; the Elephant alone excepted; in whom the Shortneſs of the Neck is compenſated by the Length of the *Proboſcis*.

The Cameleon has alſo a kind of Trunk or *Proboſcis*, which is its Tongue; and which it darts nimbly out of its Throat, as if it ſpat it; and draws it in again inſtantaneouſly. It ſerves like the Elephant's Trunk, to lay hold on, and take in its Food. See CAMELEON.

The Microſcope ſhews us a little Trunk in Flies, and Gnats; by means whereof, they ſuck the Blood of Animals, or Liquors, for their Food.

The Word is *Greek*, πρόβοσκις, where it has the ſame Signification.

PROCATARCTIC *Cauſe*, the original or pre-exiſtent Cauſe of an Effect. See CAUSE.

Such, *e. gr.* is a Diſeaſe which co-operates with ſome other Diſeaſe, ſubſequent thereto.

Thus, Anger, or Heat of Climate, bring on ſuch a Diſpoſition of the Juices, as occaſions a Fever; where the ill Diſpoſition is the immediate Cauſe, and the Heat or Anger, the *Procatarctic* Cauſe.

The Word is form'd from the *Greek* προκατάρκω, *antigredior*, I go before.

PROCEDENDO, in Law, a Writ whereby a Plea or Cauſe, formerly call'd from a baſe Court to the Chancery, King's Bench, or Common Pleas, by Writ of Privilege or *Certiorari*, is releas'd, and return'd to the other Court to be *proceeded* in; upon its appearing that the Defendant has no Cauſe of Privilege, or that the Matter comprized in the Party's Allegation is not well proved.

PROCEDURE, in Law, the Courſe of the ſeveral Acts, Expeditions, and Inſtructions of a Proceſs, or Law-Suit. See PROCESS.

A *Procedure* is either Civil or Criminal: *Civil Procedure*, is that where the Eſtate alone is concern'd: *Criminal* or *extraordinary Procedure*, is that where the Perſon is proſecuted.

PROCEED, among Merchants, that which ariſes from a Thing. In this ſenſe they ſay, the *neat Proceed*.

PROCELEUSMATICUS, in the antient Poetry, a Foot conſiſting of four Syllables; as *Honorius*. See FOOT.

PROCESS, in Law, in its general Senſe, is uſed for all the Proceedings in any Cauſe, or Action real or perſonal, civil or criminal, from the original Writ, to the end. See ACTION.

In *France*, they carry on a formal *Proceſs* againſt the Memory of People kill'd in Duels; or that have murder'd themſelves.

Pyrates, when taken in the Fact, are hang'd without any *Proceſs*; as are ſometimes alſo Robbers.

PROCESS, is alſo uſed in a more reſtrain'd ſenſe, for that by which a Man is firſt call'd into Court; this being the beginning or principal part, and that by which the reſt of the Buſineſs is directed.

The Difference between this *Proceſs*, and a *Precept* or *Warrant* of the Juſtices, is this; the Precept or Warrant is only to attach or convene the Party, before any Indictment or Conviction, and may be made either in the Name of the King, or the Juſtice: But the *Proceſs* is always in the King's Name, and uſually after an Indictment. See PRECEPT.

PROCESS, in Chymiſtry, the whole Courſe of an Operation or Experiment. See OPERATION and EXPERIMENT.

PROCESS, PROCESSUS, in Anatomy, is a Term of equal Import with *Apophyſis*, *Prominence*, *Protuberance*, and *Production*; which ſee.

Proceſs is particularly apply'd to certain Eminences of the Bones, and other Parts; diſtinguiſh'd by peculiar Names, expreſſing their Place, Form, or the like: As, *Proceſſus Peritonæi*, *Proceſſus Vermiformes*, *Proceſſus Papillares*, *Ciliares*, *&c.* See BONE, VERMIFORMES, PAPILLARES, CILIARES, PERITONÆUM, *&c.*

PROCESSION, in Theology, a Term uſed for the manner wherein the Holy Spirit is conceiv'd to iſſue from the Father and the Son, in the Myſtery of the Trinity. See SPIRIT, TRINITY, PERSON, *&c.*

The *Greeks* and *Latins* are not agreed about the *Proceſſion* of the Holy Spirit. See GREEK.

PROCESSION, is alſo a Ceremony in the *Romiſh* Church, conſiſting in a formal March of the Clergy in their Robes, and the People after them, putting up Prayers, ſinging Hymns, *&c.* and in this manner, making a Viſit to ſome Church, or other holy Place.

There are general *Proceſſions* of all the People in Jubilees, and in publick Neceſſities. See JUBILEE.

The *Proceſſions* of the Holy Sacrament are very ſolemn.

They have alſo *Proceſſions*, frequently, a-round the Church, at the Salutations, *&c.* in the Maſs.

Antiently, among us, there were, in each Pariſh, cuſtomary *Proceſſions* of the Pariſh-Prieſt, and the Patron of the Church, with the chief Flag, or holy Banner, attended by the other Pariſhioners, each Aſcenſion-Week; to take a Circuit round the Limits of the Pariſh, and pray for a Bleſſing on the Fruits of the Earth. Of which Cuſtom there ſtill remains a Shadow in that annual Perambulation, ſtill call'd *Proceſſioning*; tho' the Order, and Devotion of the antient *Proceſſions*, be almoſt loſt.

PROCESSUM *Continuendo*, a Writ for the Continuance of a *Proceſs*, after the Death of the Chief Juſtice, or other Juſtices in the Writ or Commiſſion of Oyer and Terminer. *Regiſter of Writs.*

PROCHEIN *Amy*, in Law, the Perſon next a-kin to a Child in Nonage; and who, in that reſpect, is allow'd in Law to deal and negotiate for him, to manage his Affairs, to ſee him redreſs'd of any Wrong, and to be his Guardian, if he hold in Socage.

By Statute of *Weſtminſter*, the proſecution of any Action at Law, is by the Guardian, if the Plaintiff be an Infant; and by the *Prochein Amy*, *Proximum Amicum*, if the Infant be Defendant. See GUARDIAN.

PROCIDENTIA, or PROLAPSUS *Ani*, in Medicine, is when upon a Diſcharge by Stool, the *Inteſtinum Rectum* is protruded ſo far, as that it cannot be drawn back again into the Body; or when drawn back, falls again. See RECTUM.

This is ſometimes a Chronic Diſeaſe, eſpecially when it ariſes from a Palſy: Its Cauſes are a Relaxation of the Fibres of the Rectum, either from the Adſtriction of the Alvus, a Diarrhæa, Dyſentery, or Teneſmus.

'Tis very difficultly cured, when attended with Hæmorrhoids: The principal Cure is by Aſtringents.

External Aſſiſtance is requir'd to reduce the fallen Gut; which, if it be not ſoon had, is apt to tumefy and mortify, by the Contact of the Air.

'Tis ſubject to relapſe after Reduction in Children, eſpecially, upon violent Crying; and is difficult to keep up, in caſe of a Diarrhæa.

PROCIDENTIA *Uteri*, the Deſcent, or falling down of the Womb; from a Relaxation of the Ligaments, which hold it in its place. See UTERUS.

If the Uterus fall into the Vagina, ſo that its Orifice may be either perceiv'd with the Finger within, or by the Eye juſt without, the *Labia Vulvæ*; it is call'd a *bearing down* of the Womb.——If it fall quite down, ſo as to hang pendulous without the *Labia*, but ſo as that no more of the Inſide than the Orifice is ſeen, it is call'd a *Prolapſus*, or *Procidentia*.——If, falling thus low, it be turn'd inſide out, and hang like a fleſhy Bag, with a rugged unequal Surface, it is call'd a *Perverſio Uteri*.

Theſe Diſorders may proceed from violent Motions, vehement Coughing, Sneezing, *Fluor Albus*. They appear moſt frequent in Women with Child, from the Weight reſſing and bearing hard upon the Uterus; but eſpecially f the Fœtus be dead, lie in a wrong poſture, or be violently extracted.

After replacing the part, Reſtringents both inwardly, and by Injection, are here uſed; ſuch as obtain in Diarrhæas, Hæmorrhoids, the Gonorrhæa Simplex, &c.

Procidentia, or Prolapsus, *Uvulæ*; the Deſcent or Relaxation of the Uvula, or Almonds of the Ears. See Uvula.

PROCLAMATION, an Inſtrument diſpatch'd by the King, with the Advice of his Privy Council; whereby the People are advertis'd of ſomething, which his Majeſty thinks fit for them to know; and whereby they are ſometimes requir'd to do, or not to do certain Things. See King and Privy *Council.*

Proclamations have the Force of Laws; but then they are ſuppos'd to be conſiſtent with the Laws already in being; otherwiſe they are ſuperſeded: *Proclamare eſt palam & valde clamare.*

Proclamation is alſo uſed for a ſolemn Denunciation, or Declaration of War or Peace. See War, &c.

Proclamation is alſo the Act of notifying to the People the Acceſſion of a Prince to the Crown. See Accession.

The *Proclamation* does not inveſt the Prince with the Regal Authority; it ſuppoſes him already inveſted therewith; and only gives notice thereof to the People.

Proclamation *of a Fine*, is a Notice openly and ſolemnly given thereof at all the Aſſizes held in the County within one Year after the Ingroſſing it. See Fine.

Theſe *Proclamations* are made on Tranſcripts of the Fine, ſent by Juſtices of the Common Pleas, to the Juſtices of Aſſize, and of the Peace.

Proclamation, in the Monaſtic Senſe, is the Accuſation of a Friar or Brother, by another Brother, in open Chapter, and in preſence of the Superior and Community, for ſome external Crime he has ſeen him commit.

PROCONDYLI, among Anatomiſts, the Bones of the Fingers next the Back of the Hand. See Finger.

PROCONSUL, a *Roman* Magiſtrate; ſent to govern a Province with a Conſular Authority. See Consul and Province.

The *Proconſuls* were appointed out of the Body of the Senate; and ordinarily, as the Year of any one's Conſulate expir'd, he was ſent *Proconſul* into ſome Province.

The *Proconſuls* had the ſame Honours, &c. with the Conſuls themſelves; except that they had only ſix Lictors, and Faſces before them.

The *Proconſuls* did not ordinarily hear and determine Proceſſes in perſon, but had that Office perform'd by their Aſſeſſors, or other Judges, conſtituted or delegated by them.

As the *Proconſuls* had the Direction both of Juſtice, of War, and of the Revenues; they had their ſeveral Lieutenants in each Capacity: Theſe were call'd *Legati*, and were ordinarily nominated by the Senate.

The *Proconſular* Function only held a Year: The Charges of their Journey backwards and forwards, was bore by the Publick; and was call'd *Viaticum.* See Viaticum.

After the Partition of the Provinces between *Auguſtus* and the People; thoſe who preſided over the Provinces of the People, were call'd ſpecially *Proconſuls.*

In our antient Law-Books, *Proconſul* is uſed for a *Juſtice in Eyre*, or *Juſtice Errant.* See Justice.

PROCREATION, the Action of begetting, and bringing forth Children. See Generation.

PROCTOR, Procurator, a Perſon commiſſion'd to act as Proxy, or Delegate, in behalf of another. See Procurator.

Proctor, *Procurator*, in the Civil Law, is an Officer appointed to appear in Court, and manage the Cauſes of Parties, who will make uſe of his Procuration. See Civil *Law.*

Antiently, every body was oblig'd to appear in perſon; and when the Affair happen'd to be drawn out to a great length, was allow'd to create a *Proctor*, or Proxy, in his Cauſe.

But this was a Favour only granted for a certain Time; till towards the middle of the 16th Century, when it was decreed, that all Procuration ſhould hold till revoked.

PROCTORS *of the Commons*, are Perſons ſkill'd in the Civil Law, and the Practice of Doctors Commons; who exhibit their Proxies, and make themſelves Parties for their Clients, to draw up Acts and Pleadings, produce Witneſſes, prepare Cauſes for Sentences, and attend the Advocates with the Proceedings.

They are 34 in Number; are admitted by the Archbiſhop's *Fiat*; and wear black Robes, and Hoods lined with white Furs. See Doctors *Commons.*

Proctors *of the Clergy*, are Deputies, or Repreſentatives, choſe by the Clergy of each Dioceſs, two for each; and by the Cathedral and Collegiate Churches, one for each, to ſit in the Lower Houſe of Convocation. See Convocation.

Proctors *in the Univerſity*, are two Officers, choſe from among the Students, to ſee good Orders, and Exerciſes daily perform'd there. See University.

PROCUMBENT *Leaves*, in Botany, ſuch Leaves of Plants as lie flat, or trailing on the Ground. See Leaves.

PROCURACY. See Procurator.

PROCURATION, an Act whereby a Perſon is impowered to act, treat, receive, &c. in a Perſon's Name, as if he himſelf were actually preſent. See Procurator.

When a Man treats in behalf of another, the firſt thing is to examine his *Procuration.*

The Word is now little uſed in this ſenſe, except in the Caſe of a Perſon who collects the Fruits of a Benefice for another.

Procuration, or *Proxy*, in the Canon Law, is uſed for the Repaſt or Entertainment antiently given to Church-Officers or Ordinaries, who came to viſit in Churches or Monaſteries; whether they were Biſhops, Arch-deacons, or Viſitors.

Procuration was due to the Pope's Legates, and even to Popes themſelves, when they came into *France*; and the Charge was comprized in the Bulls then granted.

Complaints were frequently made to the Pope, of the exceſſive Charges of the *Procurations* of Biſhops and Arch-deacons; upon which they were prohibited by ſeveral Councils and Bulls.

That of *Clement* IV. mention'd in the *Monaſticon*, is very expreſs; wherein that Pope tells us, Complaint had been made, that the Arch-deacon of *Richmond*, viſiting the Dioceſe, travel'd with one hundred and three Horſes, twenty one Dogs, and three Hawks; and did ſo grievouſly oppreſs a Religious Houſe with that vaſt Equipage, that he caus'd the Monks to ſpend in an hour, as much as would have maintain'd them a long time. See Indemnities.

Procuration, or Praxys, is now uſed for a Sum of Money, paid yearly by Pariſh-Prieſts to the Biſhop or Arch-deacon, in lieu of this Entertainment.

PROCURATOR, Proctor, Proxy, a Perſon who has a Charge or Office committed to him by another. See Procuration.

Thus the *Proxies* of the Lords in Parliament, in our Law-Books, are call'd *Procurators.* See Proxy.

The Word is alſo uſed for a Vicar or Lieutenant; thus, in *Petrus Bleſſenſis*, we read of a *Procurator Regni.*

Thoſe who manage Cauſes in Doctors Commons, are alſo call'd *Procurators*, or *Proctors.* See Proctor.

The Biſhops are ſometimes call'd *Procuratores Eccleſiarum*; and the Repreſentatives ſent by the Clergy to Convocation, *Procuratores Cleri.* See Convocation.

In our Statutes, a Perſon who gathers the Fruits of a Benefice for another, is particularly call'd *Procurator*; and the Inſtrument impowering him to receive the ſame, *Procuracy.*

Procurator, is alſo a kind of Magiſtrate in ſeveral Cities of *Italy*, who takes care of the publick Intereſts.

There are *Procurators* of St. *Mark*, *Procurators* at *Venice*, at *Genoa*, &c.

Originally there was but one *Procurator* of St. *Mark* at *Venice*: In 1442, the Number was augmented to Nine; when, the Senate made a Decree, appointing, that for the future, none ſhould be admitted to the Dignity, but after the Death of ſome of the Nine. But in the Occaſions of the Republick, the Number was afterwards enlarged to Forty; tho' of theſe, there are only Nine that bear the Title of *Procurators*, and whoſe place is regularly fill'd. They are Adminiſtrators of the Church of St. *Mark*, and of the Revenues attach'd thereto; the Patrons of Orphans, and Executors of Teſtaments.

This Office receives more Luſtre from the Merit of thoſe who diſcharge it, than from its Authority. They are cloathed in Black or Violet, with Ducal Sleeves.

Procurator *Monaſterii*, antiently, was the Advocate of a Religious Houſe, who was to ſollicit the Intereſt, and plead the Cauſes of the Society. See Advocate.

Procuratores *Eccleſiæ Parochialis*, are the Church-Wardens, whoſe Office is to act as Proxies and Repreſentatives of the Church. See Church-*Warden.*

PROCURORS. See Malveis *Procurors.*

PROCYON, in Aſtronomy, a fixed Star of the ſecond Magnitude, *in Canis Minor.* See Canis.

PRODES *Homes*, *q. d.* Wiſe Men, in our antient Cuſtoms, a Title given to the Barons, and other military Tenants, who were call'd to the King's Council, and were to give advice according to the beſt of their prudence and knowledge. See Thane, Baron, &c.

PRO-DICTATOR, among the *Romans*, a Magiſtrate who had the Power, and did the Office, of a Dictator. See Dictator.

The *Romans* ſometimes created a *Prodictator*, in Caſes where they could not have a Dictator. *Fabius Maximus* was *Prodictator.*

PRODROMUS, προδρομος, literally denotes a Forerunner, a Harbinger: Hence, *Prodromus Morbus*, among

Phyſicians, is uſed for a Diſeaſe which foreruns a greater. Thus a Straitneſs of the Breaſt is a *Prodromus* of a Conſumption, *&c.* See Phthisis.

PRODUCING, in Geometry, denotes the continuing a right Line; or drawing it out farther, till it have any aſſign'd Length. See Line.

PRODUCT, in Arithmetick and Geometry, the Factum of two Numbers; or the Quantity ariſing from, or produced by, the Multiplication of two or more Numbers, Lines, *&c.* into one another. See Factum.

Thus, if 6 be multiply'd by 8, the *Product* is 48. See Multiplication.

In Lines it is always (and ſometimes in Numbers) call'd the *Rectangle* between the two Lines, multiply'd by one another. See Rectangle.

PRODUCTION, in Anatomy, a Continuation, or Proceſſus. See Process.

PROEDRUS, in Antiquity. See Epistates.

PROEM, Proœmium, a Term antiently uſed for *Preface.* See Preface.

PROEMPTOSIS, in Aſtronomy, that which makes the New Moons appear a Day later, by means of the Lunar Equation, than they would do without that Equation. See Moon and Equation.

PROFANATION, in Religion, the doing of ſomething diſreſpectful to Holy, or Sacred Things. See Profane.

PROFANE, a Term uſed in oppoſition to *Holy*, *Sacred.* See Sacred, *&c.*

Except Churches, and Church-yards, all places are eſteem'd *Profane.*

By the Canon Law, a Sacred Chalice or Cup becomes *Profane*, by giving it a Blow with an Hammer.

Profane is alſo apply'd in the general to all Perſons who have not the Sacred Character, and all Things that don't belong to the Service of Religion. In this ſenſe we ſay, *Zenophon*, *Seneca*, *&c.* are *Profane* Authors. All the Heathen Prieſts, Pontiffs, *&c.* paſs with us for *Profane.*

PROFER, in Law, the Time appointed for the Accounts of Sheriffs, and other Officers, to be given into the Exchequer; which by Stat. 51 *Hen.* 3. is to be twice in the Year. See Sheriff and Exchequer.

The Word is form'd of the *French proferer*, to *produce.*

We alſo read of *Profers*, *Anno* 32 *Hen.* 8. in another Acceptation: *Trinity-Term ſhall begin the Monday next after Trinity-Sunday, whenever it ſhall happen to fall, for the keeping of the Eſſoins*, Profers, *Returns*, *and other Ceremonies heretofore in uſe.* In which place, *Profer* ſignifies the Offer and Endeavour to proceed in an Action, by any Man concern'd ſo to do.

Profer *the Half Mark.* See Half *Mark.*

PROFESSED *Monk*, or *Nun*, one who having made the Vow, is admitted of a Religious Order. See Vow, Monk, and Religious.

In this ſenſe the Word is uſed in oppoſition to Novice. See Novice and Probation.

PROFESSION, in the Monaſtic Senſe, the entering into a religious Order; or an Action whereby a Perſon offers himſelf to God, by a Vow of obſerving three things, viz. *Obedience*, *Chaſtity*, and *Poverty*, which he promiſes inviolably to maintain. See Vow, Order, *&c.*

This is call'd *Sanctæ Religionis profeſſio*, and the Perſon a *Religious profeſſed.*

Perſons are not admitted to make *Profeſſion* till after a Year of *Probation.* See Probation.

PROFESSOR, in the Univerſities, a Doctor, or Regent, who teaches, or lectures publickly, ſome Art, or Science, in a Chair eſtabliſh'd for that purpoſe. See Chair.

The *Profeſſors* in Foreign Univerſities, teach the Arts, and have their Claſſes of Pupils; thoſe in our Univerſities only read publick Lectures in Term-Time. See Term.

Of *Profeſſors*, we have a great Number; ſome denominated from the Arts they profeſs; as *Caſuiſtical Profeſſor*, *Hebrew Profeſſor*, *Phyſick Profeſſor*, *Divinity Profeſſor*, *&c.*

Others from thoſe who founded the *Profeſſorſhip*, or aſſign'd a Revenue for the Support of the *Profeſſor*; as the *Savilian Profeſſors* of Aſtronomy and Geometry, the *Lucaſian Profeſſor* of Mathematicks, *Margaret Profeſſor* of Divinity, *&c.*

PROFILE, in Architecture, the Figure, or Draught of a Building, Fortification, or the like; wherein are expreſs'd the ſeveral Heights, Widths, and Thickneſſes, ſuch as they would appear were the Building cut down, perpendicularly from the Roof to the Foundation; whence the *Profile* is alſo call'd the *Section*, and by *Vitruvius*, *Sciagraphy.* See Section, *&c.*

Profile, is ſometimes alſo uſed for a Deſign, or Deſcription; in oppoſition to a Plan, or *Ichnography.*

In which Senſe, *Profiles* coincide with what we popularly call *Proſpects.*

Profile is alſo uſed for the Contour, or Out-Line of a Building, or a Member of Architecture; as a Baſe, a Corniche, *&c.*

Hence *Profiling* is ſometimes uſed for Deſigning, or deſcribing the Member with Rule, Compaſs, *&c.*

Profile, in Sculpture, and Painting. A Head, a Portrait, *&c.* are ſaid to be in *Profile* when they are repreſented ſide-ways, or in a ſide-view. As, when in a Portrait, there is but one ſide of the Face, one Eye, one Cheek, *&c.* ſhewn, and nothing of the other.

In almoſt all Medals the Faces are in *Profile.* See Medal.

PROFLUVIUM, in Medicine, any kind of Flux, or liquid Evacuation; whence *Profluvium Ventris*, a Flux of the Belly, is a *Diarrhæa*, or *Dyſentery.* See Flux.

PROFUNDITY, ſee Depth.

PROFUNDUS, in Anatomy, a Muſcle, call'd alſo *Perforans.* See Perforans.

PROGNOSTIC, Prognosis, in Medicine, a conjectural Judgment of the Event of a Diſeaſe; as, *e. gr.* whether it ſhall end in Life or Death, be long or ſhort, mild or malignant, *&c.* taken from certain Symptoms thereof. See Sign and Symptom.

In all continued Fevers, *Morton* tells us, a ſtrong equable Pulſe is a *good Prognoſtic*, and always preſages well, whatever other threatning Symptoms attend it; on the contrary, a quick, feeble, intermitting Pulſe is a *Prognoſtic* of Death, how much ſoever the other Symptoms may flatter. See Pulse.

Hippocrates obſerves, that all Predictions and *Prognoſtics* of acute Diſeaſes are very fallacious; *Diemerbroek*, however adds, that in the Plague of *Nimmeguen*, fixth day Criſes were conſtantly found fatal *Prognoſtics*; alſo to be infected about the new, or full Moon; Faintings in the beginning of the Diſeaſe, and Palpitations of the Heart, were found deadly *Prognoſtics*; on the contrary, a Pleuriſy, and Suppreſſion of Stool, were good *Prognoſtics.*

The Word comes from the *Greek* προγνοςικον.

Prognostic of the Weather, ſee Weather.

PROGRAMMA, a Letter ſealed with the King's Seal. See Seal.

Programma is alſo a College Term, ſignifying a Billet, or Advertiſement poſted up, or given into the Hand, by way of Invitation to an Oration, or other College Ceremony; containing the Argument, or ſo much as is neceſſary for the underſtanding thereof.

Programma's are ſent to invite People to aſſiſt at Declamations, Dramatic Performances, *&c.*

PROGRESSION, an orderly advancing, or going forward, in the ſame Manner, Courſe, Tenor, *&c.*

Progression, in Mathematics, is either *Arithmetical*, or *Geometrical.*

Arithmetical Progression, call'd alſo *Arithmetical Proportion*, is a Series of Quantities equidiſtant from each other; *i. e.* either increaſing, or decreaſing by one common Interval or Difference. See Series.

Thus 3, 6, 9, 12, 15, 18, *&c.* make an *Arithmetical Progreſſion*; becauſe increaſing, or differing equally, by 3: Thus alſo 25, 20, 15, 10, and 5, are in *Arithmetical Progreſſion*, decreaſing by a common difference, 5.

In every *Arithmetical Progreſſion*, whether increaſing, or decreaſing, the Sum of the firſt and laſt Term, is equal to the Sum of any two intermediate Terms equidiſtant from the Extremes; as, alſo, if the Number of Terms be uneven to the double of the middle Term.

For Inſtance;

$$\begin{array}{r} 3,\ 6,\ 9,\ 12,\ 15,\ 18,\ 21 \\ 12,\ 9,\ 6,\ 3 \\ \hline 24,\ 24,\ 24,\ 24 \end{array}$$

Hence, 1°, we find the Sum of any *Arithmetical Progreſſion* by Multiplying the Sum of the firſt and laſt Term by half the Number of Terms.

2°. Having, therefore, the firſt Term, the Difference, and the Number of Terms given; the Sum of the *Progreſſion* is had by Multiplying the firſt Term by the Number of Terms, and to the Product adding the Product ariſing from the difference multiply'd into the Semi-difference of the Number of Terms from the Square of that ſame Number.

Thus, ſuppoſe the firſt Term 3, the Number of Terms 7, and the difference 3; the Product of 3 and 7 = 21 being added to the Product 63, of the difference 3 multiply'd into the Semi-difference of the Number of Terms 7, from the Square thereof 49, = 21; gives 84, the Sum of the *Progreſſion.*

3°. The Number of Terms leſſen'd by one, being multiply'd by the common Difference, and the firſt Term added to the Product; the Sum is the laſt Term. Thus in a *Progreſſion*

greſſion of 52 Places, where the difference is 3; and the firſt Term 5; 51 being multiply'd by 3, produces 153, to which adding 5, the Sum 158 is the laſt Term required.

4°. If the *Progreſſion* begin with 0, the Sum of all the Terms is equal to half the Product of the laſt Term multiply'd by the Number of Terms.

Whence it follows, that the Sum of a *Progreſſion* beginning from 0, is ſubduple the Sum of ſo many Terms, all equal to the greateſt.

5°. In an *Arithmetical Progreſſion*, as the difference of the Sum of the firſt and laſt Term from double the Sum of the *Progreſſion*, is to the difference of the firſt Term from the laſt; ſo is the Sum of the firſt and laſt Terms to the *Progreſſional* difference.

Geometrical PROGRESSION, is a Series of Quantities increaſing or decreaſing in the ſame Ratio, or Proportion; or a Series of Quantities continually proportional. See PROPORTION.

Thus 1, 2, 4, 8, 16, 32, 64, &c. make a *Geometrical Progreſſion*; or 729, 243, 81, 27, 9, 3, 1.

1°. In every *Geometrical Progreſſion*, the Product of the extreme Terms is equal to the Product of two intermediate Terms equidiſtant from the Extremes; as alſo, if the Number of Terms be uneven, to the Square of the middle Term.

For Example;

3, 6, 12, 24, 48, 96
12, 6, 3

288, 288, 288

2°. If the difference of the firſt and laſt Term of a *Geometrical Progreſſion* be divided by a Number leſs than the Denominator of the Ratio, *i. e.* than the Quotient of a greater Term divided by a leſs; the Quotient will be the Sum of all the Terms except the greateſt: Hence, by adding the greateſt Term, we have the Sum of the whole *Progreſſion*.

Thus, in a *Progreſſion* of 5 Terms, beginning with 3; and the Denominator being likewiſe 3, the greateſt Term will be 243. If then the difference of the firſt and laſt Term 240, be divided by 2, a number leſs by 1 than the Denominator; the Quotient 120 added to 243, gives 363, the Sum of the *Progreſſion*.

Hence, 3°, the firſt, or leaſt term of a *Progreſſion*, is to the Sum of the *Progreſſion*, as the Denominator leſſen'd by 1, to its Power likewiſe leſſen'd by 1; the Exponent of which Power is equal to the number of Terms.

Thus, ſuppoſing the firſt Term 1, the Denominator 2, and the Number of Terms 8; the Sum will be 255.

4°. Hence, alſo, the difference between the laſt Term and the Sum is to the difference between the firſt Term and the Sum, as Unity to the Denominator: Wherefore, if the difference between the firſt Term and the Sum, be divided by the difference between the Sum and the laſt Term, the Quotient is the Denominator.

PROHIBITED *Goods*, in Commerce, ſuch Commodities as are not allow'd to be either imported or exported. See CONTRABAND.

PROHIBITIO *de vaſto directa Parti*, is a Writ judicial, directed to the Tenant, *prohibiting* him from making Waſte upon the Land in controverſy, during the Suit. It is ſometimes directed to the Sheriff.

PROHIBITION, the Act of forbidding, or inhibiting any thing. 'Tis the *Prohibition* of the Law that makes the Sin. A Teſtator frequently bequeaths things with a *Prohibition* to alienate.

PROHIBITION, in Law, is a Writ iſſued to forbid any Court, either Spiritual or Secular, to proceed in a Cauſe there depending; upon ſuggeſtion, that the Cognizance thereof belongeth not to that Court.

It is now uſually taken for that Writ which lieth for one, who is impleaded in the Court Chriſtian for a Cauſe belonging to the Temporal Juriſdiction, or the Cognizance of the King's Court; whereby, as well the Party and his Council, as the Judge himſelf, and the Regiſter, are forbid to proceed any farther in that Cauſe.

PROJECTILE, or PROJECT, in Mechanics, a heavy Body put in Motion by an external Force impreſs'd thereon; or, more fully, a *Projectile* is a heavy Body, which being put into a violent Motion, is diſmiſs'd from the Agent, and left to purſue its Courſe. See MOTION.

Such, *e. gr.* is a Stone thrown out of the Hand or a Sling, an Arrow from a Bow, a Bullet from a Gun, &c. See PROJECTION.

The Cauſe of the Continuation of the Motion of Projectiles, or what it is determines 'em to perſiſt in Motion after the firſt Cauſe ceaſes to act, has puzzled the Philoſophers. See MOTION.

The *Peripatetics* account for it from the Air, which being violently agitated by the Motion of the *projecting* Cauſe, *e. gr.* the Hand and Sling, and forced to follow the *Projectile* while accelerated therein, does, upon the diſmiſſion of the *Projectile*, preſs after it, and protrude it forward; to prevent a Vacuum. See VACUUM.

The Moderns account for the Motion of *Projectiles* on a much more rational and eaſy Principle; it being, in effect, a natural Conſequence from one of the great Laws of Nature, *viz.* That all Bodies being indifferent as to Motion or Reſt, will neceſſarily continue the State they are put into, except ſo far as they are hindred, and forced to change it by ſome new Cauſe. See NATURE.

Thus a *Project* put in Motion, muſt continue to move eternally on in the ſame right Line, and with the ſame Velocity; were it to meet with no Reſiſtance from the Medium, nor had any force of Gravity to encounter.

The Doctrine of the Motion of *Projectiles* is the Foundation of all Gunnery. See GUNNERY.

The Laws thereof are as follow.

Laws of the Motion of PROJECTILES.

1°. If a heavy Body be *projected* perpendicularly, it will continue to aſcend or deſcend perpendicularly: Becauſe, both the *Projecting*, and the Gravitating Force are found in the ſame Line of Direction.

2° If a heavy Body be *projected* horizontally, it will, in its Motion, deſcribe a Parabola; the Medium being ſuppoſed void of Reſiſtance.

For, the Body is equably impell'd by the impreſſed Force, according to the right Line A R, (Tab. MECHANICS, *Fig.* 45.) and by the Force of Gravity according to the right Line A C, perpendicular thereto. While, then, the Body by the Action of the impreſſed Force is arrived in Q; by the Force of Gravity it will be arrived in Q M; and, therefore will be found in M. But the Motion in the direction A R will ſtill be uniform; (ſee MOTION) and, therefore, the Spaces Q A and *q* A are as the Times; and the Spaces Q M and *q m*, are likewiſe as the Squares of the Times. Therefore, $AQ^2 : Aq^2 :: QM : qm$. That is, $PM : pm :: AP : ap$.

The Courſe, or Path, therefore, of a heavy Body *projected* horizontally A M *m*, is a Parabola. See PARABOLA.

Two hundred Years ago, the Philoſophers took the Line deſcribed by a Body *projected* horizontally, *e. gr.* a Bullet out of a Cannon, while the force of the Powder exceeded the Weight of the Bullet conſiderably, to be a right Line; after which it became a Curve.

N. Tartaglia was the firſt who perceiv'd the Miſtake, and maintain'd the Path of the Bullet to be a crooked Line, throughout its whole Extent; but it was *Galileo* who firſt determined the preciſe Curve the Bullet deſcribed; and ſhew'd the Path of the Bullet, *projected* horizontally from an Eminence, to be a Parabola; the Vertex whereof is the Point where the Bullet quits the Cannon.

3°. If a heavy Body be *projected* obliquely, either upwards, or downwards, in a Medium void of Reſiſtance; it will likewiſe deſcribe a Parabola, in a Medium uniformly reſiſting.

Cor. Hence, 1. the Parameter of the Diameter of the Parabola A S (*Fig.* 47.) is a third Proportional to the Space thro' which the Body deſcends in any given Time, and the Celerity, which is defined by the Space paſs'd over in the ſame time; *i. e.* to A P and A Q. 2. Since the Space deſcribed by a Body falling perpendicularly in one Minute, is $15\frac{1}{12}$ *Paris* feet in a Second; the Parameter of the Diameter of the Parabola to be deſcribed is found, if the Square of the Space paſs'd over by the *Projectile* with the impreſs'd Force in a Second, be divided by $15\frac{1}{12}$. 3. If, then, the Velocity of the *Projectiles* be the ſame, the Spaces deſcribed in the ſame time by the Force impreſs'd, are equal; conſequently the Parameter of the Parabola's paſs'd over by the compound Motion, is the ſame. 4. If from the Parameter of the Diameter be ſubſtracted quadruple the Altitude of A P, the Remainder is the Parameter of the Axis; the fourth part whereof is the diſtance of the Vertex of the Axis from the Focus of the Parabola. Hence the Celerity of the *Projectile* being given, the Parabola deſcribed by the *Projectile* may be laid down on Paper. 5. The Line of Direction of the *Projectile* A R is a Tangent to the Parabola in A.

Sir *Iſ. Newton* ſhews, in his *Principia*, that the Line a *Projectile* deſcribes, approaches nearer to an Hyperbola than a Parabola.

4°. A *Projectile* in equal times deſcribes Portions of its parabolic Path, as A M, A *m*, which are ſubtended by equal Spaces of the Horizon A T, T *t*. *i. e.* in equal times it paſſes over equal horizontal Spaces.

5°. The Quantity, or Amplitude of the Path A B, *i. e.* the Range of the *Projectile* is to the Parameter of the Diameter A S, as the Sine of the Angle of Elevation R A B to its Secant.

Hence, 1. the Semiparameter is to the Amplitude of the Path A B, as the whole Sine to the Sine of double the

Angl
e

Angle of Elevation. 2. If then the Celerity of two *Projectiles* be the ſame, the Parameter is the ſame. Wherefore, ſince the Semiparameter of the Path, in the one Caſe, is to the Amplitude, as the whole Sine, to the Sine of double the Angle of Elevation; and the Semiparameter of the Path in the other Caſe is to the Amplitude as the whole Sine to the Sine of double the Angle of Elevation: We may ſay farther, as the Amplitude is to the Sine of the Angle of double the Elevation in the one Caſe, ſo is the Amplitude to the Sine of the Angle of double the Elevation in the other Caſe. The Amplitudes, therefore, or Magnitudes of the Paths, are as the Sines of double the Angles of Elevation; the Velocity of the *Projectile* remaining the ſame.

6°. The Celerity of the *Projectile* being the ſame, the Amplitude A B is greateſt, *i. e.* the Range of the *Projectile* is greateſt, at an Angle of Elevation of 45°; and the Amplitudes or Ranges, at Angles of Elevation equally diſtant from 45°, are equal.

This is found by Experiment; and is likewiſe demonſtrable thus: Since the Ratio of the Sine of double the Angle of Elevation to the Amplitude is always the ſame, while the Celerity of the *Projectile* remains the ſame; as the Sine of double the Angle of Elevation increaſes, the Amplitude will increaſe. Wherefore, ſince the Sine of double the Angle of Elevation of 45° is Radius, or the largeſt Sine; the Amplitude, or Range in that Elevation muſt be the greateſt. Again, ſince the Sines of Angles equi-diſtant from right Angles; *e.gr.* 80° and 100° are the ſame; and the double Angles muſt be equi-diſtant from a right Angle, if the ſimple ones be ſo: The Amplitudes or Ranges at Elevations equi-diſtant from 45°, muſt be equal.

Hence, ſince as the whole Sine is to the Sine of double the Angle of Elevation; ſo is the Semi-parameter to the Amplitude; and the whole Sine is equal to double the Sine of the Angle of Elevation, if that be 45°: Under the Angle of Elevation 45°, the Amplitude is equal to the Semi-parameter.

7°. *The greateſt Range or Amplitude being given; to determine the Amplitude or Range under any other given Angle of Elevation; the Celerity remaining the ſame.* Say thus; As the whole Sine is to the Sine of double the Angle of any other Elevation; ſo is the greateſt Amplitude or Range, to the Amplitude required.

Thus, ſuppoſe the greateſt Range of a Mortar at 45°, to be 6000 Paces, and the length of the Range at 30°, required; it will be found 5196 Paces.

8°. *The Velocity of a* Projectile *being given, to find its greateſt Range or Amplitude.* Since the Celerity of the *Projectile* is given in the Space it will paſs over by the impreſſed Force; *e.gr.* in one Second; there is nothing required but to find the Parameter of the Path, (by *Corol.* 2. of the 3d Law.) for half of this is the Amplitude or Range required.

Suppoſe, *e.gr.* the Celerity of the *Projectile* ſuch as that in one Second it will run over 1000 Feet, or 12000 Inches: If then 144000000 be divided by 181, the Quotient will give the Parameter of the Path 795580 Inches, or 66298 Feet. The Range or Amplitude required, therefore, is 33149. Any Object, therefore, found within this Extent may be ſtruck by the *Projectile.*

9°. *The greateſt Range or Amplitude being given; to find the Velocity of the* Projectile, *or the Horizontal Space it will paſs over in a Second.* Since double the greateſt Amplitude is the Parameter of the Path; between double the greateſt Amplitude and the Space paſs'd over in a Second by a Body falling perpendicularly, *viz.* 181 *Paris* Inches, find a mean Proportional; for this will be the Space deſcribed by the *Projectile* in the given Second.

Thus, if the greateſt Amplitude be 1000 Feet, or 12000 Inches, the Space required will be $= \surd\,(12000.181) = 120$ Feet and 4 Inches.

10. *To determine the greateſt Altitude to which a Body obliquely* projected *will riſe.* The Rule is; Biſſect the Amplitude A B in *t*, and from the Point *t* erect a perpendicular *t m*; this *t m* will be the greateſt Altitude to which the Body *projected*, according to the Direction A R, will ariſe.

11. *The Range or Amplitude* A B, *and the Angle of Elevation* B A R, *being given; to determine the greateſt Altitude of the* Projectile. If A R be taken for the whole Sine, B R will be the Sine, and A B the Co-ſine of the Angle of Elevation B A R: Wherefore, ſay, as the Coſine of the Angle of Elevation is to the Sine of the ſame; ſo is the Amplitude A B to a fourth Number; which will be B R; the fourth part whereof is the greateſt Altitude required.

Hence, ſince from the given Velocity of a *Projectile*, its greateſt Range or Amplitude, and thence its Range under any other Angle, is found; the Velocity being given, the greateſt Altitude of the *Projectile* is likewiſe found.

12. The Altitude of the Range *t m* is to the eighth part of the Parameter, as the verſed Sine of double the Angle of Elevation to the whole Sine.

Hence, 1. ſince, as the whole Sine is to the verſed Sine of double the Angle of Elevation in one Caſe; ſo is the eighth part of the Parameter to the Altitude of the Range: And as the whole Sine is to the verſed Sine of double the Angle of Elevation in any other Caſe; ſo is the eighth part of the Parameter to the Altitude: but the Velocity remaining the ſame, the Parameter, in different Angles of Elevation, will likewiſe be the ſame: The Altitudes of the Ranges under different Angles of Elevations are as the verſed Sines of double their Angles. 2. Hence, alſo, the Velocities remaining the ſame, the Altitudes of the Ranges are in a duplicate Ratio of the Sines of double the Angles of Elevation.

13. *The Horizontal Diſtance of any Mark or Object, together with its Height above, or Depth beneath the Horizon, being given; to find the Angle of Elevation required to hit the ſaid Object.*

Wolfius gives us the following Theorem, the Reſult of a regular Inveſtigation: Suppoſe the Parameter $= a$; $In = b$, $AI = c$, the whole Sine $= t$. Then, as c is to $\frac{1}{2}a + \surd\,(\frac{1}{4}a^2 - ab - c^2 :)$ So is the whole Sine t; to the Angle of Elevation required R A B.

Dr. *Halley* gives the following eaſy, and compendious Geometrical Conſtruction of the Problem; which he likewiſe deduces from an analytical Inveſtigation.

Having the right Angle L D A (*fig.*48.) make D A, D F, the greateſt Range, D G the horizontal Diſtance, and D B, D C, the perpendicular Height of the Object; and draw G B, and make D E equal thereto. Then with the Radius A C, and Centre E, ſweep an Arch, which, if the thing be poſſible, will interſect the Line A D in H; and the Line D H being laid both ways from F, will give the Points K and L; to which draw the Lines G L, G K.

Here, the Angles L G D, K G D, are the Elevations required for hitting the Object B.

But note, that if B be below the Horizon, its Deſcent $DC = DB$, muſt be laid upon A, ſo as to have $AC =$ to $AD + DC$. Note, likewiſe, that if in Deſcents, D H be greater than F D, and ſo K fall below D; the Angle K G D, ſhall be the Depreſſion below the Horizon.

It may be here obſerved, that the Elevation ſought conſtantly biſſects the Angle between the Perpendicular and the Object. This, the Author was not aware of, when he gave the firſt Solution of the Problem; but upon diſcovering it, obſerves, that nothing can be more compendious, or bid fairer for the perfection of the Art of Gunnery; ſince 'tis here, as eaſy to ſhoot with a Mortar at any Object in any ſituation, as if it were on the Level; nothing more being required but to lay the Piece, ſo as to paſs in the middle Line between the Zenith and the Object, and giving it the due Charge. See MORTAR.

14. The Times of the *Projections*, or Caſts under different Angles of Elevation, the Velocity remaining the ſame, are as the Sines of the Angles of Elevation.

15. *The Velocity of a* Projectile, *together with the Angle of Elevation* R A B *being given* (fig.47.); *to find the Range, or Amplitude* A B, *and the Altitude of the Range* t m, *and deſcribe the Path* A m B. To the horizontal Line A B erect a Perpendicular A D, which is to be the Altitude whence the *Projectile* falling, might acquire the given Velocity: On A D deſcribe a Semi-circle A Q D, cutting the Line of Direction A R in Q: Thro' Q draw C *m* parallel to A B, and make $CQ = Qm$. From the Point *m* let fall a Perpendicular *m t* to A B: Laſtly, thro' the Vertex M deſcribe the Parabola A *m* B.

Here, A *m* B is the Path ſought, 4 C Q its Amplitude or Range, *t m* the Altitude of the Range, and 4 C D the Parameter.

Hence, 1. The Velocity of a *Projectile* being given, the Amplitudes and Altitudes of all the poſſible Ranges are given at the ſame time. For, drawing E A, we have under the Angle of Elevation E A B, the Altitude A I, and the Amplitude 4 I E: Under the Angle of Elevation F A B, the Altitude A H, the Amplitude 4 H F. 2. Since A B is perpendicular to A D, it is a Tangent to the Circle in A: Hence the Angle A D Q is equal to the Angle of Elevation R A B; conſequently A I M is double the Angle of Elevation, and therefore C Q, the fourth part of the Amplitude, is the right Sine; A C the Altitude of the Range, the verſed Sine of double the Angle of Elevation.

16. The Altitude *t m* of a Caſt *t m*, or its Amplitude A B, together with the Angle of Elevation R A B, being given; to find the Velocity wherewith the *Projectile* firſt moved, that is, the Altitude A D, in falling from whence it would acquire the like Velocity: Since $AC = tm$ is the verſed Sine, $CQ = \frac{1}{4}AB$, the right Sine of double the Angle of Elevation A I Q: To the verſed Sine of double the Angle of Elevation, find the whole Sine, and the height of the

Caſt. Or to the right Sine of double the Angle of Elevation, the whole Sine and the fourth part of the Amplitude, find a fourth Proportional. This will be the Radius I Q or I, the double whereof A D is the Altitude required.

PROJECTION, in Mechanics, the Action of giving a Projectile its Motion. See Projectile.

If the Direction of the Force whereby the Projectile is put in motion, be perpendicular to the Horizon; the *Projection* is ſaid to be *Perpendicular*: If parallel to the apparent Horizon, it is ſaid to be a *horizontal Projection*: If it make an oblique Angle with the Horizon, the *Projection* is oblique. See Oblique.

The Angle A R B, (Tab. Mechanics, *fig.* 47.) which the Line of Direction A R makes with the horizontal Line A B, is call'd the *Angle of Elevation of the Projectile.*

Projection, in Perſpective, the Appearance or Repreſentation of an Object on the perſpective Plane. See Plane.

The *Projection, e. gr.* of a Point, as A, (Tab. Perspective, *fig.* 1.) is a Point *a* thro which the Optic Ray O A paſſes from the objective Point, thro' the Plane, to the Eye; or the Point *a* wherein the Plane cuts the optic Ray.

And hence is eaſily conceiv'd what is meant by the *Projection* of a Line, a Plane, or a Solid. See Perspective.

Projection *of the Sphere in Plano*, is a Repreſentation of the ſeveral Points or Places of the Surface of the Sphere, and of the Circles deſcribed thereon, or of any aſſign'd parts thereof, ſuch as they appear to the Eye ſituate at a given diſtance, upon a tranſparent Plane placed between the Eye and the Sphere. See Sphere.

For the Laws of this *Projection*, ſee Perspective; the *Projection of the Sphere* being only a particular Caſe of Perſpective.

The principal Uſe of the *Projection of the Sphere* is in the Conſtruction of Planiſpheres, and particularly Maps and Charts; which are ſaid to be of this or that *Projection*, according to the ſeveral Situations of the Eye, and the perſpective Plane with regard to the Meridians, Parallels, and other Points and Places to be repreſented. See Planisphere, &c.

The moſt uſual *Projection* of Maps of the World is that on *the Plane of the Meridian*, which exhibits a right Sphere; the firſt Meridian being the Horizon. The next is that on *the Plane of the Equator*, wherein the Pole is in the Centre, and the Meridians the Radii of a Circle, &c. This repreſents a parallel Sphere.

See the Application of the Doctrine of the Projection of the Sphere, *in the Conſtruction of the various kinds of Maps, under the Article* Map.

The Projection of the Sphere is uſually divided into *Orthographic* and *Stereographic*; to which may be added *Gnomonic.*

Orthographic Projection, is that wherein the Superficies of the Sphere is drawn on a Plane, cutting it in the Middle; the Eye being placed at an infinite diſtance vertically to one of the Hemiſpheres. See Orthographic.

Laws and Properties of the Orthographic Projection.

1. The Rays by which the Eye at an infinite diſtance perceives any Object, are parallel.

2. A right Line perpendicular to the Plane of the *Projection* is projected into a Point, where that right Line cuts the Plane of the *Projection.*

3. A right Line, as A B, or C D, (fig. 17.) not perpendicular, but either parallel or oblique to the Plane of the *Projection*, is projected into a right Line, as E F, or G H, and is always comprehended between the extreme Perpendiculars A F, and B E.

4. The *Projection* of the right Line A B, is the greateſt when A B is parallel to the Plane of the *Projection.*

5. Hence it is evident, that a Line parallel to the Plane of the *Projection*, is projected into a right Line equal to itſelf; but if it be oblique to the Plane of the *Projection*, 'tis projected into one which is leſs.

6. A plane Surface as A B C D, (fig. 18.) at right Angles to the Plane of the *Projection*, is projected into that right Line; *e.gr.* AB, in which it cuts the Plane of the *Projection.*

Hence it is evident, that the Circle B C A D, ſtanding at right Angles to the Plane of the *Projection*, which paſſes thro' its Centre, is projected into that Diameter A B, in which it cuts the Plane of the *Projection.*

It is likewiſe evident, that any Arch, as *c c*, is projected into *o o* equal to C *a*, C *b*, which is the right Sine of that Arch; and the complimental Arch *c* A is projected into *o* A, the verſed Sine of the ſame Arch C C.

7. A Circle parallel to the Plane of the *Projection*, is projected into a Circle equal to itſelf; and a Circle oblique to the Plane of the *Projection*, is projected into an Ellipſis.

Stereographic Projection, is that wherein the Surface and Circles of the Sphere are drawn upon the Plane of a great Circle, the Eye being in the Pole of that Circle. See Stereographic.

Properties of the Stereographic Projection.

1. In this *Projection*, a right Circle is projected into a Line of half Tangents.

2. The Repreſentation of a right Circle, perpendicularly oppoſed to the Eye, will be a Circle in the Plane of the *Projection.*

3. The Repreſentation of a Circle placed oblique to the Eye, will be a Circle in the Plane of the *Projection.*

4. If a great Circle be to be projected upon the Plane of another great Circle, its Centre will lie in the Line of Meaſures, diſtant from the Centre of the primitive by the Tangent of its Elevation above the Plane of the primitive.

5. If a leſſer Circle, whoſe Poles lie in the Plane of the *Projection*, were to be projected; the Centre of its Repreſentation would be in the Line of Meaſures, diſtant from the Centre of the primitive, by the Secant of the leſſer Circles diſtance from its Pole, and its Semi-diameter or Radius, be equal to the Tangent of that diſtance.

6. If a leſſer Circle were to be projected, whoſe Poles lie not in the Plane of the *Projection*, its Diameter in the *Projection*, if it falls on each ſide of the Pole of the Primitive, will be equal to the Sum of the half Tangents of its greateſt and neareſt Diſtance from the Pole of the Primitive, ſet each way from the Centre of the Primitive in the Line of Meaſures.

7. If a leſſer Circle to be *projected*, fall entirely on one ſide of the Pole of the *Projection*, and do not encompaſs it; then will its Diameter be equal to the difference of the half Tangents of its greateſt and neareſt diſtance from the Pole of the Primitive, ſet off from the Centre of the Primitive one and the ſame way in the Line of Meaſures.

8. In the *Stereographic Projection*, the Angles made by the Circles of the Surface of the Sphere, are equal to the Angles made by their Repreſentatives in the Plane of their *Projection.*

Gnomonic Projection *of the Sphere*, ſee Gnomonic *Projection.*

Projection *of Globes*, &c. ſee Globe, &c.

Projection, in Alchymy, the caſting of a certain, imaginary Powder, call'd *Powder of Projection*, into a Crucible, or other Veſſel full of prepared Metal, or other Matter, which is to be hereby tranſmuted into Gold. See *Powder of* Projection.

Powder of Projection, or of the Philoſopher's Stone, is a *Powder* ſuppoſed to have the Virtue of changing any quantity of an imperfect Metal, as Copper, or Lead, into a more perfect one, as Silver or Gold; by the admixture of a little quantity thereof. See Transmutation.

The Mark to which the Alchymiſts direct all their Endeavours, is to find the *Powder of Projection*; which every one of 'em has been within an Ace of, an hundred times. See Alchymy.

For the Characters, Properties, Virtues, &c. *of this Powder*, ſee Philosopher's *Stone.*

Projection *in Building*, ſee Projecture.

PROJECTIVE *Dialling*, a Method of Drawing, by a Method of Projection, the true Hour-Lines, Furniture of Dials, &c. on any kind of Surface whatſoever, without any regard had to the Situation of thoſe Surfaces, either as to Declination, Reclination, or Inclination. See Dialling.

PROJECTURE, in Architecture, the Out-jetting, or Prominency, which the Mouldings and Members have, beyond the Naked of the Wall, Column, &c. See Naked, Column, &c.

Theſe the *Greeks* call *Ecphoræ*, the *Italians Sporti*, the *French Sailles*, our Workmen frequently *Sailings over*, and the *Latins Projecta*, from *projicio*, I caſt forward; whence the *Engliſh*, *Projecture.*

Vitruvius gives it as a general Rule, that all the *projecting* Members in Buildings have their *Projectures* equal to their Heights: But this is not to be underſtood of the particular Members, or Mouldings, as Dentils, Corona's, the Faſciæ of Architraves, the Abacus of the *Tuſcan* and *Doric* Capital, &c. but only of the *Projectures* of entire Cornices, &c. See Cornice, &c.

The great Point of Building, according to ſome modern Architects, conſiſts in knowing how to vary the Proportions of *Projectures*, &c. agreeably to the Circumſtances of the Building: Thus, ſay they, the nearneſs and remoteneſs making a difference in the View, requires different *Projectures*; but 'tis evident the Antients had no ſuch Intention. See Proportion.

The *Projecture* of the Baſe and Cornice of Pedeſtals, M. *Perrault* obſerves, is greater in the antique than the modern Buildings by one third; which ſeems to follow, in good meaſure, from the Antients proportioning this *Projecture* to the height of the Pedeſtals; whereas the Moderns make the *Projecture* the ſame in all the Orders, tho' the height of the Pedeſtal be very different.

The reaſon of this Change which the Moderns have made of the antique, the ſame Author refers to a View to the Appearance of Solidity. See PEDESTAL.

PROLABIA, *Fore-Lips*; a Term in Anatomy for that part of the Labia which jets out. See LABIA.

PROLATE, in Geometry, an Epithet apply'd to a Spheroid produced by the Revolution of a Semi-Ellipſis about its longer Diameter. See SPHEROID.

If the Solid be formed by the Revolution of a Semi-Ellipſis about its ſhorter Diameter, it is call'd an *Oblate Spheroid*, of which Figure is the Earth we inhabit, and, perhaps, all the Planets too; having their Equatorial Diameter longer than their Polar. See OBLATE.

PROLATION, in Muſic, the Act of Shaking, or making ſeveral Inflections of the Voice, on the ſame Syllable.

PROLEPSIS, a Figure in Rhetoric, by which we anticipate, or prevent what might be objected by the Adverſary. See FIGURE.

Thus; *It may perhaps be objected*, &c.

The Word in the original *Greek*, προληψις, ſignifies Preoccupation.

PROLEPTIC *Diſeaſe*, a Diſtemper which ſtill anticipates, or whoſe Paroxyſm returns ſooner, and ſooner, every day; as is frequently the Caſe in Agues, &c.

PROLIFIC, in Medicine, ſomething that has the Qualities neceſſary for generating. See FECUNDITY.

Some Phyſicians pretend to diſtinguiſh whether or no the Seed be *Prolific*. See SEED.

PROLIXITY, in Diſcourſe, the Fault of entering into too minute a Detail; of being too long, preciſe, and circumſtantial to a degree of Tediouſneſs. See STYLE.

Prolixity is the Vice oppoſite to Conciſeneſs and Laconiſm. See LACONICAL.

Prolixity is a Fault commonly charged on *Guiccardin*, *Gaſſendus*, &c. F. *Rapin* obſerves, that formal Harangues, at the Head of an Army, and Deliberations, of nauſeous *Prolixity*, formerly ſo frequent, are now diſuſed in all the better Hiſtories.

PROLEGOMENA, in Philology, preparatory Obſervations, or Diſcourſes prefixed to a Book, &c. containing ſomething neceſſary for the Reader to be apprized of, to enable him the better to underſtand the Book, to enter deeper into a Science, &c.

The generality of Arts and Sciences require ſome previous Inſtructions, ſome *Prolegomena*.

The Word is *Greek* προλεγομένον, form'd of προλέγομαι, to *Preface*. See PREFACE.

PROLOCUTOR, of the Convocation, the Speaker, or Chairman of that Aſſembly. See CONVOCATION.

The Archbiſhop of *Canterbury* is, by his Office, Preſident, or Chairman of the Upper Houſe of Convocation.

The *Prolocutor* of the Lower Houſe is an Officer choſen by the Members the firſt day of their meeting; and to be approved of by the Higher.

'Tis by the *Prolocutor* their Affairs, Debates, &c. are to be directed; and their Reſolutions, Meſſages, &c. deliver'd to the higher Houſe: By him all things propounded to the Houſe are read, Suffrages collected, &c.

PROLOGUE, PROLOGUS, in Dramatic Poetry, a Diſcourſe addreſs'd to the Audience before the Drama or Play begin. See DRAMA.

The original Intention of the *Prologue* was to advertiſe the Audience of the Subject of the Piece, and to prepare them to enter more eaſily into the Action; and ſometimes to make an Apology for the Poet.

This laſt Article ſeems to have almoſt excluded the two former, in the *Engliſh* Drama; and to be in ſole poſſeſſion of the *Prologue*.

The *Prologue* is of a much more antient Standing than the Epilogue. See EPILOGUE.

The *French* have left off the Uſe of *Prologues*; thoſe few they now and then make, have nothing in them of the genuine *Prologue*; as bearing no relation to the Subject, but being mere Flouriſhes or Harangues in praiſe of the King, &c.

In the antient Theatre, the *Prologus* was properly the Actor, who rehears'd the *Prologue*: The *Prologus* was eſteem'd one of the *Dramatis Perſonæ*, and never appear'd in the Piece in any other Character; ſo that the Learned are ſurprized to find *Mercury* in *Plautus*'s *Amphitryo*, ſpeaking the *Prologue*, and yet acting a conſiderable part in the Play afterwards.

The *Prologue*, therefore, among them was a part of the Piece; indeed, not an eſſential, but an acceſſary part.

With us the *Prologue* is no part at all; but ſomething intirely diſtinct and a-part: With them the Drama was open'd with the appearance of the *Prologue*; with us 'tis not open'd till after the *Prologus* is retir'd: with us therefore the Curtain is kept cloſe till after the *Prologue*, with them it muſt have been withdrawn before.

Hence proceeds a ſtill more conſiderable Difference, in the practice of the *Prologue*: For with us the *Prologus* ſpeaks in his real or perſonal Character; 'tis Mr. *Booth* or Mrs. *Oldfield* ſpeaks, not *Cato* or *Andromache*: With them the *Prologue* ſpoke in his Dramatic Character, not as *Turpius* or *Attilius*, but as *Prologus*.

With us, he directs his Speech to the Audience, conſider'd as in a Play-houſe; to Pit, Box, and Gallery: With them, he ought, in propriety, to have ſpoke as to a Chorus of By-ſtanders, or Perſons to be preſent at the real Action: But this being in good meaſure inconſiſtent with the Deſign of the *Prologue*; their Perſons ſpoke in their Dramatic Capacity to the Audience in its perſonal Capacity; which was an Irregularity that either the good Fortune, or the good Senſe of the Moderns, have freed them from.

They had three Kinds of *Prologues*; the firſt υποθετικὸς, wherein the Poet deliver'd the Argument of the Piece; the ſecond συςατικὸς, wherein the Poet recommended himſelf or his Piece to the People; the third αναφορικὸς, wherein Objections were obviated, &c.

The Word *Prologue* is form'd from the *Greek* πρόλογος, *Præloquium*, *Fore-Speech*.

PROLUSION, PROLUSIO, in Literature, a Term apply'd to certain Pieces or Compoſitions, made previouſly to others; by way of Prelude, or Exerciſe.

Diomede calls the *Culex* of *Virgil*, and his other *Opuſcula*, *Proluſions*; becauſe wrote before the great ones.

The *Proluſions* of *Strada* are very ingenious pieces: The famous M. *Huet*, Biſhop of *Avranches*, has all *Strada's* *Proluſions* by heart.

PROMETHEUS, in the antient Aſtronomy, was the Name of a Conſtellation of the Northern Hemiſphere; now call'd *Hercules*, or *Engonaſis*. See HERCULES.

PROMISE, in Law, is when a Man binds himſelf by his Word to perform ſuch an Act as is agreed on and concluded with another, upon a valuable Conſideration. See CONTRACT, PACT, COVENANT, &c.

PROMONTORY, in Geography, a Point of Land, or a Rock, projecting out into the Sea; the Extremity of which to the Sea-ward, is uſually call'd a *Cape*, or an *Headland*. See CAPE.

PROMOTERS, in Law, thoſe Perſons, who in popular and penal Actions, do proſecute Offenders in their Name, and the King's; and are entitled to part of the Fines and Penalties for their pains.

Theſe, among the *Romans*, were call'd *Quadruplatores*, or *Delatores*.

Sir *Tho: Smith* obſerves, that *Promoters* belong chiefly to the Exchequer and King's-Bench. My Lord *Coke* calls them, *turbidum Hominum Genus*, 3 Inſt.

PROMPT *Payment*, ready Money, ſee PAYMENT.

In many Caſes there is a Diſcount for *Prompt Payment*. See DISCOUNT, REBATE, &c.

PROMPTER, in the Drama, an Officer poſted behind the Scenes, whoſe Buſineſs is to watch attentively the Actors ſpeaking on the Stage, in order to ſuggeſt and put them forward, when at a ſtand; to correct them when amiſs, &c. in their parts.

PROMULGATED, PROMULGED, *Promulgatus*, ſomething publiſh'd or proclaim'd.

In this ſenſe we ſay, the *Jewiſh* Law was *promulgated* by *Moſes*: The *Promulgation* of the New Law was chiefly effected by the Apoſtles and Diſciples.

PRONAOS, in the antient Architecture, a Porch to a Church, Palace, or other ſpacious Building. See PORCH.

PRONATION, among Anatomiſts. The Radius of the Arm has two kinds of Motions; the one call'd *Pronation*, the other Supination. See RADIUS.

Pronation, is when the Palm of the Hand is turn'd downwards; *Supination*, when the back of the Hand is downwards.

There are two Muſcles, whereby the *Pronation* is effected, call'd

PRONATORS, PRONATORES, in Anatomy, two Muſcles of the Radius, which ſerve to turn the Palm of the Hand downwards. See PRONATION.

They are diſtinguiſh'd by the Names of *Rotundus* and *Quadratus*.

The Word is form'd from the *Latin Pronus*, *that which lies on the Fore-ſide*.

The Radius has two other Muſcles, call'd *Supinators*, which have an oppoſite Effect. See SUPINATORS.

PRONATOR *Radii Quadratus*, or *Brevis*, riſes broad and fleſhy, from the lower and inner part of the Ulna; and paſſing tranſverſely over the Ligament that joins the Radius to the Ulna, is inſerted into the ſuperior and external part of the Radius: which it helps to pull inwardly; together with the

PRONATOR *Radii Rotundus*, or *Teres*, a Muſcle which riſes fleſhy, from the internal Extuberance of the *Os Humeri*, where thoſe bending the *Carpus* and Fingers do ariſe; and firmly adhering to the *Flexor Carpi Radialis*, de-

deſcends obliquely downwards to its fleſhy Inſertion a little above the Radius, in the middle externally: Its Uſe is to move the Radius and Palm inwards.

PRONOUN, PRONOMEN, in Grammar, a part of Speech uſed in lieu of a Noun, or Name; whence the Denomination; from *pro* and *nomen*, q. d. *For-Noun*, or *-Name*. See NOUN.

As it would have been diſagreeable to have been always repeating the ſame Name; there are Words invented in all Languages, to ſave the Neceſſity thereof, and to perſonate Names: as, *I, thou, he, &c.*

As Nouns are the Marks, or Signs, of Things; *Pronouns* are of Nouns.

Father *Buffier* ſhews, that *Pronouns* are real Nouns or Names; and that all the difference between what the Grammarians call Nouns, and *Pronouns*, is, that the former are more particular, and the latter more general.

They are call'd *Pronouns*, becauſe uſed in the place of particular Nouns: Indeed, ſometimes they don't fill the place of Nouns entirely, but need other Words to aſſiſt them, to expreſs the Object ſpoke of: Such, *e. gr.* are *who, whoever, &c.* which don't expreſs any determinate Object whereof a Thing may be affirm'd, unleſs accompany'd with another Word, eſpecially a Verb: As, *Whoever labours, deſerves a Reward.*

Theſe, Father *Buffier* calls *Incompleat Pronouns*, to diſtinguiſh them from thoſe which expreſs an Object compleatly; as, *I, thou, he, &c.*

The Grammarians ordinarily diſtinguiſh *Pronouns* into four Claſſes, with regard to their different Signification, Formation, &c. *viz. Pronouns Perſonal, Relative, Poſſeſſive*, and *Demonſtrative*; to which may be added, *Indeterminate Pronouns*.

Perſonal Pronouns, are thoſe uſed in lieu of Names of particular Perſons: Such are, *I, thou, he, we, ye, they.* See PERSON and PERSONAL.

Pronouns Relative, which *Buffier* calls *Modificative*, or *Determinative*, are thoſe placed after Nouns, with which they have ſuch Affinity, that without them they ſignify nothing: Such are, *qui, who, that, &c.* See RELATIVE.

Pronouns Poſſeſſive, are thoſe which expreſs what each poſſeſſes, or what belongs to him; as, *mine, thine, his, &c.* See RELATIVE.

Theſe are pure Adjectives; and only differ from the reſt, by the relation they bear to *Pronouns* whence they are deriv'd, and by ſome particular Inflections which they have in ſome Languages. See ADJECTIVE.

Pronouns Demonſtrative, thoſe which ſerve to indicate, or point out the Subject ſpoke of; as, *this, thoſe, &c.* See DEMONSTRATIVE.

Laſtly, *Pronouns Indefinite*, are thoſe which expreſs their Object indeterminately; as *whoever, any, &c.* Theſe coincide with what F. *Buffier* calls *Incompleat Pronouns*.

PRONOUNS are likewiſe divided into *Subſtantive* and *Adjective*.

To the firſt belong, *I, thou, ye:* To the ſecond, *he, ſhe, they, it, my, mine, who, what, &c.*

Pronouns may be conſider'd in two States; the firſt, or foregoing State; as *I, we:* The ſecond, or following one; as *me, us.*

PRONOUNCING, PRONUNCIATION, in Painting, the marking, and expreſſing the parts of all kinds of Bodies with that degree of Force, neceſſary to make them more, or leſs diſtinct, and conſpicuous.

Thus the Painters, in ſpeaking of a Piece, ſay, theſe or theſe parts are well *pronounc'd*; which is a metaphorical way of ſpeaking; as when we ſay, that a Man who talks well, has a fine *Pronunciation*. See EXPRESSION.

PRONUNCIATION, in Grammar, the Manner of articulating or ſounding the Words of a Language repreſented to the Eye by Writing and Orthography. See WORD, LANGUAGE, SOUND, &c.

From the Definition it would ſeem, that the *Pronunciation* were only the Image of the Orthography. But as we pronounce before we write, and only write to expreſs what we pronounce; 'tis more juſt to lay down the *Pronunciation* as the Rule, and Model of Orthograghy. See ORTHOGRAPHY.

Pronunciation makes much the moſt difficult Article of a written Grammar: In effect, a Book only expreſſing it ſelf to the Eyes, in a Matter that concerns the Ears; the Caſe ſeems next a-kin to that of teaching the Blind to diſtinguiſh Colours. See GRAMMAR.

Hence it is, that there is no part ſo defective in the Grammars, as the *Pronunciation*; for the Writer has frequently no Term, whereby to give the Reader an Idea of the Sound he would expreſs; for want of a proper Term, therefore, he frequently ſubſtitutes a vitious or precarious one.

Thus the *French* Grammarians ordinarily tell us, that the Vowels *a, e, i, &c.* are pronounced in *French* the ſame as in *Latin*; never conſidering, that there is not any known and determinate *Pronunciation* of the *Latin*; but each Nation, now, pronounces the *Roman* Characters in the *Latin*, the ſame as it pronounces thoſe ſame Characters in its own Language. Thus the *Latin cæcus*, is pronounc'd by the *Engliſh*, *ſekus*; and by the *Italians*, *tchekous*, &c.

Hence it appears, that the Relation between Sounds and Characters, as well as between Things and Words, is purely arbitrary and national.

Indeed, *Plato* ſeems of a contrary Sentiment, and will have a natural Relation between Words and the Things they expreſs; as there is a natural Relation between the Signs made by Mutes, and the things they would intimate. So that according to *Plato*, to every ſeveral Word there muſt be a ſeveral Motion of the Mouth relative to the Action expreſs'd by the Word.

Whether or no there might be ſuch a thing in the primitive Language, we dare not undertake; but 'tis certain ſuch a relation would require a Facility of Contorſions in the Mouth, to which we are Strangers.

To give a juſt and preciſe Idea of the *Pronunciation* of a Language, it ſeems neceſſary to fix, as nearly as poſſible, all the ſeveral Sounds employ'd in the *Pronunciation* of that Language: This Mr. *Lodwick* has done in his Attempt towards an univerſal Alphabet; where he enumerates forty-three ſeveral ſimple Sounds; (ſome of 'em, indeed, ſtrangers to the *Engliſh* Language) and F. *Buffier*, who gives thirty-three ſeveral Sounds in the *French* Tongue, twenty-nine in the *Italian*, thirty in the *German*, twenty-two in the *Spaniſh*, and twenty-four in the *Engliſh*. See ALPHABET.

The *French* Language is clogg'd with a difficulty in *Pronunciation*, from which moſt others are free; and it conſiſts in this, that moſt of their Words have two different *Pronunciations*; the one in common Proſe, the other in Verſe.

In Proſe, *e. gr.* they omit the *Pronunciation* of the final *s* in the Plural of Nouns, and of the *t* in the third Perſon of the Plural of Verbs, and of ſeveral other final Conſonants; but in Verſe they *pronounce* all.

Thus, in *a quoi bon reveiller mes Muſes endormies*? the final *s* of *Muſes* is *pronounced*; and in *Mille & mille douceurs y ſemblent attachées*; the *t* of *ſemblent* is to be *pronounced*.

Add to this, that in Proſe, they ſoften the Sound of a great many Words, *pronouncing*, *craire* for *croire*; but in Poetry the genuine *Pronunciation* is retain'd. See ENGLISH, FRENCH, &c.

PRONUNCIATION is alſo uſed for the fifth and laſt part of Rhetoric, which conſiſts in regulating and varying the Voice and Geſture agreeably to the Matter and Words; ſo, as more effectually to perſuade, and touch the Hearers. See RHETORIC.

The *Pronunciation* is of ſuch Importance, that *Demoſthenes* call'd it the firſt, the ſecond, and the third Part of Eloquence.

Quintilian defines the *Pronunciation*, *Vocis & Vultus & Corporis moderatio cum venuſtate*; a decent, agreeable manner of managing the Voice, Geſture, and Action of the whole Body.

Cicero, ſomewhere, calls it *quædam Corporis Eloquentia*, a certain Eloquence of the Body; and in another Place, *Sermo Corporis*, the Language, or Speech of the Body.

Pronunciation is the ſame with what we otherwiſe call *Action*. See ACTION.

Some Writers, particularly Mr. *Henley*, confound it with *Elocution*, which is a very different thing. That Author, when he ſtyles himſelf *Reſtorer of the antient Elocution*, means of the antient *Pronunciation*. See ELOCUTION.

There are three Things which come under the *Pronunciation*; the Memory, Voice, and Geſture. See each under its proper Article.

Auguſtus, to avoid being balk'd by his Memory, and at the ſame time ſave the trouble of getting off by Heart, uſed to harangue from a Writing; as we are told by *Dio* and *Suetonius*.

PRONUNCIATION, in Painting; ſee PRONOUNCING.

PROOF, in Arithmetic, an Operation whereby the Truth and Juſtneſs of a Calculation is examin'd and aſcertain'd. See CALCULATION.

The proper *Proof* is always by the contrary Rule: Thus Subſtraction is the *Proof* of Addition, and Multiplication of Diviſion; and *vice verſa*. See ADDITION, SUBSTRACTION, &c.

The *Proof* of Multiplication by 9 or by 7, are precarious. See MULTIPLICATION.

There would need no *Proofs* in Arithmetic, were it not that a Man is liable to make Miſtakes; for all the Rules and Operations being built on Demonſtration, 'tis thence we are aſſured of their Truth and Certitude. See DEMONSTRATION.

The *Proof*, then, does not confirm the Rule, but only ſhews us whether or no we have apply'd it right. See RULE.

PROOF, in Law, Logic, &c. the Mediums, or Arguments uſed to evince the Truth of any thing. See TRUTH.

In Law, a *literal Proof*, or *Proof in writing*, is preferable to a Teſtimonial. The *Ordonnance de Moulins* excludes all *Proof* by Witneſſes for Loans of above 1000 Livres. See Evidence, Witness, Testimony, *&c.*

The *Proof* of Crimes was antiently effected among our Anceſtors, divers ways; *viz.* by Duel or Combat, Fire, Water, *&c.* See Purgation, Duel, Fire, Water, *&c.*

The *Proof* by red-hot Iron was very frequent: The Accuſed, to purge himſelf, was here obliged to make an Oath as he touch'd the Iron. The Formula, Ceremonies, Prayers, *&c.* made on this Occaſion, are ſtill extant in the Notes at the end of the *Capitularies* of *Charlemaign.* See Ordeal.

This Cuſtom was abrogated by the Emperor *Frederic*; but ſtill obtains in *Mingrelia*; as we are told by *Lamberti*, in his Relation inſerted in *Thevenot's Voyages.*

If they cannot have *Proof* of a Crime, a Croſs is laid at the bottom of a Caldron full of boiling Water; out of which the Accuſed is obliged to fetch it with his naked Hand and Arm: This done, the Arm is put up in a Bag, tied, and ſeal'd; and three days after open'd; when, if there be no Marks of the Burn or Scald, the Accuſed is declared Innocent.

In the Kingdom of *Siam*, to have *Proof* of a Crime, the Party is obliged to waſh his Hands in boiling Oil, or to walk on burning Coals; from either of which he muſt come out untouch'd to be reputed Innocent.

Sometimes they oblige the two contending Parties to plunge under Water; and he who ſtays there longeſt, gains the Cauſe: And ſometimes to ſwallow a Grain of Rice, prepar'd and charm'd by their Doctors; he who is able to ſwallow it, is declared Innocent, and carried home in Triumph; and the Accuſer puniſh'd.

This looks like an Imitation of what was done among the *Jews*; to have *Proof* of Adultery.

The *Proof* by Combat is likewiſe ſaid to ſubſiſt among the *Mingrelians.* See Combat.

PROPAGATION, the Act of Multiplying the Kind; or of producing the like in the way of natural Generation. See Generation.

Some Plants are only propagated by *Sowing*; as Wheat, Poppies, *&c.* The Reaſon is, that the Stem in theſe Plants withers and dies away, and conſequently is incapable of being planted: And as to the Root, the whole Force and Effect thereof paſſes into the Ear, or Spica, which being the uſeful part of the Plant, exhauſts the whole. See Seed and Sowing.

Sometimes Plants are *propagated* by the Roots, as the Anemonies, *&c.* In which Caſe, there is a conſiderable Stock of Seminal or Spermatick Virtue ſtill reſerv'd in the Root, ſo as to be in a condition for ſhooting new Fibres upon any favourable occaſion. See Root.

Sometimes, a Branch lopp'd off, and ſet in the Ground, ſhall ſhoot into a new Plant; as we ſee in the Willow, Vine, Poplar, *&c.* And ſometimes a Truncheon ſhall do the ſame. In this Caſe, the Plants being of a very porous Texture, readily imbibe Nouriſhment, and take Root. This Method of *Propagation* is particularly remarkable in the Vine, any part of which put any how in the Ground, will become a Plant. The little Chips of Elm are ſaid to do the ſame. See Branch and Planting.

When a Branch or Arm of a Vine ſhoots too great a length, or withers towards the Extreme, or grows too ſmall to feed its Grapes, 'tis uſual to cut pieces of it off, and put 'em in the Ground; which readily grow into thriving Plants.

Nay, ſometimes, to bring up young Plants, and make 'em grow and advance the faſter, eſpecially Lemon, Orange, and Citron Trees; they paſs a Branch or Shoot of an old Tree, without cutting it off, thro' an Aperture of a Veſſel fill'd with good Earth; upon which, the Pores opening by the Moiſture and Warmth, Roots preſently burſt forth, which being furniſh'd with Food both from the Earth and the parent Plant, grow at a great rate, and are ſoon in a Condition to be ſeparated from the Parent, and ſhift for themſelves. See Stock, Dwarf, *&c.*

Laſtly, Plants are ſometimes, alſo, *propagated* by Bulbs. See Bulb.

PROPER, ſomething naturally, and eſſentially belonging to any Being.

The School-Philoſophers, after *Porphyry*, diſtinguiſh four kinds of *Propers*, or Modes of *Propriety*; which are expreſs'd in the following Verſe:

Eſt Medicus, Bipes, Caneſcens, Riſibiliſque.

The firſt, call'd Proprium *primo modo*, is what agrees to a ſingle Species, but not to all the Individuals: This they call *ſoli ſed non omni.* As, to be a Geometrician, a Phyſician, a Divine, *&c.* which are things *proper* to Man; but not to all Men.

The ſecond, Proprium *ſecundo modo*, is what agrees to the whole Species, but agrees likewiſe to another: which they call *omni ſed non ſoli.*

Thus to have two Feet is *proper* to a Man, but is likewiſe *proper* to a Bird.

The third Proprium *tertio modo*, is that which agrees to a ſingle Species, but not at all times; *omni & ſoli, ſed non ſemper*: As, to grow grey, according to *Porphyry*, is *proper* to a Man, but 'tis to an old Man.

The laſt, and higheſt, Proprium *quarto modo*, is that which alone agrees to one Kind, to all the Individuals thereof, and at all times; *omni, ſoli, & ſemper.* Thus, the Faculty of Laughing is *proper* to Man; of Neighing to Horſes, *&c.* And 'tis this that *Porphyry* calls the *true Proper.* See Essence, *&c.*

The firſt three Species are only Accidents of the fifth vulgar Predicable, to which they directly belong. See Predicable.

The fourth is an Univerſal agreeing to every Individual, or Subject of Predication of any Species, in ſuch Manner, as to be always found abſolutely in the Species alone, but not at every determinate time: Thus Man alone is naturally riſible; not that he is always Laughing, but has the Faculty of Laughing at all times. See Definition.

Proper, in reſpect of Words, is underſtood of their immediate and particular Signification; or that directly and peculiarly attach'd to 'em.

In this Senſe the Word ſtands oppoſed to Figurative and Metaphorical. See Figurative, *&c.*

Proper is alſo laxly uſed in a Moral Senſe, to denote ſomething that is uſually found in Things; as their particular or ſpecific Virtues, *&c.*

In this ſenſe we ſay, Magnanimity is the *proper* Virtue of Heroes. See Hero.

The Word is alſo uſed for the natural Qualities neceſſary to ſucceed in a thing. In this ſenſe we ſay, People of a hot, vigorous Temperament are *proper* for the Army; the cold and phlegmatic are *proper* for Study. The *Romans* became leſs *proper* for War, in proportion as they grew more learned and polite.

Proper, in Grammar, is a Term apply'd to Nouns, or Names, which are diſtinguiſh'd into *Proper*, and Appellative. See Noun.

Man is the Appellative, *Peter* the *proper* Name. See Appellative.

The *proper* Name among Chriſtians is that impoſed at Baptiſm. See Name.

Proper *Fraction*, is ſuch a one as hath its Numerator leſs than the Denominator.

Such is $\frac{3}{4}$, or $\frac{5}{7}$, which is really leſs than Unity; and, therefore, *properly* ſpeaking, a Fraction. See Fraction.

Proper, in the Civil Juriſ-prudence, is apply'd in oppoſition to acquired; for an Inheritance derived by direct or collateral Succeſſion. See Goods.

By the *French* Laws, a Teſtator can only diſpoſe of one fifth of his *proper* Effects; the paternal Relations inherit the paternal *Propria*, and the Maternal the Maternal ones: So that *Propria* always return to the Line whence they proceed.

The Origin of the Law which fixes this difference between *Propers*, and Acqueſts, is not known; neither the *Greeks* nor *Romans* having ever made any ſuch diſtinction.

Indeed, it ſeems founded on this Principle of natural Equity, that Men are uſually deſirous to preſerve and attach to their Family, the Goods they have received from their Fore-fathers; and to tranſmit them to thoſe deſcending from the ſame Stock.

Proper ſometimes, alſo, ſtands as a Reduplicative, ſerving to mark or deſign a thing more expreſly, and formally.

In this ſenſe we ſay, Jeſus Chriſt came to redeem the World in his *proper* Perſon. The King did ſuch and ſuch a thing of his own *proper* Motion.

PROPERTY, or Propriety, that which conſtitutes or denominates a thing *proper*; or, it is a particular Virtue, or Quality which Nature has beſtow'd on ſomething. See Proper.

Thus, Colour is a *Property* of Light; Extenſion, Figure, Diviſibility, and Impenetrability, are *Properties* of Body. See Colour, Body, *&c.*

Every Day diſcovers new *Properties* in the Load-ſtone. See Magnet.

PROPERTY, or Propriety, in Law, ſtrictly ſpeaking, is the higheſt Right a Man can have to a thing; and ſuch as no ways depends on any other Man's Courteſy. See Right.

In this Senſe, none in our Kingdom have the *Property* of any Lands or Tenements, except the King, in Right of his Crown; all other Lands being of the nature of Fee, and held of the King either mediately or immediately. See Fee, King, *&c.*

Propriety, however, is uſed for that Right in Lands and Tenements which common Perſons have; importing as much as *Utile Dominium*, tho' not *Directum*.

There are three Manners of Right or *Property*; viz. *Property* abſolute, *Property* qualified, and *Property* poſſeſſory. See PROPRIETOR and FEE.

Incumbents have not the *Propriety* of Benefices, they have only the Enjoyment thereof. See BENEFICE.

The Monks have a long time diſputed whether they had the *Propriety* of the Bread they eat, or only the Uſe.

One may give the *Propriety* of an Eſtate, yet reſerve the Uſufruit; by the Death of the Uſufructuary the Uſufruit is conſolidated to the *Propriety*. See CONSOLIDATION.

PROPHECY, a Prediction, made by Divine Inſpiration. See PROPHET and INSPIRATION.

A late Author obſerves, that the Chriſtians have this in common with the Pagans, that they equally build their Religions on *Prophecy* and *Divination*. See DIVINATION and AUGURY.

He adds, That Divination was an Art learnt by the *Romans* in Schools, or under Diſcipline; as the *Jews* did *Propheſying* in the Schools and Colleges of the Prophets.

In theſe Schools, as the learned *Dodwell* obſerves, the Candidates for *Prophecy* were taught the Rules of Divination, practiſed by the Heathens; who were in poſſeſſion of the Art long before 'em. 'Tis added, that the Gift of *Prophecy* was not an occaſional thing, but a conſtant and ſtanding Matter of Fact; and ſome think they have diſcover'd an Eſtabliſhment of an Order of Prophets in the Old Teſtament, in analogy to the Heathen Diviners.

This is certain, from many Paſſages of Scripture, that there were great Numbers of Prophets among 'em, who not only exerciſed their Talent in Matters of Government and Religion, but even in the diſcovery of loſt Goods, and in telling of Fortunes. See AUGURY, ORACLE, &c.

One of the greateſt Difficulties in Chriſtianity, turns upon the Completion of the Scripture *Prophecies*: In the Prophets of the Old Teſtament are frequent Predictions of the Meſſiah; which, the Writers of the New, frequently urge to the *Jews* and Heathens as fulfill'd in *Jeſus Chriſt*; and on this Principle evince the Truth of his Miſſion: But theſe Truths thus urged from the Old, in the New Teſtament; are ſometimes not to be now found in the Old; and at other times, not urged in the New in the literal and obvious Senſe which they ſeem to bear in the Old; whence moſt of the Chriſtian Commentators, Divines, and Critics, Antient and Modern, judge 'em to be apply'd in a ſecondary, typical, allegorical, or myſtical Senſe.

Thus, *e. gr.* St. *Matthew*, after an Account of the Conception of the Virgin, and the Birth of *Jeſus*, ſays, "All this was done, that it might be fulfilled which was " ſpoken by the Prophet, ſaying, Behold a Virgin ſhall be " with Child, and ſhall bring forth a Son, and they ſhall " call his Name *Emanuel*." But the Words, as they ſtand in *Iſaiah*, whence they are ſuppoſed to be taken, do, in their obvious and literal Senſe, relate to a young Woman who was to bring forth a Child in the Days of *Ahaz*; as appears from the Context, and as is own'd by *Grotius*, *Huetius*, *Caſtalio*, *Curcellæus*, *Epiſcopius*, *Hammond*, *Simon*, *le Clerc*, *Lamy*, &c.

This *Prophecy*, then, not being fulfill'd in *Jeſus*, in the primary, literal, or obvious Senſe of the Words, is ſuppoſed, like the other *Prophecies* cited by the Apoſtles, to be fulfill'd in a ſecondary, typical, or allegorical Senſe; *i. e.* this *Prophecy*, which was firſt literally fulfill'd by the Birth of the Prophet's Son in the Time of *Ahaz*, was again fulfill'd by the Birth of *Jeſus*; as being an Event of the ſame kind, and intended to be ſignified either by the Prophet, or by God who directed the Prophet's Speech.

Grotius obſerves this to be the Caſe in moſt, if not all the *Prophecies* and Citations quoted from the Old in the New Teſtament; and *Dodwell*, with Sir *John Marſham*, refer even the famous *Prophecy* in *Daniel* about the Seventy Weeks to the Times of *Antiochus Epiphanes*; ſhewing, that the Expreſſions taken thence by Chriſt, and urged by him as predicting the Deſtruction of *Jeruſalem* by the *Romans*, have only in a ſecondary Senſe, a reſpect to that Deſtruction.

And even that famous *Prophecy* in the *Pentateuch*, "A " Prophet will the Lord God raiſe up unto thee like " unto me, to him ſhall ye hearken"; which St. *Luke* refers to as ſpoken of *Jeſus Chriſt*, is, by *Simon*, *Grotius*, *Stillingfleet*, &c. underſtood to ſignify, in its immediate Senſe, a Promiſe of a Succeſſion of Prophets.

'Tis allow'd then, the Apoſtles apply'd the *Prophecies* they quote from the Old Teſtament, in a typical Senſe; but, unhappily, the Rules whereby they quoted, are loſt. Dr. *Stanhope* laments the loſs of the *Jewiſh* Traditions or Rules for interpreting Scripture receiv'd among the Rabbins, and follow'd by the Apoſtles. But this Loſs, *Surenhuſius*, *Hebrew* Profeſſor at *Amſterdam*, thinks he has retrieved from the *Jewiſh Talmud*, and the antient *Jewiſh* Commentaries; and has accordingly publiſhed to the World, the Rules whereby the Apoſtles quoted the Old Teſtament.

But the truth is, theſe Rules are too precarious, ſtrain'd, and un-natural, to gain much Credit. See QUOTATION.

Mr. *Whiſton* condemns all allegorical Explanation of the *Prophecies* of the Old Teſtament cited in the New, as weak, enthuſiaſtic, &c. And adds, that if a double Senſe of the *Prophecies* be allow'd, and there be no other Method of ſhewing their Completion, than by applying them ſecondarily and typically to our Lord, after having been in their firſt and primary Intention long ago fulfill'd in the Times of the Old Teſtament; we loſe all the real Advantages of the antient *Prophecies*, as to the Proofs of Chriſtianity.

He therefore ſets up a new Scheme in oppoſition thereto: He owns, that taking the preſent Text of the Old Teſtament for Genuine, it is impoſſible to expound the Apoſtles Citations of the *Prophecies* of the Old Teſtament, on any other than the allegorical Foundation; and, therefore, to ſolve the Difficulty, is forced to have recourſe to a Suppoſition contrary to the Senſe of all Chriſtian Writers before him; *viz.* that the Text of the Old Teſtament has been greatly corrupted ſince the Apoſtolical Age by the *Jews*, See BIBLE.

His Hypotheſis is, that the Apoſtles made their Quotations out of the Old Teſtament rightly and truly from the Septuagint Verſion, which in their Time was in vulgar Uſe, and exactly agreed with the *Hebrew* Original; and that as they made exact Quotations, ſo they argued juſtly and logically from the obvious and literal Senſe of the ſaid Quotations, as they then ſtood in the Old Teſtament: But, that ſince their Times, both the *Hebrew* and Septuagint Copies of the Old Teſtament have been ſo greatly corrupted, and ſo many apparent Diſorders and Diſlocations introduced therein, as to occaſion many remarkable Differences and Inconſiſtencies between the Old and New Teſtament in reſpect to the Words and Senſe of thoſe Quotations. See SEPTUAGINT, &c.

As to the Manner wherein theſe Corruptions were introduced, he ſays, the *Jews* in the ſecond Century greatly corrupted and alter'd both the *Hebrew* and Septuagint, eſpecially in the *Prophecies* cited by the Apoſtles, to make their Reaſoning appear inconcluſive; that in the third Century, they put into *Origen*'s hand one of theſe corrupted Copies of the Septuagint, which *Origen* miſtaking for genuine, inſerted in his *Hexapla*; and thus brought into the Church a corrupted Copy of the Septuagint: And that in the end of the fourth Century, the *Jews* put into the hands of the Chriſtians, who, till then, had been almoſt univerſally ignorant of the *Hebrew*, a corrupted Copy of the *Hebrew Old-Teſtament*.

The Diſagreement, then, between the Old and New Teſtament in reſpect to the ſaid Quotations, he contends, has no place between the genuine Text of the Old Teſtament (now no where exiſting) but only between the preſent corrupted Text of the Old and New Teſtament: And, therefore, to juſtify the Reaſonings of the Apoſtles, he propoſes to reſtore the Text of the Old Teſtament, as it ſtood before the Days of *Origen*, and as it ſtood in the Days of the Apoſtles. From which Text thus reſtored, he doubts not, it will appear, that the Apoſtles cited exactly, and argued juſtly and logically from the Old Teſtament.

But this Scheme of accompliſhing *Prophecies*, labours under Difficulties at leaſt as great as the Allegorical Scheme. Its Foundation is incredible, and its Superſtructure, from firſt to laſt, precarious: In effect, 'tis inconceivable the Old Teſtament ſhould be ſo corrupted; and it is even made appear, that the *Hebrew* and Septuagint diſagreed in the Times of the Apoſtles: Add to this, that the Means whereby he propoſes to reſtore the true Text, will never anſwer that end; nor has he, himſelf, from all the Means he is yet poſſeſs'd of, been able to reſtore one prophetical Citation, ſo as to make that ſeem literally, which before only ſeem'd allegorically, apply'd. See PENTATEUCH, &c.

PROPHET, a Perſon inſpired by God with the Knowledge of future Events; and commiſſion'd to declare his Laws, his Will, &c. to the World. See PROPHECY and DIVINATION.

Among the Canonical Books are thoſe of ſixteen *Prophets*; four of which are denominated the *greater Prophets*, viz. *Iſaiah*, *Jeremiah*, *Ezekiel*, and *Daniel*; ſo call'd from the length or extent of their Writings, which exceed thoſe of the others, *viz.* *Hoſea*, *Joel*, *Amos*, *Obadiah*, *Jonas*, *Micha*, *Nahum*, *Habbakuc*, *Haggai*, *Zachariah*, and *Malachi*; who are call'd the *leſſer Prophets*, from the ſhortneſs of their Writings.

The *Jews* only reckon three greater *Prophets*; *Daniel* they exclude, as no more to be rank'd among the *Prophets* than *David*: Not but that both the one and the other foretold many important things; but becauſe their manner of Life differ'd from that of the other *Prophets*, *David* being a King, and *Daniel* a Peer.

In the *Greek* Church, the leſſer *Prophets* are placed in order before the great ones; apparently becauſe many of the leſſer *Prophets* are more antient than the greater.

Among the *Greeks* too, *Daniel* is rank'd among the leſſer *Prophets*.

In the 48th Chapter of *Eccleſiaſticus*, *Iſaiah* is particularly call'd the *great Prophet*; both on account of the great things he foretold, and the magnificent Manner wherein he did it.

Spinoza ſays, the ſeveral *Prophets* propheſied according to their reſpective Humours; *Jeremiah*, *e.gr.* melancholy, and dejected with the Miſeries of Life, propheſied nothing but Misfortunes.

Dacier obſerves, that among the Antients the Name *Poet* is ſometimes given to *Prophets*; as that of *Prophet* is at other times given to *Poets*. See POET.

The Word is derived from the *Greek* φάτος, ſaid; whence the *Latins* derive their *fatus*, ſpoken. See VATES.

PROPHYLACTICE, προφυλακτικη, that part of the Art of Medicine which directs the preventing or preſerving from Diſeaſes. See MEDICINE, PRESERVATIVE, &c.

PROPITIATION, in Religion, a Sacrifice offer'd to God to aſſuage his Wrath, and render him propitious. See SACRIFICE.

Among the *Jews* there were both ordinary and public Sacrifices, as Holocauſts, &c. offer'd by way of Thankſgiving; and extraordinary ones offer'd by particular Perſons guilty of any Crime, by way of *Propitiation*.

If it were a Crime of Ignorance, they offer'd a Lamb or a Kid; if done wittingly, they offer'd a Sheep: For the Poor, a pair of Turtles was enjoin'd as a *Propitiation*.

The *Romiſh* Church believe the Maſs to be a Sacrifice of *Propitiation* for the Living and the Dead. The Reform'd Churches allow of no *Propitiation* but that one offer'd by Jeſus Chriſt on the Croſs.

PROPITIATION is alſo a ſolemn Feaſt among the *Jews*, celebrated on the tenth of the Month *Tiſri*, which is their ſeventh Month, and anſwers to our *September*.

It was inſtituted to preſerve the Memory of the Pardon proclaim'd to their Fore-fathers by *Moſes* on the part of God; who thereby remitted the Puniſhment due for their Worſhip of the golden Calf.

PROPITIATORY, among the *Jews*, was the Cover or Lid of the Ark; which was lined both within and withoutſide, with Plates of Gold; inſomuch that there was no Wood to be ſeen. See ARK.

Some even take it to have been one piece of maſſive Gold. The Cherubim ſpread their Wings over the *Propitiatory*.

This *Propitiatory* was the Type or Figure of Chriſt, whom St. *Paul* calls the *Propitiatory* ordain'd from all Ages.

PROPLASM, *Proplaſma*, πρόπλασμα, is uſed for a Mould, wherein any Metal or ſoft Matter, which will afterwards grow hard, is caſt. See MOULD.

PROPLASTICE, προπλαστική, the Art of making Moulds, for caſting things in. See MOULD, FOUNDERY, &c.

PROPOLIS, a Virgin-Wax, of a reddiſh or yellowiſh Colour, wherewith the Bees ſtop up the Holes and Crannies of their Hives, to keep out the cold Air, &c. See WAX.

The *Propolis* is a friable Matter, eſteem'd ſovereign in Diſeaſes of the Nerves. It is alſo uſed to make Holes in Abſceſſes; and being heated on the Fire, its Vapour is received for inveterate Coughs.

PROPORTION, in Arithmetic, the Identity or Similitude of two Ratios. See RATIO.

Hence, Quantities that have the ſame Ratio between 'em, are ſaid to be *Proportional*: *e. gr.* If A, be to B; as C, to D: or 8, be to 4; as 30, to 15; A, B, C, D, and 8, 4, 30, and 15, are ſaid to be in *Proportion*, or are ſimply call'd *Proportionals*. See PROPORTIONAL.

Proportion is frequently confounded with *Ratio*; yet have the two, in reality, very different Ideas; which ought by all means to be diſtinguiſh'd.

Ratio is, properly, that Relation or Habitude of two things which determines the Quantity of one from the Quantity of another without the Intervention of any third: Thus we ſay, the Ratio of 5 and 10 is 5; the Ratio of 12 and 24 is 12.

Proportion is the Sameneſs or Likeneſs of two ſuch Relations: Thus, the Relations between 5 and 10, and 12 and 24 being the ſame, or equal; the four Terms are ſaid to be in *Proportion*. Hence, Ratio exiſts between two Numbers; but *Proportion* requires at leaſt three.

Proportion, in fine, is the Habitude or Relation of two Ratios, when compared together; as Ratio is of two Quantities. See QUANTITY.

Proportion, again, is frequently confounded with *Progreſſion*. In effect, the two often coincide; the difference between 'em only conſiſting in this, that Progreſſion is a particular Species of *Proportion*, wherein the ſecond of three Terms is a mean *Proportional* between the other two, or has the ſame Ratio to the third which the firſt has to the ſecond.

Add to this, that *Proportion* is confin'd to three Terms; but Progreſſion goes on to infinity; (ſo that Progreſſion is a Series or Continuation of *Proportions*:) And that in four Terms 3, 6, 12, 24, *Proportion* is only between the two Couples 3 and 6, and 12 and 24; but Progreſſion is between all the four Terms. See PROGRESSION.

Proportion is ſaid to be *continual*, when the Conſequent of the firſt Ratio is the ſame with the Antecedent of the ſecond; as, if 3 be to 6, as 6 to 12. See CONTINUAL.

The *Proportion* is ſaid to be *Diſcrete*, or Interrupted; when the Conſequent of the firſt Ratio differs from the Antecedent of the ſecond; as, if 3 be to 6, as 4 to 8.

Proportion, again, is either ſaid to be *Arithmetical*, or *Geometrical*; as the Ratios are.

Arithmetical PROPORTION, is the Equality of two or more Arithmetical Ratios; or the Equality of difference between three ſeveral Quantities.

Thus, 1, 2, 3; and 2, 5, 8, are in *Arithmetical Proportion*; becauſe there is the ſame difference betwixt the Numbers compared, which are 1 to 2, and 2 to 3; or 2 to 5, and 5 to 8.

If every Term have the ſame Ratio to the next as the firſt has to the ſecond; the Terms are ſaid to be in *continual Arithmetical Proportion*; as 5, 7, 9, 12, 15.

If the Ratio between any two Terms differ from that of any others; the Terms are ſaid to be in *Arithmetical Proportion diſcrete*, or *interrupted*; as where 2 : 5 : 6 : 9, the Ratios of 5 and 6 being different from that of 2 and 5.

A Series of more than four Terms in *Arithmetical Proportion*, form an Arithmetical Progreſſion. See PROGRESSION.

Properties of Arithmetical PROPORTION.

1°. If three Numbers be in *Arithmetical Proportion*, the Sum of the Extremes is equal to double the middle Term. Thus, in 3, 7, 11; the Sum of 3 and 11 is equal to twice 7; *viz.* 14.

Hence we have a Rule for finding a mean Proportional Arithmetical between two given Numbers; half the Sum of the two being the Mean required: Thus half the Sum of 11 and 3, *viz.* 14, is 7.

2°. If four Numbers be in *Arithmetical Proportion*, the Sum of the Extremes is equal to the Sum of the middle Terms. Thus, in 2 : 3 : 4 : 5; the Sum of 5 and 2 is equal to the Sum of 3 and 4, *viz.* 7.

Hence, four Terms in *Arithmetical Proportion*, are ſtill proportional if taken inverſely 5 : 4 : 3 : 2; or alternately, thus, 2 : 4 : 3 : 5; or, inverſely, and alternately; thus, 5 : 3 : 4 : 2.

3°. If two Numbers in *Arithmetical Proportion* be added to other two; the leſs to the leſs, &c. their difference is in a duplicate Ratio, *i. e.* double that of the reſpective parts added: Thus, if to 3 : 5 be added 7 : 9, the Sums are 10 : 14; whoſe difference 4 is double the difference of 3 : 5, or 7 : 9. And if to this Sum you add other two, the difference of the laſt Sum will be triple the difference of the firſt two, and ſo on.

If two *Arithmetical Proportionals* be ſubſtracted from two others in the ſame Ratio, the leſs from the leſs, &c. the Arithmetical Ratio of the Remainder is 0. Thus from 9 : 7 taking 3 : 5, the Remainders are 4, 4.

Hence, if *Arithmetical Proportionals* be multiply'd by the ſame Number, the difference of their Products will contain the firſt difference as oft as the Multiplier contains Unity. Thus 3 : 5 multiply'd by 4, produce 12, 20, whoſe difference 8 is equal to 4 times 2, the difference of 3 and 5.

4°. If two Numbers in *Arithmetical Proportion* be added to, or multiply'd by, other two, in another Ratio of the ſame kind, leſs by leſs, &c. the Sums are in a Ratio which is the Sum of the Ratios added or multiply'd. Thus, 2 : 4 and 3 : 9 being added; the Sums are 5 : 13, whoſe difference is 8, the Sum of 2 and 6, the differences of the Numbers given.

Geometrical PROPORTION, is the Equality of two Geometrical Ratios, or Compariſons of two Couples of Quantities. See GEOMETRICAL *Proportion*.

Thus 4 : 8 : : 12 : 24, are in *Geometrical Proportion*; the Ratio of 4 and 8 being equal to that of 12 and 24; *i.e.* 4 being contain'd as often in 8, as 12 is in 24. Again, 9, 3, 1 are in *Geometrical Proportion*, 9 being triple of 3, as 3 is of 1.

If in a Series of Terms, there be the ſame Ratio between every two Terms that there is between the firſt and ſecond; they are ſaid to be *Continual Geometrical Proportionals*: As 1 : 2 : 4 : 8.

If any two Terms have a different Ratio from that of the firſt and ſecond, they are ſaid to be in *Disjunct*, or *Interrupted*

rupted Geometrical Proportion; as are 2 : 4 : 3 : 6; where 2 is to 4 as 3 to 6; but not ſo as 4 to 3.

A Series or Progreſſion of more than four *Geometrical Proportionals*, is call'd a *Geometrical Progreſſion*. See PROGRESSION.

Properties of Geometrical PROPORTION.

1°. If three Quantities be in continual *Geometrical Proportion*, the Product of the two Extremes is equal to the Square of the middle Term. Thus, in 6 : 12 :: 12 : 24, the Product of 6 and 24 is equal to the Square of 12, *viz.* 144. Hence we have a Rule,

2°. To find a *mean Geometrical Proportional* between two Numbers, *e. gr.* 8 and 72.

Multiply one of the Numbers by the other, and from the Product 576, extract the Square Root 24. This will be the Mean required.

3°. To find a fourth Proportional to three given Numbers, *e. gr.* 3, 12, 5; or a third Proportional to two given Numbers.

Multiply the ſecond 12 into the third 5, in the firſt Caſe; and in the latter, multiply the ſecond into itſelf. Divide the Product by the firſt 3, the Quotient 20 is the fourth *Proportional* ſought in the one, or the third in the other.

The Solution of this Problem is what we popularly call the *Rule of Proportion*, or the Golden Rule, or Rule of Three. See RULE.

4°. If four Numbers be in *Geometrical Proportion*, the Product of the Extremes is equal to the Product of the two middle Terms. Thus in 2 : 5 :: 4 : 10, the Product of 10 and 12 is equal to that of 5 and 4, *viz.* 20. Hence,

5°. If four Numbers repreſented *a* : *b* :: *c* : *d* be either in *Arithmetical*, or *Geometrical Proportion*; they will alſo be in the ſame, if taken inverſely, *viz. d* : *c* :: *b* : *a*; or alternately, as *a* : *c* :: *b* : *d*; or alternately and inverſely, as *d* : *c* :: *b* : *a*.

6°. If the two Terms of a Geometrical Ratio be added to, or ſubſtracted from, other two in the ſame Ratio, the leſs to or from the leſs, *&c.* the Sums, or Differences, are in the ſame Ratio. Thus, in 6 : 3 : 10 : 5, where the common Ratio is 2; 6 added to 10, makes 16, as 3 to 5 makes 8; and 16 : 8 are in the ſame Ratio as 6 : 3, or 10 : 5. Again, 16 being to 8 as 6 to 3, their Differences 10 and 5 are in the ſame Ratio.

The Reverſe of which Propoſition is likewiſe true; *viz.* if to or from any two Numbers be added or ſubſtracted other two, if their Sums, or the Differences, be in the ſame Geometrical Ratio as the firſt two, the Numbers added or ſubſtracted are in the ſame Ratio. Hence,

7°. If the Antecedents, or the Conſequents of two equal Geometrical Ratios 3 : 6 and 12 : 24 be divided by the ſame 3; in the former Caſe, the Quotients 1 and 4 will have the ſame Ratios to the Conſequents; *viz.* 1 : 6 :: 4 : 24; and in the latter, the Antecedents the ſame Ratio to the Quotients, *viz.* 3 : 1 :: 12 : 4.

8°. If the Antecedents, or Conſequents of ſimilar Ratios 2 : 6 and 3 : 9 be multiply'd by the ſame Quantity 6; in the former Caſe the Facta 12 and 18 have the ſame Ratio to the Conſequents, *viz.* 12 : 6 :: 18 : 9; and in the latter, the Antecedents have the ſame Ratio to the Products, *viz.* 2 : 6 :: 3 : 9.

9°. If in a *Geometrical Proportion* 3 : 6 :: 12 : 24, the Antecedents be multiply'd or divided by the ſame Number 2; or divided by the ſame Number 3; in the former Caſe, the Facta; in the latter, the Quotients will be in the ſame *Proportion*, *viz.* 6 : 18 :: 24 : 72, and 1 : 3 :: 4 : 12.

10°. If, in a *Proportion* 4 : 2 :: 10 : 5, the Antecedent of the firſt Ratio be to its Conſequent as the Antecedent of the ſecond to its Conſequent; then, by *Compoſition*, as the Sum of the Antecedent and Conſequent of the firſt Ratio, is to the Antecedent or Conſequent of the firſt; ſo is the Sum of the Antecedent and Conſequent of the ſecond, to the Antecedent or Conſequent of the ſecond; *viz.* 6 : 2 :: 15 : 5, or 6 : 4 :: 15 : 10.

11°. If, in a *Proportion* 6 : 4 :: 15 : 10, as the Antecedent of the firſt Ratio is to its Conſequent; ſo is the Antecedent of the other to its Conſequent; then, by *Diviſion*, as the difference of the Terms of the firſt Ratio is to its Antecedent, or Conſequent, ſo is the difference of the Terms of the ſecond Ratio to its Antecedent or Conſequent; *viz.* 2 : 4 :: 5 : 10; or, 2 : 6 :: 5 : 15.

12°. If, in a *Proportion* 4 : 2 :: 6 : 3, as the Antecedent of the firſt Ratio is to its Conſequent, ſo is the Antecedent of the ſecond to its Conſequent: And as the Conſequent of the firſt is to another Number 8, ſo is the Conſequent of the ſecond to another Number 12; *viz.* 2 : 8 :: 3 : 12; then will the Antecedent of the firſt be to 8, as the Antecedent of the ſecond to 12; *viz.* 4 : 8 :: 6 : 12.

13°. If, in a *Proportion* 8 : 4 :: 12 : 6, as the Antecedent of the firſt Ratio is to its Conſequent; ſo is the Antecedent of the ſecond to its Conſequent; and as the Conſequent of the firſt is to another Number 16; ſo is another Number 3, to the Antecedent of the ſecond, *viz.* 4 : 16 :: 3 : 12. Then, will the Antecedent of the firſt be to 16, as 3 to the Conſequent of the ſecond, *viz.* 8 : 16 :: 3 : 6.

14°. Suppoſe any four proportional Quantities, *viz.* 3 : 6 :: 12 : 24, and any other four proportional Quantities 1 : 3 :: 9 : 27; if you multiply the ſeveral Terms of the latter into thoſe of the former, the Products will likewiſe be *Proportional*, *viz.* 3 : 18 :: 108 : 648.

15°. If there be ſeveral Quantities continually *Proportional*, A, B, C, D, *&c.* the firſt, A, is to the third, C, in a duplicate Ratio; to the fourth, D, in a triplicate Ratio, *&c.* of the firſt A to the ſecond B.

16°. If there be three Numbers in continual *Proportion*, the difference of the firſt and ſecond will be a mean *Proportional* between the difference of the firſt and ſecond Term, and the difference of the ſecond and third, and the firſt Term.

Harmonical, or *Muſical* PROPORTION, is a third kind of *Proportion*, form'd out of the other two; thus: Of three Numbers, if the firſt be to the third, as the difference of the firſt and ſecond to the difference of the ſecond and third; the three Numbers are in *Harmonical Proportion.*

Thus, 2 : 3 : 6 are *Harmonical*, becauſe 2 : 6 :: 1 : 3. And four Numbers are *Harmonical*, when the firſt is to the fourth as the difference of the firſt and ſecond to the difference of the third and fourth.

Thus 24 : 16 :: 12 : 9 are *Harmonical*, becauſe 24 : 9 :: 8 : 3.

By continuing the *Proportional* Terms in the firſt Caſe, there ariſes an *Harmonical* Progreſſion, or Series. See SERIES.

Properties of Harmonical or Muſical PROPORTION.

1°. If three or four Numbers in *Harmonical Proportion* be multiply'd or divided by the ſame Number; the Products, or Quotients, will alſo be in *Harmonical Proportion.* Thus, if 6, 8, 12, which are Harmonical, be divided by 2; the Quotients 3, 4, 6, are alſo Harmonical; and reciprocally their Products by 2, *viz.* 6, 8, 12.

2°. To find an harmonical Mean between two Numbers given.

Divide double the Product of the two Numbers by their Sum, the Quotient is the Mean required. Thus, ſuppoſe 3 and 6 the Extremes; the Product of theſe is 18, which doubled gives 36; this divided by 9 (the Sum of 3 and 6) gives the Quotient 4. Whence, 3 : 4 : 6 are Harmonical.

3°. To find a third *Harmonical Proportional* to two Numbers given.

Call one of them the firſt Term, and the other the ſecond; multiply 'em together, and divide the Product by the Number remaining after the ſecond is ſubſtracted, from double the firſt; the Quotient is a third *Harmonical Proportional.* Thus ſuppoſe the given Terms 3 : 4, their Product 12 divided by 2 (the Remainder after 4 is taken from 6, the double of the firſt) the Quotient is 6; the *Harmocal* third ſought.

4°. To find a fourth *Harmonical Proportional* to three Terms given.

Multiply the firſt into the third, and divide the Product by the Number remaining after the middle or ſecond is ſubſtracted from double the firſt; the Quotient is a fourth Term in *Harmonical Proportion.* Thus, ſuppoſing the Numbers given 9 : 12 : 16; a fourth will be found by the Rule to be 24.

5°. If there be four Numbers diſpoſed in Order; whereof one Extreme and the two middle Terms are in Arithmetical *Proportion*; and the ſame middle Terms with the other Extreme, are in *Harmonical Proportion*; the four are in Geometrical *Proportion*: As here, 2 : 3 :: 4 : 6, which are Geometrical; whereof 2 : 3 : 4 are Arithmetical, and 3 : 4 : 6.

6°. If betwixt any two Numbers you put an Arithmetical Mean, and alſo a Harmonical one; the four will be in Geometrical *Proportion.* Thus, betwixt 2 and 6, an Arithmetical Mean is 4, and an Harmonical one 3; and the four 2 : 3 :: 4 : 6 are Geometrical.

We have this notable difference between the three kinds of *Proportion*; That from any given Number we can raiſe a continued Arithmetical Series increaſing *in infinitum*, but not decreaſing; the Harmonical is decreaſable *in infinitum*, but not increaſable; the Geometrical is both.

Contra-harmonical PROPORTION, is that Relation of three Terms, wherein the Difference of the firſt and ſecond, is to the Difference of the ſecond and third, as the third to the firſt.

Thus, 3, 5, 6, are Numbers in *contra-harmonical Proportion*, becauſe 2 : 1 :: 6 : 3.

To find a Mean in Contra-harmonical *Proportion* between two Numbers: Divide the Sum of two Squares by the Sum of the Roots, the Quotient is the Mean requir'd. Thus the Sum of the Squares of 3 and 6, *viz.* 45, divided by 9, the Sum of the Roots, gives 5.

Proportion is alſo uſed for the Relation between unequal Things of the ſame kind, whereby their ſeveral Parts correſpond to each other with an equal Augmentation, or Diminution.

Thus, in reducing a Figure into little, or in inlarging it, Care is taken to obſerve an equal Diminution, or Enlargement, thro' all its parts; ſo that if one Line, *e. gr.* be contracted by one third of its Length; all the reſt ſhall be contracted in the ſame *Proportion*.

The making of Reductions of this kind, is the great uſe of the proportional Compaſſes. See **Compasses.** See alſo **Reduction,** and **Draught.**

Proportion, in Law. See **Deonerando** *pro rata portionis.*

Proportion, in Architecture, the juſt Magnitude of the Members of each part of a Building, and the Relation of the ſeveral Parts to the Whole; *e.gr.* of the Dimenſions of a Column, *&c.* with regard to the Ordonnance of the Building. See **Symmetry.** See alſo **Building.**

One of the greateſt Differences among Architects, M. *Perrault* obſerves, is in the *Proportions* of the Heights of Entablatures with reſpect to the Thickneſs of the Columns, to which they are always to be accommodated. See **Entablature.**

In effect, there is ſcarce any Work, either of the Antients or Moderns, wherein this *Proportion* is not different; ſome Entablatures are even near twice as high as others— Yet 'tis certain, this *Proportion* ought of all others to be moſt regulated; none being of greater Importance, as there is none wherein a Defect is ſooner ſpied, nor any wherein it is more ſhocking. See **Column.**

Proportion is likewiſe underſtood of the Magnitudes of the Members of Architecture, Statues, or the like, with regard to the Diſtance whence they are to be view'd.

The moſt celebrated Architects are much divided in their Opinions on this Subject: Some will have it, that the parts ought to be enlarg'd in *proportion* to their Elevation; and others, that they ought to remain in their natural Dimenſions. See **Statue.**

Proportion, in Painting, is the juſt Magnitude of the ſeveral Members of a Figure, a Group, *&c.* with regard to one another, to the Figure, the Group, and the whole Piece. See **Painting.**

Proportion makes one of the moſt important Articles in the Art of Painting, the principal Subject it is employ'd in, being the human Body; for which reaſon, the Curious in that Art will thank us for the following Scheme of the Rules and Laws thereof.

By the way, let it be obſerv'd, 1°. That to meaſure and ſet off *Proportions*, we either divide the Module into twelve Parts, and ſubdivide each of thoſe into four; or divide the Face into three Lengths of the Noſe; ſubdividing each Length into twelve: Or laſtly, divide the whole Face into three, and ſubdivide each of thoſe into four: which laſt Method is what we ſhall here follow.

2°. That the Multiplicity of little Meaſures are to be ſtudiouſly avoided, becauſe they confound; and becauſe they require great Skill in Oſteology, to hit juſtly.

3°. That in Meaſuring, there be a regard had to the Relievo, or Juttings out of Figures.

The Rules of Proportion *in Painting.*

In the *Proportions* of a human Figure, regard is had to the *Age*, *Sex*, and *Quality*.

As to *Age*; we conſider three Stages thereof; Infancy, Youth and Manhood. For the firſt; at three Years of Age, we count five Lengths of the Face, from Top to Toe; *viz.* from the Tip of the Head to the Bottom of the Belly, three; thence to the Foot, two; Breadth about the Shoulders, one Face, one eighth: and in the place of the Hips, one Face.

At four Years, the Height is ſix Faces $\frac{1}{3}$. *viz.* from the Top of the Head to the Bottom of the Belly, three Faces $\frac{1}{3}$. thence to the Sole of the Foot, three Faces. The Breadth about the Shoulders one Face $\frac{2}{3}$. about the Haunches, one Face $\frac{1}{3}$.

At five Years, the Height is ſix Faces $\frac{1}{2}$. $\frac{1}{3}$ abated, the lower being ſhorter.

In Youth at twelve Years, we have two *Proportions*; the one from Nature, which gives nine Faces for the Height; the Breadth about the Shoulders, two Faces; about the Haunches, 1 Face $\frac{1}{3}$. The other from the antique Statues, as that of *Laocoon*, *&c.* which give the Height, ten Faces $\frac{1}{2}$. the Breadth from one Shoulder to another, one Face $\frac{2}{3}$. at the Haunches, 1 $\frac{2}{3}$. at the place of the Muſcle, call'd *Vaſtus Externus*, 2. The Thigh 1, the Knee $\frac{2}{3}$ and $\frac{1}{2}$ a Subdiviſion, and at the Ankles $\frac{1}{3}$.

In the State of Manhood, when the Meaſures are arriv'd at perfection; we reckon the Height ten Faces: the 1ſt, from the Top of the Head to the Noſtril; the 2d, to the Hole in the Neck between the Clavicles; the 3d, to the Pit of the Stomach, call'd *Cartilago Enſiformis*; the 4th, to the Navel; the 5th, to the pyramidal Muſcles; thence to the Knee 2 $\frac{1}{2}$, and as much to the Sole of the Foot.—The Extent of the Arms is the ſame with the Height; *viz.* from the Tip of the long Finger to the Joints of the Wriſts, one Face; thence to the Elbow 1 $\frac{1}{3}$; thence to the Juncture of the Shoulders, 1 $\frac{1}{3}$; thence to the Hole in the Neck, 1 $\frac{1}{3}$; in all five Heads, which with the five of the other Arm gives ten: The Thickneſs of the Arms to be adjuſted by the Quality or Character.

As to the Breadth of the Figure ſeen Front-wiſe; the Width of the Shoulders a-croſs the *Deltoides*, is 2 Faces $\frac{1}{3}$; Breadth of the pectoral Muſcle, to the Juncture of the Arm, 2. About the Haunches, where the *Obliqui externi* are, 1 $\frac{2}{3}$, and three Subdiviſions. The Thighs, at the biggeſt place, 1: The Knee $\frac{1}{3}$, three Subdiviſions $\frac{1}{2}$. The Leg at the thickeſt, 2 and 1 Subdiviſion. The Extreme of the Ankle, $\frac{1}{3}$, 1 Subdiviſion $\frac{1}{2}$. The Feet, $\frac{1}{2}$, and $\frac{1}{2}$ a Subdiviſion. Their Length, 1 Face $\frac{1}{3}$, 1 Subdiviſion.

Others, meaſuring by the Length of the whole Head, make only eight Heads, in Height and Breadth; thus: The Head, one; thence to the bottom of the Breaſts, one; thence to the Navel, one; thence to the Yard, one; thence to the middle of the Thigh, one; thence to the lower parts of the Knee, one; thence to the ſmall of the Leg, one; thence to the bottom of the Foot, one.

The Breadth, thus: From the End of the long Finger to the Wriſt, one; thence to the Bend of the Arm, one; thence to the bottom of the Shoulder, one; thence over to the other Shoulder, two; thence to the End of the other long Finger, three.

To theſe general *Proportions*, may be added others, which uſually obtain; as, that the Hand is the Length of the Face; the Thumb the Length of the Noſe; and the great Toe the ſame: The two Nipples, and the Hole in the Neck, make a juſt equilateral Triangle: The Space between the Eyes, is the breadth of an Eye: The breadth of the Thigh, at the thickeſt, is double that of the thickeſt part of the Leg, and treble that of the ſmalleſt: From the top of the Head to the Noſe, the ſame as from the top of the Noſe to the Chin. The diſtance from the Chin to the Throat-pit, is the breadth of the Throat; the diſtance of the Centre of the Eye from the Eye-brow, the ſame as the Prominency of the Noſtrils; and the Space between them and the upper Lip. The Length of the Fore-Finger, the ſame as the Space thence to the Wriſt; the Space from the tip of the Fore-Finger to the Wriſt, the Length of the Face.

For the *Sex*: The *Proportions* of Man and Woman differ in height; in that the Woman has a longer Neck; the parts at the Breaſts, and the lower parts of the Belly, bigger by half a part; which makes the ſpace from the Breaſt to the Navel, leſs by one part; and the Thigh ſhorter by a third part.

As to breadth, a Woman has her Breaſts and Shoulders narrower, and Haunches larger; and Thighs, at the place of their Articulation, larger; Arms and Legs thicker, Feet ſtreighter; and becauſe Women are more fat and fleſhy, their Muſcles are leſs ſeen, and therefore the Contours more ſmooth and even.

Young Maids have little Heads, long Necks, low or down Shoulders, ſlender Bodies, Haunches big, Legs and Thighs long, Feet little.

Young Men have the Neck thicker than Women, the Shoulders and Breaſts larger, the Belly and Haunches narrower, Legs and Thighs ſlenderer, and Feet larger.

As to the *Quality* of Subjects, we are either to follow ſimple Nature, or fine and agreeable Nature, or to chuſe Nature, or exceed it. In following ſimple Nature, in common and Country Subjects, Men of dull Wit, and a moiſt Temperament to be of an heavier and rougher *Proportion*, the Muſcles appearing but little diſtinguiſh'd; the Head big, Neck ſhort, Shoulders high, Stomach little, Knees and Thighs thick, and Feet large.

In Nature, as fine and agreeable, for ſerious Hiſtories, *&c.* the Figures of the Heroes to be well ſhaped, the Haunches high and upright, the Joints well knit, little and compact, free from Fleſh and Fat.

Military Men, to have the Head little, Neck thick and nervous, Shoulders large and high, Body and Paps elevated, Haunches and Belly little, Thighs muſcly, principal Muſcles rais'd up and knit together at the Heads; the Legs ſmooth, Feet ſlender, Soles hollow.

Nature is ſometimes to be ſelected, *i. e.* made up of parts from various good Originals, to form extraordinary and perfect Figures for great and heroic Subjects, as in *Roman* Hiſtories; giving, thus, a Character of Force ſufficient to execute Actions agreeable to the Deſcriptions the Poets, *&c.* make.

Laſtly, ſometimes Nature is to be exceeded, as in Repreſentations of fabulous Deities, of Heroes and Giants:

In theſe the great Pieces, which ſerve to form the Body, are to be ſet out in Meaſures agreeable to the Height; only diverſifying them by their Bigneſs.

In the Rule of *Proportions*, it is to be obſerv'd, that there is a difference in the Contours of ſome parts, when put in different Poſtures. Thus when the Arm is bent, 'tis larger than when ſtraight; the ſame is true of the Foot and Knee, as is ſhewn by *Leonardo da Vinci.*

Rule of PROPORTION, in Arithmetic, a Rule whereby we find a fourth Proportional to three Numbers given.

This is popularly call'd, *The Golden Rule*, and ſometimes, *The Rule of Three.* See RULE.

Compaſs of PROPORTION, a Name by which the *French*, and after them ſome *Engliſh* Authors, call the *Sector.*

See its Conſtruction and Uſe, under the Article SECTOR.

PROPORTIONAL, a Quantity, either Linear or Numeral; which bears the ſame Ratio, or Relation to a third, that the firſt does to the ſecond. See PROPORTION.

1. *To find a fourth* PROPORTIONAL *to three given Lines*, AB, AC, and BD. (Tab. GEOMETRY, fig. 62.)

Draw an Angle FAG at pleaſure; from A ſet off the firſt of the Lines to B; from A, the ſecond to C; and from B, to D, the third: draw BC; and in D make an Angle, equal to ABC: then is CE the fourth *Proportional* ſought; and AB : AC :: BD : CE.

2. If a third *Proportional* be requir'd to two given Lines, AB, and AC; make BD equal to AC, *i. e.* let AC be repeated twice: then AB : AC :: AC : CE.

3. *To find a mean Proportional between two given Lines*, AB and BE (*fig.* 63.) join the two given Lines, into one continu'd right Line, and biſſect it in C. From C, with the Interval of AC, deſcribe a Semi-circle ADE; and from B erect a Perpendicular BD; this is the mean *Proportional* ſought; and AB : BD :: BD : BE.

The Geometricians have been theſe two thouſand Years in ſearch of a Method, for finding *two mean Proportionals.* See MEAN.

The Antients perform'd it mechanically, by the Meſolabe, deſcrib'd by *Eutochius*; and many of them attempted to give the Demonſtration; ſome by the ſolid *Loci*, as *Menechmus*; others by the plain *Loci*, as *Nicomedes*, *Diocles*, and in our Times, *Vieta*; and others by implicit Motions, as *Plato*, *Architas*, *Pappus*, and *Sporus*; others tentatively, by the Deſcription of Circles, as *Hero* and *Apollonius*, &c. But all in vain. See PROBLEM and QUADRATURE.

4. *To find a mean Proportional between two Numbers:* Half the Sum of the two given Numbers is an arithmetical mean *Proportional*; and the ſquare Root of their Product, a Geometrical mean *Proportional.* See PROPORTION *Arithmetical* and *Geometrical.*

To find a mean harmonical Proportional. See PROPORTION *Harmonical.*

PROPORTIONAL *Compaſſes*, an Inſtrument for the ready drawing of Lines, and Figures, in any given Ratio to other Lines, or Figures.

See their Conſtruction and Uſe, under the Article COMPASSES.

PROPORTIONAL *Scales*, call'd alſo *Logarithmical Scales*, are the Artificial Numbers or Logarithms, placed on Lines, for the Eaſe and Advantage of Multiplying, Dividing, &c. by means of Compaſſes, or of Sliding-Rules. See LOGARITHM and SCALE.

They are, in effect, only ſo many Lines of Numbers, as they are call'd by *Gunter*; but made ſingle, double, triple, or quadruple; beyond which they ſeldom go. See NUMBERS, GUNTER's *Scale*, &c.

PROPORTIONALITY, a Term uſed by *Gregory à St. Vincent* for the Proportion that is between the Exponents of four Ratios. See EXPONENT and RATIO.

PROPORTUM, PROPORT, or PURPORT, in our Law-Books, the Intention or Meaning of any thing. *Secundum* Proportum *dicti Chirographi inter eos confecti.*

PROPOSITION, PROPOSITIO, call'd alſo ENUNCIATION, in Logic, part of an Argument, wherein ſome Quality, either Negative or Poſitive, is attributed to a Subject. See ENUNCIATION, ATTRIBUTE, &c.

Chauvin defines a *Propoſition*, a compleat, conſiſtent Sentence, indicating or expreſſing ſomething either true or falſe, without ambiguity:——As, Xantippe *is a bad Wife*; —*If an Aſs fly, he has Wings.*

Others, more Philoſophically, define it a Speech utter'd, or produced to ſignify ſome Judgment of the Mind. See JUDGMENT.

A *Propoſition* conſiſts of two Terms; the one, that, whereof we affirm or deny; call'd the *Subject*: The other the thing affirmed or denied, call'd the *Attribute* or *Predicate.* See SUBJECT and PREDICATE.

Theſe two are either join'd, or ſeparated, by the Intervention of ſome Copula or Disjunctive. See COPULA.

Thus in the *Propoſition*, *God is juſt*; the Subject, *God*, is joined with the Attribute *juſt*, by the Verb ſubſtantive *is.*

The Schoolmen call the two Terms the *Matter*, and the Copula the *Form* of the *Propoſition.* See FORM, &c

Now, as Terms may be either ſingular; or common, and univerſal; if the Subject of a *Propoſition* be a common Term, taken in all its extent; the *Propoſition* is call'd *Univerſal*: As, *Every Atheiſt is blind.* See UNIVERSAL.

If the common Term be only taken in an indeterminate part of its Extent, the *Propoſition* is call'd *particular*: As, *Some Atheiſts are wicked.* See PARTICULAR.

If the Subject of the *Propoſition* be ſingular, the *Propoſition* is call'd *ſingular*: As, George *is King of* England. See SINGULAR.

Thoſe *Propoſitions* which have only one Subject, and one Attribute, are call'd *ſimple*; thoſe that have ſeveral Subjects, or Attributes, are call'd *compound.* See COMPOUND.

A Syllogiſm conſiſts of three *Propoſitions*, Major, Minor, and Concluſion. See SYLLOGISM.

An Enthymeme, of two. See ENTHYMEME.

The Schoolmen make ſeveral other Species and Diviſions of *Propoſitions*; as,

A PROPOSITION *de primo adjacente*, where the Subject and Predicate are both included under the Verb; ſuch are, *Veni*, *Vidi*, *Vici.*

A PROPOSITION *de ſecundo adjacente*, is, where either the Subject or Predicate is included in the Verb; as, *I love*——*I write.*

A PROPOSITION *de tertio adjacente*, is, where both the Subject and Predicate are expreſs, and ſtand diſtinct from the Verb; as, *The King is juſt.*

This *Propoſition* is the Rule or Standard of all the other; ſo that whatever *Propoſition* can be reduced thereto, is legitimate; and what cannot, is not.

Propoſitions, again, are divided into three Claſſes: The firſt, regarding the *Matter*; the ſecond, the *Form*; the third, the *Thought.*

Thoſe of the firſt Claſs are ſubdivided into, finite and infinite; direct and indirect; ſingle and manifold.

A *finite* or *definite* PROPOSITION, is that which declares ſomething determinate on a Subject; as, *Man is a Bipede.* —*The Wind is not viſible.*

An *infinite* or *indefinite* PROPOSITION, is that where either one or both of the Terms are infinite, or have a Negative prefixed to 'em; as, *Non homo eſt albus*——*Homo eſt non albus.*

A *direct* PROPOSITION, is that wherein a higher or more general is predicated of a lower and more particular; as, *Man is an Animal.* Others will have it, that wherein the Subject ſtands as a Matter, receiving, and the Predicate, as a Form, received; as, Peter *is learned.*

An *indirect* PROPOSITION, according to ſome, is that wherein an inferior is predicated of a higher; as, *An Animal is Man.* According to others, it is that wherein the Subject ſtands as the Form, and the Predicate as the Matter; as, *Every Rational is Man.*

A *ſingle* PROPOSITION is ſuch, either Simply, or by Conjunction: *Simply*, when it affirms or denies one thing of one other thing; as, *The Sun ſhines*: By *Conjunction*, when ſeveral *Propoſitions* are join'd and coupled together; thus, *The Sun ſhines*, and *it is Day*; are two *Propoſitions*, which conjoin'd make this one, *If the Sun ſhines, it is Day.*

Of ſuch *conjunct Propoſitions* there are divers kinds, *viz.* Hypothetical, Disjunctive, Copulative, &c.

Hypothetical Propoſition, is that conſiſting of ſeveral ſimple ones, affected with ſome conditional one; as, *If the Sun be ſet, it is Night.*

Disjunctive Propoſition, is that conſiſting of ſeveral, affected with a disjunctive Conjunction; as, *It is either Day or Night.*

A *copulative Propoſition*, is that conſiſting of ſeveral affected with a Conjunction Copulative; as, Peter *does not ſtand, and ſit.*

Some add, *Diſcrete* or *Adverſative Propoſitions*; as, *He is rich, but covetous.*

A *compound* PROPOSITION, is that where one or both the Terms excite ſeveral Ideas in the Mind; as, *A Man is Body and Soul, and both together*: Or, *a Foundation, Walls, and Roof, are a Houſe.*

A *manifold* PROPOSITION, is that conſiſting of ſeveral Subjects; as, Peter *and* Paul *preach'd*: Or, ſeveral Predicates; as, Simon *reads and walks*: Or both; as, Peter *and* Paul *preach and pray.*

In reſpect of *Form*, *Propoſitions* are divided into Affirmative, and Negative; True, and Falſe; Pure, and Modal.

An *Affirmative* PROPOSITION, is that whoſe Attribute is join'd to the Subject; as, *God is a Spirit.*

A *Negative* PROPOSITION, is that whoſe Attribute is ſeparated from the Subject; as, *Man is not a Stone.*

A *True* PROPOSITION, is that which declares a thing to be what it really is; or not to be what it is not. See TRUTH.

A *Falſe* PROPOSITION, is that which ſignifies a thing to be what it is not; or not to be what it is. See FALSHOOD.

The Truth of a *Propoſition*, therefore, depends on the connecting of the Subject with the Attribute, which is done by the Act of the Mind, call'd Judgment. See JUDGMENT, ERROR, *&c.*

A PROPOSITION is ſaid to be *pure*, when it implies or involves nothing beſides its Matter and Form; as, *Man is rational.*

A *Modal* PROPOSITION, is that which beſide the pure Matter and Form, involves ſome Mode or Manner of Diſpoſition; as, *It is neceſſary Man be rational.*

Hence, ſuch *Propoſition* is ſaid to conſiſt of a Mode and a Diction; the Mode denotes ſome Circumſtance which diſpoſes the *Propoſition*; as, *It is neceſſary:* The Diction is the reſt of the *Propoſition*; *that Man be rational.*

There are four of theſe Modes very famous, *viz. Neceſſary*, *Poſſible*, *Impoſſible*, and *Contingent*. See NECESSARY, POSSIBLE, *&c.*

Others produce other Modes, as *true*, *falſe*, *certain*, *uncertain*, *probable*, &c.

To modal *Propoſitions*, the Philoſophers refer *excluſive*, *exceptive*, and *reſtrictive Propoſitions*; all which are denoted by a common Name, *Exponible Propoſitions*, becauſe requiring ſome Explanation to make 'em clearly underſtood.

An *Excluſive* PROPOSITION, is that denoted by a Sign, or Character of Excluſion; as, *only*, *ſolely*, *alone*: as, *God alone is eternal*; which is expounded thus, *God is eternal, and no other Being beſide him is ſo:* Peter *only plays*; which we expound, Peter *plays, and does nothing elſe.*

Every *Excluſive Propoſition* is expounded by two *Propoſitions*, one of which is affirmed, and the other denied.

Exceptive PROPOSITION, is that denoted by an exceptive Sign; as, *beſide*, *unleſs*, &c. Thus, *Every Animal, beſide Man, is irrational.*

Every *Exceptive Propoſition* is to be reſolved, or expounded by three *Propoſitions*; as that, *e. gr.* abovementioned, by theſe: *Every Animal that is not Man is irrational: Every Man is an Animal: No Man is irrational.*

Reſtrictive, or *Limitative* PROPOSITION, is that affected with a reſtrictive Sign; as, *according to*, *ſo far as*, *conſider'd as*, quatenus, *&c.* Thus, *Man* quatenus *an Animal, perceives.*

PROPOSITION, in Mathematics, is ſome Truth advanced, and ſhewn to be ſuch by Demonſtration: or ſome Operation propoſed, and its Solution ſhewn.

If the *Propoſitions* be deduced from ſeveral theoretical Definitions compared together; as this, A Parallelogram is double of a Triangle, ſtanding on the ſame Baſe and of the ſame Altitude; it is call'd a *Theorem*. See THEOREM.

If from a Praxis or Series of Operations, *a Problem*; as, To find a third Proportional to two given Quantities. See PROBLEM.

Indeed, in ſtrictneſs, the *Propoſition* is only part of a Theorem, *viz.* that which ſhews what agrees to ſuch a thing under ſuch Conditions, and what not: In which ſenſe it is diſtinguiſh'd from the *Demonſtration*, which ſhews the reaſons why the Underſtanding conceives that to agree to it. See DEMONSTRATION.

Again, ſtrictly ſpeaking, the *Propoſition* is only a Member of a Problem, *viz.* that which ſhews what is required to be done: In which ſenſe, it is diſtinguiſh'd from the *Solution*, which rehearſes the ſeveral things to be done in order to effect what is required; and from the Demonſtration, which proves, that by doing the things enjoin'd in the Solution, the thing requir'd in the *Propoſition* is truly done. See RESOLUTION.

PROPOSITION, in Poetry, the firſt part of an Epic Poem, wherein the Author propoſes, or lays down, briefly and in general, what he has to ſay in the Courſe of his Work. See POEM, EPIC, *&c.*

The *Propoſition*, Pere *Boſſu* obſerves, is to contain the bare Matter of the Poem, *i. e.* the Action, and the Perſons that are to execute it, both human and divine.

This is what we have both in the *Iliad*, the *Odyſſee*, and the *Æneid*. The Action propoſed in the *Iliad*, is the Wrath of *Achilles*; that of the *Odyſſee*, the Return of *Ulyſſes*; and that of the *Æneid*, the Tranſlation of the *Trojan* Empire into *Italy*.

The ſame Author obſerves, that the divine Perſons are nam'd in all the three *Propoſitions*. *Homer*, *e. gr.* declares, that what happens in the *Iliad*, is by the Will of *Jupiter*; and that *Apollo* was the Cauſe of the Quarrel between *Agamemnon* and *Achilles*: The ſame Poet ſays, 'twas *Apollo* prevented the Return of *Ulyſſes*'s Companions; and *Virgil* mentions the Deſtinies, the Will of the Gods, and the Anger of *Juno*.—But they all three dwell, chiefly, on the Perſon of the Hero, as if he were the Matter of the Poem. See HERO.

Yet there is ſome difference, in this reſpect, in the three Poems; in that *Achilles* is named in the *Iliad*; but *Ulyſſes*, and *Æneas* are not: They are only pointed at, and that in ſuch general Terms, as if it were ſuppoſed they were known before.

This practice ſeems to fall in with the firſt Intention of the Poet; who is to feign an Action without Names, and who, as *Ariſtotle* ſays, does not relate the Action of *Achilles* nor *Ulyſſes*, nor *Æneas*, nor any particular Perſon, but of an univerſal, general, and allegorical Perſon. See FABLE and ACTION.

Add to this, that the Character which the Poet is to give his Hero, and his whole Work, is expreſs'd in the *Propoſition*; both by *Homer* and *Virgil*. See CHARACTER.

The whole *Iliad* is Anger and Violence; 'tis *Achilles*'s Character, and 'tis what the Poem commences with: Μῆνιν ἄειδε. The *Odyſſee* preſents us in the firſt Verſe with the Prudence, Diſſimulation, and Addreſs which makes the Character of *Ulyſſes*, and the Buſineſs of the Poem: Ἄνδρα Πολύτροπον. And we ſee the Piety and Mildneſs of *Æneas* in the beginning of the *Latin* Poem: *Inſignem Pietate Virum.*

As to the manner of the *Propoſition*; *Horace* contents himſelf to preſcribe Modeſty and Simplicity; not to promiſe much, nor raiſe great Expectations in the Reader. *Don't begin*, ſays he, *like that wretched Poet who ſet out with*, Fortunam Priami cantabo & nobile Bellum. *How much better is that of* Homer, Dic mihi, Muſa, Virum, &c. *He does not ſpend all his Fire at once, and leave nothing but Smoke: From this feeble beginning, you ſhall ſoon ſee him riſe to the Wonders of* Antiphates, Scylla, Charybdis, *and* Polypheme.

The ſame Modeſty we find in the *Propoſition* of the *Æneid*: If that of the *Iliad* be a little more furious, 'tis, perhaps, in conformity to the Character of the Poem, which is a Series of Violences and Extravagancies.

Add, that if the Poet be to ſpeak with Modeſty of his Hero; much more is he to do ſo of himſelf: Thus *Virgil* only ſays, *I ſing the Action of* Æneas. *Homer* begs his Muſe to *ſay* or *ſing*. How far does *Claudian* ſwerve from theſe Examples?

——— Audaci premere Cantu,
Mens congeſta jubet, greſſus removete profani:
Jam furor humanos noſtro de pectore ſenſus
Expulit, & totum ſpirant præcordia Phœbum.

A ſhort Poem, *e. gr.* an Ode, *&c.* wherein the violent Strain might be purſued to the end; might admit of ſuch a pompous beginning: Thus we find *Horace* begin an Ode much after the Manner of *Claudian*:

Odi profanum vulgus, & arceo ———
Carmina non prius audita Muſarum
Sacerdos, Virginibus puerisque canto.

But the length of an Epic Poem quite excludes all pompous *Propoſitions*.

There is ſcarce any Fault we have yet obſerv'd a *Propoſition* liable to, but there is an Inſtance of in the *Propoſition* of *Statius*'s *Achilleid*: He bids his *Muſe rehearſe the Deeds of the Magnanimous Son of* Æacus, *who was formidable even to the Thunderer.* He adds, *That he has worthily diſcharg'd a former Undertaking, and that* Thebes *eſteems him a ſecond* Amphion.

Magnanimum Æacidem formidatamque Tonanti
Progeniem, & patrio vetitam ſuccedere Cœlo
Diva refer. ———
Tu modo, ſi veteres digno deplevimus hauſtu,
Da fontes mihi, Phœbe, novos, &c.

PRO-PRETOR, or PRO-PRÆTOR, a *Roman* Magiſtrate, who having diſcharged the Office of Pretor at home, was ſent into a Province to command there with his former pretorial Authority. See PRETOR.

The Name *Pro-pretor* was alſo given to thoſe, who, without having been Pretors at *Rome*, were ſent extraordinarily into the Provinces, to adminiſter Juſtice with the Authority of Pretors.

Some alſo give the Name *Pro-pretors* to thoſe ſent by the Emperors into the Provinces, which, upon partition in *Auguſtus*'s time, fell to their Lot; as the Name Proconſul was given to thoſe ſent into the Provinces that fell to the People's ſhare. See PROCONSUL.

PRO-PREFECT, PRO-PRÆFECTUS, among the *Romans*, the Prefect's Lieutenant; or an Officer whom the Prefect of the *Prætorium* commiſſion'd to do any part of his Office in his place. See PREFECT.

In *Gruter*, p. CCCLXX, the third Inſcription mentions *Pro-*

Pro-prefects of the *Prætorium* under *Gratian*, in the City of *Rome* and the neighbouring parts. See PRÆTORIUM.

PROPRIETOR, or PROPRIETARY, he who has the Property or Propriety of any thing. See PROPERTY.

PROPRIETOR, in Law, is ſtrictly, ſuch a one as has, or poſſeſſes any thing in the utmoſt degree: *Quæ nullius arbitrio eſt obnoxia.*

The Term was formerly apply'd in a particular manner to him who had the Fruits of a Benefice to himſelf, and his Heirs and Succeſſors; as in antient time Abbots and Priors had.

PROPRIETARY-*Monks*, were ſuch as had reſerved Goods and Effects to themſelves, notwithſtanding their formal Renunciation of all at the Time of their Profeſſion.

They are frequently mentioned in the *Monaſt. Anglic.* &c: and were to be very ſeverely dealt withal; to be Excommunicated, deprived of Burial, *&c.*—Monachi Proprietarii *excommunicentur ab Abbatibus, & ſi in morte* Proprietarius *inventus fuerit, Eccleſiaſtica careat Sepultura, &c.* Addit. ad Matt. Par.

PROPRIETATE *Probanda*, is a Writ that lies for him that would prove a Propriety before the Sheriff.

For where a Property is alledged, a Replegiare properly lies not. See REPLEGIARE.

PROPRIETY, in Grammar, is, where the direct and immediate Signification of a Word agrees to the thing it is apply'd to.

In which ſenſe *Propriety* is uſed in oppoſition to a figurative, or remote Signification.

PROPYLÆUM, the Porch of a Temple, or Great Hall. See PORCH.

Hence the Word is uſed figuratively in Matters of Learning for an Introduction, Apparatus, or Prodromus to ſome greater Work.—In this ſenſe we ſay, the *Propylæum* of the Jeſuits at *Antwerp*, &c.

The Word is *Greek* προπυλαιον, ſignifying the ſame thing.

PRO-QUESTOR, PRO-QUÆSTOR, the Queſtor's Lieutenant, or a Perſon who diſcharged the Office of Queſtor in his ſtead. See QUESTOR.

The Word is chiefly apply'd to an Officer appointed by the Governour of a Province to diſcharge the Queſture after the deceaſe of the Queſtor, till the Senate and People ſhould ſend a new one.

PRO-RATA, in Commerce, a Term ſometimes uſed among Merchants, for *Proportion*. See PROPORTION.

Thus, when in ſpeaking of any Undertaking they ſay, Each Perſon muſt reap the Profit or ſuſtain the Loſs in *Pro-rata* to his Intereſt; 'tis meant, each ſhall gain or loſe in proportion to the Sum he put in Stock.

PRO-RATA *Portionis*, in Law, ſee ONERANDO *pro rata portionis.*

PRORÆ *Os*, in Anatomy, a Bone of the Cranium, call'd alſo *Os Occipitis*. See OS OCCIPITIS.

PROROGATION, the Act of prolonging, adjourning, or putting off to another Time.

The difference between a *Prorogation* and an Adjournment of Parliament, is, that by the *Prorogation* in open Court the Seſſion is ended; and ſuch Bills as paſſed in either Houſe, or both Houſes, and had not the Royal Aſſent, muſt at the next Aſſembly begin again: For every Seſſion of Parliament, is in Law a ſeveral Parliament. See SESSION.

If it be only adjourn'd, then there is no Seſſion; and, conſequently, all things continue in the ſame State they were in before the Adjournment. See ADJOURNMENT.

This difference between *Prorogation* and Adjournment is of no long ſtanding; antiently they were uſed as Synonimous—Prorogetur *Curia de Hora in Horam, quouſque placitum terminetur, MS de L L.*

To *Prorogue* the Parliament the King goes in Perſon, with his Crown on his Head; and ſends the *Black-Rod* for the Houſe of Commons to attend him at the Bar of the Houſe of Lords; where, after giving an Anſwer to each Bill ſignified to him, he makes a Speech; and the Lord Chancellor, by command, ſignifies the Parliament to be *Prorogued*. See PARLIAMENT.

PROSCENIUM, in the antient Theatre, the *Pulpitum*, or Eminence whereon the *Roman* Actors exhibited. See THEATRE.

The *Proſcenium* anſwer'd to our *Stage*.

It conſiſted of two Parts among the *Greeks*; one particularly ſo call'd, where the Actors perform'd. The other was the *Logeion*, where the Singers and the Mimicks acted their Parts.

Among the *Romans*, the *Proſcenium* and *Pulpitum* were the ſame thing. See PULPITUM.

PROSCRIPTION, a Publication made in the Name of the Chief or Leader of a Party, whereby he promiſes a Reward to any who ſhall bring him the Head of one of his Enemies.

Scylla and *Marius* by turns *proſcribed* each other's Adherents.—Under the Triumvirate a great part of the beſt and braveſt of the *Romans* fell by *Proſcription*.

The Term took its Riſe from the Practice of writing down a Liſt of the Perſons Names, and poſting it in publick; from *pro*, and *ſcribo*, I write.

PROSE, the natural Language of Mankind, looſe, and unconfin'd by poetical Meaſures, Rhimes, *&c.*

The Word is uſed in oppoſition to *Verſe*. See VERSE.

Tho' *Proſe* have its Connections, which ſuſtain it; and a Structure, which renders it numerous; it ought ſtill to appear free: its Character conſiſts in running eaſy, and unreſtrain'd. See STYLE.

Poets very rarely have the Talent of *Proſe*: The Habit of wearing Chains fits faſt upon 'em, even when the Chains are off.

S. Evremond compares *Proſe*-Writers to Foot-Travellers, who walk with leſs Noiſe, but more Security than the Cavaliers.

The Word comes from the *Latin Proſa*, which ſome will have derived from the *Hebrew Poras, expendit.*

PROSECUTOR, in Law, is he that purſues a Cauſe in another's Name. See PROMOTER.

PROSELYTE, a new Convert to the Faith. See CONVERT.

The Term was much uſed in the Primitive Church—The *Jews*, too, had their *Proſelytes*; who from *Gentiles* embrac'd *Judaiſm*.

The Word is pure *Greek* προσήλυτος; which in *Latin* ſignifies *Advena*; in *Engliſh*, *Stranger*, or one arriv'd out of another Country.

PROSODY, PROSODIA, that part of Grammar which teaches and directs the Pronunciation, and manner of Rehearſal; marks the Accents, and diſtinguiſhes the long and ſhort Syllables. See GRAMMAR, PRONUNCIATION, *&c.*

The Word is form'd from the *Greek* προσαιδω, *accino*; of προς and ωδη, *Cantus*, Singing.

Proſody is properly that Branch of Grammar which relates to Syllables; treating of their true Pronunciation in reſpect of Accent and Time. See SYLLABLE: See alſo ACCENT, *&c.*

The *Engliſh Proſody* turns chiefly on two Things; *Numbers*, that is, a certain number of Feet or Syllables. See NUMBERS.

And, *Rhime*, or a Similitude of Sound between the laſt Syllables of Verbs. See RHIME.

The *Greek* and *Roman Proſodies* were unacquainted with Rhime; but in lieu thereof, had ſomething to make their Verſe harmonious, without, *viz. Quantity*. See QUANTITY.

PROSONOMASIA, προσονομασια, a Figure in Rhetoric, whereby alluſion is made to the Likeneſs of a Sound in ſeveral Names, or Words. See FIGURE.

PROSOPOPOEIA, in Rhetoric, a Figure, whereby we make Perſons that are abſent, or dead, or even Things which are inanimate, as Cities, *&c.* to ſpeak. See FIGURE.

The Poets, in their Fictions, make frequent uſe of the *Proſopopœia*; as alſo do the Orators, in their painting of violent Paſſions, which ſeem to tranſport, and make them forget themſelves.

There are two kinds of *Proſopopœia's*, the one direct; the other indirect.

For an inſtance of the latter: *Juſt Gods, Protectors of the Innocent, permit the Order of Nature to be interrupted for one moment, and let this Carcaſe reſume the uſe of Speech*, &c.

Inſtances of the former are found every where, among the Orators and Poets; that which follows, is a very beautiful one, found by way of Epitaph on a Tomb-ſtone: The dead Wife addreſſes her ſurviving Husband, thus:

Immatura peri: ſed tu felicior, annos
Vive tuos, conjux optime, vive meos.

The Word is form'd from the *Greek* προσωπον, *Perſon*, and ποιω, *I make*, or *feign*.

PROSPECT. } See { PERSPECTIVE.
PROSPECTIVE *Glaſs*. } See { PERSPECTIVE *Glaſs*.

PROSTAPHÆRESIS, in Aſtronomy, the Difference between the true, and mean Motion, or true and mean Place, of a Planet; call'd alſo *Equation of the Orbit*, or *of the Centre*, and ſimply *the Equation*. See EQUATION.

Or, which amounts to the ſame, *Proſtaphæreſis* is the difference between the mean, and equated Anomaly. See ANOMALY.

Thus, ſuppoſe the Circle ALMPN (Tab. ASTRONOMY, fig. 51.) the or Orbit of the Earth, ſurrounded by the Ecliptic ♈, ♋, ♎, *&c.* and ſuppoſe S, the Sun; and the Earth in R: the mean Anomaly will be the Arch APR, or, caſting away the Semicircle, the Arch PR, or the Angle PCR; and the true Anomaly, rejecting the Semicircle, will be PSR, which is equal to PCR and CRS. If then to the mean Anomaly, we add the Angle CRS, we ſhall have the true Anomaly PSR, and the Earth's Place, in the Ecliptic. See PLACE, *&c.*

And here, the Angle C L S, or C R S, is call'd the *Proſthaphæreſis*; by reaſon it is ſometimes to be added, and ſometimes to be ſubſtracted from the mean Motion, that we may have the true Motion or Place of the Earth. See EARTH.

The Word is form'd from the *Greek* πρόσθε, *ante ſuperans*; and αφαίρησις, *ademptio*.

PROSTATES, or PROSTATA, in Anatomy, a white, ſpongy, glandulous Body ſituate at the Root of the Penis; or juſt below the Neck of the Bladder; and about the Size of a Walnut. See GLAND and PENIS.

Authors aſcribe two kinds of Subſtance to the *Proſtata*, the one glandulous, the other ſpongeous, or porous; which laſt ſeems nothing but a Congeries of minute Veſſels and Cells; thro the middle of which paſſes the *Veſiculæ Seminales*, without any Communication therewith.

It has excretory Ducts of its own, pretty numerous: *De Graaf* does not remember to have known them fewer than ten in the *Proſtata* of a Man; in Dogs, they are ſometimes an hundred; each of which diſcharges itſelf into the Urethra; ſome above, ſome below the *Caput Gallinaceum*: Each having its proper Caruncle. See EXCRETORY.

Out of theſe iſſues a whitiſh, ſlimy Humour, ſecreted in the glandular part of the *Proſtata*, and convey'd into the Cavity of the Urethra.

The Uſe of this Humour is to line and lubricate the Capacity of the Urethra, and prevent it from being annoy'd with the Acrimony of the Urine in its Paſſage thro' it; and to ſerve as a Vehicle to the Seed, in the time of Ejaculation. See URINE, URETHRA, *&c.*

Some take it for a third kind of Seed; but without much reaſon. See SEED.

Boerhaave thinks it may ſerve to nouriſh the Animalcule during the firſt moments after Coition.—This Humour, he adds, remains after Caſtration; but is not prolific.

The ſame Author, from the Memoirs of the *French* Academy, makes the *Proſtata* to conſiſt of an Aggregate of twelve Glands, each of which terminates by its excretory Duct in a little Bag, into which it diſcharges its Humour. Theſe twelve Bags open by as many excretory Ducts into the Cavity of the Urethra; ſo as to encompaſs the Exit of the *Veſiculæ*; whence the Seed and the Humour of the *Proſtata* are the more accurately mix'd.

PROSTYLE, in the antient *Greek* Architecture, a Range of Columns in the Front of a Temple. See TEMPLE.

The Word is form'd from the *Greek* πρὸ, *before*, and στυλος, *Column*.

PROSYLLOGISM, PROSYLLOGISMUS, is uſed by ſome School-Writers, for a Reaſon or Argument produc'd to ſtrengthen, or confirm one of the Premiſes of a Syllogiſm. See PREMISE.

Others define the *Proſyllogiſm*, an Argument compos'd of two Syllogiſms ſo diſpos'd, as that the Concluſion of the former is the *major*, or *minor* of the latter.

As here, *e.gr.* every Rational is riſible: but every Man is rational, therefore every Man is riſible; but no Aſs is riſible, therefore no Aſs is a Man.

The *Major* of the ſecond Syllogiſm may be omitted or underſtood; and ſome even contend that it ought to be ſo: ſo that on their Principle, a *Proſyllogiſm*, or redundant Syllogiſm, is when two Syllogiſms are ſo contain'd in five Propoſitions, as that the Concluſion of the former, is the *Major* or *Minor* of the latter. See SYLLOGISM.

PROTASIS, in the antient Drama, the firſt part of a Comic, or Tragic Piece; wherein the ſeveral Perſons of the Play are ſhewn, their Characters and Manners intimated, and the Action, which is to make the Subject of the Piece, propos'd, and enter'd upon. See DRAMA, TRAGEDY, *&c.*

The antient *Protaſis* might go about as far as our two firſt Acts. See ACT.

Where the *Protaſis* ended, the Epitaſis commenc'd. See EPITASIS.

The Word is form'd from the *Greek* προτασις, *Protenſio*.

PROTATICUS, in the antient Drama, was a Perſon who never appear'd but in the *Protaſis*, or firſt part of the Play; as *Socia* in *Terence*'s *Andria*, *&c.*

PROTECTION, the Shelter, Defence, Authority, and Aid, employ'd by any one in behalf of the helpleſs, or unhappy. See PROTECTOR.

Active Protection ſuppoſes Power, Intereſt, Favour, *&c.* in the Perſon that protects: *Paſſive Protection*, on the contrary, implies Neceſſity, Weakneſs, and Dependance in the Perſon protected. See SAFEGUARD.

PROTECTION is alſo uſed for a Privilege belonging to Embaſſadors, Members of Parliament, *&c.* whereby they and their Domeſticks are ſecur'd from Arreſts, *&c.* See PRIVILEGE, *&c.*

PROTECTION is ſometimes alſo underſtood of the Perſon of the Protector. Such a Cardinal has the *Protection* of *France*—The *Protection* of *Spain* is become vacant by the Death of ſuch a Cardinal. See PROTECTOR.

PROTECTION, in Law, has both a general, and a ſpecial Signification.

In the general, it is uſed for that Benefit, and Safety, which every Subject, Denizen or Alien, ſpecially ſecur'd, hath by the Laws. See LAW.

In the ſpecial Signification, it is uſed for an Exemption, or Immunity, given by the King to a Perſon, to ſecure him againſt Suits in Law, or other Vexations, upon reaſonable Cauſes moving him thereunto.

Of this, *Fitzherbert* makes two kinds; the firſt he calls a *Protection, cum clauſula volumus*; whereof he mentions four Particulars.

1°. A *Protection, quia profecturus*, for him that is to paſs over Sea in the King's Service.

2°. A *Protection, quia moraturus*, for him who is abroad in the King's Service.

3°. A *Protection* for the King's Debtor, that he be not ſued or attach'd, till the King be paid his Debt.

4°. A *Protection* for a Perſon in the King's Service beyond Sea, or in the Marches of *Scotland*.

The ſecond Form of *Protection*, is *cum clauſula nolumus*, which is moſt commonly granted to a ſpiritual Company, for their Immunity, from taking their Cattle by the King's Miniſters; but it may be alſo granted to a ſingle Perſon, either ſpiritual or temporal.

Protection extends not to Pleas of Dower, *Quare impedit*, Aſſize of novel Diſſeiſin, Darrein Preſentment, Attaints, nor Pleas before Juſtices in Eyre.

PROTECTOR, a Perſon who undertakes to ſhelter and defend the weak, helpleſs, or diſtreſs'd. See PROTECTOR and PATRON.

God, and the Magiſtrate, are the *Protectors* of the Widow and Orphan——Among the Heathens, *Minerva* was eſteem'd the *Protectreſs* of Arts.

Every Catholic Nation, and every Religious Order, has a *Protector* reſiding at the Court of *Rome*, who is a Cardinal, and call'd the *Cardinal Protector*. See CARDINAL.

The Name is ſometimes alſo uſed for a Regent of a Kingdom, made choice of to govern it during the Minority of a Prince.

Cromwell aſſum'd the Title and Quality of *Lord Protector of the Commonwealth of* England.

PROTEST, in Law, is uſed for a Caution, or Call of Witneſs, or an open Affirmation that a Perſon does either not at all, or but conditionally, yield his Conſent to any Act; or to the Proceeding of any Judge in a Court, wherein his Juriſdiction is doubtful; or to anſwer upon his Oath farther than by Law he is bound.

Any of the Lords in Parliament have a Right to *proteſt* their Diſſent to any Bill paſs'd by a Majority; which *Proteſt* is enter'd in form. See PARLIAMENT.

This Privilege is ſaid not to be very antient: The Commons have no Right to *proteſt*.

PROTEST, in Commerce, is a Summons made by a Notary Publick to a Merchant, Banker, or the like, to diſcharge a Bill of Exchange, drawn on him; after his having refus'd either to accept or pay the ſame. See BILL *of Exchange*.

It is call'd *Proteſt*, becauſe containing a Proteſtation, that the Party will return the Bill, and even take up Money at Intereſt; and charge all Coſts, Damages, Carriage and Recarriage, on the Refuſer.

There are two kinds of *Proteſts*; the one for want of Acceptance; the other for want of Payment. See ACCEPTANCE, *&c.*

The firſt to be made by the Bearer of the Bill at the time of preſenting it, in caſe the Perſon, on whom it is drawn, refuſe to accept it for the time, or the Sum there expreſs'd——The latter is made as the Bill falls due, whether it have been accepted or not. See ACCEPTANCE.

The Bearers of Bills of Exchange, that have been accepted, or which become payable at a certain Day, are oblig'd to have them either paid or *proteſted* within three Days after Due, on the Penalty of anſwering for the Omiſſion; and it muſt be obſerv'd, that if the third Day happen to be a Holy-Day, the *Proteſt* is to be made on the Eve thereof.

At *Paris* and *Hambourg*, the *Proteſt* is to be made within ten Days: At *Venice*, where all Bills are paid *in Banco*, the *Proteſt* for want of Payment is to be made within ſix days; but then the Bank is ſuppos'd open, otherwiſe no *Proteſt* to be made: At *Rome*, *Proteſts* for want of Payment are to be made within fifteen Days: At *Leghorn*, *Milan*, and *Boulogne*, there is no time fix'd: At *Amſterdam*, they are to be made within five Days: At *Venice*, the third Day.

The Negotiants of ſome Places, as thoſe of *Rome*, Mr. *Savary* obſerves, don't look on themſelves as oblig'd to *proteſt* in default of Payment; but this Opinion is contrary to univerſal Cuſtom and natural Reaſon: ſince, till after *Proteſtation*, they have no Remedy or Reſourſe againſt the Drawer, or Endorſer; nor any Title to be reimburs'd.

M. *Ricard* adds, that Bills of Exchange drawn from *Amſterdam*, or *Antwerp*, or *Spain*, are to be *proteſted*, in default of Payment, within fourteen Days after they fall due; after which time, the Bearer ſtands the riſque and chance of the *non-proteſted* Bill, not the Drawer, or Endorſer; in caſe the Party happens to fail after the ſaid fourteenth Day.

PROTESTANT, a Name firſt given in *Germany* to thoſe who adher'd to the Doctrine of *Luther*; becauſe, in 1529, they *proteſted* againſt a Decree of the Emperor *Charles* V. and the Diet of *Spires*; and declar'd, that they appeal'd to a General Council.

The Name has been ſince alſo given to thoſe who adhere to the Sentiments of *Calvin*; and is now become a common Name for all thoſe of the Reform'd Churches. See LUTHERAN, CALVINIST, *&c.*

Great Endeavours have been made to unite the *Lutheran Proteſtants* with the *Calviniſts*, but in vain.

PROTESTATION, a ſolemn Declaration made by ſome Judiciary Act or Proceeding againſt an Oppreſſion, Violence, or Injuſtice; or againſt the Legality of a Sentence, Judgment, Decree, or other Procedure; importing that the Party is determin'd to oppoſe it at the proper time, *&c.* See PROTEST.

Proteſtation, in Law, is defin'd by Juſtice *Walſh*, a Defence or Safeguard to the Party that makes it, from being concluded by the Act he is about to do; ſo that Iſſue cannot be join'd upon it.

Proteſtation is a Form of pleading, when one does not directly either affirm or deny any thing alledg'd by another, or which he himſelf alledges. *Plowd.* fol. 276.

PROTHESIS, or PROSTHESIS, in Grammar, in the general is uſed for a Metaplaſm. See METAPLASM.

But it alſo more particularly denotes a prefixing of ſomething at the beginning of a Word; as in *gnavus*, *pro navus*.

This is alſo call'd *Appoſition*. See APPOSITION.

PROTHESIS, or PROSTHESIS, among Surgeons, is the filling up of what was before wanting: Such, *e. gr.* is the filling up of fiſtulous Ulcers with new Fleſh. See FISTULOUS, *&c.*

PROTHESIS is alſo a little Altar in the *Greek* Churches, whereon a Ceremony is perform'd, call'd by the ſame Name, προθεσις.

On this Altar the Prieſt, with the other Miniſters, prepares every thing neceſſary to the Celebration of Maſs; *viz.* the Bread, Wine, *&c.* After which, they go in proceſſion from this to the great Altar, to begin Maſs; carrying with them the Species thus prepar'd. See ALTAR.

PROTHONOTARY, PROTONOTARY, or PRONOTARY, a Term properly ſignifying *firſt Notary*; and which was antiently the Title of the principal Notaries of the Emperor of *Conſtantinople*. See NOTARY.

With us, *Prothonotary* is now uſed for Officers in the Courts of King's Bench, and Common Pleas; the latter whereof has three; the former, one. See COURT, *&c.*

PROTHONOTARY *of the King's Bench*, records all Actions Civil, ſued in that Court; as the Clerk of the Crown-Office doth all Criminal Cauſes. See KING'S *Bench*, RECORD, *&c.*

PROTHONOTARIES *of the Common Pleas*, enter and enroll all Declarations, Pleadings, Aſſizes, Judgments, and Actions: they alſo make out all Judicial Writs; as the *Venire facias*, after Iſſue join'd; *Habeas Corpus*, for bringing in of the Jury; *Diſtringas Jurator.* Writs of Execution, and Seiſin, of *Superſedeas*, of Privilege, *&c.* They inroll all Recognizances acknowledg'd in that Court, all common Recoveries; make Exemplifications of Records, *&c.*

PROTHONOTARY, or PROTONOTARY, is alſo an Officer in the Court of *Rome*, who has a degree of Pre-eminence over the other Notaries.

There is a College of twelve *Prothonotaries*, call'd *Participantes*, becauſe partaking in the Fees of the Expeditions in Chancery.

They are rank'd among the Number of Prelates, wear the Violet Rochet, the Hat, *&c.* They aſſiſt at all grand Ceremonies, and have a place in the Pope's Chappel.

Their Office is to diſpatch the Acts in grand Cauſes, which the ſimple Apoſtolical Notaries diſpatch in leſſer Cauſes: they may create Apoſtolical Notaries, and Doctors, to officiate out of the City.

Thoſe out of the College have none of the Privileges of the others, except the Habit.

The *Prothonotaries* were firſt eſtabliſh'd at *Rome* by Pope *Clement* I. with deſign to write the Lives of the Martyrs. See NOTARY.

PROTHYRUM, προθυρον, a Porch at the outward Door of a Houſe, or Portal. See PORCH.

PROTHYRIS, PROTHYRIDE, is alſo uſed by *Vignola* for a particular ſort of a Key of an Arch, an Inſtance of which we have in his *Ionic* Order; conſiſting of a Roll of Water-Leaves, between two Reglets and two Fillets, crown'd with a *Doric Cymatium*; its Figure being much like that of a Modillion.

PROTHYRIS, in the antient Architecture, is ſometimes alſo uſed for a Quoin, or Corner of a Wall; and ſometimes for a croſs Beam, or over-thwart Rafter.

PROTO, a Word uſed in Compoſition with divers Terms in our Language; affecting them with a relation of Priority: as in *Proto-Martyr*, *Proto-Type*, *&c.*

It is form'd of the *Greek* πρωτος, *primus*, firſt.

PROTOCOLLUM, PROTOCOL, a Term uſed in the antient Juriſprudence, for the firſt Leaf of a Book; wherein was the Mark of the Paper and Parchment.

It was even ſometimes uſed for the Mark itſelf; which was uſually in the Margin, but ſometimes at the top of the Page.

The XLIVth Novel of *Juſtinian*, forbids the cutting of the *Protocollum* of Charters which ſhew'd the Year, wherein the Paper or Parchment were made, and the Officer commiſſion'd for the Delivery of them; by means whereof, Frauds were frequently detected.

Others will have *Protocollum* to have been the firſt Minute, or Draught, or Summary, of an Act to be paſs'd: which the Notary drew firſt up, in ſhort, in little Table-Books, to be afterwards enlarg'd at leiſure. See NOTARY.

PROTO-FORESTARIUS, was he whom our antient Kings made Chief of *Windſor-Foreſt*, to take Cognizance of all Cauſes of Death, or Mayhem there. See FOREST and FORESTER.

PROTO-MARTYR, the *firſt Martyr*, or Witneſs, who ſuffer'd Death in Teſtimony of the Truth; as *Abel* in the Old Teſtament; and St. *Stephen* in the New. See MARTYR.

The Word is compounded of πρωτος, *firſt*, and μαρτυρ, *Witneſs.*

PROTONOTARY. See PROTHONOTARY.

PROTOPLAST, PROTOPLASTUS, a Title ſometimes given to our Firſt-father, *Adam*; from the *Greek* πρωτοπλαστος, *q. d.* firſt form'd. See PLASTIC.

PROTOTYPE, the Original, or Model whereon a thing is to be form'd. See TYPE.

It is chiefly uſed for the Patterns of things to be Engraven, Moulded, or Caſt. See MODEL, MOULD, *&c.*

PROTOTYPON, in Grammar, is ſometimes uſed for a primitive or original Word. See PRIMITIVE.

PROTRACTING, or PROTRACTION, in Surveying, the plotting, or laying down of the Dimenſions taken in the Field; by means of a *Protractor*, *&c.* See PROTRACTOR and PLOTTING.

Protracting makes one half of Surveying. See SURVEYING.

PROTRACTING-*Pin*, a Mathematical Inſtrument; or rather, an Appendage of an Inſtrument call'd a *Protractor.*

The *Protracting-Pin* is a fine Needle, fitted into a Handle; uſed to prick off Degrees and Minutes from the Limb of the *Protractor.* See PROTRACTOR.

PROTRACTOR, an Inſtrument uſed in Surgery, to draw out any foreign or diſagreeable Bodies from a Wound, or Ulcer, in like manner as the Forceps. See FORCEPS.

PROTRACTOR, is alſo an Inſtrument uſed in Surveying; whereby, the Angles taken in the Field with a *Theodolite*, *Circumferentor*, or the like, are plotted or laid down on Paper. See PLOTTING.

The *Protractor* conſiſts of a Semi-circular Limb B A G (Tab. SURVEYING, Fig. 29.) of Braſs, Silver, Horn, or the like, divided into 180°, and ſubtended by a Diameter B A; in the middle whereof is a little Notch or Lip, *o*, call'd the *Centre of the Protractor.*

On the Limb of the *Protractor* are, ſometimes, alſo placed Numbers, denoting the Angles at the Centers of regular Polygons: Thus, againſt the Number 5, denoting the Sides of a Pentagon is found 72, the Angle at the Centre of a Pentagon. See POLYGON.

Uſe of the PROTRACTOR.

1. *To lay down an Angle of any given Quantity, or Number of Degrees.* Suppoſe, *e. gr.* an Angle of 50° with the Line A *o* B, required on the Point *o*. Lay the Centre of the *Protractor* on the given Point, and the Diameter of the *Protractor* on the given Line. Make a Mark againſt the given Degree 50, on the Limb of the *Protractor*; thro' which, from the given Point draw a Line *o p*: This gives the Angle required.

2. *To find the Quantity of a given Angle*: *E. gr.* the Angle *p o* A; lay the Centre of the *Protractor* on the Point of the Angle, *o*, and the Diameter on the Line. The Degree of the Limb cut by the other Line *o p*, *viz.* 50, is the Number of Degrees of the Angle requir'd.

3. *To inſcribe any given regular Polygon*, e. gr. *a Pentagon in a Circle.* Lay the Centre and Diameter of the *Protractor* on the Centre and Diameter of the Circle; and

make a Dot againſt the Number of Degrees of the Angle at the Centre, *viz.* 72. Thro' this Dot, and the Centre of the Circle, draw a Line cutting the Circumference of the Circle. To the Point of Interſection, from the Point where the Diameter cuts the Circumference, draw a right Line: This Line will be a Side of the Pentagon, which being taken in the Compaſſes, and ſet off as often as it will go, in the Circumference, will give Points, which being connected by Lines, will form the Pentagon requir'd. See POLYGON.

4. *To deſcribe any regular Polygon,* e. gr. *an Octagon* on a given Line. Subſtract the Angle at the Centre, which the *Protractor* gives, 45° from 180°, the Remainder 135° Degrees, is the Angle included between two Sides of the Octagon; one half whereof is 67½. Applying then the Diameter of the *Protractor* over the given Line, with the Centre over one Extreme; make a Dot againſt 67½, to which from the Centre draw a Line. Apply the *Protractor* to the other end of the Line, ſo as the Centre be over the Extreme, and there ſet off another Angle of 67° ½. From the Point where the two Lines thus drawn interſect, as a Centre, deſcribe a Circle, with the interval of the given Line. The given Line will be one Side of the Octagon, which being ſet off as often as it will go in the Circumference thus drawn, will give Points, which being connected, will form the Octagon required.

PROTRACTOR *Improved*, is a Machine like the former, only furniſh'd with a little more Apparatus, whereby we are enabled to ſet off an Angle to a Minute; which is impracticable in the other.

The chief Addition is an Index fitted on the Centre, and movable thereon; ſo as to play freely and ſteadily over the Limb. Beyond the Limb the Index is divided, on both Edges, into 60 equal parts of the Portions of Circles, intercepted by two other right Lines drawn from the Centre, ſo as each makes an Angle of one Degree with Lines drawn to the aſſumed Points from the Centre.—Now to ſet off an Angle of any Number of Degrees and Minutes with this *Protractor*; move the Index ſo, that one of the Lines drawn on the Limb, from one of the forementioned Points, may be upon the Number of Degrees given: And prick off as many of the equal parts on the proper Edge of the Index, as there are Minutes given: thus, drawing a Line from the Centre to that Point ſo prick'd off, you have an Angle with the Diameter of the *Protractor*, of the propoſed Number of Degrees and Minutes.

Indeed, it may be of good Uſe to lay down an Angle to a Minute, when we are able to take it to a Minute: But till we have other-guiſe Needles, and juſter Theodolites, than are yet made, the old *Protractor* may ſerve very well. See THEODOLITE.

PROTUBERANCE, in Anatomy, an Eminence, or Tumour that projects, or advances out beyond the reſt.

The *Orbicular Protuberances* of the third Ventricle of the Brain are call'd *Nates*; and the Apophyſes of the *Orbicular Protuberances, Teſtes.* See NATES and TESTES.

The *Annular Protuberance* is a proceſs of the *Medulla Oblongata*, in form of a Ring; whence its Name, firſt given it by *Willis*. See MEDULLA *Oblongata*.

PROVEDITOR, PROVEDITOUR, or PROVEDITORE, an Officer in ſeveral parts of *Italy*, particularly at *Venice*.

There are various kinds of *Proveditors* in *Venice*: as *Proveditor of the Commons*; who is nearly the ſame with the *Ædiles* among the *Romans*; the Conſuls in *Languedoc*; and the Sheriffs in other Cities. Of theſe *Proveditors* there are three.

Proveditor General of the Sea, is an Officer whoſe Authority extends over the whole Fleet, when the Captain-General is abſent. He has, particularly, the Diſpoſal of the Caſh, and pays the Seamen and Soldiers. The Captain-General, and *Proveditor*, are mutually Spies over one another. Tho' the *Proveditor* be inferior to the General; yet is the Power ſo divided, that one has Authority without Strength, the other Strength without Authority.

The *Proveditore alle Ragione vecchie, alla Biave, alla Giuſtitia*, have the Direction of Matters relating to Policy throughout the Signory.

PROVEND, or PROVENDER, is properly a ſort of Buſhel, or Veſſel containing the Meaſure of Grains daily given to a Horſe or other Beaſt of Labour, for his ordinary Subſiſtence.

Hence *Provender* is become a general Name for all Food of Cattel.

In Monaſteries, when the Religious go to Meals; they are ſaid to go to *Provend*.

Some derive the Word from the *Latin Præbendo*, Prebend. See PREBEND.

PROVER, in Law, *Probator*, an Approver; or a Perſon who, confeſſing Felony, appeals, or accuſes another of the ſame.

He is thus call'd, becauſe he muſt prove what he alledges in his Appeal; which Proof is either by Battel, or by the Country, at his election who is appealed. See TRYAL, COMBAT, *&c.*

39 *Edw.* 3. *coram Rege, Rot.* 97. *Suff.* A Man became an *Approver*, and appealed five, who all join'd Battel with him, and he overcame 'em all; four of 'em were accordingly hang'd, and the fifth pleaded he was a Clerk. The *Prover* was pardon'd.

PROVERB, is defined by *Cambden* a conciſe, witty, and wiſe Speech; grounded upon long Experience, and containing, for the moſt part, ſome good Caveat.

We are furniſh'd with Inſtances out of his own Collection: Such are, *A cloſe Mouth catches no flies.—A high Building, a low Foundation.—A carrion Kite will never be a good Hawk.—A ſhort Horſe is ſoon curried.—A Man may love his Houſe well, tho' he ride not on the Ridge.—A falſe Knave needs no Broker.—Better to ſpare at Brim than at Bottom*, &c.

PROVIDENCE, PROVIDENTIA, the Conduct and Direction of the ſeveral Parts of the Univerſe, by a ſuperior, intelligent Being. See UNIVERSE.

The Notion of a *Providence* is very antient, even in the Heathen Theology; we find *Thales* mentions it.

It is founded on this Suppoſition, That the Creator has not ſo fixed, and aſcertained the Laws of Nature, nor ſo connected the Chain of ſecond Cauſes, as to leave the World to itſelf; but that he ſtill preſerves the Reins in his own hands, and occaſionally intervenes, alters, reſtrains, inforces, ſuſpends, *&c.* thoſe Laws by a *particular Providence.* See MIRACLE.

Indeed, ſome uſe the Word *Providence* in a more general Senſe; ſignifying by it, that Power, or Action whereby the ſeveral parts of the Creation are ordinarily directed.

Thus *Damaſcenus* defines *Providence* to be the Divine Will, whereby all things are order'd, and directed to the proper End: Which Notion of *Providence*, ſuppoſes no Laws at all fixed by the Author of Nature at the Creation; but that he reſerved it at large to be govern'd by himſelf occaſionally. See NATURE.

The Antients call'd *Providence* by the Names of *Fate, Fortune, Nature, Deſtiny, Neceſſity*, &c. See FATE, FORTUNE, *&c.*

The antient *Egyptians* ſeem to have been the firſt who had the Notion of a Divine *Providence*: *Arnobius* obſerves they reaſon'd thus,— "*Providence* is ſo eſſential to " a Prince, that without it he cannot be, nor even be call'd, " a Prince; and the more Auguſt a Prince is, the more " perfect ought his *Providence* to be. Since, then, God is " the Greateſt and moſt auguſt of all Princes, to him muſt " belong the moſt perfect *Providence*."

The *Epicureans* deny any Divine *Providence*; as thinking it inconſiſtent with the Eaſe and Repoſe of the Divine Nature to meddle with human Affairs. See EPICUREAN.

Others deny the Exiſtence of a *Providence*, from the ſeemingly unjuſt Diſtribution of Good and Evil, which ſeem to fall indiſcriminately on the Juſt and Unjuſt.

Simplicius argues thus for a *Providence*: If God don't look to the Affairs of the World, 'tis either becauſe he cannot, or will not: But the firſt is abſurd; ſince to govern can't be difficult, where to create was eaſy: The latter is both abſurd and blaſphemous. See GOD.

PROVIDENTIÆ, in old Law-Books, were Proviſions of Eating and Drinking. See POURVEYANCE.

Providentia Vini ante adventum ſuum in Cellaria erat Centum Doliorum. Knighton, *Anno* 1354.

PROVINCE, PROVINCIA, among the *Romans*, was a Country conquer'd by them, without the Bounds of *Italy*; govern'd by a Deputy, or Lieutenant; and having peculiar Laws and Privileges.

Of theſe Countries, that part of *France* next the *Alps* was one, and ſtill retains the Name *Provence*.

Nicod derives the Word, *à procul vivendo*, living a-far off.

Among us, PROVINCE is uſed for the Extent of an Archbiſhop's Juriſdiction; in which ſenſe, *England* is divided into two *Provinces*, thoſe of *Canterbury* and *York*.

PROVINCE is now chiefly uſed for a Canton or Diviſion of a Kingdom, or Common-wealth comprehending ſeveral Cities, Towns, *&c.* all under the ſame Government, and uſually diſtinguiſh'd by the Extent of a Civil or Eccleſiaſtic Juriſdiction.

The *Provinces* were antiently *Dutchies, Counties*,, &c. which have been ſince all reunited under the ſame Chief. See DUKE, COUNT, *&c.*

The Church diſtinguiſhes its *Provinces* by Archbiſhopricks; each containing a certain Number of Biſhopricks. See ARCHBISHOP.

The Monks make particular Diviſions of their *Provinces*, according to the Antiquity and Number of Convents in each. See PROVINCIAL, ORDER, *&c.*

The *United Provinces* are the ſeven Northern *Provinces* of the *Low-Countries*, who, revolting from the *Spaniſh* Dominion, made a firm and perpetual Alliance, Offenſive and Defenſive, at *Utrecht* in the Year 1579. See STATES *General.*

PROVINCIAL, Provincialis, ſomething relating to a *Province*. See Province.

Thus we ſay, a *Provincial Council*, or *Synod*, &c. See Synod and Council.

Provincial, in the Monaſtic ſenſe, is a Perſon who has the Direction and Superintendancy of the ſeveral Convents of a *Province*; according to the Diviſion eſtabliſhed in that Order. See Order, Convent, &c.

The *General* of the Order has ſeveral *Provinces* under him; the *Provincial* ſeveral Priors, Abbots, &c. See General, Abbot, &c.

PROVINE, of the *French Provigner*, ſignifies to lay a Vine-Stock, or Branch, in the Ground, to take Root. See Vine, Propagation, &c.

PROVISION, any thing got, or procured as neceſſary for the Subſiſtence of Life.

Provision, in Traffick, is uſed for the Wages due to a Factor. See Factorage.

PROVISION, in the Canon-Law, the Title, or Inſtrument, by virtue whereof an Incumbent holds, or is *provided* of a Benefice, Biſhoprick, or the like. See Title, Benefice, &c.

Ordinary Collators give *Proviſions* in Caſe of Vacancy by Death, pure and ſimple Demiſſion and Permutation. See Collator.

The Court of *Rome* grants *Proviſions* by Reſignation, Devolution, Prevention.

Proviſions by Prevention, are call'd *Gratiæ Expectativæ*, or *Mandata de Providendo*; of the great Abuſe whereof throughout *England*, frequent Complaint was made in our antient Statutes, and a Remedy provided for the ſame by the Statute of *Præmunire*. See Prevention, Præmunire, &c.

Proviſions of ſmall Benefices, in the Court of *Rome*, are only ſimple Signatures, which are, as it were, Minutes of the Bull; becauſe the Bulls themſelves diſpatch'd on Parchment would be too expenſive. The Signature is no more than the Requeſt of the Impetrant anſwer'd by the Pope in theſe Words; *Conceſſum uti petitur in præſentia D. N. Papæ*, wrote in the Hand of the Prelate who preſides over the Signature. See Bull.

Extraordinary *Proviſions* are ſign'd by the Pope himſelf, in theſe Words, *Fiat ut petitur*, with the firſt Letter of his Name. See Signature.

PROVISO, in Law, a Condition inſerted in a Deed, upon the Obſervance whereof the Validity of the Deed depends. See Condition, &c.

Sometimes the Word imports a Covenant. See Covenant.

Proviso hath alſo another ſignification, in Judicial Matters; as, if the Plaintiff deſiſt from proſecuting an Action, by bringing it to a Trial; the Defendant or Tenant may take out a *Venire facias* to the Sheriff, having in it theſe Words, *Proviſo quod*, &c. to the end, that if the Plaintiff take out any Writ to that purpoſe, the Sheriff ſhall ſummon but one Jury upon them both: In which Caſe it is call'd, going to Trial *by Proviſo*.

Proviso is alſo a Sea-Term. A Ship is ſaid to moor a *Proviſo*, when ſhe has an Anchor out, and alſo a Hawſer a-ſhore; and ſo is moor'd with her Head to the Shore with two Cables. See Mooring.

PROVISOR, is generally taken for him that hath the Care of providing things neceſſary; in which ſenſe it coincides with *Purveyor*. See Purveyor.

Provisor *Monaſterii*, is uſed for the Steward, or Treaſurer of a Religious Houſe.

Provisor, in our Statutes, is a Perſon who ſued to the Court of *Rome* for a *Proviſion*. See Provision.

Theſe were prohibited by Proclamation 42 *Hen.* 3. *Ann.* 1258. Proviſores *dicuntur qui vel Epiſcopatum, vel Eccleſiaſticam aliam dignitatem in Romana Curia ſibi ambiebant de futuro, quod ex Gratia expectativa nuncuparunt, quia uſque dum vacaret expectandum eſſet.* Spelm.

PROVOCATIVE, in Phyſic, a Medicine which ſtrengthens Nature, and ſtimulates or incites to Venery.

Such are Cantharides, &c. See Cantharides.

PROVOST, *Præpoſitus*, an Officer, whereof there are divers Kinds; Civil, Military, &c.

Provost *of the City, or of the Merchants*, is the Chief Municipal Magiſtrate in ſeveral conſiderable trading Cities, particularly *Edinborough*, *Paris*, and *Lyons*; much the ſame with the Mayors in other Places. See Mayor.

The *Provoſt* preſides at the City-Courts, and, together with the Sheriffs, decides all Differences relating to Trade and Merchandize; takes cognizance of the Affairs of Officers of Policy of the City with regard to their Functions; of the Delinquencies of Merchants, Commiſſioners, and Factors; inſpects the Ports, Rivers, the Duties, Impoſts, &c.

Authors attribute the Inſtitution of *Provoſt of the Merchants of Paris* to *Philip Auguſte*. *Du Haillan* refers its Epocha to the Year 1190.

The Lord *Provoſt of Edinborough* is principal Sheriff; the Bailiffs are his Deputies; he calls Conventions of the Boroughs by his own Miſſives.

Provost, or Prevot *Royal*, is a ſort of inferior Judge eſtabliſhed throughout *France*; for the taking cognizance of all Civil, Perſonal, Real, and Mixed Cauſes, among the People; but without any Juriſdiction in the Cauſes of Nobles.

Theſe in the *Bourbonnois*, *Auvergne*, &c. are call'd *Chatelains*; in *Normandy*, *Vicomtes*; in *Languedoc* and *Provence*, *Viguiers*.

Grand Provost *of France*, or of the Houſhold, is a Judge of the Sword; who has Juriſdiction in the King's Houſe, and over the Officers therein; looks to the Policy and Regulation thereof; the Rates of Proviſions following the Court, &c. He was antiently call'd *Roi des Ribauds*.

Grand Provost *of the Conſtable*, a Judge of the Sword, who manages the Proceſſes againſt the Soldiers in the Army who have committed any Crime. He has four Lieutenants diſtributed throughout the Armies, call'd *Provoſts of the Army*; and particular *Provoſts* in the ſeveral Regiments.

Provost *General of the Marine*, an Officer who manages the Proceſſes againſt the Marines when guilty of any Crime; and makes report thereof to the Council of War. There is alſo a Marine *Provoſt* in every Veſſel, who is a kind of Goaler, and takes the Priſoners into his Care; and keeps the Veſſel clean.

Provosts *of the Marſhals*, are a kind of Lieutenants of the Marſhals of *France*, eſtabliſhed for the Security of the Country againſt Rogues, Vagabonds, and Deſerters. They take cognizance of Royal Caſes; which, for this Reaſon are call'd *prevotal Caſes*; ſuch are all Crimes committed by Strollers, or People without any fixed Abode; Robberies on the High-way, Infraction of Safe-guard, Burnings, &c. They pronounce *en dernier reſſort*.

There are 180 Seats of theſe *Provoſts* in *France*. Their chief Juriſdiction regards High-way-men, Foot-pads, Houſe-breakers, &c. and correſpond to the Officers eſtabliſh'd by *Auguſtus* and *Tiberius*, call'd, as *Cujas* tells us, *Latrunculatores*; to ſhew, that their Office was to purſue Thieves.

Provost *of the Mint*, is a particular Judge inſtituted for the apprehending and proſecuting of falſe Coiners. See Mint.

Provost *Marſhal* of an Army, is one appointed to ſecure Deſerters, and all other Criminals. See Marshal.

He is to go often abroad round the Army to hinder the Soldiers from pillaging: It is his Office to indict Offenders, and to execute the Sentence paſs'd upon them. He likewiſe regulates the Weights and Meaſures, and the Price of all Proviſions, &c. in the Army.

There is alſo a *Provoſt Marſhal* in the Navy, who hath Charge of the Priſoners taken at Sea.

Provost *of an Univerſity*; ſee University.

PROW, in Navigation, the Head, or Fore-part of a Ship. See Ship.

In the Front hereof is the Beak, that cuts the Water to make way for the Veſſel.

The *Prow* is lower than the Poop, and contains fewer Stories or Decks. On the Beak is uſually ſome Hieroglyphic, which often gives Name to the Veſſel.

In ſtrictneſs, however, the *Prow* is ſaid to be only that part of the Fore-Caſtle which is aloof, and not in the Hold; particularly that between the Chaſe and the Loof.

The Antients repreſented Beaks of Birds in the *Prows* of their Ships, whence they were call'd *Roſtra*.

The Word *Prow* is form'd from the *Latin Prora*, which ſignifies the ſame thing.

PROXIMITY, of the *Latin Proximitas*, denotes the Relation of Nearneſs, either in reſpect of Place, or Blood, or Alliance. See Vicinage, Consanguinity, &c.

PROXINETA, or Proxinetes, a Broker, or Manager between two Perſons. See Broker.

The Word is chiefly uſed for thoſe who negociate Offices, Marriages, &c.

The *Roman* Law grants the *Proxinetes* an Action for recovery of their Salaries. The Word is *Greek* προξενητης, *Broker*.

The *Latins* give 'em a more honourable Appellation, calling 'em *Interpreters*. See Interpreter.

Theſe made a kind of Office, or College in *Rome*: To them the Fathers addreſs'd themſelves, to ſound and examine the Inclinations of the young Men they intended for their Daughters.

A Commentator on the Digeſt, accounts it a great Defect in the modern Policy, that there are not now any of theſe *Proxinetes* or Match-Makers eſtabliſhed by public Authority.

PROXY, *Procurator*; a Deputy, or Perſon who officiates in the room of another. See Procurator.

Princes are uſually married by *Proxies*.

Proxy, *Procuracy*, among Civilians, is alſo a Commiſſion given to a Proctor by a Client to manage a Cauſe in his behalf. See PROCTOR.

PRUINA, in Phyſiology, *Hoar-Froſt*; a Concretion of the Dew, made by the violence of the external Cold. See DEW and FREEZING.

PRUNELLA, in Medicine, a dryneſs of the Tongue, and Throat, happening in continued Fevers, eſpecially acute ones; accompanied with a heat and redneſs of the Throat, and a Scurf covering the Tongue; ſometimes whitiſh, and ſometimes blackiſh. See FEVER.

Some give the Name *Prunella* to the Quinzy. See SQUINANCY.

PRUNELLÆ *Sal*, in Pharmacy, is a Preparation of purify'd Salt-Petre; call'd alſo *Lapis Prunellæ*, and *Cryſtal Mineral*. See SALT *Petre*, CRYSTAL, *&c.*

It is prepared, by ſeparating and abſorbing ſome of the more volatile parts of the Salt-Petre; which is done by burning upon it, when melted in a Crucible over the Fire, about a thirtieth part of its Weight of Flower of Brimſtone.

'Tis given to cool, and provoke Urine in Fevers, and Quinzies; tho ſome think that Salt-Petre, purify'd three or four times, would be a better Medicine.

The *Sal Prunellæ* is frequently adulterated with Alum; the Deceit is known by its Whiteneſs and Glittering.

PRUNES, are Plumbs dried, and baked in an Oven, or in the Sun.

The *Prunes* chiefly uſed among us, are black, and large; brought from *Bourdeaux*: Great Quantities are uſed by the *Engliſh* and *Dutch*.

The Word comes from the *Latin Pruna*, Plumb: The Juice of *Prunes* is eſteem'd laxative.

PRUNIFEROUS *Trees*, or *Shrubs*, the *Plumb-bearing kind*; are thoſe whoſe Fruit is pretty large, and ſoft, with a Stone in the middle. See TREE and FRUIT.

In this kind, the Flower adheres to the bottom of the Baſe of the Fruit.

PRUNING, in Gardening, and Agriculture, the Operation of lopping, or cutting off the ſuperfluous Branches of Trees; either to diſpoſe them to bear better, to grow higher, or appear more regular. See TREE, *&c.*

Pruning is one of the moſt important Branches of the Gardeners Province; and that whereon the Weal, or Woe of his Fruit-Trees, as well as the Air and Regularity of his Garden, in great meaſure depends. See GARDEN.

'Tis ſometimes practis'd, purely, for the trimming or adjuſting of Trees to the Eye, by taking away irregular Branches; as in Box, Holly, Yew, *&c.*

Sometimes to make the Stem grow fairer, and riſe higher; by taking off all the large Branches ariſing out of it; and thus ſending the Sap, which would otherwiſe be expended by them, to the Top of the Tree, to nouriſh, and prolong the ſame.

But its more ordinary uſe is to render the Tree more fertile, and to mend its Fruit; by retrenching ſuch uſeleſs Branches as might impoveriſh the Trunk, and conſume the Juice neceſſary to nouriſh the Branches that bear. See VEGETATION.

Pruning is an annual Operation; the Amputation is ſloping; ſometimes ſtump-wiſe. Its beſt Seaſon is about the end of *February*; tho' it may be begun as ſoon as the Leaves are off, *viz.* in *November*; and continu'd to the time freſh Leaves come on, *viz.* in *April.*

As the Gardener has uſually three kinds of Trees to manage, *viz.* ſome too weak, others too ſtrong, and others in a juſt plight; he will find *Pruning Work* thro' all that ſpace; it being proper to *prune* ſome ſooner, and ſome later. The weaker and more languiſhing a Tree is, the ſooner it ought to be *pruned*, to eaſe it of its offenſive Branches: and the more vigorous the Tree is, the longer may the *Pruning* be defer'd. See PINCHING and BRANCH.

Practice of PRUNING *Fruit-Trees.*

For Pruning a Tree of the firſt Year; *i.e.* a Tree planted the Year before: If it have only ſhot one fine Branch from the middle of the Stem, it muſt be cut to that Branch; and the Branch ſhorten'd to four or five *Eyes*, or Buds: the effect of which is, that the next year, there will be at leaſt two fine Branches oppoſite to each other.

If the Tree produce two fine Branches, well plac'd with weak ones among them; all requir'd is to ſhorten them equally, to the Compaſs of five or ſix Inches in length: Care, however, being taken, that the two laſt Eyes, or Buds, of the Extremes of the Branches thus ſhorten'd, look on the right, and left, on the two bare ſides; that each may bring forth at leaſt two new ones, and the four be ſo well plac'd, that they may be all preſerv'd. If one of the two Branches be much lower than the other; or both on one ſide, or the like; only one is to be preſerv'd, and that the fitteſt to begin a fine Figure: The other to be cut off ſo cloſe, as that it may never be able to produce thick ones in the ſame place.——If a Tree have put forth three or four Branches, all in the Extremity, or a little beneath; they muſt be all *pruned* by the ſame Laws as the two abovemention'd: If they be equally thick, they are to be uſed alike; if ſome of them be ſmaller than the reſt, they muſt only be *pruned* with a proſpect of getting a ſingle Branch each; taking care to have it on that ſide which ſhall be found empty: in order to which, they ſhould be ſhorten'd to an Eye, or Bud, that looks on that ſide; and the ſame care to be taken in the larger, in order to begin to fill up the better. If theſe fine Branches ſhoot a little below the Extremity, 'tis but ſhortening the Stem to 'em: On the contrary, if the Branches be moſt of them ill ones; two, at leaſt, if poſſible, are to be preſerv'd, and *pruned* in the ſame manner as the two fine ones, above. Good, weak Branches, are to be carefully preſerv'd for Fruit; only cutting them a little at the Extremity, when they appear too weak for their length: Not failing to take away all the ſapleſs Branches.——If the Tree has produc'd five, ſix, or ſeven Branches; 'tis ſufficient to preſerve three or four of the beſt: the reſt to be cut quite off, at leaſt if they be thick; for if they be weak, *i. e.* fit for Fruit-Branches, they ſhould be kept till they have perform'd what they are capable of doing. And if among the great ones, there happen to be many ſmall ones; two or three of the beſt, only, to be preſerv'd; pinching off the Ends of the longeſt.

Pruning of a Tree of the ſecond Year: If, having put out two fine Wood-Branches, and one or two ſmall ones for Fruit, the firſt Year; the Sap have alter'd its Courſe in the ſecond Year, from the thick Branches to the ſmall ones; ſo that the ſmall become Wood; and the large, Fruit-Branches: The Productions of the former muſt be quite cut off into the Mother-Branch, and thoſe of the latter uſed as Fruit-Branches.——If a Tree, from the firſt Year's *Pruning*, have produc'd four or five Branches, or more; it muſt needs be very vigorous: for which reaſon it may be ſometimes adviſeable to preſerve thoſe Branches, even tho' they be not neceſſary to the Figure of the Tree; but only to conſume part of the Sap, which might otherwiſe be prejudicial to the Fruit-Branches: Theſe ſuperfluous Branches may be left long, without much ill conſequence; but thoſe eſſential to the Beauty of the Tree, muſt be all *pruned* a little longer than thoſe of the preceding Year; *i. e.* about two, or at moſt three Eyes, or a good Foot. This is making an advantage of the Vigour of the Tree; which, without this, would not yield Fruit in a long time: the redundant Sap converting all the Eyes into Wood-Branches; which, with a more ſpare Diet, would have been Fruit-Branches. In theſe vigorous Trees, ſome Branches cut ſtump-wiſe, are to be left on, and even ſome thick ones, tho' of falſe Wood, eſpecially where there are any neceſſary to the Form of the Tree; to employ the Exceſs of Sap, and prevent its doing miſchief. Still more to aſſuage its Violence, it may be neceſſary to preſerve many long, good, weak Branches, when plac'd ſo as to occaſion no Confuſion; and even on the thick Branches, a good number of Outlets for the Sap to range in.——Be it a general Rule, rather to ſpare the lower Branches, and cut off the higher; than the contrary: By this means, the Tree ſpreads more eaſily to the bottom of the Wall.

Pruning of a Tree the third Year: In a Tree that has been planted four Years, and *pruned* twice; if it be vigorous, as many old Branches as poſſible are to be preſerv'd, eſpecially for Fruit: If it be weak, it muſt be eaſed of the Burden of old Branches, as well thoſe for Fruit, as Wood. It muſt likewiſe be cut ſhort, to enable it to ſhoot out new ones; which, if it cannot do with Vigour, let it be pull'd up; and a new one, with freſh Earth, planted in its place.

In all *Pruning*, Proviſion to be made for Branches to proceed from thoſe now under the *Pruning-Knife*; to prepare ſuch as may be proper for the Form: with this aſſurance, that when the high Branch is taken down from over the lower; this latter being reinforc'd with the Sap that would have gone to the former, will certainly produce more Branches, than it would have done without ſuch Reinforcement.

General Laws, or Rules, of PRUNING *Fruit-Trees.*

1. The more the Branches ſhoot horizontally, the apter and better diſpos'd the Tree is to bear Fruit; conſequently, the more upright the Branches, the more inclin'd is the Tree to increaſe in Wood; and the leſs in Fruit.

Hence, ever take care to keep the middle of a Tree from great Wood, or thick Branches; and as thoſe increaſe, and grow upon you, cut them out entirely; for there is no danger but the place will be ſoon fill'd with better and more fruitful Wood.

In Dwarfs, you are to prune all open, and clear of Wood, leaving none but horizontal Branches; and in Wall-Trees, if you do but furniſh your Walls with horizontal Branches, Nature will provide for the middle. Chuſe therefore ſuch Shoots as are not over-vigorous, to furniſh bearing Branches.

2. Take care the Tree be not left over full of Wood; not even of bearing Branches: as is frequently ſeen in the Management of Peaches, Nectarines, and Cherries. Nature cannot ſupply them all with Juice enough; whence, none will be ſupply'd well: the conſequence of which is, that either the Bloſſoms will fall off, or the Fruit dwindle. 'Tis certain, a multitude of Branches crowding on one another, produces neither ſo good, nor ſo much Fruit, as where there is a convenient Space; beſide the diſagreeable Effect of croſſing one another.

3. All ſtrong and vigorous Branches are to be left longer on the ſame Tree, than weak and feeble ones: conſequently, the Branches of a ſickly Tree muſt be *pruned* ſhorter, and fewer in number, than thoſe of a ſtrong healthful Tree.

4. All Branches ſhooting directly forward from Trees that grow againſt a Wall, are to be *pruned* cloſe to the Branch whence they ſpring, &c.

5. When a Branch well plac'd, either againſt a Wall, or in a Dwarf, has ſhot ſome falſe Wood, neither fit for the Figure, nor the Fruit; *prune* it off within the Thickneſs of a Crown piece, or ſlopingly; tho' this is beſt *pinched* off in the beginning of Summer.

6. Cut off all Branches ariſing from hard Knobs, whereon Pear-ſtalks grew; or from ſhort ſtrait Branches, like Spurs.

7. If a Tree, in its Years, have produc'd Branches of moderate Vigour, and afterwards puts forth ſtrong ones, well plac'd, tho of falſe Wood; the latter may be uſed as the Foundation of the Figure, and the other kept a time for bearing Fruit.

8. When an old Tree ſhoots ſtronger Branches towards the bottom than the top, and the top is in ill Caſe, cut it off, and form a new Figure from the lower ones. If the top be vigorous, cut off the lower ones, unleſs well plac'd.

9. The Order of Nature in the Production of Roots and Branches, is, that a Branch is always leſs than that out of which it ſhoots: If this Order be inverted, uſe them as falſe Wood.

10. Regard to be always had to the Effects of former *Pruning*; in order to correct its Defects, or continue its Beauties.

11. In vigorous Trees, the weaker Branches are the Fruit-bearers. In weak Trees, the ſtronger, chiefly; therefore in the latter, *prune* off the feeble and ſmall.

12. In vigorous Trees, three good Branches may put forth at one Eye, or Bud: In which caſe, the two Side-Branches are generally to be preſerv'd, and the middlemoſt cut off in *May* or *June*.

13. It is difficult to ſtrengthen a weak Branch, without cutting off others above it: Sometimes it can ſcarce be done, without cutting off the End of the Branch it ſhoots out of.

14. The *Pruning* of vigorous Peach-Trees to be defer'd till they are ready to bloſſom, the better to know which are likely to bear Fruit.

15. Fruit-buds next the Ends of Branches, are commonly thicker, and better fed, than others. In weak Trees, therefore, it may be beſt to *prune* them early, that the Sap may not waſte itſelf in ſuch parts as are to be retrench'd.

16. The farther a weak Branch is from the Trunk, the leſs Nouriſhment it receives; and therefore the more it is to be ſhorten'd: but thick Branches, the more diſtant they are from the Heart, the more they receive; and are therefore to be remov'd, that the Vigour may extend itſelf to the middle, or lower part.

17. A Branch for Wood muſt never be *pruned* without eſpecial occaſion; as where they annoy others.

18. If an old well-liking Tree be diſorder'd with falſe Wood, thro' ill *Pruning*, or want of *Pruning*; take it lower, by cutting off a Branch or two, yearly; till it is ſufficiently reduc'd. Some Trees put forth ſo vigorouſly, that they cannot be reduc'd to compaſs in one year, but muſt be allow'd to extend themſelves, otherwiſe they will produce falſe Wood.

19. All Trees have a predominant Branch or two, if not more; yet the more equably the Vigour is divided, the better: Where it runs much on one ſide, it is faulty.

20. The Buds of all Stone-Fruit frequently form themſelves the ſame year in which the Branch they grow on, is form'd: the ſame holds of Pears and Apples; tho 'tis generally, at leaſt, two or three Years, e'er the latter come to perfection.

21. All Shoots put forth in Autumn, are to be *pruned* off, as naught: The ſame may be ſaid of all ſapleſs Branches.

22. When a Tree puts forth much ſtronger Shoots on one ſide, than the other; a great part of the ſtrong ones muſt be cut off cloſe to the Body, or ſome of them ſtump-wiſe.

23. In all Trees, leſs Length to be allow'd the weak, than ſtrong Branches.

24. Upper Branches to be cut off, cloſe to others, that they may heal over: Lower Branches to be cut ſloping, or at a little diſtance, that new ones may grow out of them.

25. If a young crooked Tree produce a fine Branch beneath the Crook; cut the Head off cloſe to the Branch.

26. Tho' five, ſix, or ſeven Inches, be the ordinary Lengths Wood-branches are left at; yet muſt this be vary'd, on occaſion of the Vigour or Weakneſs of the Tree, Thickneſs or Smallneſs of the Branch, the Fullneſs or Vacuity of the Place, &c.

27. Be careful not to *prune* many thick Branches, ſtanding over weak ones; leſt the Sap, which fed the larger, flow ſo plentifully into the leſs, as to occaſion them to put forth much ill Wood and Suckers.

28. Branches ſhot from the Ends of others, are uſually good Wood; ſometimes it happens otherwiſe, and then they muſt be *pruned*.

As to the grand *yearly Prunings*—Fruit-Branches being of ſhort continuance, and periſhing the firſt year wherein they produce Fruit, are to be cut off, unleſs they put forth Shoots for Bloſſoms the ſucceeding Year. In the ſecond *Pruning*, about the middle of *May*, where the Fruit is ſo cloſe, as to be like to obſtruct each other, ſome of them and their Branches to be taken off; as muſt alſo the multitude of young Shoots that cauſe Confuſion. Branches more luxurious than others, to be cut clear off. To preſerve old Trees, they muſt be diſburden'd, by leaving few Branches for Wood on them; and thoſe to be ſhorten'd to five or ſix Inches; and very few weak ones, and none dry, and nigh waſted.

PRUNING *of Foreſt or Timber Trees.*

For large Trees, 'tis beſt not to *prune* them at all; yet if there be an abſolute Neceſſity for it, avoid taking off large Boughs as much as poſſible; and obſerve the following Rules.

1. If the Bough be ſmall, cut it ſmooth and cloſe, that the Bark may ſoon cover it; and ſloping, that the Water may run off.

2. If the Branch be large, and the Tree old, cut it off at three or four Foot from the Stem, or where any young Shoots are found iſſuing out of it.

3. Boughs growing upright, not to be cut croſs over, but ſloping upwards. In Boughs leaning from the Head, the Slope to be on the lower ſide.

4. If the Tree grow crooked, cut it off at the Crook, ſloping upwards; and nurſe up one of the moſt promiſing Shoots for a new Stem. Indeed, in Trees that have great Piths, as the Aſh, Walnut, &c. we muſt be cautious of cutting off the Heads.

5. If the Tree grow top heavy, its Head muſt be lighten'd; and that rather by thinning the Boughs that grow out of the main Branches, than by cutting off the main Branches themſelves. But if you would have them ſpring, 'tis beſt done by rubbing off the Buds, as they put out in the Spring, and ſhredding up the Side-Shoots.

6. If the Side-boughs ſtill break out, and the Top be able to ſuſtain itſelf, give the Boughs that put forth in Spring, a *Pruning* after *Midſummer*; cutting them very cloſe. This will cauſe the Bark to cover and kill them, ſo as never to ſhoot out again; and is the only Method to make a Tree grow with a fine, ſtrait, handſome Body.

PRUNING *of Vines.* See VINE.

PRURITUS, a Senſation of the Skin, popularly call'd *Itching*; which is ſuppoſed to ariſe hence, that the Extremities of the Capillary-Veins being obſtructed, cannot take up the redundant Blood of the Members, to carry it back again to the Heart; whence, as there is a freſh Stock of Blood continually ſent into the part by the inceſſant Pulſation of the Heart, the Fibres become preter-naturally ſtretch'd or diſtended: And hence the uneaſy, titillating Senſe of Itching.

PRYTANEUM, in Antiquity, a conſiderable Building in *Athens*, where the Council of *Prytanei* aſſembled, and where thoſe who had render'd any ſignal Services to the Commonwealth, were maintain'd at the publick Expence. See PRYTANEUS.

PRYTANEUS, in Antiquity, the firſt Magiſtrate in moſt of the Cities of *Greece*.

At *Athens*, there were fifty *Prytanei*: at *Corinth*, there was but one; who was, there, the ſame what the *Archon* was at *Athens*. See ARCHON.

The *Prytanei* of *Athens* were the Senators who compoſed the grand Council that governed the State; and correſponded to what we now call, *The States General of the United Provinces.*

Fifty of theſe were choſe each Year out of each Tribe; and to theſe were nominated fifty more, to ſupply the places of the former, in caſe of Death or Male-adminiſtration.

The Tribes took the Government by turns; each after other, for the ſpace of thirty-five Days.

All the fifty *Prytanei* of the Tribe did not govern together during thoſe five Weeks; but in Companies, ten at a time, choſen by Lot; ſeven Days each Company: After which, another Tribe came into play; and had its five Weeks after the ſame manner.

This was an Eſtabliſhment of *Solon*. *Scaliger* is miſtaken, when he ſays the Tribes took their Turns every day. See TRIBE.

PSALM, a Divine Song, or Hymn. See SONG, and HYMN.

The Word is now appropriated to the CL *Pſalms* of *David*; and the Name *Canticle*, or *Song*, given to other pieces of the ſame kind, compoſed by other Prophets and Patriarchs.

The Antients, as is obſerv'd by St. *Auguſtin*, made this difference between a *Canticle* or Song, and a *Pſalm*; that the former was ſung ſolitarily, or by the Voice alone; but the latter accompany'd with a Muſical Inſtrument.

The *Pſalms*, in the antient Editions, are divided into five Books; nor is *David*'s Name found at the Head of more than ſeventy-three of them; tho' ſome, and among the reſt, St. *Auguſtin*, and St. *Chryſoſtom*, attribute all the hundred and fifty to him without exception.

The *Jews*, however, were always of another Sentiment; and 'tis certain there are ſome few, at leaſt, that are not his——St. *Jerom* obſerves, among the Number, ſeveral that were compoſed long time after *David*. *Du Pin* adds, that 'tis difficult to aſcertain the Authors; all we know of the Book, is, that 'tis a Collection of Songs, made by *Eſdras*.

The *Gradual Pſalms*, were thoſe antiently ſung on the Steps of the Temple. See GRADUAL.

The *Penitentiary Pſalms*, were not formerly the ſame with thoſe now call'd by that Name. See PENITENTIARY.

The Word is form'd of the *Latin Pſalmus*; and that from the *Greek* ψάλλω, *I ſing*.

PSALMODY, the Art of ſinging Pſalms. See PSALM and SINGING.

PSALTER, the Book, or Collection of Pſalms, aſcrib'd to *David*. See PSALM.

There are an Infinity of Editions of the *Pſalter*—*Auguſtin Juſtinian*, a Dominican, and Biſhop of *Nebo*, publiſh'd a *Polyglot Pſalter* at *Genoa*, in 1516; *Contarinus* publiſh'd the *Pſalter* in *Hebrew*, *Greek*, *Chaldee*, and *Arabic*, with *Latin* Notes and Gloſſes. See POLYGLOT.

PSALTER is alſo uſed among Religious for a large Chaplet, or Roſary; conſiſting of 150 Beads; the Number of Pſalms in the *Pſalter*—St. *Dominic* is ſaid to have been the Inventor. See ROSARY.

PSALTERY, PSALTERION, a Muſical Inſtrument, much in uſe among the antient *Hebrews*; who call'd it *Nebel*.

We know but little of the preciſe Form of the antient *Pſaltery*: That now in uſe, is a flat Inſtrument, in form of a *Trapezium*; or a Triangle truncated a-top.

It is ſtrung with thirteen Wire Chords, ſet to Uniſon or Octave; and mounted on two Bridges on the two ſides——It is ſtruck with a *Plectrum*, or little Iron Rod; or ſometimes a crooked Stick; whence it is uſually ranked among the Inſtruments of Percuſſion.

Its Cheſt, or Body, is like that of a Spinet. It has its Name *à Pſallendo*; ſome alſo call it *Nablum*, or *Nablium*.

Papias gives the Name *Pſaltery* to a kind of Flute uſed in Churches, to accompany the Singing; in *Latin*, *Sambucum*.

PSAMISMUS, in Medicine, a Term ſometimes uſed for a Bath of dry and warm Sand, to dry the Feet of dropſical Perſons upon. See BATH, &c.

The Word is form'd from the *Greek* ψάμμος, *Sand*, or *Gravel*.

PSATYRIANS, PSATYRIANI, a Sect of *Arians*, who in the Council of *Antioch*, held in the Year 360, maintain'd that the Son was not like the Father, as to Will; that he was taken from nothing, or made of nothing; and that in God, Generation was not to be diſtinguiſh'd from Creation. See ARIAN.

PSEUDO, a Term, or Particle, uſed in the Compoſition of divers *Latin* and *Engliſh* Words; in the Senſe of *falſe*, or *lying*.

Thus we ſay a *Pſeudo-Martyr*, *q. d.* a falſe Witneſs; *Pſeudo-Prophet*, *Pſeudo-Apoſtle*, *Pſeudo-Chriſt*, &c.

The Word is form'd from the *Greek* ψεύδω, *decipio*, *fallo*, I deceive.

PSEUDONYMUS, PSEUDONYMOUS, a Name given by the Criticks, to thoſe Authors who publiſh Books under falſe, or feigned Names.

Much as the Name *Cryptonymus* is given to thoſe who publiſh under ſecret and diſguiſed Names; and *Anonymus*, to thoſe who publiſh without any Names at all. See ANONYMOUS.

The Apoſtolical Conſtitutions, the greater Epiſtles of St. *Ignatius*, &c. are uſually ſuppoſed to be *Pſeudonymous*. See CONSTITUTIONS.

The Word is form'd from the *Greek* ψευδὸς, *Lye*; and ὄνομα, *Name*.

PSEUDO-DIPTERE, in the antient Architecture, a Temple with eight Columns in Front; and a ſingle Row of Columns all around. See TEMPLE.

The Word ſignifies *falſe* or *imperfect Diptere*; and is uſed to diſtinguiſh this, from the *Diptere*; which had two Rows of Columns all around. See DIPTERE.

PSEUDO-STELLA, in Aſtronomy, any kind of Meteor or Phænomenon, newly appearing in the Heavens, and reſembling a Star. See METEOR, &c.

PSILOTHRIX, in Medicine, *Depilatory*; or ſomething proper to make the Hair fall. See DEPILATORY.

Such are ſtrong Lixiviums, Quick-Lime, Ants Eggs, Sandarac, Orpiment, and Arſenic.

The Word is form'd from the *Greek* ψιλῶ, *deglabro*, I flea, or take off the Bark; and θρὶξ, *Hair*.

PSOAS *Magnus*, or *Lumbaris*, in Anatomy, a round, hard, fleſhy Muſcle, which ariſes from the internal Side of the tranſverſe Proceſſes of the Vertebræ of the Loins, within the Abdomen; and deſcending upon part of the internal Side of the Ilium, is inſerted into the lower part of the little Trochanter——It is the firſt of the Flexors of the Thigh. See FLEXOR and THIGH.

PSOAS *Parvus*, ariſes fleſhy from the Inſide of the upper Vertebræ of the Loins, and hath a thin, and broad Tendon, which embraces the *Pſoas Magnus*; and which is inſerted into the *Os Innominatum*, where the *Os Pubis* and *Ilium* join together.

This, tho' ordinarily reckon'd among the Muſcles of the Thigh, properly belongs to the lower Venter.

PSORA, in Medicine, a cutaneous Diſeaſe, called by the *Latins*, *Scabies*; by the *Engliſh*, *Itch*. See ITCH.

The *Pſora* is deſcribed by *Celſus*, as a reddiſh Hardneſs and Roughneſs of the Skin, from an Eruption of Puſtles thereon; ſome dryer, others moiſter; and oozing out a ſanious Matter, that occaſions a continual *Pruritus*.

Theſe Eruptions are moſt frequent about the Junctures of the Limbs, and between the Fingers; in ſome they ſpread over the whole Body; in others they ſoon ceaſe; and in ſome return at certain Seaſons of the Year.

In Youth, this Diſeaſe frequently prevents others, or cures them——It ſometimes degenerates into a Leproſy.

The dry is much more difficultly cured than the moiſt, which ariſes from a Diſorder in the Humours, or Viſcera. *Willis* derives the Diſeaſe from a ſharp, ſaline Humour, occaſioning an Itching.

Some of the later Phyſicians will have it to conſiſt in a number of little Animals preying on the Skin: And hence it is, that it becomes ſo very contagious.

Willis obſerves, that in this reſpect it is ſecond to no other Diſeaſe, but the Plague; which many conjecture to ariſe in like manner, from Animalcules.

For the Cure, *Borelli* recommends a Lotion of black Soap, for poor People, &c. But the Soap to be ſoon waſh'd off, leſt it excoriate the Skin. Where the Diſeaſe is inveterate, recourſe is had to Salivation. See SALIVATION.

The Word is *Greek*, ψώρα, *Itch*.

Hence, PSORICA are Medicines good againſt Scabs, and other cutaneous Eruptions.

PSOROPHTHALMIA, is a kind of *Ophthalmia*, accompany'd with a *Pruritus*, or Itching. See OPTHALMIA.

The Word is form'd from ψώρα, *Itch*; and οφθαλμὸς, *Eye*.

PSYCHOLOGY, a Diſcourſe concerning the Soul. See SOUL.

Anthropology, or the Science which conſiders Man, conſiſts of two parts: The firſt treating of the Body, and the parts belonging thereto; call'd *Anatomy*: And the ſecond of the Soul, call'd *Pſychology*.

The Word is form'd from the *Greek* ψυχὴ, *Soul*; and λόγος, *Diſcourſe*.

PSYCHOMANCY, a kind of Magick, or Divination, perform'd by raiſing the Souls of Perſons deceas'd. See DIVINATION.

The Word comes from ψυχὴ, and μαντεία, *Divination*.

PSYCHROMETER, an Inſtrument for meaſuring the Degree of Moiſture or Humidity of the Air; more uſually call'd *Hygrometer*. See HYGROMETER.

The Word is form'd from the *Greek* ψυχρὸς, *humid*, and μέτρον, *Meaſure*.

PTARMICA, Medicines proper to promote Sneezing; more uſually call'd *Sternutatories*. See STERNUTATORY.

The Word is form'd of the *Greek* πταρμὸς, *Sternutamentum*, Sneezing.

PTERIGIUM, or PTERYGIUM, in Medicine, a Diſeaſe of the Eye, by the *Latins* call'd *Unguis*, Nail; and ſometimes *Pannus*, Web. See UNGUIS and PANNUS.

The Cure is much the ſame as of the *Ophthalmia*. See OPHTHALMIA.

The Word is form'd from the *Greek* πτέρον, *Ala*, Wing.

PTERIGOIDES, or PTERYGOIDES, in Anatomy, two Apophyſes of the *Os Sphenoides*; ſo call'd from their reſembling the Wings of a Bat. See SPHENOIDES.

From the *Greek* πτέρυξ, πτέρυγος, Wing, and εἶδος, Form.

PTERIGOIDEUS, or PTERYGOIDEUS *Internus*, is a Muſcle of the Jaw, which ariſes from the internal part of the *Pterigoides* Proceſs, and deſcends to be inſerted into the inferior part of the internal ſide of the lower Jaw, near its Angle.

When it acteth, it draws the Jaw to one ſide.

PTERIGOIDEUS *Externus*, is a Muſcle which ariſes from the external part of the ſame Proceſs, and goes backward to be inſerted between the *Condiloid* Proceſs, and the *Corone*, on the inſide of the lower Jaw.

This pulls the lower Jaw forwards, and makes it ſhoot beyond the upper.

PTERIGOSTAPHILINUS, or PTERYGOSTAPHILINUS, in Anatomy, the internal Muſcle of the *Uvula*; call'd by *Valſalva*, *Novus Tubæ Muſculus*; as being unknown to the antient Anatomiſts.

It ariſes fleſhy, near the *Sphenoſtaphilinus*, from the *Os Petroſum*, where the Tube from the Palate enters that, near an acute Proceſs of the *Sphenoides*: and aſcending to the *Proceſſus Pterygoides*, becomes a broad, flat Tendon, which expands itſelf on the fore-part of the *Uvula*.

Some of the tendinous Fibres aſcend to the lower Edge of the *Os Palati*, others deſcend down the ſides of the *Fauces*; the middle Series either unites with thoſe of the other ſide, or is loſt in two fleſhy Bodies that compoſe the *Uvula*.

This Muſcle, with its partner, draw the *Uvula* upwards, and forwards; and alſo raiſe the *Amygdalæ*.

The Word is form'd from the *Greek* πτέρον, Wing, and σταφύλη, *Uvula*.

PTERIGOPHARYNGÆUS, or PTERYGOPHARYNGÆUS, a pair of Muſcles ariſing from the *Proceſſus Pterygoides*, where the Tendon of the *Pterygoſtaphilinus* is reflected.—Some fleſhy Fibres of it do likewiſe ariſe from the upper Jaw-Bone, behind the fartheſt Grinder, and ſome from the ſides of the Tongue, and *Os Hyoides*.

From all theſe places its fleſhy Fibres paſs ſemi-circularly; and meet with thoſe of the oppoſite ſide in a middle Line on the back ſide of the *Pharynx* externally.

In the inner Surface of the *Fauces* is another Order of fleſhy Fibres, decuſſating each other at acute Angles.——They ariſe both from the ſides of the *Uvula*, and from the Root of the Cartilage; and deſcend obliquely to their Inſertions in the glandulous Membrane of the *Pharynx*.

This Muſcle ſerves both to conſtringe the *Pharynx*, and to compreſs the Tonſils, and force out the Mucus; whence its Uſe in Hawking.

The various Originations of the ſeveral parts of this Muſcle has cauſed its being generally divided into ſeveral Muſcles.—Thus *Valſalva* calls that part ſpringing from the Tongue, the *Gloſſopharyngæus*; that immediately below it, the *Hyopharyngæus*.

Hence, in like manner, come the *Cephalopharyngæus*, *Sphænopharyngæus*, &c.

PTEROPHORI, in Antiquity, a Name given to ſuch of the *Roman* Couriers as brought Tidings of any Declaration of War, a Battel loſt, or any Miſhap befallen the *Roman* Armies.

They were ſo call'd becauſe they bore Wings on the Points of their Pikes; from the *Greek* πτέρον, Wing, and φέρω, I bear.

PTISAN, PTISANA, in Medicine, a cooling Potion, made of Barley boil'd in Water, and uſually ſweeten'd with Liquorice, *&c.*

To theſe are ſometimes added the Herb Dog's-graſs, and Senna to render it laxative.—Moſt of the Decoctions of Phyſicians are in *Ptiſans*. See DECOCTION.

Feveriſh Patients are prohibited Wine, *&c.* and reduced to *Ptiſans*.

The Word is form'd from the *Greek* πτισάνη, which ſignifies the ſame thing.

PTOLEMAITES, a Branch of the antient *Gnoſtics*; ſo call'd from their Leader *Ptolemy*.

This Hereſiarch is repreſented as a Man of conſiderable Learning, who improved conſiderably on the Syſtem of the *Gnoſtics*, his Predeceſſors, and enlarged it with a number of Notions and Viſions of his own. See GNOSTICS.

S. *Epiphanius* is very ample on the Subject of the *Ptolemaites*; and produces a Letter of *Ptolemy* to *Flora*, wherein that Heretic lays down his Doctrine.—He maintain'd, that in the Law of *Moſes* there were three things to be conſider'd, inaſmuch as it did not all come from the ſame hand; but part of it, ſaid he, from God, part of it from *Moſes*, and part of it which came from neither of 'em, but conſiſted altogether in the pure Traditions of the antient Doctors; on which part it was that he founded his Dreams.

PTOLEMAIC *Syſtem*, or *Hypotheſis*, the Order, or Diſpoſition of the Heavens and Heavenly Bodies, wherein the Earth is ſuppoſed to be at reſt, in the Centre; and the Heavens to revolve round it, from Eaſt to Weſt; carrying with 'em the Sun, Planets, and fixed Stars, each in their reſpective Spheres. See SUN, EARTH, PLANET, *&c.*

This Hypotheſis took its Name from *Ptolemy*, the great *Alexandrian* Aſtronomer; becauſe maintain'd and illuſtrated by him: Not that it was his Invention; for it was much older, as having been held by *Ariſtotle*, *Hipparchus*, &c. See it further illuſtrated under the Article SYSTEM.

PTYALISM, PTYALISMUS, in Medicine, a *Spitting*; or a diſcharge of Saliva by the Glands of the Mouth; whether it amount to an abſolute Salivation, or not. See SALIVATION.

The Word is form'd from the *Greek* πτύω, *ſpuo*, to ooze out.

PUBERTY, PUBERTAS, in the Civil Law, a natural Majority; or the Age wherein a Perſon is allow'd to contract Marriage. See MAJORITY, *&c.*

Boys arrive at *Puberty* at fourteen Years of Age; Maids at twelve. *Full Puberty* is accounted at eighteen. See AGE.

PUBES, a Term uſed for the external parts of the *Pudenda*, or parts of Generation in both Sexes. See PUDENDUM, *&c.*

This, from the Age of *Puberty*, is ſuppoſed to be cover'd, more or leſs, with Hair; whence the Name. See HAIR.

PUBIS *Os*, or *Os Pectinis*, in Anatomy, a Bone of the Hip, ſituate in the fore and middle part of the Trunk; and making the lower and inner part of the *Os Innominatum*. See INNOMINATUM *Os*.

It is join'd to the other part by a Cartilage, thicker, but looſer in Women than Men; in the former whereof, the *Os Pubis* recedes, or gives a little in time of Travel, to give way for the *Fœtus*. See DELIVERY.

It has a large *Foramen*, which makes room for the Paſſage of two Muſcles of the Thigh; beſides a Sinus, whereby the Crural Veins and Arteries paſs to the Thighs. See PECTINIS *Os*.

PUBLIC *Notary*, ſee NOTARY *Public*.

PUBLICAN, PUBLICANUS, among the *Romans*, a Perſon who farmed the Impoſts, Taxes, and public Revenues.

The Name appears to have been odious to the *Jews*, &c. apparently becauſe of the Exactions of this ſort of People.

PUBLICATION, the Act of *Promulgating*, or making a thing known to the World. See PROMULGATION.

By the Canons, *Publication* is to be made of the Bans of Marriage three times, e'er the Ceremony can be ſolemnized; without eſpecial Licence to the contrary. See MARRIAGE.

PUCELLAGE, ſee VIRGINITY.

PUDICA *Planta*, ſee SENSITIVE *Plant*.

PUERILITY, in Diſcourſe. *Longinus* defines it to be a Thought, which, by being too far fetch'd, becomes flat and inſipid.——*Puerility*, he adds, is the common Fault of thoſe who affect to ſay nothing but what is Brillant and Extraordinary. See SUBLIME.

PUGIL, among Phyſicians, *&c.* a Meaſure of Flowers, Seeds, or the like Matters, containing ſo much as may be taken up between the Thumb and two Fore-Fingers. See MEASURE.

The *Pugil* is eſteem'd the eighth part of the Handful. See MANIPULUS.

The Word comes from the *Latin*, *Pugillus*, little Hand. The *French* frequently call it *Pincée*, Pinch.——Some confound *Pugil* with *Manipulus*; and uſe it for a Handful.

PUISNE, PUNY, in Law, a Younger-born; or a Child born after another. See MULIER.

The Word is not only apply'd to the ſecond, third, fourth, *&c.* with regard to the firſt; but to the third with regard to the ſecond, *&c.*

The laſt of all is call'd abſolutely *Cadet*. See CADET.

The Word is pure *French*; in which Language it bears the ſame Signification.

In the like ſenſe we ſay a *Puiſne Judge*, a *Puiſne Counſellor*. See JUDGE and JUSTICE.

PUKING, a cant Word for a Nauſea, or Diſpoſition to Vomit. See NAUSEA and VOMITING.

PUL, in Commerce, a general Name which the *Perſians* give to all the Copper-Moneys current in the Empire; particularly the *Kabeſqui* and *Demi-kabeſqui*. See MONEY and COIN.

Olearius, who was at *Iſpahan* in 1637, in the Retinue of the Ambaſſador of *Holſtein*, aſſures us, That each City in *Perſia* has its ſeveral Copper-Money, mark'd with its particular Badge, which is only current in that Diſtrict, and changed every Year.—At the beginning of each Year, which is at the Vernal Equinox, all the old Money is cried down, and the new appears in its place.

Both the Emperor and the State find their Intereſt in this frequent change: The firſt, in that he only gives at the Rate of 17 *d.* Sterling *per* Pound for Copper; yet delivers it out coin'd in *Kabeſqui* and *Demi-kabeſqui* at above 2 *s.* *per* Pound: The ſecond, in that the Copper-Money is by this Means leſs abundant, being reduced each Year to nearly the ſame Quantity.

The ſame Author adds, that at the Time when he was in *Perſia*, the *Kabeſqui* at *Iſpahan* were ſtruck with the Image of a Lion, at *Scamachia* with a Devil, at *Kaſchan* with a Cock, and at *Kilan* with a Fiſh.

PULLEY, *Trochlea*, in Mechanics, one of the five Mechanical Powers; conſiſting of a little Wheel, or Rundle, having a Channel around it, and turning on an Axis; ſerving, by means of a Rope which ſlides in its Channel, for the raiſing of Weights. See Mechanical *Power*.

The *Latins* call it *Trochlea*; and the Seamen, when fitted with a Rope, a *Tackle.*—An Aſſemblage of ſeveral *Pulleys* is call'd a *Polyſpaſton.*

Doctrine of the Pulley.

1°. If a Power P, (Tab. Mechanics, fig. 49.) ſuſtain a Weight Q, by means of a ſingle *Pulley* A B; in ſuch manner as that the Line of Direction of each is a Tangent to the Periphery of the Rundle; the Weight and the Power are equal.

Hence, a ſingle *Pulley*, if the Lines of Direction of the Power and the Weight be Tangents to the Periphery, neither aſſiſts nor impedes the Power; but only changes its Direction.

The Uſe of the *Pulley*, therefore, is when the vertical Direction of a Power is to be changed into an horizontal one; or an aſcending Direction into a deſcending one; and on the contrary.

This is found a good Proviſion for the ſafety of the Workmen employ'd in drawing with the *Pulley.*—For ſuppoſe a large Weight E F *g* requir'd to be raiſed to a great Height by Workmen pulling a Rope A B: If now the Rope ſhould chance to break, the Workmen's Heads underneath would be in immediate Danger; but if by means of the *Pulley* B, the vertical Direction A B be changed into a horizontal one B C, there is no danger from a breaking of the Rope.

This Change of Direction by means of a *Pulley* has this further Advantage; that if any Power can exert more Force in one Direction than another; we are here able to employ it in its greateſt force.

Thus, *e. gr.* a Horſe cannot draw in a vertical Direction; but draws with all its Advantage in a horizontal one. By changing the Vertical Draught, therefore, into a horizontal one, a Horſe becomes qualify'd to raiſe a Weight.

2°. If a Power apply'd in E, (*Fig.* 50.) according to the Line of Direction B E, which is a Tangent to the *Pulley* in E and parallel to the Rope A D, ſuſtain the Weight F ſuſpended from the Centre of the *Pulley* C; the Power is ſubduple of the Weight.

But the grand Uſe of the *Pulley*, is where ſeveral of 'em are combined; thus forming what *Vitruvius*, and others after him, call *Polyſpaſta*; the Advantages whereof are, that the Machine takes up but little room, is eaſily removed, and raiſes a very great Weight with a very moderate Force.

The effect of *Polyſpaſta* is founded on the following Theorem.

3°. If a Power apply'd in B, (*Fig.* 51.) ſuſtain (by means of a *Polyſpaſton*) a Weight F, ſo as all the Ropes A B, H I, G F, E L, C D, are parallel to each other: The Power will be to the Weight as Unity to the Number of Ropes, H I, G F, E L, C D, drawn by the Weight F; and therefore as Unity to the Number of *Pulleys*, higher and lower, taken together.

Hence, the Number of *Pulleys* and the Power being given, 'tis eaſy to find the Weight that will be ſuſtain'd thereby: Or, the Number of *Pulleys* and Weight to be ſuſtain'd, being given, the Power is found: Or, the Weight and Power being given, the Number of *Pulleys* the *Polyſpaſton* is to conſiſt of, is found. See Polyspaston.

4°. If a Power move a Weight by means of ſeveral *Pulleys*; the Space paſs'd over by the Power will be to the Space paſs'd over by the Weight, as the Weight to the Power.

Hence, the ſmaller the Force that ſuſtains a Weight by means of *Pulleys*, is; the ſlower is the Weight raiſed: So that what is ſaved in Force, is ſpent in Time.

PULMO, in Anatomy, ſee Lungs.

Pulmo *Marinus*, *Sea-Lungs*, among Naturaliſts, a light ſpongeous Body, of a ſhining Colour, like Cryſtal, intermixed with blue, and uſually of a Figure reſembling the human Lungs; whence its Name.

It ſwims a-top of the Water; and is popularly ſuppoſed to preſage a Storm.—It is in effect no more than a viſcous Excrement of the Sea, hardned by the Sun.

It ſhines in the Night-time, and communicates its luminous Property to a Stick rubb'd therewith. Being apply'd to the Skin, it raiſes an Itching; and takes off the Hair.

PULMONARY *Veſſels*, in Anatomy, are thoſe which carry the Blood from the Heart to the Lungs, and back again from the Lungs to the Heart.

Theſe are two in Number; *viz.* the *Pulmonary Artery* and *Vein.*

The *Pulmonary Artery*, which the Antients call'd *Vena Arterioſa*, the *Arterial Vein*, is, in reality, an Artery, and compoſed, like the reſt, of ſeveral Tunics.—It ariſes from the right Ventricle of the Heart, and divides into two large Branches, which ſub-dividing into ſeveral ſmaller, diffuſes itſelf throughout the whole Subſtance of the Lungs. See Lungs.

The *Pulmonary Vein*, which the Antients call'd *Arteria Venoſa*, the *Venous Artery*, conſiſts of four Membranes like the other Veins. It ariſes in the Lungs from an infinity of little Branches, which uniting in one Trunk, opens into the left Ventricle of the Heart. See Heart.

For the Office of theſe Veſſels, ſee Circulation. See alſo Respiration, *&c.*

Mr. *Cowper* gives us an Inſtance of a *Polypus* in the *Pulmonary Vein.* See Polypus.

Pulmonary *Conſumption*, or Conſumption of the Lungs, is what we properly call a *Phthiſis*. See Phthisis.

PULP, in Fruits, the *Fleſh*; or that part between the Skin, and the Core, or Seed. See Fruit.

The *Pulp* of a Tree, or Plant, is the *Parenchyma*, which grows and ſwells by means of a Juice, at firſt very coarſe and diſagreeable; at length ſweeter and more delicate. See Parenchyma; ſee alſo Vegetable, Plant, *&c.*

Pulp, in Medicine, the fatteſt, fulleſt, and moſt ſolid part of the Fleſh. See Flesh.

Phyſicians apply the Word particularly to the upper part of the Belly; becauſe fleſhy, and becauſe 'tis here that they feel Animals, to examine whether they be fat.

This part the *Latins* call *Pulpa*, from *palpare*, to feel, handle.

Pulp, in Pharmacy, is the ſoft part of Fruits, Roots, or other Bodies, extracted by infuſion, or boiling, and paſſed thro' a Sieve.

PULPIT, Pulpitum, a Term now reſtrain'd to an Elevation, or Apartment in a Church, whence Sermons are deliver'd.

Among the *Romans*, the *Pulpit* was a part of the Theatre, call'd alſo *Proſcenium*; or what we now call the *Stage*, whereon the Actors trod; tho' ſome ſay it was properly an Eminence thereon for the Muſic, or a *Suggeſtum* whence Declamations, *&c.* were ſpoke.

The *French* uſe the Word *Pulpit*, *Pupitre*, for a Reading-Deſk in a Church, Library, or the like: Thoſe large ones in Churches, they properly call *Lutrins.*

Some Authors derive the Word from *Publicum*, becauſe People are there expoſed to open view.

PULSATION, in Medicine, the Motion of the Pulſe; or the Beating of the Artery. See Pulse.

PULSE, in the Animal Oeconomy, the beating, or throbbing of the Arteries. See Artery.

The *Pulſe* is that reciprocal Motion of the Heart and Arteries, whereby the warm Blood thrown out of the left Ventricle of the Heart, is ſo impell'd into the Arteries to be by them diſtributed throughout the Body, as to be perceivable by the Finger. See Blood.

The Pulſation of the Arteries ariſes from that of the Heart; and has, like it, a Syſtole and Diaſtole; the Syſtole of the one correſponding to the Diaſtole of the other. See Heart, Systole, *&c.*

Galen tells us, that *Hippocrates* was the firſt who obſerved the Motion of the *Pulſe.* M. *Homberg* mentions the Caſe of a Woman in *Paris* who had a *Pulſe* in the Veins, perfectly like that we commonly obſerve in the Arteries. He adds, that he is the firſt Author that ever mention'd ſuch a thing. See Vein.

The *Pulſe* is thus accounted for.—When the left Ventricle of the Heart contracts, and throws its Blood into the great Artery; the Blood in that Artery, is not only thruſt forward towards the Extremities, but the Channel of the Artery is likewiſe dilated; becauſe Fluids, when they are preſs'd, preſs again towards all ſides, and their preſſure is always perpendicular to the ſides of the containing Veſſels: but the Coats of the Artery by any ſmall Impetus may be diſtended; therefore, upon the Contraction of the Heart, the Blood from the left Ventricle will not only preſs the Blood in the Artery forwards, but both together will diſtend

tend the ſides of the Artery; and thus is a Motion of Dilatation effected.

And when the Impetus of the Blood againſt the ſides of the Artery ceaſes, that is, when the left Ventricle ceaſes to contract, then the ſpiral Fibres of the Artery, by their natural Elaſticity, return again to their former State, and contract the Channel of the Artery, till it is again dilated by the Syſtole of the Heart; ſo that here is a Motion of Reſtitution effected.

This Diaſtole of the Artery is call'd its *Pulſe*, and the time of the ſpiral Fibres returning to their natural ſtate, is the diſtance between two *Pulſes*.

This *Pulſe* is in all the Arteries of the Body at the ſame time: for while the Blood is thruſt out of the Heart into the Artery; the Artery being full, the Blood muſt be propell'd in all the Arteries at the ſame time; and becauſe the Arteries are conical, and the Blood moves from the Baſis of the Cone to the Apex, therefore the Blood is continually preſſing againſt the Sides of the Veſſels, and conſequently every Point of the Artery muſt be dilated at the ſame time that the Blood is thrown out of the left Ventricle of the Heart; and as ſoon as the Elaſticity of the ſpiral Fibres can overcome the Impetus of the Blood, the Arteries are again contracted.

Thus, two Cauſes operating alternately; the Heart, and Fibres of the Arteries, keep the Blood in a continual Motion. See CIRCULATION.

The Obſervation of the *Pulſe* is of the laſt Importance to a Phyſician; both as it diſcovers the State of the Heart, the firſt Mover in the Animal Frame; and as it ſhews the Nature, Quantity, and Motion of the Blood, that univerſal Humour whereon all the reſt depend; and as it indicates the condition of the Artery, the primary Veſſel of the whole Body.

A *ſtrong Pulſe*, then, denotes, 1. A great Muſcular Force of the contracting Heart; and, conſequently, the ſtrength of the contracting Cauſe; *i. e.* 2. A brisk and copious Influx of the nervous Juice into the Villi of the Heart. 3. Plenty of Blood. 4. A laudable Secretion and Circulation of Humours.

A ſtrong *Pulſe*, therefore, is a good Preſage, if it be alike throughout the whole Body. Indeed it is frequently fallacious in Apoplectic, and ſome other Diſeaſes; where the Paſſage between the Heart and the Brain is free; and in other parts, eſpecially the Viſcera, obſtructed.

A *weak Pulſe* denotes the contrary of the former; tho this ſometimes deceives, particularly in fat People.

A *hard Pulſe* ſignifies, 1. That the Membrane of the Artery is dryer than ordinary: And, therefore, 2. Obſtructions in the minute Veſicles whereof the Membranes of the Artery are wove. 3. That the Arteries are full; but, 4. That their Capillary Extremities are obſtructed with an inflammatory Viſcidity. 5. That the Blood is very denſe and compact: Hence, 6. That the Circulations, Secretions, and Excretions are depraved.

A *ſoft Pulſe* denotes the contrary to all theſe; yet is very fallacious in an acute *Peripneumonia*.

A *ſlow Pulſe* denotes, 1. That the Contractions of the Heart are ſlow; and, therefore, 2. A Slowneſs of the Influxes of the nervous Juice from the Brain into the *Villi* of the Heart. 3. That the Blood has circulated a great number of Times. 4. That all the Humours circulate eaſily thro' their Veſſels. Indeed if the Pulſe be thus from Weakneſs, 'tis an ill ſign.

A *quick Pulſe* denotes the contrary to all theſe; as Acrimonies, Spirits agitated, Fevers, Phrenzy.

An *equable Pulſe* denotes a conſtant Tenor of the vital Functions; an uneven one the contrary.

An *intermitting Pulſe* ſhews Life in a ſlippery Situation.

An intermitting *Pulſe* is either owing to a fault in the nervous Juice, which flows unequally into the Heart; or in the Veſſel which tranſmits the Blood and Humours; or to the Humours themſelves.

The Cauſe of this Diſorder is various, as Convulſions, Polypus's, Cacochymias, Inflammations, want of Blood, bony or cartilaginous Arteries, *&c.*

A ſtrong, equable, and, at the ſame time, ſlow *Pulſe*, is of all others the beſt. A ſtrong and great; or ſtrong and ſlow *Pulſe*, together, are good. A weak, ſmall, hard, unequal, intermitting, quick *Pulſe*, is of all others the worſt.

Yet in all theſe things, regard muſt be had to the nature of the particular Artery, the Age, Sex, Temperament, Affections of the Mind, the ſix Non-naturals, Habit of Body, Seaſon, Country, *&c.* All which have an influence on the *Pulſe*.

A Diminution or total Suſpenſion of the *Pulſe*, is reducible, either to a *Leipothymia*, where it fails to ſuch degree, as that there is ſcarce ſtrength left to ſuſtain the Body. See LEIPOTHYMIA.

Or to a *Leipopſychia*, when it ariſes to a ſenſible Diminution of the natural Heat.

Or to a *Syncope*, when the Heart fails, ſo as the Heat, Motion, Senſes and all are almoſt deſtroy'd.

Or, laſtly, to an *Aſphyxia*, where thoſe are all abſolutely deſtroy'd as to Senſe, and Death itſelf ſeems in poſſeſſion. See SYNCOPE, *&c.*

PULSE is alſo uſed for the Stroke, with which any Medium is affected by the Motion of Light, Sound, *&c.* through it. See LIGHT and SOUND.

Sir *Iſaac Newton* demonſtrates, *lib.* 2. *Prop.* 48. *Princip.* That the Velocities of the *Pulſes* in an Elaſtic Fluid Medium, (whoſe Elaſticity is proportionable to its Denſity) are in a Ratio compounded of half the Ratio of the Elaſtic Force directly, and half the Ratio of the Denſity inverſely: So that in a Medium whoſe Elaſticity is equal to its Denſity, all *Pulſes* will be equally ſwift. See MEDIUM, FLUID, *&c.*

PULSE, *Legumen*, in Botany, a Term uſed for thoſe Grains or Seeds which are gather'd with the Hand; in contradiſtinction to Corns, *&c.* which are reap'd, or mow'd.

Pulſe is the Seed of the leguminous Species of Plants. See LEGUMINOUS.

The Word is primarily underſtood of Grains that grow in Pods; as Beans, Peas, Vetches, *&c.* but is alſo uſed, by Extenſion, for Artichoaks, Aſparagus, and other Kitchin-Roots and Herbs.

PULSION, or *Truſion*, the Act of driving, or impelling a thing forwards. See TRUSION.

The Word comes from *pello*, I drive. See ATTRACTION and ELECTRICITY.

PULTURA, in our old Law-Books, denotes a previous *Examination*; from *pulſare*, to ask, or demand, thus call'd on account of the Monks, who, e'er they were admitted into the Monaſteries *pulſabant ad fores*, for ſeveral days.——*Et volo ut ſint quieti de omnibus Cauſis & Querelis, & placitis Ballivorum & Præpoſitorum Hundredi & a* Pultura *Serjanorum*; *i. e.* from the Examination of Serjeants; *& de rewardo Foreſtarum*, *i. e.* the Viſitation of the Foreſt.

PULVERIZATION, the Act of *Pulverizing*, or reducing a Body into a fine Powder. See POWDER.

This is performed, in friable Bodies, by pounding or beating in a Mortar; but to *pulverize* malleable ones, other Methods muſt be taken. See FRIABLE and MALLEABLE.

To *pulverize* Lead, or Tin, the Method is thus: Rub a round wooden Box, all over the inſide, with Chalk; pour a little of the melted Metal nimbly into the Box, when, ſhutting the Lid, and ſhaking the Box briskly, the Metal will be reduced into Powder. See TRITURATION.

PULVINATA, PULVINATED, in the antient Architecture, a Term apply'd to a Freeze which ſwells, or bulges out, in manner of a Pillow; whence the Name. See FREEZE.

PULVIS *Fulminans*, or the thundering Powder; ſee FULMINANS *Pulvis*.

PULVIS *Patrum*, the Jeſuits Powder; ſee CORTEX and QUINAQUINA.

PUMICE *Stone*, PUMEX, a kind of ſpongeous Stone, very porous and friable. See STONE.

Naturaliſts are not agreed about the Nature and Origin of *Pumice*—Some look on it as pieces of Rock half-burnt and calcined, caſt up in Eruptions of Volcano's, particularly *Ætna* and *Veſuvius*, into the Sea; and which, by being there waſh'd in the Salt-water, lays aſide the black Colour that the Impreſſion of the ſubterranean Fires had given it, and becomes whitiſh, or ſometimes only greyiſh, according as it has floated more or leſs in the Sea.

Other Authors will have the *Pumice* to riſe from the bottom of the Sea; whence they ſuppoſe it detach'd by ſubterranean Fires, and hence account both for its lightneſs and poroſity, and its ſaline Taſte. Alledging, in confirmation hereof, that *Pumice* is frequently found in parts of the Sea far remote from all Volcano's; and adding, that ſeveral parts of the *Archipelago* are frequently found cover'd with it, all at once, after a few inward ſhakes and heavings of the bottom of the Sea.

Pumice makes a very conſiderable Article in Commerce, and is much uſed in the Arts and Manufactures to poliſh and ſmooth ſeveral Works. See POLISHING, *&c.*

Its pieces are of ſeveral Sizes: The Parchment-Makers and Marblers uſe the largeſt and lighteſt.—The Curriers the heavieſt and flatteſt.—Pewterers the ſmalleſt.

Pliny obſerves, that the Antients made conſiderable uſe of *Pumice* in Medicine; but it is out of the preſent Practice.

PUMP, *Antlia*, in Hydraulics, a Machine form'd on the Model of the Syringe, for the raiſing of Water. See SYRINGE.

Vitruvius aſcribes the firſt Invention of *Pumps* to *Cteſebes* the *Athenian*, whence the *Latins* call it *Machina Cteſebiana*, or *Organum Cteſebicum*.

Pumps are diſtinguiſh'd into ſeveral Kinds, with regard to the ſeveral Manners of their acting—As the *Common*, ſometimes call'd the *Sucking-Pump*, which acts by the preſſure of the Air, and whereby Water is raiſed out of a lower into a higher Place not exceeding thirty-two Feet:

The *Forcing-Pump*, which acts by mere impulſe or protruſion, and raiſes Water to any Height at pleaſure:—And *Cteſebes's Pump*, the firſt and fineſt of 'em all, which acts both by Suction and Expulſion.—The Structure of each is as follows.

Structure and Action of the Common or Sucking Pump.

1. A hollow Cylinder or Barrel A B C D, (Tab. Hydrostatics, fig. 27.) is provided, of any ſolid Matter, uſually Wood; and erected perpendicularly in a Spring, or other Source of Water: The lower Baſe of the Cylinder being firſt fitted with a Valve I, which opens upwards.

2. A Piſton or Embolus, call'd the Sucker, E K, furniſh'd with a Valve L, which likewiſe opens upwards, is let down the Cylinder; and for the more eaſy working upwards and downwards, furniſh'd with a Lever, as G H. See Embolus and Valve.

Now, the Embolus E L, being drawn up from I to L, will leave the Space L I void of Air, at leaſt in a great meaſure ſo: The preſſure, therefore, of the Air on the Surface of the ſtagnant Water prevailing, will, by the Laws of Hydroſtatics, lift up the Valve I, and raiſe it to fill the Cavity L I. See Air and Siphon.

If, then, the Embolus be again let down; the lower Valve being now faſt cloſed with the Weight of the incumbent Water, upon preſſing the Piſton, the Water muſt open the upper Valve, and get into the Embolus, by which it is raiſed up and diſcharged out at the Spout H.

Thus is the Embolus alternately raiſed and depreſſed, &c. *See the Theory of the* Pump *more accurately laid down under the Article* Syringe.

Structure and Action of a Forcing Pump.

1. In a Cylinder A B, (*Fig.* 28.) is divided by a Diaphragm, or tranſverſe piece, C D, fitted with a Valve E, opening upwards; and thus immerged in Water.

2. An Embolus F, furniſh'd with a Valve G, is ſo fitted to an Iron Rod I H, moveable on a Hinge at H, as that it may be conveniently raiſed and depreſſed by the Hand apply'd in K.

Now, upon depreſſing the Embolus F, the Water will open the Valve G, and thus aſcend into the Cavity of the Cylinder B C: But upon raiſing it again, the Valve G is ſhut; ſo that there is no Paſſage for it that way: The Valve E, therefore, becomes open'd, and the Water mounts thro' it; and by repeating the Agitation of the Embolus, it's at length driven out through the Spout M.

The great difficulty of rectifying this *Pump* when it happens to be out of Order, on account of the chief Seat of Action's being under Water, makes People decline the Uſe of it, when they can do well without it; notwithſtanding its Advantage of raiſing the Water to any given Height.

Structure and Action of Cteſebes Pump.

1. A braſs Cylinder A B C D, (*Fig.* 29.) furniſh'd with a Valve in L, is placed in the Water. 2. In this is fitted the Embolus M K, made of green Wood which will not ſwell in the Water, and adjuſted to the Aperture of the Cylinder with a covering of Leather; but without any Valve. In H is fitted on another Tube N H, with a Valve that opens upwards in I.

Now, the Embolus E K being raiſed, the Water opens the Valve in L, and riſes into the Cavity of the Cylinder.—And when the ſame Embolus is again depreſs'd, the Valve I is open'd, and the Water driven up thro the Tube H N.

This is the Pump uſed among the Antients; and that from which both the others are deduced.—Sir *S. Morland* has endeavour'd to increaſe its Force, by leſſening the Friction; which he has done to good effect: Inſomuch as to make it work without, almoſt, any Friction at all.

Pumps, uſed in Ships, are of ſeveral Kinds: As, the *Chain-Pump*, uſed in large Veſſels. This yielding a great Quantity of Water, works eaſily, and is eaſily mended.

Bare-Pumps are ſmall ones made of Cane, or a piece of Wood bored thro', uſed in lieu of Cocks, &c. to *pump* Beer or Water out of the Casks.

Bur-Pumps, call'd alſo *Bildge-Pumps*, are chiefly uſed by the *Dutch*, who have 'em by their Ships-ſides. In theſe is a long Staff with a Bur at the End like a Gunner's Spunge, to *pump* up the Bildge-Water. See Bur-*Pump*.

Air-Pump, in Pneumatics, is a Machine by means whereof the Air is emptied out of Veſſels, and a ſort of Vacuum produced therein. See Air and Vacuum.

For the Invention, Structure, and Uſe of this Pump; ſee Air-*Pump*.

PUN, or Punn, a *Luſus Verborum*, or *Point*, the Wit whereof depends on a reſemblance between the Sounds or Syllables of two Words, which have different, and, perhaps, contrary Significations. See Point and Wit.

Such are—*Cane Decane Cane*—*Far Mole, Mole, Molæ.*—*Lex Dei, Lux Diei.*—All-houſes are Ale-houſes.—The holy State of Matrimony, is become Matter of Money.—Some Men's Paradiſe is a pair of Dice.—Was it ſo in the time of *Noah*? Ah no.—*L'Ordre tire du Diſordre, ou Diſordre Ordonne*, is the Title of a *French* Book.

Puns, when they come eaſily, and are very ingenious, poignant, and appoſite, are allow'd of in Converſation, Letters, Epigrams, Madrigals, and the like Compoſitions; but are abſolutely baniſh'd out of the grave, ſerious, and ſublime, by reaſon they weaken its Force and diminiſh its Beauty which conſiſts in ſomething great and elevated. The *Greeks* and *Romans*, 'tis true, ſometimes indulged themſelves the Practice, and uſed them as Ornaments in the moſt ſerious Diſcourſes. But the more ſevere and philoſophical Genius of our Age, is by no means ſatisfy'd with ſuch an outſide of Wit.—Deviſes, Symbols, Rebus's, Motto's, &c. are their proper Sphere, where they ſhine to moſt avantage. See Devise, Rebus, &c.

PUNCH, an Inſtrument of Iron or Steel, uſed in ſeveral Arts, for the piercing or ſtamping Holes in Plates of Metals, &c. being ſo contrived, as not only to perforate, but to cut out and take away the Piece; whence the *French* call it *Emporte-piece*, *q. d.* take-off-piece.

The *Punch* is a principal Inſtrument of the Metal-Button-Makers, Wafer-Makers, Patch-Makers, Shoe-Makers, &c.

The *Punch* of the Makers of Plate-Buttons ſerves to cut and parcel out the Plates of Gold and Silver wherewith they cover their Moulds.—'Tis large, round, four, or five Inches high, the bottom hollow for about half an Inch, well ſteel'd, and the Edge very ſharp.

To uſe it, they extend the Plate of Metal on a leaden Table or Block, and with a pretty heavy Hammer, ſtrike the Head of the *Punch*, &c. See Button-*Making*.

In the Manage, a Punch *Horſe*, is a well-ſet, well-knit Horſe; ſhort-back'd, and thick-ſhoulder'd, with a broad Neck, and well lined with Fleſh.

Punch, is alſo a ſort of compound Drink, frequent in *England*, and particularly about the Maritime Parts thereof; tho' little known elſewhere. See Drink.

Its Baſis is Spring-Water, which being render'd cooler, brisker, and more acid with Lemon-Juice, and ſweeten'd again to the Palate with fine Sugar, makes what they call *Sherbet*; to which a proper Quantity of a ſpirituous Liquor, as Brandy, Rum, or Arrac being ſuper-added; the Liquor commences *Punch*.

Several Authors condemn the Uſe of *Punch* as prejudicial to the Brain, and nervous Syſtem.—Dr. *Cheyne* inſiſts that there is but one wholeſome Ingredient in it, which ſome now begin to leave out, *viz.* the mere Element. See Water, Brandy, Rum, Arrac, Sugar, &c.

The proportions of the Ingredients are various; uſually the Brandy and Water are in equal Quantities.

Some, inſtead of Lemon-Juice, uſe Lime-Juice, which makes what they call *Punch Royal*; found leſs liable to affect the Head, as well as more grateful to the Stomach.

Some alſo make *Milk-Punch*, by adding near as much Milk to the Sherbet as there is Water; which tempers the Acrimony of the Lemon.—Others prefer *Tea-Punch*, made of green Tea inſtead of Water, and drank hot.

Laſtly, What they call *Punch for Chamber-Maids* is made without any Water; of Lime-Juice, ſharpen'd with a little Orange and Lemon-Juice; twice as much white Wine as Lime-Juice, and four times as much Brandy, with Sugar.

PUNCHIN, or Punchion, in Building. See Punchion.

PUNCHION, a little Block, or Piece of Steel, on one End whereof is ſome Figure, Letter, or Mark engraven either *in Creux*, or *in Relievo*; Impreſſions whereof are taken on Metal, or ſome other Matter, by ſtriking it with a Hammer, on the End not engraved. See Engraving, &c.

There are various Kinds of theſe *Punchions* uſed in the Mechanical Arts—Such, for inſtance, are thoſe of the Goldſmiths, Cutlers, Pewterers, &c. See Mark.

Punchion, in Coining, is a piece of Iron ſteel'd, whereon the Engraver has cut, *in Relievo*, the ſeveral Figures, Arms, Effigy, Inſcription, &c. that are to be in the Matrices, wherewith the Species are to be mark'd. See Matrix, &c.

Coiners diſtinguiſh three Kinds of *Punchions*, according to the three Kinds of Matrices to be made: that of the Effigy, that of the Croſs or Arms, and that of the Legend or Inſcription.

The firſt includes the whole Portrait, *in Relievo.*—The ſecond are ſmall, each only containing a piece of the Croſs or Arms, *v. gr.* a Flower-de-Lys, a Harp, a Coronet, &c. by the Aſſemblage of all which, the entire Matrix is form'd.—The *Punchions* of the Legend only contain each a Letter, and ſerve equally for the Legend on the Effigy-ſide, and the Croſs-ſide. See Coining.

For the Manner of Engraving, Tempering, and Stamping theſe Punchions, *to form the Matrices; ſee* ENGRAVING *on Steel*, MATRIX, *&c.*

PUNCHIONS, in Printing, are thoſe uſed in ſtamping the Matrices, wherein the Types, or Printing-Characters, are caſt. See *Letter*-FOUNDERY.

PUNCHION is alſo uſed for ſeveral Iron Tools of various Sizes, and Figures uſed by the Engravers *in Creux*, on Metals—Seal-Gravers, particularly, uſe a great number; for the ſeveral pieces of Arms, *&c.* to be engraven——And many ſtamp the whole Seal from a ſingle *Punchion.* See ENGRAVING.

PUNCHION is alſo a common Name for all the Iron Inſtruments uſed by Stone-Cutters, Sculptors, Lock-Smiths, *&c.* for the cutting, inciding, or piercing their ſeveral Matters.

Thoſe of Sculptors and Statuaries, ſerve for the repairing Statues, when taken out of the Moulds. See STATUE, FOUNDERY, *&c.*

The Lock-Smiths uſe the greateſt Variety of *Punchions*; ſome for piercing hot, others for piercing cold; ſome flat, ſome ſquare, ſome round, others oval; each to pierce Holes of its reſpective Figure, in the ſeveral parts of Locks.

PUNCHION, or PUNCHIN, or NEEDLE, in Carpentry, is a piece of Timber placed upright between two Poſts whoſe bearing is too great; ſerving, together with them, to ſuſtain ſome large Weight. See BEARING, *&c.*

The *Punchion* is uſually lower and ſlighter than the Poſts, and is join'd by a Brace, or the like, of Iron. See POST.

Punchion is alſo a piece of Timber raiſed upright under the Ridge of a Building, wherein the little Forces, *&c.* are jointed ——*Vitruvius* calls the *Punchion*, *Columen.*

Punchion is alſo uſed for the Arbour, or principal Part, of a Machine, whereon it turns vertically; as that of a Crane, *&c.* See CRANE.

PUNCHION, is alſo a Meaſure for Liquids, containing $1\frac{1}{3}$ of a Hogſhead; or 48 Gallons, or $\frac{1}{3}$ of a Tun. See MEASURE.

The *Paris Punchion* is the ſame with their Demi-queue: At *Rouen*, it is three Buſhels, *&c.*

PUNCTATED *Hyperbola*, in the higher Geometry, an Hyperbola, whoſe oval Conjugate is infinitely ſmall, *i. e.* a Point. See CURVE and HYPERBOLA.

PUNCTION, or PUNCTURE, in Chirurgery, an Aperture made in the lower Belly, in Dropſical Perſons; to diſcharge the Water: call'd alſo PARACENTÆSIS; which ſee. See alſo TAPPING, and DROPSY.

PUNCTUATION, in Grammar, the Art of *Pointing*; or of dividing a Diſcourſe into Periods, and Members of Periods; by Points, expreſſing the Pauſes to be made in the reading thereof. See SENTENCE, PERIOD, *&c.*

The Points uſed herein are four; *viz.* the *Period, Colon, Semi-colon*, and *Comma*: See the particular Uſe of each under its proper Article; COMMA, COLON, PERIOD, and SEMI-COLON.

Punctuation is a modern Art—the Antients were entirely unacquainted with the Uſe of our Commas, Colons, *&c.* and wrote not only without any Diſtinction of Members, and Periods, but alſo without Diſtinction of Words: which Cuſtom, *Lipſius* obſerves, continued till the hundred and fourth Olympiad; during which time, the Senſe alone divided the Diſcourſe. See POINT.

There is much more difficulty in *Pointing*, than People are generally aware of———In effect, there is ſcarce any thing in the Province of the Grammarians ſo little fix'd and aſcertain'd as this. The Rules uſually laid down, are impertinent, dark, and deficient; and the Practice, at preſent, perfectly capricious; Authors varying not only from one another, but from themſelves too.

Indeed, F. *Buffier*, and ſince him, Mr. *Ward*, have done ſomething towards a fix'd and preciſe Syſtem of *Pointing*, from the Reaſon and Analogy of Things: Their Doctrine the Reader will find under the Articles, *Comma*, *Colon*, *&c.*

In the general, we ſhall only here obſerve, that the Comma is to diſtinguiſh Nouns from Nouns, Verbs from Verbs, and ſuch other parts of a Period as are not neceſſarily join'd together——The Semi-colon ſerves to ſuſpend and ſuſtain the Period, when too long——The Colon, to add ſome new, ſupernumerary Reaſon, or Conſequence, to what is already ſaid——And the Period, to cloſe the Senſe, and Conſtruction; and releaſe the Voice.

PUNCTUM, in Geometry, *&c.* See POINT.

In the Schools, they have their *Punctum Terminans*, which is the indiviſible Extreme of a Line, beyond which no part of the Line extends. See LINE.

Punctum continuans, which is an indiviſible Magnitude between contiguous Points of a Line, whereby they are connected, and from whence ariſes a Continuity. See CONTINUITY.

And *Punctum Initians*, which is an Indiviſible, from which the Line begins.

PUNCTUM *Formatum*, or *Generatum*, in Conics, is a Point determin'd by the Interſection of a Right Line drawn thro' the Vertex of a Cone to a Point in the Plane of the Baſe that conſtitutes the Conic Section. See CONE and CONIC.

PUNCTUM *ex Comparatione*, is either Focus of an Ellipſis and Hyperbola; thus call'd by *Apollonius*, becauſe the Rectangles under the Segment of the tranſverſe Diameter in the Ellipſis; and under that and the Diſtance between the Vertex and the Focus, in the Hyperbola; are equal to one fourth part of what he calls the Figure thereof. See ELLIPSIS and HYPERBOLA.

PUNCTUM *Lineans*, in Geometry, is a Term uſed by ſome Authors for that Point of the generating Circle of a Cycloid, or Epicycloid, which, in the Geneſis produces any part of the Cycloidal Line. See CYCLOID, *&c.*

PUNCTUM *Saliens*, in Anatomy, the firſt Mark of Conception of an Embryo, which is in the place where the Heart is form'd. See CONCEPTION, HEART, and EMBRYO.

This is eaſily obſerv'd with a Microſcope, in a Brood-Egg, wherein, after Conception, we ſee a little Speck or Cloud; in the middle whereof is a Spot that appears to beat, or leap a conſiderable time, e'er the *Fœtus* be form'd ready for hatching. See EGG: See alſo GENERATION, and EMBRYO.

PUNCTUM *Lachrymale*, in Anatomy, a little Hole in the Edge of each Eye-lid; opening into a Bag, call'd the *Glandula Lachrymalis.* See LACHRYMAL.

PUNCTURE, in Chirurgery, *&c.* any Wound made by a pointed Inſtrument. See WOUND.

In Phlebotomy, People are ſometimes brought in danger of the Loſs of a Limb, and even of Life, by the *Puncture of a Tendon*——The Patient, here, does not immediately feel any pain; but twelve Hours after the Operation, complains thereof; not in the *Puncture* itſelf, but in the parts tending towards the Armpits——The wounded part ſwells to the ſize of a Filberd, and diſtils an aqueous Humour, or Ichor, which is the chief Diagnoſtic of the *Punctura Tendinis.* See TENDON.

PUND-BRECH, from the *Saxon Pund*, *Parcus*, Pound; and *Brech*, *Fractura*, Breaking, denotes the illegal taking of Cattel out of the Pound; either by breaking the Pound, picking the Lock, or otherwiſe. See POUND.

——*Si* Pund-brech *fiat in curia Regis plena* Wyta *ſit: alibi quinque Mancæ.* Leg. Hen. 1.

PUNISHMENT, a Penalty impos'd upon the Commiſſion of ſome Crime. See CRIME.

'Tis eſſential to the Nature of a Law, that it import or decree a *Puniſhment* to the Tranſgreſſors thereof. See LAW.

The Forms and Manners of *Puniſhment* are various in various Countries, and Ages, and for various Crimes; as *Treaſon, Felony, Adultery, Parricide, &c.* See ADULTERY, *&c.*

Among the *Romans*, the *Pecuniary Puniſhments* were the *Mulcta* and *Confiſcatio*——The *Corporal Puniſhments* were *Capitis Diminutio, Aqua & Igni Interdictio, Proſcriptio, Deportatio, Relegatio, Furca, Crux, Carcer, Culeus, Equuleus, Scalæ Gemoniæ, Damnatio ad Gladium, ad Metallum, Flagellatio, Talio, &c.* moſt of which ſee deſcrib'd under their reſpective Articles.

Among us, the principal *Civil Puniſhments*, are *Fines, Impriſonments*, the *Stocks, Pillory, Burning in the Hand, Whipping, Cucking-ſtool, Hanging, Beheading, Quartering, Burning, Tranſportation, &c.* See FINE, PILLORY, CUCKING-STOOL, GALLOWS, GIBBET, *&c.*

The *Eccleſiaſtical Puniſhments*, are *Cenſures, Suſpenſions, Deprivations, Degradations, Excommunications, Anathema's, Penances, &c.* See CENSURE, SUSPENSION, DEPRIVATION, DEGRADATION, EXCOMMUNICATION, ANATHEMA, PENANCE, *&c.*

The *Military Puniſhments*, are, being *Shot, Running the Gantelope, Riding the wooden Horſe, Bilboes, &c.*

Among the *Turks, &c. Impaling, Baſtinado's* on the Soles of the Feet, *&c.* obtain. See IMPALING.

PUNITORY *Intereſt*, in the Civil Law, ſuch Intereſt of Money as is due for Delay of Payment, Breach of Promiſe, *&c.*

PUPIL, in the Civil Law, a Boy or Girl, not yet arriv'd at the State of Puberty; *i.e.* under fourteen Years of Age the Boy; and twelve the Girl. See PUBERTY.

While a Minor remain'd under the Direction of a Tutor, he was call'd *Pupil*; after Puberty, a Curator being aſſign'd him, he ceaſed to be call'd a *Pupil.* See TUTOR and CURATOR.

A Tutor is obliged to pay Intereſt for what Monies of his *Pupil* lie idle and unemploy'd—A Tutor is allow'd to do any thing for his *Pupil*, but nothing againſt him.

PUPILLA, PUPIL, in Anatomy, a little Aperture, in the middle of the Uvea, and Iris of the Eye; thro' which the Rays of Light paſs to the Cryſtalline, in order to be painted on the Retina, and cauſe Viſion. See EYE and VISION.

'Tis obſerved, that as we are forced to uſe various Apertures to our Optic Glaſſes; ſo Nature has made a like Proviſion in the Eyes of Animals, whereby to ſhut out too much, and admit ſufficient Light; by the Changes in the Aperture of the *Pupil.* See TELESCOPE.

The Structure of the Uvea and Iris is ſuch, as that by their Aperture, the *Pupil*, is contractable and dilatable at pleaſure; ſo as to accommodate itſelf to Objects, and to admit more or fewer Rays, as the Object being more vivid and near, or more obſcure and remote, requires more or leſs Light——It being a conſtant Law, that the more luminous the Object, the ſmaller the *Pupil*; and again, the nearer the Object, the ſmaller the *Pupil*; and *vice verſâ.* See UVEA and RAY.

This Alteration of the *Pupil* is effected by certain Muſcular Fibres on the Outſide of the Uvea; which are form'd of Nerves detach'd hither from the Sclerotica—Theſe Fibres proceeding, ſtraight, from their Origin towards the Centre, terminate in the Orbicular Limb or Verge of the *Pupil*, which conſiſts of Orbicular Muſcles; whereby the Figure and Space of the *Pupil* are defined.—The firſt, or longitudinal Fibres, dilate the Aperture of the *Pupilla*; the latter, or orbicular ones, conſtringe it.

Some Authors, however, attribute the Motions of the *Pupilla* to the *Ligamentum Ciliare*; and others think, that both this, and the Fibres of the Uvea, concur herein—— Mr. *Derham* adds, that while the *Pupil* opens, and ſhuts; the *Ligamentum Ciliare* dilates, or compreſſes the Cryſtalline, and brings it nigher to, or further from the Retina, as the Object is more or leſs remote. See CILIARE, &c.

The Figure of the *Pupil* in various Animals, is wonderfully adapted to their various Circumſtances and Occaſions. In ſome, *e. gr.* in Man, 'tis round; that Form being fitteſt, for the poſition of our Eyes, and the various uſe we make of them in all Directions.

In others, 'tis elliptic or oblong; in ſome of which, *e.gr.* the Horſe, Sheep, Ox, &c. the Ellipſis is tranſverſe, and the Fiſſure large, to enable them to ſee laterally and even with a little Light; and thereby both to gather their Food the better in the Night, and to avoid Dangers on either ſide— In others, *e.gr.* the Cat, the Ellipſis is erect; and alſo capable of opening very wide and ſhutting very cloſe; by means of the latter of which, that Animal can exclude all, but, as it were, a ſingle Ray of Light, and ſo avoid all the Inconveniencies of the bright Sun; and by the former can take in all the fainteſt Rays, and thus avoid the Inconveniencies of the Night. An incomparable Proviſion for theſe Animals, which are to watch and way-lay their Prey both by Day and Night; to ſee upwards and downwards; to climb, &c. See EYE.

PUPILLARITY, the State of a Pupil; in oppoſition to *Puberty.* See PUBERTY.

Hence, alſo, Pupil comes to be uſed, by way of Extenſion, in Univerſities, &c. in the ſenſe of *Alumnus*, for a Youth under the Education, or Diſcipline of any one.

PURBECK *Stone*, ſee STONE.

PURCHASE, in Law, the Acquiſition of Goods, *viz.* Lands, Tenements, &c. by means of Money; in contradiſtinction to thoſe deſcending from Anceſtors. See GOODS.

PURCHASE, in the Sea-Language, has the ſame Signification with *draw*, at Land.——Thus, they ſay the *Capſtan purchaſes a-pace*, *i. e.* draws in the Cable a-pace: And when they cannot draw or hale any thing in with the Tackle, they ſay, *the Tackle will not* purchaſe.

PURE, ſomething free of any admixture of foreign or heterogeneous Matters. See PURIFICATION.

Hence *Pura Eleemoſyna*, *Pure Alms*, a Tenure whereby the Churchmen hold Lands in *Scotland*, ſomewhat on the footing of the primitive Clergy. See TITHES.

PURE *Hyperbola*, in Geometry, is an Hyperbola without any Oval, Node, Spike, or Conjugate Point. See CURVE.

PURE *Mathematics*, ſee MATHEMATICS.

PURFLEW, a Term in Heraldry, expreſſing Ermines, Peans, or any of the Furs, when they compoſe a Bordure round a Coat of Arms. See PEAN, BORDURE, &c.

Thus they ſay, He beareth Gules, a Bordure *Purflew*, Verry: meaning, that the Bordure is Verry.

PURGATION, the Act of *purging*, ſcowering, or purifying a thing, by ſeparating and carrying off any Impurities found therein. See PURIFICATION.

PURGATION, in Pharmacy, is a cleanſing of a Medicine, by retrenching its Superfluities; as the Wood and Seeds out of Caſſia, Stones out of Dates Tamarinds and other Fruits.

PURGATION is alſo uſed in Chymiſtry for ſeveral Preparations of Metals, and Minerals; to clear 'em of their Impurities: more uſually call'd *Purification.* See PURIFICATION.

The *Purgation* of Mercury is performed by paſſing it thro' a Chamois Skin. See MERCURY.

Gold is *purged* by the Coppel, Cementation, &c. See GOLD, COPPEL, &c.

The *Purgations* of other Metals are perform'd by repeated Fuſions, &c. See METAL, &c.

PURGATION, *Catharſis*, in Medicine, is an excretory Motion, ariſing from a quick and orderly Contraction of the fleſhy Fibres of the Stomach, and Inteſtines; whereby the Chyle, corrupted Humours, and Excrements lodg'd therein, are protruded further and further; and at length quite excluded the Body. See EXCRETION, STOMACH, INTESTINES, &c.

Purgation is one of the principal Species of *Evacuation.* See EVACUATION.

For the Means and Manner wherein it is effected, ſee PURGATIVE.

PURGATION, in Law, is the clearing one's ſelf of a Crime, whereof he is accuſed before a Judge. See TRYAL.

Of theſe *Purgations* there was antiently much uſe in *England*; eſpecially touching Matters of Felony charged on Clerks; and they are ſtill retained in the Eccleſiaſtical Court, in ſuſpicion of Incontinency, &c.

Purgation is either Canonical, or Vulgar.

Canonical is that preſcribed in the Canon-Law; the Form whereof, now obtaining, is, that the Party ſhall take his Oath he is clear of the Fact objected; and bring ſo many of his honeſt Neighbours, not above twelve, as the Court ſhall aſſign him, to ſwear, on their Conſciences, they believe he ſwears truly.

The *Vulgar*, and moſt antient Manner, was by Fire, or Water, or Combat; uſed by Infidels, and by Chriſtians too, till aboliſhed by the Canon Law. See ORDEAL, WATER, COMBAT, &c.

Combat, tho' now diſuſed, may yet be ſtill practiſed by the Laws of the Realm, in Caſes where Evidence is wanting, and the Defendant rather chuſes Combat than any other Trial. See SUTHDURE, DUEL, CHAMPION, &c.

PURGATION, in Tragedy, a Term which *Ariſtotle* uſes for the Effect of Tragedy on the Mind.

That Philoſopher obſerves, that Tragedy, by means of the Terror and Compaſſion which it excites, *purges* thoſe Paſſions out of the Soul.

Indeed, *Corneille* adds, that Tragedy frequently makes thoſe Paſſions, inſtead of *purging* 'em; ſo that he takes *Ariſtotle*'s *Purgation* to be no more than a Chimæra. See TRAGEDY.

Menſtrual PURGATIONS, the *Catamenia* or *Menſes* of Women. See MENSES.

PURGATIVE, or PURGING *Medicine*, a Medicament which evacuates the Impurities of the Body by Stool; call'd alſo a *Cathartic.* See STOOL, PURGATION, and CATHARTIC.

Purgatives are divided, with regard to their Effect, into *Gentle*, *Moderate*, *and Violent.*

Gentle Purgatives are ſuch as operate very mildly; as *Tamarinds*, *Caſſia*, *Manna*, *Rhubarb*, *Senna*, and moſt of the Mineral Waters. See CASSIA, MANNA, RHUBARB, &c.

The *Modcrate* purge ſomewhat more briſkly, as *Jalap*, *Scammony*, &c. See JALAP and SCAMMONY.

The *Violent* operate exceſſively; as *Coloquintida*, *Hellebore*, *Laureola*, &c. See COLOQUINTIDA, HELLEBORE, &c.

Purgatives are, again, divided with regard to the Humour they evacuate, into *Phlegmagogues*, *Cholagogues*, *Melanogogues*, and *Hydrogogues*; each whereof ſee under its proper Article PHLEGMAGOGUE, CHOLAGOGUE, &c.

The modern Phyſicians reject this Diviſion; and ſhew the Operations of all *Purgatives* to be alike.

Theory of the Operation of PURGATIVES.

Purgatives make one of the moſt important Articles in Medicine.—Their Effect is produced by vellicating and irritating the nervous Fibres of the Stomach and Inteſtines; and thereby urging 'em to an Expulſion. See STOMACH and INTESTINE.

An Idea of the Manner of their Operation is thus given us by Dr. *Cheyne.*

A *Purgative* Medicine being received into the Stomach, by the Mouth; its Particles do there vellicate or ſtimulate the Fibres of the Stomach, and thereby increaſe the digeſtive Faculty, *i. e.* bring the muſcular Fibres of the Stomach and the Muſcles of the Abdomen and Diaphragma into more frequent Contractions than ordinary; till the Medicine is admitted into the Inteſtines, the Fibres and Glands whereof being more ſenſible than thoſe of the Stomach, (whoſe Parts by the frequent, rough Contacts of one againſt another, and of the groſs Bodies often thrown into it, are, as it were, deadned) it eaſily moves and brings 'em into frequent, forcible Contractions, whereby theſe Glands are ſqueez'd, and ſo emit a fluid Matter, which lubricates the Paſſages; and which mixing with the feculent Matter of the Inteſtines, (which is render'd fluid by the ſame active and ſtimulating Quality of the *Purgative* Medicine) renders it more fluid; by which, and by the uncommon Contractions of the Inteſtines, it paſſes more eaſily and plentifully into the *Inteſtinum rectum*, and is thence ejected by Stool.

Thus do gentle *Purges* act; and only cleanſe the Inteſtines; few of their Particles entering in by the Lacteal Veins ſo as to affect the Blood.——But in violent *Purgatives*, the ſtimulating Particles are mixed with the Blood, and produce there, many times, very great Effects, by occaſioning unnatural Fermentations, by ſeparating the natural Coheſions of the Fluids of the Body; and do alſo, by vellicating the ſpiral Fibres of the Veins and Arteries, bring thoſe into more forcible Contractions, and thereby accelerate the Motion of the Blood——All which may have ſometimes a good, ſometimes a bad Effect.

As to the Effects of *Purgatives*, on animal Bodies, Dr. *Quincy* adds, that every Irritation of the Inteſtines, either quickens the periſtaltic Motion in its natural Direction, or occaſions ſome little Inverſions of it—Now, in both Caſes, any Matters that but ſlightly adhere to the Coats, or inner Membranes, will be looſen'd, and ſhook off, and carried forward with the other Contents; and they will alſo be more agitated, and thus render'd more fluid.

Hence is manifeſt, how a *purging* Medicine haſtens and increaſes the Diſcharges by Stool; but the ſame manner of Operation alſo carries its Effects much farther, in proportion to the Force of the Stimulus: For where it is great, all the Appendices of the Bowels, and even all the Viſcera in the Abdomen, will, by a conſent of parts, be pull'd or twitch'd, ſo as to affect their reſpective Juices in the ſame manner, as the Inteſtines themſelves do their Contents.—The Conſequence of which muſt be, that a great deal will be drained back into the Inteſtines, and made a part of what they diſcharge. And when we conſider the vaſt Number of Glands in the Inteſtines, with the Outlets of thoſe Viſcera opening thereunto, and particularly of the Liver and Pancreas; it will be no wonder that vaſt Quantities, eſpecially in full Conſtitutions, may be carried off by one *Purge*.

As to thoſe *Purgatives* diſtinguiſh'd by the Names of *Chologogues*, *Hydragogues*, *Phlegmagogues*, on a Suppoſition of an elective Quality therein; they may be accounted for upon more intelligible Principles.——For when the Diſcharges by Stool diſcover an Over-proportion of any particular Humours, it is to be ſuppoſed there was a Redundance of ſuch an Humour, whoſe diſcharge any Irritation would occaſion. Thus in proportion to the Proximity of ſome Humours in the Inteſtinal Tube, and the Diſpoſition of the Paſſages to convey them that way, do they require greater or leſſer Vibrations, or Shakes of the Fibres to fetch them out.

For this Reaſon, the brisker Cathartics, which vellicate the Membranes moſt of all, pump out, as it were, from all the Meſenteric Glands, and neighbouring Parts, their Contents, which becauſe they abound ſo much with Lymphatics, and viſcid watry Humours, make the Diſcharges thin and watry.

Thoſe which act in ſomewhat a lower degree, yet irritate enough to deterge and draw out a great deal of mucous and viſcid Matter, which ſometimes by lodgment and want of due Motion, changing into various Colours, occaſions the different Names of *Phlegm* or *Choler*. As the former therefore paſs for Hydragogues, ſo do the latter for Purgers of Phlegm and Choler. See Phlegm, Choler, *&c.*

But there is another Principle beſides that of a Stimulus, whereby a purging Medicine is enabled to anſwer its Intention; *viz.* by fuſing the Humours, and rendring them more fluid than before, whereby they are better fitted to paſs off by their proper Emunctories.—Thoſe which conſiſt of very ſubtile and active Parts, are not ſo ſenſible in the larger Paſſages, becauſe of the great Quantities of Matter which lays too great a Load upon them, and makes them unheeded; but when they are got into the Blood in any conſiderable number, they divide and fuſe thoſe Coheſions, which obſtruct, or move heavily along the Capillaries, and ſcour the Glands, inſomuch that every Pulſation throws ſomething through the inteſtinal Glands, which goes away by Stool, that the refluent Blood had waſh'd away and brought back from all parts of the Body.

Of this kind are all thoſe Cathartics, which are ſaid to *purge* the Joints, and are preſcribed in Rheumatiſms, and Arthritic Pains, as the *Radix Turpethi*, and all the Aloetics.—And this is the Reaſon, why purging Medicines of this ſort, are ſo eaſily changed into the moſt efficacious Alteratives; for an Alterative is a Cathartic in a lower degree, or of a more remiſs Operation. Whatſoever brings ſuch Particles to a Secretory Orifice, which are fitted for its Paſſage, oftener, either by accelerating the Blood's Motion, or breaking it into more Particles of that particular Size and Inclination, will increaſe the Secretion. According, therefore, to the difference of the Parts, where ſuch Secretions are enlarged, as the Glands of the Inteſtines, Kidneys, or Skin; are the Medicines, which are the Inſtruments therein, call'd either *Cathartics*, *Diuretics*, or *Diaphoretics*. See Alterative, Secretion, *&c.*

Dr. *Quincy* has made ſome Improvements in the Doctrine of purging Medicines, their Nature, Manner of Action, Effects, and Analogy with other Medicines; with the Circumſtances of their Preparation, Management, *&c.* in a Diſcourſe inſerted in the *Philoſoph. Tranſact.* The Subſtance of which we cannot do better than here ſubjoin.

In order hereto, it is to be premiſed, 1°. That all thoſe parts of an animal Body which are vaſcular, or thro' which any Fluid paſſeth, from the Inteſtines to the minuteſt Fibre, are the Seat of the Operation of Medicines. See Medicines.

2°. That this whole Courſe of Circulation, or animal Motion, is naturally diſtinguiſh'd into three different Stages, by the different Capacities of the Veſſels, and Motions of their Contents, each having its proper Out-let; and that theſe are the Seat of the three Concoctions, ſo often mention'd by phyſical Writers: the firſt being the Stomach and Bowels, and having the Anus for its Emunctory; the ſecond all that Space within the Blood's Motion, ſo far as it retains its red Colour, having the Kidneys; and the third, all beyond that Circuit, having the Skin for an excretory Organ. See Concoction, Emunctory, *&c.*

3°. That every Medicine which cauſeth Evacuation is, in ſome ſenſe, a *Purge*. See Evacuation.

4°. That every *Purge* operates as a Diſſolvent, by fuſing the Juices, and increaſing the Quantity fit for Expulſion; or as a *Stimulus*, by accelerating their Motions, ſo as to bring the Matter fit for Expulſion, oftener to the ſecretory Out-let; or both.

Theſe *Poſtulata* are only premiſed in order to prove this grand Propoſition, That a Change in the Bulks, Figures, and Motions of the component Particles of a purging Medicine, will change the Seat of its Operation, and fit it for exertion in the larger or ſmaller Veſſels, as thoſe mechanical Affections are intended, or remitted.

For Illuſtration hereof, it may be convenient to attend to the common way of making a *Purge* operate, more or leſs, than it otherwiſe would do.

Subſtances, then, which are groſs and heavy, as thoſe conſiſting chiefly of ſaline and earthy Particles; ſuch as Tartar, Manna, and the like, when reduced ſmaller by Triture, or repeated Solutions, operate more gently; but when acuated by Acids, or any way made to expoſe their Angles more plentifully to the Membranes, they become rougher, and ſooner take effect.

Reſinous Medicines, as Scammony, Gamboge, Jalap, and moſt of vegetable Production, are more violent, and operate ſooner, when they are more tenacious, and adheſive, as in their Extracts; but gentler, when divided by hard, brittle Subſtances, ſuch as Salt of Tartar, Sugar, *&c.*

Medicines which have in their Compoſition, Sulphur and Salt, are more or leſs rough, and ſpeedy in their Operation, in proportion to their greater or leſſer participation of the ſaline Ingredient, and the aſperity of its Angles.——Of this kind are moſt Minerals, and their Preparations: It may be ſufficient to inſtance in the management of Antimony, and Mercury; the firſt of theſe is by chymical Analyſis known to be a Compoſition of a ſubtile Sulphur and Salt; and the more the ſaline Part is ſet looſe by Preparation, and opening the Sulphur, as it is commonly term'd, the ſpeedier, and with the greater vehemence will it operate; whereas in its more imperfect Preparations, when the Salts are cloſely wrap'd up in their native Sulphur, it will hardly work at all till it reaches the fartheſt ſtages of Circulation. See Antimony.

Mercury *per ſe* is little known as a Medicine, and its firſt Preparation which makes it into Sublimate, ſo loads it with ſaline *Spiculæ*, that it amounts even to a Poiſon; but the more thoſe *Spiculæ* are broken by Triture, Sublimation, *&c.* the milder doth it operate; and if to the comminution of its Points be added a Sulphur ſubtile enough to join it, it may be reduced to ſo mild a Medicine, as not to be felt, but in the laſt Stage of Operation. See Mercury, Salivation, *&c.*

This ſhort View may be ſufficient to ſhew, 1°. That it is the too great Aſperity, and Motion in a Medicine, that will not ſuffer it to paſs the Stomach, without irritating it into ſuch Convulſions, as will throw it up again by *Vomit*. See Emetic and Vomiting.

2°. That a farther Comminution, and ſmoothing its Figure, will gain it admittance into the Bowels, and cauſe it to operate, as a proper *Purgative*, by Stool.

3°. That a yet farther Remiſſion of theſe Properties will convey it into the Blood, and allow it there to promote Evacuation by Urine. See Urine and Diuretic.

And, laſtly, that a ſtill farther Comminution will paſs it into the minuteſt Canals, where by the ſame Properties, only in a lower degree, it will cauſe Sweat, or increaſe Perſpiration. See Perspiration, Sweat, Diaphoretic, &c.

Hence it appears, that the more ſubtile Medicines operate in the Capillaries, and ſmalleſt Fibres by the ſame Mechaniſm, that the more groſs ones do in the common Stream of the Blood, when they go off by Urine; or as the groſſeſt of all do in the greater Paſſages, when they promote Evacuation by Stool.

Hence it is evident, that the Skill of preparing and adminiſtring of Medicines conſiſts in proportioning their manifeſt, and known Properties to the Capacity, and Circumſtances of the Part they are to operate in; and to intend, or remit their mechanical Affections, as they are ſooner or later to take place in the greater or ſmaller Veſſels.

Of the firſt Claſs there are few to be reduced ſmall enough to go beyond the larger Paſſages, and none of them are worth the pains they require, to fit them farther than for Diuretics: Beſides, their natural Diſpoſition to attract, and join with the ſerous Part of the Blood, whenever they get into that ſtage of Motion, runs them off by the Kidneys, before they can undergo Comminution enough to get farther; but if by frequent Repetitions of ſuch Medicines, and an uncommon Laxity of the Paſſages, any thing is paſſed into the Habit, their Groſſneſs fouls the delicate Strainers, which are deſtin'd for their Expulſion; and they lodge upon the Glands and Capillaries in ſuch manner, as to induce Intermittents, which is obſervable in many Perſons, after a long uſe of Cream of Tartar, the common cathartic Salts, and the purging Waters, eſpecially at the latter end of the Summer, when the heat of the preceding Seaſon has debilitated the Solids, and left 'em under too great a Relaxation.

Among the reſinous Purges, there are many very powerful ones, but where their Operation is deſir'd in the Viſcera, Blood, and remoter parts, they muſt be extremely divided; and this we find ſpirituous Menſtruums will do, by taking up the moſt ſubtile parts only, and carrying them into the very ſmall Paſſages, where they operate chiefly by fuſion; becauſe the ſoftneſs of ſuch Subſtances cannot enable them, hardly in any degree, to act as *Stimuli*, farther, at leaſt, than as ordinary Detergents. And thus we find that Aloes, the chief of this Tribe, goes fartheſt into the Habit, and continues longeſt e'er it operates, when managed with a ſpirituous Menſtruum, as in the *Tinctura Sacra*. The *Rad. Turpethi*, and *Colocynth* likewiſe, with all of the vegetable Kind, that will yield to a ſpirituous Liquor, are, by that means, to be carry'd into the fartheſt Scenes of animal Action; where they will prove efficacious Medicines in Caſes, which, with other management, they would never be able to reach: And on this account it muſt undoubtedly have been, that we frequently meet, in practical Writers, with many Materials of this ſort mention'd as Alterants; the Colocynth particularly by *Helmont*: for all Medicines which operated in the fartheſt Paſſages, they commonly include under that general Appellation.

But the moſt efficacious Purges, and thoſe which require the moſt Skill, are procured from the Mineral Kingdom; theſe abound in Solidity beyond any other Materials, and therefore wherever they are brought into Action, neceſſarily excel in quantity of Impulſe: Many of theſe therefore want not only the utmoſt Comminution to carry them into the farther Scenes of Operation, but alſo ſome reſtraint of their Aſperities, and Motions, to fit them for many Intentions.——Thus Sublimate is not only to be much ſweeten'd, that is, ſmooth'd in its Points, to make it a ſafe Purge in the larger Veſſels; but if it be intended to go farther than the Blood, and thoſe Glands, which, in that Circuit it is moſt apt to be lodged upon when it ſalivates, it muſt not only be render'd very fine, but alſo be cover'd with ſuch Subſtances as weaken its Points, and make it ſtrain into the laſt Subdiviſions of the Conſtitution. To this purpoſe, the common Practice wiſely contrives in Diſtempers, which, according to the Courſe of Circulation, lie moſt remote, to wrap up the Baſis of this Medicine, in Sulphurs, and ſuch like Subſtances, as follow it into its laſt Diviſion, without giving it any Aſperities to make it act as a *Stimulus*. Thus, for all cutaneous Foulneſſes, and habitual Taints, the Cinnabar, the Æthiops, and all of that Sortment, are in readineſs; and that ordinary Sulphurs will cover and deaden the efficacies of Mercurial Preparations, ſo that they ſhall not operate, but in ſuch Parts only and in certain Circumſtances, is demonſtrable in ordinary Salivations, which are to be lower'd by Sulphureous Medicines.

Medicines from ſuch Minerals, where a Salt and Sulphur are united by Nature, as they are in ſome Mercurials by Art, as in Antimony, the native Cinnabar, Steel, &c. are manageable only upon the ſame Principles; and the more they are deſign'd to be carried into the Habit, the more are they to be reſtrained by their natural, or adventitious Sulphurs: Steel, when opened by, and joined with, the Points of acid Liquors, operates the ſooner, and will ſometimes prove even Emetic; but when it is cover'd with an additional Sulphur, it will go farther, and anſwer Intentions much more remote; as is manifeſt in the common Preparations of Steel, with Tartar, or Vinegar, and with Sulphur.

This way of reaſoning on theſe Occaſions, ſeems the more juſt, from conſidering the Texture of thoſe Subſtances which by a natural Preparation are fitted for Operation in the minuteſt part of an animal Body; ſuch as thoſe of the Aromatic Kind, all which, more or leſs, according to their greater or leſſer Degree of Subtility and Smoothneſs, promote a Diaphoreſis: For theſe conſiſt of exquiſitely fine Salts, cover'd with a moſt ſubtile Sulphur, as is demonſtrable by Chymical Analyſis; and the common *Sal Volatile Oleoſum* is an admirable Contrivance upon the ſame Foundation, where a very volatile animal Salt is cover'd with a moſt exalted vegetable Oil, whereby it is fitted to paſs into the minuteſt Fibres, and make, as it were, a part of the animal Spirits themſelves,

And here it may not be amiſs to obſerve, that all animal Salts are very Volatile, or eaſily render'd ſo; but when bare and naked, juſt as the Fire draws them out, with a Mixture alſo of its own Particles in their Compoſition, they are too pungent to be felt without painful Senſations; and when ſoften'd with a fine Portion of ſomewhat of an oppoſite Texture, which is ſmooth and yielding, they become moſt efficacious, and ſafe Sudorifics.

On theſe Conſiderations it likewiſe ceaſes to be a wonder why the ſubtile Salts of Cantharides are more ſenſibly injurious to the Bladder, than any other Parts, and why Camphire prevents thoſe Injuries; for the exquiſite Smallneſs of thoſe *Spiculæ* makes them imperceptible, but in the moſt minute Canals, into which the Fibres compoſing the Membranes of the Bladder are known to be divided; and Camphire blunts their Irritations, becauſe its exquiſite Subtility enables it to follow them into thoſe Meanders, and ſheath their Aſperities.

To this purpoſe is very remarkable, what many now commonly practiſe in guarding even Mercurials againſt their ſtimulating Properties, and ſending them into the fineſt Paſſages to operate by Fuſion, and the bare force of Impulſe: For not only *Calomel* and the *Mercurius Dulcis* may be reſtrained from manifeſt Operation in the wider Paſſages, and the Glands about the Mouth; but even the mineral Turbith, which of itſelf, in a ſmall Doſe, will operate powerfully by Vomit and Stool, will not, when mixed with Camphire, be ſo much felt in thoſe reſpects, but go into the fartheſt Circuit of Motion, and promote the cutaneous Diſcharge in a more efficacious manner, than any Medicine of leſs ſpecific Gravity.——In this Management the Camphire is to be mixed but a very little while before taking, otherwiſe it hath not the effect; which appears to proceed from its great Volatility, which makes it in a great meaſure exhale while it ſtands mixed in a Medicine.

As to the Doſes of *Purgatives*, Dr. *Cockburn* attempts to determine 'em on the following Suppoſitions—1°. That no part of 'em operate but in the Blood. 2°. That they operate there, by changing the Blood and other circulating Fluids derived from it.

From which *Poſtulata* he concludes, that in the ſame Conſtitution of Blood, the Doſe requir'd to produce the like Effects, muſt be proportionable to the Blood's Quantity; ſo that where a certain Doſe is requir'd to alter one Pound of Blood, for inſtance, to a certain degree, there will be requir'd a double Doſe to alter two Pounds to the ſame degree, and a triple Doſe to three Pounds, &c. And univerſally if the Quantity of Blood *b*, require the Doſe *d*, the Quantity *m b* requires the Doſe *m d*. For as *b* : *d* :: *m b* : *m d*. See Dose.

PURGATORY, in the *Romiſh* Church, a Place where the Juſt are ſuppoſed to ſuffer the Pains due to their Sins for which they have not ſatisfy'd in this World. See Merits, Absolution, &c.

'Tis by the Mercy of God, the Indulgences of the Church, and the Prayers of the Faithful, that People are ſuppoſed to be deliver'd out of *Purgatory*. See Indulgence, &c.

In *Ireland* is a Place call'd St. *Patrick's Purgatory*; where, as the Legend has it, at the Prayers of St. *Patrick* Biſhop of the Place, there was made a viſible Repreſentation of the Pains which the Wicked undergo after Death, in order to deter Sinners, &c.

PURGE, in Medicine, a Term frequently uſed for a purgative Medicine; as Caſſia, Senna, Rhubarb, &c. See Purgation and Purgative.

PURIFICATION, in Chymiſtry, &c. the Act of *Purifying*, or Refining Natural Bodies; or of ſeparating the

Fæces and Impurities therefrom. See PURGATION, REFINING, &c.

For the Methods of *Purifying* Metals, Gold, Silver, Iron, Copper, Tin, &c. See METAL, GOLD, SILVER, &c.

For the *Purification* of Semi-metals, Minerals, and other Matters, as Antimony, Sulphur, Camphor, Saltpetre, &c. See ANTIMONY, SULPHUR, CAMPHOR, &c.

PURIFICATION, in Matters of Religion, is an Offering made the Prieſt by Women riſing out of Childbed, e'er they be re-admitted into the Church.

By the Law of *Moſes*, a Woman after bringing forth a Male-Child, was unclean forty Days; after a Female, eighty Days. During which time, ſhe was not to touch any thing Holy, nor to go near the Temple; but to continue within Doors, ſeparate from all Company and Commerce of others.

This Term expir'd, ſhe was to preſent herſelf at the Temple, and at the Door of the Tabernacle to offer a Lamb, as a Holocauſt, and a Pidgeon or Turtle, which the Prieſt taking, offer'd to God, and pray'd for her that ſhe might be *purify'd*.

This Ceremony, which conſiſted of two things, a Holocauſt, and a Sacrifice of Expiation, was call'd *Purification*, שחרה שחר, *Purificatio*, *Purgatio*.

The holy Virgin, tho', according to the Fathers, exempt from the Terms of the Law, yet comply'd therewith; and at the Time preſcribed went to the Temple and accompliſh'd the Law: In Commemoration whereof the Church yearly ſolemnizes the *Feaſt of the Purification of the Virgin*, on the ſecond of *February*; call'd alſo the *Feaſt of Candlemas*. See CANDLEMAS.

The Feaſt of the PURIFICATION ſeems to be very antient. 'Tis ordinarily ſaid to have been inſtituted in the Time of *Juſtinian*, in the Year 542; and this, on occaſion of a Mortality which that Year diſpeopled almoſt the whole City of *Conſtantinople*. Yet are there ſome who imagine it to have been held before, tho' in another manner and on a different Day from that fix'd by *Juſtinian, viz.* between the *Circumciſion* and *Epiphany*.

The ſame Day is the *Preſentation of our Saviour* in the Temple. See PRESENTATION.

PURIM, a ſolemn Feaſt held among the *Jews* on the 14th of *March*, in Memory of their Deliverance from the Conſpiracy of *Haman* by *Eſther*. See ESTHER.

The Word is *Hebrew*, פורים, *q. d.* Lots.

PURITAN, a Term antiently uſed for the *Calviniſts* of *Great Britain*, from their Profeſſion to follow the *Pure* Word of God; in oppoſition to all Traditions, Human Conſtitutions, and other Authorities. See CALVINIST, PRESBYTERIAN, NON-CONFORMIST, TORY, WHIG, &c.

PURLINS, in Building, thoſe Pieces of Timber that lie a-croſs the Rafters, on the inſide; to keep them from ſinking in the Middle of their Length. See RAFTER.

By the Act of Parliament for Rebuilding *London*, it is provided, That all *Purlins* from fifteen Foot ſix Inches to eighteen Foot ſix Inches long, be, in their Square nine Inches and eight Inches—And all in length from eighteen Foot ſix Inches to twenty-one Foot ſix Inches, be in their Square twelve Inches and nine Inches.

PURLUE, or PURLIEU, or POURALLEE, is all that Ground near any Foreſt, which being made Foreſt by our antient Kings; was, by Perambulation granted by ſome of their Succeſſors, ſever'd again from the ſame, and made *Purlieu, i. e.* pure and free from the Laws and Obedience of the Foreſt. See FOREST.

The Word is form'd from the *French pur*, pure; and *lieu*, place.

A *Pourlieu*, or *Pourallee*, is defined a Circuit of Ground, adjoining to the Foreſt, and circumſcribed with immoveable Boundaries, known only by Matter of Record; which Compaſs of Ground was once Foreſt, and afterwards diſafforeſted by the Perambulations made for the ſevering the new Foreſt from the old.

Purlieus or *Pourallees* commenc'd after the manner following—King *Henry* II. at his Acceſſion to the Crown in 1154, took ſo much delight in the Foreſts of this Kingdom, that, not being contented with thoſe he found here, tho' many and large, he began to enlarge divers of them; and to afforeſt the Lands of his Subjects near adjoining to the ſame. See AFFORESTING.

His Succeſſors, *Richard* I. and *Henry* II. far from retrenching or reſtoring any thing; made ſtill further Incroachments: and thus did the Lands continue till the 17th Year of King *John*; at which time, the Grievance being grown notorious, and generally felt by all degrees of People; divers Noblemen and Gentlemen beſought the King to grant, that they might have all thoſe new Afforeſtations, made by his Predeceſſors aforeſaid, and himſelf, diſafforeſted again; and the King, after much Sollicitation, was at length prevail'd on to ſubſcribe, and ſeal ſuch Articles concerning the Liberties of the Foreſt, as they then demanded, being for the moſt part ſuch as are now contain'd in the Charter of the Foreſt. See CHARTA *de Foreſta*.

Hereupon choice was made of divers Noblemen, &c. to the Number of twenty-five, who were ſworn, with others their Aſſiſtants, to ſee the ſaid Liberties, ſo granted and confirm'd by the King, to be in every point obſerv'd.

But e'er any thing was done to the purpoſe, King *John* died, and King *Henry* III. ſucceeding, freſh Sollicitations were made to him; who, for the better accompliſhing of the ſaid Diſafforeſtation, order'd Inquiſitions to be taken by ſubſtantial Juries for ſevering all the new Foreſts from the old: upon which, two Commiſſioners were ſent to take thoſe Inquiſitions; in virtue whereof, many great Woods and Lands were not only diſafforeſted, but improved to arable Land by the Owners thereof. See DISAFFORESTING.

After this Charter was made and confirm'd, ſome of theſe new Afforeſtations were perambulated, and proper Inquiſitions taken, and the Certainty determin'd by Matter of Record, which were the old, and which the new: Tho' it appears that the greateſt part of the new Afforeſtations were ſtill remaining during the Life of King *Henry* III.

Under *Edward* I. freſh Petitions and Sollicitations being ſet on foot; three Biſhops, three Earls, and three Barons, were at length appointed to ſee thoſe Perambulations perform'd and continu'd; who cauſed them to be made accordingly, and Inquiſitions to be taken thereupon, and return'd into the Court of Chancery; and all thoſe, that were antient Foreſt, to be meered, and bounded with irremoveable Boundaries, to be known by Matter of Record for ever.

Thoſe Woods and Lands, that had been newly afforeſted, the King likewiſe cauſed to be ſeparated from the old, and to be return'd into the Chancery by Marks, Meres, and Bounds to be known, in like manner, by Matter of Record for ever.

Thus it appears, how the *Purlieus*, or *Pourallees*, had their firſt beginning; for all ſuch Woods and Lands as were afforeſted by *Henry* II. *Richard* I. or King *John*, and by Perambulations ſever'd from the antient Foreſts, were, and yet are call'd *Pourallees*, q. d. Woods and Lands ſever'd from the old Foreſts, and diſafforeſted by Perambulation; *Pourallee* being the ſame as *Perambulatio* in *Latin*. See PERAMBULATION.

But notwithſtanding ſuch new Afforeſtations were diſafforeſted by Perambulation, whereby the ſame became *Pourallee*, or *Purlieu*; yet they were not thereby ſo diſafforeſted as to every Man, but that they do in ſome ſenſe continue Foreſt ſtill, as to others—For by the Words of *Charta de Foreſta*, if the King has afforeſted any Woods or Lands of his Subjects, to the damage of the Proprietors, they ſhould forthwith be diſafforeſted again; that is, only as to thoſe Perſons whoſe Woods and Lands they were; who, as the proper Owners thereof, might fell and cut down their Woods at their own pleaſure, without any Licence from the King; as alſo convert their Meadows and Paſtures into Tillage, or otherwiſe improve their Ground to the beſt advantage. So alſo they might hunt and chaſe the wild Beaſts of the Foreſt towards the ſame, &c. But no other Perſon might claim ſuch Benefit of hunting in the *Pourallee*, beſide the proper Owner of the Soil thereof; who is left at liberty to ſuffer the *Pourallee* to remain Foreſt ſtill; as ſome, in effect, have thought moſt expedient, becauſe hereby entitled to the Benefit of the Common within the Foreſt, which otherwiſe they were excluded from. Hence, if the Beaſts chance to wander out of the Foreſt into the *Pourallee*, the King hath a Property in them ſtill, againſt every Man, but the Owner of the Ground wherein they are, who hath a ſpecial Property in them, *ratione ſoli*; yet ſo as he may only take them by hunting, or chaſing with his Grey-hounds, or Dogs, without any Foreſtalling or Foreſetting them in their Courſe again towards the Foreſt. See HUNTING, FORESTALLING, &c.

Beſide what has been hitherto ſaid of the Difference between Foreſt and *Purlieu*, or *Pourallee*, there is this farther Diverſity, that all the Woods and Lands within the Regard of the Foreſt, are abſolutely within the Bondage and Charge of the Foreſt, as well in reſpect of the Owners thereof, as of any other Perſon; for no one may cut down his own Woods, or improve his own Lands, within the Regard of the Foreſt, without Licence from the King, or his Chief Juſtice in Eyre of the Foreſt.—Neither ſhall any Perſon hunt, chaſe, or moleſt the wild Beaſts of the Foreſt in his own Ground, within the Regard of the Foreſt, without Licence, or Warrant from the King, or his Chief Juſtice of the Foreſt, ſo to do. See REGARD.

But thoſe, whoſe Grounds are within the *Pourallees*, are not ſubject to theſe Reſtrictions.

Yet are not the Woods and Lands in the *Pourallees*, abſolutely freed from the Bondage of the Foreſt in reſpect of the wild Beaſts having their Haunts therein, when they happen to ſtray out of the Foreſt; but as they were once abſolutely Foreſt, ſo they are ſtill conditionally ſo.

Purlue-*Man*, or **Purlieu**-*Man*, or **Pourallee**-*Man*, is one who has Land within the *Purlue*; and is allow'd or qualify'd to hunt or courſe within the ſame, tho' under certain Reſtrictions.

By Stat. 13 *Rich.* 2. he who may lawfully hunt in any *Pourallee*, ought to have Woods or Lands of Freehold within the *Pourallee*, to the yearly Value of 40 *s.*——By Stat. *Jac.* 1. he ought to have Lands of Inheritance of the yearly Value of 10 *l.* or Lands of Freehold of the yearly Value of 30 *l.* or have Goods worth 200 *l.* or be the Son of a Knight, or Baron, or Perſon of a higher Degree, or Son and Heir apparent of an Eſquire——But by a later Act, *Car.* 2. no Man may keep Grey-hounds within the *Pourallee*, or elſewhere within *England* or *Wales*, unleſs he have a free Warrant, or be Lord of a Mannor, or ſuch a Freeholder, as is ſeized in his own Right, or in Right of his Wife, of Lands, Tenements, or Hereditaments, of the clear yearly Value of 40 *l.* over and above all Charges, and Repriſes, of ſuch Eſtate of Inheritance; or of Lands, Tenements, or Hereditaments, in his own Right, or in Right of his Wife, for Term of Life or Lives, of the yearly Value of 80 *l.* over and above all Charges, and Repriſes, or that is worth in Goods, or Chattels, 400 *l.* See Game.

The *Pourallee*, or *Purlieu*, then, is ſaid to be for him that is ſo qualify'd: Others, not qualify'd, and therefore not *Purlieu-Men*, yet having Land in the *Pourallee*, may, if they find any wild Beaſts of the Foreſt in their own Grounds within the *Pourallee*, chaſe them thereout with little Dogs, but not with Grey-hounds, or other Dogs.

Nor is the *Purlieu-Man* left at large to hunt at his own Diſcretion; but tied down to ſeveral Rules: As,

1. That he always begin his Chaſe in his own Ground; and that tho' he find ſuch wild Beaſts in his own *Pourallee*, and in reſpect thereof, hath a Property in them, *ratione ſoli*, againſt all Perſons but the King; yet ſuch his Property is only on this Condition, that he can ſlay them with his Dogs in Chaſe, without *Foreſtalling*, before they can recover the Foreſt——Tho' they be but within the Liſt of the Foreſt, before the Dogs faſten on them; they are the King's, or other Owner of the Foreſt.

But if the *Pourallee-Man* firſt make his Chaſe in his own Freehold, he may purſue the ſame thro' every Man's Ground within the *Pourallee*, provided he enter not into the Foreſt.

2. If a *Purlieu Man* begin his Courſe in another Man's Ground, within the *Pourallee*; and his Dogs faſten on a wild Beaſt, before it can get within the Bounds of the Foreſt, and the Beaſt draws the Dogs into the Foreſt, and is there ſlain by them; here the *Pourallee-Man* ſhall not enter into the Foreſt, nor take the Beaſt ſo kill'd, becauſe his Courſe was irregular from the beginning, as he could claim no Property in the Beaſt, *ratione ſoli*.

3. A *Pourallee-Man* may hunt in his own *Pourallee*, with no more Company than his own Servants; neither may he appoint, licenſe, or warrant any other Perſon, except his Servants, to hunt by his Commandment in his *Pourallee*.

4. Every *Pourallee-Man* is forbidden by the Laws of the Foreſt, to hunt in his own Grounds within the *Pourallee*, every day, or oftner than three days in any one Week, Sunday excepted.

5. Nor is any Man to diſturb, or make a Courſe after any Deer found in his *Pourallee*, within forty days after the King hath made a general Hunting in the Foreſt adjoining thereunto; becauſe then the wild Beaſts of the Foreſt come not into the *Pourallees* of their own accord; but as they are forced into the ſame by the Hunters, with Clamours and Blowing of Horns; ſo that they fly thither for Refuge.

6. No Man ſhall hunt within ſeven Miles of the Borders of the Foreſt, or in his own *Pourallee*, within forty days next before the King hath iſſued out his Proclamation, declaring his Royal Will and Pleaſure to make a general Hunting in that Foreſt.

Inaſmuch as the *Pourallees* were once, and in ſome ſenſe ſtill are, Foreſt, it was neceſſary to have Officers to attend, and take on them the Charge of the Preſervation of the Game that may happen to wander out of the Foreſt, into the *Pourallees*; ſince otherwiſe the Laws of the *Pourallees* could not be executed, but the Foreſt would ſoon be deſtroy'd by the *Pourallee-Men*.

For this reaſon, *Rangers* were firſt appointed; who, tho' not Officers in the Foreſt, yet appertain thereto; for all Officers in the Foreſt have Charge of the Vert, and Veniſon of the Foreſt; but a Ranger hath no Charge of Vert, but only of Veniſon coming out of the Foreſt into the *Pourallees*, his place of Charge; from whence his Office is to conduct the ſame back again into the Foreſt. See Ranger.

This Officer is appointed by the King, or his Chief Juſtice in Eyre, and made by Patent, with a Fee commonly of 20, 30, or 40 *l.* or more, by the Year, payable out of the Exchequer, as alſo certain Fee-Deer, both Red and Fallow, to be taken annually at proper Seaſons, out of the Foreſt.

The Subſtance of his Oath is, to rechaſe, and with his Hounds drive back, the wild Beaſts of the Foreſt, as often as they range out of the ſame into his *Pourallee*; to preſent all unlawful Hunting and Hunters, of wild Beaſts of Venary and Chaſe, as well within the *Pourallees*, as within the Foreſt; and to preſent thoſe, and other Offences, at the next Court of Attachments, or Swainmote, which ſhall firſt happen.

Rangers, it is to be obſerv'd, belong only to ſuch *Pourallees*, as were once the Woods and Lands of the Subject, and were afterwards diſafforeſted again, and ſo became *Pourallees*: Hence, as there are ſome Foreſts in *England*, which never had any Enlargement by new Afforeſtations, and therefore have no *Pourallees* at this day; there can be no Rangers belonging to them.

PURPLE, Purpura, a red Colour, bordering on Violet; made chiefly with Cochineal, or Scarlet in Grain. See Colour; ſee alſo Red, Scarlet, Cochineal, &c.

Purple was much eſteem'd among the Antients; eſpecially the *Tyrian Purple*, which underwent more Dyes than the reſt, and which was almoſt peculiar to Emperors and Kings. Yet this *Purple* did not exceed that now in uſe; the chief Reaſons why the former has been diſuſed, are, that the latter is both cheaper and finer.

The antient *Purple* was tinged or given with the Blood of a teſtaceous Sea-fiſh, call'd by the *Greeks* πορφύρα, and by the *Latins Purpura*; whereof we have Deſcriptions in ſeveral Authors, and Shells in moſt of the Cabinets of the Curious.

In the Seas of the *Spaniſh Weſt-Indies* about *Nicoya*, is found a Shell-fiſh which perfectly reſembles the antient *Purpura*, and in all probability is the very ſame: This Fiſh, *Gage* tells us, uſually lives ſeven Years; it hides itſelf a little before the Dog-days, and continues to diſappear for 300 Days running.

They are gather'd plentifully in the Spring, and by rubbing one againſt another, yield a kind of Saliva, or thick Glair, reſembling ſoft Wax: But the *Purple* Dye is in the Throat of the Fiſh; and the fineſt part in a little white Vein——The reſt of the Body is of no uſe.——He adds, that the chief Riches of *Nicoya* conſiſt in this Fiſh. Cloth of *Segovia* dyed with it is ſold for twenty Crowns the Ell; and none but the greateſt *Spaniſh* Lords uſe it.

Beſides the *Indian Purple Fiſhes*, we have others much nearer home: In the *Philoſoph. Tranſact.* we have an Account of a *Purple-Fiſh* diſcover'd in 1686. by Mr. *W. Cole*, on the Coaſts of *Somerſetſhire*, *South-Wales*, &c. where it is found in great abundance.

The Fiſh, M. *Reaumur* obſerves, is a kind of *Buccinum*; a Name given by the Antients to all Fiſhes whoſe Shell bears any reſemblance to a Hunting-Horn; and it appears from *Pliny*, that part of the antient *Purple* was taken from this kind of Shell-Fiſh.——So that this may be eſteem'd a recovery of what had been ſuppoſed entirely loſt.

The Method of obtaining the Colour, the Author deſcribes thus——The Shell, which is very hard, being broke, (with the Mouth of the Fiſh downwards, ſo as not to cruſh the Body) and the broken pieces being pick'd off, there appears a white Vein lying tranſverſely in a little Furrow or Cleft next the Head of the Fiſh.

In this Vein is the *Purple* Matter lodged; ſome of which being laid on Linnen, appears at firſt of a light green Colour, and if expoſed to the Sun, ſoon changes into a deep green, and in a few Minutes into a Sea-green, and in a few more into a blue; thence it ſoon becomes of a *purpliſh* red, and in an Hour more of a deep *Purple* red.

And here the Sun's Action expires; but by waſhing in ſcalding Water and Soap, and drying it, it becomes of a moſt bright, beautiful Crimſon; which will bear waſhing admirably without any Styptic. See Crimson.

The Fiſh, he obſerves, is good Food; and adds, that there are ſeveral Kinds, differing in Size, and Shell, and alſo in the Colour of the tinging Liquor——There are ſome found on the Coaſts of *Poictou*.

M. *Reaumur* has diſcover'd another very different Kind of *Purple*——It is produced in oval Grains, about a quarter of an Inch long, and about one thick, full of a white Liquor bordering on yellow, which cover certain Stones or Sands, about which the *Buccina* of *Poictou* uſually aſſemble.

By the Experiments M. *Reaumur* has made, it appears that theſe Grains are neither the Eggs of the *Buccinum*, nor the Seeds of any Sea-Plants, nor any riſing Plants, but the Eggs of ſome unknown Fiſh.

Theſe Grains being bruiſed on a white Linnen, at firſt only tinge it yellow, and that inſenſibly; but in three or four Minutes give it a very beautiful *purple* red, provided the Linnen be expoſed to the open Air; for the Air of a Room, even if the Windows be open, will not do.—This Colour fades a little by repeated Waſhings.

M. *Reaumur* concludes, from ſome Experiments he made, that the Effect of the Air on the Liquor, does not conſiſt in its taking away any Particles thereof, nor in giving it any new ones; but only in its agitating it, and changing the Arrangement of the Parts that compoſe it.—He adds, that the Liquor of the *Buccinum*, and that of the Grains, ſeem to be nearly of the ſame nature; except that the latter is more watry, and only ſaline; whereas the other is hot, and pungent.

The *Caribbee* Iſlands have likewiſe their *Purple-Fiſh*——It is call'd *Burgan*; being of the Size of the End of the Finger, and reſembling our Perriwinkles: Its Shell is of a browniſh azure, its Fleſh white, its Inteſtines of a very bright red, the Colour whereof appears thro' the Body: and 'tis this dyes the Froth, which it caſts when taken, and which is at firſt of a violet hue, bordering on blue.

To oblige them to yield the greater Quantity of Froth, they lay them on a Plate, ſhake and beat them againſt one another; upon which the Plate is immediately cover'd with the Froth, which is receiv'd on a Linnen Cloth, and becomes *Purple* in proportion as it dries.

P. Labat obſerves, that if this be the real *Tyrian Purple*, the Secret of preparing and fixing it is loſt; this Colour being found to dwindle and diſſipate, in proportion as the Linnen dy'd with it is waſh'd.

The ſame Author gives us the Deſcription of another *Purple* Dye produced by a Plant growing in the *Antilles*—The Juice of this Tree, when cut ſtanding, is of a blood-red, and communicates the ſame Colour to Cloths; tho', like the former, it loſes much in waſhing.

PURPLE, in Medicine.—The *Purple Fever* is a kind of Plague, or a Malignant-Fever, diſcovering itſelf in Eruptions on the Skin like the Bites of Bugs, or Fleas, or like Grains of Millet or the Small-Pox; whence it is ſometimes alſo call'd the *Spotted Fever*. See FEVER.

The Eruptions are red, orange, violet, azure, livid, or black; and when they riſe in great quantity, 'tis eſteem'd a good Sign.

Sometimes they ſpread to a great extent, like *Eryſipela's*, according to the Quality of the Poiſon. See PLAGUE.

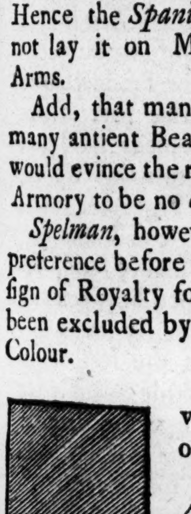
PURPURE, or POURPLE, or PURPLE, in Heraldry, according to ſome, is one of the five Colours of Armories, mix'd or compounded of Gules and Azure bordering on Violet; according to others, of a little black and much red or mallow Colour. See COLOUR.

It is ſuppoſed a Symbol of *Temperance*, *Liberality*, *Dignity*, *Authority*, *Faith*, and *Piety*.

Moſt of the Authors in Heraldry, as *Favin*, *Geliot*, *Monet*, and *Meneſtrier*, don't allow *Purple* for a Colour; in regard it is not ſimple, but compoſed of an equal Mixture of four other Colours.——They rather eſteem it a kind of mean Metal; ſometimes Metal, and ſometimes Colour. Hence the *Spaniards* call it *una miſtion*; ſo that one cannot lay it on Metal and Colour without falſifying the Arms.

Add, that many take the *Purple*, as it is accounted, on many antient Bearings, by which ſome of the Moderns would evince the regularity and legitimacy of this Colour in Armory to be no other than Silver tarniſh'd.

Spelman, however, in his *Aſpilogia*, allows *Purple* the preference before all other Colours, as having been an Enſign of Royalty for many Ages; yet he allows it to have been excluded by the antient Heralds, as only an imperfect Colour.



It is repreſented in Engraving by tranſverſe Strokes drawn from the dexter Point of the Chief.

In the Coats of Noblemen it is call'd *Amethyſt*, and in thoſe of Princes *Mercury*.

PURPRESTURE, in our antient Law-Books, from the *French Pourpriſt*, and *Pourpreſt*, q. d. *Integre arreptum, eſt proprie terræ alienæ clandeſtina ſubtractio, ejuſdemque vicinæ aſcriptio.* See POURPRESTURE.

PURPRISUM, of the *French Pourpris*, a Cloſe, or Encloſure—Alſo the whole Compaſs or Extent of a Manor or Place.

——*Donavi eis meum* Purpriſum *de Kirkeham & Domos meas & Molendinum & Prata, &c.* Charta Walteri Eſpec. Priorat. de Kirkeham.

PURPURATI, *i. e.* the Sons of Emperors and Kings. *Neubrigenſis*, lib. 3. cap. 4. *Malmsbury*, lib. 3.

PURREL, *Anno* 35 *Eliz.* cap. 10. A Liſt ordained to be made at the end of Kerſeys, to prevent deceit in diminiſhing their length.

PURSE, a manner of Accounting; or, as ſome call it, a Species of Money of Account, much uſed in the *Levant*; particularly at *Conſtantinople*. See MONEY *of Account*.

The *Purſe* conſiſts of about 112 Pounds *Sterling*——'Tis ſo call'd, becauſe all the Grand Signor's Treaſure in the Seraglio is kept in Leather Bags of this Value.

This Method of Accounting, the *Turks* derive from the *Greeks*, and they from the *Romans*; the Emperors whereof brought it to *Conſtantinople*, as appears from a Letter of *Conſtantine* to *Cecilian* Biſhop of *Carthage*, quoted by *Euſebius* and *Nicephorus*, wherein is this Paſſage—"Being "reſolved to give ſomething for the ſupport of the Miniſters "of the Catholic Religion throughout the Provinces of "*Africa*, *Numidia*, and *Mauritania*; I have wrote to "*Veſus*, Treaſurer-General of *Africa*, and given him or-"ders to pay you three thouſand *Folles*," i. e. *Purſes*: For, as M. *Fleury* obſerves, we may call that *Purſe* which the *Latins* call'd *Follis*, which was a Sum of two hundred and fifty ſilver *Denarii*, amounting to about ſeven Pounds ſixteen Shillings, our Money.

PURSER, an Officer aboard a King's Ship, who receives her Victuals from the Victualler, and is to take care that it be in good Condition, and well laid up, and ſtow'd.

His Office is alſo to keep a Liſt of the Men and Boys belonging to the Ship; and to ſet down exactly the Day of each Man's admittance into pay, that ſo the Pay-Maſter or Treaſurer of the Navy may iſſue out his Disburſements, and pay off the Men according to the *Purſer*'s Books.

PURSIVENESS, among Farriers, *Broken Wind*; a Name common to all thoſe Diſeaſes in Horſes, whoſe principal Seat is in the Lungs; proceeding from an Ulcer, or ſome inward waſting thereof, wherein the ſmall Veſſels are worn or abraded by the Sharpneſs or Acrimony of the common Diſcharges. See PHTHISIS.

The like Diſorder may alſo ariſe from a Stagnation, hindering the Air from penetrating ſo as to liſt up the Lungs in the Act of Reſpiration; or from tough and mucilaginous Matter ſeparated in the Branches of the Wind-Pipe.

The uſual Occaſions are Cold, Surfeits, and other Diſeaſes not thoroughly carried off——*Purſive* Diſorders may alſo ariſe from unwholeſome Food, bad Air, hard Riding when a Horſe is full.

The Signs are commonly a heaving and beating of the Flanks; a wheezing and rattling. Sometimes the Kernels about the Throat will ſwell, and there will be a glandulous Running at the Noſe, which is the utmoſt Stage of the Diſeaſe, and uſually reputed deſperate. See GLANDERS.

PURSUIVANT, ſee POURSUIVANT.

PURVEYANCE, ſee POURVEYANCE.

PURVIEW, a Term frequently uſed by Sir *Edw. Coke* for the Body of an Act of Parliament; or that part which begins with *Be it Enacted*, &c. contradiſtinguiſh'd from the Preamble. See STATUTE.

The Statute of 3 *Hen.* 7. ſtands upon a *Preamble* and a *Purview*. 12 Rep.

The Word comes from the *French Pourveu*, a Gift, Grant, Proviſion, *&c.*

PURULENT, in Medicine, ſomething mix'd with, or partaking of *Pus*. See PUS.

Phthiſical People frequently ſpit a *purulent* Matter. See PHTHISIS.

In a Dyſſentery, the Stools are *Purulent*; when there is an Ulcer in the Reins or Bladder, the Urine is *Purulent*.

PUS, in Medicine, a putrid Matter, white and thick, form'd of corrupted Blood, and iſſuing out of the Lips of a Wound when open'd, or an Impoſthume when burſt. See WOUND and ULCER.

Wounds are always to be kept open while they ſuppurate, *i. e.* while they generate *Pus*; for fear of ſhutting up the Wolf in the Sheep-fold. See SUPPURATION.

The Word is *Latin*, *Pus*, literally denoting Snot, *&c.* form'd of the *Greek* ϖυος, which ſignifies the ſame thing.

PUSTULE, a little Pimple, or Eruption, on the Skin, full of *Pus*; eſpecially ariſing in the ſmall and great Pox. See POX.

PUTAGE, PUTAGIUM, in our old Law-Books, PUTANISM; or *Fornicatio ex parte fœminæ: quaſi* putam *agere*; *à Gall.* Putte, i. e. *Meretrix*. See PUTANISM.

Quod autem generaliter ſolet dici Putagium, *hæreditatem non adimit; illud intelligendum eſt de* putagio *Matris; quia filius hæres legitimus eſt, quem Nuptiæ demonſtrant.* Glanv. lib. 7. cap. 12.

PUTANISM, PUTANISMO, an *Italian* Term, naturaliz'd by ſome *Engliſh* Writers, ſignifying *Whoredom*, or the Life or Condition of a Courtezan.

The Word we borrow immediately from the *French*, *Putaniſme*, and they from the *Italians*, *Puttana*, Whore; of *Putta*, Girl.

PUTATIVE, *Suppoſitivus*; or ſomething reputed to be what it really is not.

The Word is ſeldom uſed but in the Phraſe *Putative-Father*.—Thus we ſay *Joſeph* was the *Putative-Father* of Jeſus Chriſt.

PUTLOGS, in Building, ſhort pieces of Timber, about ſeven Foot long, uſed in building Scaffolds——They lie at right Angles to the Wall with one of their ends reſting upon the Ledgers or Poles, which lie parallel to the ſide of the Wall of the Building.

PUTREFACTION, or PUTRIFACTION, in Phyſics, a ſlow ſort of Corruption produced in natural Bodies, generally by the Moiſture of the Air, or ſome other ambient Fluid, which penetrating the Pores, and being agitated therein, diſſolves and ſets at liberty ſome of the more ſubtile Parts, particularly the Salts and Oils; and thus looſen and diſlocate the Compages, quite change the Texture, and ſometimes the Figure of the Mixt. See CORRUPTION.

How much the Air contributes to *Putrefaction*, is evident hence, that Bodies buried deep under Earth or in Water out of any reach of Air, ſhall remain for Ages entire; which yet being expoſed to the open Air, ſhall ſoon rot and moulder away. See SUBTERRANEOUS.

The like appears from ſucculent Fruits and other vegetable Matters, which, for all their aptneſs to *putrefy*, will remain a long time unchang'd *in vacuo*. See VACUUM.

The perpetual Oſcillations of ſo elaſtic a Fluid contain'd or ſhut up in the Pores of a Body, may be conceived ſufficient to induce this Alteration in their Form and Texture; yet ſhould it rather ſeem that the Water or vapoury Matter wherewith the proper Air is impregnated, is the more immediate Agent. Hence *Acoſta* obſerves, that in *Peru*, and others have obſerv'd the ſame in *Egypt*, where it very rarely rains, every thing will continue a long time uncorrupted: unleſs we will rather aſcribe the Effect to the abundance of nitrous Salt in the Air of thoſe Places, which is known to reſiſt *Putrefaction*. See AIR, WATER, SALT, &c.

In effect, all *Putrefactions*, both of Animal and Vegetable Bodies, are affirmed by the learned *Boerhaave* to be perform'd by means of Water alone: Take (ſays he) a Pound of freſh Fleſh, and keep it in a heat like that of our Body, and in few days the *Putrefaction* will be compleated; but if you firſt drain out or exhale all the watry Part from the ſame in ſome chymical Veſſel; tho' the Salt and Oil remain, the Fleſh will harden like a Stone, and may be kept for Ages without *Putrefaction*——Tho' when thus harden'd, Water pour'd on it, or even the common Dew, will ſoon ſet it a *putrefying*.

By ſuch means, Bread, Fleſh, or the like Foods, may be preſerv'd for Ages; provided regard be had to the Place: Hence it is, that in dry Countries, as *Egypt*, dead Carcaſſes never *putrefy*, but dry and harden uncorrupted; as we ſee in the Mummies found buried under the Sand. See MUMMY.

Even human Blood, which naturally is ſo prone to *Putrefaction*, if you deprive it of its watry Part, may be kept for fifty Years. Goat's Blood we actually find kept ſo long in the Shops, without corrupting; tho', if you diſſolve it in Water, and expoſe it to a gentle Warmth, it *putrefies* immediately.

PUTREFACTION, in Chymiſtry, is a ſpontaneous Operation whereby vegetable Subſtances, in virtue of their own Heat and Moiſture, are diſſolved, and turn'd into an animal Nature. See ANIMAL and VEGETABLE.

The Proceſs of PUTREFACTION *is as follows:*

Throw together any of the tender, green, and ſucculent Parts of recent Vegetables, whether Acid or Alkaline, in a large Heap, in the warm open Air, and preſs them down with an additional Weight, if their own be inconſiderable, and the middle part of the Heap will in a little time, ſpontaneouſly conceive a ſmall degree of Heat, and paſs ſucceſſively through the other degrees, till it arrive at a ſtate of Ebullition, and be perfectly *putrefy'd*.

In the ſpace of three days, from the firſt putting them together, they will yield a Heat, perceivable by the Hand, equal to that of a human Body in a healthy State; by the fifth it will be too great for the Hand to bear without pain; and, laſtly, by the ſixth, ſeventh, or eighth day, the Juices will generally appear ready to boil, and ſometimes the Matter will even flame and burn away.

By this ſpontaneous Operation, the Vegetable acquires an abominably *putrid*, ſtercoraceous, or cadaverous Taſte, and Odour; and turns intirely into one ſoft, ſimilar, pappy Maſs, or Craſſamentum, greatly reſembling fetid human Excrement in the Scent, and *putreſy'd* Fleſh in the Taſte. See EXCREMENT.

If now this fetid Matter thus obtain'd, be directly, whilſt it remains in its fetid ſtate, committed to a Glaſs-Retort, and diſtill'd with proper degrees of Fire, there will come over, 1. A Water impregnated with an urinous Spirit, perfectly like that obtainable from animal Subjects, and ſeparable by a freſh Diſtillation ſlowly made in a tall Glaſs, into Elementary Water; and a large quantity of pure, white, volatile, dry, alkaline Salt, not to be diſtinguiſh'd from animal Salts. 2. A volatile, alkaline, oily Salt, that ſhoots in the Glebes. 3. An exceedingly volatile and a thick fetid Cil, both which are ſo entirely like thoſe of Animals. And, laſtly, the remainder being calcin'd in an open Fire, affords not the leaſt Particle of fixed Salt, juſt as if the Subject had really been of the Animal, and not of the Vegetable Kingdom.

This Proceſs is truly univerſal, and holds equally in all kinds of Vegetables, tho' ever ſo different in their Nature and Virtue. Experiments have been made in the coldeſt and moſt ſucculent or watry Plants, ſuch as Purſlain, Sorrel, &c. as well as with the hotteſt or moſt acrimonious, ſuch as the Spurges, &c. and it was always found to ſucceed; but the ſooner, as the Vegetable employ'd contain'd the greater quantity of Oil; tho' with the ſame Phænomena.

It will likewiſe ſucceed with dry Vegetables; provided they be moiſten'd with Water before they are thrown into heaps: And thus we ſometimes ſee that Stacks of Hay will ſpontaneouſly take fire and blaze away; eſpecially if it was not well dried in the making.

It is ſurprizing to conſider, that by this means the difference betwixt Vegetables may be entirely taken away, and the whole Kingdom thereof reduced to the ſame common Nature; ſo that Wormwood and Tanſey, for inſtance, or Sorrel and Scurvygraſs, ſhall appear as one and the ſame thing; and this thing appear no otherwiſe than *putreſy'd* Fleſh.

Tho' Sorrel be famed for its power of preſerving the animal Fluids uncorrupted whilſt they are circulating in the Body, and Scordium for its embalming Virtue, as continuing it in a ſtate of Incorruption after Death; yet even theſe Plants are themſelves thus eaſily corrupted and changed into ſuch a kind of *putreſy'd* Fleſh as it is their Virtue to prevent.

This, *Boerhaave* conſiders as a general Law of Nature, wiſely eſtabliſhed to produce wonderful Changes in the World, and prevent the Inaction and Decreaſe of Matter on our Globe; this active Principle or Medium giving an eaſy and reciprocal Tranſition of Vegetable into Animal Subſtances, and Animal into Vegetable.

Hence we are given to underſtand the Nature and Uſes of *Putrefaction*, with its difference from Fermentation, both in regard of the Subject, Cauſe, and Effect——Vegetables alone are the Subject of Fermentation; but both Vegetables and Animals of *Putrefaction*. Fermentation alſo requires that its Subject be firſt reduced to the form of a Liquid, or at leaſt made capable of floating in one, before it can obtain; whereas *Putrefaction* only ſucceeds when its Subject is half dry, or juſt barely moiſt: which is the reaſon why Muſt put up in a wooden Veſſel does not *putrefy*; whilſt the Grapes from which it was expreſſed, being thrown in heaps, would preſently conceive heat, and run into a ſtate of *Putrefaction*.

We ſee alſo that Vegetable *Putrefaction* is begun and promoted with Heat, and finiſh'd with Coction, which requires a degree of Heat much greater than that excited by Fermentation, as being capable of cauſing an Ebullition in the Plant, and even of turning it into a Flame: As, indeed, the immediate Cauſe of Fermentation is the Motion of the Air intercepted between the Fluid and viſcous Parts of the fermenting Liquor; but the Cauſe of *Putrefaction* is Fire itſelf, collected or included within the *putrefying* Subject.

Again, the Effects of Fermentation are the Production of Flowers or Yeaſt, the converſion of the ſaline part of the fermenting Body into Tartar, or an acrimonious Acid and fixed kind of Salt, and of Oils into inflammable Spirit, retaining ſomething of the nature of the Vegetable; but *Putrefaction* makes all the acid Salts volatile and alkaline, renders the Oils not ſpirituous, but abominably fetid, utterly deſtroys what ſets the ſpecific difference between one Subject and another, and converts them wholly into a ſoft pulpy Maſs, of an animal Nature, without the leaſt Signs of any fixed Salt, tho' the recent Vegetable would, by Calcination, at the firſt have afforded a large Proportion: Or, in ſhort, making nearly the ſame kind of Alteration in the whole Subject, as it would undergo by paſſing through a ſound animal Body, ſuffering all the Actions thereof, and being at length turned into the form of Excrement. See FERMENTATION.

This Operation may let us a little into the nature of animal Digeſtion, or the Change which the Aliment ſuffers in the human Body——For the Change our vegetable Foods undergo in the Body, being ſuch as brings 'em to be of the ſame Nature, and afford the ſame Principles with the Change induced by *Putrefaction*, is a preſumption that Digeſtion is nothing elſe; at leaſt it apparently comes nearer thereto than to Fermentation. See DIGESTION.

PUTRID, PUTRIDUS, ſomething rotten, or putrify'd. See PUTREFACTION.

Thus we ſay *putrid* Fleſh——A *putrid* Humour——*Putrid* Limbs, *i. e.* mortify'd ones, are to be cut off. See MORTIFICATION.

PUTRID *Fever*, is that kind of Fever, where the Humours, or part of 'em, have ſo little circulatory Motion, that they fall into an inteſtine one, and putrify. See FEVER.

This is commonly the caſe after great Evacuation, or exceſſive Heat; where there is ſuch a Scarcity of Spirits, that the Solids do not vibrate ſufficiently to keep the Fluids in their due Velocity.

In theſe Caſes the Pulſe is low, and the Fleſh cooler than natural at firſt.

PUTTY, a Term uſed for Powder of calcined Tin. See TIN.

PUTURA, a Cuſtom claim'd by the Keepers of Foreſts, and ſometimes Bailiffs of Hundreds, to take Man's Meat, Horſe's Meat, and Dog's Meat, of the Tenants and Inhabitants *gratis*, within the Perambulation of the Foreſt, Hundred, *&c.* See PURLIEU, PERAMBULATION, *&c.*

This Cuſtom within the Liberty of *Knaresburg* was long ſince turned into the Payment of four Pence *pro Putura.*

The Land ſubject to this Service, is call'd *Terra Puturata.* The learned *Somner* erred in his Expoſition of this Word——*Johannes clamat unam* Puturam *in prioratu de Penevoſtham, qui eſt quædam Cella Abbatiæ de Eveſham pro ſe & Miniſtris, Equis & Garcionibus ſuis per unum diem & duas noctes de tribus Septimanis in tres Septimanas, viz. de victualibus, ut in eſculentis & poculentis, ad Coſtas prioratus prædicti indebite*———Placit. apud Preſton. 17 Edv. 3.

PYANEPSIA, in Antiquity, a Feaſt celebrated by the *Athenians* in the Month *Pyanepſion*; which, according to the generality of the Critics, was their fourth Month, and correſponded to our *September.* See FEAST.

Plutarch refers the Inſtitution of this Feaſt to *Theſeus*; who, at his Arrival from *Crete*, made a kind of Sacrifice to *Apollo* of all the Proviſions remaining in his Veſſel; putting 'em all into a Kettle, boiling 'em together, and eating 'em with his ſix Companions; which Cuſtom was afterwards continued.

The Scholiaſt of *Ariſtophanes* ſays, it was to acquit himſelf of a Vow he made to *Apollo* in a Tempeſt.

M. *Baudelot* writes *Puanepſia*; and takes it to be a Feaſt inſtituted in memory of *Theſeus*'s Return after killing the *Minotaur.* See MINOTAUR.

The *Greeks* vary as to the Origin and Signification of the the word *Pyanepſion*, whence the Feaſt is denominated.—*Harpocratian* calls it *Pæanopſia*; he adds, that others call it *Panopſia*, becauſe then the Fruits all appear to the Eye. *Heſychius* writes *Pyanepſia*; and derives it from πυαμος, Bean, and εψω; I gather: becauſe in this Feaſt the *Athenians* gather'd their Beans, and made a kind of Broth of 'em.

PYCNOSTYLE, or PYCHNOSTYLE, in the antient Architecture, a Building where the Columns ſtand very cloſe to one another; one Diameter and a half of the Column being only allow'd for the Intercolumination. See INTERCOLUMINATION.

The *Pycnoſtyle* is the ſmalleſt of all the Intercoluminations mention'd by *Vitruvius.*

The Word is form'd from the *Greek* πυκνος, *cloſe*, and στυλος, *Column.*

Some make the *Pycnoſtyle* the ſame with the *Syſtyle*; others diſtinguiſh the latter, by its allowing half a Module more in the *Corinthian* Intercolumination. See SYSTYLE.

The *Pycnoſtyle*, Mr. *Evelyn* obſerves, chiefly belong'd to the *Compoſite* Order; and was uſed before the moſt magnificent Buildings, as at preſent in the *Periſtyle* of St. *Peter*'s at *Rome*, conſiſting of near 300 Columns; and ſuch as yet remain of the Antients among the late diſcover'd Ruins of *Palmyra.*

PYCNOTICS, Medicines of an aqueous Nature, and which have the Faculty of cooling and condenſing, or thickening the Humours.

Such are Purſlain, the Nenuphar, or Water-Lilly, Solanum, *&c.*

The Word in its original *Greek*, πυκνοτικον, ſignifies ſomething that has the power of thickening.

PYGMY, or PIGMY, or PIGMÆUS, a *Dwarf*, or Perſon of exceedingly ſmall Stature, not exceeding a Cubit in height. See DWARF and GIANT.

The Appellation is given among the Antients to a fabulous Nation, ſaid to have inhabited *Thrace*, who generated and brought forth Young at five Years of Age, and were Old at eight; famous for the bloody War they waged with the Cranes.

The Word is form'd of the *Greek* πυγμη, *Cubit.* See CUBIT.

PYLING *the Ground*, for Foundations. See FOUNDATION.

PYLORUS, in Anatomy, the lower Orifice of the Stomach, whereby it diſcharges itſelf into the Inteſtines. See STOMACH and INTESTINES.

The *Pylorus* is ſituate on the right ſide of the Stomach, and paſſes by an oblique Aſcent to the *Duodenum*; to prevent the too precipitate Paſſage of the Aliment out of the Stomach. See DUODENUM.

For this end, it is likewiſe furniſh'd with an extraordinary Series of Fibres, to conſtringe it more than any other part: Theſe running round it, ſerve as a kind of Sphincter, which is open'd by the Contraction of the Stomach, and the Appulſe of the Chyle. See DIGESTION, CHYLIFICATION, *&c.*

At the bottom of the *Pylorus*, is a large Cavity, which *Willis* calls the *Antrum Pylori*, and conceives its Uſe to be, to keep the Food firſt digeſted, till the latter taken into the Stomach be digeſted; tho', if what *Wharton* obſerves be true, *viz.* that there are Lacteals in the bottom of the Stomach, ſuch a Proviſion ſhould ſeem unneceſſary. See LACTEAL.

The Word is derived from the *Greek* πυλωρος, *Janitor*, Door-keeper.

PYRAMID, in Geometry, a Solid ſtanding on a ſquare Baſis, and terminating, a-top, in a Point: Or a Body whoſe Baſe is a Polygon, and whoſe Sides are plain Triangles; their ſeveral Tops meeting together in one Point. See SOLID.

Euclid defines it a ſolid Figure, conſiſting of ſeveral Triangles, whoſe Baſes are all in the ſame Plane, and have one common Vertex. See TRIANGLE and VERTEX.

Wolfius defines it a Solid, bounded by as many Triangles, A D C, D C B, and A D B, terminating in one Point, D; as the Baſe A B C, has Sides. (Tab. GEOMETRY, fig. 78.)

The *Pyramid* is ſaid to be *Triangular*, *Quadrangular*, *Quinquangular*, *&c.* as the Baſe is triangular, quadrangular, *&c.*—The *Pyramid* may be call'd a ſquare, triangular, *&c.* Cone; or the Cone, a round *Pyramid.* See CONE.

Properties of the PYRAMID.

1. All *Pyramids* and Cones ſtanding on the ſame Baſe, and having the ſame Altitude, are demonſtrated to be equal.

2. A triangular *Pyramid* is the third part of a Priſm, ſtanding on the ſame Baſe, and of the ſame Altitude. See PRISM.

3. Hence, ſince every Multangular may be divided into Triangulars; every *Pyramid* is the third part of a Priſm, ſtanding on the ſame Baſis, and of the ſame Altitude.

4. If a *Pyramid* be cut by a Plane *a b c*, parallel to its Baſe A B C; the former Plane, or Baſe, will be ſimilar to the latter.

5. All *Pyramids*, Priſms, Cylinders, *&c.* are in a Ratio compounded of their Baſes and Altitudes: The Baſes, therefore, being equal, they are in proportion to their Altitudes; and the Altitudes being equal, in proportion to their Baſes.

6. *Pyramids*, Priſms, Cylinders, Cones, and other ſimilar Bodies, are in a triplicate Ratio of their homologous Sides.

7. Equal *Pyramids*, *&c.* reciprocate their Baſes and Altitudes; *i. e.* the Altitude of the one is to that of the other, as the Baſe of the one to that of the other, *&c.*

A Sphere is equal to a *Pyramid*, whoſe Baſe is equal to the Surface, and its Height to the Radius of the Sphere.

8. A *Pyramid* is one third of the perpendicular Altitude, multiply'd by the Baſe.

To meaſure the Surface and Solidity of a Pyramid——Find the Solidity of a Priſm that has the ſame Baſe with the given *Pyramid*: See PRISM.——And divide this by three; the Quotient will be the Solidity of the *Pyramid.*

Suppoſe, *v. gr.* the Solidity of the Priſm be found 67010328; the Solidity of the *Pyramid* will be thus found 22336770.

The Surface of a *Pyramid* is had, by finding the Areas both of the Baſe A B C, and of the lateral Triangles ACD, CBD, BDA. See TRIANGLE. The Sum of theſe is the Area of the *Pyramid.*

The external Surface of a right *Pyramid*, ſtanding on a regular Polygon Baſe, is equal to the Altitude of one of the Triangles which compoſe it, multiply'd by the whole Circumference of the Baſe of the *Pyramid.*

To deſcribe a Pyramid on a Plane.—1. Draw the Baſe, *v. gr.* the Triangle A B C; (if the *Pyramid* requir'd be triangular) ſo as that the Side A B, ſuppoſed to be turned behind, be not expreſs'd. 2. On A C and C B, conſtruct the Triangles A D C, and C D B, meeting in any aſſumed or determined Point, *v. gr.* D; and draw A D, C D, B D: Then will A D B C, be a triangular *Pyramid.*

To conſtruct a Pyramid of Paſt-board, &c.——Suppoſe, *v. gr.* a triangular *Pyramid* required. 1. With the Radius A B, deſcribe an Arch B E; (fig. 79.) and thereto apply three equal Chords, B C, C D, and D F. 2. On D C conſtruct an equilateral Triangle D F C; and draw the right Lines A D and A C. This Paſt-board, *&c.* being cut off by the Contour of the Figure, what remains within, will turn up into a *Pyramid.*

PYRAMID, in Architecture, is a ſolid maſſive Edifice; which from a ſquare, triangular, or other Baſe, riſes diminiſhing, to a Point, or Vertex.

Pyramids are ſometimes uſed to preſerve the Memory of ſingular Events; and ſometimes to tranſmit to Poſterity the Glory and Magnificence of Princes: but as they are the Symbol of Immortality, they are more commonly uſed as funeral Monuments. See MONUMENT.

Such is that of *Ceſtius* at *Rome*; and thoſe other celebrated ones of *Egypt*, as famous for the Hugeneſs of their Size, as their Antiquity.

Theſe laſt are all ſquare in their Baſes; and 'tis a thing has been frequently propoſed, to eſtabliſh a fixed Meaſure from them; to be thereby tranſmitted to Poſterity.——See their Deſcriptions, Meaſures, *&c.* in *Thevenot*, *Pietro della Valle*, *&c.*

Among the *Egyptians*, the *Pyramid* is ſaid to have been a Symbol of human Life; the Beginning whereof is repreſented by the Baſe, and the End by the Apex: On which account it was, they uſed to erect them on Sepulchres. HERODOTUS.

Some derive the Word from πύρος, *Wheat*, and ἀμάω, *colligo*; pretending that the firſt *Pyramids* were built by the Patriarch *Joſeph* for Granaries.——But *Villalpandus*, with much better reaſon, derives the Word from πῦρ, *Fire*; becauſe ending in a Point like Flame.

When they are very narrow at bottom, *i. e.* their Baſe very ſmall; they are call'd *Obelisks* and *Needles.* See OBELISK.

Scenography of a PYRAMID. See SCENOGRAPHY.

Optic PYRAMID. See OPTIC *Pyramid.*

PYRAMIDAL *Mirrors.* See MIRROR.

PYRAMIDAL *Numbers*, are the Sums of *Polygonal* Numbers, collected after the ſame manner as the *Polygon* Numbers themſelves are extracted from Arithmetical Progreſſions. See POLYGONAL *Number*, *&c.*

Theſe are particularly call'd *prime Pyramidals*——The Sums of firſt *Pyramidals* are call'd *ſecond Pyramidals*——The Sums of thoſe *third Pyramidals*, *&c.* ad infinitum.

Particularly thoſe ariſing from triangular Numbers are call'd *prime triangular Pyramidals*: thoſe ariſing from Pentagonal Numbers are call'd *prime pentagonal Pyramidals*, &c.

From the manner of ſumming up polygonal Numbers it appears evidently how the prime *Pyramidal* Numbers are found; *viz.* $\frac{(a-2)n^3+3n^2-(a-5)n,}{6}$ expreſſes all the prime *Pyramidals.*

PYRAMIDALE *Corpus*, in Anatomy, a Plexus of Blood-Veſſels on the back of the Teſticles; thus call'd from its Form: and from its Structure alſo call'd *Corpus Varicoſum*, and *Pampini-forme.* See CORPUS and VARICOSUM.

It conſiſts of innumerable little Veins, communicating with each other; and forming a kind of Net-Work; which, at length, uniting, terminate in one Vein; by which the Blood is convey'd into them all.

The Origin of this Plexus is from the ſpermatic Veins, which, a little above the Teſticles, ſplit into ſeveral Branches; which again uniting, ſeveral times, form the *Corpus Pyramidale.* See TESTICLE and SPERMATIC *Veins.*

PYRAMIDALES *Papillæ*, ſee PAPILLÆ *Pyramidales.*

PYRAMIDALIS, in Anatomy, a ſmall Muſcle of the Abdomen, lying on the lower part of the *Rectus*—It has its Name from its Figure; and its Origin from the Margin of the *Os Pubis*, with a pretty broad fleſhy Head, whence it grows gradually narrower till it end in a ſmall round Tendon in the *Linea alba*; ſometimes almoſt at the Navel.

This Muſcle is ſometimes ſingle, ſometimes it has its fellow; and ſometimes they are both wanting.

PYRAMIDOID, call'd alſo *Parabolic Spindle*, a ſolid Figure form'd by the Revolution of a Parabola round its Baſe, or greateſt Ordinate.

Thus, if you conſider it according to the Method of Indiviſibles, you may conceive its Solidity to conſiſt of an infinite Series of Circles, whoſe Diameters are all parallel to the Axis of the revolving Parabola. See PARABOLIC *Spindle.*

PYRATE, ſee PIRATE.

PYRENOIDES *Proceſſus*, in Anatomy, a Proceſs of the ſecond Vertebra; thus call'd from its pear-like ſhape; as alſo for the like reaſon, *Dentiformis*, or Tooth-like Proceſs. See PROCESS and VERTEBRA.

The Word is compounded of *Pyrum*, Pear, and ειδος, Figure.

PYRETICS, Medicines good againſt Fevers. See FEVER.

The Word is form'd from the *Greek* πυρετος, *Fever*, of πυρ, *Fire.*

PYRIFORMIS, in Anatomy, a Muſcle of the Thigh, receiving its Name from its Figure, which reſembles that of a Pear.—It is alſo call'd *Iliacus externus*, from its Situation. See ILIACUS.

Its beginning is round and fleſhy, from the inferior and internal part of the *Os Sacrum*, where it reſpects the *Pelvis* of the Abdomen; and deſcending obliquely in the great Sinus of the *Os Ilium*, above the acute Proceſs of the *Iſchium*, and joining with the *Glutæus medius*, it inſerted by a round Tendon into the ſuperior part of the Root of the great Trochanter.

This moves the *Os Femoris* ſomewhat upwards, and turns it outwards.

PYRITES, in Natural Hiſtory, a Semi-metal, ſuppoſed to be the Marcaſite of Copper; or the Matrix or Ore wherein that Metal is formed. See MARCASITE, ORE, COPPER, *&c.*

From this Marcaſite it is that the *Roman Vitriol* is procured. See VITRIOL.

The Word is form'd from the *Greek* πῦρ, in regard it takes fire more readily than any other Stone——It is alſo call'd *Quis.*

Antiently it was uſed in lieu of the Flints in Fire-Locks.——Dr. *Slare* tells us of a Heap of *Pyrites* conſiſting of two or three hundred Tons; which being cover'd up from the Air five or ſix Months, took fire, and burnt for a Week. Some of it look'd like melted Metal, others like red-hot Stones. He adds, it emitted a moſt noiſome Smoke.

Dr. *Liſter* attributes Thunder, Earthquakes, *&c.* to the ſulphureous and inflammable Breath of the *Pyrites.* See THUNDER, EARTHQUAKE, EXHALATION, *&c.*

PYRITES, in a more general ſenſe, is uſed for the Marcaſites of all Metals; the Names whereof are varied according to the Metals they partake of. See MARCASITE.

Thus *Chryſites* is that of Gold; *Argyrites* that of Silver; *Siderites* that of Iron; *Chalcites* that of Copper; *Molybdites* that of Lead, *&c.* See ARGYRITES, CHRYSITES, SIDERITES, *&c.*

PYROBOLOGY, ſee PYROTECHNIA.

PYROENUS, from πῦρ, *Ignis*, Fire, and οἶνος, *Vinum*, Wine; is a Term ſometimes uſed for rectify'd Spirit of Wine; thus call'd becauſe made by Fire, or rather becauſe render'd of a fiery nature. See SPIRIT and RECTIFICATION.

PYROET, or PIROUET, or PYROUET, in the Manage. See PIROUET.

PYROMANCY, a kind of Divination, perform'd by means of Fire. See DIVINATION.

The Antients imagined they could foretel Futurity by inſpecting Fire and Flame: To this end, they conſider'd its Direction, or which way it turn'd.—Sometimes they added other Matters to the Fire; *e. gr.* a Veſſel full of Urine, with its Neck bound about with Wool; watching narrowly on which ſide it burſt, and thence taking their Augury.

Sometimes they threw Pitch on it; and if it took fire immediately, eſteem'd it a good Augury.

PYROTECHNY, PYROTECHNIA, the Art of *Fire*; or a Science which teaches the Management and Application of Fire in ſeveral Operations. See FIRE.

The Word is form'd from the *Greek* πῦρ, Fire, and τεχνη, Art.

Pyrotechny is of two kinds, *Military*, and *Chymical.*

Military PYROTECHNY is the Doctrine of Artificial Fire-Works and Fire-Arms; teaching the Structure and Uſe both of thoſe uſed in War for the Attacking of Fortifications, *&c.* as *Gun-Powder*, *Cannons*, *Bombs*, *Granadoes*, *Carcaſſes*, *Mines*, *Fuſees*, &c. and thoſe made for Amuſement-ſake, as *Rockets*, *Stars*, *Serpents*, &c. See FIRE-*Arm*, ORDNANCE, *&c.*

Some call *Pyrotechny* by the name *Artillery*; tho' that Word ſeems confined to the Inſtruments uſed in War. See ARTILLERY.

Others chuſe to call it *Pyrobology*, *q. d.* the Art of Miſſile Fires; from the *Greek* πῦρ, Fire, and βαλλειν, to caſt, throw. See GUNNERY, PROJECTILE, *&c.*

Wolfius has reduced *Pyrotechnia* into a kind of mixt Mathematical Art: Indeed, it won't allow of Geometrical Demonſtrations; but he brings it to tolerable Rules and Reaſons; whereas, before, it had uſed to be treated by Authors at Random and without any Reaſon at all. See MATHEMATICS.

See the Elements of *Military Pyrotechny* under the ſeveral Inſtruments and Operations; CANNON, BOMB, ROCKET, GUN-POWDER, *&c.*

Chymical PYROTECHNIA, is the Art of managing and applying Fire, in Diſtillations, Calcinations, and other Operations of Chymiſtry. See CHYMISTRY and OPERATION.

Some reckon a third kind of *Pyrotechnia*, *viz.* the Art of fuſing, refining, and preparing Metals. See METAL, FUSION, REFINING, *&c.*

PYROTICS, in Medicine, Remedies either actually, or potentially hot; and which, accordingly, will burn the Fleſh, and raiſe an Eſchar. See CAUSTIC and ESCHAROTIC.

The Word is form'd from the *Greek* πῦρ, Fire.

PYRRHIC, PYRRHICA, in Antiquity, a kind of Exerciſe on Horſe-back; or a feign'd Combat, for the Exerciſe of the Cavalry. See EXERCISE.

It was thus call'd from its Inventor *Pyrrhicus*, or *Pyrrhus* of *Cydonia*, who firſt taught the *Cretans* to march n Meaſure and Cadence to Battel; and to obſerve the pace of the *Pyrrhic* Foot.

Others derive the Name from *Pyrrhus* Son of *Achilles*, who inſtituted this Exerciſe at the Obſequies of his Father. *Ariſtotle* ſays, 'twas *Achilles* himſelf that invented it. The *Romans*, alſo, call'd it *Ludus Trojanus*, the *Trojan* Game; and *Aulus Gellius*, *Decurſus*.

'Tis doubtleſs this Exerciſe that we ſee repreſented on Medals by two Cavaliers in Front running with Launces, and the Word *Decurſio* in the Exergue.

PYRRHIC, in the *Greek* and *Latin* Poetry, a Foot conſiſting of two Syllables both ſhort See FOOT.

PYRRHONIANS, a Sect of antient Philoſophers, ſo call'd from their Founder *Pyrrho*. See PHILOSOPHER.

The diſtinguiſhing Character of this Philoſopher was, that he profeſs'd to doubt of every thing; maintaining, that Men only judge of Truth and Falſhood from Appearances. See DOUBTING.

On this Principle he kept himſelf in continual ſuſpenſion of Mind, never determining on any thing; to avoid the Inconveniencies of Error and falſe Judgments. See ERROR, FALSHOOD, *&c.*

Thoſe now diſtinguiſh'd by the Name of *Pyrrhonians*, or Sceptics, are Perſons who, from the great Number of things that are dark and obſcure, and from the Averſion they bear to popular Credulity, maintain that there is nothing certain in the World. See SCEPTICS.

The truth is, *Pyrrhoniſm* has ſome foundation in Nature: We don't judge of things from their real Eſſences, but from their Relations to ourſelves. Moſt of our Ideas we receive by means of our Senſes; but our Senſes are not given us to judge of the Eſſences, but the Relations of things to ourſelves, *i.e.* how they may affect us, ſo as to do us good or harm. See SENSATION, RELATION, SENSE, *&c.*

Thus, *e. gr.* our Eyes don't give us the real Magnitudes of Objects, but their relative ones only. See VISION. See alſo BODY and MATTER.

The Academicks differ'd from the *Pyrrhonians*, in that they own'd there were ſome things more like, or a-kin to Truth than others; which the *Pyrrhonians* peremptorily denied. See ACADEMICS.

Le Clerc obſerves, that the *Pyrrhonians*, in affirming that there is nothing certain, were the moſt aſſuming and deciſive of all Philoſophers; ſince they muſt have firſt examin'd all things, to be able to determine preciſely that all things are uncertain.

It may be added, that the very Principle of the *Pyrrhonians* deſtroys itſelf: For if there be nothing certain, then muſt that Dogma itſelf be precarious; and if no one thing be more probable or liker to Truth than another, why ſhall the Principle of the *Pyrrhonians* be believed preferably to the oppoſite one; ſince itſelf is come at in the ſame way as our other Knowledge.

PYTHAGOREANS, a Sect of antient Philoſophers, who retain'd to the Doctrines of *Pythagoras*. See PHILOSOPHER.

The Founder of this Sect was of *Samos*, the Son of a Lapidary, and Pupil of *Pherycides*; who flouriſh'd about the ſeventh Olympiad, *i. e.* about 500 Years before Chriſt.

This Sect was alſo call'd the *Italic Sect*, or *Italic School*, becauſe *Pythagoras*, after travelling into *Egypt*, *Chaldea*, and even into the *Indies*, to inform his Underſtanding; returning home to his own Country, and there unable to bear the Tyranny of *Polycrates*, or *Soliſon*, retir'd into the Eaſtern Part of *Italy*, then call'd the *Greater Greece*, and there taught and form'd his Sect. See IONIC.

He is held to have excell'd in every part of Science: *Laertius* ſays, among the *Chaldees* and *Hebrews* he learnt Divination, and the Interpreting of Dreams; in *Egypt* he learnt all the Myſteries of the Prieſts, and the whole Syſtem of Symbolical Knowledge, with all their Theology—— *Porphyry* adds, that he learnt the Mathematical Sciences in his Travels; Geometry from the *Egyptians*, the Doctrine of Numbers and Proportions from the *Phœnicians*, and Aſtronomy from the *Chaldeans*; Morality, and Theology he learnt chiefly from the *Magi*.

He was the firſt who aſſum'd the Title *Philoſopher*; the Sages till his time having bore the arrogant Title σοφοί. See PHILOSOPHER.

Jamblicus obſerves, that in *Phœnicia* he converſed with the Prophets and Philoſophers, the Succeſſors of *Mochus* the Phyſiologiſt; which *Mochus*, *Selden* and ſome others will have to be *Moſes*.

His School in *Italy* was at *Crotona*; where he is ſaid to have been attended by no leſs than 600 Scholars——His Houſe was call'd the Temple of *Ceres*, and the Street where it ſtood the *Muſæum*. See MUSÆUM.

Out of his School proceeded the greateſt Philoſophers and Legiſlators, *Zaleucus*, *Charonidas*, *Archytas*——*Porphyry* ſays, as ſoon as he arriv'd in *Italy* he had an Auditory of two thouſand People; to whom he explain'd the Laws of Nature, Reaſon, and Juſtice.

He endeavour'd to aſſuage the Paſſions of the Mind with Verſes, and Numbers; and made a Practice of compoſing his Mind every Morning by his Harp; frequently ſinging the *Pæans* of *Thales*. See MUSIC.

Exerciſes of the Body made a conſiderable part of his Diſcipline. See GYMNASTIC *Exerciſe*.

His School became ſo popular, that Cities and People committed their Republics to the Government of his Scholars——At length, *Porphyry* adds, Envy ſtirring up Sedition againſt 'em, they were oppreſs'd; and in time, their Learning, which they ever kept ſecret, was loſt; except ſome difficult things learnt by Rote by the Crowd of Hearers. For *Pythagoras* never committed any thing to Writing.

Beſide his public School, *Pythagoras* had a College in his own Houſe, which he call'd κοινόβιον, *Cænobium*: In this were two Orders or Claſſes of Scholars, ἐξωτερικοὶ, *Exoterici*, call'd alſo *Auſcultantes*; and ἐισωτερικοὶ, *Intrinſeci*. ——The former were Novices and Probationers, who were kept under a long Examen, and even impoſed a Quinquennial Silence, to teach them Modeſty and Attention, according to *Apuleius*; or, according to *Clemens Alexandrinus*, to teach them to abſtract their Minds from ſenſible Objects, and enure them to the pure Contemplation of the Deity.

The latter were call'd *Genuini*, *Perfecti*, *Mathematici*, and *Pythagoreans*, by way of Eminence———Theſe alone were let into the *Arcana* and Depths of the real *Pythagoric* Diſcipline.

Clemens obſerves, that theſe Orders correſponded very exactly to thoſe among the *Hebrews*: For in the Schools of the Prophets were two Orders, *viz.* the Sons of the Prophets, who were the Scholars; and the Doctors or Maſters, who were alſo call'd *Perfecti*. And among the Levites, the Novices or Tyro's, who had their Quinquennial Exerciſes, by way of Preparation. Laſtly, even among the Proſelytes there were two Orders; *Exoterici*, or Proſelytes of the Gate; and *Intrinſeci* or *Perfecti*, or Proſelytes of the Covenant. He adds, 'tis highly probable that *Pythagoras* himſelf had been a Proſelyte of the Gate, if not of the Covenant. See PROPHECY.

Gale endeavours to prove, that *Pythagoras* borrow'd his Philoſophy from that of the *Jews*; to this end producing the Authorities of many of the Fathers, and antient Authors; and even pointing out the Tracks and Footſteps of *Moſes* in ſeveral parts of *Pythagoras*'s Doctrine.

Pythagoras taught, 1. That God is one; that he is a moſt ſimple, incorruptible, and inviſible Being; and therefore only to be worſhipped with a pure Mind, with the ſimpleſt Rites, and thoſe preſcribed by himſelf.

Laertius obſerves, that he made Unity the Principle of all things; hence aroſe Duality, *&c.* See UNITY, *&c.*

In his Converſation with the *Egyptians*, he learnt abundance of Secrets about Numbers; to which he attributed ſo much, that he even attempted to explain all things in Nature by Numbers——In effect, it was a common Opinion of the antient Philoſophers, that the Species of Things have to each other the Nature and Relation of Numbers; and that the Univerſe, and all Things therein, were produced according to certain Numbers, inherent in the Creator's Mind. See CREATOR.

Hence *Porphyry* obſerves, the *Pythagoreans* ſtudied the Doctrine of Numbers with great Attention: Since the incorporeal Forms, and firſt Principles of Things, *i. e.* the Divine Ideas, could not be deliver'd in Words, they had recourſe to Demonſtration by Numbers; and thus call'd the common Reaſon and Cauſe of Unity, Identity, and Equality, by the Name *One*.

2. *Pythagoras* further taught, that there is a Relation or Kin-ſhip between the Gods and Man; and therefore the Gods take care of Man——Which, *Clemens Alexandrinus* ſays, is apparently borrow'd from the Chriſtian Doctrine of Providence. See PROVIDENCE.

Pythagoras alſo aſſerted a *Metempſychoſis*, or Tranſmigration of Souls; and therefore the Immortality of the Soul. See METEMPSYCHOSIS.

3. He taught, that Virtue is Harmony, Health, and every good thing; and that God, and therefore every thing, conſiſts of Harmony. See HARMONY.

PYTHAGOREAN, or PYTHAGORIC *Syſtem*, among the Antients, was the ſame with the *Copernican Syſtem* among the Moderns. See SYSTEM.

It was thus call'd, as having been maintained and cultivated by *Pythagoras*, and his Followers; not that it was invented by him, for it was much older. See COPERNICAN *Syſtem*.

PYTHAGORIC *Theorem*, or *Propoſition*, is the 47th of the firſt Book of *Euclid*. See TRIANGLE and HYPOTHENUSE.

PYTHAGORIC *Tetractys*. See TETRACTYS.

PYTHIA, or **Pythian**, in Antiquity, the Prieſteſs of *Apollo*; by whom he deliver'd Oracles. See Oracle.

She was thus call'd from the God himſelf, who was entitled *Apollo Pythius*, from his ſlaying the Serpent *Python*; or, as others will have it, ἀπὸ τȣ̃ ϖύθεσθαι, becauſe *Apollo*, the Sun, is the cauſe of Rottenneſs; or, according to others, from ϖυνθανομαι, *I hear*, becauſe People went to hear and conſult his Oracles.

The Prieſteſs was to be a pure Virgin——She ſat on the Covercle, or Lid, of a brazen Veſſel, mounted on a Tripod; and thence, after a violent Enthuſiaſm, deliver'd her Oracles, or rather explain'd thoſe of the God; *i. e.* rehearſed a few ambiguous and obſcure Verſes, which were taken for Oracles.

All the *Pythiæ* did not ſeem to have had the ſame Talent at Poetry, or Memory enough to retain their Leſſon——*Plutarch* and *Strabo* make mention of Poets, who were kept in pay, as Interpreters of *Jupiter*, &c.

Pythian *Games*, **Pythici** *Ludi*, were ſolemn Games inſtituted in honour of *Apollo*, and in memory of his killing the Serpent *Python* with his Arrows. See Games.

The *Pythici* were celebrated in *Macedonia*, in a place call'd *Pythium*——They were the next in Fame after the *Olympic* Games; but were more antient than they: for 'tis pretended they were inſtituted immediately after the Defeat of the Serpent.

They were held every two Years, towards the Month *Elaphebolion*, which anſwer'd to our *February*.

The *Pythia* were alſo celebrated at *Delphos*; and 'twas theſe were the moſt renown'd—A part of *Pindar*'s Poems are compoſed in praiſe of the Victors in the *Pythian* Games. See Pindaric.

The Critics are divided on the Subject of the Serpent *Python*——The Poets ſay, that *Juno* made uſe of it to perſecute *Latona*, and prevent her bringing into the World *Apollo* and *Diana*, whom ſhe had conceiv'd of *Jupiter*; and that 'twas for this reaſon *Apollo* kill'd it.

Strabo ſays, 'twas no other than a famous Villain, one *Draco*, that *Apollo* ridded the World of.

Dickinſon, in his *Delphi Phenicizantes*, maintains the *Python* of the *Greeks* to be the *Typhon* of the *Phœnicians*; and the *Typhon* of the *Phœnicians* to be the *Og* of Scripture; and *Apollo* who ſlew it, he will have to be *Joſhua*.

PYXIS *Nautica*, in Navigation, the *Seaman's Compaſs*. See Compass.

The Word *Pyxis* is *Latin*, and literally ſignifies a little *Box*.

Among Anatomiſts, *Pyxis* is alſo uſed for the Cavity of the Hip-bone. See Acetabulum.

Q.

Q, A Conſonant, and the ſixteenth Letter of the Alphabet. See LETTER and ALPHABET.

The *Q* has this peculiar to it, that 'tis always follow'd by an *U*. See U.

The *Q* is form'd from the *Hebrew* ק, *Koph*; which moſt other Languages have borrow'd; tho' ſome of them have rejected it again, particularly the *Greeks*, who now only retain it as a Numeral Character.

In effect, there is that reſemblance between the *Q* and *C*, in ſome Languages, and *K* in others; that many Grammarians, in imitation of the *Greeks*, baniſh the *Q* as a ſuperfluous Letter.

Papias even affirms, that all the *Latin* Words now wrote with a *Q*, were wrote among the antient *Romans* with a *C*: But we want better Authorities. For tho' that may hold in many caſes, inſomuch that we ſtill write indifferently *quur* or *cur*, *cum* or *quum*, *quotidie* or *cotidie*, *&c.* Yet does it not thence thence follow, that they wrote *cis*, *cæ*, *cid*; for *quis*, *quæ*, *quid*———What Inſcriptions authorize ſuch a reading?

Far from this the Antients ſometimes ſubſtituted *Q* for *C*; and wrote *quojus*, *quos*, for *cujus*, *cus*, *&c.*

Varro, however, and ſome other Grammarians, as we are told by *Cenſorinus*, *&c.* would never uſe the *Q*. The truth is, its Uſe or Diſuſe ſeems to have been ſo little ſettled and agreed on, that the Poets uſed the *Q* or *C* indifferently, as beſt ſuited their Meaſures; it being a Rule, that the *Q* joined the two following Vowels into one Syllable; and that the *C* imported them to be divided.

Hence it is, that *Lucretius* uſes *cuiret* for three Syllables, in lieu of *quiret*; *acua* for *aqua*; and that *Plautus* uſes *relicuum* for *reliquum*; as in *quod dedi datum non vellem relicuum non*; where the *cuum* muſt be two Syllables, otherwiſe the *Trochaic* Verſe will be lame of a Foot.

In the *French*, the Sound of the *Q* and *K* are ſo near akin, that ſome of their niceſt Authors think the former might be ſpared——*Ramus* adds, that till the Eſtabliſhment of Royal Profeſſors in the Univerſity of *Paris* under *Francis* I. they always uſed *Q* in the *Latin* the ſame as in the *French*; pronouncing *kis*, *kalis*, *kantus*, *&c.* for *quis*, *qualis*, *quantus*, *&c.*

Some very learned Men make *Q* a double Letter, as well as *K* and *X*——According to them, *Q* is evidently a *C* and *U* joined together——'Tis not enough that the Sound is the ſame; but they ſee the Traces of the *CU* in the Figure of the *Q*; the *V* being only laid obliquely <, ſo as to come within the Cavity of the *C*.

To confirm this, they ſay the Antients wrote *qi*, *qæ*, *qid*. Tho' *Joſ. Scaliger*, *Littleton*, *&c.* think this no Proof of the Point; for in *Gruter*'s Inſcriptions, we find not only the *Q*, but alſo the *C*, put for *QU*; as *Cintus*, *Quintus*, *ſicis* for *ſiquis*, *&c.* Yet no body ever imagin'd the *C* a double Letter.

Q among the Antients, was a Numeral Letter, ſignifying 500; as in the Verſe,

> Q *velut A cum D quingentos vult numerare.*

A Daſh over it, as $\bar{Q}$, denoted it to ſignify five hundred thouſand. See A.

Q is alſo uſed as an Abbreviature in ſeveral Arts——In Phyſician's Bills, *Q. Pl.* ſtands for *quantum placet*, or *quantum vis*, as much as you pleaſe of a thing; *q. ſ.* for *quantum ſufficit*, or as much as is neceſſary.

Among Mathematicians, *Q. E. D.* ſignifies *quod erat demonſtrandum*, which was to be demonſtrated——*Q. E. F.* *quod erat faciendum*, which was to be done.

Q. D. is alſo frequently uſed among Grammarians, *&c.* for *quaſi dictum*, as if it were ſaid, *&c.*

QUACK, in Medicine. See EMPIRIC.

QUADRA, in Building, any ſquare Border, or Frame, incompaſſing a Baſſo-Relievo, Pannel, Painter's or other Work.

The Word is alſo uſed abuſively for a Frame or Border of another Form; as Round, Oval, or the like.

QUADRAGESIMA, a Term ſometimes uſed for the Time of Lent; becauſe conſiſting of forty Days. See LENT.

Hence, ſome Monks are ſaid to lead a *Quadrageſimal* Life; or to live on *Quadrageſimal* Food all the Year.

QUADRAGESIMA *Sunday*, is the firſt Sunday in *Lent*; ſo call'd, becauſe it is about the fortieth Day before *Eaſter*. See EASTER.

On the ſame account, the three preceding Sundays, are call'd *Quinquageſima*, *Sexageſima*, and *Septuageſima*. See QUINQUAGESIMA, *&c.*

QUADRAGESIMALS, denote *Mid-Lent* Contributions, or Offerings. See OFFERING, OBLATION, *&c.*

It was an antient Cuſtom for People to viſit their Mother-Church on *Mid-Lent* Sunday, and to make their Offerings at the High Altar: and the like was alſo done in *Whitſun*-Week———But as theſe latter Oblations, *&c.* were ſometimes commuted for by a Payment of *Penticoſtals*, or *Whitſun-Farthings*: See PENTICOSTALS——So were the former alſo changed into a cuſtomary Payment, called *Quadrageſimals*; *Denarii Quadrageſimales*; and ſometimes *Lætare Jeruſalem*, from a Hymn ſo call'd, ſung on that day; beginning, *Jeruſalem Mater omnium*, *&c.*

QUADRANGLE, in Geometry, a Quadrangular, or Quadrilateral Figure; or a Figure which has four Sides, or four Angles. See FIGURE and QUADRILATERAL.

To the Claſs of *Quadrangles*, or *Quadrangular Figures*, belong the *Square*, *Parallelogram*, *Trapezium*, *Rhombus*, and *Rhomboides*. See SQUARE, PARALLELOGRAM, RHOMBUS, *&c.*

A Square, *&c.* is a regular *Quadrangle*—a Trapezium an irregular one.

Quadrangular Figures are not proper for Fortification; the Flanks and flank'd Angles being too ſmall. See BASTION.

QUADRANS, in Antiquity. See AS.

QUADRANS, in our Cuſtoms, is the fourth part of a Penny; or a *Farthing*. See PENNY and FARTHING.

QUADRANT, QUADRANS, in Geometry, an Arch of a Circle, containing 90 Degrees, or one fourth of the entire Periphery. See ARCH and CIRCLE: See alſo DEGREE.

Sometimes, alſo, the Space or Area included between this Arch and two Radii, drawn from the Center to each Extremity thereof, is call'd a *Quadrant*, or more properly *Quadrantal Space*; as being a quarter of the entire Circle. See SECTOR.

QUADRANT, is alſo a Mathematical Inſtrument, of great uſe in Navigation and Aſtronomy; for the taking of Altitudes, *&c.* See ALTITUDE.

The *Quadrant* is variouſly contrived, and furniſhed with various Apparatus, according to the various Uſes it is intended for; but they all have this in common, that they conſiſt of a *Quadrant*, or quarter of a Circle, whoſe Limb is divided into 90 Degrees; that they have a Plummet ſuſpended from the Centre, and are furniſh'd with *Pinnulæ*, or Sights.

The principal, moſt uſual, and moſt uſeful *Quadrants*, are, the *Common* or *Surveying Quadrant*, the *Aſtronomical Quadrant*, the *Horodictical Quadrant*, *Gunter*'s *Quadrant*, *Sutton*'s or *Collins*'s *Quadrant*, and the *Sinecal Quadrant*.

The Common or Surveying Quadrant (repreſented Tab. SURVEYING, fig. 30.) is made of Braſs, Wood, or other Matter; uſually 12 or 15 Inches Radius———Its Circular Limb is divided into 90°, and each of thoſe ſubdivided into as many equal Parts as the Space will allow; either diagonally, or otherwiſe———On one Edge, or Semidiameter, are fixed two immoveable Sights; and in the Angle, or Centre, is hung a Thread with a Plummet.

To the Centre is likewiſe, ſometimes, fixed a Label or moveable Index, bearing two other Sights like the Index of a Teleſcope——And in lieu of the immoveable Sights, is ſometimes fitted a Teleſcope; tho' this more properly belongs to the Aſtronomical *Quadrant*.

On the under ſide, or face of the Inſtrument, is fitted a Ball, and Socket; by means whereof, it may be put in any poſition for uſe.

Beſides the Eſſentials of the *Quadrant*, there is frequently added on the face near the Centre, a kind of Compartiment, call'd the *Quadrat*, or *Geometrical Square*; as in the Figure——This, in ſome meaſure, making a diſtinct Inſtrument of itſelf; ſee its Deſcription and Uſe under the Article QUADRAT.

The *Quadrant* is to be uſed in different Situations, according to the Dimenſions to be taken———To obſerve Heights and Depths, its Plane is diſpoſed at right Angles to the Horizon: To take horizontal Diſtances, the Plane is diſpoſed parallel thereto.

Heights and Diſtances, again, may be taken two ways; *viz.* by means of the fixed Sights and Plummet, and by the Label.

Uſe of the Common, or Surveying QUADRANT.

1. *To take the Height, or Depth of an Object,* with the fixed Sights and Plummet——Place the *Quadrant* vertically, and the Eye under the Sight next the Arch of the *Quadrant*: Thus direct the Inſtrument to the Object, *v. gr.* the Top of a Tower, till the viſual Rays thereof ſtrike thro' the Sights upon the Eye.

This done, the Portion of the Arch intercepted between the Thread and the Semidiameter, whereon the Sights are faſten'd, ſhew the Complement of the Object's Height above the Horizon, or its Diſtance from the Zenith; and the other Portion of the Arch intercepted between the Thread and the other Semidiameter, ſhews the Height itſelf of the Object above the Horizon.

The ſame Arch likewiſe gives the Quantity of the Angle made by the viſual Ray, and a horizontal Line parallel to the Baſe of the Tower.

Note, to obſerve Depths, the Eye muſt be placed over that Sight next the Centre of the *Quadrant*.

From the Height, or Depth of the Object, in Degrees thus found, which ſuppoſe 35°, 35′, and the Diſtance of the foot of the Object from the place of Obſervation carefully meaſur'd, which ſuppoſe 47 Foot; its Height or Depth in Feet, Yards, *&c.* is eaſily determin'd by the moſt common Caſe in Trigonometry. See TRIANGLE.

For we have here, in a Triangle, one Side given, *viz.* the Line meaſured; and we have all the Angles: for that of the Tower is always ſuppoſed a right Angle, the other two therefore are equal to another right Angle; but the Angle obſerved is 35°, 35′; therefore the other is 54°, 25′. See ANGLE.

The Caſe then will be reduced to this; as the Sine of 54°, 25′, is to 47 Feet; ſo is the Sine of 35°, 35′, to a 4th Term, *viz.* 33½ Feet: to which add the Height of the Obſerver's Eye, ſuppoſed 5 Foot, the Sum 38½ Feet, is the Height of the Tower required.

2. *The further Uſe of the* Quadrant *in taking of Altitudes of Objects, both acceſſible and inacceſſible*; ſee under the Article ALTITUDE.

3. *Uſe of the* Quadrant *in taking Heights and Diſtances by the Index and Sights.*——To take, *e.gr.* a Height, as that of a Tower, whoſe Baſe is acceſſible——Place the Plane of the Inſtrument at right Angles to the Plane of the Horizon, and one of its Edges parallel thereto, by means of the Plummet, which in that caſe will hang down along the other——In this Situation turn the Index, till thro' the Sight you ſee the top of the Tower; and the Arch of the Limb of the *Quadrant* between that ſide thereof parallel to the Horizon, and the Index, will be the Height of the Tower in degrees: whence, and from the Diſtance meaſured as before, its Height in Feet, *&c.* may be found by Calculation, as in the former Caſe; or without Calculation, by drawing, from the Data, on Paper, a Triangle ſimilar to the great one, whoſe Baſe is the Diſtance, and its Perpendicular meaſured on the Scale, the Height of the Tower. See SCALE.

4. *Uſe of the* Quadrant *in meaſuring horizontal Diſtances*——Tho the *Quadrant* be a leſs proper Inſtrument for this purpoſe than a Theodolite, Semicircle, or the like, by reaſon Angles greater than *Quadrants* cannot be taken hereby; yet Neceſſity ſometimes obliges Perſons to have recourſe to it.

The Manner of its Application herein is the ſame with that of the Semicircle; all the difference between the two Inſtruments conſiſting in this, that the one is an Arch of 180°, and can therefore take an Angle of any Quantity; and the other only an Arch of 90°, and therefore confined to Angles of that Quantity. See, therefore, SEMICIRCLE.

Aſtronomical QUADRANT, is a large *Quadrant*, uſually made of Braſs, ſometimes of wooden Bars, only faced with Plates of Iron, or the like; having its Limb curiouſly divided, diagonally or otherwiſe, into Degrees and Minutes, and even Seconds, if poſſible; with plain Sights fixed to one ſide of it, or inſtead thereof, a Teleſcope; and an Index moving about the Centre, carrying either plain Sights, or a Teleſcope.

Theſe *Quadrants* are of principal uſe in taking Obſervations of the Sun, Planets, or fixed Stars. See OBSERVATION.

The Antients uſed only plain Sights, but the Moderns have found it of great benefit to uſe Teleſcopes inſtead of them. See SIGHT and TELESCOPE.

Add, that the Contrivance of moving the Index, by the help of a Screw on the Edge of the Limb, and of readily and eaſily directing it, and the *Quadrant* upon its Pedeſtal, to any deſired Phænomenon, by means of the Screws and dented Wheels, is a ſtill greater Improvement of the Inſtrument.

The Particulars of the Mechaniſm whereby this is effected, would afford a very dry and intricate, as well as uſeleſs Detail; which we ſhall omit, as being ſufficiently known among the Inſtrument-Makers: And in lieu thereof, content ourſelves with giving a Figure or Repreſentation, (Tab. ASTRONOMY, fig. 53.)

The Uſe of this Inſtrument is obvious——Being adjuſted as above, and turned horizontally round on its Axis, till thro' the moveable Teleſcope the Object be ſeen to fall in with the Point of Interſection of the croſs Bars, the Degrees cut by the Index give the Altitude requir'd. See TELESCOPE.

The *Horodictical* QUADRANT, is a pretty, commodious Inſtrument, thus call'd from its Uſe in telling the Hour of the Day; which is its only Uſe.

Its Conſtruction is ſo ſimple and eaſy, and its Application ſo ready, that we ſhall deſcribe both, for the Uſe of ſome who may want other Conveniencies.

Conſtruction and Uſe of the Horodictical QUADRANT.

From the Centre of the *Quadrant* C, (Tab. ASTRONOMY, *Fig.* 54.) whoſe Limb A B is divided into 90°; deſcribe ſeven concentric Circles at Intervals at pleaſure; and to theſe add the Signs of the Zodiac in the Order they are repreſented in the Scheme. 2. Applying a Ruler to the Centre C, and the Limb A B, mark upon the ſeveral Parallels the Degrees correſponding to the Altitude of the Sun when therein, for the given Hours; connect the Points belonging to the ſame Hour with a curve Line, to which add the Number of the Hour——To the Radius C A, fit a couple of Sights, and to the Centre of the *Quadrant* C, tie a Thread with a Plummet, and upon the Thread a Bead to ſlide.

If now the Bead be brought to the Parallel wherein the Sun is, and the *Quadrant* directed to the Sun till a viſual Ray paſs thro' the Sights, the Bead will ſhew the Hour.

For the Plummet in this ſituation cuts all the Parallels in the Degrees correſponding to the Sun's Altitude: Since, then, the Bead is in the Parallel which the Sun then deſcribes, and thro' the Degrees of Altitude to which the Sun is elevated every Hour, there paſs Hour-Lines; the Bead muſt ſhew the preſent Hour——Some Perſons who are not mighty nice, repreſent the Hour-Lines by Arches of Circles, or even by ſtraight Lines; and that without any ſenſible Error.

Gunter's QUADRANT, is a kind of *Quadrant* (repreſented Tab. ASTRONOMY, *Fig.* 55.) invented by our Countryman *Edm. Gunter*.

This, beſide the graduated Limb, fixed Sights, and a Plummet, as the other *Quadrants*; has, likewiſe, a Stereographical Projection of the Sphere on the Plane of the Meridian, with the Eye placed in one of the Poles; by which, beſides the common Uſes of other *Quadrants*, ſeveral uſeful Queſtions in Aſtronomy, *&c.* are eaſily ſolved.

Uſe of Gunter's QUADRANT.

1. *To find the Sun's Meridian Altitude for any given Day; or the Day of the Month for any given Meridian Altitude*——Lay the Thread to the Day of the Month in the Scale next the Limb; the Degree it cuts in the Limb is the Sun's Meridian Altitude.

Thus, the Thread being laid on the 15th of *May*, cuts 59° 30′, the Altitude ſought——And contrarily, the Thread being ſet to the Meridian Altitude, will ſhew the Day of the Month.

2. *To find the Hour of the Day*——Having put the Bead (which ſlides on the Thread) to the Sun's Place in the Ecliptic, obſerve the Sun's Altitude by the *Quadrant*; then, if the Thread be laid over the ſame in the Limb, the Bead will fall upon the Hour requir'd.

Thus, ſuppoſe on the 10th of *April*, the Sun being then in the beginning of *Taurus*, I obſerve the Sun's Altitude, by the *Quadrant*, to be 36°. I place the Bead to the beginning of *Taurus* in the Ecliptic, and lay the Thread over 36° of the Limb; and find the Bead to fall upon the Hour-Line mark'd 3 and 9; accordingly the Hour is either 9 in the Morning, or 3 in the Afternoon——Again, laying the Bead on the Hour given, (having firſt rectify'd or put it to the Sun's Place) the Degree cut by the Thread on the Limb, gives the Altitude.

Note, the Bead may be rectify'd otherwiſe, *viz.* by bringing the Thread to the Day of the Month, and the Bead to the Hour-Line of 12.

3. *To find the Sun's Declination from his Place given; and contrariwiſe*——Set the Bead to the Sun's Place in the Ecliptic; move the Thread to the Line of Declination E T, and the Bead will cut the Degree of Declination requir'd—Contrarily, the Bead being adjuſted to a given Declination, and the Thread moved to the Ecliptic, the Bead will cut the Sun's Place.

4. *The Sun's Place being given, to find his right Aſcenſion; or contrarily* —— Lay the Thread on the Sun's Place in the Ecliptic, and the Degree it cuts on the Limb is the right Aſcenſion ſought —— Contrarily, laying the Thread on the right Aſcenſion, it cuts the Sun's Place in the Ecliptic.

5. *The Sun's Altitude being given, to find his Azimuth; and contrariwiſe* —— Rectify the Bead for the Time (as in the ſecond Article) and obſerve the Sun's Altitude: bring the Thread to the Compliment of that Altitude; thus the Bead will give the Azimuth ſought, among the Azimuth Lines.

6. *To find the Hour of the Night from ſome of the five Stars laid down on the Quadrant* —— 1. Put the Bead to the Star you intend to obſerve, and find how many Hours he is off the Meridian, (by Article 2.) then from the right Aſcenſion of the Star, ſubſtract the Sun's right Aſcenſion converted into Hours; and mark the difference: Which difference added to the obſerv'd Hour of the Star from the Meridian, ſhews how many Hours the Sun is gone from the Meridian, which is the Hour of the Night.

Suppoſe, *e. gr.* on the 15th of *May*, the Sun being in the fourth Degree of *Gemini*, I ſet the Bead to *Arcturus*; and obſerving his Altitude, find him to be in the Weſt about 52° high, and the Bead to fall on the Hour-Line of two after Noon: then will the Hour be 11 Hours 50 Minutes paſt Noon, or 10 Minutes ſhort of Midnight.

For, 62°, the Sun's right Aſcenſion converted into Time, makes 4 Hours 8 Minutes, which ſubſtracted from 13 Hours 58 Minutes, the right Aſcenſion of *Arcturus*, the Remainder will be 9 Hours 50 Minutes; which added to 2 Hours, the obſerv'd diſtance of *Arcturus* from the Meridian, ſhews the Hour of the Night to be 11 Hours 50 Minutes.

Sutton's QUADRANT, ſometimes, alſo, call'd *Collins's Pocket* QUADRANT —— One of the beſt of Mr. *Sutton's Quadrants*, (repreſented Tab. ASTRONOMY, *Fig.* 56.) is a Stereographic Projection of that Quarter of the Sphere between the Tropics, upon the Plane of the Equinoctial, the Eye being in the North Pole.

'Tis fitted to the Latitude of *London* —— The Lines running from the right Hand to the left are Parallels of Altitude, and thoſe croſſing them are Azimuths: The leſs of the two Circles bounding the Projection is ¼ of the Tropic of *Capricorn*, the greater ¼ of that of *Cancer* —— The two Ecliptics are drawn from a Point on the left Edge of the *Quadrant*, with the Characters of the Signs upon 'em; and the two Horizons are drawn from the ſame Point —— The Limb is divided both into Degrees, and Time; and by having the Sun's Altitude, the Hour of the Day may be here found to a Minute.

The quadrantal Arches next the Centre contain the Calendar of Months; and under them, in another Arch, is the Sun's Declination.

On the Projection are placed ſeveral of the moſt noted fixed Stars between the Tropics, and next below the Projection is the *Quadrat*, and Line of Shadows. See QUADRAT.

Uſe of Sutton's *or* Collins's QUADRANT.

To find the Time of Sun-riſing or ſetting, his Amplitude, Azimuth, Hour of the Day, &c. —— Lay the Thread over the Day and the Month, and bring the Bead to the proper Ecliptic, either that of Summer or Winter, according to the Seaſon; (which is call'd rectifying) then, moving the Thread, bring the Bead to the Horizon; in which Caſe the Thread will cut the Limb in the time of the Sun's riſing or ſetting, before, or after ſix; and at the ſame time the Bead will cut the Horizon in the Degrees of the Sun's Amplitude.

Again, obſerving the Sun's Altitude with the *Quadrant*, and ſuppoſing it found 45° on the 24th of *April*; lay the Thread over the 24th of *April*; bring the Bead to the Summer Ecliptic, and carry it to the Parallel of Altitude 45°. In which Caſe the Thread will cut the Limb at 55° 15′, and the Hour will be ſeen among the Hour-lines to be either 41′ paſt nine in the Morning, or 19′ paſt two in the Afternoon.

Laſtly, the Bead among the Azimuths ſhews the Sun's diſtance from the South, *viz*, 50° 41′.

But note, that if the Sun's Altitude be leſs than what it is at ſix a-clock, the Operation muſt be perform'd among thoſe Parallels above the Winter Horizon; the Bead being rectify'd to the Winter Ecliptic.

Sinecal QUADRANT, is an Inſtrument of Uſe in Navigation —— (It is repreſented Tab. NAVIGATION, *Fig.* .) and conſiſts of ſeveral concentric *quadrantal* Arches; divided into eight equal parts by Radii with parallel right Lines croſſing each other at right Angles.

Now, any of the Arches, *e. gr.* B C may be accounted a *Quadrant* of any of the great Circles of the Sphere, chiefly of the Horizon, and Meridian: If, then, B C be taken for a *Quadrant*, *e. gr.* of the Horizon; either of the Sides, *e. gr.* A B, may repreſent the Meridian; and the other, A C will repreſent a Parallel, or Line of Eaſt and Weſt; and all the other Lines parallel to A B will alſo be Meridians; and all thoſe parallel to A C, Eaſt and Weſt Parallels, or Eaſt and Weſt Lines.

Again, the eight Spaces into which the Arches are divided by the Radii, repreſent the eight Points of the Compaſs in a quarter of the Horizon; each containing 11° 15′.

The Arch B C is likewiſe divided into 90°, and each Degree ſubdivided into 12′ Diagonal-wiſe.

To the Center is fixed a Thread, as A L; which being laid over any Degree of the *Quadrant*, ſerves to divide the Horizon.

If the *Sinecal Quadrant* be taken for a fourth part of the Meridian; one ſide thereof, A B, may be taken for the common Radius of the Meridian and the Equator; and then the other ſide A C, will be half the Axis of the World — The Degrees of the Circumference B C will repreſent Degrees of Latitude, and the Parallels to the ſide A B, aſſumed from every Point of Latitude to the Axis A C, will be Radii of the Parallels of Latitude, as likewiſe the Sine-Complements of thoſe Latitudes.

Suppoſe, then, it be requir'd to find the Degrees of Longitude contain'd in 83 of the leſſer Leagues, in the Parallel of 48° — Lay the Thread over 48° of Latitude on the Circumference, and count thence the 83 Leagues, or A B, beginning at A: This will terminate in H, allowing every ſmall Interval, four Leagues. Then tracing out the Parallel H G, from the Point H to the Thread; the part A G of the Thread ſhews that 125 greater, or Equinoctial Leagues, make 6° 15′; and therefore that the 83 leſſer Leagues A H which make the difference of Longitude of the Courſe, and are equal to the Radius of the Parallel G I, make 6° 15′ of the ſaid Parallel.

If the Ship ſail an oblique Courſe, ſuch Courſe, beſides the North and South greater Leagues, gives leſſer Leagues Eaſterly and Weſterly; to be reduced to Degrees of Longitude of the Equator —— But theſe Leagues being made neither on the Parallel of Departure, nor on that of Arrival, but in all the intermediate ones; we muſt find a mean proportional Parallel between 'em.

To find this, we have on the Inſtrument *a Scale of croſs Latitudes*. Suppoſe, then, it were requir'd to find a mean Parallel between the Parallels of 40° and 60°. With your Compaſſes take the middle between the 40th and 60th Degree on the Scale: This middle Point will terminate againſt the 51ſt Degree, which is the mean Parallel requir'd.

Uſe of the Sinecal QUADRANT.

The Uſe of this Inſtrument is to form Triangles upon, ſimilar to thoſe made by a Ship's way, with the Meridians and Parallels; the ſides of which Triangles are meaſur'd by the equal Intervals between the concentric *Quadrants*, and the Lines N. and S. E. and W.

The Lines and Arches are diſtinguiſh'd, every fifth, by a broader Line; ſo that if each Interval be taken for one League, there will be five between one broad Line and another.

Now, ſuppoſe, a Ship to have ſail'd 150 Leagues North-Eaſt, one fourth North; which is the third Point, and makes an Angle of 35° 45′, with the North part of the Meridian —— Here are given two things; *viz.* the Courſe and Diſtance ſail'd, by which a Triangle may be form'd on the Inſtrument, ſimilar to that made by the Ship's Courſe, and her Longitude and Latitude; and hence may the unknown parts of the Triangle be found. See TRIANGLE.

Thus, ſuppoſing the Centre A to repreſent the place of Departure; count, by means of the concentric Arches, along the Point the Ship ſail'd in, as A D, 150 Leagues from A to D: Then is the Point D the place the Ship is arriv'd at; which note. —— This done, let D E be parallel to the ſide; and then there will be form'd a right-angled Triangle A E D, ſimilar to that of the Ship's Courſe, difference of Longitude and Latitude: The ſide A E gives 125 Leagues for the difference of Latitude Northwards, which makes 6° 15′, and the ſide D E gives 83 leſſer Leagues anſwering to the Parallels, which being reduced, as ſhewn above, gives the difference of Longitude —— And thus is the whole Triangle found.

QUADRANT, in Gunnery, call'd alſo the *Gunner's Square*, is an Inſtrument ſerving to elevate or lower Cannons, Mortars, *&c.* according to the Places they are to be levell'd or directed to. See MORTAR, LEVEL, *&c.*

It conſiſts of two Branches, made of Braſs; one about a Foot long, 8 Lines broad, and one Line in thickneſs; the other four Inches long, and the ſame length and breadth as the former — Between theſe Branches is a *Quadrant* divided into 90 Degrees, beginning from the ſhorteſt Branch, furniſh'd with Thread and Plummet. *See its Figure repreſented* Tab. FORTIFICATION, *Fig.* 11.

The Uſe of this Inſtrument is eaſy; nothing more being requir'd but to place the longeſt Branch in the Mouth of the Cannon or Mortar, and elevate or lower it, till the Thread cuts the Degree neceſſary to hit a propoſed Object.

Sometimes, alſo, on one of the Surfaces of the long Branch is noted the diviſion of Diameters, and weights of Iron Bullets; as alſo the Bores of Pieces. See Ordnance, Calliper, &c.

Quadrant *of Altitude*, is an Appendage of the Artificial Globe; conſiſting of a Lamina, or Slip of Braſs, the length of a *Quadrant* of one of the great Circles of the Globe; and divided into 90 Degrees.

At the end where the Diviſions terminate, is a Nut rivetted on and furniſh'd with a Screw, by means whereof the Inſtrument is fitted on to the Meridian; and moveable round upon the Rivet, to all Points of the Horizon.

Its Uſe is to ſerve as a Scale in meaſuring of Altitudes, Amplitudes, Azimuths, &c. See the manner of its Application under the Uſe of the Globe.

QUADRANTAL *Space*, in Geometry, ſee Quadrant.

Quadrantal *Triangle*, is a ſpherical Triangle, one of whoſe Sides is a Quadrant of a Circle; and one of its Angles, a right Angle. See Spherical *Triangle*.

Quadrantal, in Antiquity, a Veſſel in uſe among the *Romans* for the meaſuring of Liquids. See Measure.

It was, at firſt, call'd *Amphora*; afterwards *Quadrantal*, from its Form, which was Square every way, like a Die. See Amphora.

Its Capacity was 80 *Libræ*, or Pounds of Water, which made 48 *Sextaries*, or 6 *Congii*. See Congius.

QUADRANTATA *Terræ*, in our antient Law-Books, is uſed for a quarter of an Acre; now call'd a Rood. See Acre and Rood. See alſo Farthingdeal.

QUADRAT, call'd alſo *Geometrical Square* and *Line of Shadows*, is an additional Member on the Face of the common *Gunter*'s and *Sutton*'s Quadrants; of ſome uſe in taking Altitudes, &c. See Quadrant.

The *Quadrat*, KLH, (Tab. Astronomy, *Fig.* 55.) has each of its ſides divided into 100 equal Parts commencing from the Extremes, ſo as the Number 100 falls on the Angles; and repreſenting Tangents to the Arch of the Limb.

The Diviſions are diſtinguiſh'd by little Lines from 5 to 5, and by Numbers from 10 to 10; and the Diviſions being occaſionally produced a-croſs, form a kind of Lattice, conſiſting of 10000 little Squares.

The Proportion here, is, as Radius is to the Tangent of the Altitude at the place of Obſervation (*i. e.* to the parts of the *Quadrat* cut by the Thread) ſo is the diſtance between the Station and foot of the Object, to its height above the Eye. See Altitude

Uſe of the Quadrat, *Geometrical Square, or Line of Shadows.*

1. The *Quadrat* being vertically placed, and the Sights directed to the Top of a Tower, or other Object, whoſe Height is required; if the Thread cut the ſide of the *Quadrat* mark'd *right Shadows*, the diſtance from the Baſe of the Tower to the Point of Station is leſs than the Tower's Height——If the Thread fall on the Diagonal of the Square, the Diſtance is juſt equal to the Height——If it fall on that ſide mark'd *verſed Shadows*, the Diſtance exceeds the Height.

Hence, meaſuring the Diſtance, the Height is found by the *Rule of Three*; inaſmuch as there are three Terms given——Indeed, their diſpoſition is not always the ſame; for when the Thread cuts the ſide of *verſed Shadows*, the firſt Term in the *Rule of Three* ought to be that part of the ſide cut by the Thread, the ſecond the ſide of the Square, and the third the Diſtance meaſur'd——If the Thread cut the other ſide, the firſt Term is the whole ſide of the Square, the ſecond the parts of the ſide cut by the Thread, and the third the Diſtance.

For an Inſtance of each——Suppoſe, *e.gr.* in looking at the Top of a Steeple the Thread cut the ſide of *right Shadows* in the Point 40, and that the Diſtance meaſures 20 Poles; the Caſe then will ſtand thus: As 40 is to 100, ſo is 20 to a fourth Term, which I find to be 50; the Height of the Steeple in Poles.

Again, ſuppoſing the Thread to fall on the other ſide, in the Point 50, and the Diſtance to meaſure 35 Poles; the Terms are to be diſpoſed thus: As 100 is to 60; ſo is 35 to a fourth Term, *viz.* 21, the Height required.

Uſe of the Quadrat *without Calculation.*

The preceding Caſes may be perform'd without Calculation where the Diviſions of the Square are produced both ways, ſo as to form the Area into little Squares.

Thus, ſuppoſe, 1. The Thread to fall on 40 in the ſide of *right Shadows*, and the Diſtance be meaſur'd 20 Poles; ſeek among the little Squares for that Perpendicular to the ſide which is 20 parts from the Thread; this Perpendicular will cut the ſide of the Square next the Centre, in the Point 50, which is the Height requir'd in Poles.

2. If the Thread cut the ſide of *verſed Lines* in the Point 60, and the Diſtance be 35 Poles; count 35 parts on the ſide of the *Quadrat* from the Centre; count alſo the Diviſions of the Perpendicular from the Point 35 to the Thread, which will be 21, the Height of the Tower in Poles.

Note, In all Caſes, the Height of the Centre of the Inſtrument is to be added. See farther under Shadow.

Quadrat, in Aſtrology, call'd alſo Quartile, an Aſpect of the heavenly Bodies, wherein they are diſtant from each other, a Quadrant, or ninety Degrees. See Aspect.

This is held a malignant Aſpect. See Quartile.

Quadrat, in Printing, is a ſort of *Space*; that is, a piece of Metal, caſt like the Letters, to be uſed occaſionally in Compoſing, to make the Intervals between Words, at the ends of Lines, &c. See Printing.

There are *Quadrats* of divers Sizes, as *m Quadrats*, *n Quadrats*, &c. which are reſpectively of the Dimenſions of ſuch Letters.

QUADRATA *Legio*, among the *Romans*, was a Legion conſiſting of 4000 Men. See Legion.

QUADRATIC *Equation*, is an *Equation* wherein the unknown Quantity is of two Dimenſions, *i. e.* is the Square of the Root or Number ſought——As in $x^2 = a + b^2$. See Equation.

Quadratic Equations are of two Kinds; *ſimple*, or *pure*; and *adfected*.

Simple, or *Pure* Quadratics, are thoſe where the Square of the unknown Root is equal to the abſolute Number given: As in $aa = 36$; $ee = 146$; $yy = 133225$.

The Reſolution of theſe is eaſy; it being apparent that nothing more is requir'd than to extract the Square-Root out of the Number or known Quantity. See Extraction.

Thus the Value of a in the firſt Equation is equal to 6; in the ſecond $e = 12$, and a little more, as being a ſurd Root; and in the third Example $y = 365$. See Root.

Adfected Quadratics, are thoſe which between the higheſt Power of the unknown Number, and the abſolute Number given, have ſome intermediate Power of the unknown Number: As $aa + 2\ ba = 100$. See Adfected.

All Equations of this Rank are in one or other of the following Forms; *viz.* $aa + ad = R.$ $aa - ad = R.$ $ad - aa = R.$

There are ſeveral Methods of ſolving *adfected Equations*, or of extracting their Roots; the moſt convenient is that of *Harriot*——Here, x being aſſumed as a part of the Root; a, the known Quantity of the ſecond Term, will be double the other part; and therefore half of a is the other part——The Square, thereof, will be compleated by adding one fourth of aa; which done, the Root of the Square may be extracted thus:

$$\begin{array}{l}
\qquad x^2 + ax = b \\
\qquad\qquad \tfrac{1}{4}aa \quad \tfrac{1}{4}aa \quad add. \\
\hline
x^2. \quad ax. \quad \tfrac{1}{4}a^2 = \tfrac{1}{4}a^2. \quad b^2. \\
\hline
x^2. \tfrac{1}{2}a = \surd\ (\tfrac{1}{4}a^2. \quad b^2) \\
\hline
x = \tfrac{1}{2}a\ \surd\ (\tfrac{1}{4}a^2. \quad b^2)
\end{array}$$

In lieu of the Characters + and —, we here uſe two Points; to avoid the neceſſity of diſtinguiſhing ſeveral Caſes. See Resolution.

Conſtruction of Quadratic *Equations*; ſee Construction.

QUADRATING *of a Piece*, among Gunners, is the ſeeing that a Piece of Ordnance be duly placed, and poiz'd in its Carriages; that its Wheels be of an equal Height, &c. See Carriage, Ordnance, Cannon, &c.

QUADRATO-*quadratum*, or *Biquadratum*, the fourth Power of Numbers: or the Product of the Cube multiply'd by the Root. See Power.

Quadrato-*Cubus*, Quadrato-Quadrato-*Cubus*, and Quadrato-*Cubo-Cubus*, are Names uſed by *Diophantus*, *Vieta*, *Oughtred*, and others, for the 5th, 7th, and 8th Powers of Numbers. See Powers.

QUADRATRIX, in Geometry, a mechanical Line, by means whereof we can find right Lines equal to the Circumference of a Circle, or other Curve, and the ſeveral Parts thereof. See Circle, &c.

Or, more accurately, the *Quadratrix of a Curve*, is a tranſcendental Curve, deſcribed on the ſame Axis, the Semiordinates whereof being given, the Quadrature of the correſpondent Parts in the other Curve, are likewiſe given. See Curve.

Thus, *e. gr.* the Curve AND (Tab. Analysis, *Fig.* 21.) may be call'd the *Quadratrix* of the *Parabola* AMC, ſince 'tis demonſtrated that APMA is $= PN^2$, or $APMA = AP.\ PN$, or $APMA = PN\,a$, &c.

The moſt eminent of theſe *Quadratrices* are that of *Di*- *oſtrates* and that of Mr. *Tſchirnhauſen* for the Circle, and hat of Mr. *Perks* for the Hyperbola.

Quadratrix *of Dinoſtrates*, is a Curve, A M *m m*, Tab. Analysis, *Fig.* 22.) whereby the Quadrature of he Circle is effected, tho' not Geometrically, but Mecha- ically; thus call'd from its Inventor *Dinoſtrates*.

Its Geneſis is thus,—Divide the *Quadrantal* Arch A N B nto any Number of equal Parts; in N *n*, *&c.* by a conti- ual Biſſection——divide the Radius A C into the ſame Number of Parts in the Points P *p*, *&c.* Draw Radii C N, *cn*, *&c.*——Laſtly, on the Points P *p*, *&c.* erect Perpen- diculars P M, *p m*, *&c.* the Curve form'd by connecting theſe Lines is the *Quadratrix* of *Dinoſtrates*.

Here, from the Conſtruction, A B : A N :: A C : A P; and therefore, if A B $=a$, A C $=b$, A N $=x$, A P $=y$; $ax=by$. See Quadrature.

Quadratrix *Tſchirnhauſiana*, is a tranſcendental Curve A M *m m* B, (*Fig.* 23.) whereby the Quadrature of the Circle is likewiſe effected; invented by M. *Tſchirnhauſen*, in imitation of that of *Dinoſtrates*.

Its Geneſis is thus conceived——Divide the Quadrant A N B, and its Radius A C into equal Parts, as in the former; and from the Points P *p*, *&c.* draw the right Lines P M, *p m*, *&c.* parallel to C B; and from the Points N, *n*, *&c.* the right Lines N M, *n m*, *&c.* parallel to A C— The Points A M *m*, *&c.* being connected, the *Quadratrix* is form'd; wherein A B : A N :: A C : A P.

Here again, ſince A B : A N :: A C : A P; if A B $=a$, and A C $=b$, A N $=x$, and A P $=y$; $ax=by$. See Quadrature.

QUADRATUM *Cubi*, Quadrato-Quadrato-Quadratum, and Quadratum *Surdeſolidi*, &c. are Names uſed by the *Arabs* for the 6th, 8th, and 9th Powers of Numbers. See Powers.

QUADRATURE, Quadratura, in Geometry, the ſquaring, or reduction of a Figure to a Square; or the finding a Square equal to a Figure propoſed. See Figure and Square.

Thus, the finding of a Square containing juſt as much Surface, or Area as a Circle, an Ellipſis, a Triangle, or other Figure, is call'd the *Quadrature* of a Circle, an Ellipſis, a Triangle, or the like. See Circle, *&c.*

The *Quadrature* of Rectilinear Figures comes under the common Geometry; as amounting to no more than the finding their Areas, or Superficies; which are in effect their Squares. See Area.

Squares of equal Areas are here eaſily had, by only extracting the Roots of the Areas thus found; and on ſuch Root as a ſide conſtructing a Square. See Square. See alſo the particular Methods of finding the Areas or Squares, under each particular Figure, as Triangle, Parallelogram, Trapezium, *&c.*

The *Quadrature of Curves*, that is, the meaſuring of their Area, or the finding of a rectilinear Space equal to a curvilinear Space, is a Matter of much deeper Speculation; and makes a part of the higher Geometry. See Geometry.

Tho' the *Quadrature*, eſpecially of the Circle, bee a thing many of the firſt-rate Mathematicians among the Antients were very ſollicitous about, (ſee Quadrature *of the Circle*) yet nothing in this kind has been done ſo conſiderable, as in and ſince the middle of the laſt Century; when, *viz.* in the Year 1557, Mr. *Neil* and my Lord *Brounker*, and afterwards, in the ſame Year, Sir *Chriſtopher Wren*, Geometrically demonſtrated the Equality of ſome Curves to a ſtraight Line.

Soon after this, others at home and abroad, did the like in other Curves; and not long afterwards the thing was brought under an analytical Calculus, the firſt Specimen whereof ever publiſhed was given by *Mercator* in 1688. in a Demonſtration of my Lord *Brounker*'s *Quadrature* of the Hyperbola by Dr. *Wallis*'s reduction of a Fraction into an infinite Series by Diviſion. See Quadrature *of the Parabola*.

Tho' it appears by the way that Sir *Iſaac Newton* had before diſcover'd a Method of attaining the Quantity of all quadrable Curves analytically by his Method of Fluxions, before the Year 1668. See Fluxions.

'Tis conteſted between Sir *Chriſtopher Wren* and Mr. *Huygens* which of the two firſt found the *Quadrature* of any determinate Cycloidal Space——Mr. *Leibnitz* afterwards found that of another Space; and M. *Bernoulli* in 1699, diſcover'd the *Quadrature* of an infinity of Cycloidal Spaces, not only Segments, but alſo Sectors, *&c.* See Quadrature *of the Cycloid*, Quadrature *of the Lune*, &c.

Quadrature *of the Circle*, is a Problem that has employ'd the Mathematicians of all Ages; but ſtill in vain. See Circle.

It depends on the Ratio of the Diameter to the Periphery, which was never yet determined in preciſe Numbers. See Diameter, *&c.*

Were this Ratio known, (which would imply the Circumference's being expreſs'd by ſome Affection of the Diameter; and, of conſequence, that it were equal to a right Line) the *Quadrature of the Circle* were effected: it being demonſtrated, that the Area of a Circle is equal to a rectangular Triangle, whoſe two Sides comprehending the right Angle, are the Radius, and a right Line equal to the Circumference——So that to ſquare the Circle, all that is required is to rectify it. See Circumference and Rectification.

Many have approach'd very near this Ratio——*Archimedes* ſeems to have been one of the firſt who attempted it; which he did by means of regular Polygons inſcribed and circumſcribed; and by uſing Polygons of 96 ſides, fixed the Ratio as 7 to 22.. See Polygon.

Some of the Moderns have come nearer, particularly *Lud. a Ceulen*, who with infinite Induſtry found, at length, that ſuppoſing the Diameter 1, the Circumference is leſs than 3.14159265358979323846264338387950; but yet greater than the ſame Number, if the laſt Cypher be turn'd into an Unit.

Strict Geometry here failing, Authors have had recourſe to other Means; and particularly, to a ſort of Curves, call'd *Quadratrices*: But theſe being Mechanical Curves, inſtead of Geometrical ones, or rather Tranſcendental inſtead of Algebraical ones, the Problem is not fairly ſolved thereby. See Transcendental, Mechanical, *&c.* Quadratrix,

Hence, recourſe has been had, by others, to Analytics— and the Problem attempted by three ſorts of Algebraic Calculations——The 1*ſt* gives a kind of tranſcendental *Quadratures*, by Equations of indefinite Degrees: as if $x^x + x$ be equal to 30, and x be ſought, it will be found to be 3; becauſe $3^3 + 3$, is $27 + 3$, or 30.——The 2*d* by vulgar Numbers, tho' irrationally ſuch; or by the Roots of common Equations, which for the general *Quadrature*, or its Sectors, is impoſſible——The 3*d* by means of certain Series, exhibiting the Quantity of a Circle by a Progreſſion of Terms.

Arithmetic, in effect, affords us very accurate and intelligible Expreſſions for all rational Numbers; but it is defective as to Irrationals, which are infinitely more numerous than the former: there being, *e.gr.* an Infinity of 'em between 1 and 2. The Root of 2, which is a mean Proportional between 1 and 2, is a very obſcure Idea; and its Magnitude is ſuch, as that if you would expreſs it in rational Numbers, which alone are clearly intelligible, you may ſtill approach nearer and nearer its exact Value, but never arrive preciſely at it.

Thus, if for the Value of the Root of 2, you firſt put 1, 'tis viſibly too little; if, then, you add $\frac{1}{2}$, 'tis too much; for the Square of $1 + \frac{1}{2}$, or of $\frac{3}{2}$, exceeds 2. If, again, you take away $\frac{1}{8}$, you'll find you have taken too much; and if you'll return $\frac{1}{16}$, the Sum will be too great—Thus, may you proceed to Infinity, without ever finding a Number to ſtop at.

Now theſe Numbers, thus found, being diſpoſed in their proper Order, make what we call an *Infinite Series*. See Series.

Further, of infinite Series's, there are ſome which only yield a finite Sum, as $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$, *&c.* and in general all ſuch as decreaſe in Geometrical Progreſſion—And there are others, on the contrary, which make an infinite Sum; as the Harmonical Progreſſion, $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, *&c.* See Progression.

But, here, we have only to do with the former, as expreſſing a finite Magnitude; yet cannot even the Sum of theſe be always found——Thus, we are certain, that 'tis impoſſible to find the Sum of the Series expreſſing the Root of 2.

Geometry, however, is free from the Impoſſibility Arithmetic labours under, of expreſſing irrational Numbers. ——Thus, the Diagonal of a Square, whoſe Side is 1, expreſſes the Root of 2. See Diagonal.

Yet in other Magnitudes, Geometry, itſelf, may fall under the ſame Difficulty with Arithmetic——For it is poſſible, there may be right Lines which cannot be expreſs'd but by an infinite Series of ſimilar Lines, whoſe Sum it may be impoſſible to find.

In effect, the right Lines, which ſhould be equal to Curves, are frequently of this kind——In ſearching, *e.gr.* for a right Line equal to the Circumference of a Circle, we find that the Diameter being put 1, the Circumference will be ^{4} leſs, $\frac{4}{3}$ more, $\frac{4}{5}$ leſs, $\frac{4}{7}$ more, $\frac{4}{9}$, *&c.* making an infinite Series of Fractions, whoſe Numerator is always 4, and the Denominators in the natural Series of the uneven Numbers; and all theſe Terms, alternately, too great and too little.

Could the Sum of this Series be found, it would give the *Quadrature of the Circle*; but this is not yet done; nor is it at all probable it ever will be done——That, however, is not yet demonſtrated; nor, of conſequence, is the *Quadrature of the Circle* yet demonſtrated impoſſible.

To this it may be added, that as the ſame Magnitude may be expreſs'd by ſeveral different Series, 'tis poſſible the Circumference of the Circle may be expreſs'd in ſome other Series, whoſe Sum may be found——We have two infinite Series, expreſſing the Ratio of the Circumference to the Diameter, tho' indefinitely, as above——The firſt diſcover'd by Sir *Iſaac Newton*; where the Diameter being put 1, the Circumference is $4-\frac{1}{6}-\frac{1}{40}-\frac{1}{112}$, *&c.*——The ſecond, diſcover'd by M. *Leibnitz*; where the Diameter being 1, the Circumference is $4-\frac{1}{3}+\frac{1}{5}+\frac{1}{7}-\frac{1}{9}$, *&c.* The Inveſtigation of each of which Series, by the *Calculus Integralis*, is as follows.

Sir Iſaac Newton*'s Quadrature of the Circle*; or the Inveſtigation of his Series, for ſquaring the Circle.

If the Radius of the Circle, $AC=1$ (Tab. ANALYSIS, fig. 24.) $CP=x$, $y=\surd(1-x^2)$ and $\surd(1-x^2)=1-\frac{1}{2}x^2-\frac{1}{8}x^4-\frac{1}{16}x^6-\frac{5}{128}x^8-\frac{7}{256}-x^{10}$, *&c.* to Infinity. Then will

$$ydx=dx-\tfrac{1}{2}x^2dx-\tfrac{1}{8}x^4dx-\tfrac{1}{16}x^6dx-\tfrac{5}{128}-x^8dx-\tfrac{7}{256}-x^{10}dx-,$$ *&c.* to Infinity.

$$\int ydx=x-\tfrac{1}{6}x^3-\tfrac{1}{40}x^5-\tfrac{1}{112}x^7-\tfrac{5}{1152}x^9-\tfrac{7}{2816}x^{11},$$ *&c.* to Infinity.

When x becomes equal to the Radius CA, the Space DCPM degenerates into a Quadrant. Subſtituting, therefore, 1 for x, the Quadrant will be $1-\frac{1}{6}-\frac{1}{40}-\frac{1}{112}-\frac{5}{1152}-\frac{7}{2816}$, *&c. in infinitum.*—Which ſame Series will meaſure the entire Area of the Circle, the Diameter being 1.

M. Leibnitz*'s Quadrature of the Circle.*

Let the Tangent KB (Tab. ANALYSIS, fig. 25.) $=x$, $BC=1$; and the Secant AC, infinitely near another CK, and the little Arch KL be drawn with the Radius CK; then will $AK=dx$, $KC=\surd(1+x^2)$. Now ſince the Angles at B and L, are right Angles; and by reaſon of the infinitely ſmall Angle KCL, the Angle BKC = KAC; we ſhall have

$$KC:BC::KA:KL$$

$$\surd(1+x^2):1::dx:\frac{dx}{\surd(1+x^2)}$$

Further $CK:KL::CM:mM$

$$\surd(1+x^2):\frac{dx}{\surd(1+x^2)}::1:\frac{dx}{1+x^2}.$$

Therefore the Sector $CMm=\frac{1}{2}dx:(1+x^2)=\frac{1}{2}(dx-x^2dx+x^4dx-x^6dx+x^8dx-x^{10}dx$, *&c.* whence by the Summary Calculus, we find the Sector BCM, whoſe Tangent $KB=x$, $\frac{1}{2}x-\frac{1}{6}x^3+\frac{1}{10}x^5-\frac{1}{14}x^7+\frac{1}{18}x^9-\frac{1}{22}x^{11}$, *&c. in infinitum.* And therefore if BM be the Octant of the Circle, or an Arch of 45°, the Sector will be $\frac{1}{2}-\frac{1}{6}+\frac{1}{18}-\frac{1}{22}$, *&c. in infinitum.* The Double, therefore, of this Series $1-\frac{1}{3}+\frac{1}{5}-\frac{1}{7}+\frac{1}{9}-\frac{1}{11}$, *&c. in infinitum*, is the Quadrant of the Circle; or if the Diameter be $=1$, the entire Area of the Circle.

QUADRATURE *of the Lunes*——Tho' a definite *Quadrature* of the entire Circle, was never yet given; yet there have been various Portions of it ſquar'd——The firſt partial *Quadrature* was given by *Hippocrates* of *Chio*; who ſquared a Portion call'd, from its Figure, the *Lune*, or *Lunula.* See LUNE, where the *Quadrature* is ſhewn.

This *Quadrature* has no dependance on that of the Circle; but then it only extends to the entire Lune, or its half: If you would ſquare any Portion thereof, at pleaſure, the *Quadrature* of the Circle comes in the way.

Yet ſome of the modern Geometers have found the *Quadrature* of any Portion of the Lune at pleaſure, independently of the *Quadrature* of the Circle; tho' ſtill ſubject to a certain reſtriction which prevents the *Quadrature* from being perfect, and, as the Geometricians call it, abſolute and indefinite.

In 1701, the Marquis *de l'Hopital* publiſh'd a new manner of ſquaring the Parts of the Lune taken different ways, and under different Conditions——tho' this, too, is imperfect in the ſame manner as the others.

QUADRATURE *of the Ellipſis*——The *Ellipſis*, too, is a Circle whoſe preciſe *Quadrature* in definite Terms is not yet effected. We have here therefore, as before, recourſe to a Series.

To find the QUADRATURE *of the Ellipſis.*

Let AC (Tab. ANALYSIS, *Fig.* 26.) $=a$ $GC=c$ $PC=x$. Then will

$$y^2=c^2=(a^2-x^2):a^2$$

$$y=c\surd(a^2-x^2):a$$

But $\surd[a^2-x^2]=a-\frac{x^2}{2a}-\frac{x^4}{8a^3}-\frac{x^6}{16a^5}-\frac{5x^8}{128a^7}-\frac{7x^{10}}{256a^9}$. *&c. in infinitum.* Therefore, $ydx=cdx\ \frac{cx^2dx}{2a^2}-\frac{cx^4dx}{8a}-\frac{cx^6dx}{16a^6}-\frac{5cx^8dx}{128a^8}-\frac{7cx^{10}dx}{256a^{10}}$ &c. *in infinitum.*

If then for x be put a; the Quadrant of the Ellipſis will be $ac-\frac{1}{6}ac-\frac{1}{40}ac-\frac{1}{112}ac-\frac{5}{1152}ac-\frac{7}{2816}ac$, *&c. in infinitum.* Which ſame Series exhibits the entire Area of the Ellipſis, if a denote the entire Axis.

Hence, 1. If $\surd ac=1$; the Area of the Ellipſis $=1-\frac{1}{6}-\frac{1}{40}-\frac{1}{112}-\frac{5}{1152}-\frac{7}{2816}$, *&c. in infinitum*: Whence it is evident that an Ellipſis is equal to a Circle whoſe Diameter is a mean Proportional between the conjugate Axes of the Ellipſis. 2. Hence, alſo, an Ellipſis is to a Circle whoſe Diameter is equal to the greater Axis, as ac to a^2; that is, as c to a, or as the leſs Axis to the greater. Hence, laſtly, having the *Quadrature* of the Circle, we ſhall likewiſe have that of the Ellipſis, and on the contrary.

QUADRATURE *of the Parabola*——For the Parabola, we have a *Quadratrix* or tranſcendent Curve, which gives its Square. See QUADRATRIX.

But it may be likewiſe had thus:

$$ax=y^2 \quad \text{See PARABOLA.}$$

$$a^1:2\,x^1:2=y$$

$$ydx=a^1:2x^1:2dx$$

$$\int ydx=\tfrac{2}{3}a^1:2x^3:2=\tfrac{2}{3}\surd ax^3=\tfrac{2}{3}\surd x^2y=\tfrac{2}{3}xy.$$

Hence, the Parabolic Space is to the Rectangle of the Semiordinate into the Abſciſſæ as $\frac{2}{3}xy$ to xy; that is, as 2 to 3.

QUADRATURE *of the Hyperbola*——For this, too, we have a *Quadratrix*, invented by Mr. *Perks.* See QUADRATRIX.

The analytical *Quadrature* was firſt given by *N. Mercator* of *Holſtein*, the firſt Inventor of infinite Series. But *Mercator* finding his Series by Diviſion; Sir *Iſaac Newton* and M. *Leibnitz* improv'd upon his Method; the one ſeeking 'em by the Extraction of Roots, the other by a Series preſuppoſed. See SERIES.

Mercator's Quadrature of the Hyperbola between its Aſymptotes.

Since in an Hyperbola within the Aſymptotes, $a^2=by+xy$; or, if $a=b=1$, (which may be ſuppoſed, ſince the determination of b is arbitrary.)

Then will $1:\dfrac{1=y+xy}{(1+x)=y}$

That is (the Diviſion being actually performed)

$$y=1-x+x^2-x^3+x^4-x^5+x^6,$$ *&c.*

$$ydx=dx-xdx+x^2dx-x^3dx+x^4dx-x^5-dx+x^6dx,$$ *&c.*

$$\int ydx=x-\tfrac{1}{2}x^2+\tfrac{1}{3}x^3-\tfrac{1}{4}x^4+\tfrac{1}{5}x^5-\tfrac{1}{6}x^6+\tfrac{1}{7}x^7,$$ *&c. in infinitum.*

QUADRATURE *of the Cycloid*——Since TP (Tab. ANALYSIS, *Fig.* 27.) = PM; in the Triangle PMT, the Angles M and T will be equal; and conſequently, TPQ = 2 M. But the Meaſure of the Angle APQ is the half Arch AP; which likewiſe meaſures the Angle TPA. Therefore APQ = TMP = MmS, by reaſon MP and mq are parallel.

Wherefore, ſince the Angles at S and Q are right Angles, we have

$$AQ:QP::MS:mS.$$

Let, then, $AQ=x$, $AB=1$; then will $PQ=\surd(x-xx)$ and $mS=dx\surd(x-xx):x$. But it is ſhewn, that $\surd(x-xx)=x^{1:2}-\frac{1}{2}x^{3:2}-\frac{1}{8}x^{1:2}dx-\frac{1}{2}x^{1:2}dx$, *&c. in infinitum.* Therefore, $dx\surd(x-xx):x=$ (the Numerators of the Exponents being diminiſh'd by two Units in the Diviſion by x) $x^{-1:2}dx-{}^{1}:x^{1:2}dx-\frac{1}{8}x^{3:2}dx-\frac{1}{16}x^{5:2}dx$, *&c. in infinitum.* Whoſe Sum $2x^{1:}-\frac{1}{3}x^{3:2}-\frac{1}{20}x^{5:2}-\frac{1}{56}x^{7:2}$, *&c. in infinitum.* is the Semiordinate of the Cycloid QM refer'd to the Axis AP. Hence, QMdx, or the Element QMSq of the Cycloidical Space $AMQ=2x^{1:2}dx-\frac{1}{3}x^{3:2}dx-\frac{1}{20}x^{5:2}dx-\frac{1}{50}x^{7:2}dx$, *&c. in infinitum.* Whoſe Sum $=\frac{4}{3}x^{3:2}-\frac{2}{15}{}^{5:2}-\frac{1}{70}x^{7:2}-\frac{1}{252}x^{9:2}$, *&c. in infinitum*, expreſſes the Segment of the Cycloid AMQ.

If then $mS=g$, $G=dx\surd(x-xx):x$ be multiply'd into $GM=AQ=x$; we ſhall find the Element GMHG of the Area $AMG=dx\surd(x-xx)$. Which being the ſame with the Element of the Segment of the Circle APQ, the Space AMG will be equal to the Segment of the Circle APQ; and conſequently, the Area ADC equal to the Semicircle APB.

Hence, Since CB is equal to the Semiperiphery of the Circle; if that $=p$ and $AB=a$; the Rectangle $BCDA=ap$; and the Semicircle APB; and, conſequently, the external Cycloidical Space $ADC=\frac{1}{4}ap$. Therefore the Area of the Semicycloid $ACB=\frac{3}{4}ap$, and $AMCBPA=\frac{1}{2}ap$. Conſequently, the Area of the Cycloid is triple of the generating Circle.

QUADRATURE *of the Logiſtic, or Logarithmic Curve*—Let the Subtangent PT (Tab. ANALYSIS, *Fig.* 28.) $=a$, $PM=x$ $Pp=dx$; then will

$$ydx:dy=a$$

$$ydx=ady$$

$$\int ydx=ay$$

Wherefore the indeterminate Space HPMI, is equal to the Rectangle of PM into PT.

Hence, 1. Let $QS=z$; then will the indeterminate Space $ISQH=az$; and, conſequently, $SMPQ=ay-az=a(y-z)$; that is, the Space intercepted between the two Logiſtic Semiordinates is equal to the Rectangle of the Subtangent into the difference of the Semiordinates.

2: Therefore the Space BAPM, is to the Space PMSQ as the difference of the Semiordinates AB and PM to the difference of the Semiordinates PM and SQ.

Note, If a Curve be not ſuppoſed; deſcribe but only an Equation to it given, ſo as it don't appear; *e. gr.* where the Origin of x is to be fixed, we are to put $x=0$ in the Integral, and expunging what are multiply'd by x, add to it the Remainder, if there be any, under the contrary Sign; to have the *Quadrature* ſought.

Quadrature *of Des Cartes's Curve*, which is defined by the Equation, $b^2 : x^2 = b - x : y$.

Since, $by = bx^2 - x^3$

$$y = (bx^2 - x^3) : b^2$$

$$ydx = (bx^2dx - x^3dx) : b^2$$

$$\int ydx = x^3 : 3b - x^4 : 4b^2$$

Quadrature *of all Curves comprehended under the general Equation* $y = x\sqrt[m]{(x+a)}$

Since $v = x(x+a)^{1:m}$

$$ydx = dx(x+a)^{1:m}.$$

To render the Element integrable; ſuppoſe,

$$(x+a)^{1:m} = v$$

Then will $x + a = v^m$

$$dx = mv^{m-1}dv$$

$$ydx = mv^m dv$$

$\int ydx = \frac{mv^{m+1}}{m+1} = \frac{m(x+a)}{m+1}\sqrt[m]{(x+a)}$. Let $x=0$: The Remainder $\frac{m}{m+1}a\sqrt[m]{a}$. Whence, the Area of the Curve is $\frac{m}{m+1}(x+a)\sqrt[m]{(x+a)} - ma\sqrt[m]{a}$.

Quadrature, in Aſtronomy, that Aſpect, or Situation of the Moon, when ſhe is 90° diſtant from the Sun. See Moon.

Or, the *Quadrature* is when ſhe is in the middle Points of her Orbit, between the Points of Conjunction and Oppoſition, which happens twice in each Revolution, *viz.* in the firſt and third Quarter. See Orbit, Opposition and Conjunction.

When the Moon is in her *Quadrature*, ſhe exhibits that Phaſis which we call the *Half Moon*, *i. e.* ſhe ſhines with juſt half her Face; and is ſaid to be biſſected, or *Dichotomiz'd.* See Phasis and Dichotomy.

In the Moon's Progreſs from the Syzygies to her *Quadrature*, her Gravity towards the Earth is continually increaſing by the Action of the Sun; and her Motion retarded for the ſame Reaſon——Her Motion, then, in her Orbit is ſloweſt as her Gravity to the Earth is greateſt when in the *Quadrature.* See Gravity.

In her receſs from the *Quadratures* to the Syzygies, the Gravity continually decreaſes, and the Velocity increaſes.

The Ratio is thus: As Radius is to the Sum, or Difference of one and a half the Co-ſine of double the diſtance of the Moon from the Syzygy, and half the Radius; ſo is the addition of Gravity in the *Quadratures* to the Diminution or Increaſe thereof in any other Situation. See Syzygy.

Hence the Moon's Orbit is more Convex in the *Quadratures*, than in the Syzygies; and hence the Circular Figure of the Moon's Orbit is changed into an Oval, whoſe greater Axis goes through the *Quadratures*; and hence, alſo, the Moon is leſs diſtant from the Earth at the Syzygies, and more at the *Quadratures.* See Orbit.

'Tis no wonder, therefore, that the Moon approach nearer the Earth when her Gravity is diminiſhed; that Acceſs not being the immediate effect of this Diminution, but of the Inflexion of the Orbit towards the *Quadratures.*

In the *Quadratures*, and within 35 Degrees thereof, the Apſides of the Moon go backwards, or move *in antecedentia*; but forwards in the Syzygies. See Apsides.

The Moon's Orbit undergoes various Alterations in each Revolution——Its Excentricity is the greateſt when the Line of the Apſides is in the Syzygies; leaſt, when in the *Quadratures.* See Excentricity.

Conſidering one entire Revolution, the Nodes move ſlower and ſlower as the Moon approaches the *Quadratures*, and reſt when ſhe is therein: But conſidering ſeveral Revolutions, the Nodes go back faſteſt in the *Quadratures.* See Node.

The Inclination of the Plane of the Moon's Orbit increaſes as the Nodes go from the Syzygies, and is greateſt when the Nodes are in the *Quadratures.* See Inclination.

Quadrature-*Lines*, or *Lines of* Quadrature, are two Lines frequently placed on *Gunter*'s Sector.

They are mark'd with the Letter Q, and the Figures 5, 6, 7, 8, 9, 10; of which Q ſignifies the ſide of a Square, and the other Figures the ſides of Polygons of 5, 6, 7, *&c.* ſides——S there ſtands for the Semi-diameter of a Circle, and 90 for a Line equal to 90 Degrees in the Circumference. See Sector.

QUADRATUS, in Anatomy, a Name apply'd to ſeveral Muſcles, in reſpect of their ſquare Figure. See Muscle.

Quadratus *Femoris*, a Member of the Muſcle *Quadrigeminus*, ariſing from the Apophyſis of the *Iſchium*, and maintaining an equal breadth and bulk to its inſertion juſt below the great Trochanter.

This aſſiſts with the other Muſcles of the *Quadrigeminus*, to turn the Thigh outwards. See Quadrigeminus.

Quadratus *Genæ*, or *Maxillæ inferioris*, call'd alſo *Montanus*, is a broad ſquare Muſcle lying immediately under the Skin of the Neck——It ariſes thin and membranous from the upper part of the Spines of the *Vertebræ* of the Neck and the Skin of the ſuperior parts of the *Cucullaris* and pectoral Muſcle; whence, ſpreading over the Neck, it becomes fleſhy, and is inſerted partly into the *Os Hyoides*, and partly into the under Edge of the lower Jaw——It ſerves to pull the lower Jaw downward. See Subcutaneus.

QUADRELS, in Building, a kind of Artificial Stones, perfectly ſquare, whence their Name; made of a chalky, or whitiſh and pliable Earth, *&c.* dried in the Shade for two Years.

They were formerly in great requeſt among the *Italian* Architects.

QUADRIGA, in Antiquity, a Car, or Chariot drawn by four Horſes. See Car and Chariot.

On the Reverſe of Medals we frequently ſee Victory, or the Emperor, in a *Quadriga*, holding the Reins of the Horſes; whence theſe Coins are call'd among the Curious, *Quadrigates*, or *Victoriates.* See Medal.

Various are the Accounts we have of the Author of the *Quadriga*——*Cicero* makes it the Invention of *Minerva.* *Hyginus* attributes it to *Erichtonius* IV. King of the *Athenians*; which Sentiment *Virgil* follows in his *Georgics*, lib. iii. v. 113.——*Eſchylus* gives *Prometheus* the Honour thereof——*Tertullian, de Spectac.* l. 9. ſays it was invented among the *Argians*, by *Trochilus*, in honour of *Juno*; and at *Rome*, by *Romulus* in honour of *Mars*, or *Quirinus.* *Adon* of *Vienna, Chronic.* Act 3. will have it to have been invented by one *Procidus*, about the time of the eſtabliſhment of the Kingdom of *Athens.* *Laziardels, Hiſt. Univerſ. Epitom.* l. 24. ſays the ſame of *Triptolemus.* ——Laſtly, if there be not Opinions enough already, *Herodotus* gives us another; and ſays the *Greeks* borrow'd it from the *Lybians*——*Pliny* tells us that his Seal was a *Quadriga*, lib. xvi. See Seal.

The Word is form'd from the *Latin*, *quatuor*, four, and *jugum*, yoak. See Biga.

QUADRIGEMINUS, in Anatomy, a Muſcle, or rather an Aſſemblage of four Muſcles; ſerving to turn the Thigh outward. See Thigh.

The firſt of the conſtituent Muſcles of the *Quadrigeminus*, is the *Pyriformis*; the ſecond and third the *Gemini*; and the fourth *Quadratus Femoris.* See each deſcribed under its proper Article, Pyriformis, Geminus, *&c.*

QUADRILATERAL, in Geometry, a Figure whoſe Perimeter conſiſts of four right Lines, making four Angles; whence it is alſo call'd a *Quadrangular* Figure. See Quadrangular.

If the ſeveral Angles be right, the Figure is a *rectangular Quadrilateral*——If oblique, an *oblique-angular Quadrilateral.* See Rectangular, *&c.*

If the Sides of a *Quadrilateral* be equal, and the Angles right, the Figure is a *Square.* See Square.

If the Sides be equal, but the Angles unequal, the Figure is a *Rhombus.* See Rhombus.

If the Angles be equal, and the Sides unequal, the Figure is a *Rectangle.* See Rectangle.

If only the oppoſite Angles and Sides be equal, the *Quadrilateral* is a *Rhomboides.* See Rhomboides.

If the oppoſite Angles and Sides be unequal, the *Quadrilateral* is a *Trapezium.* See Trapezium.

The two oppoſite Angles of any *Quadrilateral* Figure inſcribed in a Circle, always make two right Angles. See Inscribed.

QUADRILL, Quadrilla, a little Troop or Company of Cavaliers, pompouſly dreſs'd and mounted; for the performance of Carrouſels, Jouſts, Tournaments, Runnings at the Ring, and other gallant Divertiſements. See Joust, Tournament, *&c.*

A regular Carrouſel is to have at leaſt four, and at moſt twelve *Quadrills..* See Carrousel.

Of theſe *Quadrills*, each is to conſiſt of at leaſt three Cavaliers, and at moſt of twelve.

The *Quadrills* are diſtinguiſh'd by the Form of their Habits, or the Diverſity of their Colours. See Colour, Livery, *&c.*

The Word is borrow'd from the *Italian*, being a Diminutive of *Squadra*, a Company of Soldiers rang'd in a Square: For *Squadrare* is, properly, to diſpoſe any thing ſquare; whence their *Quadrigla*, the *French Squadrille* and *Quadrilla*, and our *Quadrill*——'Tis not fifty Years ſince they wrote *Squadrilla*.

QUADRIPARTITION, the dividing by four; or a taking of the fourth part of any Number or Quantity. See Division, Partition, *&c.*

Hence *Quadripartite*, &c. ſomething divided into four. See Indenture.

QUADRIREME, Quadriremis, a Galley or Veſſel with four Oars on a ſide. See Galley.

QUADRUGATA *Terræ*, in old Law Records, is a *Team Land*; or ſo much as can be till'd by four Horſes. See Carucata.

QUADRUPED, in Natural Hiſtory, a four-footed Beaſt.

Mr. *Ray* defines *Quadruped*, a perfect, hairy, viviparous Animal, having but four Feet. See Animal.

There is a great Analogy between the Structure of *Quadrupeds*, and that of Man——The principal differences reſult from their different Poſture; and are ſeen in the *Legs*, *Heads*, *Necks*, *Stomachs*, *Hearts*, and the *Nerves*. See Leg, Head, Neck, Stomach, *&c.*

Mr. *Ray* gives us the following Scheme or Diviſion of *Quadrupeds*.

Quadrupeds are either hoof'd, (*ungulata*); or claw'd, or digitate, (*unguiculata.*)

Hoofed-Quadrupeds, are either, 1. Whole-hoofed, *Solidipeda*, Μονόχηλα, Μώνυχα, *Solidungula*: As the Horſe, Aſs, the Onager or wild Aſs; the Mule, and the Zebra of *Africa*, or the fine ſtriped *Indian*, or *African* Aſs, almoſt like a Mule in Form and Stature. See Hoof.

Of this whole-hoofed Kind, *Ariſtotle* has obſerved, that no one hath two Horns—(he might have ſaid any Horns) no one hath the *Talus*, or *Aſtragalus*, nor have the Males any appearance of Breaſts. See Horn.

2. *Cloven-Footed*, and that either into two diviſions only; as the Δίχηλα, or Biſulcate Kind, which are again ſubdivided into ſuch as are, firſt,

Ruminant, Μηρυκάζοντα, that is, ſuch as chew the Cud; and theſe either have hollow and perpetual Horns, as the Bull, Sheep, and Goat-kind; or *Deciduous*, as the Hart and Deer kind, which uſually ſhed their Horns annually. See Head.

Of the *Bull-kind* are reckon'd theſe; the common *Bos*, of which the Male is *Taurus*, the Female *Vacca*. (2.) The *German Urus*, *Urochs*, or *Aurochs*. (3.) The *Biſon*. (4.) The *Bonaſus*. (5.) The *Bubalus*, or *Bufalo*. (6.) The *Bos Africanus* of *Bellonius*; *Obſ.* l. 2. c. 50. which he takes to be the *Bubalus* of the Antients.

Of the *Sheep-kind*, beſides the common ſort, are reckon'd the *Arabian Ovis Laticauda*, whoſe Tail is ſometimes of 30 *l.* weight; the *Ovis Strepſiceros Cretica Bellonii*; the *Ovis Africana*, with ſhort Hairs inſtead of Wool; the *Ovis Guineenſis*, or *Angolenſis* of *Marcgrave*, (Hiſt. *Braſil.* l. 6. c. 10.)

Of the *Goat kind*, are, beſides the common *Capra Domeſtica*; the *Ibex*, or *German Steinbock*, found in the Tops of the *Alps*; the *Rupicapra*, *French Chamois*, *German Goms*; the *Gazella Africana*, or *Antelope*; the *Gazella Indica*; the *Capra Sylveſtris Africana Grimmii*; the *Capra Mambrina*, or *Syriaca* of *Geſner*; the *Buſelaphus*, or *Moſchelaphus Caii* in *Geſner*; the *Tragelaphus Caii* in *Geſner*.

Of the *Hart* or *Deer-kind*, are reckon'd, the *Cervus*, Ἔλαφος, the red Deer; the *Cervus Platyceros* or *Palmatus*, the fallow Deer; Alce or the Elk; *Rangifer*, the Rain-Deer; the *Axis Plinii*, according to *Bellonius*; the *Caprea Plinii*, the *Cuguacu-ete*, and *Cuguacu-zapara* of *Marcgrave*; the *Caprea Groenlandica*.

2. Of *Cloven-Footed* Animals into two parts only, and which do not chew the Cud, there is only the Hog and Swine-kind; and under this head, beſides the common Swine, are reckon'd the wild Boar, or Swine; the *Porcus Guineenſis Marcgravii*; the *Porcus Indicus* call'd *Babyrouſſa*; the *Tajaca* or *Aper Mexicanus Moſchiferus* of Dr. *Tyſon*, call'd by *Marcgrave*, *Tajaca Cunigoara*, by others *Quauhtla Coymalt*, and *Quapizolt*, and by *Acoſta* and ſome others *Zaino*.

3. There are ſome four-footed Animals, whoſe Hoof is cloven into four Diviſions; and theſe ſeem to be not Ruminant: As the Rhinoceros, the Hippopotamus, the Tapijerete of *Braſil*, the Capy-Bara of *Braſil*, the Animal *Moſchiferum*,

Clawed or *Digitate* Quadrupeds: Of this Kind, there is, (1.) a ſort whoſe Claws are not divided or ſeparated, but adhering to one another, cover'd with one common Skin, but with obtuſe Nails, ſticking out round the Margin of the Foot; as the Elephant, which is Anomalous, and not clearly referable to this Kind or that of Cloven-footed *Quadrupeds*.

(2.) There is another Species of this *Digitate-kind* of *Quadrupeds*, which hath only two Claws, as that of *Cameli*; and tho' theſe have no Horns, they do both ruminate, and have alſo the four Stomachs of horned ruminant Animals. Of the Camel or Dromedary there are two ſorts; one having but one Bunch on the Back, the other two. To this kind belongs the *Peruvian Glama*, which ſome have reckon'd among the Sheep-kind; as alſo the *Pacos*, the *Ovis Indica*, or *Peruviana Vulgo*, much leſs than the *Glama*.

3. A third Species of this *Unguiculate* kind, includes ſuch Animals, as the *Greeks* call'd Πλατυώνυχα, and Ἀνθρωπόμορφα, which have the Foot divided into many Claws, with broad Nails on them; as the Ape and Monkey kind: Of theſe, ſome have no Tails, and are call'd *Simiæ*, or Apes. Others have Tails, and are call'd Monkeys, *Cercopitheci*; and ſuch as have either long or ſhort Tails, if they are of a larger Size, are call'd *Papiones*, or Baboons. There are great Numbers and Varieties of this Species of *Quadrupeds*; of which Naturaliſts have deſcribed theſe: *viz.* the *Ourang Outang*, or *Homo Sylveſtris* of Dr. *Tyſon*, deſcribed by him in a particular Diſcourſe. The *Guarita* of *Braſil*, *Marcgravii*; the *Cagui* of *Braſil*, greater and leſſer; the *Cay* of the ſame Region, deſcribed by *Lerius*; the *Caitaia* of the ſame Country; the *Cercopithecus Barbatus Guineenſis*, two or three ſorts of it; the *Cercopithecus Angolenſis major*; the *Cercopithecus non barbatus Cluſii*; the *Cercopithecus Cluſ.* call'd *Sagouin*; and if Apes and Monkeys have their Snouts very prominent like Dogs, they are call'd *Cynocephali*.

4. A fourth Species of this *Unguiculate kind*, is, when tho' the Claws are many, yet they are not cover'd at the end with broad flat Nails, like Monkeys or Apes; but are rather like the Talons of Hawks, *&c.* crooked, and ſharp-pointed: And theſe, in reſpect of their Teeth, may be divided into ſuch as have many *Dentes Primores*, or *Inciſores*, (that is, cutting Teeth) in each Jaw, of which there are two ſorts; a greater, which either have a ſhort, round Head, as the Cat-kind; or a leſſer ſort, having a long ſlender Body, with very ſhort Legs, as the Weaſel or Vermin-kind. There are ſome of this Species of *Quadrupeds*, which have only two large remarkable Teeth in each Jaw; and theſe are of the Hare-kind, and live only upon Herbs, Graſs, *&c.*

Of the *Cat-kind* of *Quadrupeds* are reckon'd to be the Lion, the Tyger, the *Pardalis*, whoſe Male is *Pardus*, and Female *Panthera*, the Leopard; the *Lupus Cervarius*, or Lynx; the *Catus Pardus*, or Cat-a-mountain, the common Cat, and the Bear.

Of the *Dog-kind* are reckon'd the Wolf, the *Lupus Aureus*, the Jackall; the common Dog, of which kind they enumerate, the Maſtive; the *Canis Venaticus Graius*, or *Græcus*, or, according to ſome, *Scoticus*, the Greyhound; the *Graius Hibernicus*, or *Iriſh* Greyhound; the *Canis Venaticus Sagax*, *Indagator*, *Sectator ferarum*, &c. the Hound; the *Canis Venaticus Hiſpanicus* or *Aviarius*, the Spaniel for Land or Water; the *Vertagus* or Tumbler; the *Canis* Οἰκουρὸς, *Domeſticus*, the Houſe-dog; the *Canis Melitæus*, or the Lap-dog; the *Canis Getulus*, or *Iſlandicus*, the Shock; and of all theſe ſorts there are many Varieties of Mongrels, and *Hebridous* Breeds.——Another ſort of the Dog-kind is, the Fox; the Animal *Zibethicum*; the Civet-Cat, as it is corruptly call'd, but by its Teeth and Snout, is plainly of the Dog-tribe; the *American Coati*, or *Rackoon* or *Rattoon*; the *Yzquiepate*; the *Carigueya*, *Maritucaca*, *Carigoy*, *Ropoza* or *Poſſum*; the *Taxus* or *Meles*; the Badger, Grey, or Pate; the *Lutra*, or Otter; the *Phoca*, or Sea-Calf, or Seal; the *Equus Marinus*, or *Morſe*, or Sea-Horſe, miſtaken by ſome for the *Hippopotamus*; the *Dutch* call him *Walras*, the *Danes* and *Iſlanders*, *Roſmarus*; the *Manati*, or *Vacca Marina*, the Sea-Cow.

Of the *Vermin*, or *Weaſel-kind* of *Quadrupeds*, is, firſt, the *Muſtela vulgaris*, the common Weaſel, in *Yorkſhire*, call'd Foumart or Fitcher, (γαλέη) the *Viverra Indica*, call'd *Quel* and *Quirpele*; and another ſort call'd *Mungo*, and *Mungathia*, of a reddiſh grey. The *Muſtela*, the *Ermine* or *Stoat*, if white, and the *Muſtela Sylveſtris*, the Ferret; the *Putorius*, the Pole-Cat; the *Martes*, *Foyna*; the Marten or Martlet; the *Muſtela Zibellina* the Sable; the *Genetta*, and the *Ichneumon Bellonii*.

Of the *Hare-kind* of *Quadrupeds*, are firſt, the *Lepus*, or common Hare; the *Cuniculus*, the Rabbet or Coney; the *Tapeti*, or *Braſil*-Coney, and the *Aperea* of *Braſil*; the *Hyſtrix*, or Porcupine; and the *Hyſtrix Americanus*, or *Cuanda* of *Braſil*; the Caſtor, Fiber, or the Beaver; the *Sciurus vulg.* or Squirrel; the *Virginian*, *Zeylandic*, the *Barbary*, and the *American* flying Squirrel, *&c.* The *Mus Domeſticus*, major and minor, the common Rat and Mouſe; *Mus major Aquaticus*, the Water-Rat; the Musk-Rat; *Mus Avellanarum*, major and minor; the Dormouſe or Sleeper, *Mus Noricus*, *Cricetus*, *Alpinus ſeu Marmotta*; the *Cavia Cobaya*, or *Cuniculus Americanus*; the Guinea-Pig; the *Agati*, and *Paca* of *Braſil*; the *Mus Norwegicus*, or *Leming*; the *Glis Geſneri*, or the *Rell*; the *Mus Indicus*, &c.

Animalous QUADRUPEDS. To theſe ſeveral Kinds of *Quadrupeds*, the following Anomalous ones muſt alſo be added.

(1.) Such four-footed *Viviparous Animals*, as have a longiſh Snout, with their Feet divided into many Claws, and Toes, and having Teeth; as the *Echinus Terreſtris*, or common Urchin, or Hedge-Hog; the *Erinaceus Indicus albus*; the *Tatu* or *Armadillo prima* of *Marcgrave*; the *Tatuete* of *Braſil*, or the ſecond Species of the *Armadillo*, according to *Marcgrave*; the *Tatu Apara*, his third Species of the *Armadillo*; the *Tatu Muſtelinus*, *Soc. Reg. Mus.* the Weaſel-headed *Armadillo*; the *Talpa*, the Mole, Want, or Mold-warp; the *Mus Araneus*, Shrew, Hardy-Shrew, Shrew-Mouſe.

(2.) *Quadrupedous* and *Viviparous Animals* with a longiſh Snout, having their Feet divided into many Claws or Toes, but without Teeth; as the *Tamandua-guacu* of *Braſil*, *Marcgrave*; the *Urſus Formicarius Cardani*; the great Ant-Bear; the *Tamanduais* of *Braſil*, or *Marcgrave*'s leſſer Ant-Bear.

(3.) *Anomalous flying Quadrupeds*, with a ſhorter Snout, and their Feet divided as above; being of the Bat-kind, or Flitter-Mice; of which there are ſeveral Sizes and different Forms.

(4.) There is one very anomalous Animal which has but three Claws on each Foot; and that is the Aſs, or *Ignavus* of *Marcgrave*, the Sloth, or Sluggard.

(5.) *Viviparous* and *Sanguineous Quadrupeds*, breathing with Lungs, but having only one Ventricle in the Heart; as the *Rana aquatica*, the Frog or Froch; the *Rana arborea, ſeu Ranunculus Viridis*, the ſmall Tree or green Frog; the *Buſo, ſive Rubeta*, the Toad; the *Teſtudo*, the Tortoiſe, *Greek* χελωνη; of theſe there are Land and Water ones, and many different Species in foreign Parts.

(6.) *Oviparous Quadrupeds*, with a long Tail ſtretched out horizontally, of the Lizard-kind; as the *Lacertus omnium maximus*, the Crocodile; the *Cordylus, ſive Caudiverbera*, *Uromaſtix Græcis*, larger than the green Lizard; the *Tapayaxin Novæ Hiſpaniæ*; the *Lacertus orbicularis* of *Hernandez*, the *Lacertus vulgaris*, the common Eſt, Swift, or Newt; the *Lacertus viridis*, the green Lizard; the *Lacertus Fucetanus Aldrovand.* at *Rome* and *Naples* call'd the Tarantula; the *Lacertus Indicus*, call'd *Senembi* and *Inguana*; the *Lacertus Braſilienſis*, call'd *Tejuguacu*, and *Temapara* by *Marcgrave*; the *Taraguira*, *Ameira*, *Taraguico Aycuraba*, *Americima*, *Curapopepa*, *Teiunham*, &c. of *Marcgrave*; the *Lacertus Indicus*; the *Scincus*, or *Crocodilus terreſtris*; the *Seps*, or *Lacerta Chocidica*, a kind of footed Serpent; the *Stellio*, the Swift, or ſpotted Lizard; the *Salamandra terreſtris*, *Salamandra aquatica*, the Water Eſt; the *Lacerta volans Indica*; and the *Chamæleo*, the Chamelion.

QUADRUPLE, a Sum or Number multiply'd by four, or taken four times.

Quadruple is particularly uſed for Gold Coin worth four times as much as that whereof it is the *Quadruple*. The *Quadruple* of the *Spaniſh* Piſtole is a Piece of four Piſtoles, worth about three Pounds ſix Shillings *Sterling*. See PISTOLE.

The *Quadruple* of the *Louis d'Or* is only equal to two *Louis d'Ors* or *French* Piſtoles, or one Pound thirteen Shillings *Sterling*.

QUÆ *Plura*, a Writ that antiently lay where Inquiſition had been made by an Eſcheator, of ſuch Lands or Tenements as any Man died ſeized of, and all was ſuppoſed not to be found by the Office. See ESCHEATOR.

This Writ was to enquire what more Lands or Tenements the Party died ſeized of. But it is now made uſeleſs by taking away the Court of Wards and Offices.

QUÆ *Servitia*, a Writ. See PER *quæ ſervitia*.

QUÆSTA, in our antient Writers, an Indulgence, or Remiſſion of Penance; expoſed to ſale by the Popes. See INDULGENCE.

QUÆSTUS, or QUESTUS, in Law, is that Eſtate, or thoſe Effects which a Man hath by Acquiſition or Purchaſe; in contradiſtinction to *Hæreditas*, which is what he hath by Deſcent. See GOODS, ESTATE, *&c.*

So in *Glanvile*, lib. 7. *aut habet hæreditatem tantum, vel* quæſtum *tantum, aut hæreditatem &* quæſtum.

QUÆSTIONARII, in our antient Law-Books, were People who went about with Indulgences from Door to Door, deſiring Charity either for themſelves or others. See INDULGENCE.

Matt. Weſt obſerves, 1240, that the King, *Terram ſuam per Papales* Quæſtionarios, *depauperari, &c. permiſit.*

QUAKERS, a Religious Sect, who made their Appearance in *England*, during the Time of the Inter-regnum. See SECT.

They took their Origin from *George Fox*, an illiterate Perſon, born at *Draiton* in *Leiceſterſhire*; and by Profeſſion a Shoe-maker.

The Accounts of thoſe Times tell us, that as he wrought at his Trade, he uſed to meditate much on the Scriptures; which, with his ſolitary Courſe of Life, improving his natural Melancholy, he began at length to have Viſions; and, in conſequence thereof, ſet up for a Preacher.

The new Prophet propoſed but few Articles of Faith; dwelt moſtly on Morality; preach'd mutual Charity, the Love of God, and a deep Attention to the inner Motions and ſecret Workings of the Spirit——He would have a ſimple Worſhip, and Religion without any Ceremonies; making it a principal Point to wait in profound Silence, the Motion and Direction of the Holy Spirit.

The Genius of the Times, the Novelty of the Doctrine, and the great Appearance of Devotion in the Man, ſoon gain'd him Diſciples; and ſome unuſual Shakings and Convulſions which they were ſeiz'd withal at their firſt Meetings, procur'd 'em the Appellation *Quakers*.

They profeſs a great Auſterity of Behaviour; a ſingular Probity and Uprightneſs in their Dealings; a Demureneſs, and Gravity of Countenance; a Coldneſs and Sparingneſs of Diſcourſe, to have time to weigh what they ſay; a great deal of Frugality in their Tables, and of Plainneſs in their Dreſs.

They declaim much againſt the intereſted Views of the *Engliſh* Miniſters; blame all War, and ſet aſide all uſe of Oaths, as prohibited under the Goſpel. See AFFIRMATION.

According to the Genius of riſing Sects, an eager Zeal at firſt led 'em to ſome Extravagancies: They would run about the Streets naked; and were frequently in Priſon for interrupting the Miniſters in Service-time.

One of their Company, *Naylor*, is ſaid to have had the Impiety to allow his Followers to call him Son of God, Sun of Juſtice, and King of *Iſrael*; to ſtrew Garments before him, and Hail him at his Entry into *Briſtol*, with *Hoſanna Son of David*. He had his Trial for the ſame, was whip'd for Blaſphemy, and excommunicated by the reſt.

Beſide other Penalties inflicted on 'em, they were laugh'd at, and rally'd in Writing, and expoſed on the Theatre: But they deſpiſed alike both the Preſs and the Priſon, and form'd their Sect, maugre all Oppoſition of both; and under the Direction of *Fox*, *Dewſbury*, and others, grew from a looſe, undiſciplin'd Multitude, into a regular Body, with ſtated Laws and Polity; which they retain with great Oeconomy to this day.

The modern *Quakers* retain nothing of the Extravagancies charged on their Leaders; having approved themſelves a ſober, quiet People, of exemplary Morals, and remarkably charitable and friendly to each other.

Their Doctrines are not eaſily collected, at leaſt, not eaſily repreſented out of their own Terms, which appear ſomewhat ambiguous.

They hold Chriſt to be a Light which hath lighted every Man; and that whoever will ſoberly and ſeriouſly turn into himſelf with a ſincere deſire to know and practiſe his Duty, will not fail to find there a ſufficient Director; a Ray from the Fountain of Light illuminating the Underſtanding, and aſſiſting to diſtinguiſh Good from Evil.

They add, That ſuch as follow the Directions and Convictions of this Light, ſhall be Holy and Aceptable to God; and that this was the End of Chriſt's coming into the World——That ſo far as they follow this Light, they ſhall be infallible; and that it is not Opinions, or Speculations, or Notions of what is true, or Subſcription of Articles or Formula's of Faith, how ſoundly ſoever worded, that make a Man a true Believer or Chriſtian; but a conformity of Mind and Practice to the Will of God, according to the Manifeſtation and Dictates of this divine Principle of Light within 'em.

Our Saviour's Injunction about Baptiſm they underſtand, in a figurative Senſe, of a Converſion and Change of the Heart; and wholly neglect the outward Sign———Water-Baptiſm they hold was only *John*'s; that it was no more than a Type or Figure, fitted for the Infant-ſtate of the Goſpel; and therefore now uſeleſs, in a Diſpenſation, which is ſpiritual and inward.

The ſame they hold of the Supper; alledging, That both allude to old *Jewiſh* Practices, and were uſed as Types or Significations of a near and accompliſhing Work——— They add, that the Communion of Saints conſiſts only in a participation of the ſame divine Principle, ſhewing itſelf in an Unity of Spirit.

As to Miniſtry and Ordinances, they deny that any are to be uſed of Man's Wit, or Will, or carnal Invention, or Imitation; or other than what the inward Principle directs 'em to——Accordingly, they have no Perſons ſet apart for the Miniſtry; but without diſtinction of Quality or Sex, every one who is of ſober Life, and approved Converſation, and believes him or herſelf called or moved thereto, is permitted to ſpeak and propheſy in their Aſſemblies.

They own the Scriptures to be given by divine Inſpiration, and allow 'em the Appellation of the Form of ſound Words; but refuſe to call 'em the Word of God, as being a Denomination properly attributed to Chriſt alone—They add, that what makes 'em more ſcrupulous in this reſpect, is, that People are apt to be hereby led to think that if they have the Scriptures, they have all; and ſo look for no further Word or Light.

They acknowledge the Holy Three that bear Record in Heaven, Father, Word, and Spirit; but reject the School-Terms, Trinity, diſtinct, Perſons, Hypoſtaſes, *&c.* as not Scriptural, and as apt to convey too groſs Ideas.

They have been even charg'd with denying the Incarnation, our Saviour's Humanity, Divinity, plenary Satisfaction, and the Reſurrection of the Dead: But this is injurious to 'em; and all that can be juſtly ſaid, is, that they don't allow of 'em in the ſame Senſe, or ſpeak of 'em in the ſame Terms, as is commonly done among others.——They allow the Incarnation, and that the *Godhead* dwelt bodily in Jeſus; and yet many of 'em ſay, there is no Chriſt but what is within 'em: Whence it ſhould ſeem their Notion of the Incarnation only imply'd this, that the Light, which they call the Chriſt within, dwelt in the Man Jeſus Chriſt fully——Their Reaſoning, here, is, that Chriſt, as God, not being diviſible, the Meaſure or Manifeſtation of the Spirit of Chriſt in us, is a Manifeſtation of the *ſame Chriſt* which dwelt bodily and fully in the Man Jeſus Chriſt.

They are ſilent as to the Hypoſtatical Union; and ſome of 'em are charged with allegorizing away the whole Hiſtory of the Crucifixion, the Reſurrection, and Aſcenſion; tho' their beſt and moſt approved Writers have been very explicit in their Acknowledgment of the Reality of the Hiſtory.

They decline the Uſe of Modes or Forms of Civility; expreſſing their Reſpect to their Superiors no other way but by obeying all juſt Laws under their Government.

The Syſtem of *Quakeriſm* is laid down in fifteen Theſes, by *Robert Barclay*, in a well writ Apology addreſs'd to King *Charles* II. Their Hiſtory, writ in *Low Dutch* by *William Sewel*, and ſince tranſlated into *Engliſh*, traces 'em from the beginning to the Year 1717——A Hiſtory of this People was alſo publiſhed *An.* 1695, by *Gerard Croeſe*; but the Author is by them accuſed as having miſrepreſented Facts, and in many reſpects done them injuſtice.

As to Diſcipline and Polity; the Affairs of the Community are all managed under a Democratical Government, by Rules eſtabliſhed by common Conſent; and this principally at their Meetings, whereof they have many kinds; *viz.* Monthly, Quarterly, Yearly, Second Day's Meetings, Meetings of Sufferings, *&c.*

Their *Monthly* and *Quarterly Meetings* are held in their reſpective Counties——To theſe Deputies are ſent from the ſeveral particular Meetings——Here Enquiry is made into the State of each Meeting; who ſtand faſt to the Rules and Orders, and who backſlide; who pay Tythes, and Church Rates, and who ſuffer for non-payment of either; who are married by Prieſts, *&c.* and accordingly they proceed to Cenſure, or Encourage——Here too they Excommunicate, and here receive again into Communion; of all which things exact Regiſters are kept.

From theſe Meetings Appeals lie to their *Yearly* ones, which are always held in *London*, and conſiſt of three Orders or Claſſes; *viz.* Repreſentatives ſent from the Quarterly Meetings; Correſpondents for the ſeveral Counties, and foreign Countries; and Miniſters, or Preachers.——Hither are tranſmitted Accounts of what has been tranſacted in all the Monthly and Quarterly Meetings over the World—Here are Meaſures concerted, and Directions given as to Behaviour about Tithes, and Rates, providing for the Poor, compoſing differences, *&c.*——Here public Accounts are audited, and proper Inſtructions given to the Deputies to be obſerved at their Return, and a yearly Epiſtle of Admonitions diſpatch'd to be read in all the Monthly and Quarterly Meetings throughout the World.

The *Second Day's Meeting*, is a ſtanding Committee conſiſting of the principal Preachers in and about the City, who meet every Monday, to concert particular Caſes, and Exigencies relating to the Body happening between the yearly Meetings; particularly to examine, approve, licenſe, *&c.* all Books printed in their behalf.

The *Meeting of Sufferings* is held every Week, and conſiſts of the Correſpondents for each County:——Its buſineſs is to receive Complaints from ſuch as have ſuffer'd for non-payment of Tithes and Rates, and to procure 'em Relief, either by ſending 'em Money, for which they have a ſettled Fund, or by ſolliciting their Cauſes above, or both.

QUALI *Jus*, was an antient Writ Judicial, that lay where a religious Perſon had Judgment to recover Land; before Execution was made of the Judgment.

This Writ was iſſued forth to the Eſcheator between Judgment and Execution, to enquire whether the religious Perſon had Right to recover, or whether the Judgment were obtained by colluſion between the Demandant and Tenant, to the intent that the true Lord were not defrauded.

QUALIFICATOR, in the Canon-Law, a Divine appointed to *qualify*, or declare the Quality of a Propoſition brought before an Eccleſiaſtical Tribunal; chiefly before the Inquiſition.

The *Qualificators* of the Office are not Judges; they only give their Sentiments on the Propoſitions preſented to 'em——'Tis the Inquiſitors that judge. See INQUISITION.

QUALITY, QUALITAS, that Affection of a thing whence it is denominated *Such*; or that which occaſions a thing to affect our Senſes, in this or that manner, and gives it this or that Denomination.

Thus, that Virtue in Fire, whatever it be, whereby it excites in us the Senſation of Heat, ſince it is that whence the Fire is denominated hot, is the call'd *Quality* of Fire.

The word *Quality*, *Qualitas*, is ſaid to have been firſt introduced into the *Latin* by *Cicero*. Till his time the *Romans* ſtudiouſly avoided the uſing a Term which denoted an Abſtraction; and in lieu thereof, only conſider'd the Concrete, ſignify'd by *Quale*——The like is obſerved of the antient *Greeks*, who did not uſe ποιότητα, but ποιόν. See ABSTRACTION.

The Term *Quality*, it is to be obſerved, is very ambiguous; and has been apply'd to ſome things, which ought rather to have been look'd upon as *States* of Matter, or Complexions of ſeveral *Qualities*; as Life, Health, Beauty, *&c.*

There are, alſo, other Attributes, as Size, Shape, Motion, and the reſt, uſually reckon'd among *Qualities*, which might more conveniently be eſteem'd the primary Modes of the Parts of Matter; ſince from theſe ſimple Attributes, all the *Qualities* are derived. See MODE.

The antient School Philoſophers diſtinguiſh *Quality* in the general, which they call *Metaphyſical* and *Prædicamental Quality*; into *Eſſential*, and *Accidental*——The Moderns, more uſually, into *Spiritual*, and *Corporeal*.

Spiritual QUALITIES, or QUALITIES *of the Soul*, are Affections of the Mind, conſider'd as it is in this, or that Habitude or Diſpoſition——Of theſe, they make two Kinds; the one belonging to the Underſtanding, the other to the Will: Of the former kind are Knowledge, Opinion, Certainty, Doubting, *&c.* Of the latter, are all the Moral Virtues and Vices. See UNDERSTANDING, WILL, KNOWLEDGE, IGNORANCE, OPINION, *&c.* See alſo VIRTUE, *&c.*

Corporeal or Phyſical QUALITIES, are what we chiefly conſider under this Denomination, and to which the Definition above laid down is accommodated.

Philoſophers are divided as to the Nature of theſe *Qualities*, or what they are in the Body——The general Language of the *Peripatetic* School, is, that they are things diſtinct from the Bodies themſelves; are ſuperadded to 'em, or flow from their ſubſtantial Forms: On which Principle, they hold *Qualities* to be real, and denominate 'em Accidents; ſuppoſing 'em to be inherent in Subſtances, tho' not in the relation of Parts, but to be ſuſtain'd thereby as in a Subject, and incapable of ſubſiſting without 'em——In effect, the *Thomiſts* define *Qualities* to be Accidents following or ariſing from the Form; in the ſame Manner as Quantity is an Accident following or ariſing from the Subſtance. See FORM, ACCIDENT, QUANTITY.

The Moderns abſolutely explode the Notion of *Qualities* diſtinct from the Body; and inſiſt, that the Powers whereby Bodies excite in us the Ideas of ſuch *Qualities* are no other than the mechanical Affections of the Bodies themſelves, *viz.* the Figure, Magnitude, Motion, *&c.* of the Parts whereof they conſiſt. See MECHANICAL.

The principal Conſiderations inſiſted on by the Retainers to real *Qualities*, are, That theſe Powers may be actually ſeparated from the Subſtances they inhere in; as we ſee in Light, Heat, *&c.* That from theſe very *Qualities* conſider'd as ſo many Determinations, ariſes a very great diverſity in Bodies: And that Bodies, according to the diverſity of their *Qualities*, affect our Senſes differently.

The Adherents to the Experimental way, on the contrary, account for all the *Qualities* of Bodies from mechanical Cauſes.

Thus all the Phænomena of a Clock, the Motion of its Wheels, its Hands, *&c.* whereby it ſtrikes the Hour, points the Minute, Day, Moon's Age, *&c.* do all evidently ariſe from the ſingle Spring; which we never imagine to have any particular Powers whereby it ſhould be enabled to make ſuch Diſcoveries; nor any other Principle but that one of Elaſticity——Again, when the Smith who firſt invented Locks and Keys, had made his firſt Lock, it was only a piece of Iron, contrived into a particular Shape; and when, afterwards, he made a Key to it, that alſo, conſider'd in itſelf, was nothing but a piece of Iron of a determinate Figure; but as theſe two pieces of Iron might now be apply'd to one another, after a certain manner, and, as there was a congruity betwixt the Wards of the Lock, and thoſe of the Key, they now each obtain'd a new Capacity; and it became a principal part of the Notion and Definition of a Lock, that it was capable of being made to open or ſhut, by that other piece of Iron call'd a Key; and it was look'd on as a peculiar Faculty and Power in the Key to be fit to open and ſhut the Lock——And yet by theſe new Attributes there was not added any real or phyſical Entity, either to the Lock or the Key; each of them remaining the ſame piece of Iron, juſt ſo ſhaped, as it was before. And, again, when the Smith made other Keys of different Sizes, or with differing Wards; tho' the firſt Lock could not be open'd with any of thoſe Keys, yet, that Indiſpoſition was nothing new in the Lock, or diſtinct from the Figure it had before thoſe Keys were made.

Why, then, may we not conceive, that ſenſible *Qualities*, tho', by virtue of a certain congruity or incongruity in point of Figure, Texture, or other mechanical Properties, the Portions of Matter they modify are enabled to produce various Effects, on account whereof the Bodies are ſaid to be endowed with *Qualities*; yet, that they are not in the Bodies endowed with them, any real or diſtinct Entities, or differing from the Matter itſelf, of ſuch a determinate Bigneſs, Shape, or other mechanical Modifications?

Thus, tho' the modern Goldſmiths and Refiners reckon it among the moſt diſtinguiſhing *Qualities* of Gold, that it is diſſoluble in *Aqua Regia*, whilſt *Aqua Fortis* will not work upon it; yet theſe Attributes are not in the Gold any thing diſtinct from its peculiar Texture; nor is the Gold we have now of any other nature than it was in *Pliny*'s time, when *Aqua Fortis* and *Aqua Regia* were unknown.

If another *Menſtruum*, of which Mr. *Boyle* ſuggeſts he was poſſeſs'd, ſhould be invented to diſſolve pure Gold in part, and change it into a different metalline Body, there would then ariſe another new Property, whereby to diſtinguiſh this from other Metals; yet the nature of Gold is not at all different now from what it was before the diſcovery of this laſt *Menſtruum*.

There are Bodies neither Cathartic nor Sudorific, with ſome of which Gold being joined, acquires a purgative Virtue, and with others a Power to procure Sweat.—— Nature herſelf ſometimes produces things, that have no relations to others: And Art, eſpecially if aſſiſted by Chymiſtry, may cauſe ſo many new Productions, that no Man can tell, but the moſt familiar Bodies may have multitudes of *Qualities* he dreams not of, which will hardly be imagined real phyſical Entities.

We all know that the Sun hath a Power to harden Clay, ſoften Wax, melt Butter, thaw Ice, turn Water into Vapour, make Air expand itſelf in Weather-Glaſſes, contribute to blanch Linnen, render the white Skin of the Face ſwarthy, and mowed Graſs yellow, ripen Fruit, hatch the Eggs of Silk-Worms, Caterpillers, *&c.* and perform many other things, ſome of which ſeem contrary to others; yet theſe are not diſtinct Powers or Faculties in the Sun, but only the Productions of its Heat, diverſify'd by the different Textures of the Body it chances to work on, and the condition of the other Subſtances concern'd in the Operation—And, therefore, whether or no the Sun, in ſome Caſes, has any influence at all diſtinct from its Light and Heat, we ſee that all the Phænomena mentioned, are producible by the Heat of common Fire, duly apply'd and regulated. *Boyle of Forms and Qualities.*

Some of the Antients, and particularly the *Peripatetics*, diſtinguiſh'd *Qualities* into *ſenſible* and *occult*.

Senſible, or *Manifeſt* QUALITIES, are thoſe ariſing from certain Modifications of the Matter, and which become immediately Objects of our Senſes——Such are all thoſe above mentioned.

Tho', in ſtrictneſs, thoſe only are ſaid to be *ſenſible Qualities* which affect ſome one Senſe alone; as Colour does the Eye, Sound the Ear, *&c.*

Theſe are ſometimes, alſo, call'd *Tactile*, or *Tangible Qualities*, by reaſon they only produce their Effect, *i. e.* excite their Ideas in us when contiguous, or in contact with the Organ.

Occult QUALITIES, are certain latent Powers ariſing from the ſpecific Forms of things, whereof no rational Solution can be given on any Principles of Phyſics. See OCCULT.

Senſible Qualities are uſually divided into Primary and Secondary.

Primary, or *general* QUALITIES are ſuch as are found in all Bodies; or which agree to all Matter, conſider'd as Matter, and therefore to the Elements themſelves—Such are Extenſion, Figure, Motion, Reſt, Solidity, Impenetrability, and Number. See BODY, FIGURE, SOLIDITY, *&c.*

Secondary, or *Particular* QUALITIES are ſuch as reſult from a Compoſition or Mixture of Elements, and do not agree to Body as Body, but as a Mixt——Such are Light, Heat, Cold, Colour, Sound, Taſte, Smell, Hardneſs, Softneſs, Fluidity, Firmneſs, Roughneſs, Smoothneſs, Opacity, Tranſparency, *&c.*

According to *Ariſtotle* and the *Peripatetics*, the Primary, or Elementary *Qualities* are thoſe of the four Elements themſelves; *viz.* Heat, Cold, Moiſture, and Dryneſs. See ELEMENT.

The ſecondary *Qualities*, according to the ſame, are all the reſt; which are Combinations or Aſſemblages of the former Elementary ones; as Colour, Odour, Taſte, *&c.*

To give an Idea of *Ariſtotle*'s Method of accounting for theſe ſecondary *Qualities* from his primary ones, we ſhall inſtance in his account of Colour——All Colours, then, ſays he, are generated of a Mixture of the four Elementary *Qualities*: White, *e. gr.* is produced when the Humidity ſurmounts the Heat, as in old Men, who grow grey: Black is produced when the Humidity dries off, as in Walls, Ciſterns, *&c.* Red, *&c.*

Among the School-Philoſophers we meet with other Diviſions of *Qualities*; as *Active*, and *Paſſive*; *Real*, and *Intentional*.

Active QUALITIES, were ſuch by Virtue whereof Effects and Operations were actually produced on other Bodies duly diſpoſed with reſpect thereto——Such were the Heat of Fire, the Moiſture of Water, *&c.*

Paſſive QUALITIES were thoſe whereby Bodies were diſpoſed to receive the Action of others——Such are Inflammability in Oil, *&c.*

Real QUALITIES are thoſe which remain in the Subject; and only act on things adjacent thereto——As Fire in a piece of Iron not ignited, *&c.*

Intentional QUALITIES are thoſe which iſſue from the Subject, and operate at a diſtance——Such is the Light emitted from the Sun, *&c.*

But the Moderns are agreed that either all *Qualities* are real, or all alike intentional.——So that the diſtinction is impertinent.

However ignorant we may be of the Nature of *Qualities*, or the Manner of their Operation; yet we know the Laws of their Intention and Remiſſion——Dr. *Keil* demonſtrates that every *Quality* which is propagated *in Orbem*, ſuch as Light, Heat, Cold, Odour, *&c.* has its Efficacy increaſed or abated in a duplicate Ratio of the Diſtances from the Centre of Radiation, or Exertion of the *Quality*.

Thus, let A (Tab. GEOMETRY, *Fig.* 80.) be a Centre from whence any *Quality* exerts itſelf round about, according to the right Lines A *e*, A *f*, *&c.* The Efficacy of the *Quality*, be it Heat, Cold, Odour, *&c.* will be (at equal diſtances from A) as the Spiſſitude or Thickneſs of the Rays A *b*, A *e*, A *f*. But the Rays within the inner Circle, or rather ſpherical Superficies, *b c d* H, when they come to be extended to the other ſpherical Surface, *e f g* K, will be much leſs cloſe than before, and that in the reciprocal Proportion of the Spaces they take up; that is, if the outer Surface be double of the inner, the Rays there will be but half as thick: But ſince ſpherical Superficies are as the Squares of the Radii, therefore the Efficacy of the *Quality* in the inner Surface will be to that of the outer, as A *e* Square, to A *b* Square. *Q. E. D.*

Sir *Iſaac Newton* lays it down as one of the Rules of Philoſophizing, that thoſe *Qualities* of Bodies which are incapable of being intended and remitted, and which are found to obtain in all Bodies wherein the Experiment could ever be tried, are to be eſteem'd univerſal *Qualities* of all Bodies. See PHILOSOPHIZING.

Chymical QUALITIES——One may diſtinguiſh phyſical *Qualities*, with Mr. *Boyle*, into the firſt, ſecond, and third; to the two laſt of which may be refer'd ſeveral *Qualities* not treated of by the Writers of Phyſical Syſtems; and theſe, for diſtinction ſake, may, ſome of them, be ſtyled the *Chymical Qualities of Things*; becauſe *Ariſtotle* and the Schoolmen, being unacquainted with them, they have been principally introduced by means of Chymical Operations and Experiments: As Fumigation, Amalgamation, Cupellation, Volatilization, Precipitation, *&c.*

By theſe Operations, among other Means, corporeal things come to appear *volatile* or fixed, *ſoluble* or *inſoluble* in ſome Menſtrua, *amalgamable* or *unamalgamable*, &c. which as well deſerve the Name of *Quality*, as ſeveral other Attributes, to which it is allow'd.

To theſe chymical *Qualities* ſome others might be added, which, becauſe of the Uſe that Phyſicians principally make of them, may be call'd *Medical Qualities*, whereby ſome Subſtances received into the human Body, are reſolving, diſcuſſing, ſuppurating, abſterſive, *&c.* For tho' ſome Faculties of Medicines, as thoſe of heating, cooling, drying, attenuating, purging, *&c.* may be conveniently referr'd to the firſt, ſecond, or third *Qualities*, mention'd by Naturaliſts, whilſt others are reckon'd occult; yet as ſeveral of them ought not to be referr'd to the *Qualities* whereto they are often aſcribed; ſo the handling of them may be look'd upon as a *Deſideratum*, and deſerves a diſtinct Place in Natural Philoſophy. See MEDICINE; ſee alſo PURGATIVE, *&c.*

Coſmical QUALITIES, ſee COSMICAL *Quality*.

QUALITY is alſo uſed for a kind of Title given to certain Perſons in regard of their Territories, Signories, or other Pretenſions. See TITLE.

Thus the King of *Great Britain* takes the *Quality* of King of *France*: The King of *Poland* that of King of *Sweden*: The King of *Sardinia* that of King of *Cyprus* and *Jeruſalem*: The Czars of *Ruſſia* and Kings of *Spain*, have whole Pages of *Qualities*——The Emperor of *China* aſſumes the *Quality* of Son of the Sun.

QUAM *diu ſe bene geſſerit*, a Clauſe frequent in Letters Patents, or Grants of Offices, to ſecure them ſo long as the Perſon they are granted to, ſhall not be guilty of abuſing the ſame.

Thus, *e.gr.* we find it in thoſe given to the Barons of the Exchequer; where it intimates that they ſhall hold the ſame as long as they ſhall behave themſelves well: which is to be reſtrain'd to the Matters of their Offices; and ſignifies no more than the Law would have imply'd, had the Office been granted expreſsly for Life.

A Grant, therefore, with this Clauſe, is equivalent to a Grant for Life. See BARON, JUDGE, JUSTICE, *&c.*

QUANTITY, QUANTITAS, any thing capable of Eſtimation, or Menſuration; or, which being compared with another thing of the ſame kind, may be ſaid to be greater, or leſs, than; equal, or unequal to, it.

Mathematics is the Science or Doctrine of *Quantity*. See MATHEMATICS.

Quantity is a general Attribute, apply'd in a very different Manner to things of very different Nature; whence it is impoſſible to give any univerſal Definition thereof.

Quantity is apply'd both to Things, and to Modes; and this, either ſingularly, and to one; or plurally, and to ſeveral——In the firſt Caſe it is call'd *Magnitude*, in the latter *Multitude*. See MAGNITUDE, *&c.*

Quantity may be reduced to four Claſſes, *viz.*

Phyſical, or *Natural Quantity*, which is of two kinds; *viz.* 1. That which Nature furniſhes us with, in Matter, and its Extenſions. See BODY and EXTENSION.——And, 2. In the Powers, and Forces of Natural Bodies; as Gravity, Motion, Light, Heat, Cold, Rarity, Denſity, *&c.* See FORCE, GRAVITY, *&c.*

Moral Quantity, which depends on the Manners of Men, and the free Determination of their Wills——As the Prices and Values of Things; Degrees of Dignity and Power, Good and Evil, Merit and Demerit, Rewards and Puniſhments, *&c.*

Notional Quantity, ariſing from the Operation of the Underſtanding only——Such as the largeneſs or narrowneſs of the Capacity of the Mind, and its Conceptions——In Logic, Univerſals, Prædicaments, *&c.*——In Grammar, the *Quantity* and Meaſure of Syllables, Accents, Tones, *&c.*

Tranſcendental Quantity, as Duration, the Continuation of any Being, Exiſtence, Time, *&c.* See DURATION, TIME, *&c.*

Quantity is alſo popularly diſtinguiſh'd into *Diſcrete* and *Continued*.

Diſcrete QUANTITY, is when the Parts whereof it conſiſts, exiſt diſtinctly and unconnected together; which makes what we call *Number*. See DISCRETE.

The Antients diſtinguiſh'd this into two kinds, *viz.* Permanent, as *Numerus Numerans*; and Succeſſive, as Speech.

Continued QUANTITY, is when the Parts are connected together——This, again, is of two kinds; either *ſucceſſive* and *improper*, as Time. See TIME.

Or *permanent* and *proper*, as Space. See SPACE.

Permanent Quantity is further diſtinguiſhable into length, breadth, and depth. See LINE, SURFACE, and SOLID.

Wolfius gives us a more preciſe Notion of Mathematical *Quantity*, and its two Species of Diſcrete and Continued—Whatever is referr'd to Unity in the ſame manner as one right Line to another, is what we call *Quantity*, or Number in general. See NUMBER.

If, now, the thing be referr'd to a given Unit, as 3, it is call'd a *determinate Number*: if to Unity in the general, or at large, it is call'd a *Quantity*; which, on this Principle, is the ſame with *indeterminate Number*.

Thus, *e.gr.* the breadth of a River is accounted a *Quantity*: If, then, it be enquir'd how great it is? To conceive its *Quantity* we take ſome Unit at pleaſure, and ſeek the Relation of the breadth hereto; and according to the different Unit aſſumed, expreſs the breadth of the River in a different determinate Number.

The breadth of the River, therefore, is a *Quantity* conſider'd as referr'd to a vague Unit, or to Unity at large; but the Unit being determined, the thing is underſtood by a determinate Number.

In this ſenſe, Algebra is the Arithmetic of *Quantities*. See ALGEBRA.

QUANTITY *of Motion*, in Mechanics, is of two kinds, *viz.* of *momentary Motion*, and of *entire Motion*.

Quantity of entire Motion——The *Carteſians* define the entire Motion as the momentary one, by the Factum of the Maſs, or *Quantity* of Matter, into the Velocity; but ſince Motion is a ſucceſſive Being, and has no parts co-exiſting together, its *Quantity* ought to be eſtimated by the Aggregate of the ſeveral Parts exiſting ſucceſſively; and is therefore equal to the Factum of the Momenta into the Time.

QUANTITY *of momentary Motion*, is the Factum of the Velocity into the Maſs; or a Meaſure ariſing from the joint Conſideration of the *Quantity* of Matter, and the Velocity of the Motion of the Body; the Motion of any Whole being the Sum or Aggregate of the Motion in all the ſeveral Parts. See MOTION.

Hence, in a Body twice as great as another, moved with an equal Velocity, the *Quantity* of Motion is double; if the Velocity be double alſo, the *Quantity* of the Motion will be quadruple. Hence the *Quantity* of momentary Motion coincides with what we call *Momentum*, or Impetus of a moving Body. See MOMENTUM.

In the Colliſion of Bodies, the *Quantity* of momentary Motion, which is found by taking the Sum of Motions tending the ſame way, or their difference if they tend towards contrary Parts; is not at all changed by any Actions of the Bodies on one another. See PERCUSSION.

QUANTITY *of Matter* in any Body, is the Product of the Denſity into the Bulk; or a *Quantity* ariſing from the joint Conſideration of its Magnitude and Denſity. See BULK.

As, if a Body be twice as denſe, and take up twice as much Space as another, it will be four times as great.

This *Quantity* of Matter is the beſt diſcoverable by the abſolute weight of Bodies. See MASS, WEIGHT, *&c.*

QUANTITY *Infinite*——Tho' the Idea of Magnitude infinitely great, or ſuch as exceeds any aſſignable *Quantity*, does include a negation of Limits; yet are not all ſuch Magnitudes equal amongſt themſelves; but beſides *infinite Length*, and infinite Area, there are no leſs than three ſeveral ſorts of *infinite Solidity*; all of which are *Quantitates ſui generis*; and thoſe of each Species are in given Proportions.

Infinite Length, or a Line infinitely long, is to be conſider'd, either as beginning at a Point, and ſo infinitely extended one way; or elſe both ways from the ſame Point: in which Caſe the one, which is a beginning Infinity, is one half of the Whole, which is the Sum of the beginning and ceaſing Infinity, or Infinity *à parte ante*, and *à parte poſt*, which is analogous to Eternity in Time or Duration, in which there is always as much to follow as is paſt, any Point or Moment of Time. See ETERNITY.

Nor does the Addition or Subſtraction of Time, Length or Space of Time, alter the Caſe, either as to Infinity or Eternity; ſince neither the one or the other can be any Part of the Whole.

As to infinite Surface or Area, any right Line infinitely extended both ways on an infinite Plane, divides that Plane into equal Parts, the one to the Right, and the other to the Left of the ſaid Line; but if from any Point in ſuch a Plane, two right Lines be infinitely extended, ſo as to make an Angle; the infinite Area, intercepted between theſe infinite right Lines, is to the whole infinite Plane, as the Arch of a Circle drawn on the Point of Concourſe of thoſe Lines as a Centre, intercepted between the ſaid Lines, is to the Circumference of the Circle; or as the Degrees of the Angle to the 360 Degrees of a Circle.

For an Example——Two infinite right Lines meeting at a right Angle on an infinite Plane, do include a quarter Part of the whole infinite Area of ſuch a Plane: If two parallel infinite Lines be ſuppoſed drawn on ſuch an infinite Plane, the Area intercepted between them will be likewiſe infinite; but at the ſame time will be infinitely leſs than the Space intercepted between two infinite Lines, that are inclined, tho' with never ſo ſmall an Angle, for that in the one Caſe the given finite Diſtance of the parallel Lines diminiſhes the Infinity in one Degree of Dimenſion; whereas in a Sector, there is Infinity in both Dimenſions; and conſequently the *Quantities* are one infinitely greater than the other, and there is no Proportion between them.

From the ſame Conſideration ariſe three ſeveral Species of infinite Space or Solidity; for a Parallelepiped, or a Cylinder infinitely long, is greater than any finite Magnitude, how great ſoever; and all ſuch Solids ſuppoſed to be form'd on a given Baſis, are in proportion to one another, as thoſe Baſes. But if two of thoſe three Dimenſions are wanting, as in the Space intercepted between two parallel Planes infinitely extended, and at a finite diſtance; or with infinite length and breadth, with a finite thickneſs; all ſuch Solids ſhall be as the given finite Diſtances one to another.

But theſe *Quantities*, tho' infinitely greater than the other, are yet infinitely leſs than any of thoſe wherein all the three Dimenſions are infinite——Such are the Spaces intercepted between two inclined Planes infinitely extended; the Space intercepted by the Surface of a Cone, or the Sides of a Pyramid, likewiſe infinitely continued, *&c.* of all which, notwithſtanding the Proportions one to another, and to the τὸ πᾶν, or vaſt Abyſs of infinite Space (wherein is the Locus of all things that are, or can be; or to the Solid of infinite Length, Breadth, and Thickneſs taken all manner of ways) are eaſily aſſignable——For the Space between two Planes is to the Whole, as the Angle of thoſe Planes to the 360 Degrees of the Circle. As for Cones and Pyramids, they are as the ſpherical Surface intercepted by them, is to the Surface of the Sphere; and therefore Cones are as the verſed Sines of half their Angles, to the Diameter of the Circle: Theſe three ſorts of infinite *Quantity* are analogous to a Line, Surface, and Solid; and, like them, cannot be compoſed, or have any Proportion one to another.

QUANTITIES, in Algebra, are indeterminate Numbers, or things referr'd to Unity in the general.

Quantities are properly the Subject of Algebra; which is wholly converſant in the Computation of ſuch *Quantities.* See ALGEBRA.

The *given Quantities* are uſed to be noted by the firſt Letters of the Alphabet *a*, *b*, *c*, *d*, &c. the *Quantities ſought* by the laſt *z*, *y*, *x*, &c. See CHARACTERS.

Algebraical Quantities are of two kinds; *Poſitive*, and *Negative.*

Poſitive, or *Affirmative* QUANTITIES are thoſe which are greater than nothing; and which are affected with the Sign + prefix'd; or ſuppoſed to be ſo. See POSITIVE.

Negative, or *Privative* QUANTITIES are thoſe leſs than nothing; which are affected with the Sign — prefix'd. See NEGATIVE.

Hence, 1. Since + is the Sign of Addition, and — the Sign of Subſtraction; a poſitive *Quantity* is produced by adding any real *Quantity* to nothing; *e. gr.* $0+3=3$; and $0+a=+a$. And a privative *Quantity* is produced by ſubſtracting any real *Quantity* out of nothing; *e. gr.* $0-3=-3$; and $0-a=-a$.

For an Illuſtration——Suppoſe when you are quite deſtitute of Money, ſomebody gives you an hundred Pieces; you have then an hundred Pieces more than nothing; which Pieces conſtitute a *poſitive Quantity.*

On the contrary, ſuppoſe you have no Money, yet owe an hundred Pieces; you have then an hundred Pieces leſs than nothing; for you muſt pay an hundred Pieces to have juſt nothing. This Debt is a *negative Quantity.*

Thus in local Motion, Progreſs may be call'd a *poſitive Quantity*, and Regreſs a *negative* one; becauſe the firſt increaſes, and the ſecond diminiſhes the Space paſs'd over.

And in Geometry, if a Line drawn towards any Part be accounted an *affirmative Quantity*; another the contrary way will be a *negative* one.

2. *Privative Quantities*, therefore, are the Defects of the *poſitive Quantities* whereby they are underſtood; and, conſequently are no real *Quantities*: For we meaſure the Defect by the *Quantity* defective; and thus it becomes intelligible.

Since one Defect may exceed another, (*e. gr.* if ſeven be wanting, the Defect is greater than if only three be wanting) and ſince *privative Quantities* are the Defect of *real Quantities*; one *privative Quantity* being taken a certain Number of times, may exceed another. Wherefore *privative Quantities* are homogeneous to one another.

4. But ſince the Defects of a *poſitive Quantity* taken any number of times can never exceed the *poſitive Quantity*, but grows ſtill the more deficient; *privative Quantities* are heterogeneous to *poſitive* ones.

5. Since, then, *privative Quantities* are heterogeneous to *poſitive* ones, homogeneous to *privative* ones; there can be no Ratio between a *privative* and a *poſitive Quantity*, but there is a Ratio between *privative* ones. *E. gr.* $-3^a : -5^a :: 3 : 5$. The Ratio, here, is the ſame as if the *Quantities* were poſitive. But it may be noted, that between 1 and —1, and between —1 and 1, the Ratio is very different.

Addition of QUANTITIES. 1. If the *Quantities* denoted by the ſame Letter be affected with the ſame Sign, the Numbers prefix'd to 'em are added as in common Arithmetic. 2. If they be affected with different Signs, the Addition is changed into Subſtraction; and to the Remainder is prefix'd the Sign of the greater. 3. *Quantities* denoted by different Letters, are added by means of the Sign +; as in the following Example.

$$\begin{array}{l} 4a+2b-2c-5d-g \\ 5a-2b+bc+2d-3g \\ \hline 9a+4c-3d-4g \end{array} \qquad \begin{array}{r} a-b \\ c \\ \hline a-b+c \end{array}$$

Subſtraction of QUANTITIES; ſee SUBSTRACTION.

Multiplication and Diviſion of QUANTITIES; ſee MULTIPLICATION and DIVISION.

Combination of QUANTITIES; ſee COMBINATION.

If a poſitive *Quantity* be multiply'd, or divided by another poſitive *Quantity*, the Reſult is a poſitive *Quantity.*

2. If a negative *Quantity* be multiply'd, or divided by a poſitive, the Reſult is a negative.

3. If a negative *Quantity* be multiply'd, or divided by another negative, the Reſult is a poſitive.

4. If a poſitive *Quantity* be multiply'd, or divided by a negative, the Reſult is a negative *Quantity.*

QUANTITY, in Grammar, is the Meaſure, or Magnitude of the Syllables; or that which determines them to be call'd long, or ſhort. See GRAMMAR, PROSODY.

This *Quantity* is the Object of Proſody; and it is the regard to this that diſtinguiſhes Verſe from Proſe. See VERSE.

The Oeconomy and Arrangement of the *Quantities, i. e.* the diſtribution of long and ſhort Syllables, make what we call the Numbers. See NUMBERS.

The *Quantities* are uſed to be diſtinguiſh'd among the Grammarians by the Characters ◡ *ſhort*, and — *long.* See CHARACTER.

The Proportion betwixt the long and ſhort Syllables may be generally fix'd the ſame as between the Crochet and Quaver in Muſic; *viz.* as 2 to 1. See TIME.

In moſt Languages there are ſome Syllables whoſe *Quantities* vary, as the Meaſure requires; as in the *Engliſh Rĕcōrd* and *Rēcŏrd.*

Some Authors confound the *Quantities* with the Accent: But the difference is glaring; the former being the length or ſhortneſs of a Syllable, the latter the raiſing or falling of the Voice. See ACCENT.

From two *Quantities, viz.* long and ſhort Syllables, ariſe all the Varieties of Poetic Feet, which are very great. *Horace* alone uſes no leſs than twenty-eight. Yet the *Greeks* went vaſtly beyond the *Romans* in this reſpect——In effect, as many ways as two *Quantities* may be varied by compoſition, and tranſpoſition from two to ſix Syllables, ſo many different Feet have the *Greek* Poets contrived, and that under diſtinct Names, to the Number of 124. Tho' it is the Opinion of ſome of the Learned, that Poetical Numbers may be ſufficiently explain'd from the Feet of two or three Syllables, into which the reſt are to be reſolved.

The Feet form'd by the Antients of the long and ſhort Syllables immediately; are the *Spondee*, conſiſting of two long Syllables; the *Pyrrhic*, of two ſhort ones; the *Trochee*, of a long and ſhort Syllable; and the *Iambic*, of a long and ſhort Syllable. See SPONDEE, TROCHEE, IAMBIC, &c.

Thoſe of three Syllables are the *Moloſs*, conſiſting of three long Syllables; the *Tribrach* of three ſhort ones; the *Dactyl* of one long and two ſhort Syllables; and the *Anapeſt* of two ſhort and one long Syllable. See DACTYL, ANAPEST, TRIBRACH, &c.

The *Engliſh* Tongue admits of no Feet above two Syllables, tho' both the *Latin* and *Greek* allow of ſix.

Our Heroic Verſes conſiſt of five long and five ſhort Syllables intermix'd alternately; tho' not ſo ſtrictly but that the Order may be diſpenſed withall. *Dryden* varies them with admirable Beauty; ſometimes his Heroic Verſe begins with a long Syllable follow'd by two ſhort ones.

The truth is, the *Quantity* of the Syllables is but little fix'd in the modern Tongues; and there is ſtill leſs regard had to it in the Compoſition of modern Verſes——The want of Feet, or rather the ſhortneſs and uniformity of our Feet, makes a world of difference between the Numbers of the antient and modern Verſe. Our Poets are fetter'd, and their Fetters are ſo ſhort, but two poor Links, that it's no wonder they can make no extraordinary Motions.

The Antients ſubſiſted by their *Quantities* alone; ſo well were they diſtinguiſh'd, and ſuch a Variety and Harmony did they afford. Our *Quantities* make ſuch poor Muſic, that we are forced to call in the *Gothic* Aids of Rhime to diſtinguiſh our Verſe from Proſe. See ODE.

Yet have Attempts been made to ſettle our Verſe on the antient and natural footing of *Quantities*, in excluſion of Rhime, and with ſuch ſucceſs too, (witneſs the Immortal *Paradiſe Loſt*) as ſeems to leave the practice of Rhiming inexcuſable——The *French* have likewiſe attempted the ſame in their Tongue, particularly *Jodelet*, and after him *Paſquier*, *Paſſerat*, and *Rapin*; but they have all fail'd. See RHIME.

QUANTUM *meruit*, an Action upon the Caſe, grounded upon a Promiſe to pay a Man for doing ſo much as he ſhould deſerve or merit.

QUARANTAIN, in old Law-Books wrote QUARENTENE, or QUARANTENA, denotes the Space of forty Days.

The Term is borrow'd from the *French*; and is ſometimes uſed for the time of Lent. See LENT.

Quarantain of the King, is a Truce of forty Days appointed by S. *Louis*; during which it was expreſsly forbid to take any Revenge of the Relation or Friends of People, who had fought, wounded, or affronted each other in words.

QUARANTAIN is particularly uſed for the Term of forty Days, which Veſſels, coming from Places ſuſpected of Contagion, are obliged to wait in certain Places appointed, to air themſelves e'er they come into Port.

QUARANTAIN, QUARANTENE, or QUARENTENA, in Law, is a Benefit allow'd by the Laws of *England* to the Widow of a Man dying ſeized of Land; whereby ſhe may challenge to continue in his Capital Meſſuage, or Chief Manſion-Houſe (ſo it be not a Caſtle) for the ſpace of forty Days after his deceaſe——If the Heir, or any other Perſon attempt to eject her, ſhe may have the Writ *de Quarantina habenda*; which lies for a Widow to enjoy her *Quarantine*.

Quarantene is alſo uſed for a quantity of Ground containing forty Perches.——*Quatuor Carucatas terræ arabilis, continentes in Longitudine* 8 Quarentenas, & 8 Quarentenas *in Latitudine*. Chart. Withlaſii Reg. Merc. apud Ingulf.

Quarantena *in London ponetur pro reſpectu habend. per* 40 *Dies poſt Summonitionem per breve Regis ut conſulant*, &c. *ſi ſibi viderint expedire*. MS. de temp. *Ed.* 3.

QUARANTIA, in the *Venetian* Polity, a Court of Judicature compoſed of forty Judges.

The *Venetians* have an *old Civil Quarantia, new Civil Quarantia*, and *Criminal Quarantia*.

The *Criminal Quarantia* takes Cognizance of all Crimes except thoſe againſt the State; which belongs to the Council of Ten——The *new Civil Quarantia* judges of Appeals made from Sentences paſs'd by Judges out of the City——The *old Civil Quarantia* takes Cognizance of Appeals from Sentences of ſubaltern Judges in the City.

QUARE *ejecit infra Terminum*, a Writ which lies for a Leſſee in Caſe he be caſt out of his Farm before his Term be expir'd; againſt the Leſſor or Feoffee that ejects him. See LEASE.

It differs from the *Ejectione firmæ*, in that the former lies where the Leſſor, after the Leaſe made, enſeoffs another who ejects the Leſſee; whereas the *Ejectione firmæ* lies againſt any other Stranger that ejects him. See EJECTION.

The Effect is the ſame in both, *viz.* the Recovery of the Reſidue of the Term. See EJECTIONE *Firmæ*.

QUARE *Impedit*, a Writ which lies for him who has purchaſed an Advowſon, againſt him that diſturbs him in the Right thereof, by preſenting a Clerk thereto, when the Church is void. See ADVOWSON.

It differs from the Writ *Aſſiſa ultima præſentationis*, which lies where a Man or his Anceſtors formerly preſented; this other lying for him who is the Purchaſer himſelf——Where a Man may have the *Aſſiſa*, he may have this Writ; but not contrariwiſe. See ASSISA.

QUARE *Incumbravit*, a Writ which lies againſt the Biſhop, who, within ſix Months after the Vacation of a Benefice, confers it on his Clerk, while two others are contending at Law for the Right of Preſenting. See PRESENTATION, &c.

QUARE *non admiſit*, a Writ which lies againſt the Biſhop for refuſing to admit his Clerk who has recover'd in a Plea of Advowſon.

QUARE *non permittit*, is a Writ that lies for one who has a Right to preſent for a turn againſt the Proprietary.

QUARE *obſtruxit*, a Writ that lies for him who having Right to paſs thro' his Neighbour's Grounds, cannot enjoy the ſame by reaſon the Owner has fenced it up.

QUAREL, QUERELA, in Law, properly relates to perſonal Actions, or at moſt to mixed, wherein the Plaintiff is call'd *Querens*, and in all Declarations of Treſpaſs it is ſaid, *Queritur*. See ACTION, PLAINTIFF, &c.

Yet if a Man releaſe all *Quarels*, or *Querels* (a Man's own Deed being taken moſt ſtrongly againſt himſelf) *Quarel* includes all Actions; and accordingly all Actions, both Real and Perſonal, are hereby releaſed. See RELEASE.

QUARERA, or QUARATIA; ſee QUARRY.

QUARREL, in Law, ſee QUAREL.

QUARREL *of Glaſs*; ſee QUARRY.

The Word is form'd by diminution from the *Latin quadratum*, or the *French quarre*, ſquare; or, perhaps, immediately from the *Italian quadrello*, little ſquare.

QUARRY, in our antient Writers call'd QUARERA, QUADRATA, QUARATIA, a Place under Ground, out of which are dug Marble, Free-Stone, Slate, Lime-Stone, or other Matters proper for Building. See STONE.

See the ſeveral Kinds of *Quarries*, under the ſeveral Articles, MARBLE, SLATE, &c.

For *Quarries of Free Stone*, they firſt open a Hole in manner of a Well, twelve or fourteen Foot in Diameter; and the Rubbiſh drawn out with a Windlaſs in large Oſier Baskets, they heap up all around; placing their Wheel, which is to draw up the Stones, thereupon.

As the Hole advances, and their common Ladder becomes too ſhort, they apply a particular Ladder for the purpoſe— When they have got through the Earth, and are arrived at the firſt Bank, or Stratum; they begin to apply their Wheel and Baskets to diſcharge the Stones as faſt as they dig through 'em. See WHEEL.

They uſually find ſeven of theſe different Strata, or Beds of Stones, of different Heights, and ſerving for different Purpoſes; tho' the Number as well as Order wherein they follow is various. See STRATA.

As to the *drawing* of the Stone, *i.e.* the freeing it from the Bed; they find that common Stones, at leaſt the ſofter kinds, as they lie, have two Grains; a cleaving Grain running parallel with the Horizon, and a breaking Grain perpendicular thereto——After *uncoping*, then, *i.e.* clearing the Earth from off it, they obſerve by the Grain where the Stone will cleave, and there drive in a good Number of Wedges till they have thus cleft it from the reſt of the Rock.

This done, they proceed to break it: In order to which, applying the Ruler to it at both ends, (ten, *e.gr.* or twelve Inches a-part, according to the Uſes the Stone is intended for) they ſtrike a Line, and by this cut a little Channel with their Stone-Ax; and in the Channel ſet five or ſix Wedges (ſuppoſing the Stone three or four Foot) driving 'em in very carefully, with gentle blows, and ſtill keeping 'em equally forward.

Having thus broke 'em in length, (which they are able to do to half an Inch of any ſize) applying a Square to the ſtraight Side, they ſtrike a Line, and proceed as before to break it in breadth.

This Method of drawing is found vaſtly preferable to that where the Stones are broken at random——One Load of the former is found to do the Buſineſs of a Load and a half of the latter.

But it may be obſerv'd, that this cleaving Grain being generally wanting in the harder Stones; to break up theſe in the *Quarries*, they have great heavy Stone-Axes wherewith they work down a deep Channel into the Stone, and into this Channel, a-top, lay two Iron Bars, driving their Iron Wedges between theſe Bars.

Some, in drawing of Stone, eſpecially the very hard kind, make uſe of Gun-Powder, and with very good effect——In order to which, making a ſmall Perforation pretty deep into the Body of the Rock, ſo as to have that thickneſs of Rock over it judg'd proper to be blown up at once; at the further end of the Perforation they diſpoſe a convenient quantity of Gun-Powder, filling up all the reſt with Stones and Rubbiſh ſtrongly ramm'd in, except a little Space for the Train——By this means is the Rock blown into ſeveral Pieces, moſt of 'em not too unwieldy for a Workman to manage. See GUN-POWDER.

QUARRY, QUARREL, in Glaziery, a Pane, or Piece of Glaſs cut in a Diamond Form. See GLASS.

Quarries, or *Quarrels* of Glaſs are of two Kinds, *viz. Square*, and *Long*; each whereof is of different Sizes, expreſs'd by the Number of 'em which makes a Foot of Glaſs, *viz.* 8ths, 10ths, 12ths, 15ths, 18ths, and 20ths; but all the Sizes are cut to the ſame Angles, the acute Angle being 77° 19′ in the Square *Quarries*, and 67° 22′ in the long ones. See GLAZIERY.

The word *Quarry* ſeems form'd by Corruption from *Quarrel*, (which ſee;) unleſs we'll ſuppoſe it to come immediately from the *French quarre*, ſquare.

QUARRY, in Falconry, is the Game or Fowl which the Hawk is in purſuit of, or has kill'd. See HAWK and HAWKING.

Among Hunters, the *Quarry* is ſometimes uſed for part of the Viſcera of the Beaſt taken; given by way of Reward to the Hounds. See HUNTING.

QUART, q. d. *Fourth*, in Muſic, Fencing, Gaming, &c. See FOURTH, GUARD, PICQUET, &c.

QUART, is particularly uſed for a diminutive Meaſure, containing one fourth or a quarter of ſome other Meaſure. See MEASURE.

Thus the *Engliſh Quart* is a fourth of a Gallon, or two Pints; the *Roman Quart*, or *Quartarius*, was the fourth part of a *Congius*. See GALLON, PINT, CONGIUS, &c.

The *French*, from whom we borrow the Word, beſides their *Quart*, or *Pot* of two Pints, have various other *Quarts*, diſtinguiſh'd by the whole whereof they are quarters; as *Quart de Muid*, *Quart de Boiſſeau*. See MUID and BUSHEL.

They have alſo their *Quart* of a Yard, &c. See QUARTER.

QUARTAN, i Medicine, an intermitting Fever, or Ague, where the Fit returns every third day. See FEVER, &c.

It is call'd *Quartan*, q. d. *fourth*, by reaſon the two ſick days are reckon'd, which, with the two intermitting ones, make four. See TERTIAN.

QUARTATION, among Refiners, a Method of purifying Gold, by melting three parts of Silver with one of Gold; and then caſting the Mixture into *Aqua fortis*;

which diſſolving the Silver, leaves the Gold at bottom, in form of a black Powder. See REFINING.

Quartation is what we more uſually call *Parting*, or the *Depart*. See DEPART; ſee alſo GOLD, *&c.*

QUARTELOIS, CARTELOIS, or *Cotuca*, Surtouts, or upper Garments with Coats of Arms quarter'd on 'em, wore by the antient Knights in their Military Expeditions. See SURTOUT, COAT *of Arms*, *&c.*

QUARTER, the fourth part of a Whole, or Integer divided into four equal Portions. See FOURTH.

In working of Fractions the *Quarter* is expreſs'd by $\frac{1}{4}$, three *Quarters* by $\frac{3}{4}$. See FRACTIONS.

QUARTER, in Weights, is a fourth part of the Quintal, or Hundred Weight. See QUINTAL.

The *Quarter* is 28 Pounds *Avoirdupois*. See HUNDRED *Weight*, POUND, AVOIRDUPOIS, *&c.*

QUARTER is alſo a dry Meaſure containing 8 Buſhels ſtriked; or the fourth part of a Chaldron. See MEASURE, *&c.*

Quarterium frumenti conſtat ex octo Buſſellis. Fleta. l. 2. See BUSHEL, CHALDRON, *&c.*

QUARTER, in Law, *Quarterium Anni*, is the fourth Part of a Year. See YEAR.

Hence the Days whereon thoſe *Quarters* ſtatedly commence, are call'd *Quarter-days*. See DAY.

Quarter-days are the 25th of *March* call'd *Lady-day*; the 24th of *June*, call'd *Midſummer-day*; the 29th of *September*, call'd *Michaelmas-day*; and the 25th of *December*, or *Chriſtmas-day*.

QUARTER *Seſſions*, a Court held Quarterly, by the Juſtices of Peace of each County, alternately, in the chief Towns thereof, appointed by the *Cuſtos Rotulorum*. See SESSIONS, JUSTICE, *&c.*

Hither the Grand Inqueſt, or Jury of the County is ſummoned to appear, who upon Oath are to enquire of all Traytors, Heretics, Thieves, Murderers, Coiners, Rioters, *&c.* See INQUEST.

Thoſe who appear to be guilty are by the ſaid Juſtices committed to Priſon, to be tried at the next Aſſizes, when the Judges go their Circuits. See JUDGE, ASSIZE, *&c.*

QUARTER, in Navigation——A *Quarter of a Point*, *Wind*, or *Rhumb*, is the fourth part of a Cardinal Point, Wind, or Rhumb; or of the diſtance between two Cardinal Points, Winds, *&c.* See POINT, WIND, and RHUMB.

The *Quarter* contains an Arch of 11° 15′.

The *Quarter* is what *Wolfius*, with regard to the other Diviſions, calls a ſecondary Point of the ſecond Order. See CARDINAL *Point*, &c.

QUARTER *Wind*, at Sea, is a lateral, or ſide Wind; or a Wind which does not blow in Stern, but a little a-ſide of it. See WIND.

Properly, the *Quarter Wind* is that which comes in abaft the Main-Maſt Shrowds, even with the Quarter of the Ship.

The *Quarter Wind* is the beſt of all Winds, as bearing into all the Sails; whereas a Wind blowing full in Stern, is kept off by the Sails of the Mizzen. See SAILING.

QUARTER *of a Ship*, is that part of the Ship's Hull, which lieth from the Steerage-Room to the Tranſom. See SHIP.

QUARTER *Deck*, of a Ship, is that aloft the Steerage, reaching to the Round-houſe. See DECK.

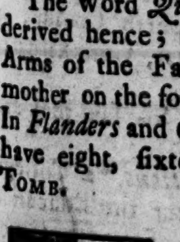
QUARTER, in Aſtronomy——The Moon's Period, or Lunation, is divided into four Stages, or *Quarters*; containing each from ſeven to eight Days. See MOON and LUNATION.

The firſt *Quarter* is from the new Moon to the Quadrature; the ſecond thence to the full Moon, *&c.* See QUADRATURE, *&c.*

QUARTER, in Heraldry, is a Term uſed for a Scutcheon, or Coat of Arms. See ESCUTCHEON.

In this ſenſe there are ſixteen *Quarters* required to prove Nobility, in Companies or Orders where none but Nobles are admitted. See NOBILITY.

The Word *Quarters*, requir'd as a Proof of Nobility, is derived hence; that they uſed antiently to put the Coats of Arms of the Father, Mother, Grand-father, and Grandmother on the four Corners of the Tomb of the Deceaſed—In *Flanders* and *Germany* we frequently ſee Tombs that have eight, ſixteen, and even thirty-two *Quarters*. See TOMB.



QUARTER is alſo apply'd to the Parts, or Members of the firſt Diviſion of a Coat that is *quartered*, or divided into four *Quarters*; as in the Figure adjoining. See QUARTERING.

The King of *Great Britain* in the firſt *Quarter* bears Gules three Lions paſſant Or, *&c.*—In the ſecond *Quarter* he bears Azure three Flowers de Lys, *&c.*

Franc QUARTER, is a *Quarter* ſingle, or alone; as that hereto adjoining.

This makes one of the honourable Parts of a Coat. See ORDINARY.

QUARTER *pierced*, in Heraldry, is uſed when there is a Hole or ſquare Figure made in the middle of a Croſs. See PIERCED.

QUARTER *Bullet*, a Bullet *quarter'd* into four or eight Parts. See BULLET, SHOT, *&c.*

QUARTER is alſo uſed for a Canton, or Diviſion of a City; conſiſting of ſeveral Iſles, *&c.* ſeparated from ſome other *Quarter* by a River, a great Street, or other Boundary.

Such are the twenty *Quarters* of the City of *Paris*——Antient *Rome* was divided ſeveral times, under its ſeveral Augmentations, into *Quarters*, call'd *Regions*; as may be obſerv'd in the Topographies of *Aurelius Victor*, *Onuphrius Panvinius*, *Marillan*, *Pyrro Ligorio*, *Boiſſard*, and other Antiquaries. See REGION.

In many Cities there are *Commiſſaries of the Quarter* appointed to look to the Polity thereof——The Prior of the *Caporions* accounts himſelf the Chief, and Colonel of the fourten *Regions*, or *Quarters of Rome*. Maſcurat, p. 134.

QUARTER, in War, the Place allotted to certain Forces to live, lodge, and incamp upon, during a Siege or the like. See INCAMPMENT.

The *General's Quarter* is that where the General lodges and incamps in Perſon——They uſe to make Lines of Communication, to join the ſeveral *Quarters* together. See LINE.

The *Quarters* of a Siege are the principal Incampments, ſerving to ſtop the Avenues of a Place. See SIEGE.

QUARTER *Maſter*, an Officer in the Army, whereof there are ſeveral kinds; *viz.*——The

Quarter-Maſter General, whoſe Buſineſs is to provide good *Quarters* for the whole Army. See QUARTERS.

Quarter-Maſter of a Regiment of Foot, who is to provide *Quarters* for his Regiment. See REGIMENT.

Quarter-Maſter of a Troop of Horſe, who is to provide *Quarters* for his reſpective Troop. See TROOP.

QUARTER-*Maſter* is alſo an Officer aboard a Ship, of which there are more or fewer according to her Burthen.—Their Buſineſs is to rummage in the Hold on all Occaſions, to overlook the Steward in his delivery of Victuals to the Cook, and in his pumping and drawing out the Beer; and in general, to take care there be no waſte.

He is alſo to mind the Ship's Loading, which is the Buſineſs he is chiefly employ'd about. See LOADING, *&c.*

QUARTER is alſo uſed for any Lodgment made in the Field or Campaign out of a Siege——Thus, they ſay, the General has extended his *Quarters* a good way——The Enemy coming made him contract his *Quarters*.

Winter QUARTERS, is the Place allotted Troops to paſs the Winter Seaſon in.——Wherein theſe differ from Garriſon, ſee GARRISON.

The Term is alſo uſed for the Time they continue in this Lodgment; and for the Advantages the Captains make thereof——Thus they ſay, ſuch a Regiment was put to *Winter-Quarters* in ſuch a Village——The *Winter-Quarters* only held three Months——Each Captain will make at leaſt a thouſand Crowns of his *Winter-Quarters*.

In *Spain* they have alſo *Summer-Quarters*.

QUARTERS *of Refreſhment*, is ſome well-provided fertile Spot, to which Troops that have been much fatigu'd and haraſs'd, are ſent to recover their Strength, or Health; even during the Seaſon of the Campaign. See REFRESHMENT.

QUARTER *of Aſſembly*, is the Place of Rendezvous, where the Troops are to meet and draw up, for a March. See PARADE.

There are alſo *Quarters* aſſign'd for the Huckſters, and their Equipage.

QUARTER is alſo the Safety, and good Treatment promiſed to Perſons, or Troops that ſurrender, and lay down their Arms——Thus they ſay the Enemy begg'd *Quarter*.

The Phraſe took its riſe from an Agreement antiently made between the *Dutch* and *Spaniards*, that the Ranſom of an Officer, or Soldier, ſhould be a *quarter* of his Pay——Hence, to beg *Quarter* was to offer a *quarter* of their Pay for their Safety; and to refuſe *Quarter* was not to accept of that Compoſition for their Ranſom. See RANSOM.

QUARTER *Round*, in Architecture, is a Term uſed by the Workmen for any Moulding, in general, whoſe Contour is either a perfect Quadrant, or *quarter* of a Circle, or approaches near that Figure. See MOULDING.

The Architects uſually call it *Ovolo*; *Vitruvius* the *Echinus*. See OVOLO and ECHINUS.

QUARTER *Staff*, a long Staff or Pole, bore by Foreſters, Park-keepers, *&c.* as a Badge of their Office; and occaſionally uſed as a Weapon.

QUARTER *Wheeling*, or QUARTER *of Converſion*, in the Military Art, is a Motion whereby the Front of a Body of Men is turn'd round to where the Flank was; thus making a *quarter* of a Circle. See CONVERSION, WHEELING, *&c.*

If it be done to the Right, the Man in the right Angle keeps his Ground, and faces about, while the reſt wheel; if to the Left, the left-hand Man keeps his Place, *&c.* See EVOLUTION.

QUARTERS, in a Clock, are little Bells which ſound the *Quarters* of an Hour. See CLOCK, HOUR, *&c.*

QUARTERS, in Building, thoſe ſlight upright Pieces of Timber, placed between the Punchions and Poſts; uſed to lath upon.

They are of two kinds, *ſingle* and *double*——The *ſingle Quarters* are ſawn to two Inches thick and four Inches broad; the *double* four Inches ſquare.

QUARTERIDGE, Money paid quarterly, or by the Quarter.

QUARTERING, in the Sea-Language——When a Ship under ſail goes at large, neither by a Wind nor before a Wind, but as it were betwixt both; ſhe is ſaid to go *Quartering*. See SAILING.

The Term is alſo uſed when a Ship ſails with quarter Winds. See QUARTER *Wind*.

QUARTERING, in Gunnery, is when a Piece of Ordnance is ſo traverſed, that it will ſhoot on the ſame Line, or on the ſame Point of the Compaſs as the Ship's Quarter bears.

QUARTERING, in Heraldry, the dividing a Coat into four or more Quarters, or *Quarterings*; by parting and couping. See QUARTER and QUARTERINGS.

The King of *Great Britain* quarters with *Great Britain*, *France*, *Ireland*, *Brunſwick*, &c. See QUARTERLY.

Counter QUARTERING *a Coat*, is when the Quarters are quarter'd over again, or ſubdivided each into four.

There are *Counter-quarter'd Coats* which have twenty or twenty-five Quarters.

QUARTERINGS, call'd alſo *Partitions* and *Compartiments* are the ſeveral Coats born on an Eſcutcheon; or the ſeveral Diviſions made in it, when the Arms of ſeveral Families are to be placed on the ſame Shield, on account of Intermarriages, or the like. See ESCUTCHEON, SHIELD, *&c.*

Colombiere reckons twelve ſorts of *Quarterings*; but other Authors give us more.—— *viz.* Party per Pale, dividing the Eſcutcheon from top to bottom. See PALE.—— Party per Croſs, dividing it from ſide to ſide. See CROSS. —— Party of ſix Pieces, when the Eſcutcheon is divided into ſix Parts or Quarters——Party of ten; of twelve; of ſixteen; of twenty; and of thirty-two, when there are ſo many Partitions reſpectively.

Others give the Diviſions in another manner: As—— Party per Croſs—per Pale—per Chief—per Pale Inclave—per Bend dexter—per Bend ſiniſter—per Chevron—Barry Bendy of eight Pieces—Paleways of ſix Pieces—Barry of ſix Pieces—Barry of eight Pieces—Bendy of ſix—Checky—Fuſilly, or Lozengy—Paly Bendy, or Bendy Lozengy—Barry Bendy Lozengy, or Bend Lozengy—Gyronny—Barry Lozengy counterchanged—Waved of ſix Pieces—Barry Nebule of ſix Pieces—Party per Saltier—Party per Pale in Point. *See further under the reſpective Articles.*

Colombiere obſerves, that thirty two is the greateſt Number uſed in *France*, but that the *Engliſh* and *Germans* ſometimes extend to forty; as a Teſtimony of the Truth whereof, he ſays, he ſaw the Eſcutcheon of the Earl of *Leiceſter*, Embaſſador Extraordinary in *France* in the Year 1639, divided into the Number of forty; and ſome, he affirms, do go on to ſixty-four ſeveral Coats.

But a Multitude of Quarters makes a Confuſion; and accordingly all the Writers of Armoury cry out againſt it as an Abuſe——The firſt Inſtance of *Quartering* whereof we have any Account, is ſaid to be in the Arms of *Renate* King of *Sicily*, &c. in the Year 1435, who quarter'd the Arms of *Sicily*, *Arragon*, *Jeruſalem*, &c.

William Wickley obſerves, that ſuch *Quarterings* are much properer for a Pedigree to be lock'd up in a Cheſt, and occaſionally produced as an Evidence for the clearing or aſcertaining of Alliances of Families, or Titles to Lands, *&c.* than to be borne as a Cognizance.

In Blazoning, when the *Quartering* is perform'd *per Croſs*, the two Quarters a-top are number'd the firſt and ſecond; and thoſe at bottom the third and fourth; beginning to tell on the right ſide——When the *Quartering* is by a *Saltier*, &c. the Chief and Point are the firſt and ſecond Quarters, the right ſide the third, the left the fourth.

QUARTERING is ſometimes alſo uſed for the diſtinguiſhing of younger Brothers from Elder. See DIFFERENCE.

QUARTERIZATION, QUARTERING, part of the Puniſhment of a Traytor, by dividing his Body into four Parts. *Walſingham in Ric.* 2. *Auditum & Confeſſum turpiſſima ſcelera tractationi, Suſpendio, Decollationi, Exenterationi* & Quarterizationi *adjudicavit.*

QUARTERLY, in Heraldry, a Perſon is ſaid to bear *Quarterly*, when he bears Arms *quarter'd*. See QUARTERING.

The King of *Great Britain* bears *Quarterly* of four; in the firſt quarter, Gules, *&c. Great Britain*: In the ſecond, Azure, *&c. Ireland*, &c.

QUARTERN, or QUARTERON, a Diminutive of *Quart*; ſignifying a quarter of a Pint; as a Quart does a quarter of a Gallon. See QUART.

QUARTILE, an Aſpect of the Planets when they are three Signs, or 90 Degrees diſtant from each other. See ASPECT.

The *Quartile* Aſpect is mark'd thus, □. See CHARACTER.

QUARTO, or 4to, a Book, whereof four Leaves, or eight Pages, make a Sheet. See VOLUME, BOOK-*Binding*, &c.

QUARTO *Decimans*, QUARTO *Decimani*, an antient Sect in the Church, who maintain'd that *Eaſter* was always to be celebrated conformably to the Cuſtom of the *Jews*, on the 14th day of the Moon in the Month of *March*, whenſoever that Day fell out. See EASTER.

And hence their Name *Quarto decimani*, *q. d.* Fourteenthers. See PASSOVER.

The *Aſiatics* were mightily attach'd to this Opinion, pretending it was built on the Authority of St. *John*, who was their Apoſtle; and Pope *Victor* could never bring 'em to Obedience in this Point, tho' he was upon the point of Excommunicating them——Some are of opinion he actually did Excommunicate them, but it is more probable he contented himſelf with Menaces.

Polycrates, Biſhop of *Epheſus*, wrote a long and warm Letter, in the Name of all the Biſhops of *Aſia*, to *Victor* and the Church of *Rome*, wherein he explain'd at large the Uſage of thoſe Churches with regard to the Celebration of Eaſter; and maintain'd, that herein they only follow'd a conſtant Tradition that had obtain'd immutably among 'em from the Time of the Apoſtle St. *John*, who died at *Epheſus*——But the Pope not ſatisfy'd with this Anſwer of *Polycrates*, had proceeded to Excommunication, but that ſome of the moſt eminent Biſhops, among the reſt *Ireneus*, interpoſed, and diſſuaded him from diſturbing the Peace of the Church by excommunicating a People for adhering to what they accounted a Tradition.

QUASHING, in Law, the overthrowing and annulling a thing. See ANNULLING.——An Array return'd by one that has no Franchiſe, ſhall be *Quaſh'd*. *Coke on Littl. fol.* 156.

QUASI *Contract*, in the Civil-Law, an Act which has not the ſtrict Form of a Contract, but yet has the force thereof. See CONTRACT.

In a Contract there muſt be the mutual Conſent of both Parties; whereas in a *Quaſi Contract*, one Party may be bound or obligated to the other without having given his Conſent to the Act whereby he is obliged.

For an Example——I have done your Buſineſs, in your Abſence, without your Procuration; and it has ſucceeded to your Advantage: I have then an Action againſt you for the recovery of what I have disburſed, and you an Action againſt me to make me give an account of my Adminiſtration: Which amounts to a *Quaſi Contract*.

QUASI *Crime*, or QUASI *Delict*, in the Civil-Law, the Action of a Perſon who does Damage, or Evil involuntarily.

The Reparation of *Quaſi Crimes*, conſiſts in making good the Damages with Intereſt.

QUASI-*modo Sunday*, *Low Eaſter-Sunday*, or the next Sunday after Eaſter; thus call'd from the initial Words of the Introit of the Maſs for the Day, *Quaſi modo geniti Infantes*. See SUNDAY.

In antient Deeds theſe Words were ſignified by *q. m. g.*

QUATER-*Couſins*, *quatre Couſins*; fourth Couſins, or the laſt Degree of Kindred. See COUSIN, CONSANGUINITY, *&c.*

Hence, when Perſons are at variance, 'tis ſaid they are not *quater*, or *cater Couſins*.

QUATRE *Nations*, q. d. *Four Nations*, a College founded in 1661, by Cardinal *Mazarin*; for the Education and Maintenance of ſixty Children, Natives of the four Countreys conquer'd by the King, *viz.* fifteen for *Pignerol* and *Italy*, fifteen for *Alſatia*, twenty for *Flanders*, and ten for *Rouſſillon*. See COLLEGE.

QUATUOR *Vir*, in Antiquity, frequently wrote IIII VIR, a *Roman* Magiſtrate who had three Colleagues join'd with him in the ſame Adminiſtration.

To the *Quatuor-viri* was committed the Charge of Conducting and Settling the Colonies ſent into the Provinces. See COLONY.

Upon unlucky Accidents, and other dangerous Affairs, it was uſual to create *Quatuor-virs* with Commiſſion to take Care *ne quid detrimenti Reſpublica caperet*, that the Republic were not prejudiced.

There were alſo *Quatuor-viri* appointed to inſpect and take Care of Repairs, &c.

QUAVER, in Muſic, a Meaſure of Time, equal to one half of the Crochet, or one eighth of the Semibreve. See Time.

The *Quaver* is mark'd by the Character 𝅘𝅥𝅮. See Character.

The *Engliſh Quaver* makes what the *French* call their *Crochue*, Crochet; becauſe of the Hook at bottom. See Crochet.

The *Quaver* is divided into two Semiquavers noted 𝅘𝅥𝅯, and four Demiſemiquavers mark'd 𝅘𝅥𝅰.

QUAVERING, in Muſic, the Act of trilling, or ſhaking; or the running of a Diviſion with the Voice. See Division.

QUAY, *Kay*, a ſpace of Ground paved on the Shore of a River, or Port; deſtined for the loading and unloading of Merchandize. See Wharf.

QUEEN, *Regina*, a Woman who holds the Crown of a Realm, ſingly, and by Right of Blood. See Crown.

The Name is alſo given by way of Courteſy to her that is married to the King; call'd, by way of diſtinction, *Queen Conſort*.

The Widow of a King is call'd *Queen Dowager*. See Dowager.

The firſt is in all Conſtruction the ſame with a King, and has the ſame Power and Prerogative in all reſpects that the King has. See King.

The *Queen Conſort* is inferior, and a Perſon diſtinct from the King——Tho' ſhe be a *Feme covert*, yet may ſhe ſue, and be ſued in her own Name, may make Leaſes, and Grants, &c. as a *Feme ſole*. See Wife and Feme.

She has ſeveral other Prerogatives——Tho' an Alien, ſhe may purchaſe Lands in Fee-ſimple, without either Naturalization, or Denization; ſhe may preſent to a Benefice; nor is Plenarty a Bar againſt her more than againſt the King——She ſhall not be amerced if ſhe be non-ſuited in any Action; may not be impleaded till firſt petitioned.

To conſpire her Death, or violate her Chaſtity, is High-Treaſon. She had antiently a Revenue of *Queen-gold*; which ſee.

At preſent ſhe hath a very large Dower, with a Royal Court and Officers apart.

The *Queen Dowager* has this particular, that ſhe loſes not her Dignity tho' ſhe marries a private Gentleman——Thus, *Queen Katherine*, Widow of *Henry* V. being married to *Owen ap Theodore* Eſq; maintained her Action as *Queen* of *England*——Much leſs does the *Queen* by Inheritance, follow her Huſband's Condition, or is ſubject as other *Queens*, but is Sovereign to her own Huſband, as *Queen Mary* was to King *Philip*; unleſs it be otherwiſe appointed by Parliament.

The Word *Queen* is deriv'd from the *Saxon* Cpen, *Cwen*, *Uxor*, the Wife of any one, but apply'd by way of Excellency to the Wife of the King only; whence ſhe was antiently call'd the *King's Queen*; the *Weſt-Saxons* having no other Name for a *Queen*, but the King's Wife. *Aſſer. de Ælfred. Rebus*, &c.

She was alſo call'd *Lady*, in *Saxon*, Hlæfdia; juſt as *Madame*, or *Madamoiſelle*, are ſtill uſed for the Wife, and Daughter of the Duke of *Orleans*——

Queen *Gold*, *Aurum Reginæ*; a Royal Revenue, belonging to the *Queen* of *England*, during her Marriage to the King, both by Law, Cuſtom, and Preſcription; and payable by divers Perſons (upon ſeveral Grants of the King) by way of Oblation out of Fines; amounting to Ten Marks or upwards, *viz.* one full tenth part above the entire Fine; *e.gr.* ten Pounds on every hundred Pounds Fine, &c. See Fine.

This becomes a real Debt to the *Queen*, by the Name of *Aurum Reginæ*, upon the Party's bare Agreement with the King for a Fine, and recording it; without any further Promiſe or Contract for this tenth part extraordinary.

Queen's *Bench*. See King's *Bench*, &c.

QUE *Eſtate*, in Law, a Plea whereby a Man entituling another to Land, &c. ſaith, that the ſame Eſtate which himſelf had, he now has from him.

Thus, *e.gr.* the Plaintiff alledges, that ſuch four Perſons were ſeiz'd of Lands, whereunto the Advowſon in queſtion belong'd in Fee; and who did preſent to it, and that afterwards the Church was vacant, *que Eſtate*——i. e. *which Eſtate* he now has, and by virtue thereof preſents, &c.

Que *eſt meme*, in Law, a Term uſed in Actions of Treſpaſs, &c. for a direct Juſtification of the very Act complain'd of by the Plaintiff as a Wrong. See Trespass.

Thus in an Action upon the Caſe, the Plaintiff ſaying the Lord threaten'd his Tenants at Will in ſuch ſort, as he forced them to give up their Lands; the Lord in his Defence pleads, that he ſaid to them, if they would not depart, he would ſue them at Law——*Que eſt meme*, *i. e.* this being the ſame Threatning that he uſed, the Defence is good.

QUERELA, *Quarel*, in Law—In an Action where the Plaintiff is *Querent*, *i. e.* Complainant, his Brief, Complaint, or Declaration, was call'd *Querela*. See Quarrel.

Querela *coram Rege & Concilio*, a Writ whereby one is call'd to juſtify a Complaint of a Treſpaſs againſt the King himſelf; before the King and his Council.

QUERPO. See Cuerpo.

QUERRIES, or Equerries, the Grooms of the King's Stables. See Equerry.

Gentleman of the Querry, is an Officer appointed to hold the King's Stirrup when he mounts on horſeback. See Gentleman.

QUEST, or Inquest, an *Inquiſition*; or Inquiry made upon Oath of an Impannel'd Jury. See Inquest.

Quest-*Men*, Perſons choſe yearly in each Ward, to enquire into Abuſes, and Miſdemeanors, eſpecially ſuch as relate to Weights and Meaſures.

Quest, in Hunting, the ſeeking out of Hounds; or the venting and winding of Spaniels. See Scent, Hound, Hunting, &c.

The Word is form'd of the *French quête*, Search, of the *Latin quæſitum*, a thing ſought.

QUESTION, Quæstio, in Logic, &c. a Propoſition, whoſe Truth a Perſon being inquiſitive about, propoſes it, by way of Interrogation, to another. See Interrogation.

Logical Queſtions are variouſly diſtributed; the ordinary Diviſion is into *firſt* or *primary Queſtions*; as, *Quid eſt*, What is ſuch a Thing?——And *ſecondary*, which ariſe out of the former; as, How is it?

Question, in Law——The *Queſtion de Jure* muſt always be diſtinguiſh'd from the *Queſtion de Facto*. See Facto and Jure.

The firſt is decided by the Law, as explain'd and declared by the Judge; the ſecond is decided by the Proof of a Truth in diſpute. See Trial, Jury, &c.

QUESTOR, Quæstor, an Officer in antient *Rome*, who had the Care of the publick Treaſure. See Treasure.

The *Queſtor-ſhip* is very antient, as having been eſtabliſh'd under the Kings——In the Time of the Republick, the Senate appointed *Queſtors* in each Province, to aſſiſt the Proconſuls, as Lieutenants, or Treaſurers, in the Adminiſtration of the Revenues: But under the Emperors, there was but one *Queſtor*, or Treaſurer General of the Empire.——Thoſe inferior, or ſubordinate *Queſtors* were call'd Commiſſioners of the *Queſtor*, *Adjutores Quæſtoris*.

The *Queſtor's* Office was originally confined to the Army.——They paid the Soldiery, took charge of Moneys coming by Spoil and Plunder, &c.

At length there were new ones erected to reſide in the City, and to receive the public Money, Taxes, Tribute, &c.——Their Number was increaſed, as the Empire increaſed: *Sylla* augmented it to twenty.

There was alſo another kind of *Queſtors* whoſe Office was to enquire into, and take Cognizance of Capital Crimes.

The Word is form'd *à quærendo*, ſeeking, ſearching.

Questor *Sacri Palatii*, or of the *Sacred Palace*, was one of the firſt Dignities under the Emperors of *Conſtantinople*——'Twas the *Queſtor* that ſubſcribed the Reſcripts of the Emperor, and the Anſwers to the Requeſts and Supplications preſented him——He drew up and ſign'd the Laws and Conſtitutions which the Emperor thought fit to publiſh; and took care of the Adminiſtration of Juſtice.

Some compare his Function to that of our Lord High Chancellor——'Twas uſually one of the *Juris Conſulti* that was charged with this Office; it being required that he ſhould know the Laws of the Empire, be able to dictate them, ſee them executed, and judge of Cauſes brought by way of Appeal before the Emperor.

Conſtantine was the firſt who erected *Queſtors* of the Sacred Palace. See Palace.

QUESTUS *eſt nobis*, a Writ of Nuſance, which by Stat. 15 *Edw.* 1. lies againſt him to whom the Houſe, or other thing that breeds the Nuſance is deſcended, or alienated; whereas before that Statute, the Action lay only againſt him who firſt levied, or cauſed the Nuſance to the Damage of his Neighbour. See Nusance.

QUESTUS, or Quæstus; ſee Quæstus.

QUEUE *de Aronde*, q. d. *Swallow's Tail*, in Fortification, a Term apply'd to Horn-Works, when narrower at the Gorge than the Face; *i. e.* when the Sides open towards the Campaign, or contract towards the Gorge. See Horn-Work.

The Name is occaſion'd by their Reſemblance in Figure to a Swallow's Tail, which the *French* call *queue d'aronde.*

Of this kind are ſingle and double Tenailles; and ſome Horn-Works whoſe Sides are not parallel. See TENAILLE.

On the contrary, when the Sides are leſs than the Gorge, the Work is call'd *Contre queue d'aronae.*

QUEUE *d'aronde*, in Carpentry, a Method of Jointing. See DOVE-*Tail.*

QUEUE, in Heraldry, the Tail of a Beaſt. See TAIL.

If a Lion have a forked Tail, he is blazon'd by *double-queued.*

QUIA, in Logic; ſee REASON.

QUIA *Improvide*, a Superſedeas granted in many Caſes where a Writ is erroneouſly ſued out, or miſ-awarded. See WRIT.

Thus it is granted in behalf of a Clerk of the Chancery ſued againſt the Privilege of the Court, in the Common-Pleas, and purſued to the Exigent.

QUICK-*Lime*; ſee LIME.

QUICK-*Silver*, a very ponderous fluid Mineral, properly call'd *Mercury.*

For the Method of gaining *Quickſilver*, of preparing it, &c. with its Properties, Uſes, &c. ſee MERCURY.

QUID, *What*, in the Schools, is uſed for the Definition of a thing. See DEFINITION.

It is thus call'd by reaſon the Definition anſwers to the Queſtion, *Quid eſt*, What is it? See QUESTION.

Hence we have two kinds of *Quids*; *Nominal*, *Quid nominis*; and *Real*, *Quid rei.*

QUID *pro quo*, in Law, a Latin Phraſe, importing as much as the *Greek* αναλλαγμα, among the Civilians; *viz.* a mutual Performance of both Parties to a Contract; or a giving of one thing for another—As ten Pounds for a Horſe. *Kitchin.*

QUID *pro quo*, or QUI *pro quo*, is alſo uſed in Phyſic to expreſs a Miſtake of an Apothecary, in adminiſtring one Medicine for another; or in uſing an Ingredient in a Compoſition different from that preſcribed. See SUCCEDANEUM.

In Propriety, the *Quid pro quo* is a Miſtake in the Phyſician's Bill, where *quid* is wrote for *quo*, one thing for another; or of the Apothecary in reading *quid* for *quo*, and giving the Patient the wrong Medicine. See PRESCRIPTION.

Hence the Term is in the general extended to all Miſtakes committed in Medicine, either in the Preſcription, the Preparation, or Application of Remedies.

A Northern Phyſician in a printed Theſis on *quid pro quo's* owns ingenuouſly, that they are very frequent——He diſtinguiſhes very accurately a great Variety of Kinds of *quid pro quo's*; ſome with regard to the Operation, others with regard to the Subject, and others with regard to their Form, or their Effects.

The firſt comprehends the *quid pro quo's* of the Phyſician, the ſecond thoſe of the Patient, the third thoſe of the Apothecary.

He adds *quid pro quo's* of the Chirurgeon, and of the Cook; *quid pro quo's* of the Nurſe, &c. Nor does he omit that there are ſalutary *quid pro quo's*, dangerous *quid pro quo's*, indifferent, &c.——God preſerve us from *quid pro quo.*

QUIDDANY, or QUIDDENY, of the *Latin Cydonium*, or *Cydoniatum*, a Conſerve of Quinces. See MARMELADE.

QUIDDITY, QUIDDITAS, in the Schools, a Word of the ſame Signification with *Eſſence.* See ESSENCE.

The Name is derived hence, that it is by the Eſſence of a thing that it is *tale quid*, ſuch a *quid*, or very thing; and not another——When upon ſeeing, or hearing the Name of a thing whoſe Nature, &c. we are unacquainted withal, we ask *Quid eſt*, What is it? we mean no more by the Interrogation, but that we deſire to have its Nature and Eſſence explain'd by a Definition——Whence *Quiddity* is uſually defined the Eſſence known or expreſs'd in a Definition. See DEFINITION.

And hence what is eſſential to a thing is ſaid to be *Quiddative*—As *Quiddative* Knowledge, &c.

QUIESCENT, ſomething at Reſt; ſee REST.

QUIETISM, the Sentiments of the *Quietiſts*, a Religious Sect which made a great noiſe towards the Cloſe of the laſt Century.

Molinos, a *Spaniſh* Prieſt, who died at *Rome* in the Priſon of the Inquiſition, paſſes for the Author of *Quietiſm*; and yet the *Illuminati* in *Spain* had taught ſomething like it before. See ILLUMINED.

The Name is taken from a ſort of abſolute Reſt, and Inaction, which the Soul is ſuppos'd to be in, when arriv'd at the State of Perfection, which in their Language is call'd *the unitive Life*——To arrive at this, a Man is firſt to paſs thro' the purgative way; that is, thro a Courſe of Obedience, inſpir'd by the Fear of Hell: Hence he is to proceed into the illuminative way, e'er he arrives at Perfection; to go thro' cruel Combats, and violent Pains; *i. e.* not only the uſual Dryneſſes of the Soul, and the common Privations of Grace, but infernal Pains: He believes himſelf damn'd; and the Perſuaſion that he is ſo, continues upon him very ſtrongly ſeveral Years: St. *Francis de Sales*, ſay the *Quietiſts*, was ſo fully convinc'd thereof, that he would not allow any body to contradict him therein——But the Man is, at length, ſufficiently paid for all this; by the Embraces of God, and his own Deification.

The Sentiments of the Quietiſts, with regard to God, are wonderfully pure, and diſintereſted——They love him for himſelf, on account of his own Perfections, independently of any Rewards or Puniſhments: The Soul acquieſces in the Will of God, even at the time when he precipitates it into Hell; inſomuch that inſtead of ſtopping him on this occaſion, *B. Angele de Foligny* cry'd out, *Haſte, Lord, to caſt me into Hell: Don't delay, if thou haſt abandon'd me, but finiſh my Deſtruction, and plunge me into the Abyſs.*

At length, the Soul, after long Travail, enters into Reſt, into a perfect *Quietude*——Here 'tis wholly employ'd in contemplating its God; it acts no more, thinks no more, deſires no more; but lies perfectly open, and at large, to receive the Grace of God, who by means thereof drives it where it will, and as he will.

In this State, it no longer needs Prayers, or Hymns, or Vows; Prayers where the Spirit labours, and the Mouth opens, are the Lot of the Weak, and the Imperfect: The Soul of the Saint is, as it were, laid in the Boſom, and between the Arms of its God, where, without making any Motion, or exerting any Action, it waits, and receives the divine Graces——It, then, becomes happy: quitting the Exiſtence it before had, it is now chang'd, it is transform'd, and, as it were, ſunk and ſwallow'd up in the Divine Being, inſomuch as not to know or perceive its being diſtinguiſh'd from God himſelf. *Fenel. Max. des Saints.*

QUIETISTS, the Diſciples of *Mic. de Molinos*; or the Adherents to the Opinions deliver'd in the Article QUIETISM.

QUIETUS, q. d. *freed*, or *acquitted*; a Term uſed by the Clerk of the Pipe, and the Auditors in the Exchequer, in their Acquittances or Diſcharges given to Accomptants; which uſually conclude with the Words *Abinde recepit Quietus*; which is call'd a *Quietus eſt.*

A *Quietus eſt* granted to a Sheriff diſcharges him of all Accounts due to the King. See SHERIFF.

QUINARIUS, QUINARY, in Antiquity, a little *Roman* Coin, equal to half the *Denarius.* See COIN.

The *Quinarius* was properly the *Roman* Half-Penny. See DENARIUS.

The Medaliſts indeed uſe the Term *Quinarius* in the general for a Medal of any Matter, not exceeding the Size of our Six-Pence; but F. *Chamillart*, in an expreſs Diſſertation, ſhews this to be an Abuſe——The Silver Coins, current under the Republic, he ſhews, were two: the one weighing a Drachm, and call'd *Denarius*, as containing ten As's; the other weighing half a Drachm, and call'd *Quinarius*, as containing five As's: which Coins continu'd on the ſame footing under the Emperors. See AS.

Hence the Origin of the Word *Quinarius*; and hence, in propriety, 'tis only the Silver Medal of the Weight of half a Drachm that the Name belongs to; the *Romans* having never given it to any other Species of the ſame Size therewith——'Tis only by way of Analogy, therefore, that the Moderns apply it to Medals of Gold, or Copper, of the ſame Size with the Silver *Quinarius*; thoſe of Gold being fix'd at a Value much above, and thoſe of Braſs much below five As's.

The only Relation between theſe *Quinarii*, is, that the gold *Quinary* is the half of a gold Medal as to Weight and Value, and the braſs *Quinary* half a braſs Medal, as the ſilver *Quinary* is half a ſilver Medal.

Hence a Series of *Quinaries* ſhould ſeem at leaſt as neceſſary in the Cabinets of the Curious, as the Series of great Medals; they being all equally different Species of Money, which teach us how many kinds of Pieces there were of any Metal current in Commerce. See SERIES.

Add to this, ſays our Author, that the *Quinaries* were of a finer and more finiſh'd Coin than the other Medals, being wrought by the Hands of the Maſters; which ſeems owing to the Nicety requir'd in Engraving whole Figures in ſo ſmall Compaſs. He adds, that tho' *Quinaries* are very ſcarce, yet *M.* the Duke of *Maine* has almoſt a compleat Set of 'em.

QUINCUNX, q. d. *quinque unciæ*; a *Chequer*, or ſomething that has five Inches, Ounces, or Parts.

The Term is chiefly uſed in Gardening for a Plantation of Trees, diſpoſed originally in a Square, conſiſting of five Trees, one at each Corner, and a fifth in the Middle; which diſpoſition repeated again and again, forms a regular Grove, Wood, or Wilderneſs, and when view'd by an angle of the Square, or Parallelogram, preſents equal and parallel Alleys. See WILDERNESS.

Or the *Quincunx* is the Figure of a Plantation of Trees, diſpoſed in ſeveral Rows, both length and breadthwiſe; in ſuch manner as that the firſt Tree of the ſecond Row commences in the Centre of the Square form'd by the two firſt Trees of the firſt Row, and the two firſt of the third; reſembling the Figure of a five at Cards.—The fineſt manner of planting Trees to form a Grove, is in the *Quincunx*. See GROVE.

'Tis of this kind of *Quincunx* that *Cicero* ſpeaks in his *Cato major*; and *Quintilian*, lib. 8. cap. 3.

The modern *Quincunces*, *Daviler* obſerves, are made like thoſe of the Antients, except for the fifth Tree, which is now generally diſuſed; ſo that being, as it were, netted, and their Alleys view'd by the Side of the Rectangle, they form a perfect Chequer.

QUINCUNX, in Aſtronomy, &c. a Poſition, or Aſpect of the Planets when diſtant from each other 150 Degrees, or five Signs. See ASPECT.

QUINDECAGON, in Geometry, a plain Figure which has fifteen Sides and fifteen Angles. See FIGURE.

If the Sides be all equal, 'tis a *Regular Quindecagon*. See REGULAR.

Euclid ſhews how to Inſcribe it in a Circle, *Prop.* 16. *c.* 4. And the Side of a regular *Quindecagon* ſo deſcribed, is equal in Power to the half-difference between the Side of the Equilateral Triangle, and the Side of the Pentagon; and alſo to the difference of the Perpendiculars let fall on both Sides, taken together.

The Word is form'd ſomewhat irregularly from the *Latin*, *quinque*, five; and the *Greek* γων, Angle.

Pentedecagon would be more regular.

QUINDECIM VIR, XV-*Vir*, a *Roman* Magiſtrate, who had fourteen Collegues join'd with him in the ſame Function.

Under *Tarquin the Proud*, there were firſt two Magiſtrates erected to take care of the Sacrifices to be perform'd; theſe were call'd *Duumvirs*. See DUUMVIR.——Their Number, at length, grew to ten, and then they were call'd *Decemvirs*. See DECEMVIR.——In the time of *Cicero* it had reach'd fifteen, when they aſſum'd the Name of *Quindecim virs*; and tho' their Number grew to ſixty afterwards, yet *Servius* obſerves, on the VIth of the *Æneid*, that their Name never changed, but they ſtill continued to be call'd *Quindecim viri*.

'Twas they examin'd the Sibyls Books, and were the Interpreters thereof; yet they never did this but by expreſs Order of the Senate, declared by a *Senatus-Conſultum*.——They alſo preſided at the Sacrifices, and other extraordinary Ceremonies of Religion. See SACRIFICE.

On Medals, a Dolphin join'd with a Tripod marks the Prieſthood of the *Quindecim viri*; who, to publiſh their ſolemn Sacrifices, uſed, the Eve thereof, to carry a Dolphin at the end of a Pole, throughout the City; this Fiſh being eſteem'd ſacred to *Apollo*, as the Crow was among Birds.

QUINI-SEXTA, in Eccleſiaſtical Hiſtory, a Council held at *Conſtantinople* in the Year 692; call'd alſo the Council in *Trullo*, and by the *Greeks Penthecte*, *q. d.* fifth-ſixth; as intimating that it was only a Supplement of the two preceding Councils. Tho', in Propriety, *Fleury* obſerves, it was a Council itſelf. See COUNCIL.

Marſhall obſerves, that the fifth and ſixth General Councils having made no Canons, the Orientals judg'd it neceſſary to ſupply that defect by this; ſo that the 102 Canons falſly attributed to thoſe, were, in reality, made here. See TRULLO.

QUINQUAGENARIUS, among the *Romans*, was an Officer in the Army who had command of a Company of fifty Men.

Quinquagenarius was alſo an Officer of Policy, who had the inſpection of fifty Houſes, or Families.

Laſtly, in the antient Monaſteries, the *Quinquagenarius* was a Superior who had fifty Monks under his Guidance.

QUINQUAGESIMA SUNDAY, *Shrove Sunday*; thus call'd as being about the fiftieth Day before Eaſter. See SHROVE-*Sunday*.

Antiently, they uſed *Quinquageſima* for *Whit-Sunday*, and for the fifty Days between Eaſter and Whit-Sunday; but to diſtinguiſh this *Quinquageſima* from that before Eaſter, it was call'd the *Paſchal Quinquageſima*.

QUINQUANNION, QUINQUENNIUM, in antient Cuſtoms, a reſpite of five Years which inſolvent Debtors formerly obtain'd by virtue of the King's Letters, to have time for the payment of their Debts. See RESPITE.

When the thing intended was only to prevent the Sale of their Effects at an under Value; the Term of one Year was ordinarily granted, call'd the Benefit of *Annion*. See ANNION.

But when the Debtor would avoid the ſurrendring of his Effects, upon proving that he was reduced by Poverty, Loſſes, &c. to make uſe of this Expedient, the Term of five Years was granted, call'd the *Benefit of Quinquannion*.

QUINQUATRIA, in Antiquity, a Name given the Feaſts of *Minerva*, otherwiſe call'd *Panathenæa*. See PANATHENÆA.

Some think they were term'd *Quinquatria*, becauſe they laſted five Days; but others with more reaſon, becauſe they fell out five days after the Ides of the Month.

QUINQUENNALIA, in Antiquity, Games, or Feaſts celebrated every fifth Year, in honour of the deified Emperors. See GAME, &c.

The *Quinquennalia* began to be expreſs'd on Medals about the middle of the third Century——F. *Pagi* produces a Medal wherein are engraven thoſe of the Emperor *Poſthumus*; which is not found in any Medals of his Predeceſſors.

QUINQUENNALIS, in Antiquity, a Magiſtrate in the Colonies, and municipal Cities of the *Roman* Commonwealth. See COLONY, &c.

The *Quinquennales* were much the ſame with the *Ediles* at *Rome*. See EDILE.

They were not thus call'd from their continuing in their Office five Years; but becauſe they were elected every fifth Year, to preſide at the Cenſus, and to receive the Declaration each Citizen made of his Effects. See CENSUS.

QUINQUE *Portus*, the five Cinque Ports. See CINQUE *Port*.

The five are *Haſtings*, *Romney*, *Hythe*, *Dover*, and *Sandwich*——To the firſt thereof belong *Winchelſea* and *Rye*, which are eſteem'd Members of the Cinque Ports.

Servitium quod Barones Quinque Portuum *præſcriptorum recognoſcunt facere ad ſummonitionem Regis per annum, ſi contigerit per* 15 *dies ad cuſtum eorum proprium, ita quod primus dies computatur a die quo vela navium erexerunt, uſque partes ad quas tendere debent, vel ulterius quam diu Rex voluerat ad cuſtum ejus.*

QUINQUE-VIR, frequently wrote V-*Vir*, a *Roman* Magiſtrate, who had four Collegues join'd with him in the ſame Function.

There were various kinds of Officers thus denominated—*Pomponius* the Lawyer mentions *Quinque viri* on this, and on that ſide the *Tiber*, eſtabliſhed for the Adminiſtration of Juſtice in the Night-time, in lieu of the ordinary Magiſtrates, who were not judged proper to run up and down the Streets in the dark.

Roſinus tells us, that it was ſometimes the *Quinque-viri* who conducted the Colonies, and divided the Lands aſſign'd them, among the ſeveral Families. See COLONY.

Sometimes the *Epulones* were five in Number; in which caſe they were call'd *Quinque-viri*. See EPULONES.

The *Quinque-viri monetarii* were Officers firſt erected under the Conſulate of *Valerius Poplicola*, to moderate the exceſſive Uſury, or Intereſt, which Creditors or Bankers uſed to exact upon the People. See USURY.

QUINQUINA, QUINAQUINA, call'd alſo *China China*, and *Kin-Kina*, a Medicinal Bark brought from the *Weſt-Indies*; call'd alſo, by way of Eminency, the *Bark*; and *Cortex Peruvianus*, the *Peruvian Bark*, from the Country whence it is brought; and popularly the *Jeſuits Bark*, becauſe at its firſt Introduction chiefly ſold and adminiſtred by the Jeſuits. See CORTEX.

The Tree which yields this Bark grows in a Province of *Peru* call'd *Quito*, on the Mountains near the City of *Loxa*——The Natives call it *Ganaperide*, and the *Spaniards Palo de Calenturas*, *i. e.* Fever-Wood.

There are two kinds——the one wild, the other cultivated; whereof the latter is much the beſt.

The *Quinquina* was but little known in *Europe* till the Year 1640——The Jeſuits of *Rome* firſt brought it in vogue in *Spain*, and *Italy* in 1649; and in 1650, the Cardinal *de Lugo*, of that Order, brought it into *France*.

It was at firſt ſold for its Weight in Gold: when reduced into Powder, it is by Foreigners call'd the *Cardinals Powder*; among us uſually, the *Jeſuits Powder*, *Pulvis Patrum*.

It met with a world of Oppoſition at firſt——*Chiflet* and *Plempius* diſtinguiſh'd themſelves againſt it. But is now almoſt univerſally allow'd one of the greateſt and beſt Remedies within the whole Province of Medicine.

Some call the Gentian-Root the *European Quinquina*, becauſe good againſt intermitting Fevers. See GENTIAN.

QUINSEY, or QUINZY, or QUINCY, in Medicine, the *Squinancy*, or *Angina*. See ANGINA and SQUINANCY.

QUINSIEME, or QUINZIEME, in our old Law-Books, a Tax antiently levied at the Rate of one *Fifteenth* Part of the Value of all moveable Goods. See TAX and FIFTEENTH.

It is a Miſtake committed by ſeveral Authors to make this a Tax of the fifteenth Part of all Lands; it being of the Goods only.——It was firſt granted by Parliament, 18 *Edw.* I. viz. *Computus* quintæ decimæ *Regi*, *An.* 18. *per Archiepiſcopos*, *Epiſcopos*, *Abbates*, *Priores*, *Comites*, *Ba-*

rones, & omnes alios de Regno, de omnibus bonis mobilibus conceſſa.——The City of *London* paid this Year for the Fifteenth 2860*l.* 13*s.* 8*d.* and the Abbot of St. *Edmund's* 666 *l.* 13*s.* 4 *d.* which was by compoſition; and thereupon had all the temporal Goods of their Diſtrict diſcharged of the Fifteenth.

The way of Collecting it was by two Aſſeſſors appointed in every County by the King, who appointed twelve more in every Hundred to make a true Valuation of every Man's perſonal Eſtate upon which the fifteenth Part was levied.

QUINT, a Sequence of five Cards of the ſame Colour. See SEQUENCE, PICQUET, *&c.*

QUINTA ESSENTIA; ſee QUINTESSENCE.

QUINTAIN, QUINTENA, in antient Cuſtom, a Poſt driven into the Ground, with a Buckler fix'd to it, for the Performance of Military Exerciſes on Horſeback, throwing of Darts, Breaking of Lances, *&c.*

Borel, Matth. Paris, &c. deſcribe the *Quintain* as a kind of Mark, form'd like a Man from the Navel upwards, holding a Shield in his left Hand, and in his right a Sword or Stick; the whole ſo fitted as to turn round on its Foot, and ſo as that a Cavalier running a-tilt againſt it with a Lance, if he hit it in the Breaſt, it whisk'd round, and, unleſs he were very dextrous, ſtruck him with the Sword held in the other Hand.

In other Places, a-top of a Poſt was erected a ſlender Beam fitted to turn round a Spindle; at one of whoſe Ends was a ſloap or flat Board, and at the other a Bag of Sand, or Dirt——The Sport was, with a long Staff, or wooden Lance, to ride a-tilt at the Board, and to be either ſo skilful or lucky to eſcape the Blow of the Sand-Bag.

This ſome take to be the ſame with the *Arietum Levatio*, frequently prohibited in our old Synods and Epiſcopal Conſtitutions.

The Cuſtom is ſtill retain'd in *Shropſhire*, and ſome other Counties, among the Nuptial Solemnities——He that breaks the moſt Poles againſt the *Quintain* has the Prize, which was antiently a Peacock, now a Garland.

Some derive the Word from an antient Game call'd *Quintus*; others from a Man call'd *Quintus*.

The *Vallus* and *Paſſius* mention'd in *Cæſar*, are taken, by *Vigenere*, for a kind of *Quintain*, or Wooden Man fix'd up as an Adverſary, or Man of Straw, to prove one's Dexterity againſt.

Mention is made of this Exerciſe in the Code *de Aleatoribus*, and in the *Paratitles* of *Cujas* on the ſame——*Juvenal* mentions Women engaging therein;

Aut quis non vidit vulnera Pali?

QUINTAIN was alſo a Right which the Lord had to oblige all the Millers, Watermen, and other young People unmarried, to come before his Caſtle every three Years, and break ſeveral Lances, or Poles, againſt a Poſt, or wooden Man for his Diverſion.

QUINTAL, in Commerce, the Weight of an hundred Pounds. See HUNDRED *Weight*.

The *Quintal* admits of ſome difference in different Places, according as the Pound conſiſts of more or fewer Ounces, and as the Ounce is lighter or heavier. See POUND and OUNCE.

Thus, *e. gr.* the *Paris Quintal*, or Hundred, yields 123 Pounds at *Montpelier*; and the *Montpelier* Hundred only 81 Pounds at *Paris.*———The *Quintal* of *Conſtantinople* is eſteem'd the heavieſt of all thoſe uſed in the *Levant*. It contains 45 Ocquas, the Ocquas weighing two *Dutch* Pounds $\frac{9}{16}$; ſo that the *Quintal* is equal to 112 Pounds $\frac{3}{4}$ of *Amſterdam*, 124 Pounds of *Venice*, and 160 of *Leghorn*.

The *Engliſh Quintal* uſually conſiſts of 112 Pounds Avoirdupois, and is divided into four Quarters. See QUARTER.

QUINTAL was alſo formerly uſed for a Weight of Lead, Iron, and other common Metals, uſually equal to an hundred Pounds, at ſixſcore to the Hundred.

QUINTESSENCE, QUINTA-ESSENTIA, in Chymiſtry, a Preparation conſiſting of the Eſſential Oil of ſome Vegetable Subſtance, mix'd and incorporated with Spirit of Wine. See OIL, *&c.*

Thus, on a proper quantity, *e. gr.* of Eſſential Oil of Fennel, pouring twelve times the quantity of pure Alcohol prepared *per ſe*; they inſtantly unite into one ſimilar Liquor, which is the *Quinteſſence* thereof.

The Antients were perfectly unacquainted with the Method of diſſolving Oil in Spirit of Wine; and even ſome of the Moderns have queſtion'd its Reality: But the Certainty of the thing is eaſily proved from the Inſtance above.

If ſuch *Quinteſſence* be ſeveral times digeſted, cohobated, *&c.* the Oil will at length be broke ſo fine, as, like the Spirit itſelf, perfectly to mix with Water; which is one of the moſt extraordinary Effects in all Chymiſtry. See SPIRIT, SULPHUR, *&c.*

After the like manner is made a *Quinteſſence* of Camphor, by only reducing it into a Powder, and pouring on Spirit of Wine. See CAMPHOR.

Quinteſſences thus prepared are of great Medicinal Virtue; as may appear from the pure and potent Ingredients uſed in the Compoſition, which retain, in a great degree, all the Virtues of the Plants they are procured from: And hence their Denomination. See ESSENCE.

Boerhaave thinks they might properly be call'd Vegetable Sulphurs made potable, and rais'd to their utmoſt degree of Power and Efficacy. See SULPHUR.

Dry *Quinteſſences* may be made from the Liquid ones, by adding to 'em ſome Eſſential Oil of the ſame Vegetable from whence the liquid *Quinteſſence* was procured, with a little Sugar; all mix'd together, and diſtill'd by a gentle Heat till all the Moiſture is come over: The Matter remaining is a dry *Quinteſſence*.

This Form is principally uſeful to Travellers, Sailors, *&c.* inaſmuch as it renders the *Quinteſſence* portable; ſo that the quantity, *e. gr.* of a Pin's Point, ſhall be an efficacious Medicine.

QUINTESSENCE, in Alchymy, is a myſterious Term ſignifying the fifth, or laſt and higheſt Eſſence, or Power of a natural Body.

This is ſuppoſed to be, as it were, the Soul drawn from the groſs Body and its four Elements, by a moſt perfect Diſtillation; and by means hereof, the thing is ſaid to be ſpiritualiz'd, *i. e.* render'd exceeding pure, ſpirituous, and, as it were, incorruptible. *Dict. Hermetique.*

The Antients, who allow'd of nothing real but what has a Body; would have the Soul of Man to be a fifth Element, a kind of *Quinteſſence* without a Name, unknown here below, indiviſible, immovable, all cœleſtial, and divine. *Fenelon.*

QUINTESSENCE *of the Elements*, is the *Hermetical Mercury*. See MERCURY.

QUINT-EXACT, in old Law-Books, the laſt Call of the Defendant ſued to an Outlawry.

If he appears not to it, he is by the Judgment of the Coroners return'd Outlaw'd; if a Feme, waved. See EXIGENT, OUTLAWRY, WAIF, *&c.*

QUINTILE, QUINTILIS, in Aſtronomy, an Aſpect of the Planets, when they are 72 Degrees diſtant from one another, or a fifth Part of the Zodiac. See ASPECT and CHARACTER.

QUINTILIANS, QUINTILIANI, a Sect of antient Heretics, the ſame with the *Pepuzians*; thus call'd from their Propheteſs *Quintilia*. See PEPUZIAN.

In this Sect the Women were admitted to perform the Sacerdotal and Epiſcopal Functions; grounding their Practice on that Paſſage of St. *Paul* to the *Galatians*, where he ſays, *That in Chriſt there is no diſtinction of Males and Females.*

They attribute extraordinary Gifts to *Eve*, for having firſt eaten of the Tree of Knowledge; tell mighty things of *Mary* the Siſter of *Moſes*, as having been a Propheteſs, *&c.* *Philip*, the Deacon, add they, had four Daughters, who were all Propheteſſes.

In their Aſſemblies, it was uſual to ſee the Virgins enter in white Robes perſonating Propheteſſes——The *Quintilians* bore a good deal of reſemblance to the modern Quakers. See QUAKER.

QUIRE of Paper, of the *French Caher*; the quantity of 24 or 25 Sheets. See PAPER.

QUIRISTER, or CHORISTER, *Choriſta*, a Perſon appointed to ſing in the Quire or Choir of a Cathedral. See CHORISTER.

QUIRINALIA, in Antiquity, Feaſts celebrated among the *Romans* in honour of *Romulus*, who was call'd *Quirinus*. See QUIRITES.

The *Quirinalia* were held on the 13th of the Kalends of *March*, *i. e.* on our 17th of *February*.

QUIRITES, in Antiquity, an Appellation given to the People of *Rome*.

It took its Riſe from the *Curetes*, the Inhabitants of the *Sabin* Town *Cures*; on this occaſion——*Romulus*, and *Tatius* King of the *Sabins*, having united their two People, and their two States into one; upon *Romulus*'s Death and Deification, the *Sabins*, out-doing the *Romans* in number, became Maſters of the Councils; and accordingly appointed that *Romulus* ſhould be denominated *Quirinus*, from *Cures* a City of the *Sabins*, or rather from *Quirinus*, the Name of a God worſhip'd in that City.

From the new *Quirinus*, all the People came afterwards to be call'd *Quirites*; unleſs we'll ſuppoſe that the ſame Authority which denominated *Romulus*, *Quirinus*, from *Cures*, did alſo denominate the People *Quirites*, immediately from the *Curetes*.

Some Authors derive the Word *Quirinus* from *Curis*, which in the *Sabin* Tongue ſignify'd a Pike or Halberd——*Struvius* adds, that *Romulus* was always painted with Pike in Hand.

QUIRK, in Building, a Piece of Ground taken out of any regular Ground-Plat, or Floor——Thus, if the Ground-Plat were Square, or Oblong; and a Piece be taken out of a Corner, to make a Court, or Yard, &c. the Piece is call'd a *Quirk.*

QUIS, in Natural Hiſtory, a kind of Marcaſite of Copper, from which the *Roman Vitriol* is drawn. See Marcasite and Vitriol.

It is alſo call'd *Pyrites.* See Pyrites.

QUIT-Claim, *Quieta clamantia,* a Releaſe or Acquitting of a Man of any Action, that he hath or may have on ſome certain occaſion; or a quitting one's Claim or Title. See Claim.

QUIT-Rent, q. d. *Quiet-Rent,* a certain ſmall Rent, payable yearly, by the Tenants of moſt Manors in token of Subjection; upon the Payment whereof they are quit or free till it becomes due again. See Manor, &c.

In ſome antient Records it is written *White-Rent;* becauſe paid in Silver, to diſtinguiſh it from Rent-Corn, Rent-Pepper, &c. See Rent.

QUITTER-Bone, among Farriers, a hard, round Swelling, upon the Coronet of a Horſe's Foot; or between the Heel and the Quarter. See Hoof.

Or it is an Impoſthume breeding between the Hoof and Coffin-bone, on the upper Part; and ſhewing itſelf by a Swelling on the Coronet.

Sometimes it is occaſion'd by a Gravel under the Shoe, or by a Bruiſe, Stab, Prick of a Nail; or from peccant Humours deſcending to that Place; or a Blow, Strain, or Over-reach, &c.

It occaſions the Horſe to halt much, and the Swelling grows viſible, and comes to a head in four or five days, and breaks out with Matter at a little deep Hole, like a Fiſtula.

QUOD *Clerici non eligantur in Officio Balivi,* &c. is a Writ that lies for a Clerk, who by reaſon of ſome Land he hath, is made, or like to be made, a Bailiff, Beadle, or Reeve, or ſuch-like Officer. See Clerico *infra ſacros,* &c.

Quod *non permittat.* See Consuetudinibus & *Servitiis.*

Quod *perſona nec prebendarii,* &c. a Writ that lies for Spiritual Perſons, when diſtrained in their Spiritual Poſſeſſions, for the Payment of a Fifteenth, with the reſt of the Pariſh. See Quinzieme.

QUODLIBETICAL *Queſtion,* or *Quæſtio* Quodlibetica, a College Term for a Theſis, or Problem, antiently propoſed to be debated in the Schools out of Curioſity and Entertainment, rather than for the ſettling of any uſeful Point.

The Term is form'd from the *Latin Quodlibet,* any thing, what you pleaſe; and ſo well ſatisfy'd were the Public with the Impertinences of theſe Queſtions, that the Term *Quodlibet* has been ſince retained to ſignify any little, ridiculous Quibble.

QUO Jure, a Writ that lies for him who has Land, wherein another challengeth Common of Paſture time out of mind.

The deſign hereof is to compel the Party to ſhew by what Right or Title he challengeth it.

Quo Minus, a Writ that lies for him who has a Grant of Houſe-bote in another Man's Wood, againſt the Grantor making ſuch Waſte, as that the Grantee cannot enjoy his Grant. See House-*bote.*

The Writ *Quo minus* alſo lies for the King's Farmer in the Exchequer, againſt him to whom he ſelleth any thing by way of Bargain, touching his Farm; or againſt whom he hath any Cauſe of perſonal Action.——For by the Vendee's detaining any Due from him, the Farmer is made leſs able to pay the King's Rent.

Under this Pretence, any one who pays the King a Fee-Farm Rent, may have this Writ againſt any other for Debt or Damage, and bring the Cauſe to trial in the Exchequer. See Exchequer.

Quo Warranto, a Writ that lies againſt him who uſurps any Franchiſe, or Liberty againſt the King; as to have Waiſe, Straw, Fair, Market, Court Baron, Leet, or ſuch like, without good Title.

It alſo lies againſt him that intrudeth himſelf as Heir into Land. See Intrusion.

QUOIN, or Coin, a-board a Ship, is a Wedge faſten'd on the Deck, cloſe to the Breech of the Carriage of a Gun, to keep it firm up to the Ship's Side.

The Word is form'd from the *Latin Cuneus,* Wedge. See Wedge.

QUOINS, in Architecture, the Corners of Walls. See Wall.

The Word is particularly uſed for the Stones in the Corners of Brick-Buildings——When theſe ſtand out beyond the Brick-work (their Edges being chamfer'd off) they are call'd *Ruſtic Quoins.* See Rustic *Work.*

Cantic Quoins are ſhort, three-legged *Quoins,* put between Casks to keep 'em ſteady.

QUOITS, a Kind of Exerciſe or Game, known among the Antients under the Name of *Diſcus.* See Discus; ſee alſo Exercise and Game.

QUORUM, a Term frequently mention'd in our Statutes, and often uſed in Commiſſions, both of Peace, and others. See Commission, Peace, &c.

It is thus call'd from the Words in the Commiſſion, *Quorum* A. B. *unum eſſe volumus.*

For an Example——Where a Commiſſion is directed to ſeven Perſons, or to any three of them, whereof A. B. and C. D. to be two; there A. B. and C. D. are ſaid to be of the *Quorum,* becauſe the reſt cannot proceed without them.

So a Juſtice of the Peace and *Quorum,* is one, without whom the reſt of the Juſtices in ſome Caſes cannot proceed. See Justice.

QUOTATION, in Literature, a *Citation;* or a Paſſage rehearſed expreſly in one Author from another. See Citation.

Quotations are uſed to be diſtinguiſh'd, by inverted Comma's, thus; "Half an Age ago *Quotations* were won-"derfully common; and *Ovid* and *Catullus* came every "day with the Pandects to the aſſiſtance of the Widow and "the Orphan."——*La Bruyere.*

The *Quotations from the Old Teſtament,* found in the New, have occaſion'd infinite Doubt, Diſpute, and Criticiſm——The Apoſtles are frequently referring to the Old Teſtament, and *quoting* Paſſages and Prophecies thence as fulfill'd in our Saviour; yet theſe Paſſages, thus *quoted,* are frequently either not found in the Old Teſtament, or are not urged in the New according to the literal and obvious Senſe they ſeem to bear in the Old.

A late ingenious Author, in an Eſſay upon the Truth of the Chriſtian Religion, frankly owns, that the Evangeliſts ſometimes apply to the Meſſiah Paſſages of the Old Teſtament, which, as they lie in our preſent Copies, plainly relate to ſome other Perſon, or Thing.—This is evident, *e. gr.* in the Paſſage, Matth. ii. 15. *Out of* Egypt *have I call'd my Son;* which are *quoted* from *Hoſea* xi. where it is plainly underſtood of the coming of the *Iſraelites* out of *Egypt.* See Prophecy.

This proves a heavy Obſtacle in the way of Chriſtianity, which the Divines, Commentators, Critics, &c. have long labour'd to remove, tho' by very different means.

Some have recourſe to a double Completion; and imagine, that tho' the Prophecies were primarily accompliſh'd in other Events, yet they might have a ſecondary one in the Meſſiah: But others ſet aſide a double Completion, except where the Prophet himſelf declares as much, as making all Prophecy uſeleſs.

The generality chuſe therefore to have recourſe to an Allegorical, or Typical, or Spiritual Meaning in the Prophecies, &c. and ſuppoſe 'em to have been thus underſtood among the antient *Jews,* thus fulfill'd in our Saviour, and thus apply'd by the Apoſtles. See Type.

In effect, the *Jewiſh* Rabbins, 'tis allow'd, took a world of liberty in *quoting* and interpreting Scripture; and 'tis ſuppoſed the Apoſtles might follow thoſe Rules in their *Quotations.* See Rabbin.

Accordingly M. *Surenhuſius, Hebrew* Profeſſor at *Amſterdam,* has endeavour'd to retrieve thoſe Rules, long ſince loſt, in an expreſs Treatiſe on this Subject, publiſhed in 1713.

This Author obſerves a great deal of difference imply'd in the different Forms of *Quotings* uſed by the Sacred Writings: As, *It has been ſaid; It is written; That it might be fulfill'd which was ſpoken by the Prophets; The Scripture ſays; See what is ſaid; The Scripture foreſeeing; Is it not written,* &c.——He adds, that the Books of the Old Teſtament having been diſpoſed in a different Order at different Times, and having had different Names; 'tis thence that a Book or Writer is ſometimes confounded with another.

For the Rules of *Quoting* and Interpreting practiſed among the Rabbins, he gives us ten; recover'd with much Study from the *Thalmud* and the antient *Jewiſh* Doctors: Inſtances whereof he gives us in the Writings of the Apoſtles; and by thoſe Rules he endeavours to explain and juſtify all the *Quotations* made from the Old Teſtament in the New.

The Rules are, 1. Reading the Words not according to the Points placed under them, but according to others ſubſtituted in their ſtead; as is done by St. *Peter, Acts* xxxiii. by *Stephen, Acts* vii. 43. and by *Paul,* 1 *Cor.* xv. 54. 2 *Cor.* viii. 15. &c.

The ſecond is by changing the Letters; as is done by *Paul, Rom* ix. 33. 1 *Cor.* xi. 9. *Heb.* viii. 9. and x. 5. and by *Stephen, Acts* vii. 43.

The third is by changing both Letters and Points, as is done by *Paul, Acts* xiii. 41. and 2 *Cor.* viii. 15.——The fourth is adding ſome Letters, and taking away others.

The fifth, tranſpoſing Words and Letters.——The ſixth is dividing one Word into two.——The ſeventh, adding other Words to make the Senſe more clear.——The eighth, changing the Order of the Words.——The ninth, changing the Order of the Words, and adding other Words. Both of which are done by the Apoſtles.——Laſtly, changing the Order of Words, adding Words and retrenching Words; which is a Method often uſed by St. *Paul*.

Other Authors, as Biſhop *Kidder*, M. *le Clerc*, Mr. *Sykes*, *&c.* ſolve the difficulty another way.—That uſual Form of *Quotation* among the Evangeliſts, "That it might be fulfilled which was ſpoken by the Prophets," according to theſe Authors, means no more than an Accommodation of the Prophets Words to the Caſe in hand.

The Word πληρωθῆ, *fulfilled*, does not neceſſarily determine us to ſuch a Senſe, as if the Evangeliſts deſign'd to ſpeak of a Prediction of future Events *accompliſhed*; but may barely expreſs an Accommodation of borrow'd Words. ——In effect, ſays Biſhop *Kidder*, a Scripture may be ſaid to be *fulfilled* two ways; *Properly*, as when that which was foretold comes to paſs; and *Improperly*, by way of Accommodation, as when an Event happens to any Place or People like to what fell out ſome time before.——And thus it is that St. *Matthew* ſays, on occaſion of the Murder of the Innocents, that "then was fulfill'd what was "ſpoke by the Prophet *Jeremy*, *In Rama was a Voice* "*heard*, *&c.*

This Interpretation is confirm'd by M. *Le Clerc*, who obſerves that the *Jews*, in their Language uſed to ſay, that a Paſſage of Scripture was *fulfill'd* as often as any thing happen'd which it might be apply'd to: So that the Evangeliſt *Matthew*, who was a *Hebrew*, and wrote, as 'tis commonly ſuppoſed, in that Language, intended no more in the Paſſage juſt cited, but that a thing happen'd to which one might apply what *Jeremy* had formerly ſaid on another Occaſion.

Accordingly, ſays Mr. *Sykes*, the Evangeliſts in citing that Paſſage of *Iſaiah*, *Behold a Virgin ſhall be with Child*, *&c.* only uſe it as words of that Prophet remarkably agreeable to the miraculous Birth of Jeſus, and not as a Prophecy of his Birth.

It may be added, that this way of ſpeaking was not unknown among the Heathen Writers——Thus in *Ælian*, *Diogenes Sinopenſis* uſed continually to ſay of himſelf, that he fulfill'd and underwent all the Curſes of Tragedy.

QUOTIDIAN, in Medicine, an intermitting Fever, or Ague, the Acceſs whereof returns every day. See Fever and Ague.

QUOTIENT, in Arithmetic, the Number reſulting from the diviſion of a greater Number by a ſmaller; and which ſhews how often the ſmaller is contain'd in the greater, or how oft the Diviſor is contain'd in the Dividend. See Division.

In Diviſion, as the Diviſor is to the Dividend; ſo is Unity to the *Quotient*.——Thus the *Quotient* of 12 divided by 3 is 4; which is thus diſpoſed, 3) 12 (4 *Quotient*.

The Word is form'd from the *Latin*, *quoties*, *q. d.* How often is ſuch a Number contain'd in ſuch another?

QUOYL, or Quoile, or Coyle, in the Sea-Language, a Cable is ſaid to be *Quoyled*, when it is laid round in a Ring on the Deck of a Ship. See Cable.

In the middle of ſuch Ring, or *Quoyle*, is a good Place to lay Shot in, more ſafe there than in Lockers along the ſide, where the Enemy's Shot may fall into it.

R.

R, A liquid Conſonant, and the ſeventeenth Letter of the Alphabet. See LETTER and ALPHABET.

The Grammarians hold it a Semi-vowel; eſpecially in the *Greek*, where, in common with the other Vowels, it admits an Aſpirate, *&c.* tho' whether the Aſpirate ſhould come before or after it is ſome doubt. We find Inſtances of each.

Thus ῥέδη the *Latins* wrote *Rheda*; and ῥόδον the *Æolians* wrote βρόδον. The Antient *Goths*, and *Teutones*, *Littleton* obſerves, prefix'd *b* to *r*.

The *Hebrews* allow'd it the Privilege of a *Guttural*, that is, they never double it, which yet is done by the *Arabs*, *Greeks*, and *Latins*, &c. See GUTTURAL.

Perſius calls it *littera canina*, becauſe the Dogs ſeem to pronounce it in ſnarling: Yet it ſhould ſeem to have had a ſofter Sound among the *Romans*, than among us, by its being frequently interpos'd to prevent the Claſhing of Vowels: As in *rarus* from, ἀραιὸς, *nurus* from νυὸς, *murex* from μύαξ, *mus muris* from μῦς μυὸς; and this Softneſs was ſuch as frequently occaſioned its being dropt as uſeleſs in Writing.

Thus for *Hetruſci* they frequently wrote *Thuſci*, and even *Tuſci*; and for *ſurſum*, *rurſus*, *prorſus*; *ſuſum ruſus*, *proſus*.

In effect there was that Agreement between the Sound of the *s* and *r*, that as the *Romans* avoided the doubling of their Conſonants, 'twas no wonder they here drop'd the *r*; the *s* ſupplying the place of both. Hence too it came to paſs, that what they at firſt pronounced, *Aſa*, *Aſena*, *Caſmen*; was afterwards, *Ara*, *Arena*, *Carmen*; and thoſe firſt named *Fuſii* and *Valeſii* were afterwards call'd *Furii* and *Valerii*; and *Cicero* tells us, the *papirii* were firſt called *papiſii*; and even fixes the time when the Change was made, *viz.* in the Year of *Rome* 415. *Feſtus* adds, that *olera*, *pignora*, *plurima*, were antiently *oleſa*, *pignoſa*, *pluſima*.

From the ſame ſoftneſs of the Sound of the *r*, it came to be uſed indifferently with the *l* in many Words, *e. gr. Latiaris* and *Latialis*, *palilia* and *parilia*, &c.

Tho' the *r* more frequently degenerated into *l*; thus *Remures* became changed into *Lemures*, *interlego*, *perluceo* into *Intelligo* and *pelluceo*, *frater* into *fratellus*, &c. and the ſame is ſometimes done between *n* and *r*, as *æreus* and *æneus*, &c.

R, was antiently a Numeral Letter, ſignifying 80, according to the Verſe,

Octoginta dabit tibi R, *ſiquis numerabit.*

When a Daſh was added a-top as $\bar{\text{R}}$, it ſignified 80 thouſand. The *Greek*, *r*, ρ, ſignified an hundred.

R or ℞ in Medicinal Preſcription, ſtands for *Recipe*, take. See RECIPE. See alſo CHARACTER.

RABATE in Faulconry. A Hawk is ſaid to *rabate*, when by the Motion of the Hand of the Bearer, the Lure, Call, *&c.* ſhe leaves purſuing her Prey, or Quarry; and recovers the Fiſt.

RABATE in Commerce. See REBATE.

RABBI, or RABBIN, a Doctor of the *Jewiſh* Law. See DOCTOR.

The Words *Rabbi*, and *Rabbin*, have the ſame ſignification; yet is there ſome Difference in their Uſe. When we ſpeak abſolutely, and without applying the Term to any proper Name, we ſay *Rabbin*, not *Rabbi*. Thus, it would be unjuſt to attribute to the antient *Rabbins* all the Notions of the Modern ones.

On the other Hand, when we prefix the Term to the proper Name of ſome *Jewiſh* Doctor, we ſay *Rabbi*, not *Rabbin*; as *Rabbi Salomon Jarrhi* is of this Opinion.

Yet *Rabbi* having no Plural, we ſay the *Rabbins*. *Jebuda Chijug*, and *Jebuda ben Chabin*, are the Authors of two antient *Hebrew* Grammars.

The Word in its Original רבי, ſignifies *Maſter*.

The modern *Rabbins* are entitled to a good deal of reſpect among the *Jews*: They have the firſt Places in the Synagogues; they determine all Matters and Controverſies of Religion, and very frequently pronounce upon Civil Affairs. They have even a Power to excommunicate the Diſobedient.

They retain a vaſt number of ſuperſtitious Traditions, from the Writings of their Predeceſſors; which they obſerve as ſcrupulouſly as the Law of *Moſes*. See TRADITION. See alſo TALMUD.

The antient *Rabbins* were infinite dealers in Allegories: Their Writings are almoſt wholly Allegorical, particularly their Comments and Interpretations of the Scripture; See CABBALA. They had a great number of Rules, and Forms of Interpreting and Quoting, which ſome modern Writers ſuppoſe to have been follow'd by the Apoſtles, in their Interpretation, and Quotation of the Propheſies of the Old Teſtament, in the New. See PROPHECY.

The loſs of theſe Rules Dr. *Stanhope*, Dr. *Jenkins*, &c. lament, as what in all probability would reconcile the jarring Paſſages in the Old and New Teſtament. *Surenhuſius*, *Hebrew* Profeſſor at *Amſterdam*, imagines he has retrieved thoſe Rules from the antient Jewiſh Writers.

The *Rabbins*, he obſerves, interpreted Scripture in ſuch a manner as to change the litteral Senſe into a more noble and ſpiritual Senſe. To this End, he ſays they uſed ten ways of quoting and explaining the Old Teſtament; inſtances of each whereof he gives in the Writings of the Apoſtles.

They conſiſt in changing the Points; the Letters; both Letters and Points; adding and taking away Letters; tranſpoſing Words and Letters; dividing one Word into two; adding Words; changing the Order, *&c.* See QUOTATION.

RABBETING, in Carpentry, the planing or cutting of Channels, or Grooves, in Boards. See PLANE.

In Ship-Carpentry it ſignifies the letting in of the Planks of the Ship into the Keel.

RABBINIST, a Follower of the Doctrine of the Rabbins; in contradiſtinction to *Caraite*. See CARAITE.

Pere Simon contends for *Rabbaniſt* or *Rabbanite*, inſtead of *Rabbiniſt*; in effect, the former are apparently preferable to the latter; the Word being derived from the *Hebrew Rabbanim*, which is the Name of the Sect, and which the *Jews* uſe to diſtinguiſh their Doctors from thoſe of the *Caraite Jews*.

Rabbiniſt, then, ſignifies a *Jewiſh* Doctor, who adheres to the Traditions of his Fathers; not ſimply a Rabbin or Doctor; for the *Caraites* who oppoſe thoſe Traditions, have their Rabbins as well as the other *Jews*. See TRADITION.

RABDOIDES,		RHABDOIDES.
RABDOLOGY,	See	RHABDOLOGY.
RABDOMANCY,		RHABDOMANCY.

RABINET, a ſmall piece of Ordnance, between a Falconet and a Baſe. Its Dimenſions, *&c.* See under CANNON.

RACA, or RACHA, a *Syriac* Term, found in the Goſpel of St. *Matthew*, Ch. v. 22. and preſerv'd in moſt Tranſlations.

F. Simon obſerves that the *Greek* Tranſlator of St. *Matthews* Goſpel retain'd the *Syriac Raca* which he found in the Original, by reaſon it was very common among the *Jews*. And St. *Jerom*, *Luther*, the *Engliſh* Tranſlators, thoſe of *Geneva*, *Louvain*, *Port Royal*, &c. ſtill preſerve it in their reſpective Languages.

F. Bouhours chuſes rather to expreſs the Senſe thereof in a ſort of Paraphraſe, thus: He that ſays to his Brother, *Homme de peu de ſens*, *Man of little underſtanding*, ſhall deſerve to be condemned by the Tribunal of the Council, *&c.*

Moſt Tranſlators, except the *Engliſh*, and *F. Simon*, for *Raca* write *Racha*: But the latter ſeems the beſt founded; all the *Latin* Copies having *Raca*; and all the *Greek* ones ῥαχὰ, or, with *Heſychius*, ῥακκα, which is the ſame: All, we mean, but St. *Irenæus*, and *Beza*'s Copy, now at *Camb*[illegible]*e*. In effect, the Origin of the Word ſhews it ſhould be *Raca*; as coming from the *Syriac* רקא, *Raca*, of the *Hebrew* רק. *rek*, empty, ſhallow.

RACCOURCY, in Heraldry, ſignifies the ſame as *Coupee*, that is, cut off, or ſhortned; and denotes a Croſs or other ordinary, when it does not extend to the Edges of the Eſcutcheon, as they do when abſolutely named, without ſuch Diſtinction. See COUPEE.

RACE, in Genealogy, a Lineage, or Extraction continued from Father to Son. See LINE.

The Word is formed from the *Latin*, *radix*, *root*; as intimating the root of the Genealogical Tree.

In ſeveral Orders of Knighthood, as in that of *Malta*, &c. the Candidates muſt prove a Nobility of four *Races* or Deſcents. See DESCENT.

In ſome Republicks the Magiſtrates are to prove themſelves of *Plebeian Race*, to be qualified.

The *French* reckon their Kings by *Races*; as the firſt *Race*, the ſecond *Race*, the third *Race*. We alſo ſay the *Race* of the *Ottomans*, the *Arſacides*, the *Ptolomys*, &c. See DYNASTY.

Hervieux obſerves that 'tis uſual to put the Female Canary-Bird to the Male Goldfinch, Linnet, or the like, to breed; but, for his part, he ſhould chuſe to put the Male Canary-Bird to the Female Goldfinch, Linnet, *&c.* becauſe the Male uſually *Races* more than the Female, *i. e.* the young ones take more after the Male than after the Female.

RACHITIS, or RHACHITIS, in Medicine, a Diſeaſe affecting the Bones of Children, more uſually called the *Rickets.* See RICKETS.

RACK, an Engine furniſhed with Cords, *&c.* for extorting Confeſſion from Delinquents. See TORTURE.

The Duke of *Exeter,* Conſtable of the Tower under *Henry* VI. with the Duke of *Suffolk,* and others, having a deſign to introduce the Civil Law into *England;* for a Beginning, the *Rack,* or *Brake* allowed in many Caſes by the Civil Law, was firſt brought to the Tower, where it is ſtill preſerv'd.

In thoſe Days the *Rack* was call'd the Duke of *Exeter's Daughter.*

RACK, in the Manage, a Pace wherein a Horſe neither Trots nor Ambles, but ſhuffles, as it were between both. See PACE.

The *Racking Pace* is much the ſame as the Amble; only that it is a ſwifter Time, and a ſhorter Tread. See AMBLE.

RACKET, a kind of Bat, to ſtrike the Ball withal at Tennis. See TENNIS.

It conſiſts of a kind of Lattice, or Net-work of Cat-gut, ſtrain'd very tight over a Circle of Wood with a Handle or Shaft of a moderate length.

Paſquier obſerves, that antiently they uſed no *Rackets* at Tennis, but play'd with the Palm of the Hand; and hence, he conjectures it is, that the *French* call Tennis-Play, *Jeu de Paume.*

He adds, that *Rackets* were not introduced till a little before his Time. The *Engliſh* Word *Racket* is formed from the *French, Raquette,* which *Menage* derives from the *Latin, Reſiquetta,* a diminutive of *Retis, Reticus,* and *Reticulum.*

RACKET, is alſo a Machine, which the Savages of *Canada* bind to their Feet, to walk more commodiouſly over the Snow; made much in the manner of a Tennis-Racket.

Its Figure is a Lozange, whereof the two obtuſe Angles are rounded off. It is bound about with very fine Thongs of Leather, the Maſhes whereof are much ſmaller and cloſer than thoſe of our *Rackets.*

In the middle is fitted a kind of Shoe, lined with Wool, or Hair; and tied on to prevent its ſinking in the Snow.

They oblige the Perſon to take very long Steps, and as we ſay, to walk a great pace, to keep them from knocking againſt each other.

To *Rack Wines,* &c. is to draw them from off their Lees, after having ſtood long enough to clear and ſettle. See WINE.

Hence RACK-*Vintage* is frequently uſed for the ſecond Voyage our Wine Merchants uſed to make into *France* for rack'd Wines; whence they uſed to return about the End of *December.*

RADIAL *Curves,* is a Term uſed by ſome Authors for Curves of the Spiral Kind, whoſe Ordinates, if they may be ſo call'd, do all terminate in the Center of the including Circle, and appear like ſo many *Radii* of that Circle; whence the Name. See CURVE. See alſo SPIREL.

RADIALIS, or RADIÆUS *Extenſor,* in Anatomy. See EXTENSOR *Carpi.*

RADIALIS, or RADIÆUS *flexor.* See FLEXOR *Carpi.*

RADIATED, in Botany, an Epithet applied to round flat Flowers, conſiſting of a Diſk, and a ſingle row of longiſh pointed Leaves, ranged all around it in manner of Rays, or Spokes. See FLOWER.

The Word is alſo uſed in ſpeaking of Medals, and in Heraldry; where the antient Crowns are called *radiated Crowns, Coronæ Radiatæ.* See CROWN and CORONET.

RADIANT-*Point,* or RADIATING-*Point,* is any Point of a viſible Object, whence Rays proceed. See RAY.

Every *Radiant-Point* diffuſes innumerable Rays all around: But only thoſe *Radiants* are viſible from which right Lines may be drawn to the Pupil; becauſe the Rays are all right Lines.

All the Rays proceeding from the ſame *Radiant* continually diverge; the Cryſtallin collects or reunites 'em again. See DIVERGING. See alſo CRYSTALLIN.

Every Ray carries with it the Species, or Image of the *Radiant.* See SPECIES.

RADIATION, in Phyſick, the Action of a Body diffuſing Rays of Light. See RAY.

Every viſible Body is a radiating Body; it being purely by means of its Rays that it affects the Eye. See VISION.

Yet no Body can *radiate,* unleſs it be either luminous or illuminated; ſince the Rays it diffuſes muſt either be its own, or it muſt receive them from another Body. Therefore no Body is Viſible unleſs it be either luminous or illuminated. See BODY, LIGHT, COLOUR, *&c.*

The Surface of a radiating Body may be conceived as conſiſting of Radiant-Points. See RADIANT-*Point.*

Place of RADIATION is that Space in a tranſparent Body, or Medium, through which a viſible Body *Radiates.* See MEDIUM, *&c.*

RADIATION, or IRRADIATION, is alſo uſed by ſome Authors to expreſs the manner of the Motion of the Animal Spirits; on a Suppoſition that they are diffuſed from the Brain towards all Parts of the Body, through the little Canals of the Nerves, as Light is from a lucid Body. See SPIRIT.

But in lieu of a *Radiation,* many of the Moderns rather incline to the Opinion of the Circulation of the Spirits. See CIRCULATION.

RADICAL, RADICALIS, in Phyſicks, *&c.* ſomething ſerving as a Baſis or Foundation; or which, like a *Root,* is the Source, or Principle whence any thing ariſes. See ROOT.

The Schools talk much of a *Radical Moiſture* in all Animals, which nouriſhes and preſerves the vital Heat or Flame, as Oyl does a Lamp; and which when exhauſted, Life is extinguiſhed.

Dr. *Quincy* obſerves that this *radical Moiſture* is a mere Chimera; unleſs we thereby mean the Maſs of Blood which is the promptuary whence all the other Juices and Humours are derived; and which, while it circulates, ſuſtains Life, *&c.* See CALIDUM. See alſo FLAMMA, BLOOD, *&c.*

In Grammar we uſe the Term *Radical Words* for Roots and Primitives; in oppoſition to Compounds or Derivatives. See ROOT and PRIMITIVE.

RADICAL *Sign,* in *Algebra,* the Sign or Character of the Root of a Quantity. See ROOT.

$\surd$ is the Character of Radicality, and expreſſes the Square Root; $\sqrt[3]{}$, the Cube Root, *&c.* See CHARACTER.

RADICATION, in Phyſick, the Action whereby Plants take Root, or ſhoot out Roots. See ROOT.

The *French* Royal Academy of Sciences have made a good number of curious Obſervations on the Germination and *Radication* of Plants. See VEGETATION, SEED, PLANTING, PERPENDICULARITY, *&c.*

RADICLE, RADICULA, *little Root*; in Botany, is a a little Point diſcovered by the Microſcope in all Seeds, which in the growth of the Plant becomes the Root. See ROOT. See alſo SEED.

When, in ſowing, the *Radicle* happens to light loweſt; 'tis no wonder the Root ſhould ſpread it ſelf under Ground, and the Stem of the Plant riſe up perpendicularly: But when the *Radicle* falls uppermoſt, by what means it is, that it changes its Poſition to favour the Aſcent of the Stem, is one of the Wonders of Vegetation. A more particular Account whereof ſee under the Article PERPENDICULARITY.

RADIOMETER, a Name ſome Writers give to the *Radius Aſtronomicus,* or *Jacob's Staff.* See JACOB'S *Staff.*

RADIUS, RAY, in Geometry, the Semidiameter of a Circle; or a right Line drawn from the Centre to the Circumference. See SEMI-DIAMETER, *&c.*

The *Radius* is alſo called, eſpecially in Trigonometry, *ſinus totus, whole ſine.* See SINE.

'Tis implied in the definition of a Circle, and 'tis apparent from its Conſtruction, that all the *Radii* of the ſame Circle are equal. See CIRCLE.

The Word is derived from the *Greek* ῥάβδος, *rod. Fleta* uſes the Word *Radius* for a *Furrow.*

RADIUS, in the higher Geometry. *The* RADIUS *of the Evoluta.* RADIUS *Curvedinis,* or RADIUS *Oſculi,* is the right Line CM, *Tab. Analyſis Fig.* 12. repreſenting a Thread, by whoſe Evolution from off the Curve BC, whereon it was wound, the Curve AM*m* is form'd, See EVOLUTA and OSCULUM.

RADIUS *Aſtronomicus,* an Inſtrument properly called *Jacob's Staff,* or *Croſs Staff.* See CROSS *Staff.*

RADIUS, in Opticks. See RAY.

RADIUS, in Mechanicks, is uſed for the Spokes, or Fellows of a Wheel; becauſe iſſuing like Rays, from the Centre thereof. See WHEEL.

RADIUS, in Anatomy, is a long ſlender Bone of the Arm, deſcending along with the *Ulna* from the Elbow to the Wriſt; called alſo, *focile minus,* the *leſſer focile.* See FOCILE.

The *Radius* only touches the *Ulna* at its Extremities; at the upper whereof it is both received by, and alſo receives it; making, by both Articulations, an imperfect Kind of Ginglymus. See ULNA.

The upper End, rolling upon the *Ulna,* is cover'd with a Cartilage; and has a-top, a ſmall round *Sinus,* which receives the outer Proceſs of the *Humerus:* The lower-end is thicker than the upper, and has beſides the lateral *Sinus,* two other *Sinus* at its Extremity which receive the Bones of the Wriſt.

The *Radius* and *Ulna* are both a little crooked; by which means they are kept a-part, excepting at their Extremities; and are tyed together by a ſtrong membranous Ligament. See ARM.

The *Radius* has four proper Muſcles, beſides the *Biceps* common to it and the *Ulna:* The proper are two *Pronators,* and two *Supinators.* See PRONATOR and SUPINATOR. See alſo BICEPS.

RADIX. See ROOT.

RADIX is uſed among ſome Anatomiſts, for the Sole of the Foot. See FOOT.

RADIX, among Grammarians. See RADICAL.

RAD-*Knights.* See ROD-*Knights.*

RAFTERS, in Building, are pieces of Timber, which ſtand by Pairs upon the Reaſon, meet in an Angle at the Top, and help to compoſe the Roof of a Building. See ROOF.

'Tis a Rule in Architecture, that no Rafters ſhou'd ſtand farther than twelve Inches from one another.

For the Sizes or Scantlings of *Rafters*, tis provided by Act of arliament, that *principal Rafters* from 12 Foot 6 Inches, to 14 oot 6 Inches long, be 5 Inches broad a-top, and 8 at the botm, and 6 Inches thick.

Thoſe from 14, 6 to 18, 6 long, to be 9 Inches broad at the oot and 7 a-top, and 7 thick.

And thoſe from 18, 6, to 21, 6, to be 10 Inches broad at the oot, 8 a-top, and 8 Inches broad.

Single Rafters, 6 Foot 6 Inches long, to be 4 and 3 Inches in eir Square. Thoſe 8 Foot long muſt be 4½ and 3¾ Inches quare.

RAFFLING, a Game with three Dice, wherein he who hrows the greateſt Pair, or Pair-Royal, in three Caſts, wins. ee GAME and GAMING.

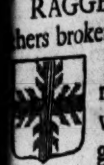
The *Raffle* is properly the double or triplet. A *Rafflle* of Aces, r Duces, carries it againſt meer Points.

Raffling is alſo uſed when a Company of Perſons club to the urchaſe of a Commodity; and he that throws the higheſt on he Dice takes it.

The Word probably comes from the baſe *Latin*, *riſflare*, to *iſle*, plunder, take all away.

RAG, or RAKE, among Hunters, is a Company, or Herd of oung Colts.

RAGGED *Hawk*, in Faulconry, is an Hawk that hath its Feahers broken. See HAWK.



RAGGULED, or RAGULED, or RAGGED, in Heraldry, is applied to an Ordinary, *Ex. gr.* a Croſs, whoſe Out-Lines are jagged or knotted, as in the Figure adjoining. He beareth Sable, a Croſs *Ragguled*, Or, by the Name of *Sloway*.

Ragged differs from indented, in that the latter is regular, and this former not.

The Bearing is very Antient: *Julius Cæſar* gave for his Badge, Boar's Head, on a ragged Staff.

RAGGULED is ſometimes alſo uſed in the Senſe of *Truncated*, or *Couped*, and applied to a Branch that is ſaw'd from the Tree; or a Stock ſaw'd from its Root.

RAGMAN's-*Roll*, or rather RAGIMUND'*s-Roll*, a Roll or Liſt enominated from its Author *Ragimund*, a Legat in *Scotland*, who calling before him all the beneficed Perſons in that Kingdom, cauſed them, upon Oath, to give in the true Value of their Benefices; according to which they were taxed in the Court of *Rome*.

This Roll, among other Records, being taken from the *Scots* by our King *Edward* I. was re-delivered to them in the Beginning of *Edward* IIId's time.

RAGOûT, or RAGOO, a Sauce, or Seaſoning, to rouſe or ecover the Appetite when languiſhing or loſt.

The Term is *French*, but naturaliz'd.

The Term is alſo uſed for a high-ſeaſon'd Diſh, prepared of Fleſh, Fiſh, Greens, or the like, by ſtewing them with the Addition of Bacon, Salt, Pepper, Cloves, and the like.

We have *Ragoos* of Beef, of Cray-Fiſh, of Giblets, of Aſparagus, of Endive, of Cocks-Combs, of Gammon, of Celery, *&c.*

The Ancients had a *Ragoût* call'd *Garum*, made of the Putrefied Guts of a certain Fiſh, which they kept till it diſſolved by meer Force of Corruption, into a Sanies: This was held ſuch a valuable Dainty among them, that *Pliny* obſerves, its Price equall'd that of the richeſt Perfumes.

RAJA, an *Indian* Term, uſed for a Kind of Idolatrous Princes, the remains of thoſe who ruled there before the Conqueſt of the *Moguls*.

There are ſome *Rajas* who ſtill retain a Kind of Sovereignty in the Mountains: The *Indians* call them *Rai*; the *Perſians*, plurally, *Raijan*; our Travellers, *Rajas*, or *Ragias*.

The chief Lords of the *Moguls*, *viz.* the Vice-Roys, Governours of Provinces, and Chief Miniſters of State, F. *Catrou* obſerves, are call'd *Ombras*; and the Idolatrous *Rajas*, or *Indian* Lords, who governed petty States before the Conqueſt of their Country, hold the ſame Rank at Court with the *Ombras*.

All the difference is, that the Children of the *Rajas* ſucceed their Fathers in the ſhew of the Sovereignty left them; whereas the Children of the Mahometan Lords loſe all in loſing their Fathers.

The *Indians* account four Ages from the Beginning of the World; and in the ſecond, which laſted 1296000 Years, they hold the *Rajas* or *Kchatrys* had their Riſe; chaſte, noble, *&c.* though inferiour to the *Bramans*. See BRAMAN.

Vice then began to creep into the World; Men only lived to 300 Years, and their Stature was reduced, *&c.* *Lett. Edit. & Cur.*

RAIL, in Architecture, is applied variouſly; particularly, to thoſe pieces of Timber, *&c.* which lie Horizontally between the Pannels of Wainſcot; to thoſe that lie over and under Balluſters in Balconies, Stair-Caſes, *&c.* and to the pieces of Timber that lie horizontally from Poſt to Poſt, in Fences with Pales or without.

RAIN, a very frequent and uſeful Meteor; deſcending from above in form of Drops of Water. See METEOR and DROP.

Rain is, apparently, a precipitated Cloud; as Clouds are nothing but Vapours raiſ'd from Moiſture, Waters, *&c.* See CLOUD.

And Vapours are demonſtratively nothing elſe but little Bubbles or *Veſiculæ* detach'd from the Waters, by the Power of the ſolar, or ſubterraneous Heat, or both. See VAPOUR.

Theſe *Veſiculæ* being ſpecifically lighter than the Atmoſphere, are buoyed up thereby, till they arrive at a Region where the Air is a juſt Balance with them; and here they float, till by ſome new Agent they are converted into Clouds, and thence either into Rain, Snow, Hail, Miſt, or the like. See SNOW, HAIL, *&c.*

But the Agent in this Formation of the Clouds into *Rain*, &c. is a little controverted; the generality will have it the Cold, which conſtantly occupying the ſuperiour Regions of the Air, chills and condenſes the *Veſiculæ*, at their Arrival from a warmer Quarter; congregates them together, and occaſions ſeveral of them to coaleſce into little Maſſes: By this Means their Quantity of Matter increaſing in a greater Proportion than their Surface, they become an overload to the light Air, and accordingly deſcend in Rain.

Mr. *Derham* accounts for the Precipitation, hence; that the *Veſiculæ* being full of Air, when they meet with a colder Air than that they contain, their Air is contracted into a leſs Space, and conſequently the watery Shell or Caſe render'd thicker, ſo as to become heavier than the Air, *&c.* See COLD.

Others only allow the Cold a Part in the Action, and bring in the Winds as Sharers with it; indeed 'tis clear, that a Wind blowing againſt a Cloud will drive its *Veſiculæ* upon one another; by which means ſeveral of them coaleſcing as before, will be enabled to deſcend; and the effect will be ſtill more conſiderable if two oppoſite Winds blow towards the ſame Place. Add to this, that Clouds already form'd, happening to be aggravated by freſh Acceſſions of Vapour continually aſcending, may thence be enabled to deſcend. See WIND.

Yet the grand Cauſe, according to *Rohault*, is ſtill behind: That Author conceives it to be the Heat of the Air, which after continuiug for ſome time near the Earth, is at length carried up on high by a Wind, and there thawing the ſnowy *Villi*, or Flocks of the half-frozen *Veſiculæ*, reduces them into Drops; which coaleſcing, deſcend and have their Diſſolution perfected in their Progreſs through the lower and warmer Stages of the Atmoſphere.

Others, as Dr. *Clark*, &c. aſcribe this Deſcent of the Clouds rather to an Alteration of the Atmoſphere, than of the *Veſiculæ*; and ſuppoſe it to ariſe from a Diminution of the Spring or elaſtic Force of the Air. See ELASTICITY.

This Elaſticity which depends chiefly or wholly on the dry terrene Exhalations, being weaken'd; the Atmoſphere ſinks under its Burthen; and the Clouds fall, on the common Principle of Precipitation. See PRECIPITATION.

Now, the little *Veſiculæ* by any, or all, of theſe Means, being once upon the Deſcent, will perſiſt therein, notwithſtanding the Increaſe of Reſiſtence they every Moment meet withal in their Progreſs through ſtill denſer and denſer Parts of the Atmoſphere.

For, as they all tend towards the ſame Point, *viz.* the Centre of the Earth, the further they fall the more Coalitions will they make; and the more Colalitions, the more Matter will there be under the ſame Surface, the Surface only increaſing as the Squares, but the Solidity as the Cubes; and the more Matter under the ſame Surface, the leſs Friction or Reſiſtence there will be to the ſame Matter. See BAROMETER.

Thus if the Cold, the Wind, *&c.* happen to act early enough to precipitate the *Veſiculæ*, e're they are arrived at any conſiderable Height; the Coalitions being few in ſo ſhort a Deſcent, the Drops will be proportionably ſmall; and thus is form'd what we call *Dew*. See DEW.

If the Vapours prove more copious, and riſe a little higher, we have a *Miſt* or *Fog*. See FOG.

A little higher ſtill, and they produce a *ſmall Rain*, &c.

If they neither meet with Cold nor Wind enough to condenſe or diſſipate them; they form a heavy, thick, *dark Sky*; which laſt, ſometimes ſeveral Weeks. See WEATHER.

Hence we may account for many of the Phænomena of the Weather; *e. gr.* why a cold, is always a wet Summer; and a warm a dry one? Becauſe the Principle of Precipitation is had in the one Caſe, and wanting in the other.

Why we have ordinarily moſt *Rain* about the Equinoxes? Becauſe the Vapours ariſe more plentifully than ordinary in the Spring, as the Earth becomes looſen'd from the brumal Conſtipations; and becauſe as the Sun recedes from us in Autumn, the Cold increaſing, the Vapours that had linger'd above during the Summer Heats, are now diſpatch'd down, *&c.*

Why a ſettled, thick, cloſe Sky ſcarce ever *Rains* till it have been firſt clear? Becauſe the equably diffuſed Vapours muſt firſt be condens'd, and congregated into ſeparate Clouds, to lay the Foundations of *Rain*; by which means the reſt of the Face of Heaven is left open, and pervious to the Rays of the Sun, *&c.* See WEATHER.

For other Phænomena of *Rain*, as they relate to the Weather-Glaſs, ſee BAROMETER.

As to the *Quantity of Rain* that falls; its *Proportion* in ſeveral Places at the ſame Time, and in the ſame Place at ſeveral Times; we have Store of Obſervations, Journals, *&c.* in the Memoirs of the *French* Academy, the *Philoſ. Tranſact.* &c. an

Idea whereof will not be unacceptable.

Upon meaſuring, then, the *Rain* falling yearly; its Depth, at a Medium, is found as in the following Table.

Depth of RAIN *falling yearly, and its Proportion in ſeveral Places.*

	Inches.
At *Townley* in *Lancaſhire*, obſerv'd by Mr. *Townley*,	42 1/2
Upminſter in *Eſſex*, by Mr. *Derham*,	19 1/4
Zurich in *Switzerland*, by Dr. *Scheutcher*,	32 1/4
Piſa in *Italy*, by Dr. *Mich. Ang.* Tilli,	43 1/4
Paris in *France*, by M. *de la Hire*,	19
Liſle in *Flanders*, by M. *de Vauban.*	24

Proportions of the RAIN *of ſeveral Years to one another.*

	At *Upminſter.*		At *Paris.*	
1700	19 Inch.	03 Cent.	21 Inch.	38 Cent.
1701	18	69	27	78
1702	20	38	17	42
1703	23	99	18	51
1704	15	81	21	20
1705	16	93	14	82

Proportion of the RAIN *of the ſeveral Seaſons to one another.*

1708	Depth at *Piſa.* Inch.	Depth at *Upminſt.* Inch.	Depth at *Zurich.* Inch.	1708	Depth at *Piſa.* Inch.	Depth at *Upminſt.* Inch.	Depth at *Zurich.* Inch.
Jan.	6 41	2 88	1 64	*July*	0 00	1 11	3 50
Febr.	3 28	0 46	1 65	*Aug.*	2 27	2 94	3 15
Mar.	2 65	2 03	1 51	*Sept.*	7 21	1 46	3 02
Apr.	1 25	0 96	4 69	*Oct.*	5 33	0 23	2 24
May	3 33	2 02	1 91	*Nov.*	0 13	0 86	0 62
June	4 90	2 32	5 91	*Dec.*	0 00	11 97	2 62
Half-Year.	28 82	10 67	17 31	Half-Year.	14 94	8 57	15 35

Præternatural-RAINS, as *of Blood*, &c. are very frequent in our Annals; and even Natural Hiſtories, yet; if ſtrictly pried into, will be all found other things than *Rain*.

Bloody Rains, Dr. *Merret* obſerves, are, certainly, nothing elſe but the Excrements of Inſects.

Accordingly, *Gaſſendus* gives an Inſtance of a bloody Rain in *France*, which terrified the People; but which *Peiriſc* found to be only red Drops coming from a ſort of Butterfly that flew about in great Numbers, as he concluded from ſeeing ſuch red Drops come from them; from the Drops not being laid on Buildings, or the outer Surfaces of Stones, *&c.* but in Cavities and Holes; and from thoſe Walls only being tinged therewith that were next the Fields, not thoſe in the Streets; and the firſt only to a little Height, ſuch as Butterflies are uſed to fly to.

The ſame Dr. *Merret* adds, that 'tis moſt evident the *Rains of Wheat* are nothing but *Ivy-Berries*, ſwallowed by the Starlings, and again caſt forth by Stool.

An Inſtance of ſuch a *Rain* we have in the *Philoſoph. Tranſ.* from the Country about *Briſtol*, by Mr. *W. Cole*; who, upon examining the Drops, found them to be the Seeds of Ivy-Berries, blown down by fierce Winds from Towers, Churches, Chimneys, Walls, *&c.* where they had been left by Birds, chiefly Starlings and Choughs.

The *French* have a Tradition of a *Rain of Stones*, in a Plain ſix or ſeven Leagues long between *Arles* and *Marſeilles*, call'd *la Crau*, which is now quite cover'd therewith.

The Fable has it, that *Hercules* in his Engagement with *Albion* and *Bregion*, in Favour of *Neptune*; wanting Darts, was aſſiſted by *Jupiter* with a Shower of theſe Stones, ſeen to this Day. Another Account of their Origin, ſee under the Article STONE.

RAINS, in the Sea Language, is all that Tract of Sea to the Northward of the Equator, between 4 and 10 Degrees of Latitude; and lying between the Meridian of *Cape Verde*, and that of the Eaſtermoſt Iſlands of the ſame Name.

It takes its Name from the almoſt continual Calms, conſtant *Rains*, and Thunder and Lightning to a great Degree, found there. The Winds, when they do blow, are only ſmall uncertain Guſts, and ſhift about all round the Compaſs; ſo that Ships are ſometimes here detain'd a long while, and can make but little way.

RAIN-BOW, IRIS, or ſimply, the Bow, a Meteor in form of a party-coloured Arch or Semicircle, exhibited in a rainy Skie, oppoſite to the Sun; by the refraction of his Rays in the Drops of falling Rain. See METEOR, RAIN, and REFRACTION.

There is alſo a *ſecondary* or fainter *Bow*, uſually ſeen inveſting the former, at ſome Diſtance; and among Naturaliſts we read of *Lunar Rainbows*, *Marine Rainbows*, &c.

The *Rainbow*, Sir *Iſaac Newton* obſerves, never appears but where it rains in the Sun-ſhine; and may be repreſented artificially, by contriving Water to fall in little Drops like Rain; thro' which the Sun ſhining, exhibits a *Bow* to a Spectator placed between the Sun and the Drops; eſpecially if a dark Body, *e. gr.* a black Cloath be diſpoſed beyond the Drops.

Anton. de Dominis firſt accounted for the *Rainbow*, in 1611: He explain'd at large how it was form'd, by refraction and reflection of the Sun-beams in ſpherical Drops of Water; and confirm'd his Explications by Experiments made with Glaſs Globes, *&c.* full of Water. Wherein he was follow'd by *Des Cartes*, who mended and improved on his Account: But as they were both in the Dark as to the true Origin of Colours, their Explications are Defective, and in ſome things erroneous; which 'tis one of the Glories of the *Newtonian* Doctrine of Colours, to ſupply and correct.

Theory of the Formation of the RAIN-BOW.

To conceive the Origin of the *Rainbow*, let us conſider what will befal Rays of Light coming from a very remote Body, *e. gr.* the Sun; and falling on a Globe of Water, ſuch as we know a Drop of Rain to be.

Suppoſe then ADKN (*Tab. Opticks, Fig.* 45.) to be a Drop of Rain, and the Lines EF, BA, ON, to be Rays of Light coming from the Centre of the Sun; which, by reaſon of the immenſe Diſtance of the Sun, we conceive to be Parallel. See *Parallel* RAY.

Now the Ray BA being the only one that falls perpendicularly on the Surface of the Water; and all the reſt obliquely; 'tis eaſily inferr'd that all the other Rays will be refracted towards the Perpendicular. See REFRACTION.

Thus the Ray EF, and others accompanying it, won't go on ſtrait to G; but as they arrive at HI, deflect from F to K, where ſome of them, probably, eſcaping into the Air, the reſt are reflected upon the Line KN, ſo as to make the Angles of Incidence and Reflexion equal. See REFLEXION.

Further, as the Ray KN, and thoſe accompanying it, fall obliquely upon the Surface of the Globule; they cannot paſs out into the Air, without being refracted, ſo as to recede from the Perpendicular LM; and thereſore will not proceed ſtraight to Y, but deflect to P.

It may be here obſerv'd, that ſome of the Rays arriving at P, do not paſs out into the Air, but are again reflected to Q; where being refracted like the reſt, they do not proceed right to Z, but declining from the Perpendicular TV, are carried to R: But ſince we here only regard the Rays as they may affect the Eye placed a little below the Drop, *e. gr.* at P, thoſe which deflect from N to Q, we ſet aſide as uſeleſs, becauſe they never come at the Eye. On the contrary, it is to be obſerv'd, that there are other Rays, as 2, 3, and the like, which being reflected from 3 to 4, thence to 5, and from 5 to 6 may at length arrive at the Eye placed beneath the Drop.

Thus much is obvious: But to determine preciſely the Quantities of Refraction of each Ray, there muſt be a Calculation: By ſuch Calculation it appears that the Rays which fall on the Quadrant AD, are continued in Lines, like thoſe here drawn in the Drop AD KN; wherein there are three things very conſiderable: *Firſt*, That the two Refractions of the Rays in their Ingreſs and Egreſs are both the ſame Way, ſo that the latter does not deſtroy the effect of the former. *Secondly*, That of all the Rays paſſing out of AN; NP, and thoſe adjoining to it, are the only ones capable of affecting the Senſe; as being ſufficiently cloſe or contiguous; and becauſe coming out parallel; whereas the reſt are divaricated, and diſpers'd too far to have any ſenſible Effect, at leaſt to produce any thing ſo vivid as the Colours of the *Bow*. *Thirdly*, That the Ray NP has *Shade* or Darkneſs under it: For ſince there is no Ray comes out of the Surface NA, 'tis the ſame thing as if the Part were cover'd with an Opake Body. We might add, that the ſame Ray NP has Darkneſs above it; ſince the Rays that are above it are ineffectual; and ſignify no more than if there were none at all.

Add to theſe, that all the effectual Rays have the ſame Point of Reflection, *i. e.* the parallel and contiguous Rays; which alone are effectual after Refraction, will all meet in the ſame Point of the Circumference; and be reflected thence to the Eye.

Further it appears by Calculation, that the Angle ONP, included between the Ray NP, and the Line ON drawn from the Centre of the Sun, which is the Angle whereby the *Rainbow* is diſtant from the oppoſite Point of the Sun, and which makes the *Semidiameter of the Bow*; contains 41° 30'. The Method of determining it ſee hereafter.

But ſince beſide thoſe Rays coming from the Centre of the Sun to the Drop of Water, there are many more from the ſeveral Points of its Surface; there are a great many other effectual Rays to be conſidered; eſpecially that from the uppermoſt, and that from the loweſt Part of the Sun's Body.

Since then, the apparent Diameter of the Sun is about 16 Seconds, it follows that an effectual Ray from the upper Part of the Sun will fall higher than the Ray EF, by 16 Seconds: This does the Ray GH, (*Fig.* 46.) which being refracted as much as EF; deflects to I, thence to L; and at length emerging equally refracted with the Ray NP, proceeds to M; and makes an Angle ONM, of 41° 14' with the Line ON.

In like Manner the effectual Ray QR coming from the loweſt Part of the Sun, falls on the Point R, 16 Minutes lower than the Point F, on which the Ray EF falls; and being refracted declines to S; whence it is reflected to T; where emerging into the Air, it proceeds to V; ſo, as the Line TV, and the Ray OT contain an Angle of 41° and 46'.

Again, upon computing the Deflexions of the Rays, which, like the 23 (*Fig.* 45.) coming from the Centre of the Sun, and being received into the lower Part of the Drop, we have ſuppoſed to be twice reflected, and twice refracted, and to enter the Eye by Lines like that 67 (*Fig.* 47.); we find that which may be accounted effectual, as 67, with the Line 86 drawn from the Centre of the Sun, contains an Angle 867, of about 52 Degrees: Whence it follows that the effectual Ray from the higheſt Part of the Sun, with the ſame Line 86 includes an Angle leſs by 16 Minutes; and that from the loweſt Part of the Sun, an Angle greater by 16 Minutes.

Thus, ſince ABCDEF is the Path of the efficacious Ray from the higheſt Part of the Sun to the Eye in F; the Angle 86 F becomes of about fifty one Degrees, and forty four Minutes. In like manner, ſince GHIKLM is the Way of an effectual Ray from the loweſt Part of the Sun, to the Eye, the Angle 86 M becomes nearly of fifty two Degrees, and ſixteen Minutes.

Since then we admit ſeveral Rays to be effectual, beſide thoſe from the Centre of the Sun; what we have ſaid of the *Shade* will need ſome Alteration: For, of the three Rays deſcribed (*Fig.* 45 & 46.) only the two extreme ones will have a Shadow joining to them, and that only on the outer Side. Hence it is evident that theſe Rays are perfectly diſpoſed to exhibit all the Colours of the *Priſm*.

For the great Quantity of denſe or intenſe Light, *i. e.* the Bundle of Rays collected together in a certain Point, *v. gr.* in the Point of Reflection of the effectual Rays, may be accounted as a lucid or radiant Body, terminated all around by *Shade*. But the ſeveral Rays thus emitted to the Eye are both of different Colours; that is, fitted to excite in us the Ideas of different Colours; and are differently refracted out of the Water into Air, notwithſtanding their falling alike upon the refracting Surface. See COLOUR, *&c.*

Hence it follows that the different or heterogeneous Rays will be ſeparated from one another, and will tend ſeparate ways; and the homogeneous Rays be collected, and tend the ſame way: And therefore this lucid Point of the Drop, wherein the Refraction is effected, will appear fringed, or border'd with ſeveral Colours; that is, *red, green,* and *blue* Colours will ariſe from the extremes of the red, green, and blue Rays of the Sun tranſmitted to the Eye from ſeveral Drops one higher than another; after the ſame manner as is done in viewing lucid, or other Bodies through a *Priſm*. See PRISM.

Thus, adds Sir *Iſaac Newton*, the Rays that differ in refrangibility, will emerge at different Angles; and conſequently, according to their different Degrees of Refrangibility, emerging moſt copiouſly at different Angles, will exhibit different Colours in different Places. See REFRANGIBILITY.

A great number then of theſe little Globules being diffuſed in the Air, will fill the whole Space with theſe different Colours; provided they be *ſo diſpoſed* as that effectual Rays may come from them to the Eye; and thus will the *Rainbow*, at length, ariſe.

Now to determine what the *Diſpoſition* muſt be; ſuppoſe a right Line drawn, from the Centre of the Sun through the Eye of the Spectator, as the Line VX, (*Fig.* 46.) call'd the *Line of Aſpect*: Being drawn from ſo remote a Point, it may be eſteem'd parallel to all other Lines drawn from the ſame Point: But a right Line falling on two Parallels makes the alternate Angles equal. See ALTERNATE.

If, then, an indefinite Number of Lines be imagin'd drawn from the Spectator's Eye to a part oppoſite to the Sun where it rains; which Lines make different Angles with the Line of Aſpect, equal to the Angles of Refraction of the differently refractible Rays, *e. gr.* Angles of 42°, 1', and of 40°, 16'. Theſe Lines falling on Drops of Rain illumined by the Sun, will makes Angles of the ſame Magnitude with Rays drawn from the Centre of the Sun to the ſame Drops. And therefore the Lines thus drawn from the Eye will repreſeut the effectual Rays that occaſion the Senſation of any Colour.

That, *e. gr.* making an Angle of 42° 1' repreſenting the leaſt refrangible or red Rays of the ſeveral Drops, and of 40° 16', the moſt refrangible or violet Rays: The intermediate Colours, and refrangibilities will be found in the intermediate Space Ee. See RED, VIOLET, *&c.*

Now, 'tis known that the Eye being placed in the Vertex of a Cone, ſees Objects upon its Surface as if they were in a Circle; and the Eye of our Spectator is here in the common Vertex of ſeveral Cones, form'd by the ſeveral Kinds of efficacious Rays, with the Line of Aſpect. And in the Surface of that whoſe Angle at the Vertex or Eye is the greateſt, and wherein the others are included, are thoſe Drops or Parts of Drops which appear red; and in the Surface of that Cone whoſe Angle is leaſt, are the purple Drops: And in the intermediate Cones are the green, blue, *&c.* Drops. Hence then ſeveral Kinds of the Drops muſt appear as if diſpoſed into ſo many circular colour'd *Faſciæ* or Arches, as we ſee in the *Rainbow*.

This part of the Solution Sir *Iſaac Newton* expreſſes more artfully thus: Suppoſe O (*Fig.* 48.) the Eye, and OP a Line Parallel to the Sun's Rays, and let POE, POF be Angles of 40° 17', and 42° 2'. And ſuppoſe the Angles to turn about their common Side OP, with their other Sides OE and OF, they will deſcribe the Bounds or Verges of the *Rainbow*.

For, if EF be Drops placed any where in the conical Surface deſcribed by OE OF; and be illuminated by the Sun's Rays SE, SF, the Angle SEO being equal to the Angle POE, or 40° 17' ſhall be the greateſt Angle in which the moſt refrangible Rays can, after Reflection, be refracted to the Eye; and therefore all the Drops in the Line OE ſhall ſend the moſt refrangible Rays moſt copiouſly to the Eye, and thereby ſtrike the Senſes with the deepeſt *Violet Colour* in that Region.

And in like Manner the Angle SFO being= to the Angle POF=42° 2', ſhall be the greateſt, in which the leaſt refrangible Rays after one Reflection can emerge out of the Drops; and theſe Rays ſhall come moſt copiouſly to the Eye, from the Drops in the Line OF, and ſtrike the Senſes with the deepeſt *red Colour* in that Region.

And by the ſame Argument the Rays, which have intermediate Degrees of Refrangibility, ſhall come moſt copiouſly from Drops between E and F, and ſo ſtrike the Senſes with the intermediate Colours, in the Order which their Degrees of Refrangibility require; that is, in the Progreſs from E to F, or from the inſide of the Bow to the outſide, in this Order, *Violet, Indigo, Blue, Green, Yellow, Orange, Red:* Though the Violet, by the mixture of the white Light of the Clouds, will appear faint, and incline to a *purple*.

And ſince the Lines OE OF may be ſituated any where in the abovemention'd conical Surface; what is ſaid of the Drops and Colours in theſe Lines is to be underſtood of the Drops and Colours throughout the whole Superficies. Thus is the *primary*, or *inner Bow* form'd.

Secundary, or outer RAIN-BOW.

As to the ſecundary or fainter *Bow*, uſually ſurrounding the former; in aſſigning what Drops would appear coloured, we excluded ſuch as Lines drawn from the Eye, making Angles a little greater than 42° 2' ſhould fall upon; but not ſuch as ſhou'd contain Angles much greater.

For, if an indefinite Number of ſuch Lines be drawn from the Spectator's Eye, ſome whereof make Angles of 50° 57', with the Line of Aſpect; *e. gr.* OG; other Angles of 54° 9', *e. gr.* OH; thoſe Drops whereon theſe Lines fall, muſt of neceſſity exhibit Colours. Particularly thoſe of 50° 57'.

E. gr. the Drop G will appear red; the Line GO being the ſame with an effectual Ray, which after two Reflections and two Refractions, exhibits a red Colour. Again, thoſe Drops which receive Lines of 54° 9', *e. gr.* the Drop H will appear Purple, the Line OH being the ſame with an effectual Ray which after two Reflections, and two Refractions, exhibits Purple.

Now, there being a ſufficient Number of theſe Drops, 'tis evident there muſt be a *ſecond Rainbow*, form'd after the like manner as the firſt.

Thus, Sir *Iſaac Newton:* In the leaſt refrangible Rays, the leaſt Angle at which a Drop can ſend effectual Rays after two Reflexions, is found by computation to be 50° 57', and in the moſt refrangible the leaſt Angle is found 54° 7'.

Suppoſe, then, O the Place of the Eye, as before, and POG, POH to be Angles of 50° 57', and 54° 7'. And theſe Angles to be turn'd about their common Side OP; with their other Sides OG, OH, they will deſcribe the Verges or Borders of the *Rainbow* CHDG.

For, if GH be Drops placed any where in the conical Superficies deſcribed by OG OH, and be illumined by the Sun's Rays; the Angle SGO being equal to the Angle POG or 50° 57', ſhall be the leaſt Angle, in which the then leaſt refrangible Rays, can, after two Reflections, emerge out of the Drops; and therefore the leaſt refrangible Rays ſhall come moſt copiouſly to the Eye from the Drops in the Line OG, and ſtrike the Senſe with the deepeſt *Red* in that Region.

And the Angle SHO being equal to POH, 54° 7', ſhall be the leaſt Angle in which the moſt refrangible Rays, after two Reflections, can emerge out of the Drops; and therefore thoſe Rays ſhall come moſt copiouſly to the Eye from the Drops in the Line OH, and ſo ſtrike the Senſes with the deepeſt *Violet* in that Region.

And by the ſame Argument, the Drops in the Region between G and H, ſhall ſtrike the Senſes with the intermedate Colours, in the Order which their Degrees of Refrangibility require; that is, in the Progreſs from G to H, or from the inſide of the Bow to the outer, in this Order: *Red, Orange, Yellow, Green, Blue, Indico, Violet.*

And ſince the Lines OG, OH, may be ſituated any where in the conical Surface; what is ſaid of the Drops and Colours in theſe Lines, is to be underſtood of the Drops and Colours every where in theſe Superficies.

Thus are form'd two Bows, an *interior*, and ſtronger, by one Reflection; and an *exterior* and fainter by two; the Light becoming weaker and weaker by every Reflexion.

Their Colours will lie in a contrary Order to one another; the firſt having the Red without, and the Purple within; and the ſecond the Purple without and Red within; and ſo of the reſt.

Artificial RAIN-BOW.

This Doctrine of the *Rainbow* is confirm'd by an eaſy Experiment: For upon hanging up a Glaſs Globe full of Water in the

Sun-ſhine, and viewing it in ſuch a Poſture as that the Rays which come from the Globe to the Eye, may, with the Sun's Rays include an Angle either of 42°, or 50°; if, *e. gr.* the Angle be about 42°; the Spectator, ſuppoſed at O, will ſee a full red Colour in that Side of the Globe oppoſite to the Sun, as at F. And if that Angle be made a little leſs, ſuppoſe by depreſſing the Globule to E, the other Colours, Yellow, Blue, and Green, will appear ſucceſſively, in the ſame Side of the Globe, alſo exceedingly bright.

But if the Angle be made about 50°, ſuppoſe by raiſing the Globule G, there will appear a red Colour in that Side of the Globe towards the Sun; though that ſomewhat faint; and if the Angle be made greater, ſuppoſe by raiſing the Globe to H; the Red will change ſucceſſively to the other Colours, Yellow, Green, and Blue.

The ſame thing is obſerv'd in letting the Globe reſt, and raiſing, or depreſſing the Eye to make the Angle of a juſt Magnitude.

Dimenſions of the RAIN-BOW.

Des Cartes firſt determin'd its Diameter by a tentative, and indirect Method; laying it down that the Magnitude of the Bow depends on the Degree of Refraction of the Fluid; and aſſuming the Ratio of the Sine of Incidence to that of Refraction, to be in Water as 250 to 157. See REFRACTION.

But, Dr. *Halley* has ſince, in the *Philoſoph. Tranſact.* given us a ſimple, direct Method of determining the Diameter of the *Rainbow* from the Ratio of Refraction of the Fluid being given; or *vice verſa*, the *Rainbow* being given, to determine the refractive Power of the Fluid. The *Praxis* is as follows.

Firſt, *The Ratio of Refraction being given*; *to find the Angles of Incidence, and Refraction of a Ray which becomes effectual after any given Number of Reflections.* Suppoſe any given Line as AC (*Tab. Opticks, Fig.* 49.) which divide in D; ſo, as that AC be to AD in the Ratio of Refraction; and again divide it in E, ſo as AC be to AE as the given Number of Reflexions increaſed by Unity, is to Unity; with the Diameter CE deſcribe a Semicircle CBE, and from the Centre A with the Radius AD deſcribe an Arch DB interſecting the Semicircle in B. Then drawing AB, CB; ABC or its Complement to two right Angles, will be the Angle of Incidence; and ACB the Angle of Refraction required.

Secondly, *The Ratio of Refraction, and any Angle of Incidence being given to find the Angle which a Ray of Light emerging out of a refracting Sphere, after a given Number of Reflections, makes with the Line of Aſpect, or an incident Ray*; *and conſequently to find the Diameter of the Rainbow.* The Angle of Incidence, and the Ratio of Refraction being given, the Angle of Refraction is given; which Angle being multiplied by double the Number of Reflexions increaſed by 2, and double the Angle of Incidence ſubſtracted from the Product, the Angle remaining is the Angle ſought.

Thus ſuppoſing, the Ratio of Refraction to be, as Sir *Iſaac Newton* has determined it, *viz.* as 108 to 81, in the red Rays, as 109 to 81 for the blue Rays, *&c.* the preceding Problem will give the Diſtances of the Colours in the

I. RAIN-BOW,	Red	41°	12	The Spectator's Back being turned to the Sun.
	Blue	40	16	
II. RAIN-BOW,	Red	50	58	
	Blue	54	9	

If the Angle made by a Ray after three or four Reflections, were required, and therefore the Diameters of the third and fourth *Rainbow*, (which are ſcarce ever ſeen, by reaſon of the great Diminution of the Rays, by ſo many repeated Reflexions) they will be found.

III. Rainbow,	Red	41°	37	The Spectator being turned towards the Sun.
	Blue	37	9	
IV. Rainbow,	Red	43	52	
	Blue	49	34	

Hence, the *Breadth of the Rainbows* is eaſily found: For the greateſt Semidiameter of the firſt Bow, *i. e.* from Red to Red being 42° 1′, and the leaſt, *viz.* from Purple to Purple 40° 16; the Breadth of the *Faſcia* or *Bow*, meaſured a-croſs from Red to Purple will be 1° 45′, and the greateſt Diameter of the ſecond Bow being 54° 9′, and the leaſt 50° 58′, the Breadth of the *Faſcia* will be 3° 10′. And hence the Diſtance between the two will be found 8° 15′.

In theſe Meaſures the Sun is only eſteem'd a Point; wherefore as his Diameter is really about 30′ ſo much muſt be added to the Breadth of each *Faſcia* or *Bow*, from Red to Purple, and ſo much be ſubſtracted from the Diſtance between them.

This will leave the Breadth of the *primary Bow*, 2° 15′, that of the *ſecondary Bow* 3° 40′, and the interval between the Bows 8° 25′; which Dimenſions deduced by Calculation, Sir *Iſaac Newton* aſſures us from his own Obſervations, agree very exactly with thoſe found by actual Menſuration in the Heavens.

Particular Phænomena of the RAIN-BOW, *with the Cauſes thereof.*

From this Theory of the *Rainbow*, all the particular Phænomena are eaſily deduced: Hence we ſee why the *Iris* is always of the ſame Breadth; by reaſon the intermediate Degrees of refrangibility of the Rays between Red and Violet, which are its extreme Colours, are always the ſame.

Secondly, Why it is more diſtinctly terminated on the Side of the Red, than on that of the Violet? There being no efficacious Rays in the Space adjoining to the red Drops, *i. e.* to the Space between the Bows; whence it terminates abruptly; whereas in the Space on the Side of the Violet ones there are ſome Rays emitted to the Eye, which though too feeble to affect it ſtrongly, yet have this effect, that they ſoften the Violet Edge inſenſibly, ſo that 'tis difficult to determine preciſely where it terminates.

Thirdly, Why the *Bow* ſhifts its Situation as the Eye does; and, as the popular Phraſe has it, *flies thoſe who follow it, and follows thoſe that fly it*? The colour'd Drops being diſpoſed under a certain Angle about the Line of Aſpect, which is different in different Places: Whence, alſo, it follows that every different Spectator ſees a different Bow.

Fourthly, Why the Bow is ſometimes a larger Portion of a Circle, ſometimes a leſs? Its Magnitude depending on the greater, or leſs Part of the Surface of the Cone, above the Surface of the Earth at the Time of its appearance; and that Part being greater or leſs as the Line of Aſpect is more inclined or oblique to the Surface of the Earth; which inclination, or obliquity, is greater as the Sun is higher: Whence, alſo, the higher the Sun, the leſs the *Rainbow*.

Fifthly, Why the *Bow* never appears when the Sun is above a certain Altitude? The Surface of the Cone wherein it ſhould be ſeen, being loſt in the Ground, at a little Diſtance from the Eye, when the Sun is above 42° high.

Sixthly, Why the *Bow* never appears greater than a Semicircle, on a Plane? Since be the Sun never ſo low, and even in the Horizon; the Centre of the Bow is ſtill in the Line of Aſpect; which, in this Caſe, runs along the Earth, and is not all raiſ'd above the Surface.

Indeed, if the Spectator be placed on a very conſiderable Eminence, and the Sun in the Horizon; the Line of Aſpect wherein the Centre of the Bow is, will be notably raiſ'd above the Horizon, (conſidering the Magnitude of the Circle whereof the Bow uſes to be a Part.) Nay, if the Eminence be very high, and the Rain near, 'tis poſſible the Bow may be an entire Circle.

Seventhly, How the *Bow* may chance to appear inverted, *i. e.* the Concave Side be turn'd upwards? To wit, a Cloud happening to intercept the Rays, and prevent their ſhining on the upper Part of the Arch: In which Caſe only the lower Part appearing, the Bow will ſeem as if turn'd upſide down: Which probably has been the Caſe in ſeveral Prodigies of this Kind, related by Authors.

Indeed the Bow may appear inverted from another Cauſe: For; if, when the Sun is 41° 46′ high, his Rays fall upon the ſmooth Surface of ſome ſpacious Lake, in the middle whereof a Spectator is plac'd; and if, at the ſame time there be Rain falling to which the Rays may be reflected from the Lake: 'Twill be the ſame as if the Sun ſhou'd ſhine below the Horizon, and the Line of View be extended upwards: Thus the Surface of the Cone wherein the coloured Drops are to be placed, will be wholly above the Surface of the Earth.

But ſince the upper Part will fall among the unbroken Clouds; and only the lower Part be found among the Drops of Rain, the Arch will appear inverted.

Eighthly, Why the *Bow* ſometimes appears inclined? The accurate roundneſs of the Bow depending on its great Diſtance, which prevents us from judging of it exactly; if the Rain which exhibits it, chance to be much nearer, we ſhall ſee its irregularities; and if the Wind in that Caſe drive the Rain ſo as the higher Part be further from the Eye than the lower, the Bow will appear inclined.

Ninthly, Why the Legs of the *Rainbow* ſometimes appear unequally diſtant? If the Rain terminate on the Side of the Spectator, in a Plane ſo inclined to the Line of Aſpect as to make an acute Angle on the left Hand, and an obtuſe Angle on the right; the Surface of the Cone which determines what Drops will appear, will fall upon them in ſuch manner as that thoſe on the left Hand, will appear further from the Eye than thoſe on the Right. For the Line of Aſpect being Perpendicular to the Plane of the Bow, if you ſuppoſe two rectangular Triangles a Right and Left, the Cathetus of each to be Line of View, and the Baſe the Semidiameter of the Bow, inclined as above: 'Tis evident, ſince thoſe Angles of the Triangles, next the Eye, muſt always be the ſame, (*viz.* 43° in the inner Bow) the Baſis of the Right-hand Triangle will appear much longer than that of the Left.

Lunar RAIN-BOW.

The Moon, ſometimes, alſo, exhibits the Phænomenon of an *Iris* or *Bow*; by the Refraction of her Rays in the Drops of Rain in the Night-time. See MOON.

Ariſtotle ſays, he was the firſt that ever obſerved it; and adds, that it never happens, *i. e.* is never viſible, but at the Time of the Full-Moon; her Light at other times being too faint to affect the Sight, after two Refractions, and one Reflection.

The *Lunar Iris* has all the Colours of the *Solar*, very diſtinct and pleaſant; only faint, in Compariſon of the other; both from the different intenſity of the Rays, and the different Diſpoſition of the Medium.

In that mention'd *Philoſoph. Tranſact.* N°. 331. Mr. *Thoresby* obſerves, the largeneſs of the Arch was not ſo much leſs than that of the Sun, as the different Dimenſions of their Bodies, and their Diſtances from the Earth ſhould ſeem to require: But, as to its intireneſs and the Beauty of its Colour, it was admirable. It continued about 10 Minutes e're the interpoſition of a Cloud hinder'd its Obſervation.

Marine RAIN-BOW.

The *Marine* or *Sea-Bow*, is a Phænomenon ſometimes obſerv'd in a much agitated Sea; when the Wind ſweeping Part of the Tops of the Waves, carries them aloft; ſo that the Sun's Ray falling upon them, are refracted, *&c.* as in a common Shower; and Paint the Colours of the Bow.

F. Bourzes, in the *Philoſoph. Tranſact.* obſerves, that the Colours of the *Marine Rainbow* are leſs lively, diſtinct, and of leſs duration than thoſe of the common *Bow*; that there are ſcarce above two Colours diſtinguiſhable, a dark Yellow on the Side next the Sun, and a pale Green on the oppoſite Side.

But theſe Bows exceed as to Number, there being ſometimes 20 or 30 ſeen together: They appear at Noon-Day, and in a Poſition oppoſite to that of the common Bow, *i. e.* the Concave Side is turn'd upwards, as, indeed, it's neceſſary it ſhould be, from what we have ſhewn in accounting for the Phænomena of the *Solar Bow*.

To this Claſs of *Bows* may be referr'd a Kind of *white, colourleſs Rainbows*, which *Mentzolius*, and others, affirm to have ſeen at Noon-Day. M. *Mariotte* in his IVth *Eſſai de Phyſique*, ſays, theſe *Bows* are form'd in *Miſts*, as the others are in Showers, and adds, that he has ſeen ſeveral both after Sun-riſing, and in the Night.

The want of Colours he attributes to the Smallneſs of the Vapours which compoſe the Miſt: We ſhould rather Account for it from the exceeding Tenuity of the little *Veſiculæ* of the Vapour; which being in effect only little watery Pellicles bloated with Air, the Rays of Light undergo but little Refraction in paſſing out of Air into them; too little to ſeparate the differently coloured Rays, *&c.*

Hence the Rays are reflected from them, compounded as they came, that is, White. See REFRACTION.

Rohault mentions colour'd *Rainbows* on the Graſs; form'd by the Refractions of the Sun's Rays in the Morning Dew. *Trait. de Phyſ.*

RAISER, in Building, a Board ſet on-edge under the fore-ſide of a Step, Stair, *&c.* See STAIR, *&c.*

RAISING, in the Manage, one of the three Actions of a Horſe's Legs; the other two being the *Stay* and the *Tread*; which ſee.

The *Raiſing*, or lifting up of his Leg in Caprioles, Curvets, *&c.* is eſteemed good, if he preform it hardily and with eaſe; not croſſing his Legs, nor carrying his Feet too much out or in; yet bending his Knees as much as is needful.

RAISING-*Pieces*, in Architecture, are Pieces that lie under the Beams, on Brick or Timber, by the Side of the Houſe.

RAISINS, Grapes prepared by drying them in the Sun, or in Ovens; to fit them for keeping, and for ſome medicinal Purpoſes. See CURRANTS.

Of theſe there are various Kinds: As *Raiſins of Damaſcus*; thus call'd from the capital City of *Syria*, in the Neighbourhood whereof they are cultivated. They are much uſed in the Compoſition of Ptiſans, together with Jujubes and Dates; are brought flat and ſeeded, of the Size of the Thumb; whence 'tis eaſy judging of the extraordinary Bulk of the Grape, when freſh. Travellers tell us of Bunches weighing 25 Pounds. Their Taſte is faintiſh and diſagreeable.

Raiſins of the Sun, a kind of Raiſins brought from *Spain*, of a reddiſh or blueiſh Colour, ſeeded, very agreeable to eat.

There are various other Kinds, denominated from the Place where they grow, or the Kind of Grape, *&c.* as *Raiſins of Calabria, Muſcade Raiſins*, &c.

RAITING, or RATING, the laying of Hemp, Flax, Timber, *&c.* when green, in a Pond or running Water, to ſeaſon and diſpoſe for future uſe. See SEASONING.

RAKE, of a Ship, is ſo much of her Hull as over-hangs at both Ends of her Keel.

That Part of it which is before, is called the *Rake forward on*; and that Part which is at the ſetting on of the Stern-Poſt, is call'd her *Rake aft-ward on*: When a Ship hath but a ſmall *Rake* forward on, but is built with her Stern too ſtreight up, ſhe is called *Bluffle-headed*.

Rake of the Rudder, is the hindermoſt Part of it. See RUDDER.

RAKING, of a Horſe, is the drawing his Ordure with the Hand out of the Fundament, when he is Coſtive and cannot Dung. In order to this the Hand muſt be anointed with Sallet-Oyl or Butter.

RAKING-*Table*, among Architects, a Member hollowed in the Square of a Pedeſtal, or elſewhere. See CAVETTO, SCOTIA.

RALLYING, in War, the re-aſſembling, or calling together of Troops broken, routed, and put to flight.—A Horſe is ſaid to *Rake* when being *Shoulder-Splaid*, or having ſtrain'd his Fore-Quarters, he goes ſo Lame as to drag one of his Fore-Legs in a Circle.

RAM, in Aſtronomy. }
Battering RAM. } See ARIES.

RAMADAN, a ſort of *Lent*, obſerv'd by the *Mahometans*; during which they faſt the whole Day, with ſuch extreme Superſtition, that they dare not waſh their Mouth, nor even ſwallow their Spittle. See LENT and FASTING.

The Men indeed are allow'd to Bath themſelves; but 'tis on Condition they don't plunge the Head under Water, leſt ſome Drops enter by the Mouth or Ears, *&c.* But for the Women they are ſtrictly forbid Bathing, for fear of taking in Water below.

To make amends, they Feaſt all the Night; and uſually ſpend more this Month than in ſix others.

RAMAGE, a Term uſed for the Boughs or Branches of Trees. Hence,

Ramage Hawk, or *Falcon*, is one that is wild and coy, as having been long amidſt the Boughs, preying for it ſelf.

A Faulcon retains this Name till he has left the *Eyrie*, being ſo called in *May*, *June*, *July*, and *Auguſt*. Theſe are very rarely reclaimed.

RAMMER, an Inſtrument for driving down Stones or Piles into the Ground; or for the beating the Earth, and making it more ſolid for a Foundation. See FOUNDATION.

RAMMER, *of a Gun*, or *Gun-Stick*, a Rod or Staff uſed in charging a Gun; to drive home the Powder to the Breech, as alſo the Shot, and the Wad, which keeps the Shot from rolling out. See CHARGE.

The *Rammer* of a great Gun has a round Piece of Wood at one End; the other is uſually rolled in a Piece of Sheep-Skin, fitted to the Bore of the Piece, in order to clear her after ſhe has been diſcharged: Which they call *ſpunging the Piece*. See SPUNGE.

RAMIFICATION, the Production of Boughs or Branches; or of Figures reſembling Branches. See BRANCH.

RAMIFICATIONS, in Anatomy, are the Diviſions of the Arteries, Veins, and Nerves, ariſing from ſome common Trunk. See ARTERY, VEIN, and NERVE.

RAMPANT, in Heraldry, is applied to a Lion, Bear, Leopard, or other Beaſt, in a Poſture of Climbing, or ſtanding upright on his Hind-Legs, and rearing up his Fore-Feet.

It is different from *Saliant*, which is a Poſture leſs erect. See SALIANT.

This Poſture is to be ſpecified in blazoning in all Animals, except the Lion and Griffin; it being their natural Situation.

The Term is *French*, and ſignifies literally, *creeping*.

RAMPART, in Fortification, a Mount or Maſs of Earth, rais'd about the Body of a Place, to cover it from the great Shot; and form'd into Baſtions, Curtains, *&c.* See FORTRESS, WALL, BASTION, *&c.*

Upon the *Rampart* the Soldiers continually keep Guard, and Pieces of Artillery are planted for the Defence of the Place.

Hence, to Shelter the Guard from the Enemies Shot, the out-ſide of the *Rampart* is built higher than the inſide, *i. e.* a Parapet is rais'd upon it with a Platform. See PARAPET and PLATFORM.

Hence, alſo, Earth not being capable to be rais'd perpendicularly, like Stone; the *Rampart* is built with a *Talus* or Slope, both on the inner and outer-ſide. See TALUS.

The *Rampart* is ſometime *lined*, i. e. fortified with a Stone Wall within-ſide; otherwiſe it has a *Berme*. See BERME.

'Tis incompaſſed with a Moat or Ditch, out of which the Earth that forms the *Rampart* is dug. See DITCH.

The Height of the *Rampart* muſt not exceed three Fathom; this being ſufficient to cover the Houſes from the Battery of the Cannon: Neither ought its Thickneſs to be above 10 or 12, unleſs more Earth be taken out of the Ditch, than can be otherways beſtowed.

The *Ramparts* of Half-Moons are the better for being low; that the ſmall Fire of the Defendants may the better reach the Bottom of the Ditch: but yet it muſt be ſo high, as not to be commanded by the Covert-Way.

The Word is form'd from the *Spaniſh Amparo*, Defence, Covering.

RAMPART is alſo uſed in Civil Architecture, for the Space left void between the Wall of a City and the next Houſes.

This is what the *Romans* call'd *Pomærium*, wherein it was forbid to build; and where they planted Rows of Trees, for the People to walk and amuſe themſelves under.

RAMUS, in Anatomy, *&c.* a Branch of a greater Veſſel. See VESSEL.

Ramus Anterior is particularly uſed for a Branch of the ſubcutaneous Vein paſſing under the Muſcles of the *Ulna*. *Ramus poſterior*, a Branch of the ſame Vein running near the Elbow. See SUBCUTANEOUS.

RANCID, ſomething mouldy, or muſty; or that has contracted an ill Smell, by being kept cloſe. See MOULDINDSS.

The Word is particularly underſtood of old ruſty Bacon. It comes from the *Latin Rancidus*, of *ranceo*, to be rank.

RANDOM-*Shot*, a Shot made when the Muzzle of a Gun is raiſed above the Horizontal Line, and is not deſign'd to ſhoot directly, or Point-blank. See GUNNERY.

The utmoſt *Random* of any Piece is about ten times as far as the Bullet will go Point-blank; and the Bullet will go fartheſt when the Piece is mounted to about 45 Degrees above the Level-Range. See RANGE.

The Diſtance of the *Random* is reckoned from the Platform to the Place where the Ball firſt grazes.

RAN-FORCE-RING, of a Gun, that which is next before the Touch-Hole. See ORDNANCE.

RANGE, in Gunnery, the Path of a Bullet, or the Line it deſcribes from the Mouth of the Piece, to the Point where it lodges. See GUN, BULLET, *&c.*

If the Piece be laid in a Line Parallel to the Horizon, it is called the *Right or Level Range.* If it be mounted to 45 Degrees, the Ball is ſaid to have the *utmoſt Range*; and ſo proportionably; all others between 00 Degrees, and 45°, being called the *intermediate Ranges.* See GUNNERY, PROJECTILE, *&c.*

RANGER, a ſworn Officer of a Foreſt, or Park, whoſe Buſineſs it is to walk daily through his Charge, to drive back the wild Beaſts out of the *Purlieus* or disforeſted Places, into the foreſt Lands; and to preſent all Treſpaſſes done in his Bailiwick, at the next Court held for the Foreſt. See FOREST and PURLIEU.

The *Ranger* is made by the King's Letters, and has a Fee paid yearly out of the Exchequer, and certain Fee-Deer.

In the Charter *de Foreſta*, mention is made of twelve Kind of *Rangers.*

RANGES, in a Ship, are two Pieces of Timber, going a-croſs from Side to Side; one aloft, on the Fore-Caſtle, a little abaft the Fore-Maſt; and the other in the Beak-head before the Wouldings of the Bow-ſprit.

RANGING, in War, the diſpoſing of Troops in a Condition proper for Engagement, or for Marching. The Army was *ranged* in Form of Battle to receive the Enemy; *ranged* in three Columns, for a March, *&c.*

In Building, the Side of a Work that runs ſtraight, without breaking into Angles, is ſaid to *range*, or *run range.*

RANK, a due Order; or a Place allotted a thing ſuitably to its Nature, Quality, or Merit. See ORDER.

Kings are Perſons of the firſt *Rank* on Earth: In Cavalcades, Proceſſions, *&c.* every Perſon is to obſerve his *Rank.* See PRECEDENCE.

RANK, in military Diſcipline, a Series or Row of Soldiers, placed Side by Side; a Number of which *Ranks* forms the Depth of the Squadron or Battallion, as a Number of *Files* does the Width. See FILE.

To *Cloſe the Ranks*, is to bring the Men nearer; to *open*, to ſet them further a-part: To *double the Ranks*, is to throw two into the Space of one.

RANK, in reſpect of Ships. See RATE.

RANT, in the Drama, an extravagant Flight of Paſſion; overſhooting Nature and Probability. See PROBABILITY.

Lee's Tragedies abound with *Rants.* The rankeſt, 'tis obſerv'd, frequently meet with Applauſe on the Stage.

We find Inſtances of *Rants*, even in our ſevereſt Poets. Such, *e. gr.* is that in the Beginning of *Ben. Johnſon's Cataline*, where the Parricide ſpeaking to *Rome*, ſays, *I'd plough up Rocks, ſteep as the Alps, in Duſt; and lave the Tyrrhene Waters into Clouds; but I wou'd reach thy Head.*

RANSOM, a Sum of Money, paid for the Redemption of a Perſon out of Slavery; or for the Liberty of a Priſoner of War. See REDEMPTION.

In our Law-Books, *Ranſom* is alſo uſed for a Sum paid for the pardoning of ſome notorious Crime. *Horn* makes this difference between *Ranſom* and *Amerciament*, that *Ranſom* is the Redemption of a Corporal Puniſhment. See AMERCIAMENT.

When one is to make a Fine, and *Ranſom*, the *Ranſom* ſhall be treble the Fine. *Cromp. Juſt.*

RANULA, in Medicine, a Tumour under the Tongue, which like a Ligament hinders a Child from ſpeaking or ſucking.

The *Ranula ſub Lingua* is the ſame with what we otherwiſe call being *Tongue-tied.* See TONGUE.

The *Ranula* is uſually cauſed by a ſhort *Frænum* not permiting the Tongue to perform its proper Motions: At other Times, though rarely, there is a ſtrong Concretion in that Part. Sometimes it is *œdematous*, at others *meliceróus, ſcirrhous, black, livid*; in which Caſes the Operation of Cutting is dangerous; and it grows to the Magnitude of a Bean or Cheſtnut.

If a ſhort *vinculum* be the Cauſe, it is to be cut aſunder with a Scalpar, and the Part gently touched with *Mell. Roſat.* and *Tinct. Myrrh*; being very careful not to cut the Arteries, Nerves, or Salival Glands in the Operation. See RANULARES.

RANULARES, or RANINÆ VENÆ, in Anatomy, two Veins under the Tongue, ariſing from the external Jugular, and running on either Side the *linea Mediana.* See TONGUE.

Theſe Veins are opened with good Succeſs in Quinzies.

They take their Denomination from a reſemblance of their State to that of *little Frogs*, call'd in *Latin, Ranulæ*, becauſe never out of Water.

RAPACIOUS *Animals*, in the general, are ſuch as live upon Prey. See ANIMAL.

Naturaliſts divide Birds into *Rapacious, Carnivorous*, and *Frugivorous.* See BIRD.

The Characteriſtic Notes of Birds of Prey are; that they have a great Head, and a ſhort Neck; hooked, ſtrong, and ſharp-pointed Beak and Talons, fitted for tearing of Fleſh; ſtrong and brawny Thighs, for ſtriking down their Prey; a broad thick fleſhy Tongue like that of a Human Creatures; 12 Feathers in their Train; and 24 Flag Feathers in each Wing. The two Appendices, or blind Guts, are always very ſhort. See EAGLE, FALCON, HAWK, *&c.*

They have a membranous Stomach; and not a muſculous one, or a Gizzard, ſuch as Birds have, that live on Grain.

They are very ſharp-ſighted; and gather not in Flocks, but generally ſpeaking, are ſolitary; though Vultures will fly 50 or 60 in a Company.

RAPE, in Law, a *Raviſhing*; or the having Carnal Knowledge of a Woman by Force, and againſt her Will.

If the Woman conceive the Law eſteems it no *Rape*; from an Opinion that ſhe cannot conceive unleſs ſhe conſent. *Coke on Litt.* lib. 2. cap. 11.

This Offence is Felony in the Principal and his Aiders, by ſeveral Statutes; and the Criminal is excluded from the Benefit of his Clergy. See FELONY.

By the Civil Law, *C. de Raptu Virginum*, Raviſhing is decreed Capital, unleſs the Woman, being a Maid, or Widow, may be married to the Raviſher. In *France* the Civil Conſtitution ſtill obtains, and allows the Man to marry the Woman with her Conſent.

By an Ordonnance 1639, the *Rape* of a Girl or a Boy are put on the ſame footing. *Fleta* obſerves, that by our Laws the Complaint muſt be made within forty Days, elſe the Woman may not be heard. *Lib.* 3. *Chap.* 5.

All Carnal Knowledge of a Maid before ten Years of Age, is deem'd by the Law Felony; *Stat. An.* 8 *Eliz. cap.* 6.

In *Bracton's* Time, the *Raptor* or *Raviſher*, was puniſhed with the loſs of his Eyes and Teſticles, *Quia Colorem ſtupri Induxerunt.* 3 Inſt. Fol. 60.

The Civilians make another Kind of *Rape*, call'd *Subornatio*, or *Rape of Subornation*, or *Seduction*; which is when a Perſon ſeduces, or entices a Maid to uncleanneſs, or even Marriage, and that by gentle Means; provided there be a conſiderable Diſparity in Age or Condition between the Parties.

In this Caſe, the Father and Mother Intent their Action reciprocally for the *Crimen Raptus*, or *Subornationis.*

The *French* Laws make no difference between the *Rape* of Violence, and that of Sollicitation, or Subornation; they make both Capital.

This Kind of *Rape* our Laws call Raviſhment. See RAVISHMENT.

RAPE, of the Foreſt, is a Treſpaſs committed in the Foreſt by Violence. See FOREST.

This is mentioned in the Laws of *Henry* I. as one of the Crimes cognizable alone by the King.

RAPE, is alſo a Name given the Wood or Stalks of the Cluſters of Grapes, when dried and freed from the Fruit.

The *Rape* is uſed in making Vinegar, ſerving to heat and ſour the Wine: But 'tis firſt put into a Place to ſour itſelf, before it is caſt into the Vinegar Veſſel; to which End, preſently after the Vintage, it is carefully put up in Barrels, leſt it take Air, otherwiſe it would heat it ſelf, and be ſpotted: There is no other way of keeping *Rape*, hitherto diſcovered, but to fill the Veſſel, wherein it is contain'd, with Wine or Vinegar. See VINEGAR.

RAPE, is alſo uſed for Part of a County, ſignifying as much as a *Hundred.* See HUNDRED.

Though, ſometimes *Rape* is taken for a Diviſion containing ſeveral Hundreds; thus *Suſſex* is divided into ſix *Rapes*, *viz.* thoſe of *Chicheſter, Arundel, Bramber, Lewis, Peveney*, and *Haſtings*; every one of which beſides its Hundreds, has a Caſtle, River, and Foreſt belonging to it.

Theſe Parts in other Counties, are called *Tithings, Lathes*, or *Wapentakes.* See TITHING, LATHE, *&c.*

RAPIER, a long, ordinary, old faſhion'd cutting Sword, ſuch as thoſe wore by the common Soldiers See SWORD.

Hence, to *take the Rapier*, is to enter in the Army.

The Word is form'd from the *Greek* ῥαπίζειν, *cedere*, to ſmite, ſtrike.

RAPINE, in Law. To take a thing in private againſt the Owner's Will, is properly *Theft*; but to take it openly, or by Violence, is *Rapine.* See ABACTIO.

RAPSODIST, } See { RHAPSODIST,
RAPSODY, } See { RHAPSODY,

RAPTU *hæredis*, a Writ laying for the taking away an Heir, holding in Socage; of which there are two Sorts; one when the Heir is married, the other when not. See RAPE.

RAPTURE, RAPTURA, an Ecſtacy, or Tranſport of Mind. See EXTASY, ENTHUSIASM, RHAPSODY, *&c.*

RARE, in Phyſicks, a Body that is very porous, whoſe Parts re at great Diſtance from one another, and which contains but ttle Matter under a great deal of Bulk. See RAREFACTION, Body, Pore.

In this Senſe *Rare* ſtands oppoſed to *Denſe*. See DENSITY.

The Corpuſcular Philoſophers, *viz.* the *Epicureans*, *Gaſſendiſts*, *Newtonians*, &c. aſſert that Bodies are *rarer*, ſome than others, in virtue of a greater Quantity of Vacuity included between their Pores. The *Carteſians* hold, that a greater *rarity* only conſiſts in a greater Quantity of *Materia Subtilis*, included in the Pores. Laſtly, the *Peripateticks* contend, that *Rarity* is a new Quality ſuperinduced upon a Body, without any Dependance, either on Vacuity, or ſubtle Matter. See CARTESIAN, *&c.*

RAREFACTION, in Phyſicks, the Action whereby a Body is render'd *Rare*; that is, whereby it comes to poſſeſs more room, or appear under a larger Bulk, without any Acceſſion of new Matter. See RARE.

Rarefaction is oppoſed to *Condenſation*. See CONDENSATION.

In ſtrictneſs, however, our more accurate Writers reſtrain *Rarefaction* to that Expanſion of a Maſs into a larger Bulk, which is effected by Means of Heat: All Expanſion from other Cauſes they call *Dilatation*. See HEAT and DILATATION.

The *Carteſians* deny any ſuch thing as abſolute *Rarefaction*: *Extenſion*, with them, conſtituting the Eſſence of Matter, they are obliged to hold all Extenſion equally *full*. See EXTENSION and PLENUM.

Hence, they make *Rarefaction* to be no other than an Acceſſion of freſh, ſubtle, and inſenſible Matter, which entering the Parts of a Body, ſenſibly diſtends them. See this diſproved under VACUUM.

'Tis by *Rarefaction* that Gunpowder has its effects; and to the ſame Principle we owe our *Æolipiles*, *Thermometers*, &c. See GUNPOWDER, THERMOMETER, ÆOLIPILE, *&c.*

The Degree to which the Air is *rarefyable* exceeds all Imagination: *Merſennus*, long ago, by means of an intenſe Heat, found that Air might be rarified, ſo as to poſſeſs more than 70 times its former Space.

Mr. *Boyle* afterwards found, that Air, by its own Elaſticity, and without the help of any Heat, would dilate is ſelf ſo as to take up 9 times its former Space; then 31 times; then 60; then 150: at length, by many Degrees he found it would reach to 8000 times, then 10000, then 13679. See ELASTICITY.

Such is the *Rarefaction* of common Air, from its own Principle of Elaſticity, and without any previous Condenſation; but if it be compreſs'd, the ſame Author found its greateſt Space when moſt rarified, is to its leaſt when moſt condens'd, as 550000 to 1. See COMPRESSION.

Such an immenſe *Rarefaction*, Sir *Iſaac Newton* ſhews, is inconceivable on any other Principle than that of a repelling Force inherent therein, whereby its Particles mutually fly from one another. See ATTRACTION, *&c.*

This repelling Force he obſerves is much more conſiderable in Air than in other Bodies, as being generated from the moſt fix'd Bodies, and that with much Difficulty, and ſcarce without Fermentation: Thoſe Particles being always found to fly each other with the moſt Force, which when in Contact, cohere the moſt firmly. See REPELLING-*Power*.

The Members of the *French* Royal Acadamy have beſtowed a world of Attention on the different *Rarefactions*, or rather the different *Rarities* of the Air at different Heights. M. *Mariotte* eſtabliſhed this as a Principle, from Experiments, that the different *Rarefactions* or Condenſations of the Air follow the Proportion of the Weights wherewith 'tis preſs'd.

Hence, ſuppoſing the Mercury in the level of the Sea ſuſpended to 28 Inches, which is the Weight of the whole Atmoſphere; and that 60 Foot Height of Air are equivalent to a Line, or $\frac{1}{12}$ of an Inch of Mercury; ſo that the Barometer at the Height of 60 Foot from the Sea, would fall a *Line*; 'tis eaſy finding what Height of Air would be equal to a Second, or any other Line of Mercury: For as 28 Inches of Mercury, $\frac{1}{12}$ are to 28 Inches, ſo is the Height of 60 Foot of Air, to a fourth Term; which is the Height of Air correſponding to a ſecond Line of Mercury.

And after the ſame manner may the Heights of Air correſponding to each Line be found; which will make a Geometrical Progreſſion, the Sum whereof will be the whole Height of the Atmoſphere. Of conſequence a certain Part of that Sum will be the Height of a Mountain; at whoſe Top the Barometer ſhall have ſunk a certain Quantity. See MOUNTAIN.

Meſſ. *Caſſini* and *Maraldi*, upon meaſuring the Heights of ſeveral Mountains, found that this Progreſſion of M. *Mariotte*, was defective; that it always gave the Height of the Mountains, and conſequently the *Rarefactions*, leſs than they really were; and from ſome new Experiments M. *Amontons* found that the Principle will only hold in the mean *Rarefactions*, not in the Extremes. See AIR.

RAREFACTIVES, or RAREFACIENTIA, in Medicine, Remedies which open and enlarge the Pores of the Skin, to give an eaſy Vent to the Matter of Perſpiration. See PERSPIRATION.

Such are Aniſe, Mallows, Pellitory, Camomile-Flowers, Line-Seed, *&c.*

RASANT, in Fortification. *Raſant Flank*, or *Line*, is that Part of the Curtain, or Flank, whence the Shot exploded raze or glance along the Face of the oppoſite Baſtion. See FLANK.

The Defence of the Baſtion is *Raſant*. See DEFENCE.

RASH, in Medicine, an Erruption or Eſfloreſcence upon the Skin, thrown out in Fevers or Surfeits. See SURFEIT, *&c.*

RASP, a ſort of File. See FILE.

RASPHUYS, or RASP-*Houſe*, a celebrated Work-houſe or Houſe of Correction, at *Amſterdam*. See WORK-*Houſe*.

RASPATORY, a Chirurgeons Inſtruments wherewith they ſcrape foul, carious, or fractured Bones.

RASURE, RASEMENT. See ERASURE.

RATAFIA, a fine ſpirituous Liquor, prepared from the Kernels, *&c.* of ſeveral Kinds of Fruits, particularly Cherries and Apricocks.

Ratafia of Cherries is prepared by bruiſing the Cherries, and putting them into a Veſſel wherein Brandy has been kept; then adding to them the Kernels of the Cherries, with Strawberries, Sugar, Cinnamon, white Pepper, Nutmegs, Cloves; and to 20 Pound of Cherries, 10 Quarts of Brandy.

The Veſſel is left open 10 or 12 Days, then ſtopp'd cloſe, for two Months e're it be tapp'd.

Ratafia of Apricocks is prepared two ways; *viz.* either by boiling the Apricocks in white Wine, adding to the Liquor an equal Quantity of Brandy, with Sugar, Cinnamon, Mace, and the Kernels of the Apricocks; infuſing the whole for 8 or 10 Days; then ſtraining the Liquor, and putting it up for Uſe: Or, by infuſing the Apricocks, cut in Pieces, in Brandy, for a Day or two; paſſing it through a ſtraining Bag, and putting in the uſual Ingredients.

RATCH, in Clock-Work, a ſort of Wheel, which ſerves to lift up the Detents every Hour, and to make the Clock ſtrike. See CLOCK.

RATCHETS, in a Watch, are the ſmall Teeth at the Bottom of the Barrel, which ſtop it in winding up. See WATCH.

RATE, a Standard, or Proportion by which the Quantity or Value of a thing is adjuſted. See STANDARD.

The *Rates* of Bread, *&c.* in *London*, are fix'd by Authority. See ASSISE.

The *Rate* of Intereſt, as now eſtabliſhed by Law in *England*, is 4 *per Cent.* The *Rate* of Intereſt in *Italy* is 3 *per Cent.* In *Sweden* 6. In *France* 7. In *Spain* 10. In *Scotland* 10. In *Barbadoes* 10. In *Ireland* 12. In *Turky* 20. See INTEREST.

Low *Rates* of Intereſt advance the Prices of Land.

The *Rates* or *Fares* of Hackney-Coachmen, Chairmen, and Watermen, are fix'd by Act of Parliament, 14 *Car.* II. See HACKNEY-COACH, *&c.*

The *Rates* of Exchange, Factorſhip, *&c.* are different. See EXCHANGE, FACTORAGE, *&c.*

RATE-*Tythe*. When Sheep, or other Cattle, are kept in a Pariſh for leſs time than a Year; the Owner muſt pay Tythe for them, *pro rato*, according to the Cuſtom of the Place. See TYTHE.

RATE, of a Ship of War, is its Order, Degree, or Diſtinction, as to Magnitude, Burthen, *&c.* See SHIP, *&c.*

The *Rate* is uſually accounted by the Length and Breadth of the Gun-Deck; the Number of Tuns, and the Number of Men and Guns the Veſſel carries.

A *Firſt Rate* Man of War has its Gun-Deck from 159 to 174 Feet in Length, and from 44 to 50 Foot Broad; contains from 1313, to 1882 Tuns; has from 706 to 800 Men; and carries from 96 to 110 Guns. See NAVY.

Second Rate Ships have their Gun-Decks from 153 to 165 Foot long; and from 41 to 46 broad; they contain from 1086 to 1482 Tuns; and carry from 524 to 640 Men; and from 84 to 90 Guns.

Third Rates have their Gun-Decks from 142 to 158 Foot in Length; from 37 to 42 Foot broad; they contain from 871 to 1262 Tuns; carry from 389 to 476 Men; and from 64 to 80 Guns.

Fourth Rates are in Length on the Gun-Deck, from 118 to 146 Foot; and from 29 to 38 broad; they contain from 448 to 915 Tuns; carry from 226 to 346 Men; and from 48 to 60 Guns.

Fifth Rates have their Gun-Decks from 100 to 120 Foot long; and from 29 to 31 broad; they contain from 259 to 542 Tuns; carry from 145 to 190 Men; and from 26 to 44 Guns.

Sixth Rates have their Gun-Decks from 87 to 95 Foot long; and from 22 to 25 Foot broad; they contain from 152 to 256 Tuns; carry from 50 to 110 Men; and from 16 to 24 Guns.

Note, The new-built Ships are much larger, as well as better than the old ones of the ſame *Rate*; whence the double Numbers all along; the larger of which expreſs the Proportions of the new-built Ships, as the leſs thoſe of the old ones.

For the Number of Veſſels of each *Rate* in the *Engliſh* Fleet, ſee NAVY.

RATEEN, or RATINE, in Commerce, a thick woollen Stuff, croſs'd; wove on a Loom with four Treddles, like Serges and other Stuffs that have the Croſſing.

There are ſome *Ratines* dreſs'd and prepar'd like Cloths; others left ſimply in the Hair; and others where the Hair or Nap is frized.

Ratines are chiefly manufactured in ***France***, ***Holland***, and ***Italy***; and are moſtly uſed in Linings.

The Frize is a coarſe *Ratine*; the Drugget a *Ratine* half Thread, half Wool.

RATIFICATION, an Act, approving of, and confirming ſomething done by another, in our Name.

A Treaty of Peace is never ſure till the Princes have *ratified* it. See TREATY.

All Procuration imports a promiſe of *Ratifying* and approving what is done by the Proxy or Procurator. After treating with a Procurator, Agent, Factor, *&c.* A *Ratification* is frequently neceſſary on the Part of his Principal.

RATIFICATION is particularly uſed in our Laws for the Confirmation of a Clerk in a Benefice, Prebend, *&c.* formerly given him by the Biſhop, *&c.* where the right of Patronage is doubted to be in the King.

RATIFICATION is alſo uſed for an Act confirming ſomething we our ſelves have done in our own Name. An Execution, by a Major, of an Act paſs'd in his Minority, is equivalent to a *Ratification*.

RATIO, REASON, in Arithmetick and Geometry, that Relation of homogeneous things which determines the Quantity of one from the Quantity of another, without the intervention of any third. See RELATION.

The homogeneous things thus compared, we call *the Terms of the Ratio*; particularly, that referr'd to the other, we call the *Antecedent*; and that to which the other is referr'd, the *Conſequent*. See TERM, *&c.*

Thus, when we conſider one Quantity, by comparing it with another, to ſee what Magnitude it has in Compariſon of that other; the Magnitude this Quantity is found to have in Compariſon thereof is call'd the *Ratio, Reaſon*, of this Quantity to that; which ſome think would be better expreſs'd by the Word *Compariſon*. See COMPARISON.

Euclid defines *Ratio* by *the Habitude or Relation of Magnitudes of the ſame Kind in reſpect of Quantity.*—But this Definition is found defective; there being other Relations of Magnitudes which are conſtant, yet are not included in the Number of *Ratio*'s; ſuch as that of the Right Sine, to the Sine of the Complement in Trigonometry.

Hobbs endeavour'd to amend *Euclid*'s Definition of *Ratio*, but unhappily; for in defining it, as he does, by *the Relation of Magnitude to Magnitude*; his Definition has not only the ſame Defect with *Euclid*'s, in not determining the particular Kind of Relation; but has this further, that it does not expreſs the Kind of Magnitudes, which may have a *Ratio* to one another.

Ratio is frequently confounded with *Proportion*; yet ought they by all means to be diſtinguiſhed, as very different things. Proportion, in effect, is an Identity, or Similitude of two *Ratio's*. See PROPORTION.

Thus, if the Quantity A be triple the Quantity B; the Relation of A to B, *i. e.* of 3 to 1, is call'd the *Ratio* of A to B. If two other Quantities, C,D, have the ſame *Ratio* to one another that A and B have, *i. e.* be triple one another; this ſameneſs of *Ratio* conſtitutes *Proportion*: and the four Quantities A : B : : C : D, are in Proportion, or Proportional to one another.

So that *Ratio* exiſts between two Terms, Proportion requres more.

There is a twofold *Compariſon* of Numbers: By the firſt, we find how much they differ, *i. e.* by how many Units the Antecedent exceeds, or comes ſhort of, the Conſequent.

This Difference is call'd, the *Arithmetical Ratio*, or *Exponent* of the Arithmetical Relation or Habitude of the two Numbers. Thus if 5 and 7 be compared, their *Arithmetical Ratio* is 2.

By the ſecond Compariſon, we find how oft the Antecedent contains, or is contain'd in the Conſequent; *i. e.* as before, what Part of the greater is equal to the leſs.

This *Ratio*, being common to all Quantity, may be call'd *Ratio* in the General, or, by way of Eminence. But it is uſually called *Geometrical Ratio*; becauſe expreſs'd, in Geometry, by a Line, though it cannot be expreſs'd by any Number.

Wolfius, better diſtinguiſhes *Ratio*, with regard to Quantity in the general, into *Rational*, and *Irrational*.

Rational Ratio, is that which is as one rational Number to another. *e. gr.* as 3 to 4. See NUMBER.

Irrational Ratio, is that which cannot be expreſs'd by Rational Numbers.

Suppoſe, for an Illuſtration, two Quantities A and B; and let A be leſs than B. If A be ſubſtracted as often as it can be, from B, *e. gr.* five times, there will either be left nothing or ſomething. In the former Caſe A will be to B, as 1 to 5; that is, A is contain'd in B five times; or $A=\frac{1}{5}B$. The *Ratio*, here, therefore, is *rational*.

In the latter Caſe, either there is ſome Part, which being ſubtracted certain times from A, *e. gr.* three times, and likewiſe from B, *e. gr.* 7 times leaves nothing; or there is no ſuch Part, if the former: A will be to B, as 3 to 7, or $A=\frac{3}{7}B$, and therefore the *Ratio*, *Rational*. If the latter, the *Ratio* of A to B, *i. e.* what Part A is of B, cannot be expreſs'd by rational Numbers; nor any other way than either by Lines, or by infinite approaching Series. See SERIES.

The *Exponent of a Geometrical Ratio* is the Quotient ariſing from the Diviſion of the Antecedent by the Conſequent: Thus the Exponent of the *Ratio* of 3 to 2, is $1\frac{1}{2}$; that of the *Ratio* of 2 to 3, is $\frac{2}{3}$; for when the leſs Term is the Antecedent, the *Ratio*, or rather the *Exponent*, is an improper Fraction. Hence the Fraction $\frac{3}{4}=3:4$. If the Conſequent be Unity, the Antecedent itſelf is the Exponent of the *Ratio*: Thus the Exponent of 4 to 1 is 4. See EXPONENT.

If two Quantities be compared without the Intervention of a third; either the one is equal to the other, or unequal: Hence, the *Ratio* is either of *Equality* or *Inequality*.

If the Terms of the *Ratio* be *unequal*, either the leſs is referr'd to the greater, or the greater to the leſs: That is, either the leſs to the greater, as a Part to the Whole; or the greater to the leſs as the Whole to a Part: The *Ratio* therefore determines how often the leſs is contain'd in the greater, or how often the greater contains the leſs, *i. e.* to what Part of the greater, the leſs is equal.

The *Ratio* the greater Term has to the leſs, *e. gr.* 6 to 3, is called the *Ratio of the greater Inequality*. The *Ratio* the leſs Term has to the greater, *e. gr.* 3 to 6, is called the *Ratio of the leſs Inequality*.

This *Ratio* correſponds to Quantity in the General, or is admitted of by all Kinds of Quantities, diſcrete or continued, Commenſurable, or Incommenſurable. Diſcrete Quantity, or Number does likewiſe admit of another *Ratio*.

If the leſs Term of a *Ratio* be an aliquot Part of the greater, the *Ratio* of the greater Inequality is ſaid to be *Multiplex*, *Multiple*: And the *Ratio* of the leſs Inequality, *Submultiple*. See MULTIPLE.

Particularly, in the firſt Caſe, if the Exponent be 2, the *Ratio* is call'd *duple*; if 3, *triple*, &c. In the ſecond Caſe, if the Exponent be $\frac{1}{2}$, the *Ratio* is call'd *Subduple*; if $\frac{1}{3}$, *Subtriple*, &c.

E. gr. 6 to 2 is in a *triple Ratio*; becauſe 6 contains two thrice. On the contrary, 2 to 6 is in a *Subtriple Ratio*, becauſe 2 is the third Part of 6. See DUPLE, SUBDUPLE, *&c.*

If the greater Term contain the leſs once; and over and above, an aliquot Part of the ſame; the *Ratio* of the greater Inequality is call'd *Superparticularis*; and the *Ratio* of the leſs *Subſuperparticularis*.

Particularly, in the firſt Caſe, if the Exponent be $1\frac{1}{2}$, it is call'd *Seſquialterate*; if $3\frac{1}{3}$, *Seſquitertia*, &c. In the other, if the Exponent be $\frac{2}{3}$, the *Ratio* is call'd *Subſeſquialtera*; if $\frac{1}{4}$, *Subſeſquitertia*, &c.

E. gr. 3 to 2 is in a *Seſquialterate Ratio*; 2 to 3 in a *Subſeſquialterate*.

If the greater Term contain the leſs once, and over and above ſeveral aliquot Parts; the *Ratio* of the greater Inequality is call'd *Superpartiens*; that of the leſs Inequality, *Subſuperpartiens*.

Particularly, in the former Caſe, if the Exponent be $1\frac{2}{3}$, the *Ratio* is call'd *Superbipartiens tertias*; if the Exponent be $1\frac{3}{4}$, *Supertripartiens quartas*; if $1\frac{4}{7}$, *Superquadripartiens ſeptimas*, &c. In the latter Caſe, if the Exponent be $\frac{3}{5}$, the *Ratio* is call'd *Subſuperbipartiens tertias*; if $\frac{4}{7}$, *Subſupertripartiens quartas*; if $\frac{7}{11}$, *Subſuperquadripartiens ſeptimas*.

E. gr. the *Ratio* of 5 to 3 is *Superbipartiens tertias*; that of 3 to 5, *Subſuperbipartiens tertias*.

If the greater Term contain the leſs ſeveral times; and, beſides, ſome quota Part of the ſame; the *Ratio* of the greater Inequality is call'd *Multiplex Superparticularis*; and the *Ratio* of the leſs Inequality, *Submultiplex ſubſuperparticularis*.

Particularly, in the former Caſe, if the Exponent be $2\frac{1}{2}$, the *Ratio* is call'd, *Dupla ſeſquialtera*; if $3\frac{1}{4}$, *triple Seſquiquarta*, &c. In the latter Caſe, if the Exponent be $\frac{2}{5}$, the *Ratio* is call'd *Subdupla ſubſeſquialtera*; if $\frac{4}{13}$, *Subtriple ſubſeſquiquarta*, &c.

E. gr. the *Ratio* of 16 to 5 is *triple Seſquiquinta*; that of 4 to 9, *Subdupla ſubſeſquiqarta*.

Laſtly, if the greater Term contain the leſs ſeveral times, and ſeveral aliquot Parts thereof beſides; the *Ratio* of the greater Inequality is call'd *Multiplex ſuperpartiens*; that of the leſs Inequality, *Submultiplex Subſuperpartiens*.

Particularly, in the former Caſe, if the Exponent be $2\frac{2}{3}$, the *Ratio* is call'd, *dupla Superbipartiens tertias*; if $3\frac{4}{7}$, *tripla Superbiquadripartiens ſeptimas*, &c. In the latter Caſe, if the Exponent be $\frac{3}{8}$, the *Ratio* is call'd *Subdupla ſubſuperbipartiens tertias*; if $\frac{7}{25}$, *Subtripla ſubſuperquadripartiens ſeptimas*, &c.

E. gr. the *Ratio* of 25 to 7 is *tripla ſuperquadripartiens ſeptimas*; that of 3 to 8, *ſubdupla Subſuperbipartiens tertias*.

Theſe are the various Kinds of *Rational Ratio*'s; the Names whereof, though they occur but rarely among the modern Writers, (for in lieu thereof they uſe the ſmalleſt Terms of the *Ratio*'s, *e. gr.* for *duple*, 2 : 1, for *ſeſquialterate*, 3 : 2) yet are they abſolutely neceſſary to ſuch as converſe with the antient Authors.

Clavius obſerves, that the Exponents denominate the *Ratio*'s of the greater Inequality, both in Deed and Name; but the *Ratio*'s of the leſs Inequality, only in Deed, not in Name. But 'tis eaſy finding the Name in theſe; if you divide the Denominator of the Exponent, by the Numerator.

E. gr. if the Exponent be $\frac{5}{8}$, then $5:8 = 1\frac{3}{5}$; whence it appears the *Ratio* is call'd *Subſupertripartiens quintas*.

As to Names of *Irrational Ratio's*, no-body ever attempted them.

Same, or *Identic Ratio's*, are thoſe whoſe Antecedents have an equal reſpect to their Conſequents, *i. e.* whoſe Antecedents divided by their Conſequents, give equal Exponents. See IDENTITY.

And hence may the Identity of Irrational *Ratio*'s be conceived.

Hence, *Firſt*, as oft as the Antecedent of one *Ratio* contains its Conſequent, or what ever Part it contains of its Conſequent, ſo oft, or ſuch Part of the other Conſequent does the Antecedent of the other *Ratio* contain: Or, as oft as the Antecedent of the one is contain'd in its Conſequent, ſo oft is the Antecedent of the other contain'd in its Conſequent.

Secondly, If A be to B as C to D, then will $A:B::C:D$; or $A:B=C:D$. The former of which is the uſual Manner of repreſenting the Identity of *Ratio*'s; the latter is that of the excellent *Wolfius*; which has the Advantage of the former, in that the middle Character $=$, which denotes the ſameneſs, is ſcientifical, *i. e.* expreſſes the Relation of the thing repreſented, which the other $::$ does not. See CHARACTER.

Two *equal Ratio*'s, *e. gr.* $B:C=D:E$, we have already obſerved, do conſtitute a *Proportion:* Of two *unequal Ratio*'s, *e. gr.* $A:B$ and $C\,D$ we call $A:B$ the *Greater*; if $A:B > C:D$; on the contrary we call $C:D$ the *leſſer*, if $C:D < A:B$.

Hence, we expreſs a greater and leſs *Ratio* thus. *E. gr.* 6 to 13 has a *greater Ratio*, than 5 to 4; for, $6:3\ (=2) > 5:4\ (=1\frac{1}{4})$. But 3 to 6 has a *leſs Ratio* than 4 to 5, for $\frac{3}{6} = \frac{1}{2} < \frac{4}{5}$.

The *Ratio* is ſaid to be *compounded* of two or more other *Ratio*'s, which the Factum of the Antecedents of two or more *Ratio*'s has to the Factum of their Conſequents. Thus 6 to 7 is in a *Ratio compounded* of 2 to 6, and 3 to 12.

Particularly, if it be compounded of two, it is call'd a *Duplicate Ratio*; if of three, a *Triplicate*; if of four, *Quadruplicate*; and in the general *Multiplicate*, if it be compoſed of ſeveral ſimilar *Ratio*'s. Thus $48:3$ is a *duplicate Ratio* of $4:1$ and $12:3$.

Properties of Ratio'*s of Quantities.*

Firſt, *Ratio*'s ſimilar to the ſame third, are alſo ſimilar to one another; and thoſe ſimilar to Similar, are alſo ſimilar to one another.

Secondly, If $A:B=C:D$; then, inverſely, $B:A=D:C$.

Thirdly, Similar Parts P and p have the ſame *Ratio* to Wholes T and t; and if the Wholes have the ſame *Ratio*, the Parts are ſimilar.

Fourthly, If $A:B=C:D$; then, alternately, $A:C=B:D$. And hence, $A=C$; hence, alſo, if $A:B=C:D$; and $A:F=C:G$; we ſhall have $B:F=D:G$. Hence, again, if $A:B=C:D$; and $F:A=G:C$; we ſhall have $F:B=G:D$.

Fifthly, Thoſe things which have the ſame *Ratio* to the ſame, or equal things, are equal: *& vice verſa*.

Sixthly, If you multiply any Quantities, as A and B, by the ſame or equal Quantities; their Products D and E will be to each other as A and B.

Seventhly, If you divide any Quantities as A and B, by the ſame or equal Quantities, the Quotients F and G will be to each other as A and B.

Eighthly, The Exponent of a compound *Ratio* is equal to the Factum of the Exponents of the ſimple *Ratio*. See EXPONENT.

Ninthly, If you divide either the Antecedents, or the Conſequents of ſimilar *Ratio*'s, $A:B$ and $C:D$ by the ſame E; in the former Caſe, the Quotients F and G will have the ſame *Ratio* to the Conſequents B and D; in the latter, the Antecedents A and B will have the ſame *Ratio* to the Quotients H and K.

Tenthly, If there be ſeveral Quantities in the ſame continued *Ratio* A, B, C, D, E, *&c.* the firſt, A is to the third, C, in a *duplicate Ratio*, to the fourth, D, in a *Triplicate*, to the fifth E, in a *Quadruplicate*, &c. *Ratio* of the *Ratio* of the firſt, A, to cond, B.

Eleventhly, If there be any Series of Quantities in the ſame *Ratio*, A, B, C, D, E, F, *&c.* the *Ratio* of the firſt, A, to the laſt, F, is compounded of the intermediate *Ratio*'s, $A:B$, $B:C$, $C:D$, $D:E$, $E:F$, *&c.*

Twelfthly, *Ratio*'s compounded of *Ratio*'s, whereof each is equal to another, are equal among themſelves. Thus the *Ratio*'s $90:3=960:32$ are compounded of $6:3=4:2$, and $3:1=12:4$; and $5:1=20:4$.

For other Properties of ſimilar or equal *Ratio*'s, ſee PROPORTION.

RATIO, in our Law Writers, is uſed for a Reaſon, or Judgment given in a Cauſe. Hence, *ponere ad rationem*, is to Cite one to appear in Judgment, *Walſingh.* 88.

RATIO-*ſtatus*, RAGIONE *de ſtato*. See REASON *of State*.

RATIOCINATION, the Action of REASONING. See REASONING.

RATION, in the Forces, a Pittance, or Proportion of Ammunition, Bread, Drink, or Forrage, diſtributed to each Soldier and Seaman for his daily Subſiſtence. See AMMUNITION, *&c.*

The *Rations* of Bread are regulated by Weight.—The Officers have ſeveral *Rations* according to their Quality, and the Number of Attendants they are obliged to keep.

The Horſe have *Rations* of Hay and Oats, when they cannot go out to Forrage.—The Ship's Crews have their *Rations* of Bisket, Pulſe, and Water, proportion'd according to their Stock.

When the *Ration* is augmented on Occaſions of Rejoycing, it is call'd *double Ration*.

The uſual *Ration* at Sea, particularly among the *Portugeze*, &c. is a Pound and half of Bisket, a Pint of Wine, and a Quart of freſh Water *per* Day, And each Month an Arrobe or 31 Pound of Salt Meat, with ſome dried Fiſh and Onions.

Some write *Racion*, and borrow the Word from the *Spaniſh Racion*. But they both come from the *Latin Ratio*; and in ſome Parts of the Sea they call it *Reaſon*.

RATIONABILI *parte bonorum*, a Writ which lies for the Wife, againſt the Executors of her Husband denying her the third Part of her Husband's Goods, after Debts and Funeral Expences paid. See GOODS.

Fitzherbert quotes *Magna Charta* and *Glanville*, to prove that by the Common Law of *England*, the Goods of the deceaſed, his Debts firſt paid, ſhould be divided into three Parts; whereof his Wife to have one, his Children a ſecond, and the Executors a third. Adding, that this Writ lies as well for the Children, *&c.* as the Wife. But it ſeems only to obtain where the Cuſtom of the Country makes for it.

RATIONABILES *Expenſæ*, *Reaſonable Expences*; the Commons in Parliament, as well as the Proctors of the Clergy in Convocation, were antiently allow'd *Rationabiles Expenſas*; that is, ſuch Allowance as the King, conſidering the Prices of all things, ſhall judge meet to impoſe on the People, to pay for the Subſiſtance of their Repreſentatives. See REPRESENTATIVE, *&c.*

This in the 17th of *Edward* II. was 10 Groats *per* Day for Knights, and 5 for Burgeſſes. Afterwards, 4 Shillings a Day for Knights, and 2 Shillings for Burgeſſes; which was then deem'd an ample Retribution both for Expences, for Labour, Attendance, Neglect of their own Affairs, *&c.* See PARLIAMENT.

RATIONABILIBUS *diviſis*, is a Writ that lies where two Lords have the Seigneuries joining together, for him that finds his Waſte encroached upon, within the Memory of Man, againſt the Encroacher; thereby to rectify the Bounds of the Seigneuries: in which Reſpect *Fitzherbert* calls it, in its own Nature, a Writ of Right.

RATIONAL, *Reaſonable*. See REASON.

RATIONAL, or *true Horizon*, is that whoſe Plane is conceived to paſs through the Centre of the Earth; and which therefore divides the Globe into two equal Portions, or Hemiſpheres. See HORIZON.

'Tis call'd the *Rational Horizon*, becauſe only conceived by the Underſtanding; in oppoſition to the *ſenſible* or *apparent Horizon*, which is viſible to the Eye. See SENSIBLE.

RATIONAL *Quantity* or *Number*, a Quantity or Number Commenſurable to Unity. See NUMBER and UNITY.

Suppoſing any Quantity to be 1, there are infinite other Quantities, ſome whereof are Commenſurable to it either ſimply, or in Power; theſe *Euclid* calls, *Rational Quantities*. See QUANTITY.

The reſt, that are Incommenſurable to 1, he calls, *Irrational Quantities*, or *Surds*. See SURD.

RATIONAL *Integer*, or *whole Number*, is that whereof Unity is an aliquot Part. See NUMBER *and* ALIQUOT *Part*.

RATIONAL *fraction*, or *broken Number*, is that equal to ſome aliquot Part or Parts of Unity. See FRACTION.

RATIONAL *mixt Number*, is that conſiſting of an Integer and a Fraction, or of Unity, and a broken Number.

Commenſurable Quantities are defined by being to one another, as one *Rational* Number to another.

For Unity is an aliquot Part of Unity; and a Fraction has ſome aliquot Part common with Unity: In things, therefore, that are as a *Rational* to a *Rational* Number, either the one is an aliquot Part of the other, or there is ſome common aliquot Part of both: Therefore they are Commenſurable. See COMMENSURABLE.

Hence, if a *Rational* Number be divided by a *Rational*, the Quotient is a *Rational*.

RATIONAL *Ratio*, is a Ratio whoſe Terms are *Rational* Quantities; or a Ratio which is as one *Rational* Number to another, *e. gr.* as 3 to 6. See RATIO.

The Exponent of a *Rational* Ratio is a *Rational* Quantity. See EXPONENT.

RATIONALE, an Account, or Solution of ſome Opinion, Action, Hypotheſis, Phænomenon, or the like, on Principles of Reaſon.

Hence *Rationale* has become the Title of ſeveral Books; the moſt conſiderable is the *Rationale of the Divine Office*, by *Guill. Durandus*, a celebrated School Divine, Biſhop of *Mende*; finiſh'd in 1286, as he himſelf tells us.

RATIONALE, is alſo an antient ſacerdotal Veſtment, wore by the High-Prieſt under the old Law; and call'd by the *Hebrews* חשן, *hhoſchen*;

bhoſchen; by the *Greeks* λογιον; by the *Latins Rationale* and *Pectorale*; and by the *Engliſh* Tranſlators, *Breaſt-Plate.* See PECTORALE.

The *Rationale* was a Piece of embroider'd Stuff wore on the Breaſt, about a Span-ſquare.

Du Cange deſcribes it as a double Square of Thread ;of four Colours, interwove with Gold, and ſet with twelve precious Stones in four Rows, whereon were engraven the Names of the twelve Tribes; and faſten'd to the Shoulder by two Chains and two Hooks of Gold.

The Form of the *Rationale* was preſcribed by God himſelf, *Exod.* 28.

The *Rationale* appears to have been alſo antiently wore by the Biſhops under the new Law. But Authors are in doubt about its Form; ſome will have it reſemble that of the *Jews*; others take it to be only the *Pallium.* See PALLIUM.

RATIONALIS, an Officer mentioned in ſeveral antient Inſcriptions.

Lampridius, in the Life of *Alex. Severus*, uſes *Rationalis* as ſynonimous with *Procurator.* See PROCURATOR.

The *Rationales* were Intendants, or Surveyors under the Emperors; and though *Lampridius* pretends they were firſt eſtabliſhed by *Severus*; 'tis evident there were ſome under *Auguſtus.*

RATIONIS *Os*, in Anatomy, the Bone of the Fore-head, otherwiſe call'd *Os Frontis.* See FRONTIS.

RATTLE, among the Antients, was accounted a Muſical Inſtrument, of the pulſatile Kind; call'd by the *Romans*, *Crepitaculum.* See MUSICK.

Mr. *Malcolm* takes the *Tintirnabulum*, *Crotalum*, and *Siſtrum*, to have been only ſo many different Kinds of Rattles. See CROTALUM, SISTRUM, *&c.*

The Invention of the *Rattle* is aſcribed to *Archytas*; whence *Ariſtotle* calls it, αρχύτου πλαταγη, *Archytas*'s *Rattle.*

Diogenianus adds the Occaſion of the Invention; *viz.* that having Children, he contriv'd this Inſtrument to prevent their tumbling other things about the Houſe. So that how much ſoever ſome Inſtruments have chang'd their uſes, the *Rattle* we are ſure has preſerv'd its.

RATLINES, or as the Seamen call them, RATLINGS; thoſe Lines which make the Ladder Steps, to get up the Shrouds and Puttocks: Hence call'd the *Ratlings of the Shrouds.*

RAVELIN, in Fortification, was antiently a flat Baſtion, placed in the middle of a Curtain. See BASTION and CURTAIN.

'Tis ſince made a detach'd Piece, compoſed only of two Faces, which make a Salient Angle, without any Flanks; and raiſed before the Curtains or Counterſcarp, and commonly call'd an *Half-Moon.*

A *Ravelin* is a Triangular Work reſembling the Point of a Baſtion, with the Flanks cut off.

Its uſe before a Curtain, is to cover the oppoſite Flanks of the two next Baſtions. 'Tis uſed alſo to cover a Bridge or a Gate; and is always placed without the Moat.

What the Engineers call a *Ravelin*, the Soldiers generally call a *Demi-Lune*, or *Half-Moon.* See DEMI-LUNE, *&c.*

There are alſo double *Ravelins*, which ſerve to defend each other. They are ſaid to be *double* when they are join'd by a Curtain.

RAVISHMENT *de Gard*, is a Writ which lies for him who took from the Guardian, the Body of his Ward. See GARD, GUARDIAN, WARD, *&c.*

RAVISHMENT, in Law, an unlawful taking either a Woman, or an Heir in Ward.

Sometimes it is alſo uſed in the ſame Senſe as *Rape.* See RAPE.

RAY, RADIUS, in Opticks, a Line of Light, propagated from a *radiant* Point, through an unreſiſting Medium. See LIGHT, RADIANT, *&c.*

Sir *Iſaac Newton* defines *Rays* to be the leaſt Parts of Light, whether ſucceſſive in the ſame Line, or Cotemporary, in ſeveral Lines.

For, that Light conſiſts of Parts of both Kinds, appears hence, that one may ſtop what comes this Moment in any Point, and let paſs that which comes the next; and again, may ſtop what comes in this Point, and let paſs that in the next. Now, the leaſt Light, or Part of Light which may be thus ſtopp'd alone, he calls a *Ray of Light.*

If the Parts of a *Ray* of Light do all lie ſtraight between the Radiant and the Eye, the *Ray* is ſaid to be *direct*: The Laws and Properties whereof make the Subject of *Opticks.* See OPTICKS.

If any of them be turned out of the Direction, or bent in their Paſſage, the *Ray* is ſaid to be *refracted.* See REFRACTION.

If it ſtrike on the Surface of any Body, and be driven back, it is ſaid to be *reflected.* See REFLECTION.

In each Caſe, the *Ray*, as it falls either directly on the Eye, or on the Point of Reflection, or of Refraction, is ſaid to be *Incident.* See INCIDENCE.

Again, if ſeveral *Rays* be propagated from the Radiant Equidiſtantly from one another, they are call'd *Parallel Rays.* See PARALLEL.

If they come inclining towards each other, they are call'd *Converging Rays.* See CONVERGING.

And if they go continually receding from each other, they are call'd *diverging Rays.* See DIVERGING.

'Tis from the Circumſtances of *Rays*, that the ſeveral Kinds of Bodies are diſtinguiſhed in Opticks. A Body, *e. g.* that diffuſes its own Light, or emits *Rays* of its own, is call'd a *Lucid*, or *Luminous* Body. See LUMINARY.

If it only reflect *Rays* it receives from another, it is call'd an *illuminated* Body.

If it only tranſmit *Rays*, it is call'd a *tranſparent* Body. See TRANSPARENCY.

If it intercept the *Rays*, or refuſe them Paſſage, it is call'd an *Opake* Body. See OPACITY.

Hence, no Body Radiates, *i. e.* emits *Rays*, unleſs it be either luminous, or *illumined.* See RADIATION.

'Tis by means of *Rays* reflected from the ſeveral Points of illumined Objects to the Eye, that they become *viſible*, and that Viſion is perform'd; whence ſuch *Rays* are call'd *viſual Rays.* See VISUAL.

In effect we find that any Point of an Object is ſeen in all Places to which a right Line may be drawn from that Point: But it is allow'd, nothing can be ſeen without Light, therefore every Point of an Object diffuſes innumerable *Rays* every way.

Again, from other Experiments it appears that the Images of all Objects, whence right Lines may be drawn to the Eye, are painted in the Eye, behind the Cryſtallin, very ſmall, but very diſtinct.

And laſtly, from other Experiments, that each *Ray* carries with it the Species, or Image of the radiating Point: And that the ſeveral Rays emitted from the ſame Point are again united in one Point, by the Cryſtallin, and thus thrown on the *Retina.* See VISION.

'Tis the Spiſſitude, or cloſeneſs of the *Rays* emitted from a luminous Body, that conſtitutes the *Intenſeneſs of the Light.* Yet the Direction wherein the *Rays* ſtrike the Eye, have a good Sway. In effect, a Perpendicular *Ray*, ſtriking with more force than an Oblique one, in the Ratio of the whole Sine to the Sine of the Angle of Obliquity, (as follows from the Laws of *Percuſſion*) a Perpendicular *Ray* will affect the Eye more vividly than an Oblique one in that Ratio.

If then the Spiſſitude of the *Rays* be equal, the Intenſity will be as the Direction; if the Direction be the ſame, the Intenſeneſs will be as the Spiſſitude. If both differ, the Intenſeneſs will be in a Ratio compounded of the Direction and the Spiſſitude.

Hence, *Firſt*, If Light be propagated in Parallel *Rays* thro' an unreſiſting Medium, its Intenſity will not be varied by Diſtance.

Secondly, If Light be propagated in *diverging Rays*, thro' an unreſiſting Medium, its Intenſity will decreaſe in a duplicate Ratio of the Diſtances from the radiant Point, reciprocally. See QUALITY.

Thirdly, If Light be propagated in *converging Rays* through an unreſiſting Medium; its Intenſity will increaſe in a duplicate Ratio of the Diſtances from the Point of Concourſe, reciprocally.

Fourthly, If the Breadth of an illuminated Plane be to the Diſtance of the radiant Point, as 1 to 2000000, 'tis the ſame thing as if the *Rays* ſtruck upon it Parallel: And hence, ſince the Diameter of the Pupil of the Eye, when largeſt, ſcarce exceeds [illegible] of an Inch; the *Rays* will fall upon it Parallel, as to Senſe, at the Diſtance of 3860 *Engliſh* Feet, which is nearly 6 Furlongs. See LIGHT.

The effect of Concave Lenſes, and Convex Mirrors, is to make Parallel *Rays* diverge; converging *Rays*, become Parallel; and diverging *Rays* to become more divergent. See MIRROUR.

The effect of Convex Lenſes, and Concave Mirrours, is to make Diverging *Rays* become Parallel; Parallel *Rays* become Convergent, and Converging *Rays* to Converge the more. See LENS.

The *Rays* of Light are not Homogeneous, or Similar, but differ in all the Properties we know of, *viz.* Refrangibility, Reflexibility, and Colour. See REFRANGIBILITY, *&c.*

'Tis probable from the different Refrangibility, that the other Differences have their Riſe; at leaſt it appears, that thoſe *Rays* which agree or differ in this, do ſo in all the reſt.

Thus from the different Senſations the differently diſpoſed *Rays* excite in us, we call them, *red Rays*, *yellow Rays*, &c. See COLOUR.

The effect of the *Priſm* is to ſeparate and ſort the different Kinds of *Rays*, which come blended promiſcuouſly from the Sun; and to throw each Kind by it ſelf, according to its Degree of Refrangibility and Colour, Red to Red, Blue to Blue, *&c.* See PRISM.

Beſides, Refrangibility, and the other Properties of the *Rays* of Light already aſcertain'd by Obſervation and Experiment, Sir *Iſaac Newton* ſuſpects they may have many more; particularly, a Power of being inflected, or bent by the Action of diſtant Bodies; and thoſe *Rays* which differ in Refrangibility, he conceives likewiſe to differ in this *Flexibility.*

In paſſing by the Edges and Sides of Bodies, he conceives that the *Rays* may be bent ſeveral times backwards and forwards, with a Motion like that of an Eel; and that thoſe *Rays* which falling on m Bodies are reflected or refracted e're they arrive at the Bodies. And adds, that they may be refracted, reflected, and inflected, ll on the ſame Principle, acting in different Circumſtances. See NFLECTION, *&c.*

Again, Do not the *Rays* falling on the Bottom of the Eye excite Vibrations in the Retina; which being propagated along the Fibres of the Optic Nerve into the Brain cauſe Viſion? And don't ſeveral ſorts of *Rays* make Vibrations of ſeveral Bigneſſes, which excite Senſations of ſeveral Colours, much after the manner as the Vibrations of the Air, according to their ſeveral Bigneſſes, excite Senſations of ſeveral Sounds? See SOUND.

Particularly, don't the moſt refrangible *Rays* excite the ſhorteſt Vibrations to make a Senſation of a deep Violet; and the leaſt Refrangibles, the largeſt, to make a Senſation of a deep Red? And the ſeveral intermediate Kinds of *Rays*, Vibrations of intermediate Bigneſſes, to make Senſations of the intermediate Colours?

And may not the Harmony and Diſcord of Colours ariſe from the Proportion of theſe Vibrations; as thoſe of Sound depend on the Vibrations of the Air: For ſome Colours, if viewed together, are agreeable, as Gold and Indigo; others Diſagreeable? See CONCORD and HARMONY.

Again, Have not the *Rays* of Light ſeveral Sides endued with ſeveral Original Properties?

Every *Ray* of Light has two oppoſite Sides, originally endued with a Property whereon the unuſual Refraction of Iſland Cryſtal depends; and other two oppoſite Sides not endued with that Property. See CRYSTAL.

Laſtly, Are not the *Rays* of Light very ſmall Bodies emitted from ſhining Subſtances?

Such Bodies may have all the Conditions of Light: And there is that Action and re-action between tranſparent Bodies and Light, which very much reſembles the attractive Force between other Bodies. Nothing more is required for the Production of all the various Colours, and all the Degrees of Refrangibility, but that the *Rays* of Light be Bodies of different Sizes; the leaſt of which may make Violet, the weakeſt and darkeſt of the Colours, and be the moſt eaſily diverted by refracting Surfaces from its rectilinear Courſe; and the reſt as they are bigger and bigger, may make the ſtronger and more lucid Colours, Blue, Green, Yellow, and Red. See VIOLET, RED, *&c.*

Nor is any thing more requiſite for the putting of the *Rays* into Fits of eaſy Reflexion, and eaſy Tranſmiſſion, than that they be ſmall Bodies, which by Attraction, or ſome other Force, excite Vibration in the Bodies they act upon; which Vibrations being *ſwifter* than the *Rays*, overtake them ſucceſſively, and agitate them ſo as by Degrees to increaſe and decreaſe their Velocity, and thereby put them into thoſe Fits. See TRANSMISSION.

Laſtly, The unuſual Refraction of Iſland Cryſtal looks very much as if it were perform'd by ſome attractive Virtue lodg'd in certain Sides both of the *Rays* and the Cryſtal.

Common RAY, in Opticks, is ſometimes uſed for a right Line drawn from the Point of the Concourſe of the two Optical Axes, through the middle of the right Line which paſſes by the Centre of the Pupil of the Eye. See AXIS.

Principal RAY, in Perſpective, is the Perpendicular Diſtance between the Eye, and the Vertical Plane, or Table, as ſome call it. See PERSPECTIVE.

Pyramid of RAYS. See PYRAMID.

Pencil of RAYS. See PENCIL.

RE, in Grammar, *&c.* an inſeparable Particle, or Præpoſition, added at the beginning of Words, to vary, double, or otherwiſe modify and circumſtance their Meaning.

The modificative *Re* was firſt introduced by the *Latins*, from whom it is borrow'd into moſt of the modern Tongues. *Priſcian* derives it from *retro*, backwards; others rather derive *retro* from *re*; others derive *re* from the *Greek* ῥᾴα, eaſy, or from ῥέω, I flow.

The effect of the *Re* is various: uſually it ſignifies *again*, *rurſum*, ἀνα; as in *re*-joyn, *re*-ſign, *re*-ſume, *re*-courſe, *re*-bound, *re*-cite, *re*-hear, *re*-cognize, *re*-compare, *re*-double, *re*-linquiſh, *&c.*

Sometimes it ſtands for *contra*, ἀντι, *againſt*; as in *re*-luctance, *re*-cumbent, *re*-cline, *&c.*

Sometimes for ὑπὲρ, *ſuper*, over, as in *re*-dundant; ſometimes for πόῤῥω, *longe*, *far* as in *re*-moving, *&c.*

RE, in Muſick. See NOTE.

REACH, in the Sea Language, the Diſtance between any two Points of Land that lie in a right Line one from another.

RE-ACTION, in Phyſicks, the Action whereby a Body acted upon, returns the Action, by a Reciprocal one, upon the Agent: See ACTION.

The *Peripateticks* define *Reaction* to be that which a paſſive Body returns upon the Agent, by means of ſome Quality contrary to that receiv'd therefrom; in the ſame Part wherewith the Agent acted; and at the ſame time: As if Water, while it is heating by the Fire, does, at the ſame time, cool the ſame Fire.

It was known, even in the Schools, that there is no Action in Nature, without *Reaction*; and it was a Maxim among them, *Omne Agens, Agendo repatitur.*

But the Equality of the Actions was not known: Sir *I. Newton* eſtabliſh'd it as one of the Laws of Nature, that *Action and Reaction are equal and contrary*; or that the mutual Actions of two Bodies ſtriking one againſt another, are exactly equal, but in contrary Directions; or in other Words, that by the Action and *Reaction* of Bodies one on another, there are produced equal Changes in each; and thoſe Changes are impreſs'd towards directly contrary Parts or Ways. See *Law of* NATURE.

Thus, whatever Body preſſes or draws another, is equally preſs'd or drawn by it again: If any one preſs a Stone with his Finger, his Finger is much preſs'd by the Stone.

If a Horſe by a Rope, *&c.* draw a Stone, the Horſe will be equally drawn by the Stone; for the Rope being ſtretch'd both ways alike, endeavours to relax itſelf again, and by that means draws the Horſe towards the Stone, and hinders the Progreſſion of the Horſe, as much as it forwards that of the Stone.

If any Body ſtriking againſt another, doth by its Force any way change its Motion, it ſelf will undergo the ſame Change in its own proper Motion, but towards a contrary Part; from the *Reaction* of that Body, and the Equality of its mutual Preſſion.

By theſe Actions are produced equal Changes, not indeed of the Velocities, but of the Motions of Bodies; (that is, of ſuch Bodies as have no impediment any other way) for the Changes of their Velocities being made towards contrary Parts, (becauſe the Motions are equally *changed*) are reciprocally Proportional to the Bodies themſelves. See MOTION.

Some of the School Philoſophers deny any ſuch thing as *Reaction*, properly ſo call'd, at all; urging that Action ariſes only from the Ratio of the greater Inequality; that is, we are only to account for Action the Exceſs of the Action, or what the Agent does more than is returned by the Patient. But the Equality between Action and *Reaction*, ſets aſide the Exception.

READINGS, in Criticiſm. *Various Readings*, *Variæ Lectiones*, are the different Manners of reading the Text of Authors in antient Manuſcripts: A Diverſity ariſing from the Corruption of Time, or the Ignorance of Copiſts. See TEXT.

A great Part of the Buſineſs of the Criticks lies in ſettling the *Readings*, by confronting the various *Readings* of the ſeveral Manuſcripts, and conſidering the Agreement of the Words and Senſe.

The various *Readings* in the Bible and Claſſic Authors, are almoſt innumerable.

READINGS are alſo uſed for a ſort of Commentary or Gloſs on a Law, Text, Paſſage, or the like; to ſhew the Senſe an Author takes it in, and the Application he conceives to be made of it.

RE-AFFORESTED, is where a Foreſt having been diſafforeſted, is again made a Foreſt; as the Foreſt of *Dean* was by an Act of Parliament in the 20th of King *Charles* II. See FOREST, AFFOREST, DISAFFOREST, *&c.*

RE-AGGRAVATION, in the *Romiſh* Eccleſiaſtical Law, the laſt Monitory, publiſhed after three Admonitions, and before the laſt Excommunication. See MONITORY.

E're they proceed to fulminate the laſt Excommunication, they publiſh an Aggravation, and *Reaggravation*. *Fevret* obſerves, that in *France* the Miniſter is not allow'd to come to *Reaggravation*, without the Permiſſion of the Biſhop or Official, as well as that of the Lay Judge. See EXCOMMUNICATION.

REAL, REALE, is applied to a Being that actually exiſts; in which Senſe it coincides with *Actual*. See ACTUAL. See alſo REALITY.

Real, in Law, is oppoſed to *Perſonal*.

Real Eſtate, is that conſiſting in Lands, Tenements, *&c.* See PERSONAL.

Real Action, that whereby the Plaintiff lays Title to Land, *&c.* See ACTION.

Cuſtoms are ſaid to be *real*; that is, they determine all Inheritances within their Extent; and none may diſpoſe of them, but according to the Conditions allow'd by the Cuſtoms where they are ſituate.

REAL *Horizon*. See HORIZON.

REAL, or RIAL, or RYAL, a *Spaniſh* Silver Coin; being the eighth Part of the Piaſtter or Piece of Eight. See PIASTER.

The *Real* is equal to about Six-pence ¼ Sterling. See COIN.

The Silver *Real* is equal to 34 Silver Maravedis; the Copper *Real* to 34 Copper Maravedis, which only amount to 18 Silver Maravedis. See MARAVEDIS.

There are alſo *Reals* of Eight, *Reals* of four, *Reals* of two, and half *Reals*.

The *Reals* of eight are the Piaſters; thoſe of four, half Piaſters, *&c.*

Great Quantities of *Reals*, or *Reals* of Eight, are carried into the *Eaſt-Indies*, where they are divided into three Claſſes, and received on different Footings, *viz.* the *Old Real*, known by the Chapelet around, whereof 100 are Current for 215 Roupias; the *ſecond*, known by the largeneſs of its Beads, Current at 212¼ Roupias for 100; and the *new* at 208¼ Roupias for 100 *Reals*. See ROUPIA.

The Word in the Original *Spaniſh*, *Reale*, ſignifies *Royal*.

REALGAL, or RISALGAL, a Mineral; a kind of red Arſenic, differing from the common Arſenic, which is white; and from Orpiment, which is yellow. See ARSENIC and ORPIMENT.

There are two Kinds of *Realgal*, the one *natural*, and the other *factitious*: The Natural is calcined in the Mine by the ſubterraneous Fires: The Factitious, which is the more common, is calcined by a common Fire.

Some able Druggiſts doubt whether there be any ſuch thing as a native *Realgal*.

The *Realgal* is a violent Poiſon; yet leſs Cauſtic than the common Arſenic. 'Tis of ſome uſe in Chirurgery. See ARSENIC.

In the Hiſtory of the *French* Academy, we have an account of a Cup brought to *Paris* by the Embaſſadors of *Siam*, and preſented there, as a Remedy uſed by that People againſt all Diſeaſes. Upon an Examination, which had like to have coſt M. *Homberg* dear, he found it to be a kind of *Realgal*, or red Arſenic, more Cauſtic than ours.

Its uſe, among the *Siameſe*, he takes to have been the ſame with that of *Regulus* of Antimony; *viz*, to give an emetic Quality to the Wine drunk out of it.

As the Doſe of Medicines is much ſtronger in the torrid Zone than among us, (the Quantity of Ipecacuanha, *e. gr.* ordinarily taken by the *Indians*, being twenty times as great as that among us) 'tis very poſſible a Cup of *Realgal*, though enough to Poiſon an *European*, may prove a gentle Medicine to a *Siameſe*.

REALISE, in Commerce, a Term little known in Trade before the Year 1719, when thoſe immenſe Fortunes began to be made in *France* and *England*, by the Buſineſs of Actions or Stock.

By *Realiſing*, is meant the Precaution many of thoſe who had gain'd moſt, took, to convert their Paper into real Effects, as Lands, Houſes, rich Moveables, Jewels, Plate; but above all into Current Species.

A Precaution, capable of ruining the State; but which the *French* Regency had the Wiſdom to fruſtrate, by taking proper Meaſures to have the Money, thus ready to be hoarded up, returned to the Publick.

REALISTS, a Sect of School Philoſophers, form'd in oppoſition to the *Nominaliſts*. See NOMINALIST.

Under the *Realiſts* are included the *Scotiſts*, *Thomiſts*, and all, excepting the Followers of *Ocham*. See SCOTIST, THOMIST, *&c.*

Their diſtinguiſhing Tenet is, that Univerſals are *Realities*, and have an actual Exiſtence, out of Idea and Imagination; or, as they expreſs it in the School Language, *a parte rei*: Whereas the *Nominaliſts* contend that they exiſt only in the Mind; are only Ideas, or Manners of conceiving things. See UNIVERSAL.

Doc. Odon, or *Oudart*, a Native of *Orleans*, afterwards Abbot of St. *Martin de Tournay*, was the chief of the Sect of the *Realiſts*: He wrote three Books of Dialecticks; where, on the Principles of *Boethius*, and the Antients, he maintain'd that the Object of that Art is *Things*, not Words: Whence the Sect took its Riſe and Name.

REALITY, REALITAS, in the Schools, a diminitive of *res*, *thing*; firſt uſed by the *Scotiſts* to denote a thing which may exiſt of it ſelf, or which has a full and abſolute Being of it ſelf, and is not conſidered as a Part of any other: Yet a *Reality* is conceived as ſomething leſs than *Res*; and accordingly every *Res* is ſuppoſed to contain a Number of *Realities*, which they otherwiſe call *Formalities*.

Thus, *e. gr.* in a Man, according to the Doctrine of the *Scotiſts*, are a Number of *Realities*, *viz.* a Subſtance, Life, Animal, and Reaſon.

Some diſtinguiſh *Reality* into Subjective and Objective.

REALM, a *Kingdom*; or a Country which gives its Head or Governour the Denomination of King. See KING, MONARCHY, GOVERNMENT, *&c.*

The Word is form'd of the *French*, *Royaume*, which denotes the ſame thing.

REAR, a Term frequently uſed in Compoſition, to denote ſomething *behind* or *backwards* in reſpect of another; in oppoſition to *Van*, or *Vaunt*, before.

It is form'd by Corruption of the *French*, *Arriere*, ſignifying the ſame thing.

REAR, in a military Senſe, is uſed for the Hind-part of an Army, *&c.* in oppoſition to the Front, or Face thereof. See FRONT.

REAR-*Guard*, is that Part of an Army which marches laſt; following the main Body, to hinder or ſtop Deſerters. See GUARD.

REAR-*Half-Files*, are the three hindermoſt Ranks of a Battallion, when it is drawn up ſix Deep. See FILE.

REAR-*Line*, of an Army encamped, is the ſecond Line; it lies about four or five hundred Yards Diſtant from the firſt Line, which is call'd the Reſerve Line. See LINE.

REAR-*Rank*, is the laſt Rank of a Battallion, or Squadron, when drawn up. See RANK.

REAR-*Admiral*, is the Admiral of the third and laſt Squadron of the Royal Fleet. See ADMIRAL, SQUADRON, and FLEET.

REASON, RATIO, a Faculty, or Power of the Soul, whereby it diſtinguiſhes Good from Evil, Truth from Falſhood. See SOUL and FACULTY.

Reaſon is, properly defined, that Principle, whereby, comparing ſeveral Ideas together, we draw Conſequences from the Relations they are found to have. See IDEA and RELATION.

Some of the later School Philoſophers define Reaſon the Comprehenſion of many Principles which the Mind ſucceſſively can conceive, and from which Concluſions may be drawn.

Others conceive *Reaſon* as no other than the Underſtanding it ſelf, conſidered as it diſcourſes. See UNDERSTANDING and DISCOURSE.

Chauvin thinks it is better defined, a very diffuſive, innate Notion or Idea, ariſing from a continued Attention.

Reaſon, Mr. *Lock* obſerves, comprehends two diſtinct Faculties of the Mind, *viz.* *Sagacity*, whereby it finds intermediate Ideas; and *Illation*, whereby it ſo orders and diſpoſes of them as to diſcover what Connection there is in each link of the Chain whereby the Extremes are held together, and thereby, as it were, draws into view the Truth ſought for.

Illation, or Inference, conſiſts in nothing but the Perception of the Connection there is between the Ideas in each Step of the Deduction, whereby the Mind comes to ſee either the certain Agreement or Diſagreement of any two Ideas; as in Demonſtration, in which it arrives at Knowledge: Or their probable Connection, on which it gives or withholds its Aſſent; as in Opinion. See KNOWLEDGE and OPINION.

Senſe and Intuition reach but a little way: the greateſt Part of our Knowledge depends upon Deductions and intermediate Ideas. In thoſe Caſes, where we muſt take Propoſitions for true, without being certain of their being ſo, we have need to find out, examine, and compare the Grounds of their Probability: In both Caſes, the Faculty which finds out the Means, and rightly applies them to diſcover Certainty in the one, and Probability in the other, is that which we call *Reaſon*.

In *Reaſon*, therefore, we may conſider four Degrees: *Firſt*, The diſcovering and finding out of Proofs. See INVENTION.

Secondly, The regular and methodical Diſpoſition of them, and laying them in ſuch Order, as their Connection may be plainly perceived. See METHOD.

Thirdly, The perceiving of their Connection; and,

Fourthly, The making a right Concluſion. See CONCLUSION.

Reaſon fails us in ſeveral Inſtances: As, *Firſt*, Where our Ideas fail. See IGNORANCE.

Secondly, It is often at a loſs becauſe of the Obſcurity, Confuſion, or Imperfection of the Ideas it is employed about: Thus, having no perfect Idea of the leaſt Extenſion of Matter, nor of Infinity, we are at a loſs about the Diviſibility of Matter.

Thirdly, Our *Reaſon* is often at a ſtand becauſe it perceives not thoſe Ideas which would ſerve to ſhew the certain or probable Agreement or Diſagreement of any two other Ideas.

Fourthly, Our *Reaſon* is often engaged in Abſurdities and Difficulties, by proceeding upon falſe Principles, which being followed, lead Men into Contradictions to themſelves, and Inconſiſtency in their own Thoughts.

Fifthly, Dubious Words, and uncertain Signs, often puzzle Men's *Reaſon*, and bring them to a Non-plus.

Though the deducing one Propoſition from another, be a great Part of *Reaſon*, and that about which it is uſually employed; yet the principal Act of Ratiocination is the finding the Agreement or Diſagreement of two Ideas one with another, by the Intervention of a third. As a Man, by a Yard, finds two Houſes to be of the ſame Length, which could not be brought together to meaſure their Equality by Juxta-Poſition.

Words have their Conſequences as the Signs of ſuch Ideas and Things agree, or diſagree, with what they really are; but we obſerve it only by our Ideas, See REASONING.

Hence we may be able to form an Idea of that ordinary Diſtinction of things, into ſuch as are *according* to, thoſe that are *above*, and thoſe *contrary* to *Reaſon*.

According to *Reaſon*, are ſuch Propoſitions, whoſe Truth we can diſcover by examining and tracing thoſe Ideas we have from Senſation and Reflection, and by natural Deduction find to be true or probable.

Above *Reaſon* are ſuch Propoſitions, whoſe Truth or Probability we cannot by *Reaſon* derive from thoſe Principles.

Contrary to *Reaſon*, are ſuch Propoſitions as are inconſiſtent with, or irreconcileable to, our clear and diſtinct Ideas.

Thus the Exiſtence of one God, is according to *Reaſon*: The Exiſtence of more than one God, contrary to Reaſon: The Reſurrection of the Body after Death, above *Reaſon*. Above *Reaſon* may be alſo taken in a double Senſe; *viz.* above Probability, or above Certainty.

They who Diſpute moſt againſt the Power and Priviledges of Human *Reaſon*, do it becauſe their own *Reaſon* perſuades them to that Belief; and ſo, whether the Victory be on their or our Side, are equally defeated.

They ſeek to terrify us with the Example of many great Wits, who by following this *Ignis fatuus*, (ſo they call the only Pole Star God has given us to direct our Courſe by) have fallen into wild and ridiculous Opinions, and increas'd the Catalogues of Hereſies to ſo great a Number: But theſe Men either followed not their *Reaſon*, but made it follow their Will; or firſt hood-wink'd it by Intereſt and Prejudice, and then bad it ſhew them the way; or were wanting in thoſe neceſſary Diligences required for ſo doubtful a Paſſage: Or, if, without any of theſe, the Weakneſs of their Underſtanding had deceived them, the Error is neither hurtful to themſelves, nor would be to others, if this Doctrine of governing ourſelves by our own *Reaſon*, and not by Authority and Example, were eſtabliſhed. *Diſc. concern. Hum. Reaſ.*

'Tit not the uſe of ſuch Liberty, but the appropriating it to ourſelves, that is the Cauſe of all the Diſorders charged thereon: For thoſe who lay a Reſtraint on other Men's *Reaſon*, have firſt made uſe of their own to ſettle them, and do make uſe of it in this very reſtraining of others. *Ibid.*

REASON, in Matters of Religion, it uſed in oppoſition to Faith. See FAITH.

This uſe of the Word, Mr. *Lock* takes to be in it ſelf very improper: For Faith is nothing but a firm aſſent of the Mind; which if it be regulated, as it is our Duty, cannot be afforded to any thing but upon good *Reaſon*, and ſo cannot be oppoſite to it.

He that believes without having any *Reaſon* for believing, may be in love with his own Fancies, but neither ſeeks Truth, as he ought, nor pays the Obedience due to his Maker, who would have him uſe thoſe diſcerning Faculties he has given him, to keep him out of Miſtake and Error.—But ſince *Reaſon* and Faith are by ſome Men oppoſed, it may be neceſſary to conſider them together.

Reaſon, as contradiſtinguiſhed to Faith, is the Diſcovery of the Certainty or Probability of ſuch Propoſitions, or Truths, which the Mind arrives at by Deductions made from ſuch Ideas which it has got by the uſe of its natural Faculties, *viz.* by Senſation or Reflection.

Faith, on the other Hand, is the Aſſent to any Propoſition upon the Credit of the Propoſer, as coming immediately from God; which we call Revelation. See REVELATION.

REASON, in Logic, *&c.* a neceſſary or probable Argument; or an Anſwer to the Queſtion, *cur eſt?* Why is it?

As, if it be enquired, Why do the Subject and Predicate agree? And it is anſwer'd, Becauſe they are ſpoke of the ſame thing: This laſt Enunciation is a *Reaſon*.

Hence, ſay the Schoolmen, Becauſe, *quia*, is the Sign or Character of a *Reaſon*, as *non*, no, of a *Negation*, and *eſt*, is, of an *Affirmation*.

They make three Kinds of *Reaſons*, *Rationes*; *viz.* *Ratio ut*, that; *ne*, leaſt; and *quia*, becauſe. For, anſwering to a Queſtion, *cur*, Why; we begin with becauſe, *quia*; as, Why do you ſtudy? that I may become learned; which is the *Ratio ut*. Again, Why do you ſtudy? Leaſt I ſhould be ignorant; which is the *Ratio ne*. Laſtly, Why is a Body tangible? Becauſe Matter is impenetrable; which is the *Ratio quia*.

The *Reaſon ut*, properly denotes the End, or final Cauſe; the *Reaſon ne*, the Beginning; and accordingly the one is called the Beginning, the other the End; and the *Reaſon quia*, left, the only *Reaſon*, properly ſo called.

Among Metaphyſicians, REASON is uſed in the ſame Senſe with Eſſence; or that whereby any thing is what it is. See ESSENCE.

This is ſometimes alſo call'd *formal Reaſon*, as repreſenting the thing under that Form or Nature under which it is conceived.

REASON, in Mathematicks. See RATIO.

REASON *of State*, *Ratio Status*, in Matters of Policy, a Rule or Maxim, whether it be Good, or Evil, which may be of Service to the State.

Reaſon of State, is properly underſtood of ſomething that is neceſſary and expedient for the Intereſt of the Government, but contrary to moral Honeſty or Juſtice.

The Politicians have a long time diſputed about the *Ratio ſtatus*: Whether States and Governments are tied down to the ſame Laws of Morality with individual Perſons; or whether things, otherwiſe Immoral and Unlawful, may not be practic'd on urgent Occaſions, by way of *Reaſon of State*.

The Queſtion is, Whether any thing be Unlawful, or prohibited a State, that is neceſſary to that State; or whether it be allow'd to preſerve it ſelf on any Terms.

The Phraſe is borrowed from the *Italians*, who firſt uſed *Ragione di ſtato* in this Senſe.

REASONABLE *Aid*, a Duty which the Lord of the Fee antiently claimed of his Tenants holding in Knight's Service, or in Socage; towards the marrying his Daughter, or the making his eldeſt Son Knight. See SERVICE, SOCAGE, *&c.*

It is taken away by the *Stat.* 2. *Car.* II.

REASONING, RATIOCINATION, the exerciſe of that Faculty of the Mind call'd *Reaſon*; or Reaſon deduced into Diſcourſe. See REASON.

The Agreement or Diſagreement of two Ideas, does not appear from the bare Conſideration of the Ideas themſelves; unleſs ſome third be called in, and compared, either ſeparately or conjointly therewith: The Act, then, whereby from Ideas thus diſpoſed and compared, we judge this or that to be ſo or not ſo, is call'd *Reaſoning*.

Robault defines a *Reaſoning* to be a Judgment depending on ſome Antecedent Judgment: Thus; having judged that no even Number can be compoſed of five uneven Numbers; and that ten is an even Number; to conclude that ten cannot be divided into five uneven Parts, is a *Ratiociniation*, or *Reaſoning*.

This agrees with Father *Mallebranche's* Doctrine, one of the great Points whereof is, that *Reaſoning*, on the Part of the Underſtanding, is only a meer *Perceiving*. See PERCEPTION.

That excellent Author endeavours to ſhew, that as to the Underſtanding, there is no Difference between a ſimple *Perception*, a *Judgment*, and a *Reaſoning*, except in this, that the Underſtanding perceives a ſimple thing without any Relation to any thing elſe, by a ſimple *Perception*.

That it perceives the Relations between two or more things in a *Judgment*.

And, laſtly, that it perceives the Relations that are between the Relations of things in a *Reaſoning*. So that all the Operations of the Underſtanding are no more than meer Perceptions. See JUDGMENT.

Thus, *e. gr.* when we conclude, that 4 being leſs than 6; twice 2 being equal to 4, are of Conſequence leſs than 6; we do no more than perceive the Relation of the Inequality between the Relation of twice two and four, and the Relation of 4 and 6. See UNDERSTANDING.

The manner of proceeding juſtly in *Reaſoning*, ſo as to arrive with the greater ſafety at the Knowledge of Truth, makes what we call *Method*. See METHOD.

For the real Benefit of Logic to *Reaſoning*, ſee LOGIC and SYLLOGISM.

RE-ATTACHMENT, in Law, a ſecond *Attachment* of him who was formerly attach'd, and diſmiſs'd the Court without Day; as by the not coming of the Juſtices, or the like Caſualty. See ATTACHMENT.

Brook makes *Reattachment* either *General* or *Special*.

General is where a Man is *reattached* for his Appearance on all Writs of Aſſize lying againſt him: *Special*, for one or more certain Writs.

RE-BAPTISANTS, a Sect in Religion, who maintain that People irregularly baptized, are to be baptized a-freſh. See BAPTISM.

The Anabaptiſts are *Rebaptiſants*; baptizing thoſe at Maturity who had been before baptized in Childhood. See ANABAPTIST.

St. *Cyprian*, and Pope *Stephen*, had mighty Differences about the Rebaptiſation of converted Hereticks.

Donatus was condemn'd at *Rome* in a Council, for having rebaptized ſome Perſons who had fallen into Idolatry after their firſt Baptiſm. See DONATIST.

REBATE, REBATEMENT, Prompt Payment, in Commerce, a Term much uſed at *Amſterdam*, for a Diſcount or Abatement in the Price of certain Commodities, when the Buyer advances the Sum in hand for which he might have taken time. See DISCOUNT.

The *Rebate* is eſtimated by Months; and is only allowed for certain Kinds of Merchandizes, which, according to the Cuſtom of *Amſterdam*, are,

German Wools,	which are ſold at	15	Months *Rebate*.
Aſhes, and Pot-Aſhes,		18	
Italian Silks,		33	
Sugars of *Braſil*,		18	
Spaniſh Wools,		21	

That is, theſe Commodities are ſold for ready Money; only deducting or *rebating* the Intereſt of the Money, which ought not to be paid till the End of 15, 18, *&c.* Months.

This Intereſt, call'd *Rebate*, is uſually regulated on the Footing of 8 *per Cent. per Annum*.

The Reaſon of this Expedient is, that the Merchants having not always wherewithal to pay for their Goods in hand, by means of the *Rebatement*, ſuch as have, will find their Account in it; and ſuch as have not, will be engaged to diſcharge themſelves as ſoon as poſſible, in hopes of the Diſcount.

REBATEMENT, in Heraldry, a Diminution or Abatement of the Dignity of the Figures or Bearings in a Coat of Arms. See ABATEMENT.

REBELLION, originally ſignified a ſecond Reſiſtance, or Riſing of ſuch as had been formerly overcome in Battle by the *Romans* and had yielded themſelves to their Subjection.

'Tis now generally uſed for a traiterous taking up of Arms againſt the King, either by his own natural Subjects, or by thoſe formerly ſubdued.

Rebel is ſometimes alſo uſed in our antient Statutes, for a Perſon who wilfully breaks a Law; and ſometimes for a Villain diſobeying his Lord.

Commiſſion of REBELLION. See COMMISSION.

REBELLIOUS *Aſſembly*, a gathering of twelve Perſons, or more, intending or going about, practiſing, *&c.* unlawfully, and of their own Authority, to change any Laws of the Realm; or to deſtroy the Encloſure of any Park or Ground encloſed, Banks of Fiſh-Ponds, Pools, Conduits, *&c.* to the intent the ſame ſhall remain void, or to the Intent to have way in any of the ſaid Grounds; or to deſtroy the Deer in any Park, Fiſh in Ponds, Coneys in any Warren, Dove-Houſes, *&c.* or to burn Stacks of Corn, or to abate Rents, or Prices of Victuals. See RIOT, *&c.*

REBOUND. See RECOIL.

REBUS, a *Name-Device*, as *Cambden* engliſhes it; or an enigmatical Repreſentation of ſome Name, *&c.* by uſing a Figure, or Picture, inſtead of a Word, or Part of a Word. See DEVISE.

Such is that of the Gallant, mentioned by *Cambden*, who expreſs'd his love to *Roſe Hill*, by painting in the Border of his Gown, a *Roſe*, a *Hill*, an *Eye*, a *Loaf*, and a *Wall*; which in the *Rebus*-Stile, reads, *Roſe Hill I love well.*

The *Picards* have the Honour of the Invention of this notable Kind of Wit; whence the *French*, to this Day, call it, *Rebus de Picardie*. *Cambden* adds, that the *Engliſh* firſt learnt it of them in the Reign of our *Henry* III. by means of the Garriſons we then had in *Calais*, *Guiſnes*, and other Places bordering on *Picardy*.

Its Origin is by *Menage*, *&c.* aſcribed to the Prieſts of *Picardy*, who, it ſeems, antiently, in Carnaval-Time, uſed every Year to make cer ain Libels entitled, *de Rebus quæ geruntur*, being Railleries on what Intrigues and Tranſactions had paſſed about the City; wherein they made great uſe of ſuch ſort of Equivoques and Alluſions, breaking and joining Words, and ſupplying them with Paintings.

Thus in the *Rebus* of *Picardy*, ſays *Morat*, a Horſe-comb, *Etrille*; a Scythe, *faux*; and a Calf, *veau*, make *Etrille Fauveau*. But the Practice has been ſince prohibited, by reaſon of the Scandal.

Cambden tells us, the *Rebus* was in wonderful Eſteem among our Forefathers; and that he was no-body who could not Hammer out of his Name an Invention by this Wit-craft, and Picture it accordingly.

The Sieur *Des Accords*, has made an ample Collection of the moſt famous *Rebus de Picardie*. And Mr. *Cambden* has done ſomething of the ſame Kind in his Remains.—The Abbot of *Ramſey*, he tells us, engraved in his Seal a *Ram* in the *Sea*, with this Verſe, to ſhew he was a right Ram, *Cujus ſigna gero, dux Gregis eſt ut ego.*—Sir *Thomas Caval*, (*Caval* ſignifying a Horſe) engraved a galloping Horſe in his Seal, with this limping Verſe, *Thomæ Creditis, cum cernitis ejus Equum.*—So *John Eagleſhead* bore in his Seal an Eagle's Head with this Motto around it, *Hoc Aquilæ Caput eſt, ſignumq; figura Johannis.*

Bolton, Prior of St. *Bartholomew's*, ſignified his Name by a *Bolt* thruſt through a *Tun.*—*Iſlip*, Abbot of *Weſtminſter*, a Man highly in favour with *Henry* VII. had a quadruple *Rebus* for his ſingle Name; ſometimes he ſet up in his Windows an *Eye* with a *Slip* of a Tree; and ſometimes an *I* with the ſaid *Slip*; in other Places one ſlipping Boughs in a Tree; and in others, one *ſlipping* from a Tree; with the Word, *I-ſlip*.

Thomas, Earl of *Arundel*, ſignified his Name by a Capital *A* in a *Rundle*. *Morton*, the great Archbiſhop of *Canterbury*, was contented to uſe *Mor* upon a *Tun*; and ſometimes a Mulberry call'd *Morus*, out of a *Tun*. So *Luton*, *Thornton*, *Aſhton*, &c. ſignified their Names with a *Lute*, a *Thorn*, an *Aſh*, upon a *Tun*. So a *Hare* on a *Bottle* was the Device of *Harebottle*; a *Mag-pye* on a *Goat*, of *Pigot*; a *Hare* by a Sheaf of *Rye* in the *Sun*, of *Harriſon*: *Lionel Ducket* uſed a *Lion* with an *L* on its Head, whereas it ſhould have been on its Tail: Had the *Lion* been eating a *Duck*, ſays *Cambden*, it had been a rare Device, worth a Duckat or a Duck-egg. *Garret Dews* ſignified his Name on his Sign by two Men in a *Garret* caſting *Dews* at Dice.

Abel Drugger's Device in *Ben. Johnſon's Alchimiſt*, and *Jack* of *Newberry* in the Spectator, are known to every Body.—But the *Rebus* being once rais'd to the Signs, grew out of Faſhion at Court, and has been left to hang there ever ſince: Indeed Attempts have been lately made for its Reſcue by a Reverend Divine, in his *Tunbridge-Love-Letters*, &c.

Yet has the *Rebus* Antiquity on its Side, as having been in uſe in the pure *Auguſtan* Age: *Cicero*, in a Dedication to the Gods, inſcribed *Marcus Tullius*, with a little Peaſe, call'd by the *Latins Cicer*; by us, *Chich-Peaſe*. And *Julius Cæſar*, in ſome of his Coins, uſed an *Elephant*, call'd *Cæſar* in the *Mauritanian* Tongue. Add to theſe, that the two Mint Maſters in that Age, *L. Aquilius Florus*, and *Voconius Vitulus*, uſed, the firſt a *Flower*, the ſecond a *Calf*, on the Reverſe of their Coins.

REBUTTER, in Law, when a Man grants Land ſecured to the uſe of himſelf and the Iſſue of his Body, to another in Fee, with Warranty; and the Donee leaſing out the Land to a third Perſon for Years: The Heir of the Donor impleads the Tenant; alledging the Land was in Tail to him; and the Donee comes in, and by virtue of the Warranty made by the Donor, repells, or *rebutts*, the Heir: Becauſe, though the Land was intailed to him, yet he is Heir to the Warrantor likewiſe.

This is call'd a *Rebutter*, from *Re*, and the *French*, *bouter*, to repel, or bar.

Again, if I grant to the Tenant to hold *Sine Impetitione Vaſti*, and afterwards implead him for Waſte; he may debar me of the Action, by ſhewing my Grant, which is likewiſe a *Rebutter*.

RECANTATION. See PALINODY.

RECAPITULATION, in Oratory, *&c.* a Part of the Peroration; call'd alſo, *Anacephaleoſis*. See PERORATION, *&c.*

Recapitulation is a ſummary of the preceding Diſcourſe; or a conciſe, tranſient Enumeration of the principal things inſiſted on at large therein; whereby the Force of the whole is collected into one View.

An Inſtance of this may be given in the Peroration of *Cicero's Manilian*: *Quare cum Bellum ita Neceſſarium ſit ut negligi non poſſit: Ita Magnum ut Accuratiſſime ſit Adminiſtrandum, & cum ei Imperatorem præficere poſſitis, in quo ſit eximia belli ſcientia, ſingularis Virtus, Clariſſima auctoritas, egregia fortuna: Dubitabitis, Quirites, quin.*

RECAPTION, in Law, a ſecond Diſtreſs of one formerly diſtrain'd for the ſame Cauſe, and alſo during the Plea grounded on the former Diſtreſs. See DISTRESS.

It is alſo a Writ lying for the Party thus diſtrained.

RECEIPT, or RECEIT, in Commerce, an Acquittance or Diſcharge; or an Act whereby it appears a thing has been paid off, or acquitted.

Where the *Receit* is on the back of a Bill, *&c.* 'tis uſually call'd an *Indorſement*. See INDORSEMENT.

Among Mechanicks, *&c.* *Receit* uſually makes the ſecond of the three Articles of an Account: The *Receit* contains the Moneys received; the two others the Expence, and the Return or Ballance.

RECEIPT, or RESCEIT, in Law, is an Admiſſion, or receiving of any Perſon to plead his Right, in a Cauſe formerly commenc'd between two other Perſons.

As if a Tenant for Life, or Years, brings an Action; he in the Reverſion comes in, and prays to be *received*, to defend the Land, and to plead with the Demandant.

Reſceit is alſo applied to an Admittance of Plea, though the Controverſy be only between two.

Reſceit of Homage is the Lord's receiving Homage of his Tenant, at his admiſſion to the Land. See HOMAGE.

RECEIPT of the Exchequer, } See { EXCHEQUER.
RECEIPT, in Medicine, } See { RECIPE.

RECEIVER, a Veſſel uſed in Chymiſtry, Pneumaticks, *&c.* See RECIPIENT.

RECEIVER, is alſo an Officer; whereof there are various Kinds, denominated from the particular Matters they Receive, the Places where, or the Perſons for whom, *&c.*

As, *Receiver of Rents*: *Receiver* General of the Cuſtoms. See CUSTOMS.

Receiver of the Fines, upon Original Writs in Chancery.

Receiver General of the Dutchy of *Lancaſter*, who gathers all the Revenues and Fines of the Lands of the ſaid Dutchy, all Forfeitures, Aſſeſsments, *&c.* See DUTCHY, *&c.*

RECEIVER, RECEPTOR, and RECEPTATOR, in Law, is uſed commonly in the Evil Part, for ſuch as knowingly receive ſtollen Goods from Thieves, and conceal them.

The Crime is Felony, and the Puniſhment Tranſportation.

RECEPTACULUM *Chyli*, or *Ciſterna Chyli*, or RECEPTACULUM *Commune*, in Anatomy, a Reſervoir or Cavity near the left Kidney, into which the lacteal Veſſels do all Diſcharge their Contents. See LACTEAL.

This Receiver, call'd from its Inventor *Ductus Pecqueticus*, lies under the Emulgent and great Arteries, between the two Origins of the Diaphragma. Hither do the lacteal Veſſels of the ſecond Order, bring the Chyle after its being diluted, and render'd thinner by the Lympha in the Glands of the Meſentery. See CHYLE and MESENTERY.

In a Preparation of this Part, by filling it with Mercury, Mr. *Cowper* found it to conſiſt of three ſeveral large Trunks; two of them more than a Quarter of an Inch in Diameter.

This Diviſion is only obſerved in human Bodies, in whom Dr. *Drake* thinks its erect Poſition makes it neceſſary, in order to take off the Reſiſtance which would ariſe from the Preſſure of the Chyle and Lympha, were it contained in a ſingle Receiver. In Quadrupeds, its Horizontal Poſition may make one Trunk ſufficient.

Its *Oſculi* or Exit is upwards in the Thorax, and thence call'd the *Thoraic Duct*. See THORAIC DUCT.

RECEPTION, RECEPTIO, Receiving, in Philoſophy, the ſame with *Paſſion*, conſidered as oppoſed to *Action*.

The Schoolmen, however, make ſome Difference: The Receptive Paſſion, ſay they, does not tend to the deſtruction of the Being, as Paſſion does; but to the Perfection thereof: It is conceived as the Acquiſition of ſome new Reality or Modification, by means of the Action of another.

RECEPTION is alſo popularly uſed for the manner of treating or entertaining a Perſon; and of the Solemnities and Ceremonies practiced on that Occaſion.

The Queen of *Sweden's Reception* into *Paris* was one of the moſt Magnificent theſe Ages have ſeen. The *Reception* of Embaſſadors is uſually done with a great deal of Pomp.

RECEPTION, is ſometimes alſo uſed for the act of approving, accepting, and admitting a thing.

The Canon Law only binds where it is receiv'd: The Civil Law is received in ſome Countries.

The *French* would never receive the Council of *Trent*, the *Spaniſh* Inquiſition, nor the Dogmata of the Ultramoulane Canoniſts.

RECEPTION, in Aſtrology, is a Dignity befalling two Planets when they exchange Houſes; *e. gr.* when the Sun arrives in Cancer, the Houſe of the Moon; and the Moon, in her turn, arrives in the Sun's Houſe.

The Term is alſo uſed when two Planets exchange Exaltation.

RECESSION *of the Equinoxes*. See PRECESSION.

RECESSUS *Imperii, Receſs of the Empire*, a Phraſe uſed in ſpeaking of the Affairs of *Germany*; ſignifying a Collection of the Votes or Determinations of a Dyet. See DYET.

At the end of each Dyet, e're it breaks up, they gather together all their Reſolutions, and reduce them into Writing; the Act which contains them they call *Receſſus Imperii*, becauſe made when on the Point of retiring.

There being, now, no Articles of Succours for the War againſt the Turks, which uſed to make the greateſt Part of the *Receſſus Imperii*; they are at a loſs for Matter to fill them withall, as well as for the Manner of drawing them up. *Mozambano.*

The Diſorders in the Imperial Camber of *Spires* were ſo great, that in 1654, they made ſeveral Regulations therein; inſerted in the *Receſſus Imperii. Id.* See CHAMBER.

RECHABITES, a Kind of Religious Order among the antient *Jews*, inſtituted by *Jonathan* the Son of *Rechab*; comprehending his Family and Poſterity.

Their Founder preſcribed them three things; *Firſt*, Not to drink any Wine. *Secondly*, Not to build any Houſes, but to dwell under Tents. *Thirdly*, Not to ſow any Corn, or Plant any Vines.

The *Rechabites* obſerv'd theſe Rules with a great deal of ſtrictneſs, as appears from *Jeremy* xxxv. 6, *&c.*

Whence, St. *Jerom* in his xiii Epiſtle to *Paulinus*, calls them *Monachi, Monks*.

This *Jonathan* lived under *Joſias* King of *Judah*; his Father *Rechab*, from whom his Poſterity were denominated, deſcended from *Raguel* or *Jethro*, Father-in-law to *Moſes*, who was a *Cinean*, or of the Race of *Cin*; whence *Cinean* and *Rechabite*, are uſed as ſynonimous in Scripture.

RECHANGE, or RE-EXCHANGE, in Commerce, a ſecond Payment of the Price of Exchange; or rather the Price of a New Exchange, due upon a Bill of Excahnge that comes to be proteſted; and to be refunded the Bearer, by the Drawer, or Endorſer. See EXCHANGE.

The Occaſion of *Rechange* is, when the Bearer of a Bill of Exchange, after proteſting it for want either of Acceptance, or of Payment, borrows Money on his own Promiſe, Bond, or the like; or draws a Bill of Exchange in the Place where the Payment was to be made, on the Perſon who furniſhed the firſt; for which he pays a ſecond Exchange, which being added to the firſt already paid, the Drawer of the firſt Bill makes two Exchanges, properly call'd *Exchange* and *Re-exchange*. See BILL and PROTEST.

The Bearer of a proteſted Bill has a right to recover both the one and the other on the Drawer. Yet the ſimple Proteſtation the Bearer makes in the Act of *Proteſt*, that he will take up a like Sum at *Re-exchange*, for want of his Bill being accepted or paid; is not ſufficient to entitle him to demand the Reimburſement of his *Rechange*; unleſs he make it appear he has actually taken up Money in the Place whereon the Bill was drawn.

Otherwiſe, the *Rechange* will only amount to the Reſtitution of the firſt Exchange, with Intereſt, the Expences of Proteſting, and of the Journey, if there have been any.

If a Bill of Exchange, payable to the Bearer, or Order; come to be proteſted, the *Rechange* is only due upon the Drawer for the Place where the Remittance was made; not for thoſe Places where it may have been negotiated; at leaſt, the Drawer has a Right to be refunded his *Rechange* for thoſe Places, by the Endorſer.

Indeed the *Rechange* is due from the Drawer upon all Places where a Power of Negotiating is given by the Bill, and upon all others, if the Power of Negotiating be Indefinite.

Laſtly, The Intereſt of the *Rechange*, of the Expences of the Proteſt, and the Journey, are only due from the Day of the Demand.

'Tis ſuppoſed to be the *Gibelins* driven out of *Italy* by the Faction of the *Guelphs*, and ſhelter'd at *Amſterdam*, who firſt eſtabliſhed the Cuſtom of *Rechange*, on pretence of the Intereſts, Damages, and Expences they underwent, when the Bills given them for the Effects they had been obliged to abandon, were not accepted, but came to be proteſted. See BILL *of Exchange*.

RECHANGE is alſo uſed at Sea for ſuch Tackle as is kept in Reſerve aboard the Ship, to ſerve in Caſe of failure of that already in Uſe. See TACKLE.

The *Levantines* uſe the Word *Reſpect*, or *Reſpit* in the ſame Senſe.

RECHARGE, of a Fire-Arm, is a ſecond loading or Charge. See CHARGE.

The *Recharge* ſhould never be ſo deep as the firſt Charge, leaſt the Piece being over-heated ſhould burſt.

RECHACING, in Hunting, the driving back of the Deer, or other Beaſts, into the Foreſts, Chaces, *&c.* which had ſtragled out into the Copſes, or Thickets, *&c.* See FOREST, *&c.*

Antiently there were Offices of *Rechacers* of the Deer, beſtowed by the King on Gentlemen, or old Hunters, with Salaries for the keeping of running Dogs, to *rechace* the Deer into the Foreſts, and then to beat them off, without purſuing any farther. See PURLIEU.

RECHEAT, in Hunting, a Leſſon which the Huntſman winds on the Horn, when the Hounds have loſt their Game; to call them back from purſuing a Counter-ſcent.

RECIPE, in Medicine, a Preſcription, or *Formula* of a Remedy, appointed to be adminiſtred to a Patient. See PRESCRIPTION.

'Tis thus call'd, becauſe always beginning with the Word *Recipe*, Take; ordinarily expreſs'd by ℞.

RECIPIANGLE, or RECIPIENT-ANGLE, a Mathematical Inſtrument, ſerving to take the Quantity of Angles, eſpecially in the making of Plans of Fortifications.

The *Recipiangle* is a popular Inſtrument among the *French*, but little known among us: 'Tis uſually very ſimple; in Form of a Square, or rather a Bevel; conſiſting of two Arms or Branches, riveted together, and yet moveable, like a Sector on the Centre or Rivet.

To take an Angle with it, they lay the Centre of the Protractor to the Joint, and the Degrees cut by the Edge ſhew the Quantity of the Angle: Otherwiſe the Angle made by the two Rulers is drawn on Paper, and then meaſured with a Protractor.

Sometimes there is a Circle divided into Degrees, added over the Centre or Rivet, with an Index to ſhew the Degrees without a Protractor: At other times the under Branch is divided.

To meaſure a Saliant Angle with any of the *Recipiangles*, apply the Inſides to the Lines that form the Angle; for a re-entering Angle, apply the outſides, *&c.*

RECIPIENT, RECEIVER, in Chymiſtry, an Appendage of an Alembic, Retort, *&c.* being a Veſſel luted to the Beak thereof, to receive the Liquor rais'd in Diſtillation, *&c.* See ALEMBIC, RETORT, DISTILLATION, *&c.*

RECIPIENT is alſo Part of the Apparatus of an Air Pump; being a Glaſs Veſſel placed a-top of the Plate, for the Air to be exhauſted from. See AIR-PUMP.

To an Air-Pump belong various *Recipients*, of various Forms and Sizes, and ſerving for various Purpoſes. See VACUUM.

RECIPROCAL, ſomething that is Mutual, or which is return'd equally on both Sides, or affects both Parties alike. See MUTUAL.

Thus, we ſay, the end of Human Society is to afford each other *reciprocal* Aid.—There are *reciprocal* Duties between the Prince and his Subjects, the Husband and Wife, *&c.*

The *Lex Talionis* eſtabliſhes a kind of *Reciprocation* of Juſtice.

There is a *Reciprocal* Action between the Agent and Patient. See REACTION.

If two ſimilar Triangles be cut by Parallel Lines, the Sections of the Lines will be Proportional; and *Reciprocally*, if the Sides be cut Proportionably, the Sides are ſimilar. See TRIANGLE.

RECIPROCAL, in Logick, is applied to Terms which have the ſame Signification, or are convertible; as *Reaſonable Animal*, and *Man*. See CONVERTIBLE and TERM.

The Schoolmen define *Reciprocation*, a Converſion of the ſeveral Terms in an Enunciation. And Terms are ſaid to be converted in an Enunciation, when the Predicate is put in the Place of the Subject, and *reciprocally*, the Subject in that of the Predicate.

Thus Rationality and Riſibility are ſaid to *reciproacte*; for we ſay, equal a Rational is Riſible; and a Riſible is Rational.

RECIPROCAL, in Grammar, is applied to certain Verbs and Pronouns, in ſome of the Modern Languages; in regard of their turning or reflecting the Noun, or Perſon upon himſelf.

Thus the Pronoun-relative *himſelf*, refers *Cato* to *Cato's* ſelf. See PRONOUN.

The *Abbe de Dangeau*, defines *Reciprocal Verbs* to be thoſe whoſe Nominative is Plural, and denotes Perſons acting mutually on one another: As, *Ces quatre hommes s' entrebattoient*; Theſe four Men fought together. *Pierre & toi vous vous louez*; *Peter* and you Praiſe one another, *&c.*

Reciprocal Verbs are a Species of thoſe which that Author calls *Pronominals*, and which he diſtinguiſhes into *Reciprocal* and *Identical*. See VERB.

RECIPROCAL, in Poetry, is applied to Verſes which run the ſame both backwards and forwards; call'd alſo *Recurrents*. See RECURRENTS.

RECIPROCAL *Figures*, in Geometry, are ſuch as have the Antecedents and Conſequents of the ſame Ratio in both Figures; as *Tab. Geometry Fig.* 22. Here,

$$A : B :: C : D, \text{ Or,}$$
$$12 : 4 :: 9 : 3$$

That is, as much longer as the Side A, in the firſt Rectangle, is than B; ſo much deeper is the Side C in the ſecond Rectangle, than the Side D in the firſt: and conſequently, the Length of one is compenſated by the Depth of the other.

Alſo as the Side A is $\frac{1}{4}$ longer than the Side C, ſo the Side B is $\frac{1}{4}$ longer than D: Wherefore the Rectangles muſt needs be equal. See RECTANGLE.

This is the Foundation of that Catholick Theorem; that the Rectangle of the Extremes muſt always be equal to that of the Means: And conſequently, the Reaſon of the Rule of Three, or Golden Rule. See RULE.

For, ſuppoſe there was given any three Numbers, or Quantities, Geometrically Proportional, as A, B, and C; and that it were required to find a fourth, D, Proportional to them: Since A : B : : C : D, therefore $AD=BC$, and conſequently, $D=\frac{BC}{A}$, that is, the fourth Term is equal to the Quotient of the ſecond, multiplied by the third Term, divided by the firſt.

Or thus, in Numbers: Suppoſe given 12, 4, and 9; required a fourth Proportional. Now as 12 : 4 : : 9 : Q. But 12 $Q=4\times 9=36$. Therefore $Q=\frac{4\times 9}{12}$ (: 3. by dividing both Sides by 12.

And hence it follows, that if any two Triangles, Parallelograms, Priſms, Parallelopipeds, Pyramids, Cones, or Cylinders, have their Baſes and Altitudes *reciprocally* Proportional, thoſe two Figures or Solids are equal to one another; and *vice verſa*, if they are equal, their Baſes and Altitudes are *reciprocally* proportionable. See Triangle, Parallelopiped, Priſm, Cone, Cylinder, *&c.*

Reciprocal *Proportion*, is when in four Numbers, the fourth is leſſer than the ſecond, by ſo much as the third is greater than the firſt; and *vice verſa*.

This is the Foundation of the Inverſe, or indirect Rule of Three, thus; 4 : 10 : 8 : 5 : See Rule.

There is great Uſe made of this *Reciprocal Proportion*, by Sir *Iſaac Newton*, and others, in demonſtrating the Laws of Motion. See Proportion.

RECITATION, the Act of *reciting*, or delivering a Diſcourſe, either in the way of Narration, Rehearſal, Declamation, or Reading.

RECITATIVE *Muſic*, a Kind of Singing, that differs but little from ordinary Pronunciation; ſuch as that wherein ſeveral Parts of the Liturgy are rehears'd in Cathedrals; or that wherein the Actors ordinarily deliver themſelves on the Theatre, at the Opera, *&c.* See Singing and Opera.

The *Italians* value themſelves on their Performance in the *Recitative* Way. The *Recitatives*, or *Recitativo's*, in our Opera's, uſually tire the Audience, by reaſon they don't underſtand the Language; the Songs make them amends. See Song.

Recitative *Style*, is the Way of Writing accommodated to this Sort of Muſic. See Style.

RECKONING, in Navigation, the eſtimating of the Quantity of the Ship's Way; or of the run between one Place and another. See Sailing and Distance.

This is beſt perform'd by means of the *Log-Line*; the manner of applying which ſee under its proper Article, Log-Line.

Yet is this liable to great Irregularities.—*Vitruvius* adviſes an Axis to be paſs'd through the Sides of the Ship, with two large Heads propending out of the Ship; wherein are to be included Wheels touching the Water, by whoſe Revolution the Space paſs'd over in any given time, may be meaſured. The ſame has been lately recommended by *Snellius*: But there are few who have wrote of Navigation, but have ſhewn the inſufficiency of this Method.

RECLAMING, or Reclaiming, in our antient Cuſtoms, the Action of a Lord purſuing, proſecuting, and recalling his Vaſſal, who had gone to live in another Place, without his Permiſſion. See Lord and Vassal.

Reclaiming is alſo uſed in a ſimilar Senſe, for the demanding of a Perſon or thing to be delivered up, or ſurrender'd, to the Prince or State it properly belongs to; when, by any irregular Means it has come into the Poſſeſſion of another. See Claim.

An Officer was ſent to reclaim the Veſſel ſeiz'd by the *Algerines*, contrary to the Terms of the Treaty of Peace. The Miniſtry reclaim'd the late Caſhier of the *South-Sea* Company, who had refuged himſelf in *Flanders*, but in vain.

Reclaiming, in Falconry, is the Calling of a Hawk, or Bird of Prey back to the Fiſt,

The Sparrow-Hawk, Goſſe-Hawk, *&c.* are *reclaimed* with the Voice: The Falcon only by ſhaking the Lure.

So that Luring, with regard to the Falcon, is more proper than *Reclaiming*. See Lure.

The Partridge is alſo ſaid to *relaim* her Young ones, when ſhe calls them together upon their ſcattering too much.

RECLINATION, of a Plane in Dialling, the Number of Degrees which a Dial-Plane leans backwards, from an exactly upright or vertical Plane, *i. e.* from the Zenith. See Plane.

The *Reclination* is eaſily found, by means of a Ruler and a Quadrant; for having drawn an Horizontal Line on the Plane, by a Level or Quadrant, and to it another Line at Right Angles; apply a Ruler, ſo that one End of it may hang over, or reach beyond the Plane: Then will a Quadrant, applied to the under Edge of the Ruler, ſhew the Degrees and Minutes of the Plane's *Reclination*; accounting from that Side of the Quadrant that is contiguous to the Edge of the Ruler. See Dial, Quadrant, *&c.*

RECLINER, in Dialling, or Reclining *Dial*, is a Dial whoſe Plane *reclines* from the Perpendicular; *i. e.* leans from you when you ſtand before it. See Reclination.

When this Reclination is equal to the Height of the Pole, the Dial is ſaid to be *Equinoctial*.

A *Declining* Recliner, or *Declining* Reclining *Dial*, is a Dial which neither ſtands perpendicularly, nor oppoſite to one of the Cardinal Points. See Decliner.

RECLUSE, among Religious, a Perſon cloſe ſhut up in a very narrow Cell of a Hermitage, or other Religious Houſe; and cut off, not only from all Converſation of the World, but even of the Houſe. See Hermit, *&c.*

The Word is chiefly uſed for ſuch as thus impriſon themſelves out of Devotion, to do Penance. It is ſometimes alſo applied to incontinent Wives, whom their Husbands procure to be thus kept in a perpetual Priſon in ſome Convent. See Convent, *&c.*

Recluſes were antiently very numerous: They were, then, a kind of Solitaries who ſhut themſelves up in ſome little Cell, with a Vow never to ſtir out of it. See Solitary.

None were admitted to this Oath 'till they had given ſufficient Proofs of their Abſtinence, and had leave from the Biſhop, or the Abbot of the Monaſtery where they were ſhut up; for the Cells of the *Recluſes* were always to join to ſome Monaſtery.

The Prelates Permiſſion being obtain'd, they were tried for a Year in the Monaſtery; out of which, during that time, they never ſtirr'd. See Probation.

They were then admitted to their Vow of Stability, in the Church before the Biſhop; which done, and the *Recluſe* enter'd his little Cell, the Biſhop ſet his Seal on the Door.

The Cell was to be very ſmall, and very exactly cloſed. See Cell.

The *Recluſe* was to have every thing within it neceſſary to life; and, even, if he were a Prieſt, an Oratory conſecrated by the Biſhop, with a Window which look'd into the Church, through which he might make his Offerings at the Maſs, hear the Singing, ſing himſelf with the Communicants, and anſwer thoſe who talk'd to him. But this Window was to have Curtains before it, both within-ſide and without; ſo that the *Recluſe* might neither ſee nor be ſeen.

Indeed he was allow'd a little Garden in his *Recluſion*, to Plant a few Herbs, and take freſh Air: Adjoining to his Cell was that of his Diſciples, which he was very rarely without, with a Window, through which they ſerv'd him with Neceſſaries, and received his Inſtructions.

When it was judg'd proper to have two or three *Recluſes* together, their Cells were made Contiguous to each other, with Windows of Communication: If any Women would conſult them, or confeſs to them, it was to be in the Church, and in the Face of all the World.

Where there were two or three *Recluſes* together, they were never to hold any Conference, but on ſpiritual Matters; and to confeſs to each other: Where there was but one, he was to confeſs and examine himſelf.

If the *Recluſe* fell ſick, his Door was opened for People to come in and aſſiſt him; but he was not allowed to ſtir out on any Pretence whatever.

Theſe Articles are extracted from a Rule, compiled for the *Recluſes*, by *Grimlaic*, a Prieſt in the IXth Century.

There were alſo Women *Recluſes*, who led the ſame Life, in Proportion. St. *Viborarde* lived a *Recluſe* at St. *Gall*, and was there martyriz'd by the *Hungarians* in 825. See Reclusion.

RECLUSION, the State of a Recluſe; or the Cell and other Appurtenances thereof. See Recluse.

F. *Helyot* gives a particular Account of the Ceremonies practiced at the *Recluſion* of a Woman, in that of the Mother of *Cambray*, Inſtitutrix of the Order of the Preſentation of *Notre Dame*.

A Cell being built for her in 1625, adjoining to the Church of St. *Andrew* in *Tournay*: The Biſhop waited for her early in the Morning at the Church Door. Upon her Arrival, proſtrating her ſelf at the Feet of that Prelate, he gave her his Benediction, conducted her to the Grand Altar; and, there bleſſing a Mantle, Veil, and Scapulary, put them on her, and gave her a new Name.

Having here made her Vow, and the Biſhop having harangued the People in Praiſe of the new *Recluſe*; he conducted her Proceſſionally to her *Recluſion*, the Clergy all the way ſinging, *Veni Sponſa Chriſti*, &c.

Here the Biſhop bleſſing her a-freſh, conſecrated the *Recluſion*, and ſhut her up in perpetual Confinement.

RECOGNITION, an Acknowledgement.

The Word is particularly uſed in our Law Books, for the Title of the firſt Chapter of the *Stat.* 1 *Jacob.* I. whereby the Parliament acknowledged the Crown of *England*, after the Death of Queen *Elizabeth*, to have rightfully deſcended to King *James*.

Recognition, in the Drama. See Discovery.

RECOGNITIONE *adnullanda per vim & duritiem facta*, is a Writ to the Juſtices of the Common-Bench, for ſending a Record touching a Recognizance, which the Recognizor ſuggeſts to have been acknowledged by Force and hard dealing; that if it ſo appear it may bediſannulled. See Recognizance.

RECOGNIZANCE, or RECOGNISANCE, in Law, a Bond, or Obligation of Record, teſtifying the *Recogniſor* to owe to the *Recogniſee*, a certain Sum of Money. See BOND.

It is *recognized*, or acknowledged in ſome Court of Record, or before ſome Judge, Maſter in Chancery, or Juſtice of the Peace.

Mere *Recognizances* are not ſealed, but enrolled; and Execution, by force thereof, is of all the Recogniſor's Goods or Chattels, (except draught Beaſts, or Implements of Huſbandry) and the Moiety of his Lands.

RECOGNIZANCE is alſo uſed in our antient Statutes, for the Verdict of the twelve Jurors impanelled upon an Aſſize; hence called *Recognitors*. See JURY and VERDICT.

RECOGNISEE, is he to whom one is bound in a Recognizance.

RECOIL, or REBOUND, the Reſilition of a Body, chiefly a Fire-Arm; or the Motion whereby, upon Exploſion, it ſtarts backwards. See GUN, MORTAR, *&c.*

The greater the Charge, *cæteris paribus*, the greater the Rebound.—By an Experiment made by the Royal Society, and related in the *Philoſoph. Tranſact.* it was found that Cannons charg'd to a certain Degree, throw the Ball from right to left of their own Direction; but that the Cannons themſelves *Recoil* from left to right.

Some of the Gentlemen of the *French* Academy, doubting the Juſtneſs of the Obſervation, M. *Caſſini*, the younger, undertook to repeat the Experiment; which he did by means of a Machine, as like that of *England* as he could; and that tried over, and over again.

The Reſult was, that the Ball, when the Gun had liberty to *recoil*, was always thrown to the right of the Point to which it was thrown when the Gun was fix'd without a poſſibility of rebounding; but then the *Recoil* was always made the ſame way, *viz.* to the right; and he never found that contrariety of Directions between the Ball and the Rebound, obſerv'd in the *Engliſh* Experiment.

RECOLLECTION, a Mode of Thinking, whereby thoſe Ideas ſought after by the Mind, are with Pain and Endeavour found, and brought again to view. See MEMORY and REMINISCENCE. See alſo MODE, THINKING, *&c.*

RECOLLECTS, a Congregation of reform'd *Franciſcans*, call'd alſo *Friars Minor of St. Francis, of the ſtrict Obſervance.* See FRANCISCAN.

They were eſtabliſhed about the Year 1530; when, ſome Religious of the Order of St. *Francis*, willing to keep his Rule to the Letter; *Clement* VII. gave them Houſes, particularly *Tulles* in the *Limoſin*, and *Murat* in *Auvergne*, whether they might retire, and receive ſuch as were diſpoſed to follow them.

The ſame Year he approved the Reform; and in 1584 it was carried into *Italy*. See REFORM.

RECONCILIARI, in our old Law-Books, *&c.* A Church is ſaid *reconciliarii*, to be *reconciled*, when 'tis conſecrated a-freſh, after having been polluted or profaned; as by the Poſſeſſion of Pagans or Hereticks, *&c.* See CHURCH, CONSECRATION, PROFANATION.

RECONNOITRE, in War, to go view and examine the State of things, in order to make a report thereof.

Thus we ſay, a Body of Horſe were ſent to *Reconnoitre* the Enemy's Army, to *Reconnoitre* their Camp, the Ground, the Condition of the Roads, Rivers, *&c.*

To *Reconnoitre* the Coaſts, to *Reconnoitre* a Port, *&c.*

A General is to go *Reconnoitre* in Perſon, the Place to be beſieged, in order to learn its Situation, Avenues, its Strengths and Weakneſſes.

The Word is pure *French*, ſignifying litterally, to *know*, recollect.

RECONNOITRE is alſo uſed at Sea: thus, to *Reconnoitre* a Veſſel, a Fleet, *&c.* is to approach near enough to examine the Rate and Burthen of a Veſſel, *&c.* the Force it may have a-board, what Nation it is of, *&c.*

To *Reconnoitre* a Land or Shore, is to obſerve its Situation, in order to find what Land it is.

RECORD, in Law, an authentick and uncontroulable Teſtimony of any thing in Writing, contain'd in Rolls of Parchment, and preſerv'd in Courts; thence call'd Courts of *Record*. See COURT, ROLL, *&c.*

Records are ſaid to be *vetuſtatis & veritatis, Veſtigia.*

An Act committed to Writing in any of the King's Courts, during the Term wherein it is written, is alterable; being no *Record*; but that Term once ended, and the Act enrolled, it is a *Record*, and of that Credit, that admits no Alteration or Proof to the contrary.

Lawyers reckon three ſorts of *Records*; *viz.* a Judicial *Record*, as Attainder, *&c.* a Miniſterial *Record* upon Oath, as an Office of Inquiſition found; and a *Record* made by Conveyance and Conſent, as a Fine, or Deed enrolled, and the like.

RECORD, among Fowlers: a Bird is ſaid to *record*, when it begins to tune or ſing within itſelf; to form its Notes, and diſpoſe its Organs for ſinging.

The Cock Thruſh is diſtinguiſhed from the Hen in *recording*; the firſt being more loud and frequent than the ſecond.

RECORDARE *facias*, a Writ directed to the Sheriff to remove a Cauſe depending in an inferiour Court, as Hundred-Court, County-Court, Court of antient Demeſne, *&c.* to the King's-Bench, or Common-Pleas.

'Tis thus call'd becauſe it commands the Sheriff to make a Record of the Proceedings either by himſelf or others; and then to ſend up the Cauſe.

RECORDER, a Perſon whom the Mayor, or other Magiſtrate of any City or Town Corporate having Juriſdiction or a Court of *Record* within their Precincts, does aſſociate with him, for his better Direction in Matters of Juſtice, and Proceedings according to Law. See MAYOR, *&c.*

He is uſually a Man verſed and experienced in the Common Law.—In ſome Towns which have their particular Aſſizes within themſelves, and no Mayor, the *Recorder* is the Judge.

RECORDO *& proceſſu mittendis*, is a Writ to call a Record, together with the whole Proceedings in the Cauſe, out of an inferiour Court into the King's Court.

RECOVERY, in a Legal Senſe, an obtaining of any thing by Judgment, or Trial at Law; anſwering to the *Evictio* of the Civilians.

There is a *true*, and a *feigned Recovery*.

True Recovery is an actual or real *Recovery* of any thing, or the value thereof, by Judgment; as if a Man ſue for any Land, or other thing, and have a Verdict and Judgment for him.

A *feigned*, or *common Recovery*, call'd by the Civilians, *quædam fictio Juris*, is a certain Form or Courſe preſcribed by Law to be obſerved for the better aſſuring of Lands and Tenements to us; the end and effect whereof is to diſcontinue and deſtroy Eſtates Tail, Remainders, and Reverſions, and to bar the Intails thereof. See TAIL, REMAINDER, REVERSION, *&c.*

This *Recovery* is either with a *ſingle*, or a *double Voucher*.

In the firſt there are three Parties required, the *Demandant*, the *Tenant*, and the *Vouchee*.

The Demandant is he who brings the Writ of Entry, and may be term'd the *Recoverer*: The Tenant is he againſt whom the Writ is brought, and may be call'd the *Recoveree*.

The Vouchee is he whom the Tenant Voucheth, or calls to Warrant for the Land in Demand. See VOUCHEE.

A *Recovery* with double Voucher, is where the Tenant voucheth one, who voucheth another, or the common Vouchee.

The Point is a little quaint and perplex'd: To explain it; Suppoſe a Man deſirous to cut off an Eſtate Tail in Lands or Tenements, to the End that he may ſell, give, or bequeath them; the firſt thing he does, is to cauſe a feign'd Writ of Entry, *ſur Deſſeiſin in le poſt*, to be brought, of the Lands of which he intends to dock the Entail; and in a feign'd Declaration thereupon made, pretends he was deſſeis'd by him, who by a feign'd Fine, or Deed of Bargain and Sale, is named and ſuppoſed to be Tenant of the Lands.

This feign'd Tenant, if it be a ſingle *Recovery*, is made to appear and vouch a poor Fellow, the Bag-bearer of Writs of the *Cuſtos brevium* of the Common-Pleas; (where alone theſe common *Recoveries* are allowed) who makes Default: Upon which a Judgment is by this Fiction enter'd, that the Demandant ſhall recover, and have a Writ of Seiſin for the Poſſeſſion of the Lands in Queſtion; and that the Tenant ſhall recover the Value of the Lands againſt the Lands of the Vouchee Bag-bearer, (who has not a Foot) which is an imaginary Satisfaction for the Heir in Tail, though he is to be never the better for it.

By this means one *Edward Howes*, a Bag-bearer, and common Vouchee, in the ſpace of 20 Years, paſs'd, or ſuffer'd to be recover'd againſt him, a great Part of the Lands of *England*; obliging his own Lands to anſwer the Value of thoſe recover'd againſt the Tenants or Remainders in Tail.

RECOUPE, in Law, to Rebate or Diſcount. See REBATE and DISCOUNT.

Thus, if a Man have ten Pounds iſſuing out of certain Lands, and he Diſſeiſes the Tenant of the Land; in an Aſſize brought by the Diſſeiſee the Diſſeiſor ſhall *recoupe* the Rent in the Damages.

The Word is pure *French*, form'd of *re* and *Couper*, to cut again.

A RECOUPE is alſo a quick, ſharp Reply to a peremptory Demand. See REPARTEE.

RECREANT, in our old Law-Books, implies Cowardly, Faint-hearted. See CHAMPION, COMBAT and DUEL.

Hence, *Recreantiſe*. See CRAVEN.

Recreant was ſo reproachful a Word, that *Glanville* would not deſcribe it.

Recreantes Equi is uſed by *Fleta*, lib. 2. cap. 2. for dull, jaded Horſes.

RECREMENT, *Fæces*, in Medicine, *&c.* ſome ſuperfluous Matter mixed with other that is uſeful. See FÆCES.

Sometimes it alſo ſignifies ſuch ſecreted Juices in the Body, as are afterwards of uſe to the OEconomy; as the Lympha, Gall, *&c.* which are thus called in contradiſtinction to *Excrements*, which are expell'd out of the Body, as of no further uſe. See EXCREMENT.

RECRIMINATION, a Poſterior Accuſation brought by the accuſed againſt his Accuſer, upon the ſame Fact.

When two Parties have made their mutual Complaint at the ſame time; the Buſineſs is firſt, to determine who ſhall be the Accuſer, and who the Accuſed; *i. e.* on whom ſhall fall the *Recrimination*.

Recrimination is of no force till the Criminal have been purged legally.

RECRUDESENCE, in Medicine, is when a Diſeaſe that was gone off returns again. See RELAPSE.

RECTANGLE, in Geometry, call'd alſo *Oblong*, and *long Square*, a Quadrilateral rectangular Figure, (MLIK, *Tab. Geometry, Fig.* 60.) whoſe oppoſite Sides (OP and NQ, as alſo ON and PQ) are equal. See QUADRILATERAL.

Or, a *Rectangle* is a Parallelogram, whoſe Sides are unequal, but Angles right. See PARALLELOGRAM.

To find the Area of a Rectangle; Meaſure the length of the Sides ML and MI; and multiply them by one another: The Product is the Area of the *Rectangle*.

Thus ML being 345 Foot, and MI = 123 Foot; the Area will be found 42435 Square Feet.

Hence, 1°, *Rectangles* are in a Ratio compounded of that of their Sides ML and IK; and therefore *Rectangles* which have the ſame Height, are to each other as their Baſes; and thoſe which have the ſame Baſe are to each other as their Heights.

2°, If therefore there be three Lines in continual Proportion, the Square of the middle one is equal to the *Rectangle* of the two Extremes. See PROPORTION.

3°, If there be four right Lines in continual Proportion; the *Rectangle* under the Extremes is equal to the *Rectangle* under the middle Terms.

4°, If from the ſame Point A *Fig.* 41. be drawn two Lines; one whereof, AD, is a Tangent to a Circle, the other a Secant AB: the Square of the Tangent AD, will be equal to the *Rectangle* under the Secant AB; and that Part of it without the Circle, AC.

5°, If two or more Secants A*a*, AB, *&c.* be drawn from the ſame Point A; the *Rectangles* under their Wholes and their Parts without the Circle, will be equal. See SECANT.

6°, If two Chords interſect each other, the *Rectangles* under their Segments will be equal. See CHORD.

RECTANGLE, in Arithmetick, is the ſame with *Product* or *Factum*. See PRODUCT and MULTIPLICATION.

RECTANGLED, RIGHT-ANGLED, *Triangle*, is a Triangle, one of whoſe Angles is right, or equal to 90°.

There can be but one right Angle in a plain Triangle; therefore a *rectangled* Triangle, cannot be equilateral. See TRIANGLE.

RECTANGLAR, in Geometry, is applied to Figures, and Solids which have one or more Angles, Right. See ANGLE, *&c.*

Such are Squares, Rectangles, and rectangled Triangles among plain Figures; Cubes, Parallelipipeds, *&c.* among Solids. See FIGURE, SOLID, *&c.*

Solids are alſo ſaid to be *Rectangular* with reſpect to their Situation: Thus, if a Cone, Cylinder, *&c.* be Perpendicular to the Plane of the Horizon, 'tis called a *Rectangular* or *Right Cone*; a *Rectangular*, &c. Cylinder. See CONE and CYLINDER.

The Antients uſed the Phraſe *Rectangular Section of a Cone*, to denote a *Parabola*; that Conic Section, before *Apollonius*, being only conſidered in a Cone whoſe Section by the Axis would be a Triangle, Right-angled at the Vertex.

Hence it was that *Archimedes* entitled his Book of the Quadrature of the Parabola, by the Name of *Rectanguli Coni Sectio*.

RECTIFICATION, the Act of *Rectifying*, i. e. of correcting, remedying, or redreſſing ſome Defect or Error, in reſpect either of Nature, Art, or Morality. See RIGHT, RECTITUDE, *&c.*

The Word is compound of *rectus*, right, direct, and *fio*, I become.

RECTIFICATION, in Chymiſtry, is the repeating of a Diſtillation or Sublimation ſeveral times; in order to render the Subſtance purer, finer, and freer from Aqueous, or Earthy Parts. See DISTILLATION.

Rectification is a reiterated Depuration of a diſtill'd Matter, *e. gr.* Brandy, Spirits, or Oils; by paſſing them again over their Fæces, or Marc, to render them more ſubtile, and exalt their Virtues. See SPIRIT, *&c.*

Fix'd Salts are rectified by Calcination, Diſſolution, or Philtration. See SALT, DISSOLUTION, *&c.*

Metals are *rectified*, i. e. *refined*, by the *Couppel*; Regulus's, by repeated Fuſions, *&c.* See METAL, REFINING, *&c.*

RECTIFICATION, in Geometry, is the finding of a right Line equal to a Curve. See CURVE.

All we need to find the Quadrature of the Circle, is the *Rectification* of its Circumference; it being demonſtrated, that the Area of a Circle is equal to a Rectangled Triangle, whoſe two Sides comprehending the right Angle, would be the Radius, and the right Line equal to the Circumference. See CIRCLE and CIRCUMFERENCE.

To *rectify* the Circle, therefore, is to *Square* it: Or rather, both the one and the other are impoſſible.

For the various Attempts to rectify the Circle, in order to the Quadrature, *&c.* See QUADRATURE *of the Circle*.

The *Rectification of Curves* is a Branch of the higher Geometry; wherein the uſe of the new-invented Integral Calculus, or Inverſe Method of Fluxions, is very conſpicuous.—For, ſince a Curve Line may be conceived to conſiſt of innumerable right Lines, infinitely ſmall; if the Quantity of one of them be found, by the differential Calculus; their Sum, found by the Integral Calculus, gives the length of the Curve.

Thus, ſince MR $= dx$, mR $= dy$; and therefore Mm, or the Element of the Curve will be $\surd dx^2 + dy^2$.

If then, from the differential Equation, we ſubſtitute the Value either of dx^2, or of dy^2, to the particular Curve, we ſhall have the particular Element, which being integrated, gives the length of the Curve. See CALCULUS, *Integralis* and FLUXIONS.

Indeed, the Element of the Curve is ſometimes more commodiouſly determined from ſome particular Circumſtances; Inſtances whereof we ſhall give in the *Rectification of the Parabola* and *Cycloid*.

To rectify the Parabola.

For, the Parabola, we have $adx = 2ydy$

$$a^2dx^2 = 4y^2dy^2$$

$$dx^2 = 4y^2dy^2 : a^2$$

$$\surd(dx^2 + dy^2) = \surd(dy^2 + 4y^2dy^2 : a^2) = dy\surd(aa+4yy:a$$

To render this Element of the Curve Integrable; let it be reſolv'd into an Infinite Series; (See SERIES.) Then in a general Theorem,

$$n=2 \quad m=1 \quad P=a^2 \quad Q=4y^2 : a^2 \quad Pm : n = a = A$$

$$\frac{m}{n}\ AQ = \tfrac{1}{2}a.\ 4y^2 : a^2 = -2y^2 : a = B.$$

$$\frac{m-n}{2n}\ BQ = -\tfrac{1}{4}.\ \frac{2y^2}{a}\ \frac{4y^2}{a^2} = -\frac{2y^4}{a^3} = C$$

$$\frac{m-2n}{3n}\ CQ = -\tfrac{3}{6} - \frac{2y^4}{a^3}\ \frac{4y^2}{a^2} = \frac{4y^6}{a^5} = D$$

$$\frac{m-3n}{4n}\ DQ = -\tfrac{5}{8}\ \frac{4y^6}{a^5}\ \frac{4y^2}{a^2} = -\frac{10y^8}{a^7},\ \&c.\ \text{in Infinitum.}$$

Wherefore, $dy\surd(aa+4yy) : a = dy + \frac{2y^2dy}{a^2} - \frac{2y^4dy}{a^4} + \frac{4y^5dy}{a^6} - \frac{10y^8dy}{a^8}$, *&c.* Whoſe Integral $y + \frac{2y^3}{3a^2} - \frac{2y^5}{5a^4} + \frac{4y^7}{7a^6} - \frac{10y^9}{9a^8}$, *&c.* Whoſe Infinite expreſſes the Parabolic Arch AM. *Tab. Analyſis, Fig.* 18.

Hence, *Firſt*, Let AC, and DC (*Tab. Analyſis, Fig.* 19.) be the Conjugate Axes of an Equilateral Hyperbola; then will AC = DC = a. Suppoſe MP $= 2y$, QM $= x$; then will AP $= x - a$; conſequently, by reaſon PB. AP = PM^2 $xx - aa = 4yy$, and hence $xx = 4yy + aa$; conſequently, $x = \surd(4yy + aa)$. If then qm be ſuppoſed Infinitely near QM, we ſhall have Q$q = dy$; and therefore the Element of the Area CQMA $= dy\surd(aa+4yy.)$ The *Rectification* of the Parabola therefore depends on the Quadrature of the Hyperbolic Space.

It is to be here noted that all Integrations or Summations, are reduced to the Quadratures of Curves; in what Caſes ſoever they be uſed, ſo that to have them perfect, the Rule laid down under *Quadrature of the Logiſtic Curve*, muſt be obſerved throughout.

To Rectify the Cycloid.

Let AQ $= x$ AB $= 1$, then will Qq = MS $= dx$, PQ $= \surd(x - xx)$. And hence: AP $= \surd x = x1 : 2$; conſequently by reaſon of the Similitude of the Triangles APQ and MmS,

$$AQ : AP :: MS : Mm$$

$$x : x1 : 2 :: dx : x-1 : 2dx.$$

Therefore *Mm* is the differential of the Cycloidical Arch AM $= x2- : 2dx$. Wherefore $\int x-1 : 2dx = 2x^1 : 2 = 2$AP is the Arch AM.

The *Rectification* of Curves Mr. *de Moivre* ſhews may be obtain'd by conſidering the Fluxion of the Curve as an Hypothenuſe of a Rectangular Triangle, whoſe Sides are the Fluxions of the Ordinate and Abſciſſa: Care being taken in the Expreſſion of this Hypothenuſe, that only one of the Fluxions be remaining, as alſo only one of the indeterminate Quantities, *viz.* that whoſe Fluxion is retained: an Example will render this clear.

The Right Sine CB (*Fig.* 20.) *being given, to find the Arch AC.* —Let AB $= x$. CB $= y$. OA $= r$. CE the Fluxion of the Abſciſſe, ED the Fluxion of the Ordinate, CD the Fluxion of the Arch CA. From the Property of the Circle $2rx - xx = yy$, whence $2r\dot{x} - 2x\dot{x} = 2y\dot{y}$, and therefore $\dot{x} = y\dot{y}$: But CDq $= \ddot{yy} + \ddot{xx} = \ddot{yy} + \overline{r-x}\ \frac{y^2\ddot{yy}}{rr-2rx+xx} = \ddot{yy} + \frac{y^2\ddot{yy}}{rr-yy} = \frac{rr\ddot{yy}}{rr-yy}$; therefore CD $= \frac{r\dot{y}}{\surd rr-yy} = \frac{1}{\surd rr-yy} + r\dot{y} = r\dot{y} + \overline{rr-yy}^{\,-\frac{1}{2}}$

And conſequently, if $rr-yy$ be thrown into an infinite Series, and the ſeveral Members of it be multiplied into $r\dot{y}$, and then the flowing

owing Quantity of each be taken, we ſhall have the Length of e Arch AC.

RECTIFIED *Spirits*, &c. are ſuch as have undergone the Operation of *Rectification*, or have been diſtill'd over and over, o ſeperate from them any heterogeneous Matter, which might ave ariſen with them in the former Diſtillations. See Rectification.

Hence we ſay, *Spirit of Wine twice rectified, thrice rectified*, &c. See Spirit.

'Tis the Rectification that makes the Difference between Brandy and *rectified* Spirits of Wine. See Brandy.

RECTIFIER, in Navigation, is an Inſtrument uſed for determining the Variation of the Compaſs, in order to *rectify* the Ship's Courſe, *&c.* See Variation and Course.

It conſiſts of two Circles, either laid upon, or let into one another, and ſo faſtened together in their Centres that they repreſent two Compaſſes, the one fixed, the other moveable; each divided into 32 Points of the Compaſs, and 360 Degrees, and numbered both ways, from the North and the South, ending at the Eaſt and Weſt in 90 Degrees.

The fixed Compaſs repreſents the Horizon, in which the North, and all the other Points are liable to Variation.

In the Centre of the moveable Compaſs is faſtened a Silk Thread, long enough to reach the outſide of the fixed Compaſs. But if the Inſtrument be made of Wood, an Index is uſed inſtead of the Thread. See Compass.

RECTIFYING *of Curves*, &c. See Rectification.

Rectifying *of the Globe*, or *Sphere*, is a previous adjuſting and preparing of the Globe or Sphere, for the Solution of Problems, *&c.*

'Tis done by bringing the Sun's Place in the Ecliptic on the Globe, to the Graduated Side of the Braſs Meridian; elevating the Pole above the Horizon, as much as is the Latitude of the Place; fitting the Hour Index exactly to twelve at Noon; and ſcrewing the Quadrant of Altitude, (if there be Occaſion) to the Zenith.

All this is comprehended under the Term, *Rectify the Globe*.

When this is done, the Celeſtial Globe repreſents the true Poſture of the Heavens, for the Noon of that Day it is rectified for. See Globe and Sphere.

RECTILINEAR, *right-lined*, in Geometry, is applied to Figures whoſe Perimeter conſiſts of right Lines. See Figure, Perimeter Line, *&c.*

RECTITUDE, Rectitudo, Rectum, in Matters of Philoſophy, refers either to the act of judging, or of willing; and therefore whatever comes under the Denomination of *Rectitude*, is either what is true, or what is good: Theſe being the only Objects about which the Mind exerciſes its two Faculties of Judging and Willing. See Truth and Good.

The *Rectitude of the Mind*, conſidered as it *Judges*, *i. e.* of the Faculty of Judgment, conſiſts in its Agreement and Conformity to the Nature and Reaſon of things; in its determining and deciding about them, according to what their Conſtitutions, Properties, Uſes, *&c.* really are. See Judgment. See alſo Logic, *&c.*

The *Rectitude of the Mind*, conſidered as it *wills*, call'd alſo *Moral Rectitude*, or *Uprightneſs*, conſiſts in the chooſing and purſuing of thoſe things which the Mind, upon due Inquiry and Attention, clearly perceives to be Good; and avoiding thoſe that are Evil. See Will.

RECTITUDINES, in Law, Rights or legal Dues, belonging either to God or Man.

RECTO, in Law, a Writ uſually call'd a *Writ of Right*; of ſuch a Nature, as that whereas other Writs in real Actions are only to recover the Poſſeſſion of the Lands, *&c.* in Queſtion, loſt by the Plaintiff or his Anceſtor; This Aims to recover both the Seiſin thus loſt, and the Property of the thing; ſo that both Rights are here pleaded together; that of Property, and that of Poſſeſſion. See Property and Possession.

If a Man loſe his Cauſe upon this Writ, he is without all Remedy. See Right.

There are two Kinds of this Writ: *Rectum patens*, a Writ of right Patent; and *Rectum clauſum*, a Writ of Right Cloſe.

The firſt is ſo called, becauſe ſent open.—It lies only for him that hath Fee-ſimple in the Lands ſued for.

The Writ of Right Cloſe, is directed to the Lord of antient Demeſn, and lies for thoſe who hold their Lands and Tenements by Charter, in Fee-ſimple, or in Fee-Tail, or for Term of Life, or in Dower, if they be ejected out of ſuch Lands or diſſeis'd.

In ſuch Caſe a Man or his Heirs may ſue out the Writ of Right Cloſe, directed to the Lord of antient Demeſn, commanding him to do him Right in his Court.

This is alſo call'd *breve parvum de Recto*.

Indeed, the Writ of Right Patent is extended in Practice beyond its original Intention: For a Writ of Right of Dower, which lies for the Tenant in Dower, is Patent; and ſo in ſeveral other Caſes. *Fitzherb.*

Recto *de Dote*, a Writ of Right of Dower, which lies for a Woman that has received Part of her Dower, and proceeds to demand the Remnant in the ſame Place, againſt the Heir. See Dower.

Recto *de Dote unde nihil habet*, is a Writ of Right which lies in Caſe where the Husband having divers Lands and Tenements, has aſſured no Dower to his Wife; and ſhe is thereby driven to ſue for her Thirds againſt the Heir, or his Guardian.

Recto *de rationabili parte*, a Writ that lies between Privies of Blood, as Brothers in Gavel-Kind, or Siſters, or other Coparceners, as Nephews and Nieces; and for Land in Fee-ſimple.

Thus, if a Man leaſe his Land for Life, and afterwards dye, leaving Iſſue two Daughters, and after, the Tenant for Life likewiſe dies; the one Siſter entering on all the Land, and ſo deforcing the other, the Siſter ſo deforced ſhall have this Writ to recover her Part.

Recto *quando Dominus remiſit*, a Writ of Right, which lies in Caſe where Lands or Tenements in the Seigniory of any Lord, are in Demand by a Writ of Right.

If the Lord hold no Court; or at the Prayer of the Demandant or Tenant, ſend his Writ to the King's Court, to put the Cauſe thither for that time; this Writ iſſues for the other Party, and has its Name from the Words compriſed, which is the true Occaſion thereof.

Recto *de advocatione Eccleſiæ*, a Writ of Right, lying where a Man has Right of Advowſon, and the Incumbent dying, a Stranger preſents his Clerk to the Church; and he not having brought his Action of *quare Impedit nor darrein Preſentment* within ſix Months, has ſuffered the Stranger to uſurp upon him.

Recto *de Cuſtodia Terræ & Heredis*, a Writ which as to Lands holden in *Capite*, or by Knights Service, is become uſeleſs by the Stat. 12 *Car.* II. But not where there is a Guardian in Socage, or appointed by the laſt Will of the Anceſtor.

Recto *ſur Diſclaimer*, a Writ which lies where the Lord, in the Court of Common-Pleas does avow upon his Tenant, and the Tenant diſclaims to hold of him; upon which Diſclaimer he ſhall have this Writ.

RECTOR, of a Pariſh, the *Parſon*; or he who has the Charge or Cure of a Pariſh Church. See Parson.

If the prædial Tythes of the Pariſh be Impropriated, *i. e.* in Lay Hands, inſtead of *Rector*, the Parſon is call'd *Vicar*. See Vicar.

In *England* are reckoned 3845 Rectories. See Parish.

The Name *Rector* denotes him Governour, or Ruler, *quia tantum Jus in Eccleſia Parochiali habet, quantum Prælatus in Eccleſia Collegiata*. See Parsonage.

Rector, is alſo the chief Elective Officer in ſeveral Foreign Univerſities; particularly that of *Paris*. See University.

The *Rector* is choſen a-freſh every three Months: Antiently he was choſe every ſix Weeks. The Alteration was made by the Legate of Pope *Nicholas* III. in 1278. He is choſe out of the Faculty of Arts.

While that Faculty, and the Faculty of Theology were united, one Officer had the Inſpection of both, under the Title of *Chancellor*: Upon their Diviſion, a *Rector* was created. He makes a ſolemn Proceſſion four times a Year, attended by the Doctors, Batchellors, *&c.* in their Formalities.

Rector is alſo uſed in ſeveral Convents for the Superior, or Officer who governs the Houſe. See Superior.

The Jeſuits uſe it for the Superiors in ſuch of their Houſes, as are either Seminaries, or Colleges. See Jesuit, College, Seminary, *&c.*

RECTORY, Rectorate, a Pariſh-Church, Parſonage, or Spiritual Living, with all its Rights, Glebes, and Tithes. See Church, Parish, Parson, Rector, *&c.*

RECTUM. See Right and Rectitude.

Rectum, in our old Law-Writers, is alſo uſed for a Trial or Accuſation.

Commune Rectum, for a Trial at Law, or in the common Courſe of Law.—*Stare ad Rectum*, denotes to ſtand a Trial.—*Rectum rogare*, to petition the Judge to do right.

Rectum, in Anatomy, is the laſt of the large Inteſtines. See Intestine.

It is thus call'd, becauſe it paſſes ſtraight from the *Os Sacrum* to the *Anus*; without making any turns or Circumvolutions, as all the other Guts do.

Its length is uſually about a Hands-breadth; and its Capacity, the thickneſs of three Fingers.

Its upper Part is tied faſt to the *Oſſa Sacrum*, and *Coccygis*, by means of the *Peritonæum*; and in Men to the Neck of the Bladder, in Women to the *Vagina Uteri*: Its lower end, the *Anus*, is furniſhed with three Muſcles. See Anus.

The firſt, the *Sphincter Ani* ſerving to ſhut it, and prevent the Excrements from paſſing out Involuntarily. See Sphincter, *&c.*

The other two, the *Levatores Ani*, which ſerve to raiſe or pull back the *Rectum* after the Expulſion of the Excrements; which eſpecially after hard Stools, is apt to be too far protruded. See Levator Ani.

RECTUS, in Anatomy, a Name common to ſeveral Muſcles; on account of the ſtraightneſs of their Courſe from their Origin to their Inſertion; having particular Denominations from the Parts to which they miniſter: As the *Rectus Abdominis*, *Rectus Femoris*, *Rectus Capitis Lateralis*, *Major Externus*,—*Minor Externus*,—

Major Internus,—*Minor Internus*, and *Rectus Palpebræ*.

Rectus *Abdominis*, is a Muſcle of the lower Belly, which ariſes from the *Sternum*, and the Extremity of the laſt two Ribs; and goes ſtraight down to the fore-part of the *Abdomen*, to be inſerted in the *Os Pubis*. See ABDOMEN.

It hath three or four Innervations, or rather tendinous Coarctations of its fleſhy Fibres, which divide the Belly of it, as it were, into ſo many diſtinct Muſcles.

It has Veins and Arteries, which creep on its Inſide from the Mamillary and Epigaſtrick Veſſels, which communicate together, that the Blood may return by the Mamillary Veins, when the Paſſage is ſtopped by the Epigaſtrick which are compreſs'd in Women with Child.

Rectus *Femoris*, is a Muſcle of the Leg, which ariſing from the lower Part of the Spine of the *Ilium*, and deſcending between the two *Vaſti*, is inſerted into the *Patella*. See FEMUR.

Rectus *Palpebræ*, is a Muſcle that lifts up the Eye-lid: It ariſeth from the Bottom of the Orbit of the Eye, where the Optic Nerves pierce the Cranium, and paſſing above the *Superbus*, is inſerted by a large Tendon to the Border of the Eye-lid. See PALPEBRÆ.

Rectus *Capitis Lateralis*, a pair of ſhort thick fleſhy Muſcles, riſing from the ſuperior Part of the Tranſverſe Proceſſes of the firſt Vertebra of the Neck, whence it aſcends, and is inſerted into the *Os Occipitis*. See HEAD.

Its uſe is to move the Head laterally towards either Shoulder: When they act together, being Antagoniſts, they keep it ſteady.

Rectus *Externus Capitis Major*, the third pair of Muſcles of the Head, ariſing fleſhy and tendinous from the upper Part of the double Spine of the ſecond Vertebra of the Neck, and ſpreading in its Aſcent, is inſerted into the Poſterior Part of the *Os Occipitis*. —It ſerves to draw the Head directly back upon the firſt Vertebra.

Rectus *Externus Minor*, a Pair of Muſcles ariſing from the Hind-part of the firſt Vertebra of the Neck; and inſerted into the middle of the *Os Occipitis*.

It ſerves likewiſe to draw the Head directly backwards.

Theſe two Muſcles are alſo call'd *Renuentes*.

Rectus *Internus Capitis Major*, a Pair of Muſcles ariſing from the Fore-part of the five Interior Tranſverſe Proceſſes of the firſt Vertebra of the Back, near its great Hole.

Rectus *Internus Minor*, lies on the Fore-part of the firſt Vertebra, like the *Rectus Minor*, on the Back-part; and is inſerted into the Anterior Appendix of the *Os Occipitis*, immediately under the former.

Theſe ſerve to nod the Head forwards, being Antagoniſts to the *Rectus Externus*, or *Renuens*, on the back of the Head; and are hence alſo called *Annuentes*.

Rectus *in Curia*, in Law, is one that ſtands at the Bar, and no Man objects any thing againſt him.

When a Man hath reverſed the Outlawry, and can participate of the Benefit of the Law, he is *Rectus in Curia*. See OUTLAWRY.

RECURRENT, in Anatomy, a Nerve ariſing from the *Par Vagum*, and diſtributing ſeveral Branches to the Larynx, to aſſiſt in the formation and modulation of the Voice; thence alſo call'd the *Vocal Nerve*. See NERVE. VOICE, *&c.*

It has its Name *Recurrent* from its reaſcending or running back again from the Thorax, to the Larynx.

Theſe are really two *Recurrents*, *right* and *left*; the left ariſes from the Trunk of the *Vagum*; the right from a *Plexus* thereof, immediately under the *Clavicle*.—They both run up along the *Trachea*, to which they impart ſome Twigs, and end at laſt in the Muſcles of the Larynx.

Their Office appears partly hence, that a Dog is not able to bark after they are cut. See LARYNX.

RECUSANTS, Perſons who refuſe to acknowledge the King's Supremacy. See SUPREMACY.

Such are the Roman Catholicks, who hold the Pope to be over him; hence called *Popiſh Recuſants*. See POPE and KING.

The Romaniſts are not charged with double Taxes, *&c.* meerly as Romaniſts, but as *Recuſants*.

RECUSATION, an Act whereby a Judge is deſired to refrain from judging ſome certain Cauſe, on account of his Relation to one of the Parties; of ſome Capital Enmity, or the like.

A Relation within the fourth Degree, is deem'd a legal Cauſe of *Recuſation*, as alſo the Judge's being God-father, *&c.* of one of the Parties.

RED, in Phyſicks, one of the ſimple or primary Colours of natural Bodies, or rather of the Rays of Light. See BODY, RAY, and COLOUR.

The *Red* Rays are thoſe of all others the leaſt refrangible: Hence, as Sir *Iſaac Newton* ſuppoſes the different Degrees of Refrangibility to ariſe from the different Magnitudes of the luminous Particles whereof the Rays conſiſt; the *red* Rays, or *red* Light, is concluded to be that which conſiſts of the largeſt Particles. See REFRANGIBILITY.

Authors diſtinguiſh three general Kinds of *Red*: One bordering on the *Blue*, as *Columbine*, or Dove Colour, Purple, and Crimſon. See PURPLE, *&c.*

Another bordering on *Yellow*, as Flame-Colour and Orange. See ORANGE, *&c.*

Between theſe Extremes is a Medium partaking neither of the one nor the other; which is what we properly call *Red*.

Acids turn Black, Blue, and Violet, into *Red*; and *Red* into Yellow; and Yellow into a very pale Yellow.—Alcali's change *Red* into Violet, or Purple and Yellow into feuillemort, or dead Leaf Colour. See ACID and ALCALI.

Terreſtrial and Sulphureous Matters become *Red* by extreme Heat; and ſome, at length, Black; as we ſee in Brick, *red* Bole, *red* Chalk, Slate, Pumice, *&c.* which when vitrified by a burning Glaſs, become Black.

Lobſters become *Red* by a moderate Fire; and by a violent one, Black. Mercury and Sulphur mix'd and heated over a moderate Fire, make a beautiful *Red* call'd *Artificial Cinnabar*. See CINNABAR.

An acid Spirit, as Lemon Juice, being poured on a blue Solution of Turnſol, turns it into a beautiful *Red*.—Alkali reſtores it to its original Blue. Filtrating of the *reddeſt* Wine takes from it all its *red* Colour.

M. *De la Hire* obſerves, that a very luminous Body view'd through a Black one, always appears *Red*: As when the Sun is ſeen ſhining through a black Cloud. He adds, that many People who ſee all the other Colours perfectly well, yet have no Idea of *Red*, and only ſee it as *Black*. See BLUE.

RED, in Dying, is one of the five Simple or Mother Colours of the Dyers. See DYING.

Some reckon ſeven Kinds or Caſts of *Red*: *viz. Scarlet Red*, *Crimſon Red*, *Madder Red*, *Half-Grain Red*, *Lively Orange Red*, and *Scarlet of Cocheneel*.—But they may be all reduced to three; according to the three principal Drugs which give the Colours; which are Vermillion, Cochineel, and Madder.

The fine Scarlet, call'd *Scarlet of the Gobelins*, is made of Agaric, Water prepared with Bran and turn'd a little ſouriſh, Woad and Scarlet Grain, or Vermillion. Some Dyers add Cochineel, and others Fennigreek; brightening it with ſour Water, Agaric, Tartar, and Turmeric. See SCARLET.

Crimſon Red is made with ſour Water, Tartar, and Cochineel Meſtique. See CRIMSON.

Madder Red is made with Madder; to which ſome add Realgal, or Arſenic; others common Salt, or other Salts, with Wheat Flower; or Agaric with Spirit of Wine, with Galls or Turmeric. See MADDER.

The *Half-Grain* is made with Agaric and ſour Water, half Scarlet-Grain, half Madder, and ſometimes Turmeric.

The *Half Crimſon* is made of half Madder, half Cochineel.

As to the *lively Orange Red*, the Stuff muſt be firſt laid in Yellow, then in a Liquor made of Goat's Hair, (which has been boiled ſeveral times with Madder, and now) diſſolved over the Fire with certain Acids, as Urine, Tartar, *&c.*

The *Scarlet of Cochineel*, or *Dutch Scarlet*, is made with Starch, Tartar, and Cochineel; after firſt boiling it with Alumn, Tartar, Sal-Gemma, and Aqua-Fortis wherein Tin has been diſſolved. See COCHINEEL.

Beſides theſe ſeven *Reds*, which are good and allow'd Colours, there is alſo a *Braſil Red*; which is diſcouraged, as fading eaſily. See BRASIL.

Of the ſeven good *Reds*, only four have particular Caſts or Shades: The *Madder Red*, *Crimſon Red*, the *lively Orange Red*, and the *Scarlet of Cochineel*.

The Caſts or Shades of Crimſon, are the Fleſh-Colour, Peach-Colour, Carnation-Roſe-Colour, and Apple-Tree-Flower-Colour.—Thoſe of Madder, are Fleſh-Colour, Onion-Peel-Colour, and Flame-Colour.—Thoſe of the Orange are the ſame with thoſe of the Crimſon. Scarlet, beſides the Shades of all the reſt has ſome peculiar to it ſelf, as Cherry-Colour, Fire-Colour, *&c.*

RED, in Painting.—For Painting in Oil Colours they uſe a *Red* call'd *Cinnabar* or Vermillion; and another call'd *Lacca*. See each in its Place, CINNABAR, VERMILLION, and LACCA.

In Limning, and Freſco, for a *Violet Red*, inſtead of Lacca they uſe a natural Earth found in *England*; for a *Brown Red* they uſe *Oker*. See REDDLE, OKER, *&c.*

RED, in Heraldry. See GULES.

RED, in Coſmeticks, a Fucus or Paint wherewith the Ladies enliven their Cheeks and Lips.

There are two Kinds of *Reds*; the one in Leaves, call'd *Spaniſh Red*; the other a Liquor, which is an Extract of Scarlet Dye.

RED *Arſenic*. See ARSENIC.

REDDENDUM, in Law, a Clauſe in a Leaſe, *&c.* whereby the Rent is reſerv'd to the Leſſor.

REDDITARIUM, an antient Law Term, for a Terrier, Roll, or Rental, in which the Rents and Services a of Manour are ſet down. See ROLL and RENT, TERRIER, *&c.*

REDDITION, in Law, is a Judicial Acknowledgement that a thing in Queſtion belongs to the Demandant.

REDDLE, RUDDLE, or *Red Chalk*, a Red Foſſile Stone, which has its particular Mine or Quarry; and is uſed by Painters, *&c.* to make Red-Pencils, or Craions for deſigning. The beſt is the Produce of *England*; is moderately hard; eaſy to cut or Saw into long Slips. The Goldſmiths and Gilders alſo uſe it to burn the Gold-Leaf they uſe.—Some call *Reddle*, *Lapis Hæmatites*; ſuppoſing it to have a particular Faculty of ſtopping Blood: But others will have the real *Hæmatites* to be another Stone. See Hæmatites.

REDEEMABLES, are Lands, Funds, *&c.* ſold with a Reſervation of the Equity of Redemption. See Redemption.

Crown Lands are *redeemable* for ever; others only for a certain time. See Fund.

REDEMPTION, in Law, a Faculty or Right of re-entering upon Lands, *&c.* that have been ſold, and aſſign'd; upon reimburſing the Purchaſe-Money, with legal Coſts.

Bargains wherein the *Faculty*, or as ſome call it, the *Equity of Redemption*, is reſerved; are only a Kind of Pignorative Contracts.

A certain time is limited, within which the Faculty of Redemption ſhall be exerciſed; and beyond which it ſhall not extend.

REDEMPTIONS, in our old Law-Writers, denotegrievous Mulcts impoſed by way of Commutation for the Head or Life of the Delinquent. See Ransom and Misericordia.

REDENS, or Redant, or Redan, in Fortification, a Kind of Work indented in Form of the Teeth of a Saw, with Salient and Re-entering Angles, to the end that one Part may defend another. See Work, Defence, *&c.*

It is alſo call'd Saw-work: The Faces Flank one another.

Redans are frequently uſed in the fortifying of Walls, where it is not neceſſary to be at the Expence of building Baſtions; as when they ſtand on the Side of a River, a Marſh, the Sea, *&c.*

The Parapet of the Corridor is frequently *redented.* See Parapet and Counterscarp.

REDINTEGRATION, in the Civil Law, the Action of reſtoring a Perſon to the Enjoyment of a thing. whereof he had been illegally diſpoſſeſſed.

In *France*, where a Perſon is deſpoiled of his Property, he claims it again by a *Redintegrand*, or Action of Reſtitution.

The *Redintegrand* muſt be demanded within a Year and a Day, otherwiſe it is precluded.

Redintegration, in Chymiſtry, the reſtoring of any mixt Body, or Matter, whoſe Form has been deſtroyed by Calcination, Corroſion, Sublimation, or the like; into its former Nature and Conſtitution.

The *Redintegration* of Mercury is properly call'd *Revification.* See Revification.

Mr. *Boyle* has an expreſs Treatiſe on the *Redintegration* of Salt-Petre; where he ſhews that after reducing it by Fluxion into fix'd Nitre, which is next of-kin to Salt of Tartar in all its Properties; he could preſently *Redintegrate* it by pouring a ſufficient Quantity of Spirit of Nitre to it; *i. e.* he could re-produce true Cryſtals of the uſual Form and Virtue. See Salt-Petre.

'Tis a ſtrong Objection againſt the Chymical Principles, that you cannot *redintegrate* the Body they were procured from, by re-mixing them. See Principle and Element.

This ſeems to argue that the Body did not properly conſiſt of ſuch Elements. Or that they were not originally contain'd in it, but were rather produced by the Fire. See Fire, *&c.*

REDHIBITION, in the Civil Law, an Action in a Court whereby to annul the Sale of ſome Moveable, and to oblige the Seller to take it back again, upon the Buyer's finding it damag'd, or that there was ſome perſonal Cheat, *&c.*

The *Redhibition* has Place in ſeveral Caſes, in the Body of the Civil Law.—If a Horſe was ſold that had the Glanders, were broken-winded, or founder'd, 'twas a *redhibitory Caſe*; and the Buyer might be obliged to take him again within nine Days.

REDISSEISIN, in Law, a Diſſeiſin made by him who once before was found and adjudg'd to have diſſeis'd the ſame Man of his Lands or Tenements; for which there lies a ſpecial Writ, call'd a *Writ of Rediſſeiſin.*

RED-MANS, or Radmans, in Domeſday, and other antient Books, are probably the ſame with *Rod*, or *Rad-Knights*; *viz.* Men who by the Tenure or Cuſtom of their Lands were to ride with or for the Lord of the Manour about his Buſineſs.

REDOUBT, Reduct, in Fortification, a ſmall ſquare Fort, without any Defence but in Front; uſed in Trenches, Lines of Circumvallation, Contravallation, and Approach; as alſo for the lodging of *Corps de Garde*, and to defend Paſſages. See Fort.

In marſhy Grounds, *Redoubts* are often made of Maſon's Work, for the Security of the Neighbourhood: Their Face conſiſts of from ten to fifteen Fathom; the Ditch round them from eight to nine Foot broad and deep; and their Parapets have the ſame thickneſs.

The Word is form'd from the *Latin*, *reductus.*

REDRESSING, the rectifying or ſetting of any thing ſtraight again. See Rectification.

Trees and other Plants have a natural Faculty of *redreſſing* themſelves, when by any external Cauſe they are forced out of the Perpendicular. See Perpendicularity.

To *redreſs* Grievances, is to reform or remove them.

To *redreſs* a Stag, among Hunters, is to put him off his Changes.

REDSEAR. See Iron.

REDUBBORS, thoſe who buy ſtollen Cloaths, *&c.* and to the End they may not be known, turn them into ſome other Colour or Faſhion, *&c.*

REDUCING *Scale*, is a thin broad piece of Box, with ſeveral different Scales of equal Parts, and Lines thereon; for turning Chains and Links into Acres and Rods, by Inſpection. See Reduction, *&c.*

It is uſed by Surveyors to reduce Maps or Draughts from one Dimenſion into another: It is ſometimes call'd the *Surveying Scale.* See Scale.

REDUCT, is a military Term, ſignifying an advantageous Piece of Ground, entrench'd and ſeparated from the reſt of the Place, Camp, *&c.* for an Army, Garriſon, *&c.* to retire to in caſe of Surprize.

Reduct, in Building, a Quirk, or little Place, taken out of a larger, to make it more uniform and regular; or for ſome other Convenience, as for little Cabinets aſide of Chimneys, Alcoves, *&c.*

Reduct, among Chymiſts, is a Powder by which calcin'd Metals and Minerals are reduced again to their *Regulus*, or pure Subſtance. See Regulus, Calx, *&c.*

REDUCTION, Reductio, in the Schools, a manner of bringing a Term or Propoſition, which before was oppoſite to ſome other, to be equivalent thereto.

Reduction is effected by the Addition or Retrenchment of a Negative Particle. Thus to reduce this Propoſition: *No Man is an Animal*, to be equivalent to its oppoſite, *Every Man is an Animal*; I drop the Negative, and ſay, *Man is an Animal.*—After the like manner might the Term, *every Man*, be reduced, by adding the Negative, and ſaying, *there is no Man.*

Reduction *of Propoſitions*, is uſed in a more general Senſe, for any Expreſſion of a Propoſition, by another Propoſition equivalent thereto. See Proposition.

To a *Reduction*, therefore, there are two Propoſitions requir'd; the *reduced* and *reducing*; which are conſidered as the Extremes thereof; and to be connected in the *Reduction*, by means of the Particle *that is*, which here has the effect of a Copula.

As here, *Only Animals think*; *that is, Animals think, and nothing beſide Animals think.*—Where the Propoſition preceeding the Particle, is *reduced*, and the Subject of the *Reduction*; that following the Particle, *reduces*, and has the Effect of the Predicate of the *Reduction*: And the Particle *that is*, acts as a Copula, importing, not barely that the Propoſition is expreſs'd by another, but by another equivalent one, or as it were the ſame.

Reduction *of Syllogiſms*, is a regular changing or transforming of an imperfect Syllogiſm into a perfect one: Or it is a change of a Syllogiſm in reſpect of form, whereby the Neceſſity of the Illation or Inference is made more evident. See Syllogism.

Reduction obtains in Syllogiſms of the ſecond and third Figure; as alſo in the indirect Modes of the firſt.—By it theſe are all brought to the firſt. See Mood and Figure.

There are two Kinds of this *Reduction*, the one *Direct* or *Oſtenſive*, perform'd meerly by a Converſion of one or both the Premiſſes, or by a Tranſpoſition thereof; as when Camestres is reduced to Celarent.

The other *Indirect*, call'd *per Impoſſibile*, or *ad Abſurdum*, whereby the Perſon who denies the Goodneſs and Legitimacy of an imperfect Syllogiſm, is reduced to aſſert or grant ſomething abſurd and impoſſible; or contradictory to ſome other thing maintained by him.

Suppoſe *E. gr.* a Perſon granting the Premiſſes of the following Syllogiſm, denies the Concluſion.—*All Fraud is prohibited, but ſome Trading is not prohibited, therefore ſome Trading is not Fraud.*—We thus proceed againſt him: If the Syllogiſm be not good, the Antecedent is juſt, but the Conſequent falſe; and therefore the contrary of the Concluſion muſt be true: Now, I take the contrary of the Concluſion which you thus give, *viz.* all Trading is Fraud; and of that with the other Premiſe of the former Syllogiſm, *viz.* the Major, which you likewiſe grant, make a new Syllogiſm; thus, *All Fraud is prohibited*; *all Trading is Fraud*; *therefore all Trading is prohibited.* But this Propoſition, *all Trading is prohibited*; and the other, *ſome Trading is prohibited*, which you granted me in the firſt Syllogiſm, are Contradictories.

Reduction, in Arithmetick, is the converting of Monies, Weights and Meaſures into the ſame Value in other Denominations; *e. gr.* Pounds into Shillings and Pence; or Shillings and Pence into Pounds.

The *Reductions* of the principal Moneys, Coins, Weights, and Meaſures, Antient and Modern, Foreign and Domeſtick, are found under the reſpective Articles, Money, Coin, Weight, Measure, Pound, Foot, *&c.*

Reduction is of two Kinds: 1°. *Deſcending*; when a Quantity is to be brought from a higher Denomination to a lower.

This is done by conſidering how many of the next leſs Denomination are contained in the next greater before, and by that Number multiplying the greater. See Multiplication.

Thus Pounds are reduced into Shillings by multiplying by 20; Shillings, into Pence, by multiplying by 12; and Pence into Farthings, by multiplying by 4. See Pound, *&c.*

Troy Pounds are reduced into Grains, by multiplying by 12, 20, and 24. And *Averdupois* Hundreds into Ounces, by 4, 28, and 16. See Ounce, *&c.*

The 2°. *Aſcending*; when a lower Denomination be to be reduced to an higher.

In order to this, divide the leaſt by ſo many of its Denominations as are contained in the next greater: Thus 24720 Pence, divided by 12, and the Quotient by 20, give 103 Pounds. See DIVISION.

If there remain any thing in each Diviſion, 'tis reſpectively either odd Pence, or Shillings: Thus 6713 Pence reduced, gives 27*l.* 19*s.* 5*d.* cut off the laſt, the reſt is the Pounds required.

To expedite the Practice, ſeveral compendious Ways of *Reduction* have been invented. See PRACTICE.

Thus Ells are turn'd into Yards, by adding a fourth to the Number of Yards; and into Ells *Flemiſh* by adding a fifth.—Ells *Flemiſh* are reduced into Yards, by ſubſtracting a Quarter.—Ells *Flemiſh* reduced to Ells *Engliſh* by multiplying by ſix, and cutting off the right hand Figure. See ELL, *&c.*

Great Pounds of Silk of 24 Ounces, are reduced to Pounds of 16 Ounces, by adding one Half. Pounds of 16 Ounces into Pounds of 24, by ſubſtracting three Quarters.

REDUCTION *of Fractions.* See FRACTION.

REDUCTION *of Equations,* in Algebra, is the clearing them from all ſuperfluous Quantities, bringing down the Quantities to their loweſt Terms, and ſeparating the known Quantities from the unknown; 'till, at length, only the unknown Quantity is found on one Side, and unknown ones on the other. See EQUATION.

The *Reduction* of an Equation is the laſt Part of the Reſolution of the Problem. See RESOLUTION.

The end of all Algebraical Operations, is to have the unknown Letter alone in one Member of the Equation; and in the other, all the known Letters, without any mixture of unknown; for, in this Caſe, 'tis evident the Value of the unknown Quantity is found.

This *Reduction* is effected by adding the Quantities ſubſtracted, ſubſtracting thoſe added; multiplying thoſe divided, and dividing thoſe multiplied; extracting the Roots out of Powers, and raiſing Roots to Powers; ſo as ſtill to preſerve an Equality. See EQUALITY.

This ſuffices for the *Reduction* of ſimple Equations; but for higher Equations, the Proceſs is leſs obvious.

From the manner wherein Powers are form'd, 'tis evident, that as the unknown Letter is rais'd to a higher Power, it will be found, in its lower Powers, mix'd and combined ſo many more times with known Quantities, and of conſequence will be ſo much the more difficult to be diſengaged therefrom. And the difficulty is the ſame, where there are ſeveral unknown Letters multiplied ſingly one againſt another, and again multiplied by known Letters. See PROBLEM.

The *Reduction* of the Equation being made; from the laſt Quantity thus gain'd, the Geometrical Conſtruction is to be deduced. See CONSTRUCTION.

REDUCTION *of a Figure,* a *Deſign,* or *Draught,* is the making a Copy thereof either larger or ſmaller than the Original; ſtill preſerving the Form and Proportion. See FIGURE.

The grand uſe of the proportional Compaſſes is in the *Reduction* of Figures, *&c.* whence they are alſo called *Compaſſes of Reduction.* See COMPASSES.

There are various Methods of reducing Figures, *&c.* The moſt eaſy is by means of the Pentagraph on Parallelogram; but this has its Defects. See PENTAGRAPH.

The beſt and moſt uſual Methods of *Reduction,* are as follow.

To reduce a Figure: As ABCDE, *Tab. Geometry, Fig.* 64. into a leſs Compaſs: about the middle of the Figure, as *z*; pitch on a Point; and from this Point draw Lines to its ſeveral Angles A, B, C, *&c.* Then drawing the Line *ab* Parallel to AB, *bc* Parallel to BC, *&c.* you will have the Figure *abcde* ſimilar to ABCDE.

If the Figure *abcde* had been required to be enlarged, there needed nothing but to produce the Lines from the Point beyond the Angles, as zD, zC, *&c.* and to draw Lines, *viz.* DC, DB, *&c.* Parallel to the Sides *ac, ab,* &c.

To reduce a Figure by the Angle of Proportion.

Suppoſe the Figure ABCDE (*Fig.* 65.) required to be diminiſhed in the Proportion of the Line AB, to *ab* (*Fig.* 66.) draw the indefinite Line GH, (*Fig.* 67.) and from G to H ſet off the Line AB: On G deſcribe the Arch HI. Set off the Line *ab* as a Chord on HI, and draw GI. Then with the Angle IGH, you have all the Meaſures of the Figure to be drawn.

Thus, to lay down the Point *c,* take the Interval BC, and upon the Point G deſcribe the Arch KL; alſo, on the Point G deſcribe MN; and upon A with the Diſtance MN deſcribe an Arch cutting the preceeding one in *c,* which will determine the Side *bc.* And after the ſame manner are all the other Sides and Angles to be deſcribed.—The ſame Proceſs will ſerve to enlarge the Figure.

To reduce a Figure by a Scale.

Meaſure all the Sides of the Figure, *e. gr.* ABCDE, by a Scale; and lay down the ſame Meaſures, reſpectively, from a ſmaller Scale in the Proportion required. See SCALE.

To reduce a Map, Deſign, or Figure, by Squares.

Divide the Original into little Squares, and divide a freſh Paper of the Dimenſions required, into the ſame Number of Squares; which will be larger, or leſs than the former, as the Map is to be inlarged or diminiſhed.

This done in every Square of the ſecond Figure, draw what you find in its Correſpondent one in the firſt. See MAP, *&c.*

REDUCTION *to the Ecliptic,* in Aſtronomy, is the difference between the Argument of Latitude, as NP, (*Tab. Aſtronomy, Fig.* 26.) and an Arch of the Ecliptic NR, intercepted between the Plane of a Planet, and the Node N. See ECLIPTIC.

To find the Reduction: The Angle of Inclination PNR, and the Argument of Latitude NP being given; find, by the Doctrine of Sphericks, the Arch NR: Subſtract NR and NP from each other, the Remainder is the *Reduction.*

REDUCTION *into the firſt Matter,* a Term which the Alchymiſts uſe when they find their Subſtances putrify, and grow black.

Or rather *Reduction* is the converting of a dry Matter into a Liquid, particularly Water; which they hold the Principle of all things. See WATER, PRINCIPLE, *&c.*

The *Reduction* of Metals into their firſt Matter or Principles, they teach, can only be effected by Mercury; nothing elſe being able to looſen the fix'd Sulphur of metallic Bodies, which binds them together. See METAL and MERCURY.

REDUCTION, in Chirurgery, is an Operation whereby a diſlocated, luxated, or fractured Bone, is reſtored to its former Place. See BONE, LUXATION, DISLOCATION, FRACTURE.

The *Reduction* is always performed e're any Remedy be applied.

REDUNDANCE, or REDUNDANCY, a fault in Diſcourſe, ariſing from a ſuperfluity of Words. See PLEONASM.

Words, perfectly ſynonimous, are *Redundant,* and ought to be retrench'd.—*Redundancy* makes the Style weak and languid.

REDUNDANT *Hyperbola,* is a Curve of the higher Kind, thus called becauſe it exceeds the Conic Section of that Name in the Number of its Hyperbolical Legs; being a Triple Hyperbola, with ſix Hyperbolical Legs. See CURVE and HYPERBOLA.

REDUPLICATION, in Rhetoric, a Figure wherein a Verſe begins with the ſame Word as the preceeding one ends. See VERSE.

REDUPLICATION, in Logick, is a Kind of Condition expreſs'd in a Propoſition, indicating or aſſigning the Manner wherein the Predicate is attributed to the Subject.

The uſual *Reduplicating* Words are *quatenus, as, ſo far as, conſider'd as, inaſmuch as, &c.* Hence,

REDUPLICATIVE *Proportions,* are ſuch wherein the Subject is repeated, with ſome Circumſtance or Condition: Thus, Men, as Men, are Rational: Kings, as Kings, are ſubject to none but God.

REE, a *Portugueze* Coin. See COIN and MILLREE.

REED, an antient *Jewiſh* Meaſure. See MEASURE.

Anſwerable to this is the *Canna* or *Cane* of ſome modern Nations. See CANE.

REEF, a Term in Navigation—When there is a great Gale of Wind, they commonly roll up Part of the Sail below, that by this means it may become the narrower, and not draw ſo much Wind; which contracting or taking up of the Sail, they call a *Reef,* or *Reefing the Sail.*

So alſo when a Top-Maſt is ſprung, as they call it, that is, crack'd, or almoſt broken in the Cap; they cut off the lower Piece that was near broken off, and ſetting the other Part, now much ſhorter, in the Step again, call it a *Reef'd Top-Maſt.*

REEL, in the Manufactures, a Machine ſerving for the Office of *Reeling.* See REELING.

There are various Kinds of *Reels*; ſome very ſimple, others very complex; of the former Kind, thoſe moſt in uſe are,

1°. A little *Reel* held in the Hand, conſiſting of three Pieces of Wood; the biggeſt and longeſt whereof (which does not exceed a Foot and a half in length, and ¼ of an Inch in Diameter) is traverſed by two other Pieces diſpoſed different Ways.

2°. The *Common Reel,* or *Windlaſs,* which turns upon a Pivot, and has four Wings, travers'd by long Pins or Sticks, whereon the Skain to be *reel'd* is put, and which are drawn cloſer, or open'd wider, according to the Skain.

Other *Reels* uſed in particular Arts, are explain'd under their particular Articles; as the *Reel* uſed in the milling of Silk, under the Article MILLING: And that in the *Reeling* or Winding of Silks, under the Article SILK, *&c.*

REELING, in the Manufactories, the winding of Thread, Silk, Cotton, or the like, into a Skain, or upon a Bottom; to prevent its intangling. See SILK, *&c.*

'Tis alſo uſed for the charging or diſcharging of Bobins or Quills, to uſe them in the Manufacture of different Stuffs, as Thread, Silk, Cotton, *&c.*

Reeling is perform'd different Ways, and by different Engines. See REEL.

RE-ENTERING *Angle,* in Fortification. See ANGLE.

RE-ENTRY, in Law, the reſuming or retaking that Poſſeſſion which we had lately fore-gone. See ENTRY.

As, if I make a Leaſe of Land, or Tenement, I do therefore forego the Poſſeſſion; and if I do condition with the Leſſee, That for Non-payment of the Rent at the Day, it ſhall be lawful for me to *Re-enter*; this is as much as if I conditioned to take again

gain the Lands, *&c.* into my own Hands, and to recover the Poſſeſſion by my own act, without the Aſſiſtance of Judge, or other Proceſs.

RE-EXTENT, in Law, a ſecond Extent made upon Lands or Tenements, on Complaint made, that the former Extent was partially executed. See EXTENT.

REEVE *of a Church*, is the Guardian of it; or the Church-Warden. See CHURCH-WARDEN.

So, *Shire-Reeve* is the Sheriff, or Guardian of a County. See SHERIFF.

And *Port-Reeve*, the Warden of a Port or Haven. See PORT.

REEVING, in the Sea Language, is the putting a Rope through a Block.—Hence, to pull a Rope out of a Block, is call'd *unreeving it*.

REFECTION, among Monks and Eccleſiaſticks, a Repaſt or ſpare Meal; meerly ſufficing for the ſupport of Life. See MEAL and REPAST.

Refection is alſo uſed in antient Authors for a Duty or Service incumbent on any Perſon to provide Meals, for Eccleſiaſticks, or even Princes. See PROCURATION.

REFECTORY, or REFECTUARY, a ſpacious Hall in Convents, and other Communities, where the Monks, Nuns, *&c.* take their Refections or Meals in common.

The *Refectory* of the *Benedictines* of St. *George* at *Venice*, deſigned by *Palladio*, is one of the fineſt in the World. *Daviler.*

REFERENDARIUS, in antient Cuſtoms, an Officer who exhibited the Petitions of the People to the King; and acquainted the Judges with his Commands.

An Officer of this Kind, *Spelman* obſerves, we had in *England*, in the time of the *Saxons*.

REFERENCE, in Writing, *&c.* a Mark, relative to another ſimilar one in the Margin, or at the Bottom of the Page; where ſomething omitted in the Text, is added; and which is to be inſerted either in Reading or Copying. See CHARACTER.

A Copiſt muſt be very expert at taking *References.*—*References* are alſo uſed in Books; where, things being but imperfectly handled, the Reader is directed to ſome other Part or Place where they are more amply explained.

Dictionaries are full of References; denoted by *See*, or *Vide*.—By means of theſe *References*, the Dictionariſt ſettles a Correſpondence between the ſeveral Parts of his Work; and gives his Dictionary moſt of the Advantages of a regular continued Treatiſe. See DICTIONARY.

Indices or Tables are only *References* to the ſeveral Parts of the Work, where the ſeveral Matters are handled. See INDEX.

REFINING, the Art or Act of purifying a thing; or of rendering it finer, cleaner, and purer. See PURIFYING, and CLARIFYING.

Refining is chiefly underſtood of Metals, Sugar, and Salts. See METAL, *&c.*

REFINING *of Gold.*

The *Refining* of Gold is perform'd three Ways: Either with Antimony, with Sublimate, or with Aqua-Fortis; which laſt Method, much the moſt uſual and leaſt dangerous of the three, is call'd *Depart*, or *parting*; the Proceſs whereof ſee under the Article GOLD and DEPART.

Method of Refining Gold with Antimony.

They here uſe a Wind-Furnace; (a Deſcription whereof may be ſeen under the Article FURNACE,) with an ordinary Crucible, of a Size anſwerable to the Quantity of Gold to be refined; obſerving that the Gold and Antimony together don't above half fill it.

The Gold being melted in the Crucible, the Antimony is thrown in, in Powder.—The Proportion of the Mineral to the Metals, is eight Ounces to a Pound, if the Gold be between 22 and 16 Carrats fine: If it be beneath 16 Carrats, they uſe about five Quarters of a Pound to eight Ounces. The coarſer the Gold, ſtill the more Antimony is required.

As ſoon as the Antimony is in the Crucible, 'tis cover'd up; and after charging the Furnace with Charcoal, they put on its Capital; which ſtands till ſuch time as the Crucible be left quite bare; then, the Capital being taken off, and the Crucible ſet to cool in the Furnace it ſelf, till ſuch time as it may be taken out by the Hand, they break it, to get out the *Button* or *Culot*, which is a Maſs of fine Gold remaining at the Bottom with the Fæces of the Antimony the Silver and Copper alloy and ſometimes little Particles of Gold it ſelf over it.

Though the Gold thus prepared be very pure, yet the Antimony gives it ſuch a harſh brittle Quality, that it ceaſes to be Ductile; and muſt be ſoften'd by the Fire with Salt-petre and Borax, to bring it to itſelf.

For this Operation they prepare what they call a *Dry-Coppel*; that is, a Cuppel made of Crucible Earth, which does not imbibe like the Cuppels made of Aſhes See COPPEL.

The Coppel being ſufficiently heated in the *refining* Furnace, they put the Gold in it, and cover it up with Charcoal.

As ſoon as the Gold is diſſolved, which is very ſoon, by reaſon of the remains of the Antimony, they blow it with the Bellows to drive the Mineral entirely away, which now goes off in Smoak; adding to it, as ſoon as the Fumes ceaſe, a little Salt-petre and Borax, in Powder; which collect the Impurities remaining upon the Diſſolution, and fix the Gold in the Coppel, in form of a Plate.

The Gold being taken out of the Coppel, and melted a-freſh in a Crucible, with an Addition of two Ounces of Salt-petre and as much Borax, in Powder to each eight Ounces of Gold, as ſoon as it ceaſes to fume, they caſt it into an Ingot; which upon trial is found 23 Carrats, 26 thirty ſeconds finer.

As to the Particles of Gold which may have been left behind with the Alloy in the Fæces of the Antimony, they get them out by a dry Coppel, with the ſame Meltings and Ingredients as are uſed in ſoftening the former.—And when they are aſſured, by the Eſſay, of the Share of Gold that Matter contains, they refine it to ſeparate the Copper; and afterwards make the Depart.

As to the Gold which may be left ſticking to the dry Coppels, they get it out by breaking, and pulverizing the Crucibles, and by repeated Lotions of the Powder thereof in ſeveral Waters; much after the manner of the *Lavadero's*. See LAVADERO.

Refining of Gold by means of Sublimate.

The Proceſs is begun like that with Antimony; *i. e.* in the ſame Furnace, with the ſame Coal, the ſame Fire, and the ſame Crucibles.

The Gold being melted in the Crucible, they caſt in the Sublimate, not pulveriz'd, but only broke in Pieces.—As to the Proportion; to 8 Ounces of Gold to be refined, they put an Ounce, or Ounce and a half, or even two Ounces, if the Gold be of 22 Caracts; three Ounces, if 20 Caracts; and 5 or 6 Ounces, if it only be from 18 to 12 Caracts. In which laſt Caſe they part the Sublimate into two; putting half at a time, with the Gold, into a new Crucible; which, when the Operation is over, leaves the Gold of 18 or 20 Caracts, according to its fineneſs before.—After this, they raiſe it by the Fire, as follows;

The broken Sublimate being put into the Crucible with the melted Gold, the Crucible is immediately cover'd up, to ſmother the Mineral: Which done, the Furnace is fill'd with Charcoal, and the Capital put on.—A quarter of an Hour afterwards they take off the Capital, lay the Crucible bare, and give the Gold Air, *i. e.* blow off all the Aſhes and other Impurities that may be floating on the liquid Gold, with a Pair of Bellows, the Noſſle whereof is crooked.

This they repeat again and again, till all the Impurities of the Gold being carried off, by virtue of the Sublimate, it be found of a bright glittering Colour; After which 'tis taken out of the Crucible, and the Gold caſt into an Ingot.

The Method of *Refining* by Sublimate is both more complete and cheaper than that by Antimony; but they are both exceedingly dangerous, by reaſon of their ſulphurous and arſenical Exhalations: The only difference in their Malignity conſiſting in this, that the Poiſon of the Antimony is ſlower than that of the Sublimate. See SUBLIMATE, *&c.*

Gold may alſo be *refined* with Lead and Aſhes; but this is a Method ſeldom uſed, excepting in Eſſays. See ESSAY.

REFINING *of Silver.*

There are two Ways of *refining* Silver: The one with Lead; the other with Salt-petre. The beſt and cheapeſt is that with Lead; though that with Salt-petre ſtill obtains in many Places, for want of Workmen who underſtand the Proceſs of the latter.

We ſhall here only give that with Salt-petre; referring for the other to the Article SILVER.

Refining with Salt-petre is perform'd in a Wind-Furnace.—The Silver to be *refined* having been reduced into Grains, of the Size of a little Pea, by pouring it, when melted, into a Tub of common Water; 'tis heated over again in a Boiler. After this they put it in a Crucible, and along with it, to every eight Ounces of Metal, two of Salt-petre.

The Crucible is now covered up with an Earthen lid, in form of a Dome, exactly luted; which lid, however, is to have a little Aperture in the middle.

The Crucible being put in the Furnace, and cover'd with Charcoal, which is only to be lighted by Degrees, at length, they give it the full force of the Fire to put the Metal into a perfect Fuſion. Thus they repeat three times ſucceſſively, at an Interval of a Quarter of an Hour.

After the third Fire they uncover the Furnace, and let the Crucible cool; and at length break it, to get out the Silver, which is found in a Button or *Culot*; the Bottom whereof is very fine Silver; and the top mix'd with the Fæces of the Salt-petre, and the Alloy of the Silver, and even ſome Particles of fine Silver.

The *Culot* being ſeparated from the Impurities, is melted in a new Crucible, and into the Diſſolution is thrown Charcoal Duſt, and the whole briskly work'd together. Then, the Crucible being cover'd up again, and the Furnace charged with Coal, a ſecond Fire is given it.

This done, the Aſhes and other Impurities are blown from off the Top of the Metal, till it appear as clear as a Looking-Glaſs; and then an Ounce of Borax broke in Pieces is thrown in.

Laſtly, the Crucible being cover'd up again, they give it the laſt Fire; after which 'tis caſt into Ingots; which are found eleven Penny-Weights, and ſixteen Grains fine.

To recover the Silver that may be left in the Fæces, or Scoria, they pound them, and give them repeated Lotions in freſh Waters. See LAVADERO.

REFINING *of Copper*, is only perform'd by giving the mineral Matter ſeveral Lotions before the melting it; and then giving it ſeveral repeated Fuſions. See COPPER.

REFINING *of Tin* is perform'd much after the ſame Manner as that of Copper. See TIN.

Though, we may diſtinguiſh two Kinds of fineneſs of this Metal: The one ariſing from its Fuſion; that Tin taken firſt out of the Coppers wherein it is melted, being always purer than that towards the Bottom.

The other Kind of fineneſs is that given the Tin by adding ſome other Metal or Mineral to it, to render it more ſounding, as well as more bright: Such is Tin of Antimony, Pewter, *&c.* See PEWTER, *&c.*

REFINING *of Iron*, begins likewiſe by the melting it. See IRON and IRON-WORKS.

The greater Degree of Fuſion the Mineral has, the more the Metal is purified: But this firſt Fuſion is not ſufficient.—To render the Iron malleable, and fit it to endure the File, it muſt be melted a ſecond time; then forged or beaten a long time with huge heavy Hammers, wrought by the Water; then heated in the Fire, and at laſt reduced on the Anvil, into Bars of ſeveral Thickneſſes. See FORGING.

The more the Iron is heated in the Fire; and the more 'tis beaten, whether hot or cold, the finer it becomes. See IRON.

Steel is only Iron *refined* to a great Degree by heating it, with ſome other Ingredients which cloſe up the Pores, and ſoften the Grain thereof. See STEEL.

REFINING *of Lead*, is perform'd like that of moſt other imperfect Metals, by frequent Meltings, ſtill ſcumming it e're it be cold, and caſting in Tallow, and other Kinds of Fat.

They alſo make Aſſays of Lead; not to refine it, but to ſee if it be pure, and without Mixture of any other Metal. See LEAD.

REFINING *of Sugar*.—The Operation is begun by ſeveral ſtrong Lixiviums or Lyes of Lime-Water and Eggs, Shells and all, mix'd and beaten together.

This firſt *Refining* is perform'd in the *Caribees* and other Places where the Sugar-Canes are cultivated; and only ſerves for the brown or coarſer Sugars.

When theſe are imported into *Europe*, the Sugar-Bakers take them up, and refine them further, by a ſecond Operation, or rather a Repetition of the firſt.

To render the Sugar very fine, fit for Confections, they uſually give it a third *Refining*; wherein they only uſe the Whites of Eggs, and their Shells beaten together, and thrown into the melted Sugar; which is call'd *clarifying the Sugar*. See SUGAR.

REFINING *of Salt-petre*.—The Salt being put in an Earthen or Iron Veſſel, as much Spring-Water is pour'd on it as ſuffices to diſſolve it. The Veſſel is then put over a gentle Fire; and as ſoon as the Water begins to boil, Alumn-Powder is thrown into it: The Proportion is, one Pound of Alumn to 128 Pound of Salt-petre; and a little Vinegar is added. As it boils, the Scum is to be taken off; and thus is it *refined*. See SALT-PETRE.

For the REFINING *of other Matters*, as *Camphor*, *Vermillion*, *Sulphur*, *Lapis*, *Salt*, *Borax*, &c. See CAMPHOR, VERMILLION, SULPHUR, SALT, *&c.*

REFLECTING *Teleſcope*,	See	TELESCOPE.
REFLECTING *Microſcope*,		MICROSCOPE.
REFLECTING *Dial*,		DIAL.

REFLECTION, or REFLEXION, in Mechanicks, the return, or regreſſive Motion of a Moveable occaſioned by the Reſiſtance of a Body, which hindered its purſuing its former Direction. See MOTION, RESISTENCE, *&c.*

'Tis controverted, whether there be any, Moments Reſt or Interval between the Incidence and the *Reflection*? For the Affirmative, ſtand the *Peripateticks*, and all who conceive the *reflected* Motion to be different from the Incident one of the ſame Body.—The Motion of Incidence, according to theſe Authors, is wholly loſt and deſtroyed by the Reſiſtence of the Obſtacle ſtruck againſt; and the moveable is thus render'd abſolutely quieſcent in the Point of Contact; till a new Motion of *Reflexion* is produced therein, from a contrary Cauſe.

The *Carteſians* aſſert the Negative; abſolutely denying any Reſt at all between the Incidence and *Reflection*: Urging, that if the Motion were once deſtroyed, though but for a Moment, there would be nothing to excite it again; but the Body would perſevere in that new State, as much as if it had been at Reſt a thouſand Years. See REST and *Law of* NATURE.

Accordingly, *Rohault*, and others, define *Reflection* to be no other than a Change of Determination; or a Continuation of the former Motion in a new Direction. See DETERMINATION, *&c.*

As, ſay they, a Pendulum, when arrived at its greateſt Sweep, does not ſtop; ſo a hard Body, ſtriking on another hard one, does not reſt, but purſues its Motion the contrary Way, according to the eſtabliſhed Law of Nature; and this from the immediate Influence or Impulſe of the Cauſe that firſt moved it.—But this Doctrine is now generally ſet aſide.

Reflection is conceiv'd by the lateſt and beſt Authors, as a Motion peculiar to elaſtic Bodies, whereby, after ſtriking on others which they cannot remove, they recede, or turn back, by their elaſtic Power. See ELASTIC *Bodies*.

On this Principle it is aſſerted, that there may be, and is a Period of Reſt between the Incidence and *Reflection*; ſince the *reflected* Motion is not a Continuation of the other, but a new Motion, ariſing from a new Cauſe or Principle, *viz.* the Power of Elaſticity. See ELASTICITY.

'Tis one of the great Laws of *Reflection*, that the Angle a *reflected* Body makes with the Plane of the *reflecting* Obſtacle, is equal to that wherein it ſtruck on that Obſtacle. See ANGLE and INCIDENCE.

For the ſeveral Laws of Motion obſerved in the REFLECTION *of Bodies*, ſee the Article PERCUSSION.

REFLECTION *of the Rays of Light*, in Opticks, is a Motion of the Rays, whereby, after impinging on the ſolid Parts of Bodies, or rather, after a very near approach thereto, they recede or are driven therefrom. See REFLEXIBILITY.

The *Reflection* of the Rays of Light from the Surfaces of Bodies, is the means whereby they become Viſible. See VISION.

And the Diſpoſition of Bodies to reflect this or that Kind of Rays moſt copiouſly, is the Cauſe of their being of this or that Colour. See COLOUR.

The *Reflection* of Light from the Surfaces of Mirrors, makes the Subject of Catoptricks. See CATOPTRICKS.

The *Reflection* of Light, Sir *Iſaac* has ſhewn, is not effected by the Rays ſtriking on the very Parts of the Bodies; but by ſome Power of the Body equally diffuſed throughout its whole Surface, whereby it acts upon the Ray, by attracting or repelling it without any immediate Contact. See RAY.

This Power he ſhews to be the ſame whereby, in other Circumſtances, the Rays are refracted; and whereby they are at firſt emitted from the lucid Body. See LIGHT.

The Arguments he produces to this Purpoſe are as follow.

1°. Becauſe the Surfaces of poliſhed Glaſſes, which to the Eye appear ſmooth, are yet in reality very rugged and uneven; (poliſhing being nothing but the grating, ſcratching, and breaking of the coarſer Protuberances, by means of Sand, Glaſs, Putty, or Tripoly). If the Rays of Light, therefore, were reflected by ſtriking on the ſolid Parts of the Glaſs, the *Reflections* would never be ſo accurate as we find they are; but the Rays would even be as much ſcatter'd by the moſt poliſh'd Glaſs, as by the roughest.—It remains, therefore, a Problem, how Glaſs poliſhed by fretting Subſtances, can reflect Light ſo regularly as it does; which Problem is ſcarce otherwiſe to be ſolved than by ſaying, that the *Reflexion* of a Ray is effected, not by a ſingle Point of the *reflecting* Body, but by ſome Power of the whole Body, evenly diffuſed all over its Surface, and by which it acts on a Ray without immediate Contact: For that the Parts of Bodies do act upon Light at a Diſtance, is already ſhewn under the Article INFLECTION.

2°. If the Colours ſeparated by a Priſm placed at the Entrance of a Beam of Light into a darkened Room, be ſucceſſively caſt on a ſecond Priſm placed at a greater Diſtance from the former, in ſuch manner as that they all fall alike, or with an equal obliquity upon it; the ſecond Priſm may be ſo inclined to the incident Rays, that thoſe which are of a blue Colour ſhall be all *reflected* by it, and yet thoſe of a red Colour pretty copiouſly tranſmitted.—Now, if the *Reflexion* were cauſed by the Parts of the Air or Glaſs, we would aſk, why, at the ſame Obliquity of Incidence, the blue ſhould wholly impinge on thoſe Parts ſo as to be all *reflected*, and yet the red find Pores enough to be in a great Meaſure tranſmitted?

3°. Where two Glaſſes touch one another, there is no ſenſible *Reflexion*, and yet we ſee no Reaſon why the Rays ſhould not impinge on the Parts of the Glaſs, as much when contiguous to other Glaſs, as when contiguous to Air.

4°. When the top of a Water-Bubble, by the continual ſubſiding and exhaling of the Water, grows very thin, there is ſuch a little, and almoſt inſenſible Quantity of Light *reflected* from it, that it appears intenſely black; whereas round about that black Spot, where the Water is thicker, the *Reflexion* is ſo ſtrong as to make the Water ſeem very white.—Nor is it only at the leaſt thickneſs of thin Plates or Bubbles, that there is no manifeſt *Reflection*, but at many other thickneſſes, gradually greater and greater. For in one of our Author's Obſervations the Rays of the ſame Colour were by turns tranſmitted at one thickneſs, and *reflected* at another thickneſs, for an indeterminate Number of Succeſſions: And yet in the Superficies of the thinned Body, where it is of one thickneſs, there are as many other Parts for Rays to impinge one, as where it is of any other thickneſs.

5°. If red and and blue Rays, ſeparated by a Priſm, fall ſucceſſively on a thin Plate of any pellucid Matter, whoſe thickneſs increaſes in continual Proportion, (ſuch as a Plate of Air between two Glaſſes, the one Plane and the other a little Convex) the ſame Plate will, in the ſame Part, *reflect* all the Rays of one Colour, and tranſmit all thoſe of the other; but in different Parts, will *reflect* the Rays of one and the ſame Colour, at one thickneſs, and tranſmit them at another; and thus alternately, and in *infinitum*.—Now it can never be imagined that at one Place the Rays which, for Inſtance, exhibit a blue Colour, ſhould have the Fortune to ſtrike on the ſolid Parts, and thoſe which exhibit a Red to hit on the void Parts of the Body; and at another Place, where the Body is either a little thicker, or a little thinner, that on the contrary the Blue ſhould hit on the Pores, and the Red upon the ſolid Parts.

6°. In the Paſſage of Light out of Glaſs into Air, there is a *Reflexion* as ſtrong as in its Paſſage out of Air into Glaſs, or rather a little ſtronger, and by many Degrees ſtronger than in its Paſſage out of Glaſs into Water.

Now it ſeems improbable that Air ſhould have more *reflecting* Parts than Water or Glaſs: But if that ſhould be ſuppoſed, yet it will avail nothing; for the *Reflexion* is as ſtrong or ſtronger when the Air is drawn from the Glaſs by the Air-Pump, as when it is adjacent to it.—If any ſhould here object, on *Des Cartes*'s Hypotheſis, that though the Air be drawn out, there is a ſubtle Matter remaining to ſupply its Place, which being of a denſer Kind, is better fitted for the *Reflexion* of Light than any other Body: Beſide that we have elſewhere ſhewn ſuch ſubtle Matter to be fictitious; and that ſuppoſing its Exiſtence, and its *reflecting* Power, no Light could ever have been propagated, but muſt have been all *reflected* back to the lucid Body, immediately after it was firſt emitted; The following Experiment does evidently convict it of falſity.

7°. If Light in its Paſſage out of Glaſs into Air ſtrike more obliquely than at an Angle of 40 or 41 Degrees, it is wholly *reflected*, if leſs obliquely it is in great Meaſure tranſmitted.—Now it is not to be imagined, that Light at one Degree of obliquity ſhould meet with Pores enough in the Air to tranſmit the greater Part of it, and at another Degree ſhould meet with nothing but Parts to *reflect* it wholly; eſpecially conſidering that in its Paſſage out of Air into Glaſs, how oblique ſoever be its Incidence, it finds Pores enough in the Glaſs to tranſmit a great Part of it.—If any ſuppoſe that it is not *reflected* by the Air, but by the outmoſt ſuperficial Parts of the Glaſs, there is ſtill the ſame Difficulty: Beſides, that ſuch a Suppoſition is unintelligible, and will alſo appear to be falſe by applying Water behind ſome Part of the Glaſs inſtead of Air: For ſo, in a convenient obliquity of the Rays, ſuppoſe of 45 or 46 Degrees, at which they are all *reflected* where the Air is adjacent to the Glaſs; they ſhall be in great Meaſure tranſmitted where the Water is adjacent to it: Which argues, that their *Reflexion* or Tranſmiſſion depends on the Conſtitution of the Air and Water behind the Glaſs, and not on the ſtriking of the Rays upon the Parts of the Glaſs; the Rays not being *reflected* 'till they have reached the laſt Part of the Surface, and are begun to go out. For if in going out they fall upon the Surface of Oil or Water, they proceed; the Attraction of the Glaſs being balanced by an equal Force the contrary Way; and prevented from having its effect by the Attraction of the Liquor adhering to it: But if the Rays in paſſing out of this laſt Surface fall into a Vacuum which has no Attraction, or into Air which has but little, not enough to counter-balance the effect of the Glaſs; in this Caſe the Attraction of the Glaſs draws them back, and *reflects* them.

This will appear ſtill more evident, by laying two Glaſs Priſms, or the object Glaſſes of two Teleſcopes, the one Plane and the other a little Convex, upon each other, ſo as they may neither touch, nor yet be too far a-part. For that Light which falls on the hind Surface of the firſt Glaſs, where the Glaſſes are not above $\frac{1}{100000}$ Part of an Inch a-part, will be tranſmitted through the Surface, and through the Air or Vacuum between the Glaſſes, and paſs into the ſecond Glaſs: But if the ſecond Glaſs be taken away, then the Light paſſing out of the ſecond Surface of the firſt Glaſs into the Air or Vacuum, will not proceed but return into the firſt Glaſs, and be *reflected*.

Whence it follows, that the Rays are drawn back again by ſome Force in the firſt Glaſs; there being nothing elſe to occaſion their return.—And hence too, it follows, that the *Reflection* is not effected by means of any ſubtle Matter, contiguous to the hind Surface, according to the Principles of *Des Cartes*; ſince that Matter ought to *reflect* them when the Glaſſes were nearly contiguous, as well as when the ſecond Glaſs is quite removed.

Laſtly, If it be ask'd how ſome of the Rays come to be *reflected*, and others tranſmitted: And why they are not all alike *reflected*; ſuppoſing the *Reflection* owing to the Action of the whole Surface? The ſame great Author ſhews, that there are both in the Rays of Light, and in the Bodies themſelves, certain Vibrations, (or ſome ſuch Property) impreſs'd on the Rays, by the Action either of the Luminary that emits them, or of the Bodies that *reflect* them; by means whereof it happens that thoſe Rays in that Part of their Vibration which conſpires with the Motion of the Parts of the Body, enter the Body, are refracted and tranſmitted; but thoſe in a contrary Part of their Vibration reflected. See VIBRATION and MEDIUM. See alſo REFRACTION and TRANSMISSION.

Add, that every Ray of Light, in its Paſſage through any refracting Surface, is put into a certain tranſient Conſtitution or State, which in the Progreſs of the Ray returns at equal Intervals, and diſpoſes the Ray at each return to be eaſily tranſmitted through the next *refracting* Surface; and between each Return to be eaſily *reflected* by it.

Theſe alternate Diſpoſitions, which Sir *Iſaac Newton* calls *fits of eaſy Reflexion*, and of *eaſy Tranſmiſſion*, he accounts for by ſuppoſing that the Rays of Light, in impinging on Bodies, excite Vibrations therein, which happening to move faſter than the Rays, when a Ray is in that Part of the Vibration which conſpires with its Motion, it paſſes through; but when in the contrary Part of the Vibration, is beat back again: Whence every Ray is ſucceſſively diſpoſed to be eaſily *reflected*, or eaſily tranſmitted, by every Vibration which overtakes it. See TRANSMISSION.

REELECTION, in Catoptricks, is the return of a Ray of Light from the poliſh'd Surface of a Speculum or Mirrour, driven thence by ſome Power reſiding therein. See MIRROUR and CATOPTRICKS.

The Ray thus returned is called a *Reflex*, or *reflected Ray*, or *Ray of Reflexion*; and the Point of the Speculum whence the return commences, the *Point of Reflexion*.

Thus the Ray AB (*Tab. Opticks, Fig.* 26.) proceeding from the Radiant A, and ſtriking on the Point of the Speculum B; being returned thence to C; BC repreſents the *reflected Ray*, and B the *Point of Reflexion*: In reſpect whereof AB repreſents the *Incident Ray*, or *Ray of Incidence*, and B the *Point of Incidence*. See POINT and RAY.

Again, a Line as CG drawn from any Point as C of the *reflected* Ray BC, perpendicular to the Speculum, is call'd the *Cathetus of Reflexion*, or *Cathetus of the Eye*: As a Line AF, drawn from the Radiant Perpendicular to the Speculum, is call'd the *Cathetus of Incidence*. See CATHETUS.

Of the two Angles which the *reflected Ray* BC makes with the Mirrour, the ſmalleſt, CBE, is called the *Angle of Reflexion*: As, of the two Angles the incident Ray makes with the Speculum, the ſmalleſt ABD is called the *Angle of Incidence*. See ANGLE.

If the Mirrour be either Concave, or Convex, the ſmalleſt Angles the Ray makes with a Tangent to the Point of *Reflection* and Incidence, are the *Angles of Reflexion* and Incidence.

The Angle CBH which the *reflected* Ray makes with a Perpendicular to the Point of *Reflection*, is call'd the *Inclination of the reflected Rays*; as the Angle ABH is called the *Inclination* of the *Incident* Ray.

The General Laws of REFLECTION.

1°. *If a Ray of Light be reflected from a Speculum of any form; the Angle of Incidence is ever equal to the Angle of Reflection.*—This Law obtains in Percuſſions of all Kinds of Bodies, and conſequently muſt do ſo in thoſe of Light. See *Laws of* PERCUSSION.

It might therefore be here aſſumed as an Axiom: But 'tis of that Importance, and its Demonſtration ſo beautiful, that we cannot omit it.—Suppoſe, then, DC (*Fig.* 54.) an incident Ray, propagated from the Radiant A: Here, though the Motion of the Ray be ſimple, yet its Determination in the Line DC being oblique with reſpect to the Obſtacle, is really compounded of two Determinations; the one along DE, the other along DG. See COMPOUND *Motion*.

The Force along DC, therefore is equal to the two Forces along DG and DH. But the Obſtacle GF only oppoſes one of the Determinations; *viz.* that along DG, (for it cannot oppoſe a Determination Parallel to it ſelf, as DE;) therefore only the Force along DG will be loſt by the ſtroke; that along DH or GC remaining entire.—But a Body perfectly Elaſtic, (ſuch as we ſuppoſe the Ray of Light) will recover by its Elaſticity, the force it loſt by the Shock. See ELASTICITY.

The Ray, therefore, will recover the Force DG or CH. Thus, retaining both its Forces, and both its former Determinations HC and CF; after Percuſſion; it will be impell'd along CF and CH, by the ſame Forces as before along DH and DG. By its compound Motion, therefore, it will deſcribe the right Line CF, and that in the ſame time as DC; and HE and DH will be equal, as being deſcribed by the ſame Force. Now, the two Triangles DCH and CHE are equal, and conſequently their ſimilar Angles equal. Since then, HCA=HCF; DCA the Angle of Incidence, is equal to ECF the Angle of *Reflection*. Q. E. D.

This Law is confirmed in Light by an eaſy Experiment. For a Ray of the Sun falling on a Mirror, in a dark Room, through a little Hole; you'll have the Pleaſure to ſee it rebound, ſo as to make the Angle of *Reflexion* equal to that of Incidence. See CAMERA *Obſcura*.

The ſame may be ſhewn various other Ways: Thus, *e. gr.* Placing a Semicircle FIG (*Tab. Opticks, Fig.* 26.) on a Mirror DE, its Centre on B, and its Limb Perpendicular to the Speculum; and aſſuming equal Arches, F*a* and G*c*; place an Object in A, and the Eye in C: Then will the Object be ſeen by a Ray *reflected* from the Point B. And if B be cover'd, the Object will ceaſe to be ſeen.

Hence, 1°. If a Ray of Light, as HB, fall Perpendicularly on the Surface of a Speculum DE, it will be *reflected* back upon it ſelf.

2°. From the ſame Point of a Speculum, ſeveral Rays cannot be *reflected* to the ſame Point; for in that Caſe all the ſeveral Angles of *Reflection* would be equal to the ſame Angle of Incidence; which is abſurd.

3°. One Ray as AB cannot be *reflected* to two or more Points; for in that Caſe all its Angles of *Reflection* would be equal to the ſame Angle of Incidence; which is as abſurd as before. See RADIANT.

II. *Each Point of a Speculum reflects Rays falling on it, from each Part of an Object.*

Hence, ſince ſeveral Rays coming from ſeveral Parts of a radiant Object, cannot be *reflected* from the ſame Point of a Speculum to the ſame Point; the Rays that flow from different Points of the Object, are ſeparate after *Reflection:* And hence each Ray ſhews the Point whence it proceeded. See VISION.

On this Principle it is that the Rays *reflected* from Mirrours or Looking-Glaſſes, exhibit the Appearances of Objects placed before them. See LOOKING-GLASS.

And hence we eaſily conceive why rough Bodies exhibit no Images; in regard they reflect the Light in ſuch Manner as to confound Rays which proceed from different Points, by means of their Eminences and Cavities, their alternate Riſings and Fallings.—But for this, all hard Bodies would be Mirrors.

III. *If the Eye* C, *and the radiant Point* A *change Places; the Point will continue to radiate upon the Eye, in the ſame Courſe or Path as before.*

For if the Object be removed from A to C, it will ſtill radiate on its former Point of *Reflexion* B; but there can be but one right Line drawn between the two Points G and D; and the Rays are right Lines. Therefore that which was before the Ray of *Reflexion*, will now be the Ray of Incidence; and ſince it will be *reflected* under the ſame Angle as that under which it fell, that which was before the Ray of Incidence, will, now be the Ray of *Reflexion*. So that the Object removed to C, will radiate on the Eye placed in A, by the right Lines CB and BA. *Q. e. d.*

Hence, an Object is ſeen by the *reflected* Ray AB, with the Eye placed in A, the ſame, as if the Eye were in AC, and the Object in A.

The Truth of this Theorem is ſo eaſily confirm'd by Experiment, that ſome, with *Euclid*, aſſume it as a Principle; and demonſtrate the great Law of *Reflection* therefrom.—Thus: Suppoſe the Angle of Incidence a little greater than the Angle of *Reflection*; then will the Angle ABF be greater than that CBE. Wherefore, changing the Places of the Eye and the Object, the Angle CBE will become the Angle of Incidence; and therefore CBE greater than ABF, by the Suppoſition. So that the ſame Angle ABF will be both greater and ſmaller than the other CBE; which being abſurd, ABE cannot be greater than CBE.—The ſame Abſurdity will follow, if you ſuppoſe the Angle of Incidence leſs than the Angle of *Reflection.*—Since then the Angle of Incidence can neither be greater nor leſs than that of *Reflection*, it muſt be equal to it.

IV. *The Plane of Reflection*, that is, the Plane wherein the Incident and reflected Ray are found, *is perpendicular to the Surface of the Speculum; and in ſpherical Specula paſſes through the Centre.*

Hence the Cathetus both of Incidence and *Reflexion* is in the Plane of *Reflection*.

That the *Plane of Reflection is perpendicular to the Speculum*, is aſſum'd by *Euclid*, *Alhazon*, and others, as a Principle, without any Demonſtration; as being evident from all Obſervation and Experiment.

IV. *The Image of an Object ſeen in a Mirror, is in the Cathetus of Incidence.*

This the Antients aſſumed as a Principle: And, hence, ſince the Image is certainly in the *reflected* Ray, they infer'd it muſt appear in the Point of Concourſe of the *reflected* Ray with the Cathetus of Incidence; which indeed holds univerſally in plane and ſpherical Mirrors, and uſually in concave ones; a few Caſes only excepted, as is ſhewn by *Kepler*.

For the particular Laws of REFLECTION, *ariſing from the Circumſtances of the ſeveral Kinds of Specula, or Mirrors, Plane, Concave, Convex,* &c. *ſee them laid down under the Article* MIRROR.

REFLECTION *of the Moon*, is a Term uſed by ſome Authors, for what we otherwiſe call her *Variation*; being the third Inequality in her Motion, whereby her true Place out of the Quadratures, differs from her Place twice equated. See MOON.

REFLECTION is alſo uſed in the *Copernican* Syſtem, for the Diſtance of the Pole from the Horizon of the Disk; which is the ſame thing as the Sun's Declination in the *Ptolemaick* Syſtem. See DECLINATION.

REFLECTION is alſo figuratively uſed for an Operation of the Mind, whereby, turning as it were back upon it ſelf, it makes it ſelf and its own Operations its Object; and conſiders or contemplates the Manner, Order, and Laws, which it obſerves in Perceiving, Reaſoning, Willing, Judging, Doubting, Believing, *&c.* and frames it ſelf new Ideas of the Relations diſcover'd therein. See SOUL, FACULTY, PERCEPTION, IDEA, *&c.*

REFLEX, REFLECT, in Painting, is underſtood of thoſe Places in a Picture which are ſuppoſed to be illumined by a Light *reflected* from ſome other Body repreſented in the ſame Piece. See LIGHT.

Or *Reflexes* may be defined thoſe Places which beſide the general Light that illumines the whole Piece, receive ſome particular Light, from their Situation with reſpect to ſome more illumined poliſhed Body that reflects Part of the Rays it receives upon them. See COLOUR.

Reflexes are ſcarce ſenſible except in the ſhadowed Parts.—The Management of the *Reflexes* requires a world of Accuracy and Skill.—All reflected Light is ſuppoſed to carry with it Part of the Colour of the Body which reflects it; ſo that thoſe Places which receive this Light, muſt have their Colours mix'd or tinged with that Colour. But the ſame Place may receive *Reflexes* from different Objects, differently colour'd, and thoſe again receive *Reflexes* from others.—The Painter therefore muſt have a View to every Circumſtance of the Colour, Light and Poſition of each Figure; muſt conſider what effect each has on other, and purſue Nature through all the Variety of Mixtures. See CLAIR-*Obſcure*.

REFLEX *Viſion*, or REFLECTED *Viſion*, is that performed by means of Rays reflected from the poliſh'd Surfaces of Objects to the Eye. See VISION and REFLECTION.

Reflex Viſion is the Subject of Catoptricks. See CATOPTRICKS.

Under *Reflex Viſion* come all the Phænomena of Specula or Mirrors of all Kinds. See MIRROR.

REFLEXIBILITY *of the Rays of Light*, is that Property whereby they are diſpoſed to be *reflected*. See REFLECTION.

Or it is their Diſpoſition to be turned back in the ſame Medium, from any other Medium on whoſe Surface they fall.—Hence thoſe Rays are ſaid to be *more* or *leſs Reflexible*, which are returned back more or leſs eaſily under the ſame Incidence. See RAY.

Thus if Light paſs out of Glaſs into Air, and by being inclined more and more to the common Surface of the Glaſs into Air, begins at length to be totally reflected by that Surface; thoſe Sorts of Rays which at like Incidences are reflected moſt copiouſly; or the Rays which by inclining begin ſooneſt to be totally reflected, are moſt *Reflexible*.

That the Rays of Light are endued with different Degrees of *Reflexibility*, was firſt diſcovered by Sir *Iſaac Newton*; and is ſhewn by the following Experiment.—Applying a Priſm DFE, (*Tab. Opticks, Fig.* 55.) whoſe Angles are each 45°. to the Aperture C of a darkened Room, in ſuch manner as that the Light is reflected from the Baſe in G: The Violet Rays are ſeen firſt reflected in HG; the other Ray continuing ſtill refracted in IK.—After the Violet, the Blue are all refracted, then the Green, *&c.* See PRISM.

Hence it appears, that the differently colour'd Rays, differ in Degree of *Reflexibility*. See COLOUR.

From other Experiments it appears, that thoſe Rays which are moſt *reflexible*, are alſo moſt *refrangible*. See REFRANGIBILITY.

REFLUX *of the Sea*, the Ebbing of the Water; or its return from the Shore. See EBB.

It is thus call'd, as being the oppoſite Motion to the Flood, or Flux. See FLUX and TIDE.

REFORM, a Re-eſtabliſhment or Revival of a former neglected Diſcipline; or a Correction of reigning Abuſes. See REFORMATION.

The Term is much uſed in a Monaſtic Senſe, for the reducing an Order or Congregation of Religious to the antient Severity of the Rule, from which it had gradually ſwerved; or even for the improving on the antient Rule and Inſtitution it ſelf, and voluntarily making it more ſevere. See ORDER and RELIGIOUS.

In the like Senſe the Order of St. *Bernard* is ſaid to be only a *Reform* of that of St. *Benedict*. See BERNARDINE and BENEDICTIN.

TO REFORM, in a military Senſe, is to reduce a Company, Regiment, or other Body of Men, either by diſbanding the whole, or only breaking a Part, and retaining the reſt; or ſometimes by incorporating them in other Regiments.

Hence REFORMADO, a *Reformed Officer*, or one whoſe Troop or Company is ſuppreſs'd in a *Reform*, and he continued either in whole or half Pay, doing Duty in the Regiment.

A *Reformed* Captain on Foot follows the Company, and aſſiſts the ſtanding Officer as a ſecond; but ſtill maintains his Degree and Precedence. See CAPTAIN.

REFORMATION, the Act of *Reforming*, or Correcting an Error, or Abuſe in Religion, Diſcipline, *&c.*

The *Reformation* of the *Roman Calendar* by Pope *Gregory*, was effected in the Year 1582. chiefly by the Advice of *Aloyſius Lilius*, and *Clavius*, See CALENDAR.

The *Reformation of Religion*, called by Way of Eminence, *the Reformation*, was begun by the Elector of *Saxony*, at the Sollicitation of *Luther*, about the middle of the ſixteenth Century. See LUTHERANISM.

King *Henry* VIII. of *England*, happening to have then a Pique againſt Pope *Clement* VII. by reaſon of his perſiſting in not allowing of his Divorce from Queen *Catherine* of *Auſtria*, fell in with the Torrent, aboliſhed the Pope's Supremacy, ſeiz'd the Monaſteries, and other Religious Houſes; and divided their Lands among the Nobility and Gentry.

In every thing elſe he perſevered a Papiſt.—So that the *Reformation* went on but lamely in his time.—Under his Son *Edward* VI. it went much further; but was all undone again by his Succeſſor Queen *Mary*, who re-eſtabliſhed the antient Superſtitions.

But the Executions of above 500 People, who were burnt for the Proteſtant Faith in the five Years of her Reign, ſo alienated the People from Popery, that Queen *Elizabeth*, her Siſter, found it no hard Matter to carry the *Reformation* to its full Length; and to ſettle it on the Foot whereon it now ſtands among us. See PROTESTANT, CALVINIST, *&c.*

Right of REFORMATION, *Jus Reformationis*, is a Right which the Princes of *Germany* claim to *reform* the Church in their reſpective Territories; as being inveſted with the ſpiritual as well as the temporal Power.

The *Jus Reformationis* is annex'd to the Principality; by this they have the Power of Conſcience, the Diſpoſition of Eccleſiaſtical Revenues, *&c.* as they enjoy'd the ſame at the Treaty of *Munſter* in 1624.

REFRACTED *Ray*, or *Ray of* REFRACTION. See RAY and REFRACTION.

REFRACTED *Dials*, are ſuch as ſhew the Hour by means of ſome *refracting* tranſparent Fluid. See DIAL.

If a Pin or Stick be ſet up, or any Point be aſſign'd in a concave Bowl or Diſh, for the Centre of the Dial; and a horizontal Dial be applied over the ſame; aſſigning the meridian Line on the Edges of the Bowl; and marking out the reſt of the Hour Lines alſo on the Edges of the Bowl: Then taking away the horizontal Dial, and elevating a String or Thread from the End of the ſaid Pin over the meridian Line, as much as is the Latitude or Elevation of the Pole of the Place.—Then, by bringing the Thread to caſt a Shadow on any Hour-Point formerly mark'd out on the Edges of the Bowl, by a Candle or the like; that Shade in the Bowl is the true Hour-Line: And if the Bowl be full of Water, *&c.* when this is done; it will never ſhew the true Hour by the Shadow of the Top of the Pin, but when filled again with the ſame Liquor.

REFRACTION, in Mechanicks, the Deviation of a moving Body from its direct Courſe, by reaſon of the different Denſity of the Medium it moves in; or a Flexion and Change of Determination, occaſioned by a Body's falling obliquely out of one Medium into another of a different Denſity. See MEDIUM.

Thus a Ball A, (*Tab. Mechanicks, Fig.* 52.) moving in the Air in the Line AB, and falling obliquely on the Surface of the Water CD, does not proceed ſtraight to E, but deviates or is inflected to B.—Again, if the Ball moving in Water in the ſame Line AB ſhould fall obliquely on a Surface of Air CD; it will not proceed ſtraight to E, nor yet deflect to F, but to G.

Now the Deflection in each Caſe is call'd the *Refraction*; and the two Caſes are diſtinguiſhed by means of the Perpendicular MI; that, BG being called *Refraction towards the Perpendicular*, or to the *Axis of Refraction*; and the other BF, *Refraction from the Perpendicular*, or *from the Axis of Refraction*.

Theſe *Refractions* are ſuppoſed to ariſe hence, that the Ball arrivng at B, in the firſt Caſe, finds more Reſiſtance from the Side O, *i. e.* from the Side of the Water, than from the Side P, or that of the Air; and in the latter more Reſiſtance from the Side P, which is now the Side of the Water, than the Side O which is that of the Air.

In effect the *great Law of Refraction* which holds in all Bodies, and all Mediums, is, That a Body paſſing obliquely out of a *leſs* into a *more* reſiſting Medium, is refracted from the Perpendicular; and in paſſing out of a *more* into a *leſs* reſiſting Medium, is refracted towards the Perpendicular.

Hence the Rays of Light falling out of Air into Water are refracted towards the Perpendicular; whereas a Ball thrown into the Water is refracted from it; by reaſon Water, which reſiſts the Motion of Light leſs than Air, reſiſts that of the Ball more: Or, to ſpeak more juſtly, by reaſon Water, by its greater Attraction, accelerates the Motion of the Rays of Light more than Air does: For that this is the true Cauſe of *Refraction*, at leaſt in Light, ſhall be ſhewn under REFRACTION *of Light*.

To have a Body *refracted*, 'tis neceſſary it fall obliquely on the ſecond Medium.—In perpendicular Incidences there is no *Refraction*.

Voſſius, indeed, and *Snellius* imagined they had obſerved a perpendicular Ray of Light undergo a *Refraction*; a perpendicular Object appearing in the Water nearer than in reality it was: But this was to attribute that to a *Refraction* of the perpendicular Rays, which was owing to the divergency of the oblique Rays after *Refraction*, from a nearer Point.

Yet is there a manifeſt *Refraction* even of perpendicular Rays found in *Iſland Cryſtal*. See *Iſland* CRYSTAL.

Rohault adds, that though an oblique Incidence be neceſſary in all other Mediums we know of; yet the Obliquity muſt not exceed a certain Degree.—If it do, the Body will not penetrate the Medium, but be *reflected*, inſtead of *refracted*.—Thus Cannon Balls in Sea Engagements, falling very obliquely on the Surface of the Water, are obſerved to mount a-loft again, and frequently to ſweep the Men from off the oppoſite Decks: And the like happens to the little Stones wherewith Children make their Ducks and Drakes.

The Antients confounded *Refraction* with *Reflexion*; and 'twas Sir *Iſaac Newton*, who firſt taught us the Difference between them.—He ſhews withall, that there is a good deal of Analogy between them; and particularly in the Caſe of Light. See REFLECTION and REFRACTION *of Light*.

The Laws of *Refraction* of the Rays of Light in Mediums differently terminated, *i. e.* whoſe Surfaces are Plain, Concave, Convex, *&c.* make the Subject of Dioptricks. See DIOPTRICKS.

By *Refraction* it is that Convex Glaſſes, or Lens's collect the Rays, magnify Objects, Burn, *&c.* and that concave Lens's diſperſe the Rays, diminiſh Objects, *&c.* See LENS's, CONVEX, and CONCAVE.

Hence the Foundation of Microſcopes, Teleſcopes, *&c.* See MICROSCOPE and TELESCOPE, *&c.*

By *Refraction* it is, that all remote Objects are ſeen out of their real Places; particularly, that the heavenly Bodies are apparently higher than they are in reality, *&c.* See APPARENT and PLACE. See alſo REFRACTION *Aſtronomical*.

REFRACTION *of Light*, in Opticks, is an inflexion or deviation of the Rays from their rectilinear Courſe upon falling obliquely out of one Medium into another, of a different Denſity. See RAY.

The *Refraction* of Light Sir *Iſaac Newton* ſhews is not perform'd by the Rays falling on the very Surface of Bodies; but *without any Contact*, by the Action of ſome Power of the Bodies equally diffuſed throughout their Surfaces; by which ſame Power acting in other Circumſtances, they are alſo emitted and reflected. See LIGHT.

The ſame Arguments whereby we have proved that *Reflection* is perform'd without immediate Contact, go a great way towards demonſtrating the ſame of *Refraction*: To which may be added the following ones.

1°. Becauſe if when Light falls out of Glaſs into Air, with the utmoſt Obliquity it will be tranſmitted at, it be then made to fall a little more obliquely, it becomes wholly reflected.—For, the Power of the Glaſs after it have refracted Light emerging as obliquely as poſſible, ſuppoſing the Rays to fall ſtill more obliquely, will be too ſtrong to let any of the Rays paſs; conſequently, inſtead of being *refracted* they will be all reflected.

2°. Becauſe in thin *Lamellæ*, or Plates of Glaſs, Light is reflected and *refracted* ſeveral times alternately, as the thickneſs of the *Lamellæ* increaſes in arithmetical Progreſſion.—For here it depends on the thickneſs of the Lamina which of the two it ſhall do; whether reflect it, or let it be tranſmitted.

3°. Becauſe whereas the Powers of other Bodies both to reflect and refract Light are very nearly Proportional to their Denſities; yet unctuous and ſulphurous Bodies are found to reflect more ſtrongly than according to their Denſities.—For as the Rays act more ſtrongly on thoſe Bodies to kindle them, than on others; ſo do they, again, by their mutual Attraction, act more ſtrongly on the Rays to *refract* them.

Laſtly, Becauſe not only thoſe Rays tranſmitted through Glaſs are found to be *refracted*, but alſo thoſe paſſing in the Air, or in a Vacuum near its Extremities, or even near the Extremes of many Opake Bodies, *e. gr.* the Edge of a Knife, undergo a ſimilar Inflexion, from the Attraction of the Body. See INFLECTION.

The manner wherein *Refraction* is perform'd by meer Attraction, without Contact, may be thus accounted for.—Suppoſe HI (*Tab. Opticks, Fig.* 56.) the Boundary of two Mediums, N and O; the firſt the Rarer, *e. gr.* Air; the ſecond the Denſer, *e. gr.* Glaſs; the Attraction of the Medium here will be as their Denſities.—Suppoſe PS to be the Diſtance to which the attracting Force of the denſer Medium exerts itſelf within the Rarer.

Let now a Ray of Light A*a* fall obliquely on the Surface which ſeparates the Mediums; or rather, on the Surface PS, where the Action of the ſecond and more reſiſting Medium commences. All Attraction being perform'd in Lines perpendicular to the attractive Body, as the Ray arrives at *a*, it will begin to be turned out of its rectilinear Courſe, by a ſuperior Force wherewith it is attracted by the Medium O, more than by the Medium N, *i. e.* by a Force wherewith it is driven towards it in a Direction perpendicular to its Surface.—Hence the Ray is bent out of its right Line, in every Point of its Paſſage between PS and RT, within which the Attraction acts. Between thoſe Lines, therefore it deſcribes a Curve *a*B*b*. But beyond RT, being out of the Sphere of Attraction of the Medium N, it will proceed uniformly in a right Line, according to the Direction of the Curve in the Point *b*.

Again, ſuppoſe N the denſer and more reſiſting Medium, O the Rarer; and HI the Boundary, as before; and let RT be the Diſtance to which the denſer Medium exerts its attractive Force within the Rarer: Even when the Ray has paſs'd the Point B, it will be within the Sphere of ſuperior Attraction of the denſer Medium; but that Attraction acting in Lines perpendicular to its Surface, the Ray will be continually drawn from its ſtraight Courſe BM perpendicularly towards HI: Thus having two Forces or Directions, it will have a compound Motion, whereby inſtead of BM it will deſcribe B*m*; which B*m*, will in ſtrictneſs be a Curve.

Laſtly, After it has arrived in *m*, being out of the Influence of the Medium N, it will perſiſt uniformly in a right Line, in the Direction wherein the Extreme of the Curve leaves it.

Thus we ſee how *Refraction* is performed, both toward the Perpendicular, and from it.

But Note, the Attraction of the denſer Medium, *e. gr.* N, is continually diminiſhing as the Ray proceeds from B, towards the limit of Attraction RT; in regard fewer and fewer Parts ſtill come to act: at IH, *e. gr.* all the Parts between that and PS attract, but at RT, none but thoſe in the Line HI.—Note alſo, that the Diſtance between PS and RT being ſmall, when we conſider *Refractions*, no Notice is taken of the Curve Part of the Ray; but we conſider it as conſiſting of two ſtraight Lines, CB, AB, or *m* B, AB.

REFRACTION, in Dioptricks, is the Inflection or bending of the Rays of Light, in paſſing the Surfaces of Glaſſes, Lenſes, and other tranſparent Bodies of different Denſities.

Thus a Ray, as AB, (*Tab. Opticks, Fig.* 56.) falling obliquely from the Radiant A, upon a Point B, in a diaphanous Surface, HI rarer or denſer than the Medium along which it was propagated from the Radiant; it has its Direction there alter'd by the Action of the new Medium, and inſtead of proceeding to M deviates, *e. gr.* to C.

This Deviation is called the *Refraction of the Ray*: BC the *Refracted Ray*, or *Line of Refraction*; and B the *Point of Refraction*. See RAY, LINE, and POINT.

The Line AB is call'd the *Line of Incidence*, or *Ray of Incidence*; and in reſpect hereof B is alſo called the *Point of Incidence*. See INCIDENCE.

The Plane wherein both the incident and *reflected* Rays are found, is called the *Plane of Refraction*; a right Line BE drawn in the *refracting* Medium perpendicular to the *refracting* Surface in the Point of *Refraction* B, is call'd the *Axis of Refraction*—And a right Line DB drawn perpendicular to the *refracting* Surface, in the Point of Incidence B, along the Medium through which the Ray fell, is called the *Axis of Incidence*. See PLANE, AXIS, *&c.*

The Angle ABI included between the incident Ray, and the *refracting* Surface, is called the *Angle of Incidence*; and the Angle ABD included between the incident Ray, and the Axis of Incidence, is call'd the *Angle of Inclination*—The Angle MDC which the *refracted* Ray makes with the Incident, is call'd the *Angle of Refraction*; and the Angle CBE which the *refracted* Ray makes with the Axis of *Refraction*, is call'd the *refracted Angle*. See ANGLE.

General Laws of REFRACTION.

I. ***A Ray of Light in its Paſſage out of a rarer, into a denſer Medium,*** e. gr. ***out of Air into Glaſs, is refracted towards the Perpendicular,*** i. e. ***towards the Axis of Refraction.***

Hence, the *refracted* Angle is leſs than the Angle of Inclination; and the Angle of *Refraction* leſs than that of Incidence; as they would be equal, were the Ray to proceed ſtraight from A to M.

Hence, alſo a Ray perpendicular to the *refracting* Surface, will paſs through without being *refracted*; as it cannot be *refracted* to the Perpendicular. The phyſical Cauſe thereof is, that the Attraction of the denſer Medium, which in Incidences oblique to its Surface acting perpendicular to that Surface, draws the Ray out of its Courſe: This Attraction, we ſay, in a perpendicular Incidence, acts in the Direction of the Ray.

II. *The Ratio of the Sine of the Angle of Inclination, to the Sine of the refracted Angle, is fix'd and conſtant*; viz. If the *Refraction* be out of Air into Glaſs, it is found greater than as 114 to 76; but leſs than 115 to 76; that is, nearly as 3 to 2.

This Ratio, aſſign'd by *Huygens*, agrees with another of Sir *Iſaac Newton*, who makes the Sine of the Angle of Inclination to the Sine of the *refracted* Angle, as 31 to 20; which is, likewiſe, nearly as 3 to 2.—Indeed there is ſome Difference in the Quantity of *Refraction*, in different Kinds of Glaſs; but in phyſical Matters, Preciſeneſs is not neceſſary.—In Rain Water, *Des Cartes* found, the Ratio of the Sine of the Angle of Inclination, to the Sine of the *refracted* Angle, as 250 to 187, that is, nearly as 4 to 3; which agrees with Sir *Iſaac Newton*'s Obſervation, who makes it as 529 to 396.—In Spirit of Wine, the ſame great Author makes the Ratio as 100 to 73; which is not far from the ſeſquitertian Ratio.—In Air he makes it as 3851 to 3850.

Whence the different *refractive* Power in different Fluids ariſes, is not determined.—Clear Water, of all others, *refracts* the leaſt; and if impregnated with Salts, its *Refraction* is increaſed in Proportion to the Quantity of Salt. Sir *Iſaac Newton* ſhews, that in many Bodies, *e. gr.* Glaſs, Cryſtal, a Selenites, Pſeudo-Topaz, *&c.* the *refractive* Power is proportionable to their Denſities; only in ſulphurous Bodies, as Camphire, Oil Olive, Amber, Spirit of Turpentine, *&c.* the Power is two or three times greater than in other Bodies of equal Denſity; yet they have the *Refractive* Power with reſpect to each other, nearly as their Denſities.—As to Air, he ſhews that a Ray of Light in traverſing quite thro' the Atmoſphere, is *refracted* the ſame it would be were it to paſs with the ſame Obliquity out of a Vacuum into Air of equal Denſity with that in the loweſt Part of the Atmoſphere. See AIR.

From the Law juſt laid down, it follows that one Angle of Inclination, and its correſponding *refracted* Angle being found by Obſervation; the *refracted* Angles correſponding to the ſeveral other Angles of Inclination, are eaſily computed.—Now, *Zahnius* and *Kircher* have found, that if the Angle of Inclination be 70°. the *refracted* Angle will be 38° 50'; on which Principle *Zahnius* has conſtructed a Table of *Refractions* out of Air into Glaſs, for the ſeveral Degrees of the Angle of Inclination; a Specimen whereof follows.

Ang. of Inclin.	Refracted Angle.	Angle of Refraction.	Ang. of Inclin.	Refracted Angle.	Angle of Refraction.
1°	0° 40' 5"	0° 19' 55"	10°	0° 39 10"	3° 20 44"
2	1 20 6	0 13 54	20	13 11 35	6 48 25
3	2 0 3	0 59 56	30	19 29 29	10 30 31
4	2 40 5	1 19 55	45	28 9 19	16 50 41
5	3 20 3	1 39 57	90	41 51 40	48 8 20

Hence it appears that at an Angle of Inclination leſs than 20° the Angle of *Refraction* out of Air into Glaſs, is almoſt $\frac{1}{3}$ of the Angle of Inclination: And therefore a Ray is *refracted* to the Axis of *Refraction*, by almoſt a third Part of the Quantity of its Angle of Inclination —And on this Principle it is that *Kepler* and moſt other dioptrical Writers, demonſtrate the *Refractions* in Glaſſes.

The conſtant *Ratio* of the Sines of the Angles of Inclination, and the *refracted* Angles was firſt diſcovered by *Willeb. Snellius*.—'Tis vulgarly attributed to *Des Cartes*; who having ſeen it in *Snellius's* MS, firſt publiſhed it in his Dioptricks, without naming *Snellius*; as we are inform'd by *Huygens*.

Indeed, as the Rays of Light are not all of the ſame Degree of *Refrangibility*; this conſtant Ratio muſt be different in different Kinds.—The Ratio therefore obſerved by Authors is to be underſtood of Rays of the mean *Refrangibility*, i. e. of green Rays. The Difference of *Refraction* between the leaſt and moſt *refrangible* Rays, that is between Violet and red Rays, Sir *Iſaac Newton* ſhews is about $\frac{1}{27}$ Part of the whole *Refraction* of the mean *Refrangible*; which Difference he owns is ſo ſmall, that there ſeldom needs to be any regard had to it. See REFRANGIBILITY.

III. *When a Ray paſſes out of a denſer into a rarer Medium*, e. gr. *out of Glaſs into Air, it is refracted from the Perpendicular, or from the Axis of Refraction.*—And hence the Angle of *Refraction* is greater than the Angle of Inclination.

Hence, alſo, if the Angle of Inclination be leſs than 30°; MBC is nearly equal to $\frac{1}{3}$ of MBE.—Therefore MBC is one half of CBE: Conſequently, if the *Refraction* be out of Glaſs into Air; and the Angle of Inclination leſs than 30°; the Ray is *refracted* from the Axis of *Refraction* by almoſt one half Part of the Angle of Inclination.—And thus is the other dioptrical Principle uſed by moſt Authors after *Kepler*, to demonſtrate the *Refractions* of Glaſſes.

If the *Refraction* be out of Air into Glaſs, the Ratio of the Sine of Inclination to the Sine of the *refracted* Angle is as 2 to 3; if out of Air into Water, as 4 to 3: Therefore, if the *Refraction* be the contrary way, *viz.* out of Glaſs or Water into Air; the Ratio of the Sines in the former Caſe, will be as 2 to 3, in the latter as 4 to 3.

IV. *A Ray falling on a Curve Surface, whether Concave or Convex; is refracted after the ſame Manner as if it fell on a Plane which is a Tangent to the Curve in the Point of Incidence.*

For the Curve and plain Surface touching it, have an infinitely ſmall Part common to them both, (each being originally generated by the Flux of a Point). But a Ray is *refracted* in ſuch a little Part; therefore 'tis the ſame as if it were *refracted* in ſuch a Plane.

V. *If* A *right Line* EF (*Fig.* 57. and 58.) *cut a refracting Surface* GH *at right Angles; and if from any Point in the denſer Medium as* D *be drawn* DC *Parallel to the incident Ray* AB: *This will meet the refracted Ray in* C; *and will be to it as the Sine of the refracted Angle to the Sine of the Angle of Inclination.*

Hence, if BC paſs out of Glaſs into Air, it is in a ſubſeſquialterate Ratio to CD; if out of Air into Glaſs, in a ſeſquialterate Ratio to CD.

Hence, alſo, if Light paſs out of Water into Air; CB is in a ſubſeſquitertian Ratio to CD; if out of Air into Water in a Seſquiquartan.

Laws of REFRACTION *in Plane Surfaces.*

1°. *If parallel Rays be refracted out of one tranſparent Body into another of different Denſity, they will continue Parallel after Refraction.*

The phyſical Reaſon is, that being parallel, their Obliquity, or Angle of Incidence is the ſame: But at equal Obliquities we have ſhewn the *Refraction* is equal; conſequently the Paralleliſm which they had before the *Refraction*, will be retain'd after it.

But this may be alſo demonſtrated Geometrically, thus: If the Rays be perpendicular to the *refracting* Surface, they will paſs without any *Refraction*; conſequently being parallel before their Paſſage, they will be ſo after it. If they fell Obliquely, as AB and DC; the Angles of Incidence *o* and *u*; and conſequently, alſo the Angles of Inclination *x* and *y*, will be equal. But the Sines of the Angles of Inclination *x* and *y*, have the ſame Ratio to the Sines of the *refracted* Angles *m* and *n*; therefore the *refracted* Angles *m* and *n* are alſo equal; conſequently the *refracted* Rays parallel.

Hence a Glaſs, plain on both Sides, being turn'd directly to the Sun; the Light paſſing through it will be propagated after the ſame manner as if the Glaſs were away: For the Rays being Perpendicular will paſs without *Refraction*.—If the Glaſs be turn'd obliquely to the Sun, the Light after *Refraction* will be of the ſame Intenſity as before; the Intenſity depending on the Spiſſitude or Cloſeneſs of the Rays, and on the Angle wherein they ſtrike the Object, or the Eye, both which are here unvaried. See Ray.

2. If two Rays CD and CP, (*Fig.* 59.) proceeding from the ſame Radiant C, and falling on a Plane Surface of a different Denſity, ſo as the Points of *Refraction* D and P are equally diſtant from the Cathetus of Incidence GK; the *refracted* Rays DF and PQ have the ſame virtual Focus, or Point of Diſperſion G. See Virtual.

Hence, 1°. Since in Rays very near each other, the Diſtance from the Cathetus is the ſame as to Senſe; very near Rays will diverge from the ſame Point G, *i. e.* have the ſame virtual Focus G.—And hence, 2°. When *refracted* Rays falling on the Eye placed out of the Cathetus of Incidence, are either equally diſtant from the Cathetus, or very near each other; they will flow upon the Eye, as if they came to it from the Point G; conſequently the Point C will be ſeen by the *refracted* Rays as in G.

3. If a Ray CD fall obliquely out of a a thinner into a cloſer Medium, having a plane Surface; the Diſtance of the Radiant Point CK has a leſs Ratio to the Point of Diſperſion, or virtual Focus KG, than the Sine of the *refracted* Angle to the Sine of the Angle of Inclination.—But if the Diſtance of the Point of *Refraction* from the Cathetus of Incidence KD be leſs than the eleventh or nineteenth Part of the Diſtance of the radiant Point CK; and if in the former Caſe the tenth, in the latter the hundredth Part thereof be ſo ſmall that it can't be aſſign'd or need not be minded, then will CK be to KG, as to Senſe: in the Ratio of the Sine of the *refracted* Angle, to the Sine of the Angle of Inclination.

Hence, 1°. If the *Refraction* be out of Air into Glaſs, the Diſtance of the Point of Diſperſion of Rays near the Cathetus, is Seſquialterate, of the radiant Point; of more remote Rays, greater than Seſquialterate.

Hence, 2°. If the Eye be placed in a denſe Medium, Objects in a Rarer will appear more remote than they are; and the Place of the Image in any given Caſe, may be determined from the Ratio of the *Refraction.—Thus to Fiſhes ſwimming under Water, Objects out of the Water muſt appear further diſtant than in reality they are.*

4. If a Ray GD fall obliquely out of a denſer, into a rarer Medium AB; the Diſtance of the radiant Point GK, has a greater Ratio to the Diſtance of the Point of Diſperſion KC, than the Sine of the *refracted* Angle has to the Sine of the Angle of Inclination,—In the other Caſe of the preceding Theorem, KG will be to KC, as to Senſe, in the Ratio of the Sine of *refracted* Angle, to the Sine of the Angle of Inclination.

Hence, 1°. If the *Refraction* be out of Glaſs into Air, the Diſtance of the Point of Diſperſion of Rays near the Cathetus of Incidence, is Subſeſquialterate of the Diſtance of the radiant Point. That of the more remote Rays is leſs than the Subſeſquialterate.

But, 2°. if the *Refraction* be out of Water into Air; the Diſtance of the Point of Diſperſion of Rays near the Cathetus, is Subſeſquitertian; of thoſe more remote, leſs than Subſeſquitertian.

And 3°. The Eye therefore being in a rarer Medium, Objects placed in a Denſer appear nearer than they are; and the Place of the Image may be determined in any given Caſe by the Ratio of *Refraction*.—Hence the Bottom of a Veſſel full of Water, is rais'd by *Refraction*, to a third Part of its Height, with reſpect to an Eye perpendicularly over the *refracting* Surface; and hence *Fiſhes, and other Bodies under Water, appear nearer than they really are.*

5. If the Eye be placed in a rarer Medium, an Object ſeen in a denſer Medium, by a Ray *refracted* in a plane Surface, will appear larger than it really is.—If the Object be in a rarer, and the Eye in a denſer Medium, the Object will appear leſs than it is. —And in each Caſe the apparent Magnitude is to the real one in a Ratio compounded of the Diſtance of the Point to which the Rays tend before *Refraction*, from the *refracting* Surface FL (*Fig.* 60.) to the Diſtance of the Eye GL, from the ſame, and of the Diſtance of the Object from the Eye GM, to its Diſtance from a Point to which the Rays FL tend before *Refraction*.

Hence, 1°. If the Object AB be very remote; FM will be phyſically equal to GM; and therefore the real Magnitude MB to its apparent one MH, as GL to FL, or the Diſtance of the Eye G from the *refracting* Plane to the Diſtance of the Point of Convergence F from the ſame Plane.

Hence, 2°. *Objects under Water, to an Eye in the Air, appear larger than they are; and to Fiſhes under Water, Objects in the Air appear leſs than they are.*

Laws of Refraction *in Spherical Surfaces, both Concave and Convex.*

1. A Ray of Light DE (*Fig.* 61) Parallel to the Axis of a denſer Sphere, after a ſingle *Refraction* in E, falls in with the Axis in the Point F, beyond the Centre C.

For the Semidiameter CE drawn to the Point of *Refraction* E, is perpendicular to the Surface KL, and is therefore the Axis of *Refraction*; but a Ray out of a rarer into a denſer Medium, we have ſhewn, is *refracted* towards the Perpendicular, or the Axis of *Refraction*; therefore the Ray DE will converge to the Axis of the Sphere AF; and will, therefore at length concur with it; and that beyond the Centre C, in F; becauſe the Angle of *Refraction* FEH is leſs than the Angle of Inclination CEH.

2. If a Ray DE fall on a ſpherically Convex Surface of a denſer Medium, parallel to its Axis AF; the Semidiameter CE will be to the *refracted* Ray EF in the Ratio of the Sine of the *refracted* Angle to the Sine of the Angle of Inclination: But the Diſtance of the Focus or Point of Concurrence to the *refracted* Ray FE is in the Ratio of the Sine of the *refracted* Angle to the Sine of the Angle of Inclination.

3. If a Ray DE fall on a denſer ſpherically Convex Surface KL, Parallel to the Axis AF; the Diſtance of the Focus from the *refracting* Surface FB, is to its Diſtance from the Centre FC; in a Ratio greater than that of the Sine of the Angle of Inclination to the Sine of the *refracted* Angle.—But if the Rays be very near the Axis, and the Angle of Inclination BCE of a few Degrees; the Diſtances of the Focus from the Surface, and the Centre FB and FC, will be, nearly, in the Ratio of the Sine of the Angle of Inclination, to the Sine of the *refracted* Angle.

Hence, 1°. If the *Refraction* be out of Air into Glaſs; in the Caſe of Rays near the Axis, $BF : FC :: 3 : 2$. And in the Caſe of the Rays remoter from the Axis, $BF : FC > 3 : 2$. Conſequently in the former Caſe, $BC : BF :: 1 : 3$; and in the latter $BC : BF < 1 : 3$.

And 2°. If the *Refraction* be out of Air into Water; in the former Caſe, $BF : FC :: 4 : 3$; and in the latter, $BF : FC > 4 : 3$. Conſequently in the former $BC : BF :: 1 : 4$, and on the latter $BC : BF < 1 : 4$.

Hence, 3°. Since the Sun's Rays are Parallel, as to Senſe; if they fall on the Surface of a ſolid Glaſs Sphere, or of a Sphere full of Water, they will not concur with the Axis within the Sphere. So that *Vitellio* was miſtaken when he imagined that the Sun's Rays falling on the Surface of a Cryſtallin Sphere, were *refracted* to the Centre. See Focus.

4. If a Ray DE (*Fig.* 62) fall out of a denſer into a rarer ſpherical Medium; after *Refraction* it will diverge from the Axis; and the Diſtance of the Point of Diſperſion, or the virtual Focus from the Centre of the Sphere, FC, will be to its Semidiameter CE in the Ratio of the Sine of the *refracted* Angle to the Angle of *Refraction*; but to the Portion of the *refracted* Ray drawn back, FE, in the Ratio of the Sine of the *refracted* Angle to the Sine of the Angle of Inclination.

5. If a Ray ED fall Parallel to the Axis AF on the ſpherically Convex Surface KL, of a rarer Medium, out of a denſer; the Diſtance of the Point of Diſperſion from the Centre, FC, is to its Diſtance from the Surface FB: In a Ratio greater than that of the Sine of the *refracted* Angle to the Sine of the Angle of Inclination.—But if the Rays DE be very near the Axis FA, the Ratio will be very nearly the ſame with that of the *refracted* Angle to the Sine of the Angle of Inclination.

Hence, 1°. If the *Refraction* be out of Glaſs into Air; in the Caſe of Rays near the Axis, $FC : FB :: 3 : 2$. Conſequently $BC : FB :: 1 : 2$. Therefore in the Caſe of Rays more remote from the Axis, $BC : FB < 1 : 2$.

2°. If the *Refraction* be out of Water into Air; in the former Caſe $FC : FB :: 4 : 3$. Conſequently $BC : FB :: 1 : 3$; in the latter Caſe, therefore, $BC : FB : 1 < 1 : 3$.

3°. Since then the Point of Diſperſion F is more remote from the *refracting* Surface KL, if the Rays proceed out of Water, than out of Glaſs, into Air; Parallel Rays are leſs diſpers'd in the former Caſe than in the latter.

6. If a Ray HE (*Fig.* 61) fall parallel to the Axis FA, out of a rarer, on the Surface of a ſpherically concave denſer Medium; the *refracted* Ray EN will be made to recede from the Point of the Axis F; ſo as FE will be to FC, in the Ratio of the Sine of the Angle of Inclination, to the Sine of the *refracted* Angle.

7. If a Ray EH fall parallel to the Axis FB on the Concave Surface KL of a ſpherical denſer Medium, from a rarer; the Diſtance of the Point of Diſperſion from the *refracting* Surface FB; is to Diſtance from the Centre, FC, in a Ratio greater than that of the Sine of the Angle of Inclination, to the Sine of the *refracted* Angle. But if the Rays be very near the Axis, and the Angle BCE very ſmall; BH will be to BC very nearly in the Ratio of the Sine of the Angle of Inclination; to the Sine of the *refracted* Angle.

Hence, 1°. If the *Refraction* be out of Air into Glaſs; in the Caſe of the Rays near the Axis, $FB : FC :: 3 : 2$; in the Caſe of Rays more remote from the Axis $FB : FC :: > 3 :$ conſequently in the former, $BC : FC :: 1 : 2$: And hence, in the latter, $BC : FC < 1 : 2$.

Hence alſo 2°. If the *Refraction* be out of Air into Water; in Caſe of the Rays near the Axis; $FB : FC :: 4 : 3$. In the Caſe of Rays more remote from the Axis $FB : FC > 4 : 3$. Conſequently in the firſt Caſe $BC : FC :: 1 : 3$. And hence, in the latter, $BC : FC > 1 : 3$.

And hence, 3°. Since the Point of Diſperſion F, is further from the Centre C, if the *Refraction* be in Water than in Air; the Rays will be leſs diſpers'd in the latter Caſe than in the former.

8. If the Ray HE (*Fig.* 62.) fall parallel to the Axis AF, from a denſer, upon the Surface of a ſpherically Concave rarer Medium; the *refracted* Ray will concur with the Axis AF, in the Point F; ſo as the Diſtance of the Point of Concourſe from the Centre CF, may be to the *refracted* Ray FE in the Ratio of the Sine of the *refracted* Angle, to the Sine of the Angle of Inclination.

Doctrine of REFRACTION *in Glaſſes, Lens's,* &c.

1°. *Refraction in a Glaſs Priſm.*—If a Ray of Light DE (*Fig.* 62.) fall obliquely out of Air on a Priſm ABC; being *refracted* towards the Perpendicular, inſtead of proceeding to F it will decline to G, *i. e.* towards a Line HI, drawn Perpendicular to the Surface AB in the Point of *Refraction* E.—Again, ſince the Ray EG paſſing out of the Glaſs into Air falls obliquely on CB; it will be *refracted* to M: ſo as to recede from the Perpendicular NGO. *And hence the various Phænomena of the Priſm.* See PRISM.

2°. *Refraction in a Convex Lens.*—If Parallel Rays AB, CD, and EF, (*Fig.* 63.) fall on the Surface of a Lens 2B 3K; the perpendicular Ray AB will paſs unrefracted to K, where emerging into Air perpendicular, as before, it will proceed ſtraight to G. But the Rays CD and EF falling obliquely out of Air into Glaſs, in D and F, will be *refracted* towards the Axis of *Refraction*, (*i. e.* towards Lines HI and LM drawn perpendicular to the *refracting* Surface in the Points of *Refraction* F and D;) and decline to R and Q.—Again, emerging obliquely out of the Glaſs into the Surface of the Air, they will be *refracted* from the Perpendicular; and therefore DQ will not proceed to X but to G; and FP, not to V but to G: Thus likewiſe might all the other Rays falling on the Surface of the Glaſs, be ſhewn to be *refracted* ſo as to meet the others about the Point G. See FOCUS.

Hence the great Property of Convex Glaſſes; *viz. That they collect Parallel Rays, or make them converge into a Point.* See CONVEXITY.

3°. *Refraction in a Concave Lens.*—Parallel Rays AB, CD, EF, (*Fig.* 64.) falling on a Concave Lens GBHIMK; the Ray AB falling perpendicular on the Glaſs at B, will paſs *unrefracted* to M; where being ſtill perpendicular, it will paſs into the Air, without *Refraction* to L. But the Ray CD falling obliquely on the Surface of the Glaſs, will be *refracted* towards the Perpendicular NDO, and proceed to Q; and the Ray DQ, again, falling obliquely out of the Glaſs upon the Surface of Air, will be *refracted* from the Perpendicular RQS, and proceed to V. After the ſame manner might the Ray EF be ſhewn to be *refracted* to Y, and thence to G.

Hence the great Property of Concave Glaſſes, *viz. That they diſperſe Parallel Rays, or make them diverge.* See CONCAVITY.

4°. *Refraction in a plain Glaſs.*—If Parallel Rays EF, GH, IL, (*Fig.* 65.) fall obliquely on a plain Glaſs ABCD; the Obliquity being the ſame in all, by reaſon of their Paralleliſm, they will be all equally *refracted* towards the Perpendicular; and accordingly being ſtill parallel at M, O, and Q, will paſs out into the Air equally *refracted*, again, from the Perpendicular, and ſtill Parallel. See PARALLEL, and LOOKING-*Glaſs*.

Thus will the Rays EF, GH, and IL, at their entering the Glaſs, be inflected towards the right; and in their going out as much inflected to the left; ſo that the firſt *Refraction* is here undone by the ſecond: Indeed, not ſo as that the Object is ſeen in its true Place.—For the Ray BQ being produced back again, will not coincide with the Ray LI; but will fall to the right thereof; and this the more as the Glaſs is thicker: However, as to the Point of Colour, the ſecond *Refraction* does really undo the firſt. See COLOUR.

5°. *Refraction in Iſland Cryſtal.*—The Laws of *Refraction* in Iſland Cryſtal differ very much from thoſe laid down in other Subſtances; for here is a double *Refraction*, contrary ways, whereby not only oblique Rays are ſplit or divided into two, and *refracted* to oppoſite Parts, but even perpendicular Rays are alſo ſplit, and one half of them *refracted*.

For the Theory hereof, ſee *Iſland* CRYSTAL.

The particular Laws of Refraction in the ſeveral Kinds of Lens's, ſee under the Article LENS.

REFRACTION, in Aſtronomy, or REFRACTION *of the Stars*, is an Inflection of the Rays of thoſe Luminaries, in paſſing through our Atmoſphere; whereby the Altitudes of the heavenly Bodies are apparently increas'd. See STAR and ALTITUDE, &c.

This *Refraction* ariſes hence, that the Atmoſphere is unequally denſe in different Stages or Regions; rareſt of all a-top, and denſeſt at bottom; which Inequality in the ſame Medium, makes it equivalent to ſeveral unequal Mediums. See AIR and ATMOSPHERE.

Sir *Iſaac Newton* has ſhewn that a Ray of Light in paſſing from the higheſt and rareſt Part of the Atmoſphere, down to the loweſt and denſeſt, undergoes the ſame *Refraction* it would do in paſſing immediately, at the ſame Obliquity, out of a Vacuum into Air of equal Denſity with that in the loweſt Part of the Atmoſphere.

The effect of this *Refraction* may be thus conceived. Suppoſe ZV (*Tab. Aſtronomy, Fig.* 57.) a Quadrant of a vertical Circle, deſcribed from the Centre of the Earth T, under which is AB; a Quadrant of the Circumference of the Earth; and GH a Quadrant of the Surface of the Atmoſphere: And ſuppoſe SE a Ray of Light emitted by a Star at S, and falling on the Atmoſphere at E.—This Ray coming out of the Ætherial Medium, which is much rarer than our Air, or perhaps out of a perfect Vacuum, and falling on the Surface of the Atmoſphere, will be *refracted* towards the Perpendicular: And ſince the upper Air, again, is rarer than that near the Earth, and grows ſtill denſer as it approaches us: The Ray, in its Progreſs will be continually *refracted*, ſo as to arrive at the Eye in the Curve Line EA.

Suppoſing, then the right Line AF to be a Tangent to the Arch in A, the Ray will enter the Eye A, according to the Direction of AF.—And ſince Objects are always ſeen in that Line, according to the Direction whereof the Rays enter the Eye, the Star will appear in AF; that is, in the Heavens at Q, which is nearer the Zenith than the Star really is.

Hence ariſe the Phænomena of the *Crepuſculum*, or *Twilight*. See CREPUSCULUM.

And hence alſo it is that the Moon is ſometimes ſeen eclipſed, when ſhe is below the Horizon, and the Sun above it. See ECLIPSE.

That there is a real *Refraction* of the Stars, &c. is deduced not only from phyſical Conſiderations, and from Arguments *a priori*, and a *Similitudine*; but alſo from preciſe Aſtronomical Obſervations: Thus,

The Diſtance of the two Stars, *Spica Virginis*, and the *Lyon's-Tail*, when near the Meridian, or even near the Weſt, is conſtantly found 35° 2'. But when the *Lion's-Tail* is riſen in the Eaſt 34° 30' high, *Spica Virginis* is obſerv'd to be in almoſt the ſame vertical Circle.—Add to this, an Obſervation of the *Dutch*, who winter'd at *Nova Zembla* in 1597, from whom the Sun totally diſappeared on the 14th of *November*; and again began to appear on the 24th of *January*, which was ſix Days ſooner than he ſhould have return'd, according to Aſtronomical Calculations; as is obſerved in the *Acta Eruditorum*, A. 1697.—Nor muſt it be omitted that *Charles* XI. King of *Sweden*, being in 1694, at *Tornou*, in *Weſt-Bothnia*, in the Latitude of 65° 33', obſerv'd that the Sun never ſet between the 14th and 15th Day of *June*; but was viſible in the middle of the Night: The following Year he appointed two Mathematicians, *Bilembergius* and *Spolius*, to obſerve the ſame more accurately; who accordingly found that at *Tornou* in the middle of the Night, between the 10th and 11th of *June*, the Sun was ¼ of his Diameter above the Horizon; and on the 14th of *June* at *Kangis*, in the Latitude of 66° 15', they found the Sun at Midnight, two Diameters above the Horizon.

Hence 'tis argued, That as all Light is propagated in right Lines, no Rays could reach the Eye from a Luminary below the Horizon, unleſs they were deflected out of their Courſe at their Entrance into the Atmoſphere: 'Tis evident, therefore, the Rays are *refracted* in paſſing through the Atmoſphere.

Hence, the Stars appear higher by *Refraction* than they really are; ſo that to bring the obſerv'd or apparent Altitudes to the true ones, the Quantity of *Refraction* muſt be ſubſtracted. See ALTITUDE.

And hence, as the Antients were unacquainted with the *Refraction*; reckoning upon too great Altitudes, 'tis no Wonder they ſometimes committed conſiderable Errors.

From the Doctrine of *Refractions* it appears that we never ſee the real Sun riſing or ſetting, but only a Phantom, or Image thereof; the Sun himſelf being at that time hid below the Horizon.

And from the Obſervations juſt mentioned, it follows, that the *Refractions* are greater near the Pole, than at a leſs Latitude; doubtleſs from the greater Denſity of the Atmoſphere, and the greater Obliquity of the Incidence.

M. *de la Hire*, aſſures us, he could never find any Differences in the Meridian Altitudes of the Stars; ſo that the *Refractions* remain always the ſame.—Though he owns, near the Horizon the different Conſtitution of the Air, &c. may occaſion ſome Variations in the *Refractions*.

Stars in the Zenith are not ſubject to any *Refraction*.—Thoſe in the Horizon have the greateſt.—From the Horizon the *Refraction* continually decreaſes to the Zenith: All which follows hence, that in the firſt Caſe the Rays are perpendicular; in the ſecond their Obliquity is greateſt; in the third, 'tis continually increaſing.

At the ſame Altitudes the Sun and Stars all undergo the ſame *Refraction*; for at equal Altitudes the incident Rays have the ſame Inclinations: but the Sines of the *refracted* Angles are as the Sines of the Angles of Inclination, &c.

Indeed *Tycho Brahe*, who firſt deduced the *Refractions* of the Sun, Moon, and fix'd Stars from Obſervation; makes the Solar *Refractions* greater than thoſe of the fix'd Stars; and the Lunar *Refractions* ſometimes greater than thoſe of the Stars, ſometimes leſs.—But the Theory of *Refractions* (which we have obſerved is owing to *Snellius*) was not fully underſtood in his Age.—*De la Hire* and *Caſſini*, find the *Refraction* the ſame in all.

M. *de la Hire* gives us a Table of the *Refractions* of the Stars, in their ſeveral Degrees of Altitude; deduced from the ſureſt and moſt accurate Obſervations; as follows.

Table of Refractions *of the Heavenly Bodies, at the ſeveral Degrees of Altitude.*

Alt.	Refract.	Alt.	Refract.	Alt.	Refract.	Alt.	Refract.	Alt.	Refract.	Alt.	Refract.
0	32′ 0″	16	3′ 26″	30	1′ 51″	46	1′ 9″	61	0′ 40″	77	0′ 17″
1	26 35	17	3 23	31	1 47	47	1 7	62	39	78	15
2	20 43	18	3 12	32	1 43	48	1 6	63	37	79	14
3	15 44	19	3 1	33	1 40	49	1 4	64	35	80	12
4	12 26	20	2 51	34	1 36	50	1 2	65	33	81	11
5	10 26	21	2 44	35	1 33	51	1 0	66	32	82	10
6	9 8	22	2 38	36	1 30	52	0 58	67	31	83	8
7	8 8	23	2 31	37	1 27	53	56	68	30	84	7
8	7 1	24	2 24	38	1 24	54	54	69	28	85	6
9	6 17	25	2 18	39	1 22	55	52	70	26	86	4
10	5 41	26	2 12	40	1 19	56	50	71	25	87	3
11	5 11	27	2 7	41	1 17	57	48	72	24	88	2
12	4 46	28	2 3	42	1 15	58	46	73	23	89	1
13	4 25	29	1 59	43	1 13	59	44	74	21	90	0
14	4 7	30	1 55	44	1 11	60	42	75	20		
15	3 51			45	1			76	18		

Tycho Brahe will have the *Refractions* of the Sun to vaniſh at the Altitude of 46°; thoſe of the Moon at 45°, and thoſe of the fix'd Stars at 20°: But *Caſſini* has found that they reach even to the Zenith.—Indeed *Tycho* repreſented all the *Refractions* leſs than they are; except the horizontal one, which he made too big: For he makes the horizontal *Refraction* in the Sun 34′; in the Moon 33′; in the fix'd Stars 30′. *De la Hire* and *Caſſini* make it 32′ in all the heavenly Bodies. *Tycho*, again, makes the *Refraction* of the Sun at 33° Altitude, to be 55″; but *Caſſini* 1′, 43″.

Fa. *Laval* in 1710, 22° *Jan.* obſerv'd the meridian Altitude of the Sun to be 70° 25′ 50″; and on the 23 of *June*, obſerv'd the ſame to be 70° 26′ 0″, which is 10″ more, that ſhould be leſs.—Having met with ſome like Obſervations before, he takes occaſion to ſuſpect the *Refraction* to be varied according to the different Winds which blow from the different Quarters.—When the North-Weſt Wind blows, he thinks the *Refraction* is the greateſt; and adds, from Obſervations made at St. *Baume*, and St. *Pilon*, that the *Refraction* at 24 Fathoms above the Surface of the Sea, is double that at 600 Fathoms. See Horizon.—*Huygens* long ago obſerv'd the *Refraction* to be chang'd every Hour; tho' his Experiments were made at very little Altitudes, and in Terreſtrial Objects.

The *Refraction* diminiſhes the right and oblique Aſcenſions of a Star; and increaſes the Deſcenſions: It increaſes the Northern Declination; diminiſhes the Southern. See Ascension, Descension, *&c.*

Refraction, in the Eaſtern Part of the Heavens, diminiſhes the Longitude of a Star; but increaſes the ſame in the Weſtern Part of the Heavens: It diminiſhes the Southern Latitude, and increaſes the Northern. See Longitude and Latitude.

The *Refraction* therefore, is by no means to be over-look'd in Aſtronomy.—'Tis abſolutely neceſſary to the determining of the Phænomena of the heavenly Motions, to a Degree of Accuracy; ſo that the antient Aſtronomy, where no regard was had to it, muſt of neceſſity have been exceedingly defective on this very account. See Astronomy.

To obſerve the Refraction *of a Star*, &c.

1°. Obſerve the meridian Altitude of a Star near the Zenith; whence the Latitude of the Place being known, the true Declination of the Star is eaſily had, the Star being now void of any ſenſible *Refraction*. See Declination.

2°. Obſerve the Altitude of the ſame Star in any other Degree, and note the Time by a Pendulum. 3°. For the given Time of Obſervation, from the Declination of the Star, compute its true Altitude. See Altitude.

This being thus found leſs than the Altitude obſerv'd; ſubſtract the one from the other; the Remainder is the *Refraction* for that Moment, in that Degree.

Refraction *of Altitude*, is an Arch of a vertical Circle, as Sſ, (*Tab. Aſtronomy, Fig.* 28.) whereby the Altitude of a Star SE, is increas'd by the *Refraction*. See Altitude.

Refraction *of Declination*, is an Arch of a Circle of Declination, as ſI, whereby the Declination of a Star ſ DS is increas'd or diminiſh'd by the *Refraction*. See Declination.

Refraction *of Aſcenſion and Deſcenſion*, is an Arch of the Equator, D*d*, whereby the Aſcenſion and Deſcenſion of a Star, whether right or oblique, is increaſed or diminiſhed; by means of the *Refraction*. See Ascension, *&c.*

Refraction *of Longitude*, is an Arch of the Ecliptic, T*t*, whereby the Longitude of a Star is increas'd or diminiſhed by means of the *Refraction*. See Longitude, *&c.*

Refraction *of Latitude*, is an Arch of a Circle of Latitude ſI, whereby the Latitude of a Star, Tſ, is increaſed or diminiſhed by means of *Refraction*. See Latitude.

REFRANGIBILITY *of Light*, the Diſpoſition of the Rays to be refracted. See Refraction.

A *greater* or *leſs Refrangibility* is a Diſpoſition to be *more* or *leſs* refracted, in paſſing at equal Angles of Incidence, into the ſame Medium. See Light, Medium, *&c.*

That the Rays of Light are differently *refrangible*, is the Foundation of Sir *Iſaac Newton*'s whole Theory of Light and Colours.—The Truth of the Principle will appear from the following Experiments.

1°. A Ray of Light being received through a little round Hole into a dark Room, upon a Glaſs Priſm, ABC, (*Tab. Opticks. Fig.* 55.) in ſuch manner as to paſs through it near the Angle C; the various Colours of the Rainbow will be ſeen painted in all their Splendor on a white Paper, EF; *viz.* the Red in E, then the Yellow, then Green, Blue, and at laſt Purple, or Violet; and on whatever Body you receive the Light, ſtill the Colours will be the ſame.

Yet this colour'd Light is ſtill propagated, like other Light, in right Lines; 'tis reflected, too, like other Light, from a Mirror, and refracted through a Lens; yet retains its Colours both after Refraction and Reflection.—When collected into a Focus, the Rays degenerate into a very bright White; but upon diverging again from the Focus, reſume their former Colours.

Hence, 1°. Since nothing here happens to the Rays in paſſing the Priſm, but that they are refracted, both in entering, and in quitting it: (See Prism.) Light is converted into thoſe Colours by mere Refraction.

2°. Since the colour'd Rays are ſtill propagated in right Lines, if reflected from Mirrors, or refracted in Lens's; they ſtill retain all the Properties of Light, and therefore are ſtill Light.

3°. Since the ſeveral colour'd Rays decuſſated and mix'd together in the Focus, appear White; but after Separation, beyond the Focus, recover their former Colours; therefore Red, Yellow, Green, Blue, and Purple Rays mix'd together in a convenient Proportion, conſtitute a Reſplendent white. See White.

Note, The Experiment will ſucceed if the Room be not dark, only the Colours will be the leſs vivid.

2. A Priſm DEF (*Fig.* 66.) being ſo diſpoſed as that the Refractions of the Rays both at their Entrance and Exit, are equal; (which is obtain'd, by turning it ſlowly round its Axis, till the colour'd Light, which now riſes, and now falls, appear ſtationary between the two.) In the middle Space between the Priſm and the colour'd Light painted on the Wall, place another Priſm GH to receive the colour'd Light LM. After a ſecond Refraction in this ſecond Priſm the colour'd Light painted on the Wall, IK, will be inclined to a like Light NO, ſeen there, even when the Priſm GH is removed; ſo as the blue Extremities N and I will be further a-part than the red ones K and O.

Hence, 1°. The blue Rays muſt of Neceſſity be more refracted than the red ones; and there is, likewiſe, an unequal Refraction in the intermediate Rays.

Hence, therefore, the Sun's Rays are not all of the ſame *Refrangibility*; conſequently, not of the ſame Nature. See Ray.

3. Thoſe Rays are moſt *Refrangible*, which are moſt Reflexible. See this proved under Reflexibility.

The Difference between *Refrangibility* and Reflexibility was firſt diſcover'd and publiſh'd by Sir *Iſaac Newton* in 1675, in the *Phil. Tranſact.* and from that time vindicated by him, from the Objections of ſeveral Authors; particularly F. *Pardies*, M. *Mariotte*, *Fr. Linus*, or *Lin*, and other Gentlemen of the *Engliſh* College at *Liege*: At length it was more fully laid down, illuſtrated, and confirm'd by great variety of Experiments in his immortal *Opticks*.

But, further, as not only thoſe Colours of Light produced by Refraction in a Priſm, but alſo thoſe reflected from Opake Bodies have their different Degrees of Refrangibility and Reflexibility; and as a white Light ariſes from a Mixture of the ſeveral colour'd Rays; the ſame great Author concluded all homogeneous Light to have its proper Colour, correſponding to its Degree of Refrangibility, and not capable of being chang'd by any Reflexions, or any Refractions; that the Sun's Light is compoſed of all the primary Colours; that all compound Colours ariſe from a mixture of the primary ones, *&c.* See Colour.

The different Degrees of *Refrangibility*, he conjectures to ariſe from the different Magnitude of the Particles whereof the different Rays conſiſt.—Thus the moſt refrangible Rays, *i. e.* the red ones, he ſuppoſes to conſiſt of the largeſt Particles; the leaſt Refrangible, *i. e.* the Violet Rays, of the ſmalleſt Particles; and the intermediate Rays, Yellow, Green, and Blue, of Particles, of intermediate Sizes. See Red, Green, Violet, *&c.*

Refraction, in Commerce, a Term ſometimes uſed by Merchants, where there has been an overſight in an Account, to the Prejudice of a Perſon, who thereupon demands Reſtitution of ſo much, added or omitted by Miſtake.

You muſt make me a *Refraction* of five Pound forgot in your Account.—I'll Deduct or make you *Refraction* of 30 *s.* charged inadvertently in my Bill.

REFRET, in Muſick. See Ritornelo.'

REFRIGERATIVE, in Medicine, a Remedy or Diet which refreſhes the inner Parts by cooling them.

Such, uſually, are Ptiſans, Clyſters, Potions, *&c.* See Ptisans, *&c.*

REFRIGERATORY, in Chymiſtry, a *Cooler*; or a Veſſel, filled with cold Water, placed about the Head of an Alembic, to cool and condenſe the Vapours rais'd thither by the Fire, and to convert them into a Liquor, to be diſcharged thence through the Beak. See Distillation, Alembic, Spirit, Water, *&c.*

The Water in the *Refrigeratory* is to be changed from time to time, as it begins to grow warm.

Sometimes they content themſelves with wrapping a wet Cloth about the Head of the Alembic, inſtead of a *Refrigeratory:* But the more uſual Method now uſed to ſupply the Place of the *Refrigeratory*, is by a Worm, or ſpiral Pipe running through a Tub of cold Water.—Diſtillation is perform'd by Evaporation and *Refrigeration.* See Evaporarion, *&c.*

REFUGE, Refugium, in our old Cuſtoms, a Sanctuary or Aſylum. See Sanctuary and Asylum.

At *Paris* is a Hoſpital called the *Refuge*, wherein diſſolute Women are ſhut up. See Magdalen.

REFUGEES, *French-Calviniſts*, who by the Revocation of the Edict of *Nants*, in 1685, have been conſtrain'd to quit their Country, and retire for *Refuge* into *Holland*, *Germany*, *England*, &c. to ſave themſelves from the neceſſity of abandoning their Religion. See Edict.

REGAL, ſomething belonging to a King. See King.

Regal is of the ſame import with *Royal*; the former being form'd of the Latin *Rex*; the other of the *French*, *Roy*, King. See Royal.

Regal *Fiſhes*. See Royal *Fiſhes*.

REGALE, in the *French*, *Juriſprudence*, is a Right belonging to the King over all Benefices. See Benefice.

The *Regale* conſiſts in enjoying the Revenues of Biſhopricks during the vacancy of their Sees; and of preſenting to the Benefices dependant thereon, which become vacant during that time, and 'till a Succeſſor have taken the Oath of Fidelity, and have procured Letters Patents, to ſecure him from the *Regale*.

The Enjoyment of the Fruits of the See is called the *Temporal Regale*; that of preſenting to Benefices the *ſpiritual Regale*.

Some refer the Origin of the *Regale* to the time of *Clouis*, and ſay the Clergy granted this Priviledge to the King, upon his defeating the *Viſigoths*; others ſay, Pope *Adrian* gratified *Charlemaign* with it, in a Council held at *Rome*.—'Tis obſerv'd by others, that the *Regale* was originally no more than a Ward, or Adminiſtration; and that the Kings were only Depoſitaries of the Fruits of the vacant Biſhopricks, and appointed *Oeconomi* to look to them during the Vacancy. See Oeconomies.

'Tis added, that the Kings of the firſt and ſecond Race never enjoy'd any ſuch Priviledge, and that it was only introduced in the twelfth Century, in favour of Inveſtitures. See Investiture.

Regale, Regalio, a magnificent Treat or Entertainment, given Embaſſadors, or other Perſons of Diſtinction, to divert or do them Honour.

In *Italy* 'tis uſual at the Arrival of any Traveller of Eminence, to ſend him a *Regale*; that is, a Preſent of Fruits, Sweet-Meats, *&c.* by way of Refreſhment.

REGALIA, in Law, the Rights or Prerogatives of a King. See King.

Theſe are reckoned by Civilians to be ſix; 1°. Power of Judicature. 2°. Power of Life and Death. 3°. Power of War and Peace. 4°. Maſterleſs Goods. 5°. Aſſeſsments. 6°. Minting of Money. See Royalties.

Regalia is alſo uſed for the ſeveral Parts of the Apparatus of a Coronation; as the *Sceptre* with the *Croſs*; *Sceptre* with the *Dove*; St. *Edward's Staff*; four ſeveral *Swords*; the *Globe*; the *Orb* with the *Croſs*, &c. uſed at the Coronation of our Kings. See Coronation.

Regalia, *of the Church*, are thoſe Rights and Priviledges which Cathedrals, *&c.* enjoy by Grants, and other Conceſſions of Kings. See Church, Cathedral, *&c.*

Sometimes the Term is uſed for the Patrimony of the Church; as *Regalia Sancti Petri*, &c. and particularly for ſuch Lands and Hereditaments as have been given by King's to the Church.—*Cepimus in Manum noſtram Baroniam &* Regalia *quæ Archiepiſcopus Eborum de nobis tenet.* Pryn. Lib. Ang.

Theſe *Regalia* while in Poſſeſſion of the Church, were ſubject to the ſame Services as all other temporal Inheritances; and after the Death of the Biſhop reverted to the King, 'till he inveſted another with them; which in the Reigns of *William the Conqueror*, and ſome of his immediate Succeſſors, was frequently delay'd, and as oft did the Biſhops make Complaint thereof, as appears from *Malmesbury*, *Neubrigenſis*, &c. See Bishop.

This laſt Author ſays, that great Complaint was made againſt *Henry* II. *Quod Epiſcopatus Vacantes, & provenientia perciperet commoda, diu vacare voluit, & Eccleſiaſticis potius uſibus applicanda in fiſcum redegit.* See Temporality, Benefice, *&c.*

Regalia *facere*, is uſed for a Biſhop's doing Homage or Fealty to the King, when he is inveſted with the *Regalia*.

Thus *Malmsbury*, in *Anſelm*. Regalia *pro more iſtius temporis faciens principi 7 Kalend. Octobris, Cantuariæ aſſedit.*

REGALIS *Aqua*, or *Aqua* Regia, an Acid corroſive Spirit or Water, ſerving, as a Menſtruum, to diſſolve Gold. See Dissolution.

The Baſis or eſſential Ingredient of *Aqua Regia*, is common or Sea Salt; which is the only Salt in Nature that will operate on Gold. See Gold and Salt.

There are divers Ways of preparing it; for, in effect, the Salt will not fail of its End, in what form ſoever applied.—The common Way is by mixing common Salt, or Sal Armoniac, with Spirit of Nitre; or with common Aqua Fortis, which is made of Nitre and Vitriol. See Aqua *Fortis*.

It has its Name from its diſſolving Gold, reputed among Chymiſts, the *King* of Metals.

Aqua Regalis diſſolves Gold, but not Silver; *Aqua Fortis* Silver, but not Gold.—For the reaſon hereof ſee Menstruum.

REGARD, of the Foreſt, the over-ſight or inſpection thereof; or the Office or Province of the *Regarder*; which is to go through the whole Foreſt, and every Bailiwick thereof, before the holding of the Seſſions of the Foreſt, or Juſtice Seat; to ſee and enquire of the Treſpaſſes therein. See Forest.

Ad videndum, ad Inquirendum, ad Imbreviandum, ad certificandum, &c. See Regarder.

Regard is alſo uſed for the Extent of the *Regarder*'s Charge, *i e.* for the whole Foreſt; or all the Ground that is Parcel thereof. See Purlieu.

REGARDANT, in Heraldry, is underſtood of a Lion, or other Beaſt of Prey, bore in a Poſture of looking behind him, with his Face towards his Tail.

Others apply it to a Beaſt which only ſhews the Head, and ſome Part of the Neck, as moving from out of ſome Diviſion of the Coat into another.—He bears *Azure*, three Bends, *Or*, in a chief Argent, charg'd with a Lion *regardant* Gules.

Villain Regardant, or *Regardant to the Manour*, is an antient Officer, or Retainer to the Lord; thus called becauſe charged to do all baſe Services within the Manour, to ſee the ſame freed of all filthy and loathſome things that might annoy it. *Coke* on *Littleton*, Fol. 120.

REGARDER, Regardator *Foreſtæ*, an antient Officer of the King's Foreſt, whoſe Buſineſs was every Year, upon Oath, to make a *Regard, i. e.* take a View of the Foreſt Limits; alſo to enquire of all Offences and Defaults committed by the Foreſters within the Foreſt, and of all the Concealments of them, and whether all the other Officers did execute their reſpective Duties or not. See Forest.

Manwood refers this Inſtitution to King *Henry* II. but *Spelman* thinks the Name, at leaſt, was given ſince, and that they were the ſame with thoſe Officers called *Cuſtodes Venationis.* See Regard.

REGEL, or Rigel, a fix'd Star of the firſt Magnitude, in *Orions* Left Foot.—Its Longitude, Latitude, *&c.* ſee among the reſt of the Conſtellation Orion.

REGENERATION, in Theology, the Act of being born again by a ſpiritual Birth, or of becoming a Child of God. See Conversion.

Regeneration is perform'd by the waſhing of the Holy Spirit, whereof Baptiſm is the Sign. See Baptism.

When an Infidel is converted, Baptiſm is adminiſtred as a Sign of *Regeneration*.

REGENT, a Perſon who governs a Kingdom during the Minority, or the Abſence of the King. See Vice Roy.

In *France*, the Queen Mother has the Regency of the Kingdom, under the Title of *Queen Regent*, while the King is a Minor.—Some have urged that Women being incapable of ſucceeding to that Crown, were incapable of the *Regency*; but Cuſtom has declared in their favour. See Salic.

Regent is alſo uſed for a Profeſſor of Arts or Sciences, who holds a Claſs, or ſet of Pupils, in a Colledge. See College.

The Foreign Univerſities are generally compoſed of Doctors, Profeſſors and *Regents*. *Regent* and Scholar are Relative Terms. See Tutor.

Regent is generally reſtrain'd to the lower Claſſes, as *Regent* of Rhetoric, *Regent* of Logic, *&c.* thoſe of Philoſophy are rather call'd Profeſſors. See Professor.

REGIFUGE, Regifugium, a Feaſt held in antient *Rome* on the ſixth of the Calends of *March*, *i. e.* on our 24th of *February*, in Memory of the Expulſion of their Kings, particularly of *Tarquin*'s flying out of *Rome* on that Day. See Feast.

Some will have this Feaſt to bear the Name from the *Rex Sacrorum*, King of the Sacrifices, flying out of the Comitia, or the

Place of Aſſembly, as ſoon as the Sacrifice was over; in Imitation of the Flight of *Tarquin the Proud*.

Some Criticks and Antiquaries will have *Regifugium*, the ſame with *Fugalia*; others hold them to be different. See FUGALIA.

REGICIDE, a *King-killer*.—The Term is alſo uſed for the Act itſelf of murdering of a King; of *Rex* and *Cædo*, I ſlay.

Regicide is chiefly uſed in ſpeaking of the Perſons concern'd in the Trial, Condemnation, and Execution of King *Charles* the Firſt.

REGIMEN, in Medicine, a Rule or Courſe of living, with regard to eating, drinking, cloathing, and the like; accommodated to ſome Diſeaſe, and to the particular Courſe of Medicine the Patient is under. See DIET.

'Tis doubted whether the hot or cold *Regimen* be moſt convenient in Fevers.—The hot *Regimen* which antiently obtained in the Small-Pox, begins to be diſuſed.—The *Regimen* is very different in different Countries: *Bartholin* ſays, a Slice of Bacon, in *Denmark*, is an uſual Diſh for a Perſon in a high Fever. The Word is pure *Latin*, and ſignifies Government and Rule.

REGIMEN, in Chymiſtry and Alchymy, is the Method of ordering and conducting any thing, that it may anſwer its Intention.

Thus, *Regimen of the Fire*, is the manner of making and ordering a Fire, and the Degrees thereof. See FIRE and DEGREE.

Regimen of the Work, that is, *of the Philoſopher's Stone*, call'd *the Work of Patience*, is the Rule and Conduct to be obſerv'd to attain Projection. See PHILOSOPHERS *Stone*, and PROJECTION.

There are three things to be chiefly regarded in the *Regimen of the Work*—The firſt to adminiſter a gentle, eaſy Heat, at the beginning of the Coction.

The ſecond to continue this external Heat according to the Seaſon of the Work; always obſerving four Seaſons, as in the common and aſtronomical Year: The beginning being the Winter, the Progreſs the Spring, then Summer, and laſtly Autumn, which is the time of Maturity and Perfection of the Stone: In all which the Heat is to be augmented in Proportion to the Augmentation obſerv'd in Nature.

It is to be added, that the Work may not be begun in any Seaſon, but regard is to be had to the Seaſons of Nature; leaſt the Winter of the Work be found in the Summer of the Year, *&c.* Which, however, is to be underſtood of the Day wherein the Mercury is put in the *Ovum Philoſophicum*; not of that when it is begun to be ſet at Liberty from the Priſons Nature had incloſed it in.

The third is that in augmenting the Fire, the Augmentation be not of a whole Degree at once; the Spirits being unable to bear ſuch Violence; but a Degree is to be divided into four Parts, and one Part to be taken at a time. See DEGREE.

All the Operations of the firſt *Regimen*, are occult and inviſible: In the ſecond *Regimen* comes Putrifaction, which is the firſt ſenſible Change; ſhewing it ſelf by its black Colour. See PUTRIFACTION, *&c.*

REGIMEN, or GOVERNMENT, in Grammar, is that Part of Syntax or Construction which regulates the Dependancy of Words; and the Alterations which one occaſions in another. See SYNTAX and CONSTRUCTION.

Thus we ſay, the *Regimen* of a Verb active, is an Accuſative, *i. e.* a Verb active governs an Accuſative; or requires that the Noun which receives its Action be in the Accuſative Caſe. See VERB, ACCUSATIVE, *&c.*

Prepoſitions have ſome *Regimen*, *i. e.* they require certain Caſes in the Nouns they are prefix'd to; by which they are diſtinguiſhed from Adverbs which have none. See PREPOSITION and ADVERB.

The *Regimen*, or Conſtruction of Government, is entirely arbitrary; and differs in all Languages; one Language forming its *Regimen* by Caſes, as the *Latins* and *Greeks*; others by Particles, in lieu thereof, as the *Engliſh*, by *of*, *to*, &c. the *French*, *Spaniards*, and *Italians*, by *de*, *a*, *da*, &c. See CASE.

There are, however, ſome general Maxims which hold in all Languages—as 1°. That there is no Nominative Caſe in any Sentence but has a Reference to ſome Verb either expreſs'd or underſtood. See NOMINATIVE.

2°. That there is no Verb but has its Nominative Caſe, either expreſs'd or underſtood.—Indeed in Languages which have proper Accuſatives, as the *Latin*, before Infinitives there is an Accuſative, not a Nominative Caſe: as *Scio petrum eſſe doctum.*

3°. There is no Adjective but has a Relation to ſome Subſtantive. See ADJECTIVE, *&c.*

4°. That there is no Genitive Caſe but is govern'd by ſome other Noun; inaſmuch as that Caſe always expreſſes the Poſſeſſor, which muſt be governed by the poſſeſs'd.—This Rule does not hold ſo apparently in the modern as the antient Languages; in regard the Particles *of*, *de*, &c. which are the proper Signs of the Genitive Caſes, are frequently uſed as Prepoſitions. See GENITIVE.

5°. That the *Regimen* of Verbs is frequently laid on different Kinds of Relations, according to Cuſtom or Uſage; which yet does not change the ſpecific Relation of each Caſe, but only ſhews that Cuſtom has made Choice of this or that, according to Fancy.—Thus the *Latins* ſay, *Juvare aliquem, & opitulari alicui*, to help one.—Thus the *French* ſay, *ſervir quelqu' un & ſervir a quelqu' un*, to ſerve one.—Thus the *Engliſh* ſay, *Fight one*, or *Fight with one*.—And thus in *Spaniſh* moſt of the Verbs active govern indifferently either a Dative or an Accuſative. Sometimes, alſo, the Verb admits of ſeveral *Regimens*; as, *præſtare aliquem*, or *alicui*, *Eripere morti aliquem*, or *aliquem a morte*.

Indeed the different *Regimen* ſometimes makes an Alteration in the Senſe; in which, particular regard is to be had to the uſage of the Language.—Thus the *Latin*, *cavere alicui*, ſignifies to watch, or be careful of the preſervation of any one: *Cavere aliquem*, to beware of him.

There is one very common Fault in *Regimen*, which our accurate Writers ſhould be careful to avoid; *viz.* the uſing of two Verbs that require different Caſes, together, as only governing one Caſe: As in this Example; after *embracing* and giving his Bleſſing to his Son; where, *embracing* requiring an Accuſative, and *giving* a Dative Caſe, the *Regimen*, or Conſtruction of the firſt Verb with the Noun is irregular: *embrace to a Son.*

The ſame may be obſerv'd in Nouns; as I conjured him by the Memory and the Friendſhip he bore my Father; where *Memory* does not agree with the Verb *he bore*.

REGIMENT, in War, a Body of Troops of Horſe, or Companies of Foot, commanded by a Colonel. See COLONEL.

The Number of Men in a *Regiment* is as undetermined as that of the Men in a Troop or Company. See TROOP and COMPANY.

There are *Regiments* of Horſe, that are not above 300 Men; and there are ſome in *Germany* of 2000; and the *Regiment* of *Picardy* in *France* conſiſts of 120 Companies, or 6000 Men.

The *French Regiments* of Horſe are not commanded by a Colonel, as the Foot are, but by a *Meſtre de Camp*. See MESTRE *de Camp*.

Some obſerve, that there were no *Regiments* of Horſe before the Year 1637. 'Till then the Troops were looſe, and independent of each other, not incorporated into a Body or *Regiment*. See GUARD.

REGIO *Aſſenſu*, is a Writ whereby the King gives his Royal Aſſent to the Election of a Biſhop. See BISHOP.

REGION, REGIO, in Geography, a *Country*; or a particular Diviſion of the Earth; or a Tract of Land inhabited by People of the ſame Nation. See EARTH, NATION, *&c.*

The modern Aſtronomers divide the Moon into ſeveral *Regions* or Provinces, to each whereof they give its Name. See MOON.

REGION in Phyſiolgy.—Authors divide the Atmoſphere into three Stages, call'd the *upper*, *middle*, and *lower Regions*. See ATMOSPHERE.

The loweſt is that wherein we breath; and is bounded by the Reflexion of the Sun's Rays; that is, by the Height to which they rebound from the Earth. See RAY.

The *middle* is that wherein the Clouds reſide, Meteors are form'd, *&c.* extending from the Extremity of the *loweſt*, to the tops of the higheſt Mountains. See METEOR, CLOUD, MOUNTAIN, *&c.*

The *upper* commences from the Tops of the Mountains, and reaches to the utmoſt Limits of the Atmoſphere.—In this reigns a perpetual, equable Calmneſs, Clearneſs, and Serenity. See AIR.

Some Authors uſe the Term *Elementary Region*, for the Space of the whole Atmoſphere, from the Earth to the Sphere or Heaven of the Moon; becauſe within this are contained the four Elements, and all Elementary Bodies. See ELEMENT and ELEMENTARY.

Etherial Region is uſed for the whole extent of the Univerſe, including the Orb of the fix'd Stars, *&c.* See UNIVERSE.

REGION, in Anatomy, is a Diviſion of the human Body. See BODY.

Anatomiſts divide the Body into three *Regions*, or *Venters*. See VENTER.

The *upper Region* is that of the Head; reaching as low as the firſt *Vertebra*; and comprehending the animal Organs, the Brain, *&c.* See HEAD, *&c.*

The *middle Region* is that of the Thorax or Breaſt, which *Hippocrates* calls the upper Venter, and which reaches from the Clavicles to the Diaphragm; wherein are contained the vital Parts, as the Heart, Lungs, *&c.* See HEART, LUNGS, *&c.*

The third or *lower Region* is the Abdomen or Belly, *&c.* containing the natural Parts, deſtin'd for Digeſtion, Purgation, and Generation. See ABDOMEN.

REGIONARY, REGIONARIUS, in Eccleſiaſtical Hiſtory, a Title given from the fifth Century, to Perſons who had the Charge and Adminiſtration of the Church Affairs within a certain Diſtrict or *Region*.

At *Rome* there were antiently ſeven *Regionary Deacons*, who preſided over a kind of Hoſpitals, and look'd to the Diſtribution of Alms. See DEACON.

There were alſo *Regionary Subdeacons*, and *Regionary Notaries*, *Regionary Biſhops*, &c. See NOTARY.

A *Regionary Biſhop* was properly a Miſſionary inveſted with an Epiſcopal Character, but without being attach'd to any particular See; that he might be at Liberty to go preach, and perform other Functions of his Miniſtry, whither ſoever the Spirit of God, and the Wants of the People ſhould call him. See MISSIONARY.

REGISTER, REGISTRUM, a publick Book, ſerving to enter and record Memoirs, Acts, and Minutes, to be had recourſe to, occaſionally, for the juſtifying of Matters of Fact, *&c.* See RECORD.

Menage derives the Word, by Corruption, from *Regeſtum,* a Book containing Extracts of ſeveral Books, *&c.* collected together: *Dicitur regiſtrum quaſi iterum geſtum.*—Others derive it from the old *French, giſter,* to lie down in a Bed, *&c.*

The Law of *Scotland* is render'd very eaſy and regular, by means of the great Number of publick *Regiſters,* for the recording of the Conveyances of Lands, *&c.* of private Perſons.—Of theſe there are two Kinds: The one *General,* fix'd at *Edinburgh,* under the Direction of the *Lord Regiſter,* who before the Union was the fifth Officer of State, and beſides the Regiſtry, was Clerk of the Parliament, Treaſury, Exchequer, and Seſſion.

The other is particularly kept in the ſeveral Shires, Stewarties, and Regalities.—The Clerks hereof are obliged to tranſmit the *Regiſters* of their reſpective Courts, to the general *Regiſter;* and the Notaries their Protocols: And here they are ſo diſpoſed, that on demand the Lieges can have a view of any Writs which the Law requires to be *regiſter'd,* or which Parties for their Security have thought fit to record.

The *Regiſters* were firſt ſet on Foot by Act of Parliament under King *James* VI. to the unſpeakable Advantage of the Subject.

No Man can have a right to any Eſtate, but it muſt be *regiſtred* within forty Days of his becoming ſeiz'd of it, otherwiſe 'tis null: By this means all ſecret Conveyances are cut off.

REGISTER is alſo uſed for the Clerk or Keeper of a *Regiſter,* or *Regiſtry.* See CLERK.

Of theſe we have ſeveral, denominated from the *Regiſters* they keep—as *Regiſter of the High Court of Delegates; Regiſter of the Arches Court of Canterbury; Regiſter of the Court of Admiralty; Regiſter of the Prerogative Court; Regiſter of the Garter,* who is always Dean of *Windſor.* See DELEGATE, ARCHES, ADMIRALTY, PREROGATIVE, GARTER, *&c.*

REGISTER *of a Pariſh-Church,* is a Book wherein the yearly Baptiſms, Marriages, and Burials of each Pariſh, are orderly *regiſtered.* See PARISH, *&c.*

This Practice was laudably inſtituted by that great, but unfortunate Perſon, *Thomas Cromwell,* Earl of *Eſſex,* Anno 1538. while he was Vicar-General to King *Henry* VIII. See BILL *of Mortality.*

REGISTER is alſo the Title of a Book, containing the Forms of moſt of the Writs uſed in Common Law; call'd the *Regiſter of Writs.* See WRIT.

This *Regiſter, Coke* on *Littleton* obſerves, is one of the moſt antient Books of the Common Law.

REGISTER-*Ships,* or *Ships of* REGISTER, in Commerce, are Veſſels to which the King of *Spain,* or the Council of the *Indies,* grant Permiſſions to go and traffick in the Parts of the *Spaniſh Weſt-Indies.* See COMMERCE.

They are thus called becauſe the Ships are to be *regiſtered* before they ſet ſail from *Cadix,* which is the Place where they uſually load for *Buenos Ayres.*

Theſe Veſſels, by the Tenor of the Permit, are not to exceed three hundred Tuns: But there is that good underſtanding between the Merchants and the Council of the *Indies,* that Ships of five or ſix hundred Tun frequently paſs un-noted.

The Permiſſions coſt thirty thouſand Pieces of Eight, each: But were they to coſt an hundred thouſand the Merchants would be Gainers, and the King of *Spain* a Loſer.—For though the Quantity and Quality of the Merchandices on-board, be always expreſs'd; yet, by Force of Preſents, the Officers here and in the *Indies,* allow them to load and unload vaſtly more than the Permiſſion expreſſes.—Veſſels whoſe Certificate only mentions twelve thouſand Skins, and an hundred thouſand Pieces of Eight, have been known to have on-board above four Millions in Gold and Silver; twenty ſix thouſand Skins, *&c.* So that the King of *Spain*'s Fifth, and his other Dues, were almoſt nothing to what they ſhould be.

Add to this, that in the Years 1702, 1703, *&c.* theſe *Regiſter* Veſſels, countenancing and backing each other, ſold their Commodities for above three hundred *per Cent.* Profit.—A Hat was ſold for 18 Pieces of Eight; an Ell of ordinary Cloth for 12 Pieces of Eight, *&c.*

Among the *Regiſter* Veſſels may be reckoned a Ship of five hundred Tuns, which the King of *Spain* allows the *Engliſh South-Sea Company* to ſend each Year to the Fairs held at *Porto Bello, Carthagena,* &c. See COMPANY.

REGISTER, among Letter-Founders, is one of the inner Parts of the Mould wherein the Printing-Types are caſt. See LETTER.

Its uſe is to direct the joining them juſtly together again, after opening them to take out the new-caſt Letter. See *Letter-*FOUNDERY.

REGISTERS, in Chymiſtry, are Holes, or Chinks, with Stopples to them, contrived in the Sides of Furnaces, to regulate the Fire, *i. e.* to make the Heat immediately more intenſe, or remiſs, by opening them to let in the Air, or keeping them cloſe, to exclude it. See FURNACE, FIRE, HEAT, DEGREE, *&c.*

REGISTRING, in Printing, the diſpoſing of the Preſs ſo as that the Lines and Pages printed on one Side of the Sheet, meet exactly againſt thoſe on the other; which is done by means of two Points in the greater or outward Tympan. See PRINTING.

REGISTRY, comprehends the Office, Books, and Rolls wherein the Proceedings of Chancery, or any ſpiritual Court, are *regiſter'd* or recorded. See REGISTER, RECORD, ROLL, *&c.*

REGIUS-*Profeſſors.*—King *Henry* VIII. founded five Lectures in each of our Univerſities; *viz.* of Divinity, Hebrew, Greek, Law, and Phyſick; the Readers of which Lectures are in the Univerſity Statutes, called *Regii Profeſſores.* See PROFESSOR.

REGIUS *Morbus.* See JAUNDICE.

REGLET, or RIGLET, in Architecture, a little flat narrow Moulding, uſed chiefly in Compartiments, and Pannels, to ſeparate the Parts or Members from one another, and to form Knots, Frets, and other Ornaments. See MOULDING, FRET, *&c.*

The *Riglet,* according to *Daviler,* differs from the Fillet and Liſtel, in that it projects equally, like a Ruler. See FILLET and LIST.

The Word is a diminutive of the *French, Regle,* Rule.

REGLETS, or RIGLETS, in Printing, are thin Rulers, or ſlips of Wood of different Dimenſions, placed in the Chaſe, between the Pages, and at the extremes thereof, to keep them aſunder, and hold them tight. See PRINTING.

The *Reglets* make the chief Part of what they call the *Furniture of the Chaſe.* See CHASE.

They are particularly denominated from the Place they are in, in reſpect of the Pages, *Head-Sticks, Foot-Sticks, Gutter-Sticks,* &c.

The Term is alſo uſed abroad for a Ruler of Metal, ¾ of an Inch long, but which may be lengthened out by joining ſeveral together; uſed to ſeparate the Columns, in Books that have ſeveral in the ſame Page; as alſo for Lines to Place the Notes on in Printing of Muſick.

Laſtly, *Reglet,* is alſo a little thin ſlip of Wood uſed by ſome Compoſitors to take off the Lines from the Compoſing-ſtick, and Place them on the Gally, as faſt as compoſed. See COMPOSITOR, GALLEY, *&c.*

REGRATOR, a Law Word, formerly uſed for one that bought Wholeſale, or by the Great, and ſold again by Retail.

The Term is now chiefly uſed to denote one that Buys and Sells again any Wares, or Victuals in the ſame Market or Fair, or within five Miles of it.

REGRATOR is alſo uſed for a Perſon who furbiſhes up old Moveables, to make them paſs for new. See FURBISHER.

Among Maſons, *&c.* to *regrate a Stone,* is to take off the outer Surface of an old Hewn Stone, with the Hammer and Ripe, in order to whiten and make it look freſh again. See STONE and MASONRY.

REGRESSION, or *Retrogradation* of Curves, *&c.* See RETROGRADATION, *&c.*

REGULA. See RULE.

REGULA, in Architecture. See ORLO.

REGULAR denotes the Relation of any thing that is agreeable or conformable to the Rules of Art. See RULE.

Thus we ſay, a *Regular* Proceeding.—A *Regular* Building.—A *Regular* Poem, *&c. Regular* Verb, *&c.* See VERB, POEM, *&c.*

In this Senſe the Word ſtands oppoſed to Irregular, or Anomalous. See ANOMALOUS, *&c.*

REGULAR *Figure,* in Geometry, is a Figure which is both equilateral, and equiangular; *i. e.* whoſe Sides, and conſequently, Angles, are all equal. See FIGURE.

The Equilateral Triangle and Square are *regular Figures.* See SQUARE and TRIANGLE.

All other *regular* Figures conſiſting of more than four Sides, are called *Regular Polygons.* See POLYGON.

Every *regular* Figure may be inſcribed in a Circle. See CIRCLE.

For the Dimenſions, Properties, &c. *of Regular Figures,* ſee POLYGON.

REGULAR *Body,* call'd alſo *Platonic Body,* is a Solid terminated on all Sides by *regular* and equal Planes, and whoſe ſolid Angles are all equal. See BODY and PLANE.

The *Regular* Bodies are five in Number; *viz.*—The *Cube,* which conſiſts of ſix equal Squares; the *Pyramid* or *Tetrahedron* of four equal Triangles; the *Octahedron* of Eight; the *Dodecahedron* of 12; and the *Icoſihedron* of twenty; ſee each under its proper Article, CUBE, TETRAHEDRON, OCHAHEDRON, *&c.*

Beſide theſe five there can be no other *Regular* Bodies in Nature.

To meaſure the Surface and Solidity of the five regular Bodies.

The Solidity, *&c.* of the Cube is ſhewn under the Article CUBE.

The *Tetrahedron* being a Pyramid, and the *Octahedron* a double Pyramid; and the *Icoſihedron* conſiſting of twenty triangular Pyramids; and the *Dodecaedron* of twelve Quinquangular ones, whoſe Baſes are in the Surface of the *Icoſihedron* and *Dodecahedron,* and their Vertices meeting in a Centre: The Solidities of theſe Bodies are all found from what we have ſhewn under the Article PYRAMID.

Their Surface is had by finding the Area of one of the Planes, from the Lines that bounds it; (ſee TRIANGLE); and multiplying the Area thus found by the Number from which the Body is denominated; *e. gr.* for the *Tetraedron* by 4; for the *Hexahedron* or Cube, by ſix; for the *Octahedron* by 8; for the *Dodecahedron* by 12;

; and for the *Icoſihedron* by 20.—The Product is the ſuperficial ea. See AREA and SUPERFICIES.

portions of the Sphere, and of the five Regular Bodies inſcribed therein: The Diameter of the Sphere being 2.

The Circumference of a great Circle is,	6. 28318
Surface of a great Circle,	3. 14159
Surface of the Sphere,	12. 56637
Solidity of the Sphere,	4. 18859
Side of the Tetrahedron,	1. 62299
Surface of a Tetrahedron,	4. 6188
Solidity of a Tetrahedron,	0. 15132
Side of a Cube or Hexahedron,	1. 1547
Surface of the Hexahedron,	8.
Solidity of the Hexahedron,	1. 5396
Side of an Octahedron,	1. 41421
Surface of the Octahedron,	6. 9282
Solidity of the Octahedron,	1. 33333
Side of the Dodecahedron,	0. 71364
Surface of the Dodecahedron,	10. 51462
Solidity of the Dodecahedron,	2. 78516
Side of the Icoſihedron,	1. 05146
Surface of the Icoſihedron,	9. 57454
Solidity of the Icoſihedron,	2. 53616

If one of theſe Bodies be required to be cut out of the Sphere f any other Diameter; ſay, as the Diameter of the Sphere 2, s to the Side of any one Solid, inſcribed in the ſame, (ſuppoſe he Cube 1. 1547.) ſo is the Diameter of any other Sphere (ſuppoſe 8.) to 9. 2376, the Side of the Cube inſcrib'd in this latter Sphere.

Let *dr*, then, (*Tab. Geometry, Fig.* 81.) be the Diameter of any Sphere, and *da* $\frac{1}{3}$ of it. $=ab=br$. Erect the Perpendiculars *ae*, *ef*, and *bg*; and draw *de*, *df*, *er*, *fr*, and *gr*; then will (1.) *re* be as the Side of the Tetrahedron: (2.) *df* is the Side of the Hexahedron: (3) *de* is the Side of the Octahedron. (4.) And cutting *de* in extreme and mean Proportion in *h*, *dh* will be the Side of the Dodecahedron. (5.) Setting the Diameter *dr* up perpendicularly at *r*; from the Centre *c*, to its Top, draw the Line *cg*, cutting the Circle in *g*.—Let fall the Perpendicular *gb*; ſo is *br* the Side of the Icoſihedron.

REGULAR *Curves*, are ſuch whoſe Curvity proceeds continually in the ſame uniform Geometrical Manner.—Such are the Perimeters of the Conic Sections. See CURVE, CONIC *Section*, &c.

Such as have a Point of Inflection, or Regreſſion; and which being continued to a certain Point, turn themſelves a contrary Way, are call'd *Irregular Curves*.—Such are the Conchoid, and the ſolid Parabola, which has a Square for its Parameter. See FLEXION and RETROGRESSION.

REGULAR *Architecture, Fortification*, &c. See ARCHITECTURE and FORTIFICATION.

REGULAR, in the Monaſtic Senſe, is a Perſon who has made the Vows in ſome Religious Houſe. See RELIGIOUS and VOW.

Under *Regulars* are comprehended the whole Body of Monks. See MONK.

The Denominations of *Regular*, in this Caſe, ariſes hence, that they are bound to obſerve the Rule of the Order they are enter'd into. See RULE and ORDER.

Hence, *Regular Prieſt* is uſed for a Prieſt who is in ſome Religious Order; in oppoſition to a Secular Prieſt, who lives in the World, or at large. See SECULAR.

A Cardinal is reputed both *Regular* and Secular, and is entitled to the Rights of both. See CARDINAL.

Regulars may be promoted to Biſhopricks and Archbiſhopricks, as well as Seculars; but their Promotion ſecularizes them; the Epiſcopal Dignity diſpenſing them from the Obſervation of the Rule whereof they have made Profeſſion. See SECULARISATION.

REGULAR *Canons*. See CANON.

REGULAR *Benefices*, are ſuch as can only be held by Monks or Religious; or at leaſt, *per cupientem profiteri*, a Perſon deſirous to embrace the Monaſtic Life. See BENEFICE.

'Tis a Maxim in the *Romiſh* Canon Law.—*Regularia Regularibus*, i. e. *Regular* Benefices are to be confer'd on *Regular* Prieſts.—The Abbies that are Chiefs of their reſpective Orders are all *Regular*, and can only be ſerved by Monks or Cardinals. See ABBY.

All Benefices are preſumed Secular, unleſs they be proved *Regular*.

Antiently, the *Regular* Benefices were almoſt all confer'd by way of Adminiſtrations or Curacies; the Religious Incumbents being always *ad Manum* of their Superiours, who diſplaced them at Pleaſure.—Hence the common Maxim among the Canoniſts, *omne Beneficium regulare manuale*.

The Benefices affected to *Regulars* are Abbies, Conventual Priories, Simple Priories, and Clauſtral Offices.—They may be confer'd on Seculars in *Commendam*. See COMMENDAM.

REGULAR *Places*, are thoſe within the Boundary or Incloſure of the Convent; as the Cloiſter, Dormitory, Chapter, and Refectory.—In oppoſition to thoſe deſtined for Gueſts, and for the Neceſſaries of the Houſe, which are reputed without the Incloſure.

REGULATION, a Rule or Order preſcribed by a Superior, for the uniform and orderly Management of ſome Branch of Policy, Juſtice, or the like. See LAW and STATUTE, ORDINANCE, *&c.*

REGULATOR, *of a Watch*, is a ſmall Spring belonging to the Balance; ſerving to adjuſt the going, and make it either proceed faſter or ſlower. See WATCH, *&c.*

REGULO, a Title given to the Sons of the Emperors of *China*.

The Emperor's eldeſt Son, whom we call the *firſt Regulo*, was the only one of all his Children in favour; 'till, of a ſudden, Matters took a new Face. From ſome new Intelligences, the Emperor learnt the Innocence of the hereditary Prince whom he had depoſed, and the Artifices that had been uſed to ruin him: Particularly, that the *Regulo*, to ſucceed therein, had had recourſe to Magick, and at the Inſtigation of certain *Lamæ*, or *Tartar* Prieſts, had procured a Statue to be buried in *Tartary*; accompanying the Ceremony with ſeveral Magical Operations. Upon this, Orders were inſtantly ſent to ſeize the *Lamæ*, and to dig up the Statue: The *Regulo* had his Palace aſſign'd him for a Priſon. *Let. Edif. & Cur.*

REGULUS, *petty King*, in our antient Cuſtoms, a Term frequent in the *Saxon* Councils, ſignifying a *Comes* or *Count*. See COUNT and EARL.

Hence, *Subregulus*, was uſed for a *Vice-comes*, or *Vicount*: Tho' in many Places the two ſeem uſed indifferently for the ſame Dignitary.

Thus in the Archives of the Cathedral of *Worceſter*, *Uthredus*, ſometimes ſtiles himſelf *Regulus*, and ſometimes *Sub-regulus* of the City of *Worceſter*.

But in other Places we find *Offa*, *Rex* Merciorum; *Uthredus*, Regulus; Aldredus, *Subregulus*, &c.

REGULUS, in Chymiſtry, is the fineſt and pureſt Part of a Metal or Mineral, which ſinks or precipitates to the bottom of the Crucible or Furnace, in melting a Mineral, or metallic Ore. See METAL, MINERAL, FUSION, *&c.*

To procure the *Regulus's* of Metals, *&c.* Flux Powders are commonly uſed; as Nitre, Tartar, *&c.* which purge the ſulphurous Part adhering to the Metal, by attracting and abſorbing it to themſelves. See FLUX *Powder*.

Regulus is principally uſed for that of Antimony, which is a ponderous metallic Powder, that upon fuſing ſome of that Mineral in its crude State, ſinks to the bottom, leaving the Scoria or Impurities a-top. See ANTIMONY.

The Alchymiſts will have this Matter called *Regulus*, i. e. little King, as being the firſt born of the Royal metallic Blood; which is really a Son, but not a perfect Man, *i. e.* not yet a perfect Metal for want of Time and proper Nouriſhment.

Antimony purified by ſimple Fuſion, is call'd *Regulus of Antimony*; or *Regulus Antimonii ſtellatus Philoſophorum*.

But the more common way of reducing it into a *Regulus* is with the Addition of Flux Powders, as Tartar and Nitre. See FLUX *Powder*.

The Scoria found at the top of this *Regulus* is violently emetic, as well as the *Regulus* itſelf, whereof if Cups or drinking Veſſels be caſt, the Wine put into them will become vomitive.

Of this *Regulus* caſt in Moulds are made thoſe commonly called the *Antimonial Pills*, weighing about eight or ten Grains each, one of which being ſwallowed, will operate conſiderably both by Vomit and Stool.

Theſe Pills having thus performed their Office, and being diſcharged the Body, will ſerve the ſame Purpoſe again and again; whence they have obtained the Name of *perpetual Pills*.—The Virtue of this *Regulus* is not however inexhauſtible, as has been imagined; for by repeated Infuſions in Wine, though the Liquor be made violently Emetic at firſt, yet by Degrees it loſes its Force, and at length ceaſes to be Vomitive.

Martial REGULUS *of Antimony* is a Mixture of the Nails of Horſe's Shoes, melted with the *Regulus*.

In this Operation the Iron diſſolving and abſorbing the ſulphurous Parts of the Antimony, more ſtrongly than the Fluxes in the former Caſe; and turning it into a Crocus; the Antimony is hereby brought to a greater Degree of Purity, and render'd more efficacious than in the common *Regulus* See IRON, SULPHUR, *&c.*

This *Regulus* is ſometimes further purified by repeated Fuſions and Detonations, with the Addition of freſh Antimony, and more Nitre, alternately.

REGULUS, in Aſtronomy, is a Star of the firſt Magnitude, in the Conſtellation *Leo*; call'd alſo from its Situation, *Cor Leonis*, or the Lion's Heart; and by the *Chaldeans*, *Kalbeleced*, or *Kalbeleceid*, from an Opinion of its influencing the Affairs of the Heavens: as is obſerved by *Theon*. See STAR.

The Longitude of *Regulus*, as fix'd by Mr. *Flamſteed*, is 25° 31′ 20″; and its Latitude 0°. 26′: 38″ North. See LEO.

REHABILITATION, in the Civil and Canon Law, an Action whereby a Prince or Pope, by Diſpenſations or Letters Patents, reſtore a Delinquent to the Condition he was in before his Delinquency. See DEGRADATION, *&c.*

The King alone can *Rehabilitate* an Officer noted, condemned and degraded; or a Gentleman who has derogated from his Degreee. See NOBILITY.

The Pope alone pretends to *Rehabilitate*, i. e. to render capable of Benefices, and Orders, ſuch as had fallen into Hereſy, or other Irregularities.

In *Romiſh* Countries, an Eccleſiaſtick who aſſiſts at the Execution of a Sentence of Death, is to be *rehabilitated*, by an Abſolution call'd a *Sævis* See ABSOLUTION.

REHEARSAL, in Muſick and the Drama, an Eſſay or Experiment of ſome Compoſition, made in private, previous to the Repreſentation or Performance thereof in publick; to habituate the Actors or Performers, and make them more ready and perfect in their Parts.

There is a new Tragedy in *Rehearſal.*—The *Rehearſal* of the Anthem, *&c.*

REIMBURSEMENT, in Commerce, the Action of repaying, or returning what Monies a Perſon had received, by way of advance, *&c.* or what another has disburſed or paid for us.

A Perſon who gives a Bill of Exchange in Payment, is to *reimburſe* it; if it come to be proteſted, for want of being accepted or paid. See BILL, PROTEST, *&c.*

REIMBURSING is alſo uſed for the paying the Price a Commodity coſts its Owner.—Thus he has ſurrendred to me the Lot of Merchandice adjudged to him at the Sale at *London*, by the Directors of the *Eaſt-India Company*; on Condition of *reimburſing* the Price of the Purchaſe, with the Expences of Carriage, and a Profit of 5 *per Cent.*

REINFORCED *Ring*, of a Canon, is that next after the Trunnions, betwixt them and the Vent. See ORDNANCE.

REINFORCEMENT, in War, a ſupply, or new Proviſion of Men, Arms, Ammunition, *&c.*

REINS, in Anatomy, the *Kidneys*; or that Part of an Animal whereby the Urine is ſeparated from the Blood. See KIDNEYS. See alſo URINE.

The Word, according to *Varro*, is form'd from the *Greek*, ἀπὸ τῦ ῥέω, *Quaſi Rivi obſceni humoris ab iis oriantur.*—The *Greeks* call the *Rein*, νεφρὸς, from the Verb, νίφρειν, to Snow, Rain. See NEPHRITIC.

In the Manage, we ſay, a Horſe ſhould have *double Reins*; which is when he has them a little more elevated on each Side of the Back-bone, than upon it; ſo that paſſing your Hand along it, you find it large, well furniſhed and double, by the Hollow that goes all along the Back-bone.—The Back ſhould be firm, and not Hollow, or bending from the Withers to the Croup, but ſtraight. See HORSE.

The REINS of Horſes, are alſo two ſtraps of Leather meeting in the Bridle-Hand of the Horſeman, in order to make the Bit bear, and keep the Horſe under Subjection. See BRIDLE.

A *Falſe Rein* is a Lath of Leather, paſſed ſometimes through the Arch of the Banquet, to bend the *Horſe's Neck.*

REINSTATING, the reſtoring of a Perſon or Thing to its former State or Condition, from whence it had been diſturbed or diſplaced.

REINTEGRATION. See REDINTEGRATION.

REIS, or RE, or RES, a little *Portugueze* Copper Coin, nearly equal to the *French Denier tournois*, or to a third Part of the *Engliſh* Farthing. See COIN.

The *Reis* is both a Current and an imaginary Money; the *Portugueze* uſually reckoning by *Reis*, as the *Spaniards* by *Maravedis.* See MARAVEDIS.

Strangers in treating with them, are frequently ſurprized with Demands of ſeveral thouſand *Reis*, when the Matter betwixt them is only of a few Pieces of Eight; the *Millreis*, or thouſand *Reis*, only making 6 *s.* 3 *d. Sterl.*—750 of them are equal to the Piece of Eight. See MILLREIS.

REITTERS, an antient Title given the *German* Cavalry.—The Word is originally *German*, and ſignifies a Horſeman, or Cavalier.

REJOYNDER, in Law, an Anſwer or Exception to a Replication. See REPLICATION.

The Order in the Court of Chancery is thus.—Firſt, the Defendant puts in an Anſwer to the Plaintiff's Bill, which is ſometimes call'd an *Exception*: The Plaintiff's Anſwer to this is call'd a *Replication*; and the Defendant's Anſwer to that, a *Rejoynder.* See BILL and CHANCERY.

The Civilians call it *Duplicatio.* See DUPLICATION.

REJOYNTING, in Architecture, the filling up the Joints of the Stones in old Buildings, *&c.* when wore Hollow by Courſe of Time, or Water.

Rejoynting is perform'd with the beſt Mortar; as that of Lime, and Ciment; ſometimes, alſo with Plaiſter, as in the Joints of Vaults, *&c.* See MORTAR, *&c.*

REITERATION, the Act of repeating a thing, or doing it a ſecond time. See REPETITION.

The Church does not allow of the *Reiteration* of Baptiſm. See BAPTISM.

St. *Gregory* obſerves, that 'tis no *Reiteration*, when there are wanting Proofs of the thing's being regularly done before. See REBAPTIZANTS.

In Pleuriſies, the Phyſicians order the bleeding to be *reiterated* ſix or ſeven times. See PLEURISY.

REITERATING, in Printing. See PRINTING.

RELAPSE, a return or back-ſliding into a Danger, or Evil; out of which a Perſon had eſcaped.

Fevers, Dropſies, *&c.* are Diſeaſes into which *Relapſes* are very frequent and dangerous.—Such a Perſon is *relapſed* into a Hereſy he had abjured.

RELATION, in Philoſophy, the mutual *Reſpect* of two things; or what each is, with regard to the other.

The Word *Relation* is form'd *a referendo*; as conſiſting in this, that one thing is *refer'd* to another: Whence it is alſo call'd *Reſpect*, *Habitude*, *Compariſon*, &c. See COMPARION and HABITUDE.

The Idea of *Relation* we acquire, when the Mind ſo conſiders any thing, that it doth, as it were, bring it to, and ſet it by, another; and carry its view from the one to the other.—Hence the Denominations given to things intimating this Reſpect, are called *Relatives*; and the things ſo brought together, are ſaid to be *Related.*

Thus when I call *Caius*, *Husband*; or this Wall *whiter*; I intimate ſome other Perſon or Thing in both Caſes, with which I compare *him* or *it.*—Hence, the Wall is call'd by the Schoolmen, the *Subject*; the thing it exceeds in whiteneſs, the *Term*; and the whiteneſs the *Foundation* of the Relation.

Relation may be conſidered two Ways; either on the Part of the Mind referring one thing to another; in which Senſe *Relation* is only a Mode or Affection of the Mind, whereby we make ſuch Compariſon: Or on the Part of the things refer'd, which being no other than Ideas, *Relation*, in this Senſe, is only a new Idea reſulting or ariſing in the Mind, upon conſidering of two other Ideas.—So that *Relation*, take it which way you will, is only the Mind; and has nothing to do with the things themſelves. See IDEA.

Any of our Ideas, Mr. *Lock* obſerves, may be the Foundation of *Relation.*—Though where Languages have failed to give correlative Names, the *Relation* is not ſo eaſily taken Notice of: As in Concubine, which is a *Relative* Name, as well as Wife.

There is, in effect, no Idea but is capable of an infinite Number of *Relations*: Thus one ſingle Man may at once ſuſtain the *Relations* of Father, Brother, Son, Husband, Friend, Subject, General, *European*, *Engliſhman*, Iſlander, Maſter, Servant, Bigger, Leſs, *&c.* to an almoſt infinite Number; he being capable of as many *Relations*, as there can be occaſions of comparing him to other things, in any manner of Agreement or Diſagreement, or any reſpect whatſoever.

The Ideas of *Relations* are much clearer and more diſtinct, than of the things *related*; becauſe the Knowledge of one ſimple Idea is oftentimes ſufficient to give the Notion of a *Relation*: But to the knowing of any ſubſtantial Being, an accurate Collection of ſundry Ideas is neceſſary. See SUBSTANCE.

The Perceptions we have of the *Relations* between various Ideas wherein the Mind acquieſces, makes what we call *Judgment.*—Thus, when I judge 2 times 2 make 4. or does not make 5; I only perceive the Equality between 2 times 2 and 4; and the inequality between 2 times 2 and 5. See JUDGMENT.

The Perceptions we have of the *Relations* between the *Relations* of various things, conſtitutes what we call *Reaſoning.*—Thus when from this, that 4 is a ſmaller Number than 6; and that twice 2 is equal to 4; I gather that twice 2 is a leſs Number than 6; I only perceive the *Relation* of the Numbers twice 2 and 4, and the *Relation* of 4 and 6. See REASONING.

The Ideas of Cauſe and Effect, we get from our Obſervation of the Viciſſitude of Things, while we perceive ſome Qualities or Subſtances begin to exiſt, and that they receive their Exiſtence from the due Application and Operation of other Beings.—That which produceth, is the Cauſe; that which is produced, the Effect. See CAUSE and EFFECT.

Thus Fluidity in Wax is the Effect of a certain Degree of Heat, which we obſerve to be conſtantly produced by the Application of ſuch Heat.

The Denomination of Things taken from time, are for the moſt part only *Relations.*—Thus when it is ſaid, that Queen *Elizabeth* lived ſixty-nine, and reigned forty-five Years, no more is meant, than that the Duration of her Exiſtence was equal to ſixty-nine, and of her Government to forty-five annual Revolutions of the Sun: And ſo are all Words anſwering to how long.

Young and Old, and other Words of Time, that are thought to ſtand for poſitive Ideas, are indeed *Relative*; and intimate a *Relation* to a certain length of Duration, whereof we have the Idea in our Minds.—Thus we call a Man youbg or old, that hath lived little or much of that Time, which Men uſually attain to: And thus a Man is called young at twenty, but an Horſe old, *&c.*

There are other Ideas, that are truly *Relative*, which we ſignify by Names that are thought poſitive and abſolute; ſuch as great and little, ſtrong and weak.—The things thus denominated, are referred to ſome Standards with which we compare them: Thus we call an Apple Great, which is bigger than the ordinary Sort of thoſe we have been uſed to; and a Man weak, that has not ſo much Strength or Power to move, as Men uſually have, or thoſe of his own Size.

Authors give various Diviſions of *Relations.*—The School Philoſophers commonly divide them into thoſe of *Origination*, under which are comprehended the *Relations* of Cauſe and Effect: Thoſe of *Negation*, which are between oppoſite things: And thoſe of *Affirmation*, which are *Relations* of Agreement between Whole and Part, the Sign and Thing ſignified, the Adjunct and Subject.—This Diviſion is founded upon this, that the Mind can only compare things three Ways, *viz.* by inferring, denying, and affirming.

Others divide *Relations* into thoſe of *Origination*; thoſe of *Agreement*, e. gr. Similitude, Parity, *&c.* thoſe of *Diverſity*; and thoſe of *Order*, as Priority, Poſteriority, *&c.*

Others divide them into *Prædicamental*, *Tranſcendental*, and *Prædicamental*.—Under the firſt come thoſe *Relations* between things that belong to the ſame Prædicament; *e. gr.* between Father and Son. To the latter belong thoſe which are more general than the Prædicaments, or are of different Prædicaments; as the *Relations* of Subſtance and Accident; of Cauſe and Effect; of Creator, *e. gr.* and Creature. See TRANSCENDENTAL, *&c.*

Mr. *Lock* gives us a Diſtribution of *Relations* on a different Bottom.—All ſimple Ideas, he obſerves, wherein are Parts or Degrees, afford an occaſion of comparing the Subjects wherein they are, to one another, in reſpect of thoſe ſimple Ideas: As, whiter, ſweeter, more, leſs, *&c.*—Theſe, depending on the Equality and Exceſs of the ſame ſimple Idea, in ſeveral Subjects, may be call'd *proportional Relations*.

Another occaſion of comparing things being taken from the Circumſtances of their Origin, as Father, Son, Brother, *&c.* Theſe may be called *natural Relations*.

Sometimes, the Foundation of conſidering things, is ſome Act whereby any one comes by a moral Right, Power, or Obligation to do ſomething: Such are General, Captain, Burgher; theſe are inſtituted and *voluntary Relations*, and may be diſtinguiſhed from the natural, in that they are alterable and ſeparable from the Perſons to whom they ſometimes belonged, though neither of the Subſtances ſo related be deſtroyed. But natural *Relations* are not alterable, but are as laſting as their Subjects.

Another *Relation* is the Conformity or Diſagreement of Men's voluntary Actions to a Rule, to which they are referr'd, and by which they are judged of: Theſe may be called *Moral Relations*.

It is this Conformity or Diſagreement of our Actions to ſome Law (whereby Good or Evil is drawn on us from the Will and Power of the Law-maker, and is what we call *Reward* or *Puniſhment*) that renders our Actions morally Good or Evil. See GOOD and EVIL.

Of theſe moral Rules or Laws, there ſeem to be three ſorts, with their different Enforcements. Firſt, the Divine Law: Secondly, Civil Law: Thirdly, the Law of Opinion or Reputation. By their *Relation* to the firſt, our Actions are either Sins or Duties. To the ſecond, Criminal or Innocent; to the third, Virtues or Vices. See SIN, VIRTUE, VICE, *&c.*

RELATION, in Logic, is an Accident of Subſtance: accounted one of the ten Categories or Predicaments. See PREDICAMENT and CATEGORY.

Each Subſtance admits of an Infinity of *Relations*.—Thus the ſame *Peter*, conſidered with regard to *Henry*, is in the *Relation* of a Maſter with regard to *John*, in that of a Tenant; with regard to *Mary*, in that of a Husband, *&c.* Again, with regard to one Perſon, he is *rich*, with regard to another poor; with regard to another, he is fat, near, tall, ſhort, a Neighbour, Stranger, learned, unlearned, good, bad, equal, *&c.*

'Tis diſputed among the School Philoſophers, whether or no the *Relation* be a thing formally and really diſtinct from the Foundation of the Subſtance. See SUBSTANCE.

RELATION, is alſo uſed in the School Theology, to denote certain of the divine Perfections, call'd *perſonal* ones; in regard by theſe one Divine Perſon is referr'd to another, and diſtinguiſhed from it. See PERSON.

Hence they teach, that in God there is one Nature, two Proceſſions, three Perſons, and four *Relations*. See TRINITY.

Theſe *Relations* are Paternity, Filiation, active Spiration, and paſſive Spiration. See PATERNITY, *&c.* See alſo FATHER, SON, SPIRIT, *&c.*

RELATION, in Geometry, Arithmetic, *&c.* is the Habitude, or Reſpect of two Quantities to one another, with regard to their Magnitude.—This we more uſually call *Ratio*, *Reaſon*. See RATIO.

The Equality or Sameneſs of two ſuch *Relations*, we call *Proportion*. See PROPORTION.

RELATION, in Grammar, is the Correſpondence which Words have to one another in Conſtruction. See CONSTRUCTION.

Faulty and irregular *Relations* are the things chiefly to be guarded againſt, in writing correctly; they make the Senſe obſcure, frequently equivocal.—Thus: The Orator was attended to with a Coldneſs, which was the more remarkable, as the Audience were under ſome Emotion ere he began.—Here, *Coldneſs* being put indeterminately, the Relative *which*, can have no juſt and regular *Relation* thereto. See RELATIVE.

RELATION is alſo frequently uſed for *Analogy*, or what ſeveral things have in common. See ANALOGY.

In Painting, Architecture, *&c.* a certain *Relation* of the ſeveral Parts and Members of the Building or Picture, conſtitutes what we call *Symmetry*. See SYMMETRY.

RELATION *Inharmonical*, is a Term in muſical Compoſition, ſignifying a harſh Reflection of Flat againſt Sharp, in a croſs Form; *viz.* When ſome harſh and diſpleaſing Diſcord is produced, in comparing the preſent Note of another Part.—*Harris*.

RELATION, in Law, is where two things, as Times, *&c.* are conſidered, as if they were one, the thing ſubſequent being conſidered as taking effect, by *Relation*, at the time preceding.

As if *A* deliver a Writing to *B*, to be delivered to *C*, as the Deed of *A*; the Writing ſhall be deem'd to be deliver'd to *C*, at the time when it was given to *B*.

So Bills in Parliament to which the King aſſents on the laſt Day of Parliament, ſhall *relate*, and be of Force from the firſt Day thereof. *Coke* calls it *fictio Juris*. See DAY, TIME, *&c.*

RELATIVE *Propoſitions*, are ſuch as include ſome Relation and Compariſon. See PROPOSITION.

Thus, where the Treaſure is, there will the Heart be.—As much as thou haſt, ſo much thou art worth, *&c.* are *Relative Propoſitions*.

RELATIVE *Place*, See PLACE.
RELATIVE *Time*, See TIME.
RELATIVE *Gravity*, See GRAVITY,
RELATIVE *Levity*, &c. See LEVITY, *&c.*

RELATIVE *Terms*, in Logic, are Words which imply a *Relation*, or a thing conſidered as compared to another. See RELATION.

Relative Terms include a Kind of Oppoſition between them; yet ſo, as that the one cannot be without the other.

Such are *Father* and *Son*, Husband and Wife, King and Subjects, *&c.*

RELATIVE, in Grammar, is a Word or Term which in the Conſtruction anſwers to ſome Word fore-going, called the *Antedent*. See ANTECEDENT.

Pronoun RELATIVE, which *Buffier* chuſes rather to call *Modificative* or *Determinative*, is a Particle added after a Noun, or perſonal Pronoun, with which it has an Affinity, ſo that without them it ſignifies nothing; its only uſe being to expreſs in what view they are conſidered. See PRONOUN.

Of this Kind, in the *Latin*, are *qui*, *quæ*, *quod*, &c. in the *Engliſh*, who, which, whom, *&c.* as in the Book *which* you are reading; the Man *whom* you ſeek; he *who* told it, *&c.*—Where *which*, *whom*, and *who* only follow the Noun or Pronoun, to refer or determine them to ſome particular thing; as to ſeeking, reading, *&c.*

Frequently, the Noun or Pronoun wherewith the *Relative* or Pronoun is join'd, is underſtood: As, *I know who* did that. Where 'tis evident I mean, I know the Perſon who did, *&c.*

RELAY, a freſh Equipage, Horſe, *&c.* ſent before, or appointed to be ready, for a Traveller to change; to make the greater Expedition; as in riding Poſt.

The Term is borrow'd from the *French Relais*, which ſignifies the ſame thing.—In *France*, the General of the Poſts entitles himſelf, Superintendant of the *Relays*.

RELAYS, in Hunting, are freſh Sets of Dogs, or Horſes, or both, diſpoſed here and there, for readineſs, in Caſe the Game come that way, to be caſt off, or to mount the Hunters; in lieu of the former, which are ſuppoſed to want reſpite. See HUNTING.

RELAY, in Tapiſtry, is an opening left in a Piece of Tapiſtry, where the Colours or Figures are to be chang'd; becauſe on thoſe Occaſions the Workmen are changed; or elſe, the Places are left to be filled up 'till the reſt of the Work is done. See TAPISTRY.

RELAXATION, in Medicine, *&c.* the looſening or ſlackening of the Tone or Tenſion of the Fibres, Nerves, Muſcles, *&c.* See TENSION, TONE, *&c.* See alſo FIBRE.

The *Relaxation* of a Muſcle is ſuppoſed to be effected, either by the Perſpiration of the nervous Spirits, or the Regreſs of the Spirits, Blood, *&c.* which inflated its Fibres; or by the contraction of the Air, in the Globules of Blood before expanded by the ſudden influx and admixture of the Spirits, *&c.* See MUSCLE, and MUSCULAR *Motion*.

RELAXATION, in Chirurgery, is a preternatural Extenſion, or ſtraining of a Nerve, Tendon, Muſcle, or the like; either thro' Violence or Weakneſs.

Hernias are Deſcents or *Relaxations* of the Inteſtines, *&c.* See HERNIA.

From the ſame Cauſe ariſe Deſcents or Prolapſions of the Anus, *&c.* See PROCIDENTIA and PROLAPSUS.

RELAXATION, in Law, is uſed for a *Releaſing*. See RELEASE.

In this Senſe we ſay the *Relaxation* of an Attachment, in the Court of Admiralty,

The Tenor of Indulgences is a *Relaxation*, or Diminution of the Pains of Purgatory. See INDULGENCE.

RELEASE, in Law, an Inſtrument, whereby Eſtates, Rights, Titles, Entries, Actions, and other things are ſometimes extinguiſhed and annull'd, ſometimes transferr'd, ſometimes abridg'd, and ſometimes enlarged.

A *Releaſe* is either in *Fact*, or in *Law*.—A *Releaſe* in Fact, is that which the very Words expreſſly declare.—A *Releaſe* in Law, is that which doth acquit by way of Conſequence, or Intendment of Law.

RELEGATION, a kind of Exile, or Baniſhment, wherein the obnoxious Perſon is commanded to retire to a certain Place preſcribed, and to continue there 'till he be recalled. See Exile.

My Lord *Coke* calls *Relegation* a Baniſhment for a time only: *Courtin* more adequately defines *Relegation* a Baniſhment to a certain Place for a certain Term.

In *Rome Relegation* was a leſs ſevere Puniſhment than *Deportation*, in that the *relagated* Perſon did not thereby loſe the Rights of a *Roman* Citizen, nor thoſe of his Family, as the Authority of a Father over his Children, *&c.* See Banishment.

RELICKS, Reliquiæ, in the *Romiſh* Church, certain Remains of the Bodies or Cloaths of ſome Saint or Martyr, devoutly preſerved in Honour to his Memory, carried at Proceſſions, kiſs'd, rever'd, *&c.* See Saint, Martyr, Procession, *&c.*

The Abuſes in Points of *Relicks* are moſt flagrant: F. *Mabillon*, a Benedictine, complains of the great Number of ſuſpected *Relicks* expoſed on Altars: He owns that were there to be a ſtrict Inquiſition into the *Relicks*, vaſt Numbers of ſpurious ones would be found offer'd every where to the Piety and Devotion of the Faithful: And adds, that Bones are frequently conſecrated, ſo far from belonging to Saints, that in all probability they don't belong to Chriſtians.

The *Catacombs* are an inexhauſtible Fund of *Relicks*; yet 'tis ſtill diſputed who were the Perſons interr'd here. See Catacomb.

In the eleventh Century a Method was introduced of trying ſuppoſed *Relicks* by Fire.—Thoſe which did not conſume in the Fire were reputed genuine; the reſt not. See Purgation, *&c.*

'Tis an antient Cuſtom, which ſtill obtains, to preſerve the *Relicks* in the Altars whereon Maſs is celebrated.—To this purpoſe, a ſquare Hole is made in the middle of the Altar, big enough to receive the Hand; and herein is the *Relick* depoſited, wrapp'd in red Silk, and incloſed in a leaden Box. See Altar.

The *Romaniſts* alledge a good deal of Antiquity in behalf of their *Relicks*.—The *Manichees*, it ſeems out of hatred to the Fleſh, which they held an evil Principle, are recorded as refuſing to honour the *Relicks* of Saints; which is eſteemed a kind of Proof that the Catholicks did it in the firſt Ages. See Manichee.

Indeed Folly and Superſtition got into Religion but too early.—Even the touching of Linnen Cloaths on *Relicks*, from an Opinion of ſome extraordinary Virtue derived therefrom, appears to be as antient as the firſt Ages; there being a Hole made in the Coffins of the forty Martyrs at *Conſtantinople*, expreſly for this Purpoſe.

RELICTA *Verificatione*, in Law, is when a Defendant relinquiſhes his Proof or Plea; and thereupon Judgement is entered for the Plaintiff.

RELICT. See Widow.

RELIEF, Relievium, *Levamen*, in Law, a Fine paid to the chief Lord, by a Perſon at his coming to the Inheritance of Land held in Capite, or Military Service. See Fine, Lord, Tenure, *&c.*

Relief is uſually to the value of a Years Rent or Revenue.

The Origin of the Cuſtom is thus.—A Feudatory or beneficiary Eſtate in Lands, being at firſt only granted for Life; after the Death of the Vaſſal it return'd to the Chief Lord, and was hence call'd *Feudum Caducum*, q. d. fallen to the Lord by the Death of the Tenant. See Fee.

In Courſe of Time theſe feudatory Eſtates being converted into Inheritances by the Connivance and Conſent of the Lord; when the Poſſeſſor of ſuch Eſtate died it was call'd *Hereditas Caduca*, q. d. an Inheritance fallen to the Lord; from whom it was to be recover'd, by the Heirs paying a certain Sum of Money.

This was ſaid *Relevare hæreditatem caducam*, and the Money thus paid was call'd *Relevamen*, *Relevium*, or *Relief*.

This *Relief* was eſtabliſhed after the Conqueſt.—For 'till that time *Heriots* were paid the Lord, at the Death of his Tenant; conſiſting of Horſes, Arms, *&c.* See Heriot.

But upon the Conqueſt, the poor People being deprived of all ſuch things by the *Normans*, a Sum of Money was ſubſtituted in lieu thereof, which was call'd a *Relief*; and continues in ſome Places to this Day.—However, 'tis true, *Relief* and *Heriot* are frequently confounded in antient Writers.

Relief *Reaſonable*, call'd alſo *Lawful*, and *antient Relief*, is that enjoined by ſome Law, or fix'd by antient Cuſtom; and which does not depend on the Will of the Lord.—Thus in a Charter of King *John*, mentioned by *Matt. Paris*.—*Si quis Comitum vel Baronum Noſtrorum ſive aliorum tenentium de nobis in Capite per ſervitium militare, mortuus fuerit & cum deceſſerit hæres ſuus plenæ ætatis fuerit, &* relevium *debeat, habeat hæreditatem ſuam per* Antiquum Relevium.

What this was may be ſeen in the Laws of *William the Conqueror*, &c. *Bracton* ſays, this Fine was call'd a *Relief quia hereditas quæ jaciens fuit per Anteceſſoris deceſſum* relevatur *in manus hæredum*, &c.

A *Relief* is alſo paid in Soccage Tenure, or petit Serjeanty; where a Rent or other thing is paid by rendering as much as the Rent or Payment reſerved.

By the Cuſtom of *Normandy*, *Relief* is due for Lands held in Villenage, as well as in Fee.—By the Cuſtom of *Paris*, *Relief* is not due upon Succeſſions in the direct Line.

The Quantity of the *Relief* is very different: There are *ſingle Reliefs*, *double Reliefs*, &c. The Quality, too, is diverſe: There are *Reliefs of Property*, paid by the Heir: *Reliefs of Bail*, or *Tutelage*, paid by a Guardian for his Minor, or by the Husband for the Fiefs of his Wife, *&c.* *Relief of Horſe and Arms*, &c.

By the Laws of King *Canutus*, the *Relief* of an Earl, paid the King, was eight War-Horſes with their Bridles and Saddles, four Loricas, four Helmets, four Swords, four Hunting-Horſes, and a Palfrey.—The *Relief* of a Baron or Thane was four Horſes, *&c.*

Relief, in Chancery, is an Order ſued out for the diſſolving of Contracts and other Acts, on account of their being unreaſonable, prejudicial, grievous, or from ſome other Nullity, either *de Jure*, or *de Facto*. See Chancery and Equity.

Minors obtain *Relief* againſt Acts paſs'd in their Minority.—Majors have *Relief* in caſes of enormous Damage, Deceit, Violence, over-reaching, extravagant Bargains, *&c.*

Among the *Romaniſts* 'tis a Rule, that the Church obtains *Relief* any time, and againſt all Acts paſs'd in its Prejudice: No Preſcription prevailing againſt it. See Prescription.

RELIEF, of a Hare, among Hunters, is the Place where ſhe goes to feed in the Evening. See Hunting.

Relief, in Sculpture. See Relievo.

RELIEVE, in the Military Senſe.—To *Relieve* is to take the Poſt of another Body.

Hence, to *Relieve* the Guard, to *Relieve* the Trenches, *&c.* is to bring freſh Men upon the Guard, or the Trenches, and to ſend thoſe to reſt who have been upon Duty before. See Guard, Trench, *&c.*

They alſo ſay, *Relieve a* Sentinell, *Relieve* the Steers-Man, &c.

RELIEVO, or Relief, *Imboſſment*, in Sculpture, is applied to a Figure which projects, or ſtands out, prominent, from the Ground or Plain whereon it is form'd; whether that Figure be cut with the Chiſſel, moulded, or caſt. There are three Kinds of *Relievo*; viz. *Alto*, *Baſſo*, and *Demi-Relievo*.

The *Alto Relievo*, *Haut Relief*, or, *high Relievo*, is when the Figure is form'd after Nature, and projects as much as the Life.

Baſſo-Relievo, *Baſs-Relief*, or *low Relievo*, is when the Work is but rais'd a little from its Ground; as we ſee in Medals, and in the Frontiſpieces of Buildings; particularly the Hiſtories, Feſtoons, Foliages, and other Ornaments in Friezes.

Demi-Relievo is when one half of the Figure riſes from the Plan, *i. e.* when the Body of the Figure ſeems cut in two, and one half is clapp'd on a Ground.—When in a *Baſſo Relievo* there are ſome Parts that ſtand clear out, detach'd from the reſt, the Work is call'd a *Demi-Boſſe*.

Relievo, in Architecture, is the Projecture of any Ornament. See Projecture.

This, *Daviler* obſerves, is always to be proportioned to the Magnitude of the Building it adorns; and the Diſtance at which it is to be viewed. If the Work be inſolated and terminated on all Sides, it is call'd a *Figure in Relievo*, or a *round Imboſſment*. Such are Statues, Acroters, *&c.*

Relievo, in Painting, is the Degree of Force or Boldneſs wherewith the Figures ſeem, at a due Diſtance, to ſtand out from the Ground of the Painting, as if really imboſs'd.

The *Relievo* depends much on the Depth of the Shadow, and the Strength of the Light; or on the Heighth of the different Colours bordering on one another; particularly on the difference of the Colour of the Figure from that of the Ground. See Shadow, Colouring, *&c.*

When the Light is well choſen, to make the neareſt Parts or Figures advance; and well diffuſed on the Maſſes, ſtill diminiſhing inſenſibly, and terminating in a large ſpacious Shadow, brought off inſenſibly, the *Relievo* is ſaid to be *bold*, and the *Clair-obſcure*, *well underſtood*. See Clair-Obscure.

They alſo ſay *Embroderies in Relievo*; in oppoſition to thoſe that are flat.

RELIGION, that Worſhip or Homage due to God, conſidered as Creator, Preſerver, Redeemer, *&c.* See God, Theology, *&c.*

The Foundation of all *Religion* is, that there is a God, and that he requires ſome Service at the Hands of his Creatures.—From the different Manners wherein we arrive at the Knowledge of this Service; *Religion* is divided into *natural* and *revealed*.

Natural Religion is whatever we deſcry to be due and meet by the meer Dictates of natural Reaſon; as, to love, and honour God, not to abuſe his Creatures, *&c.* See Natural, Reason, *&c.*

Revealed Religion is what we learn to be due from ſome ſupernatural Means; as by an expreſs Declaration of God himſelf, by the Mouths of Prophets, *&c.* See Prophecy.

The firſt flows immediately from the Relation between the Creature and the Creator: The latter does not follow from ſuch

a Re-

Relation, but is ſuper-added from the mere Will and Pleaſure of the Creator.

The firſt we ordinarily call *Morality*, or Ethicks; becauſe immediately converſant about the Manners and Duties of Men towards one another; and towards themſelves, conſidered as Creatures of that Being. See MORALITY, ETHICKS, *&c.*

The latter we call, by way of Eminence, *Religion*, as being the Rule of our Duty immediately to God himſelf. See REVELATION.

The firſt ſuppoſes a God, a Providence, a future State, Rewards and Puniſhments; the latter likewiſe ſuppoſes an immediate Miſſion from God himſelf, atteſted by Miracles, *&c.* See MIRACLE.

RELIGION is particularly uſed for the ſpecial Syſtem of Faith and Worſhip, which obtains in this or that Country; in this or that Sect; this or that Age, *&c.*

In this Senſe we ſay the *Romiſh Religion*, the *Reform'd Religion*, the *Religion of the Greeks*, the *Mahometan Religion*, *Jewiſh Religion*, &c. See JEWS, MAHOMETANS, *&c.* under their proper Heads.

The *Siameſe* hold the Diverſity of *Religions*, i. e. the different Manners of honouring God, to be pleaſing to him; inaſmuch as they have all the ſame Object, all tend to the ſame End, though by different Means. *Claude.*

The Sentiment of theſe Idolaters is doubtleſs more juſt than that of our Zealots, who hold all but thoſe of their own Religion odious to God.

The ſeveral Sects in *Religion*, ſee under their proper Articles: See alſo SECT.

RELIGION, again, is applied to a military Order, conſiſting of Knights who live under ſome certain Rule, *&c.* See KNIGHT, MILITARY, ORDER, *&c.*

In this Senſe we ſay the *Religion of Malta*, *&c.* See MALTA.

The Term is ſometimes alſo uſed for a Convent.—Thus we ſay, there are *Religions* of Men, *i. e.* Monks; *Religions* of Women, *i. e.* Nuns.—There are new *Religions* eſtabliſhed every Day, *i. e.* new Monaſteries built. See MONK, *&c.*

The Religion is uſed abſolutely for the reform'd in *France*; thus we ſay, *d' Ablancourt*, and *Dacier*, were of the *Religion*.

RELIGIOUS, a Perſon engaged by a ſolemn Vow to the monaſtic Life; or a Perſon ſhut up in a Monaſtery, to lead a Life of Devotion and Auſterity; under ſome Rule or Inſtitution. See VOW and RELIGIOUS *Order*.

The Male *Religious* we popularly call *Monks*; the Females, *Nuns*. See MONK, *&c.*

M. *Nicole* obſerves, that ſome Domeſtick Chagrins, and a certain Pride, which leads People to abſcond when they cannot make a Figure to their Mind, makes as many *Religious* as real Piety.—He adds, that a Girl muſt be made *Religious* for no other reaſon, but becauſe ſhe can't be married anſwerable to her Condition.

A *Religious* can't make any Will.—By the Council of *Trent*, a *Religious* may reclaim his Vows within five Years. See RECLAIM.

Antiently the *Religious* were all Laymen, and it was even prohibited them to take up Orders.—In 1557 the Parliament of *Paris* made a difficulty of receiving a Biſhop of *Laon* to the Oath of a Duke and Peer, by reaſon of his being a *Religious*: Yet a *Religious* being promoted to a Biſhoprick, is thenceforth ſecularized or diſpenſed from the Obſervation of his Rule. See REGULAR.

In antient Deeds and Conveyances of Lands, we often find the Seller reſtrain'd from giving or alienating it, *Viris Religioſis vel Judæis*, to *Religious*, or to *Jews*; to the end the Land might not fall into Mortmain. See JUDAISM and MORTMAIN.

In a Memorial directed by King *John* to his Viſcounts, they are order'd to proclaim through their reſpective Counties, that no Body, as they love their Bodies and Cattel, injure the *Religious* or Clerks, either in Word or Deed; on Penalty of being hang'd up on the next Oak.—*Nulli ſicut deligunt Corpora & Catalla ſua malum faciant vel dicant* viris Religioſis vel Clericis.—*Si quem inde attingere poſſimus ad proximum Quercum eum ſuſpendi faciemus.*

RELIGIOUS *Order*. See ORDER.

Moſt military Orders pretend, likewiſe, to be *Religious*; as thoſe of *Malta*, who make Vows, *&c.* See MALTA.

RELIQUA, the Remainder or Debet, which a Perſon finds himſelf a Debtor in, upon the balancing and liquidating an Account.

Hence, *Reliquitary*, the Debtor of a *Reliqua*; as alſo a Perſon who only pays piece-meal.—The Term *Reliqua* is pure *Latin*.

RELIQUARY, a Shrine or Casket, in which the Relicks of a dead Saint are kept. See SHRINE, RELICK, *&c.*

RELIQUIÆ, RELICKS, in Antiquity, the Aſhes and Bones of the Dead, that remained after the burning of their Bodies; and which they very religiouſly kept in Urns, and afterwards laid them up in Tombs. See FUNERAL.

REMAINDER, in Law, an Eſtate in Lands, Tenements, or Rents, given to a Perſon at ſecond Hand, to be enjoy'd after the Deceaſe of another, to whom the ſame is given immediately, or at firſt Hand.

A Man grants Lands to one for Term of Life, the *Remainder* to another for the Term of his Life; which *Remainder* may be either for a certain Time, or in Fee Simple, or Fee Tail.

Spelman makes the difference between a *Remainder* and Reverſion to conſiſt in this; that by a Reverſion, after the appointed Term, the Eſtate returns to the Donor, or his Heirs, as the proper Fountain; whereas by *Remainder* it goes to ſome third Perſon, or Stranger. See REVERSION.

Glanville obſerves, that Biſhops and Abbots, in regard their Baronies are the King's Alms, cannot give any Part thereof by way of *Remainder*. See BISHOP.

REMAINDER, in Mathematicks, is the difference; or that which is left after the taking of a leſſer Number, or Quantity, from a greater. See SUBSTRACTION.

REMARRYING, the repeating of a Marriage; or the going through the Solemnities of a ſecond Marriage. See MARRIAGE.

Clandeſtine and uncanonical Marriages are deem'd null; and the Parties are to be *re-married* in form; at leaſt to avoid Diſputes.

It was antiently expreſly forbid to *re-marry* in the firſt Year of Viduity.—M. *Bayle* obſerves, that a Perſon who does not *re-marry* is anſwerable to the Publick for all the Time loſt in his Viduity, or Widdower-hood. See WIDOW, VIDUITY, *&c.*

REMEDY, REMEDIUM, in Phyſick, a Medicine, or Preparation applied either internally or externally, for the Cure of a Diſeaſe. See MEDICINE.

Emplaſters, Unguents, Cataplaſms, *&c.* are *Topical Remedies*. See TOPICAL.

Mercury and the Bark are Specific Remedies. See SPECIFIC.

Mineral Waters, and Aſſe's Milk, and Country-Air, are uſually the *laſt Remedies*.

Salivation is ſometimes call'd by way of Eminence, *the Remedy*. See SALIVATION.

When *Remedies* are ſtuff'd with too many Ingredients, they load the Stomach with a ſlimy Mucilage, which ſwelling does more hurt than good.

REMEMBRANCE, is when the Idea of ſomething formerly known, recurs again into the Mind, without the Operation of the like Object, on the external Senſory. See MEMORY and REMINISCENCE.

REMEMBRANCERS *of the Exchequer*, are three Officers, or Clerks therein. See EXCHEQUER.

Theſe are the *King's Remembrancer*; the *Lord Treaſurer's Remembrancer*; and the *Remembrancer of the Firſt-Fruits*.

The *King's Remembrancer* enters into his Office all Recognizances taken before the Barons, for any of the King's Debts, for Appearance, or for obſerving Orders; and makes out Proceſs againſt the Collectors of Cuſtoms, Subſidies, and Fifteenths, for their Accounts.—All Informations upon penal Statutes are entered in this Office, and there all Matters upon *Engliſh* Bills in the Exchequer-Chamber remain.—He makes the Bills of Compoſition upon penal Laws, takes the Stalment of Debts; has delivered into his Office all manner of Indentures, Fines, and other Evidences whatſoever that concern the aſſuring of any Lands to the Crown: He every Year, *in craſtino animarum*, reads, in open Court, the Statute for Election of Sheriffs, and gives them their Oath, and reads the Oath of all the Officers of the ſame, when they are admitted.

The *Lord Treaſurer's Remembrancer*, is charged to put the Treaſurer and the reſt of the Judges of that Court, in *remembrance* of ſuch things as are to be called on, and dealt in for the King's Behoof.—He makes Proceſs againſt all Sheriffs, Eſcheators, Receivers, and Bailiffs, for their Account: Proceſs of *Fieri facias*, &c. Extent for any Debts due to the King, either in the Pipe, or with the Auditors, makes Proceſs for all ſuch Revenues as are due to the King, by reaſon of its Tenures.—He alſo makes Record, whereby it appears whether Sheriffs, or other Accomptants, pay their Profers due at *Eaſter* and *Michaelmas*.—He makes another Record, whether Sheriffs or other Accomptants keep their Days of Prefixion: All Eſtreats of Fines, Iſſues, and Amerciaments, ſet in any of the Courts of *Weſtminſter*, or at the Aſſizes or Seſſions, are certified into this Office, and are by him delivered to the Clerk of the Eſtreats to write Proceſs upon them, *&c.*

The *Remembrancer of the Firſt-Fruits*, takes all Compoſitions and Bonds for Firſt-Fruits and Tenths; and makes Proceſs againſt ſuch as do not pay the ſame. See FIRST-FRUITS.

REMINISCENCE, is that Power of the Humane Mind, whereby it recollects itſelf, or calls again to its Remembrance ſuch Ideas or Notions as it had really forgot: In which it differs from Memory, which is a treaſuring up of things in the Mind, and keeping them there, without forgetting them. See MEMORY.

Hence Memory may be conſidered as a continual *Remembrance*; and *Remembrauce*, as an interrupted Memory. See MEMORY.

How near a-kin ſoever the two Faculties may ſeem, yet they are generally found ſeparated; ſo that they who excell in the one, are defective in the other. See RECOLLECTION, RETENTION, *&c.*

The antient *Platoniſts* were of Opinion, that all Learning and Knowledge conſiſted in the *Reminiſcence* or Recollection of Notices which had been in the Soul before its Union with the Body. See PLATONISM.

REMINISCERERE, the ſecond Sunday in *Lent*; antiently thus called from the firſt Word of the *Introit* of the Maſs ſaid for that Day, *Reminiſcere Miſerationum tuarum.*

REMISSION, in Phyſicks, the Abatement of the Power or Efficacy of any Quality; in oppoſition to the Increaſe of the ſame, which is call'd its *Intenſion*. See INTENSION.

In all Qualities capable of Intenſion and *Remiſſion*, the Intenſion decreaſes as the Squares of the Diſtance from the Centre of Action reciprocally. See QUALITY.

REMISSION, in Medicine, is, when a Diſtemper abates, but does not go quite off, before it returns again; as it is common in Fevers which do not quite intermit. See FEVER.

REMISSION, in Law, *&c.* the Pardon of a Crime, or the giving up the Puniſhment due thereto. See PARDON.

REMIT, in Commerce.—To *remit* a Sum of Money, Bill, or the like, is to ſend a Sum of Money, *&c.* See REMITTANCE.

To *remit* is alſo uſed among Bankers for what is accuſtomed to be given a Banker, or as it were, diſcounted with him, for his giving a Bill of Exchange. See EXCHANGE.

To *remit* is alſo to give up Part of his Due to a Debtor; as, I would *remit* you a fourth of what you owe on Condition of paying me the reſt in Hand.

REMITTANCE, in Commerce, the Traffic or Return of Money from one Place to another, in Bills of Exchange, Orders, or the like. See COMMERCE, EXCHANGE, *&c.*

The *Remittance* is properly a Bill of Exchange, or the like, ſent to a Correſpondent, and the Content thereof to be receiv'd by him, of ſome other Perſon on whom it is drawn.

Such a Merchant has *remitted*, or made a *Remittance* of five thouſand Pounds in Bank Notes, to his Correſpondent at *London.*—I will *remit* you, or make you a *Remittance* of five hundred Crowns in three Bills of Exchange, drawn on N. Banker in your City, and payable at Sight.

By means of theſe *Remittances*, large Sums of Money are return'd from one City to another, without Danger, without Carriage, *&c.*

In *London* 'tis eaſy getting *Remittances* upon any City in the World: In the Country 'tis more difficult. *Remittances* are not eaſily had upon *Copenhagen*. See BILL *of Exchange*.

REMITTANCE, is alſo uſed in ſpeaking of the Payment of a Bill of Exchange.—Thus, I have receiv'd an hundred Piſtoles on your *Remittance.*—Mr. N. Banker in your City, ſhould have paid you two hundred Crowns on my *Remittance*.

REMITTANCE, is alſo the Due or Fee allow'd the Banker, both for his Wages, the Tare of Money, and the different Value of the Species, in the Place where you pay the Money, and where he *remits* it.

The *Remittance* at *London* is very high.—This *Remittance* is more uſually call'd CHANGE and RECHANGE, which ſee.

REMITTER, in Law.—Where a Man has two Titles to Land, and is ſeized by the latter; and that proving Defective, he is *remitted* or reſtored to the former more antient Title: This is call'd a *Remitter*, from the *Latin*, *remittere*, to ſend back.

If Land deſcend to him that had Right to it before, he ſhall be *remitted* to his better Title if he pleaſe. *Doctor* and *Student*.

REMONSTRANCE, an Expoſtulation or humble Supplication addreſs'd to a King, or other Superior; to beſeech him to reflect on the Inconveniences, or ill Conſequences of ſome Order, Edict, *&c.*

The Parliament is gone in a Body to make humble *Remonſtrances* to the King, on the ſubject of ſuch a Declaration.

REMONSTRANCE, is alſo uſed for an expoſtulatory Council or Advice; or a gentle, handſome Reproof, made either in general or particular, to apprize or to correct ſome Fault.—A Mother makes *Remonſtrances* to her Daughter, *&c.*

REMONSTRANTS, REMONSRANTES, was a Title given the *Arminians*, by reaſon of the *Remonſtrances* they made in 1610, againſt the Synod of *Dort*, wherein they were condemn'd. See ARMINIAN.

Epiſcopius and *Grotius* were at the Head of the *Remonſtrants*. See CONTRA-REMONSTRANTS.

REMORA, in Natural Hiſtory, a little Fiſh, reſembling a Herring, with Creſt and Fins; call'd by the *Greeks*, *Echeneis*.

'Tis much talk'd of by the Antients; who, as we find from *Pliny*, lib. 32. unanimouſly believ'd it had the force to ſtop a Veſſel in full Sail; and hence call'd it *Remora*, *a remorando.*—But the Moderns hold it a Fiction; inaſmuch as in all their Navigations, which are much more conſiderable than thoſe of the Antients, they have never met with any thing like it.

REMORA, among Surgeons, is alſo an Inſtrument to ſet broken Bones withal. See FRACTURE.

REMOUNT, in War.—To *remount the Cavalry*, is to furniſh Troopers or Dragoons with freſh Horſes, in lieu of ſuch as have been kill'd or diſabled in the Service.

REMPLY, in Heraldry, ſomething *filled up*. The Term is chiefly uſed to denote that the Chief is quite filled up with a ſquare Piece of another Colour, leaving only Border for the proper Colour of the Chief about the ſaid Piece.

RENAL, ſomething belonging to the Reins, or Kidneys. See REIN and KIDNEY.

RENALES *Glandulæ*, in Anatomy, are Glands thus call'd, becauſe ſituate near the Reins or Kidneys; firſt diſcovered by *Bar. Euſtachio*, Native of *San Severino*, in *Italy*. See GLAND.

They are alſo call'd *Capſulæ Atrabilares*; in regard the Cavity is always found full of a blackiſh Liquor; and by others, *Rene Succenturiati*, becauſe reſembling the Reins in form. See RENES *Succenturiati*.

RENCOUNTER, the Encounter of two little Bodies or Parties of Forces: In which Senſe it is uſed in oppoſition to Battel. —'Twas no Battel; 'twas only a *Rencounter*.

In ſingle Combats, *Rencounter* is uſed in oppoſition to *Duel*. —When two Perſons fall out, and fight on the Spot, without having premeditated the Combat, 'tis call'd a *Rencounter.*—'Tis no *Duel*, 'tis a *Rencounter*. See DUEL.

The Word is form'd from the *French*, *Rencontre*, meeting.

RENCOUNTER, or RENCONTRE, in Heraldry, is applied to Animals when they ſhew the Head in Front, with both Eyes, *&c.* or the Face ſtands right forward; as if they came to meet the Perſon before them.

Indeed in the Deer, this is call'd *Maſſacre*, and in the Leopard 'tis the natural Situation.—He bears Sable, in *Rencounter*, a Golden Fleece.

RENDER, in Law, a Term uſed in levying a Fine. A Fine is either ſingle, whereby nothing is granted; or with *Render*, whereby ſomething is *render'd back* again, by the Cogniſee to the Cogniſor; or double, which containeth a Grant, or *render back again* of ſome Rent, Common, or other thing out of the Land it ſelf, to the Cogniſor. See FINE.

We alſo ſay, there are certain things in a Manor which lie in *Prender*, i. e. may be taken by the Lord or his Officers when they pleaſe, without the Tenants leave: And others which lie in *Render*, that is, muſt be *render'd* or anſwer'd by the Tenant; as Rents, Reliefs, Heriots, and other Services. See PRENDER.

Some Service conſiſts in Seiſance; ſome in *Render*. *Perkins*.

RENDERING, in Building. See PARGETTING.

RENDEZ-*vous*, a Place appointed to meet in at a certain Day and Hour.

The Word is *French*; and is found ſo handy, that moſt Nations uſe it in its Purity, for want of a Word of equal import in their reſpective Languages.

A general *Rendezvous* of the Army.—The Regiments have their particular *Rendezvous*, call'd *Quarters of Aſſembly*. See QUARTER.

The Virtue of a Woman is already ſhaken when ſhe gives a *Rendezvous*. St. *Evremond*.

RENEGATE, RENEGADO, a Perſon who has apoſtatized or renounced the Chriſtian Faith, to embrace ſome other Religion; particularly Mahometaniſm. See APOSTATE.

'Tis the *Renegado*'s who prove the moſt barbarous to the Chriſtians when they fall into their Hands.

The *Renegate* is thus called, *quaſi re-negat-Chriſtum.*—*Hoveden* mentions it in the Year 1192, under the Name of *Reneer*, from the *French*, *re-nier*, to deny again.

RENES *Succenturiati*, in Anatomy, are Glands thus called as reſembling the Figure of the Reins; and hence accounted a kind of *ſecondary Reins*; *Succenturiatus* ſignifying ſomething in the Place of another. See SUCCENTURIATI.

They are alſo called *Capſulæ Renales*, and *Glandulæ Renales*. See RENALES.

RENEWING of Leaſes and Lives. See REVERSION, ANNUITY, POLITICAL *Arithmetick*, &c.

RENITENCY, RENITENTIA, among Philoſophers, that Force in ſolid Bodies, whereby they reſiſt the Impulſe of other Bodies; or react as much as they are acted on. See REACTION. See alſo RESISTANCE.

RENT, in Law, a Sum of Money, or other Conſideration iſſuing yearly out of Lands and Tenements, alienated on that Condition. See REVENUE.

It is thus called from the corrupt *Latin*, *Rendita*, for *reddita* of *redditus*; becauſe, as *Fleta* tells us, *retroit & quotannis redit*.

The *Rents* of all the Lands of *England* and *Wales* appear by the Computations of Dr. *Davenant*, and Mr. *King*, from the late Land-Tax, to be nearly 10 Millions *per Annum*; thoſe of the Houſes not let with the Lands, to be two Millions more; and thoſe of all other Hereditaments, to be two Millions more; in all 14 Millions. See REVENUE.

The Lawyers ordinarily reckon three ſorts of *Rent*; viz. *Rent-Service*, *Rent-charge*, and *Rent-ſeck*.

Rent-Service, is where a Man holds his Lands of his Lord by Fealty, and certain Rent; or by Fealty-Service, and certain Rent; or that which a Man making a *Leaſe to* another for Term of Years, reſerveth yearly to be paid for them. See SERVICE FEALTY, RESERVE, *&c.*

Rent-Charge, is where a Man makes over his Eſtate to another by Deed indented, either in Fee, or Fee-tail, or for Term of Life; yet reſerves to himſelf, by the ſame Indenture, a Sum of Money *yearly to be paid* to him, with Cauſe of Diſtreſs for Non-payment.

Rent-ſeck, or *Dry-Rent*, is that which a Man making over his Eſtate by Deed indented, reſerveth yearly to be paid to him, without Cauſe of Diſtreſs mentioned in the Indenture. See METEGAVEL.

RENTS *of Aſſize*, are the certain Rents of Freeholders, and antient Copyholders; thus called becauſe aſſized and certain: In oppoſition to *redditus mobiles*.

RENTS *Reſolute*, are reckoned among the Farm *Rents* to be ld by the *Stat.* 22 *Car.* II. and are ſuch *Rents* or Tenths as were tiently payable to the Crown from the Lands of Abbies and her Religious Houſes: Which Lands, upon the Diſſolution of bbies, being demiſed to others, the ſaid *Rents* were ſtill reſerved d made payable to the Crown.

RENTER-*Warden*, an Officer in moſt of the Companies of *ondon*; whoſe Buſineſs is to receive the *Rents* or Profit belong- g to the Company. See TREASURER.

RENTERING, in the Manufactories, the ſewing of two ieces of Cloth, edge to edge, without doubling them; ſo as at the Seam ſcarce appears at all; hence alſo called *Fine-draw-* g.

Serges, &c. are ſewed; Cloths *renter'd.*—To *renter* in Ta- iſtry, is to work new Warp into a piece of Tapiſtry damaged, aten by the Rats, &c. and on this Warp to reſtore the antient Pattern, or Deſign.—The Warp is to be of Woollen, not Lin- en.—Among the Titles of the Tapiſtry-makers, is included that f *Renterers.*

The Author of one of the *Lett. Edif. & Cur.* ſpeaking of the reat Dexterity of the *Renterers* in the *Eaſt Indies*, aſſures us, that f you tear a Piece of fine Muſlin, and give it one of them to mend, it ſhall be impoſſible for you to diſcover the Place where tis rejoined, even though you had make a Mark to know it.

The Dexterity of our own *Renterers* is ſuch, as puts them in Condition to defraud the King, by ſowing a Head or Slip of *Engliſh* Cloath, on a Piece of *Dutch*, *Spaniſh*, or other Foreign Cloath; or a Slip of Foreign Cloath on a Piece of *Engliſh*, ſo as to paſs the whole, as of a Piece; and by that means avoid the Duties, Penalties, &c.

The Trick was firſt diſcovered in *France*, by M. *Savary*, Au- thor of *Dicton. de Commerce.*

The Word is form'd from the *French*, *rentraire*, which ſignifies the ſame thing; and which *Menage* after *Salmaſius*, derives from the *Latin*, *textura*; as if it were making a Tiſſue or Web, inſtead of a *Seam.*

RENTERING is particularly uſed for a Rent, or Hole, happening in the dreſſing or preparing of a Piece of Cloath, artfully ſew'd up or mended with Silk.

All *Renterings* are reputed Defects or Blemiſhes; and ought to be allow'd for in the Price of the Piece.—Hence, M. *Savary* eſtabliſhes it as a Rule, which is certainly founded on natural Equity, that every Manufacterer mark the *Renterings* of his Cloaths with a Piece of Packthread tied to the Liſt; to direct the Draper to the Spot: And that the Draper apprize the Taylor or other Perſon, to whom he ſells it, of the ſame; that he mayn't come to Damage in the cutting; there being Inſtances of Drapers condemned to take back their Cloath, when cut to Pieces, for omitting to mention the *Renterings*, and other Flaws.

On this occaſion M. *Savary* extolls the Procedure of an *Engliſh* Merchant, who ſending a Piece of Cloath damaged in one Spot, to his Correſpondent at *Paris*, put a Piece of Gold in the damaged Place, to make up the Damage.—But as this Example is perhaps the only one of its Kind, that Author recommends it to the Merchant or Draper to unfold all the Pieces entirely, as they come to him; to diſcover the *Renterings* and other Flaws, in order to make the Clothier accountable for them.

RENUENTES, in Anatomy, a pair of Muſcles of the Head, thus called as being Antagoniſts to the *Annuentes*; and ſerving to throw the Head backwards, with an Air of Refuſal. See HEAD.

From their Situation they are alſo called *Rectus Capitis Minor.* See RECTUS *Capitis.*

RENUNCIATION, the Act of renouncing, abdicating, or relinquiſhing any Right, real or pretended. See ABDICATION, &c.

Renunciations are ſometimes *expreſs*; as by Contracts, &c. ſometimes *tacit*, as by contrary Acts.

To *renounce* a Succeſſion, a Community, &c. is to paſs a ſolemn Act before a Notary, or other publick Officer, whereby a Perſon declares he will not intermeddle in a Succeſſion, or Profit in a Company; but ſurrenders his Part, and quits all Pretenſions.

Diocletian renounced the Empire to live as a Philoſopher.—The late King *Philip* of *Spain*, by the Treaty of *Utrecht*, was obliged to *renounce* the Succeſſion of the Crown of *France*; to which he was Heir Preſumptive: And has ſince by a voluntary Act *renounced* his own Crown, in favour of his Son.—*Renunciations* of Kings are always ſuſpected. See RESIGNATION.

RENVERSE, *inverted*, in Heraldry, is when any thing is ſet with the Head downwards, or contrary to its natural Way of Being.—Thus a Chevron *renverſe* is a Chevron with the Point downwards.—The ſame Term we uſe when a Beaſt is laid on its Back.

REORDINATION, the Act of conferring Orders a ſecond time. See ORDINATION.

The Ceremony of Ordination impreſſes what the Divines call an indelible Character; and cannot, therefore, be repeated: Yet is *Reordination* practiced in *England*, with regard to the Diſſenting Miniſters, who conform to the Church; The Biſhops pretending that they alone have Right to confer Holy Orders, and that every Prieſt or Miniſter who does not receive them at their Hands, has no lawful, regular Vocation.

This proves a great Obſtacle to the Re-union of thoſe Miniſters to the Church of *England*; many of whom, otherwiſe diſpoſed to conform, have ſcrupled to be *Re-ordain'd*; inaſmuch as *Re-ordination* implies their former Vocation to be null; that they had adminiſter'd the Sacraments without any Right thereto; and that all their miniſterial Acts were invalid. See PRESBYTERIAN.

In the eleventh Century, the Crime of Simony having been very flagrant; many People fell into the Error to believe that the Simioniacal Biſhops could not Ordain validly; and that thoſe who had received Orders at their Hands ſhould be *re-ordain'd.*

The People of this Sentiment made a Party of themſelves; and were diſtinguiſhed by the Title of *Re-ordinantes.*

REPSILVER, was Money antiently paid by Servile Tenants to their Lords; to be eaſed of the Service of reaping his Corn. See SERVICE.

REPAIRING, in Building, &c. See REPARATION.

The *Repairing* of large Walls, Doors, Ceilings, Coverings, &c. belongs to the Proprietor or Landlord.

The Locatory or Tenant is only charged with *ſmall Repairs*, as Glaſs-Windows, Locks, &c. call'd LOCATIVE *Repairs.*

To *repair* a Statue, or other Piece of Sculpture, is to touch up a Statue, &c. (caſt in a Mould) with a Chiſſel, Graver, or other Inſtrument; to finiſh the Places which have not come well off.

To *repair* a caſt Figure or Statue, they clear off the Barb, and what is redundant in the Joints and Projectures. See STATUE. See alſo FOUNDERY.

To repair a Medal, is to retouch it; ſo as ruſty and defaced as it was, to render it clean, neat, and perfect.—In order to this, they take off the Ruſt with a Graver, touch up the Letters, poliſh the Ground, and raiſe and reſtore the Figures which before were ſcarce ſeen.

When the Figures are gnaw'd or broke, they fit a Piece of Maſtic, or Cement on the Spot; and on this cut with a Graver ſo dextrouſly that the Figures appear entire and well kept.—Yet nothing ſpoils Medals ſo much as *repairing* them. See MEDAL.

REPAIRS, in Hunting, are the Haunts or Places that the Hare runs to. See HUNTING.

REPAIRERS, Artificers who chaſe Figures, and beautify Sword-Hilts, &c. See CHASING.

REPARATION, the Act of repairing, re-eſtabliſhing, retrieving, or mending a Building, or other Work, damaged or gone to decay. See REPAIRING.

The Enemy *repair'd* the Breach as ſoon as 'twas made.—The Eſtabliſhment of Turn-pikes is for *repairing* of the Roads.

An Eccleſiaſtical Patron is by antient Cuſtoms obliged to repair the Choir or *Chancel* of a Church, and the Pariſhioners the *Nave.* See RESTAURATION.

REPARATIONE *facienda*, is a Writ which lies in divers Caſes; *e. gr.* where three are Tenants in Common, or joint Tenants *pro indiviſo*, of an Houſe, &c. fallen to decay, and the one being willing to *repair* it, the other two will not; in this Caſe the Party willing ſhall have this Writ againſt the other two.

REPARTITION, a dividing or ſharing a thing a ſecond time. See PARTITION.

There are ſo many Deficiencies found this Year in the Taxes of this Pariſh, that there muſt be a *Repartition* on the Inhabitants; or a new Impoſition.

REPARTY, a ready, ſmart Reply; eſpecially in Matters of Wit, Humour, or Raillery.—'Tis dangerous attacking this Lady, her *Reparties* are ſo keen.

Wicquefort obſerves a World of difference between a free ſprightly *Reparty*; and an offenſive Sarcaſm. See SARCASM.

The Word, in the Original *French*, *Repartie*, has the ſame Signification.

REPAST, REPASTUM, a Meal, or Refection, taken at a ſtated Hour. See REFECTION.

In old Law Books, *Repaſt* is particularly uſed for a Meals-meat given to ſervile Tenants, while at Work for their Lord.

The *French* call their Meal, *Repaſt*; the *Latins*, *Paſtus*; the *Italians* and *Spaniards*, *Paſto.* See MEAL.

The *Repaſts* whereof the Scripture has preſerved the Memory, ſhew that the antient *Hebrews* were not vety delicate in their Eating.—*Abraham*, a Man of Wealth and Eminence, entertaining the Angels, ſerves them with Cakes baked under the Aſhes, a fatted Calf haſtily dreſs'd, and Milk and Butter.—But the Quantity makes amends for the Quality: Three Meaſures of Flower, and a whole Calf, for three Perſons.

Joſeph to ſhew his reſpect to his Brother *Benjamin*, order'd him a Portion of Meat five times as big as that of his other Brothers.

In Antiquity the *Repaſts* were frequently Sacrifices; for which Reaſon we find them often prepared by Kings themſelves. See SACRIFICE.

REPEALING, in Law, the revoking or annulling of a Statute by Authority of Parliament See PARLIAMENT.

No Act of Parliament ſhall be *repealed* in the ſame Seſſion it was made in. See SESSION.

Brook uſes the Word *Repellance* in the ſame Senſe.

REPEAT, in Muſick, a Character ſhewing that what was laſt play'd or ſung, muſt be *repeated*, or gone over again. See Repetition.

The *Repeat* ſerves inſtead of writing the ſame thing twice over.—There are two Kinds of *Repeats*; the *great* and the *ſmall*.

The firſt is only a *double Bar*, dotted on each Side; or two parallel Lines drawn perpendicular a-croſs the Staff; with Dotts on either Hand: See its Form under Characters *of Muſick*.

This Mark ſhews that the preceding Strain is to be *repeated*; that is, if it be near the Beginning of the Piece, all hitherto ſung, or play'd, is to be *repeated*; or if towards the End of a Piece, all from ſuch another Mark.

In Gavots, we uſually find the *Repeat*, at about the third Part of the Piece.—In Minuets, Borees, Courants, *&c.* towards the End.

Some make this a Rule, that if there be Dotts on each Side the Bar, they direct to a *Repetition* both of the preceding and the following Strain; if there be only Dotts on one Side then, only the Strain on that Side to be *repeated*.

The *ſmall Repeat* is where only ſome of the laſt Meaſures of a Strain are to be repeated.—This is denoted by a Character ſet over the Place where the *Repetition* begins, (ſee Characters *in Muſick*) and continues to the End of the Strain.

When the Song ends with a *Repetition* of the firſt Strain, or Part of it, inſtead of a *Repeat*, they uſe the Words *da Capo*, i. e. from the beginning.

REPELLENT, Repellens, in Medicine, a Remedy which *repels* or drives back a morbid Humour into the Maſs of Blood, from which it was unduly ſecreted. See Humor and Medicine.

Or, *Repellents* are Medicines which prevent ſuch an afflux of the Fluids to any particular Part, as will raiſe it into a Tumour; or drive them back when they are collected. See Tumor.

To form an Idea of the Manner of their Operation, it may be obſerv'd, that all Tumors ariſe either from an increaſe in the Velocity or Quantity of the Fluids, or a Weakneſs in ſome particular Part; though ſometimes both concur.—Now an increaſe in the Velocity of the Fluids makes them more forcibly puſh againſt, and diſtend all the Parts in their Circuit; if therefore any Part be unequally preſſed or relaxed by external Injuries, that will be more elevated than any other; and for want of equal Reſiſtance with the reſt of the Body, will at length receive ſuch a Quantity of Fluid, as will raiſe it into a Tumor, eſpecially if any of its Veſſels be obſtructed: Becauſe the Protruſion of freſh Matter, *a tergo*, will continue to add thereunto, till the Part is on the utmoſt ſtretch, and can hold no more. See Blood.

In this Caſe, all thoſe Means are ſaid to be *repellent*, which check the growth of the Tumor, and aſſiſt the refluent Blood in taking up the obſtructed Matter, and waſhing it again into the common Stream.

This Intention is chiefly favoured by Evacuation and Revulſion; for whatſoever leſſens the Quantity of the Fluid, will diminiſh the force upon the tumefied Part.—But it concerns us moſt to know how external Application to the Part itſelf, helps this Affair.

Herein a Medicine comes to be *repellent*, by conſiſting of ſuch ſubtile Parts, as may tranſmit ſome of them through the Pores, and help to render the obſtructed Matter more fluid, ſo that it comes the more eaſy to be looſened, and fall again into the circulating Current.—But in this Caſe there is a Hazard of ſuch things likewiſe putting the obſtructed Humour into a Ferment, whereby it ſooner turns into Pus, and then they come under the Denomination of Suppuratives or Ripeners. See Suppurative.

What, therefore, in the moſt ſtrict Senſe, is to be reputed a *Repeller*, is that which aſtringes and ſtrengthens the Part, ſo as to make it reſiſt any ſuch Lodgment. See Astringent and Strengthener.

Theſe are ſuch whoſe Qualities are moſt manifeſt in their Coldneſs, and drying Properties: But there are ſo few Inſtances wherein Bandage is not better than ſuch Application, that very little comes to be uſed for that purpoſe. In Hemorrhages, and Ouzings out of Serum, ſo as to deform the Skin; Simples of this Nature moſtly take place; which anſwer their Ends in aſtringing the Fibres, whereby thoſe Apertures are ſo cloſed, as not to admit through them afterwards any ſuch fluid.

Some things alſo anſwer this End only by ſtimulating the Fibres of the tumefied Part, ſo as to give them ſudden and forcible Twitches, whereby the obſtruction is ſometimes looſened and ſhook away, as it were, into the refluent Current.—Such a ſort of Motion will be occaſioned by the ſudden Applicatinn of any thing extreamly cold, as common Water; but the Practice is ſeldom ſafe, becauſe if the firſt Efforts which the Fibres are put upon by thoſe means, do not ſucceed in breaking away the incloſed Matter, they will be ſtrained, and not able afterwards to repeat their natural Vibrations: The Conſequence of which is weakening the Part, which will render the Tumor more obſtinate.

REPELLING *Power*, Vis Repellens, in Phyſicks, is a certain Power or Faculty reſiding in the minute Particles of natural Bodies, whereby they mutually fly from each other. See Power and Particle.

This Power is the reverſe of the *Attractive Power*. See Attractive.

Sir *Iſaac Newton* having eſtabliſhed the attractive Power of Matter from Obſervation and Experiment; argues, that as in Algebra, where poſitive Quantities ceaſe, there Negative ones commence; ſo in Phyſicks, where the attractive Force ceaſes, there a *repelling* Force muſt begin.

But that there is ſuch a Force does likewiſe appear from Obſervation. See Repulsion.

As the *repelling* Power ſeems to ariſe from the ſame Principle as the attractive, only exerciſed in different Circumſtances; 'tis govern'd by the ſame Laws: Now the attractive we find is ſtronger in ſmall Bodies than in great ones, in Proportion to the Maſſes.—Therefore the *repelling* is ſo too. But the Rays of Light are of all others the moſt minute Bodies we know of; therefore of all others their *repelling* Force muſt be the greateſt. See Ray.

Sir *Iſaac Newton* computes that the attractive Force of the Rays of Light is above 1000000000000000 times as ſtrong as the Force of Gravity on the Surface of the Earth: Hence ariſes that inconceivable Velocity wherewith Light muſt move, to reach from the Sun to our Earth in ſeven Minutes. For the Rays emitted from the Body of the Sun by the vibrating Motion of its Parts, are no ſooner got without the Sphere of Attraction of the Sun, than they come within the Action of the *repelling* Power. See Light.

The Elaſticity, or ſpringineſs of Bodies, or that Property whereby after having their Figure alter'd by any external Force, they return to their former Figure, follows from the *repelling* Power. See Elasticity, Air, *&c.*

REPERCUSSION, in Mechanicks. See Reflection.

Repercussion, in Muſick, a frequent Repetition of the ſame Sounds. See Repetition.

This frequently happens in the Modulation; where the eſſential Chords of each Mode, or of the harmonical Triad, are to beat oftener than the reſt; and of theſe three Chords the two Extremes, *i. e.* the final and the predominant one, (which are properly the *Repercuſſion* of each Mode) oftener than the middle one.

REPERTORY, Repertorium, a Place wherein things are orderly diſpoſed, ſo as to be eaſily found when wanted.

The Indices of Books are *Repertories*, ſhewing where the Matters ſought for are handled. See Index.

Common Places are a kind of *Repertories*, very uſeful to the learned. See Common *Place*.

Repertorium Anatomicum, is a large Hall near an Amphitheatre of Diſſections, where Skeletons both human and brutal, are orderly preſerved.—Such is the *Repertory* of the *French* King's Garden at *Paris*.

REPETITION, Repititio, the re-iterating of an Action. See Reiteration.

Habitudes are acquired by the frequent *Repetition* of Actions. See Habit.

Muſicians and Comedians make ſeveral *Repetitions* of their Conſorts and Comedies, e'er they perform for good. See Rehearsal.

The School Philoſophers call the *Repetition* of the ſame numerical Effect in another Place, the *Replication* of that Effect. See Replication.

Repetition, in Muſick, a re-iterating or playing over again of the ſame Part of a Compoſition; whether it be a whole Strain, a Part of a Strain, or a double Strain.

The *Repetition* is denoted by a Character, called a *Repeat*, which is varied ſo as to expreſs the various Circumſtances of the *Repetition*. See Repeat.

When the Song *ends* with a *Repetition* of the laſt Strain, or a part of it; the *Repetition* is denoted by *da Capo*; that is, from the Beginning.

Repetition, *Reply*, is alſo uſed in Muſick, when after a little Silence, one Part *repeats* or runs over the ſame Notes, the ſame Intervals, the ſame Motions, in a word, the ſame Song, which a firſt Part had already gone over during the Silence of this.

Repetition, *Reply* is alſo a doubling, or trebling, *&c.* of an Interval; or a Reiteration of ſome Conſonance or Diſſonance: Thus a fifteenth is a *Repetition* of the Octave, *i. e.* a double Octave or ſecond Octave. See Octave.

Repetition, in Rhetorick, a Figure whereby the Orator rehearſes the ſame Word or Phraſe over again.

Of this there are two Kinds.—In the *firſt*, the Word is repeated preciſely in the ſame Senſe: As, Oh, *Jeruſalem, Jeruſalem*, who killeſt the Prophets, *&c. my God, my God*, why haſt thou forſaken me.

Such *Repetitions* have the ſame effect in Diſcourſe, with ſecond ſtroaks of the Pencil in Painting; they render the Colours more ſtrong and lively.

Sometimes the Orator begins again and again with the ſame Word; of which we have an Inſtance in the beginning of *Cicero's* firſt Oration againſt *Cataline*: Nihil *ne te Nocturnum præſidium palatii*, nihil *urbis Vigiliæ*, nihil *timor populi*, nihil *Conſenſus bonorum omnium*, nihil *hic Munitiſſimus habendi Senatus locus*, nihil *horum ora vultuſq; moverunt!* Where the Word *nihil* ſo often re-iterated gives an admirable Force and Vehemence to the Diſcourſe.—

Again, the ſame Author: Quem *ſenatus damnarit*, quem *Populus R. damnarit*, quem *omnium exiſtimatio damnarit, eum vos ſententiis veſtris abſolvetis?* Again, Non *feram*, non *patiar*, non *ſinam*.

The ſecond Kind of *Repetition*, call'd πλοκὴ, *Ploce*, is a *Repetition* of the ſame Word, in the ſame Phraſe; but in ſuch manner that ſome new Idea or Character is added to the Word, in the ſecond, which it had not in the firſt: As *Corydon* is allways *Corydon*: *Ex illo Corydon, Corydon eſt tempore nobis*; by which we ſignify that *Corydon* is no ordinary Perſon; and that nothing can diſtinguiſh him but the *Repetition* of his own Name; As if we ſhould ſay, *He is Corydon*; *that is enough*.—By the ſame Figure our Saviour ſpeaks, when he ſays, *Let your Language be Yea, yea, and Nay, nay.*

RE-PLANTING, in Gardening, the Action of planting a ſecond time. See PLANTING.

The Gardeners uſe to diſplant their Tulips every Year, and *replant* them.—Lettices muſt be diſplanted and *replanted* yearly, to make them head and knit.—If Strawberries, *&c.* be not deplanted, and *replanted* once in a few Years, they degenerate.

The Gardeners have a Proverb, that if the Devil were to *replant* his Wife, he'd cut off her Head.

REPLEADER, in Law, is to plead over again what was once pleaded before. See PLEA and PLEADING.

REPLEGIARE *De Averiis*, a Writ brought by one whoſe Cattel are diſtrain'd, and put in the Pound by another, upon Security given the Sheriff to purſue, or anſwer the Action at Law againſt the Diſtrainer. See REPLEVY.

REPLETION, in Medicine, a *Plenitude*, or *Plethora*. See PLENITUDE and PLETHORA.

Repletion is more dangerous than Inanition.—Bleeding and Diet are the great Reſourſes when a Perſon is incommoded with a *Repletion* See DIET, *&c.*

Repletion is ſometimes alſo uſed where the Stomach is over loaden, with too much eating or drinking.—The Phyſicians hold all *Repletion* prejudicial; but that of Bread the worſt. See BREAD and SURFEIT.

REPLETION, in the Canon Law, is where the Revenue of a Benefice or Benefices is ſufficient to fill or occupy the whole Right or Title of the Graduate who holds them. See BENEFICE, GRADUATE, *&c.*

When there is a *Repletion*, the Party can demand no more by Virtue of his Degrees.—In *England*, where Benefices are not affected to Degrees, *Repletion*, ſtrictly ſpeaking, has no Place. See PLURALITY.

In *France*, 600 Livres, or 45 *l.* Sterl. *per Annum*, make a *Repletion*, when the Benefice is obtain'd otherwiſe than by his Degree; and 30 *l. per Annum*, when it is obtain'd by virtue of a Degree.

REPLEVY, REPLEVIE, or REPLEVIN, in Law, from the *Latin replegiare*, to re-deliver to the Owner upon Pledges of Surety; is the bringing of a Writ called *Replegiari facias*, by him whoſe Cattel or Goods are diſtrained by another upon any Cauſe; and giving Security to the Sheriff, that on delivery of the thing diſtrain'd, he will proſecute the Action againſt the Perſon who made the Diſtreſs. See DISTRESS.

In the Stat. 24 of *Henry* III. we read of *Canes replegiati*, Hounds *replevied*, in a Caſe between the Abbot of St. *Albans*, and *Geoffery Childwic*.

Goods may be *replevied* two ways; *viz.* by *Writ*, which is that uſed by the common Law.—And by *Plaint*; which is that by Statute Law, for the more ſpeedy having again the Cattel and Goods.

REPLEVISH, in Law, is to let one to Mainpriſe, upon Surety. See MAINPRISE.

REPLICATION, REPLICATIO, in Logic, the aſſuming or uſing the ſame Term twice in the ſame Propoſition.

In the like Senſe they ſay *Reduplication*.

Some Philoſophers uſe the Phraſe *Replicatio Mundi*, *Replication* of the World for its Converſion, or turning round.

The human Soul is alſo ſaid to be in a Place *replicatively*, *replicative*, when conceived to be all in the whole, and all in every Part thereof. See SOUL.

REPLICATION, in Law, is an Exception of the ſecond Degree, made by the Plaintiff to the firſt Anſwer of the Defendant. See REJOYNDER.

The *Replication* is particularly that which the Plaintiff replies to the Defendant's Anſwer in Chancery, and which is either *general* or *ſpecial*. The *ſpecial* is grounded upon Matter ariſing out of the Defendant's Anſwer, *&c.* The *general* is ſo called from the general Words therein uſed.

REPORT, the Relation made upon Oath, by Officers or Perſons appointed to viſit, examine, ſtate, or eſtimate, any thing.

Damages, Repairs, *&c.* are judged from the Reports of experienced Perſons.—Proviſions for Perſons wounded are only granted on the *Reports* of Chirurgeons, *&c.* In Caſes of Rapes a *Report* of Matrons is had. See JURY.

REPORT, in Law, is a publick Relation of Caſes judiciouſly argued, debated, reſolved, or adjudged in any of the King's Courts of Juſtice, with the Cauſe and Reaſon of the ſame, delivered by the Judges.

When the Chancery, or any other Court, refers the ſtating of ſome Caſe, or comparing an Account, *&c.* to a Maſter in Chancery, or other Referee, his Certificate therein is call'd a *Report*.

REPOSITORY, REPOSITORIUM; a Store-houſe or Place where things are laid up and kept.—In this Senſe we ſay the *Repoſitory* of the Royal Society, *&c.* See MUSÆUM.

REPOSE, in Poetry, *&c.* See REST.

REPOSE, in Painting, is uſed for certain Maſſes or large Syſtems, or Aſſemblages of Light and Shade; which being well conducted, prevent the Confuſion of Objects and Figures; by engaging and taking up the Eye ſo as it can't attend to the other Parts of the Painting, for ſome time: And thus leading it to conſider the ſeveral Groups gradually, and as it were to proceed from Stage to Stage.—See LIGHT, SHADOW, CLAIR-*obſcure*, &c.

REPOSITION *of the Foreſt*, an Act whereby certain Grounds made *purlieu*, upon a ſecond view are laid to the Foreſt again. See FOREST, and PURLIEU.

The Word is form'd from the *Latin re* and *ponere*, to lay again.

REPRESENTATION, in the Drama, the Exhibition or Action of a theatrical Piece; including the Scenes, Machines, the Recitation, *&c.* See SCENE, MACHINE, RECITATION, *&c.*

Sir *Richard Steel's* Principle is, that the Deſign of a Play is not to be *read* but *repreſented*; ſo that 'tis on the Stage, not in the Preſs it is to be judged of: And the Pit, not the Publick, are the Judges. See THEATRE.

REPRESENTATIVE, one that perſonates, or ſupplies the Place of another; and is inveſted with his Right and Authority.

The Word *Repreſentative* is equivalent to a *Procurator* or *Proxy*. See PROCURATOR and PROXY.

Thus we ſay the King is the *Repreſentative* of God on Earth: Magiſtrates, *Repreſentatives* of the King. See KING, MAGISTRATE, *&c.*

The Commons are the People's *Repreſentatives* in Parliament. See COMMONS, PARLIAMENT, *&c.*

There is this defect in the Conſtitution of our Parliament; that whereas all *Engliſhmen* who have conſiderable Eſtates, ought not to be tax'd without their own Conſent, in Parliament by themſelves, or their *Repreſentatives*: Copy-holders, whereof ſome have a thouſand Pounds a Year, have no Voice in the Election of Knights of the Shire. *Chamberl.*

REPRIEVE, in Law, a ſuſpending or deferring the Progreſs and Execution of the Law upon a Priſoner, for the preſent time.

A *Reprieve* is properly a Warrant from the King, for ſuſpending the Execution of a Perſon condemn'd.—The King cannot pardon a condemn'd Perſon without the Concurrence of Parliament, but he frequently *reprieves* him for 99 Years.

REPRIMAND, a ſharp authoritative Reproof. Such a Perſon was *reprimanded* in Court, by the Bench, *&c.*

REP-SILVER, Money antiently paid by ſervile Tenants to their Lord, to be quitted of the Duty of reaping his Corn. See SILVER.

RERE-WARD, *arrieregarde*, the Rear of an Army. See REAR.

REPRIZALS, REPRISALIA, in the Civil Law, a Right which Princes have to retake from their Enemies, ſuch things as they unjuſtly detain from them; or things equivalent thereto.

When a Place is taken or held from a Prince, he ſeizes another by way of *Repriſal*.—Sometimes he takes Men of the oppoſite Party, by Right of *Repriſals*.—The *Romans* call'd it *Clarigatio*. See CLARIGATIO.

REPRISALS is alſo uſed for a Letter or Permiſſion which a Prince ſometimes gives a Subject, upon a full Cognizance of the Cauſe; authorizing him to retake from the firſt Perſons he meets withal of the oppoſite Party, as many Effects as make an Equivalent to what have been violently forced from him; and for which the oppoſite Prince has refuſed to do him Juſtice.

Theſe Permiſſions are alſo called *Letters of Mark*, and in the Stat. 27 *Edw.* III. *Law of Marquiere*; in regard, a Perſon denied Juſtice in another Man's Territory; redreſſes himſelf by Goods belonging to Men in that Territory. This Merchant has ſeiz'd the Effects of the *Spaniard* Don ——— becauſe the *Spaniards* had ſeiz'd his; and no redreſs could be had at the Court of *Madrid*.

The Word is form'd from the *Italian*, *Repreſaglia*, which ſignifies the ſame thing.

REPRISE, or REPRIZE, in the Commerce by Sea, a Merchant Ship which having been taken by a Corſair, Privateer, or other Enemy; is retook or recover'd by a Veſſel of the contrary Party.

When a Veſſel thus retaken has been 24 Hours in the Hands of the Enemy, 'tis deem'd a lawful Prize. See PRIZE.

If the *Repriſe* have been made within the 24 Hours; the Veſſel is to be reſtored to the Proprietor, with every thing therein, upon his allowing one third to the Veſſel who made the *Repriſe*.

If the *Repriſe* have been abandon'd by the Enemy, either in a Tempeſt, or from any other Cauſe, before it have been led into any Port, it is to be reſtored to the Proprietor.

The Word is *French*, and ſignifies a *re-ſumption* or *re-taking*.

REPRISES, in Law, are Deductions, Draw-backs, or Duties paid yearly out of a Manor, or Lands.—Such are Rent-charges, Penſions, Fees of Stewards or Bailiffs, *&c.*

Thus we ſay, the Manor of *Doll* yields 40 *l. per Annum, ultra Reprizas*, beſides all *Repriſes*.

REPROBATION, in Theology, a Decree or Reſolve which God has taken from all Eternity, to puniſh Sinners, who ſhall dye in Impenitence. See DECREE.

Reprobation ſtands in Polemical Divinity in direct, oppoſition to *Predeſtination*. See PREDESTINATION.

The Divines hold it a Symptom of *Reprobation*, when a Sinner is harden'd ſo as not to feel any further Remorſe or Miſgivings of Conſcience. See CONSCIENCE, REMORSE, *&c.*

The Caſuiſts diſtinguiſh *poſitive* and *negative Reprobation*.

Poſitive Reprobation is that whereby God is ſuppoſed to create Men with a poſitive and abſolute Decree to damn them eternally.

This Opinion of *Reprobation*, is countenanc'd by St. *Auguſtin*, and others of the Fathers, and ſtrongly maintained by *Calvin*, and moſt of his Followers.—Something like it is alſo found in the 39 Articles of the Church of *England*, but 'tis now generally exploded as injurious to God. See CALVINIST, *&c.*

Negative, or *Conditional Reprobation*, is that whereby God, though he create all Men with a ſincere deſire to ſave them, and furniſhes them with the neceſſary Means thereto, ſo as all may be ſaved if they will; yet, ſees, there are ſeveral who will not do it, with the Aids he ſhall afford them, how powerful ſoever: And ſees, at the ſame time, they would do it with certain other Aids, which he ſees, but will not give them.—O *Altitudo!* &c. See GRACE.

REPRODUCTION, the Action whereby a thing is produced a-new, or grows a ſecond time. See PRODUCTION.

When the Stock of an Oak, Fruit-Tree, *&c.* is cut off ſhort, it *reproduces* an infinity of young Shoots. See STOCK.

By *Reproduction* is uſually underſtood the Reſtauration of a thing before exiſting, and ſince deſtroyed. See RESTAURATION.

The *Reproduction* of ſeveral Parts of Lobſters, Crabs, *&c.* makes one of the great Curioſities of natural Hiſtory.—That in lieu of an organical Part of an Animal cut off, another ſhould ariſe perfectly like it, may ſeem inconſiſtent with the modern Syſtem of Generation; where the Animal is ſuppoſed to be wholly form'd in the Egg. See GENERATION and EGG.

Yet has the matter of Fact been well atteſted by the Fiſhermen, and even by ſeveral Virtuoſo's who have taken the Point into Examination.—The Legs of Lobſters, *&c.* conſiſt each of five Articulations; now when any of the Legs happen to break by any Accident, as in walking, *&c.* which frequently happens, the Fracture is always found to be at a Suture near the fourth Articulation; and what they thus loſe is preciſely *reproduced* in ſome time afterwards: That is, a part of a Leg ſhoots out, conſiſting of four Articulations; the firſt whereof has two Claws as before; ſo that the loſs is entirely repaired.

If a Lobſter's Leg be broke off by deſign at the fourth or fifth Arriculation, what is thus broke off always comes again.—But 'tis not ſo if the Fracture be made in the firſt, ſecond, or third Articulation. In thoſe Caſes the *Reproduction* is very rare, if things continue as they are.—But what is exceedingly ſurprizing, is, that they don't: For upon viſiting the Lobſter maim'd in theſe barren and unhappy Articulations, at the end of two or three Days, all the other Articulations are found broke off, to the fourth; and 'tis ſuſpected they have performed the Operation on themſelves, to make the *Reproduction* of a Leg certain.

The Part *reproduced* is not only perfectly like that retrench'd, but alſo in a certain ſpace of time equal to it.—Hence it is, that we frequently ſee Lobſters, which have their two big Legs unequal; and that in all Proportions.—This ſhews the Youth of the leſs.

A Part thus *reproduced* being broke, there is a ſecond *Reproduction*.—The Summer, which is the only Seaſon of the Year when the Lobſters eat, is the moſt favourable time to the *Reproduction*. 'Tis then perform'd in four or five Weeks: whereas it takes up eight or nine Months in any other Seaſon.

The ſmall Legs are *reproduced*, but more rarely, as well as more ſlowly than the great ones: The Horns do the ſame. See CRAB'S-EYES.

REPTILES, in natural Hiſtory, a kind of Animals, denominated from their *creeping* or advancing on the Belly; or a Genus of Animals and Inſects which inſtead of Feet, reſt on one Part of the Body, while they advance forward with the reſt. See ANIMAL, INSECT, *&c.*

Such are Earth-Worms, Snakes, Catterpillars. *&c.*

Indeed, moſt of the Claſs of *Reptiles* have Feet; only thoſe very ſmall, and the Legs ſhort in Proportion to the Bulk of the Body. See FEET and LEGS.

The Naturaliſts obſerve a World of artful Contrivance for the Motion of *Reptiles*.—Thus, particularly, in the Earth-worm, Dr. *Willis* tells us, the whole Body is only a Chain of annular Muſcles; or, as Mr. *Derham* ſays, 'tis only one continued ſpiral Muſcle, the orbicular Fibres whereof by being contracted, render each Ring narrower and longer than before: By which means it is enabled, like the Worm of an Augre, to bore its Paſſage into the Earth.—Its *reptile* Motion may alſo be explained by a Wier wound on a Cylinder, which when ſlip'd off, and one end extended and held faſt, will bring the other nearer it. So the Earth-worm having ſhot out or extended its Body, (which is with a wreathing) it takes hold by thoſe ſmall Feet it hath, and ſo contracts the hinder Part of its Body.—Dr. *Tyſon* adds, that when the fore-part of the Body is ſtretch'd out, and applied to a Plane at a Diſtance, the Hind-part relaxing and ſhortening, is eaſily drawn towards it as a Centre.

Its Feet are diſpoſed in a quadruple Row, the whole length of the Worm; with which, as with ſo many Hooks, it faſtens down ſometimes this, and ſometimes that Part of the Body to the Plane, and at the ſame ſtretches out, or drags after it another.

The creeping of Serpents is effected after a ſomewhat different Manner; there being a difference in their Structure; in that theſe laſt have a Compages of Bones articulated together. The Body here is not drawn together, but as it were complicated; Part of it being applied on the rough Ground, and the reſt ejaculated and ſhot from it; which being ſet to the Ground in its turn, brings the other after it.—The Spine of the Back, variouſly wreath'd, has the ſame effect in leaping, as the Joints of the Feet in other Animals; they making their Leaps by means of Muſcles that extend the Plicæ or Folds.

The Word REPTILE is likewiſe uſed, abuſively, for Plants and Fruits which creep on the Earth, or on other Plants, as wanting Strength of Stalk to ſuſtain themſelves.

Such are Cucumbers, Melons, *&c.* ſuch alſo are Ivy, the Vine, *&c.*

The Word is form'd from the *Latin*, *repo*; I creep.

REPUBLIC, RES PUBLICA, *Commonwealth*, a popular State or Government; or a Nation governed by a Democracy. See DEMOCRACY.

The celebrated *Republics* of Antiquity, are thoſe of *Athens*, *Sparta*, *Rome*, and *Carthage*.

At preſent there is ſcarce any ſuch thing as a real *Republic*, i. e. as a ſtrictly popular State.—Indeed the *Venetians* and *Genoeſe* call their States *Republics*, but their Government is apparently *oligarchic*. See OLIGARCHY.

The *Dutch* come the neareſt to the Character of a *Republic*; yet are they very defective, at leaſt in the Senſe and Severity wherewith *Rome*, *Carthage*, &c. were *Republics*. See STATES-*General*, PENSIONARY, *&c.*

'Tis a Remark of M. St. *Evremond*, that if the *Dutch* love the *Republican* Form, 'tis more for the ſake of their Trade, than of their being free.

REPUBLIC *of Letters*, or of *Learning*, is a Phraſe uſed in ſpeaking collectively of the whole Body of the People of Study.

There is a Journal begun in *Holland* by M. *Bayle*, and continued by M. *Bernard*, conſiſting of Extracts of Books printed in the Courſe of the Year; called, *Nouvelles de la Republique des Lettres*; News from the *Republick* of Letters. See JOURNAL.

REPUDIATION, in the Civil Law, the Act of Divorcing. See DIVORCE.

REPULSION, REPULSIO, in Phyſicks, the Action of a repelling Power, whereby natural Bodies, under certain Circumſtances, mutually fly each other. See REPELLING-*Power*.

Repulſion is the Counter-Part to Attraction.—Attraction only reaches to a little Diſtance; where that terminates there *Repulſion* commences. See ATTRACTION.

Indeed we meet with many obvious Inſtances of *Repulſion* among Bodies, as between Water and Oil; and in general between Water and all unctuous Bodies: Between Mercury and Iron; as alſo between the Particles of Duſts, *&c.*

Thus, if a fat Body lighter than Water, be laid on the Surface thereof, or if a Piece of Iron be laid on Mercury; the Surface of the Fluid will be depreſs'd about the Bodies laid on it: A plain Indication of *Repulſion*; as the riſing up of the Fluid about the Surfaces of other incumbent Bodies is of Attraction.

In the latter Caſe the Fluid is ſuſpended by an attractive Power, above the Level, and kept from falling by its Gravity: In the former a Depreſſion is made by the repelling Power, which the Liquor, notwithſtanding its Gravity, cannot run down into and fill up.

Upon this depend all the Phænomena of very light Glaſs Bubbles floating on Water; about which, when clean, the Water riſes; but when greas'd, the Water ſinks into a Channel all around them.—Hence alſo it is that in a Glaſs Veſſel of Water the Fluid ſtands higher all about the Edges near the Glaſs, than towards the Middle: But when the Glaſs is filled till the Water run down on all Sides, then, it ſtands higher at the middle than at the Sides.—Hence, alſo in a Glaſs not full of Water, a clean Glaſs Bubble always runs to the Side, by reaſon the Preſſure which is upon it towards the Middle, is partly taken off by the attractive Force wherewith the Water is rais'd near the Edge. If the Glaſs be ſo full as to be ready to run over, the Bubble returns from the Side towards the Middle; the Force wherewith the Water is rais'd in the Middle, taking off Part of the Preſſure.

Juſt the reverſe happens, if the Bubble be greaſy; in regard, there, the Force whereby the Water and the Bubble repel each other, is greateſt where the Water is higheſt. Two clean Bubbles,

bles, and two greaſy ones always run towards each other; as being attracted: A greaſy and a clean one always fly each other, as being repell'd.

REQUEST, in Law, a Supplication, or Petition preferr'd to a Prince, or a Court of Juſtice; begging Relief in ſome Conſcionable Caſes where the Common Law granted no immediate Redreſs. See EQUITY.

The Term *Requeſt* is now, ſince the Inſtitution of Chancery, much diſuſed; together with the Court of *Requeſts*, where *Requeſts* were cognizable.

The *Court of* REQUESTS, was an antient Court of Equity, inſtituted about the 9th *Henry* VII. of like Nature, though inferiour Authority, to the Court of Chancery; being appointed chiefly for the Relief of Petitioners who in conſcionable Caſes ſhould addreſs themſelves by way of *Requeſt* to his Majeſty.

The Chief Judge of this Court was the Lord Privy Seal, aſſiſted by the *Maſters of Requeſts*, who correſponded to our Maſters of Chancery. See MASTER.

40 and 41 *Eliz.* it was adjudged, upon ſolemn Argument in the Court of Common-Pleas, that the Court of *Requeſts* was then no Court of Equity. See COURT, CHANCERY, *&c.*

In *France* the *Requetes Civiles*, Civil Requeſts, ſtill obtain for the annulling of Contracts, *&c.* made by Surprize. See PLAINET.

They have eighty *Maſters of Requeſts*, to take Cognizance of Cauſes between the Officers of the Crown, the Servants of the Houſhold, *&c.*

REQUEST, in Hunting, is when the Dogs have loſt the Queſt or Track of the Beaſt, and muſt *Requeſt*, or *Queſt* it again. See QUEST.

Thus they ſay, to *call to the Requeſt, come to the Requeſt*. See HUNTING.

To Requeſt the Game, is chiefly uſed when after having run it down the Night before, they ſeek it again the next Morning with the Blood-Hound, or the like. See BLOOD-HOUND.

REQUIEM, a Maſs ſung in the *Romiſh* Church for the reſt of the Soul of a Perſon deceas'd. See MASS.

It is thus called, becauſe the *Introit* begins with, *Requiem æternam dona eis Domine*, &c.

RES, *thing*. See REALITY, ENS, ESSE, SUBSTANCE, *&c.*

RES *Naturales*,	See	NATURALS.
RES *Non Naturales*,		NON *Naturals*.
RES *Præter Naturales*,		PRÆTER *Naturals*.

RESCEIT, RECEPTIO, an Admiſſion or Receiving of a third Perſon to plead his Right, in a Cauſe formerly commenced between other two.

As, if a Tenant for Life or Years, brings an Action, he in the Reverſion comes in and prays to be received, to defend the Land, and to plead with the Demandant.

RESCEIT is alſo applied to an admittance of Plea, though the Controverſy be only between two.

RESCEIT *of Homage*, *Receptio Homagii*, denotes the Lord's receiving Homage of his Tenant at his Admiſſion to the Lands. See HOMAGE.

RESCISION, RESCISSIO, in the Civil Law, an Action intented for the annulling or ſetting aſide of an Act, Contract, or the like.

A Thing's being found damag'd or ſold at above double the juſt Value, is a good Cauſe of *Reſciſſion*. See REDHIBITION.

An Act or Contract thus annull'd, or *reſcinded*, is call'd a *Reſciſſory*.

The Word is form'd from the *Latin*, *re* and *ſcindo*, q. d. I cut or divide again.

RESCOUS, or RESCUE, in Law, an illegal taking away and ſetting at Liberty of a Diſtreſs taken or a Perſon arreſted, by Proceſs or Courſe of Law.

This is properly a *Reſcous in Fact.*—If one Diſtrain Beaſts for Damage feaſant in his Ground, and as he drives them in the Highway towards the Pound, they enter into the Owner's Houſe, and he witholds them there, and will not deliver them upon Demand; this Detainer is a *Reſcous* in Law.

Reſcous, in Matters relating to *Treaſon*, is deem'd Treaſon; and in Matters concerning Felony, is Felony. See TREASON, *&c.*

He that commits ſuch a *Reſcue* or *Reſcous*, is call'd *Reſcuſſor*.

RESCOUS is alſo uſed for a Writ which lies for this Fact; called *Breve de Reſcuſſu*.

RESCRIBENDARY, an Officer in the Court of *Rome*, who ſets a Value upon Indulgences and Supplications. See INDULGENCE.

RESCRIPT, an Anſwer delivered by an Emperor, or a Pope, when conſulted by particular Perſons, on ſome difficult Queſtion or Point of Law; to ſerve as a Deciſion thereof.

The Civil and Canon Laws are full of ſuch *Reſcripts.*—When the *Reſcript* was made in Anſwer to the Inquiry of a Community, it was call'd a *pragmatic Sanction*. See PRAGMATIC.

The Papal *Reſcripts* are a kind of of Bulls or Monitories, beginning with theſe Words, *Significavit nobis dilectus filius*, &c. They never obtained either in *England* or *France*, when contrary to the Liberties of the *Engliſh* and *Gallican* Churches; but were declared abuſive. See BULL.

Among the *Romans* the contending Parties, and even the Magiſtrates themſelves, frequently conſulted the Emperor on the Meaſures they were to take in certain nice and difficult Caſes; and the Anſwer returned by the Emperors on ſuch Conſultations, were called *Reſcripts.*—Theſe had not, indeed, the full force of Laws, but were deem'd a ſtrong Prejudice or Preſumption.

Juſtinian has inſerted a great Number of them in the Code; and by that means given them the Authority they before wanted. See CODE.

The Author of the Life of the Emperor *Macrinus* obſerves of that Prince that he would have his Officers judge by Laws, not by *Reſcripts*; as eſteeming it abſurd to admit the Wills of ignorant Men, ſuch as *Commodus*, and *Caracalla*, for Rules of Judging; and becauſe *Trajan* never gave any *Reſcripts* at all, as being loth to countenance a Cuſtom, where what is frequently granted as a favour, in particular Caſes, might be afterwards pleaded as a Precedent.—'Tis added, that *Macrinus* had a Deſign to ſtrip the *Reſcripts* of all their Authority.

M. *Schulting*, in his Diſſertations, does not at all approve of this Deſign; and to the Emperor's Reaſons Anſwers, that indeed all *Reſcripts* are not to be admitted; that thoſe which appear dictated out of favour, are to be thrown aſide; but thoſe which appear founded in Reaſon, and natural Equity are, with *Juſtinian*, to be allowed.—He adds, that it can't be denied but the worſt Emperors have frequently made good Laws, and uſeful *Reſcripts*.

As to what is urged of the Emperor *Trajan*'s never giving any *Reſcripts*; it appears but ill ſupported.—For what is it but a *Reſcript* that he delivers to *Pliny* on the Subject of the Chriſtians, *Lib.* 2. *Epiſt.* 28? Or that on the *Iſclaſtici*, Lib. 10. Epiſt. 120? The *Digeſt*, and *Pliny*'s Epiſtle, need only to be opened and compared, to find *Reſcripts* of *Trajan*.

RESEANTISSA, in Law. See ESSOIN.

RESEARCH, a diligent Search or Inquiry into any thing.—The Word is form'd of the *French*, *Recherche*, and litterally denotes a *ſecond Search*.

RESEARCH, in Muſick, is a Kind of Prelude or Voluntary, play'd on the Organ, Harpſichord, Theorbo, *&c.* Wherein the Compoſer ſeems to *Search*, or look out for the Strains, and Touches of Harmony, which he is to uſe in the regular Piece to be play'd afterwards. See PRELUDE.

This is uſually done off-hand, and conſequently requires a Maſter's Skill.—When in a Motet the Compoſer takes the Liberty to uſe any thing that comes in his Head, without applying any Words to it, or ſubjecting himſelf to expreſs the Senſe or Paſſion thereof; the *Italians* call it *Fantaſia Ricercata*; the *French*, *Recherche*; and our Muſicians, *Reſearch*.

RESEARCHING, in Sculpture, the Repairing of a caſt Figure, *&c.* with proper Tools; or the finiſhing it with Art and Exactneſs, ſo as the minuteſt Parts may be well defined. See FIGURE, STATUE, FOUNDERY, *&c.*

RESEISER, in Law, a taking again of Lands into the King's Hands, whereof a general Livery, or *Ouſter le Main*, was formerly miſuſed; contrary to Order of Law. See RESUMPTION.

RESEMBLANCE. See SIMILITUDE.

RESERVATION, in Law, an Action or Clauſe whereby ſomething is reſerv'd, *i. e.* retain'd, kept, or ſecured to one's ſelf. See RESERVE.

Thus, when a Man lets his Land, he *reſerves* a Rent to be paid to himſelf for his Maintenance, *&c.* See LEASE, TENANT, RENT, *&c.*

William the Conqueror getting all the Lands of *England*, except thoſe belonging to the Church and Religious Houſes, into his Hands by Right of Conqueſt; beſtowed a great Part thereof among his Followers, *reſerving* ſome Retribution of Rents and Services to him and his Heirs; which *Reſervation* is now, as it was before the Conqueſt, called the Tenure of the Lands. See TENURE, SERVICE, *&c.*

Sometimes *Reſervation* ſignifies as much as an *Exception*; as when a Man lets an Houſe, and *reſerves* to himſelf one Room, that Room is excepted out of the Demiſe. See EXCEPTION.

Mental RESERVATION is a Propoſition, which ſtrictly taken, and according to the natural Import of the Terms, is falſe; but if qualified with ſomething *reſerved* in the Mind, becomes true. Mental *Reſervations* are the great Refuge of Religious Hypocrites; who uſe them to accommodate their Conſciences with their Intereſts: The Jeſuits are zealous Advocates for mental *Reſervations*; yet are they real Lyes, as including an Intention to deceive.

RESERVE, in Law, the ſame with *Reſervation*. See RESERVATION.

He has ſettled the whole Eſtate on his Son, and has not made any *Reſerve.*—Benefices are ſometimes reſign'd with *Reſerve* of a Penſion.—By the Canon Law, no Perſon may *reſerve* to himſelf a Penſion out of a Benefice, unleſs he have ſerved it ten Years. See RESIGNATION.

In the *Romiſh* Church, the ordinary Prieſts have only a Power to abſolve, *in reſerve of certain Caſes*; hence called *reſerved Caſes*, as being *reſerved* to the Biſhop. See ABSOLUTION and CASE.

The Court *reſerves* the Cognizance of ſuch an Affair to it ſelf.—The Lawyers ſay, that no Prince ever grants ſuch a Power by his Letters or Patents, but he *reſerves* to himſelf a greater.

Body of RESERVE, or *Corps de* RESERVE, in War, the Forces diſpoſed in the third or laſt Line of an Army drawn up for Battle. See LINE and BATTLE.

They are thus called becauſe *reſerv'd*, or deſtined to ſuſtain the reſt as occaſion requires; and not to engage but in Caſe of Neceſſity.

RESERVOIR, RECEPTACLE, a Place where Water is collected and *reſerv'd*, to be convey'd occaſionally, through Pipes, *&c.* or to be ſpouted up, *&c.* See WATER, FLUID, *&c.*

The *Reſervoir* in a Building is a large Baſon, uſually of Wood, lined with Lead, where Water is kept, to ſupply the Occaſions of the Houſe.—At *Canons*, the noble Seat of the Duke of *Chandos*, is a very large *Reſervoir* a-top of the Houſe; to which the Water is rais'd by a very curious Engine contrived for the Purpoſe.—This *Reſervoir* is of ſuch Capacity, as that beſides ſupplying all Parts of the Houſe by means of Pipes and Cocks, it likewiſe turns a Mill.

The *Reſervoir* is ſometimes alſo a large Baſon of ſtrong Maſonry, glazed or paved at the Bottom; where the Water is *reſerved* to feed *Jets d' Eau*, or ſpouting Fountains. See FOUNTAIN, *&c.*

Such is that huge one on the top of *Marly*, call'd *Trou d' Enfer*, Hell-Mouth, whoſe Surface, *Daviler* tells us, contains fifty Acres, and its Depth ſuch, as under that Superficies to contain a hundred thouſand Cubick Fathom of Water.

RESERVOIR, in Anatomy. See RECEPTACLE

RESET, in Law, the receiving or harbouring an outlawed Perſon. See OUTLAW.

Hence a Receiver of an Out-lawed Perſon, is call'd a *Reſetter*.

RESIANCE, in Law, a Man's Abode or Continuance in a Place.—The Word has the ſame Signification with regard to Lay-Men, as *Reſidence* with regard to Eccleſiaſticks. See RESIDENCE.

Glanville obſerves, that in the antient Law, *Reſiance* properly ſignified a Diſeaſe, whereby the Perſon was diſabled from ſtirring out of Doors.—Whence their *Eſſoin de Reſiantiſſa*, was the ſame as our *Eſſoin de Malo Lecto*. See ESSOIN.

RESIDENCE, in Canon and Common Law, the Abode of a Parſon or Incumbent upon his Benefice; and his Aſſiduity in attending on the ſame. See PARSON, BENEFICE, *&c.*

The Default of *Reſidence*, call'd *Non-Reſidence*, unleſs where the Party have a Diſpenſation for the ſame, with us, is the Forfeiture of ten Pounds for each Month. See NON-*Reſidence*.

By the Canon Law, Beneficiaries are obliged to *Reſidence*, under Pain of Deprivation of their Benefices.—The Original Reaſon is, that in the primitive Church none were promoted to holy Orders, but ſuch as had a Benefice in *promptu*; which they were obliged to ſerve; ſo that this Service was neceſſarily attach'd to the Order; and whoever was honoured therewith, at the ſame time was obliged to perſonal Service. See ORDER and ORDINATION.

But this ſtrict Diſcipline was not obſerved long.—The Beneficiaries by Degrees got Diſpenſations from ſerving their Benefices themſelves; and thus Pluralities got footing. See PLURALITY.

France, of all other Countries, ſeems to be that where *Reſidence* is the moſt ſtrictly regarded.—All their *Curez*, or Miniſters who have Cures of Souls, are obliged to actual *Reſidence*; and the Parliaments have declared all the Diſpenſations granted by Popes, *&c.* abuſive; as eſteeming the Obligation of *Reſidence* to be *Jure Divino*.

Under *Charles* IX. there was even a Deſign to re-eſtabliſh the primitive Diſcipline in all its Severity; and in 1561, a Declaration was regiſtered, appointing all Biſhops to *reſide*, conformably to the antient Canons, in their Biſhopricks.—The ſame Parliament alſo forbad the Biſhops to aſſume the Quality of Councellors of the King; in regard ſuch a Quality was deem'd inconſiſtent with the indiſpenſible Obligation they were under to reſide in their Biſhropricks.

Du Pin adds, that the *Procureur General*, Attorney General *Bourdin*, even ſeiz'd the Temporalities of ſuch Biſhops as continued in *Paris* fifteen Days after this Declaration; having firſt certified them, that if they had any Buſineſs there, he'd undertake the Management thereof.

RESIDENCE, in Chymiſtry, *&c.* the ſettling; or what remains of a Liquor, or other Subſtance in the Veſſel, after Part of it has been pour'd or taken out; to change the Manner of the Operation on what is left.

RESIDENT, a publick Miniſter, who manages the Affairs of a King in the Court of a Prince, or petty State; or the Affairs of a Prince, or petty State, in the Court of a Prince. See MINISTER.

Thus the King of *England* has *Reſidents* in the Courts of the Electors, and other Princes of *Germany* and *Italy*; at the Republicks of *Genoa* and *Lucca*; and they reciprocally have *Reſidents* in the Court of *Great-Britain*.

Reſidents are a Claſs of publick Miniſters inferiour to Embaſſadors and Envoys; but like them are under the Protection of the Law of Nations. See EMBASSADOR and ENVOY.

RESIDENT, in our antient Cuſtoms, was a Tenant who was obliged to *reſide* on his Lord's Land, and not to depart from the ſame; called alſo, *Homme levant aud Couchant*; and in *Normandy*, *Reſſeant du Fief*.

Quantumcunq; de aliis teneat el magis obnoxius eſt, & ipſe reſidens eſſe debet cujus legius eſt Leg. H. 1.

RESIDENTIARY, a Canon inſtalled to the Privilegs and Profits of Reſidence. See CANON.

RESIDUAL *Figure*, in Geometry, the Figure remaining after Subſtraction of a leſſer from a greater. See FIGURE.

RESIDUAL *Root*, is a Root compoſed of two Parts or Members, only connected together with the Sign —.

Thus, *a*—*b*, or 5—3, is a *Reſidual* Root; and is ſo called, becauſe its true value is no more than its *Reſidue*, or Difference between the Parts *a* and *b*, or 5 and 3. See ROOT.

RESIDUE, the Remainder or Reliqua of an Account, Debt, or Obligation. See REMAINDER and RELIQUA.

St. *Paul*, in his Epiſtle to the *Romans*, ſpeaks of a *Reſidue* according to the Election of Grace; meaning a Remnant or little Number of People preſerved from Idolatry by an effect of the Grace of God.

RESIGNATION, or RENUNCIATION, in the Canon Law, the Surrender, or giving up of a Benefice into the Hands of the Collator. See BENEFICE and COLLATOR.

Reſignation is of equal Import with *Surrender*; only the former is reſtrained to ſpiritual Benefices, and the latter to temporal Offices or Employments. See SURRENDER.

Reſignations are either Simple or Conditional.

Simple, or *pure Reſignations*, are thoſe whereby the Incumbent ſtrips himſelf of all his Right, abſolutely, and without any Conditions or Reſerve of Penſion.—Theſe are made to the Biſhop, or Collator.

Reſignations in favour, or Conditional Reſignations, are ſuch as are only made on Condition that ſuch other Perſons ſhall be inveſted therewith; ſo that the *Reſignations* are null, unleſs the Conditions be punctually executed.

Theſe *Reſignations* in *favorem* are not of above 200 Years ſtanding.—Strong Oppoſition was at firſt made to them; they being eſteemed a kind of Succeſſion or tranſmiſſion of Benefices, as of Patrimonies belonging to a Family. Accordingly, theſe *Reſignations* are not made into the Hands of the Ordinary, or Collator, as pure *Reſignations* are; but to the Collator paramount, who in the *Romiſh* Church is the Pope: There being a ſuſpicion of Simony, or other unlawful Paction therein; where admitted of in Prejudice to the Lay-Patron.

RESIGNEE, in Law, the Party to whom a thing is reſigned. See RESIGNATION.

RESIN, RESINA, a fat, viſcid, ſulphurous Juice, oozing either ſpontaneouſly, or by Inciſion, from ſeveral kinds of Trees, particularly the Pine, Fir, *&c.* See JUICE, PLANT, *&c.*

Maſtic is the *Reſin* of the Lentisk. See MASTIC.

Camphor is alſo a kind of *Reſin*. See CAMPHOR.

The beſt of all the Claſs of *Reſins* is Turpentine. See TURPENTINE.

The *Coarſeſt* is what we commonly call *Roſin*. See ROSIN.

Reſin is properly a Juice of the Bark only. See BARK.

Boerhaave will have it to be the Oil of the Bark further inſpiſſated by the Heat of the Sun, *&c.* ſo as to become friable. He adds, that it may be produced from any vegetable Oil, by boiling it much and long. See OIL.

If Turpentine be ſet over a gentle Fire, it firſt diſſolves and becomes an Oil, then a Balſam, then Pitch, and then *Roſin*; in which State it is friable in the Cold, fuſible by Fire, and withal inflamable and combuſtible, and diſſoluble in Spirit of Wine, but not in Water, which are the Characters of a *Reſin*. See WATER, *&c.*

There are two kinds of *Reſins*, the one *liquid*, the other *dry* and hard.

The firſt is the natural *Reſin* as it flows from the Tree.—The ſecond only differs from the firſt in that it is condenſed by the Heat of the Sun, or by that of a culinary Fire.

Reſins will incorporate with Oil, or rectified Spirits, but not with an aqueous Menſtruum. See PRECIPITATION.

The Difference between *Reſins* and Gums, conſiſts in this, that *Reſins* are more ſulphurous, and Gums more aqueous; ſo that the firſt diſſolve in Spirit of Wine, and the laſt in Water. See GUM.

M. *Tournefort* makes a kind of intermediate Claſs of vegetable Juices which he calls *Gum-Reſins*; which diſſolve partly in Spirit of Wine, partly in Water. See GUM-*Reſin*.

Such are *Galbanum, Bdellium, Oppoponax, Sagapenum*, &c.

The *Reſin* of ſeveral Vegetables which abound with *Reſinous Particles*, but not ſo as to yield any by Inciſion, as Jalap, Benjamin, Scammony, Turbith, *&c.* is thus obtained.—The Vegetable being groſly powder'd, is put into a Matraſs, and rectified Spirit of Wine poured on it, to the height of four Fingers above the Matter. Then the Neck of another Matraſs being luted into the former to make a double Veſſel, the Matter is digeſted 3 or four Days in a Sand Heat, till it have given a good Tincture to the Spirit of Wine. Then the Diſſolution is filtrated, and two thirds of the clear Liquor evaporated off, and the remainder pour'd into a large Veſſel of Water, where it turns into a kind of Milk; whence, the *Reſin*, in Time precipitates to the Bottom in a white Powder. This when waſh'd and dried in the Sun, grows into the ordinary Conſiſtence of a *Reſin*.

RESISTENCE, or RESISTING-*Force*, in Phyſicks, any Force which acts contrarily to another, ſo as to deſtroy or diminiſh its Effect. See FORCE.

Of *Reſiſtence*, there are various Kinds, ariſing from the various Natures and Properties of the *reſiſting* Bodies; and govern'd by various Laws: As the *Reſiſtence of Solids*, the *Reſiſtence of Fluids*, the *Reſiſtence of the Air*, &c. The Doctrine of each whereof will be ſeen under the following Articles.

RESISTENCE *of Solids*, in Mechanicks, is the force wherewith the quieſcent Parts of ſolid Bodies oppoſe the Motion of others contiguous therewith. See SOLIDITY, *&c.*

Of this there are two Kinds.—The firſt, where the *reſiſting* and *reſiſted* Parts, *i. e.* the moving and quieſcent Parts, are only contiguous, and don't cohere; *i. e.* where they conſtitute ſeparate Bodies or Maſſes.

This *Reſiſtence* is what M. *Leibnitz* calls *Reſiſtence of the Surface*; and we, properly, *Friction*; the Conſideration whereof, being of the laſt Importance in the Doctrine of Machines, ſee its Laws under the Article FRACTION.

The ſecond Caſe of *Reſiſtence* is where the *reſiſting* and *reſiſted* Parts are not only contiguous but cohere, *i. e.* are Parts of the ſame continued Body or Maſs.—This *Reſiſtence* is what we may properly call *Renitency*; and was firſt conſidered by *Galileo*.

Theory of the RESISTENCE *or* RENITENCY *of the Fibres of ſolid Bodies.*

To conceive an Idea of this *Reſiſtence* or Renitency of the Parts, ſuppoſe a cylindrical Body ſuſpended vertically by one End.—Here, all its Parts being heavy, draw downwards; and tend to ſeparate the two contiguous Planes, where the Body is the weakeſt: But all the Planes *reſiſt* this Separation by the Force wherewith they *cohere*, or are bound together: Here then are two oppoſite Powers, the Weight of the Cylinder which tends to break it, and the Force of Cohæſion of the Parts which *reſiſts* the Fracture.

If the Baſe of the Cylinder be increas'd, without increaſing its Length; 'tis evident the Fracture will be increas'd in the ſame Ratio as the Baſe: but the Weight alſo increaſes in the ſame Ratio; whence it is evident that all Cylinders of the ſame Matter and Length, whatever their Baſes be, have an equal *Reſiſtence*, when vertically ſuſpended.

If the Length of the Cylinder be increas'd without increaſing the Baſe, its Weight is increaſed without increaſing its *Reſiſtence*; conſequently the lengthening it weakens it.—To find the greateſt Length a Cylinder of any Matter may have without breaking, there needs nothing but to take any Cylinder of the ſame Matter, and faſten to it the greateſt Weight it will ſuſtain e're it break; and then ſee how much it muſt be lengthened by the Addition of its Weight, 'till it equals its former Weight with the Addition of the foreign Weight.—By this means *Galileo* found a Copper-Wiar, and of conſequence any other Cylinder of Copper, might be lengthened to 4801 Braccios, or Fathoms of ſix Foot each.

If one end of the Cylinder were fix'd horizontally into a Wall, and the reſt ſuſpended thence, its Weight and *Reſiſtence* would then act in a different Manner; and if it broke by the Action of its Weight, the Rupture would be at the End fix'd into the Wall. A Circle or Plane contiguous to the Wall, and parallel to the Baſe, and conſequently vertical, would be detach'd from the contiguous Circle within the Plane of the Wall, and would deſcend. All the Motion is made on the loweſt extremity of the Diameter, which remains immoveable, while the upper extremity deſcribes a quadrant of a Circle, and till the Circle which before was vertical is now horizontal; *i. e.* till the Cylinder be entirely broken.

In this Fracture of the Cylinder 'tis viſible two Forces have acted, and the one has overcome the other: The Weight of the Cylinder, which aroſe from its whole Maſs, has overcome the *Reſiſtence* which aroſe from the largeneſs of the Baſe; and as the Centres of Gravity are Points wherein all the Forces ariſing from the Weights of the ſeveral Parts of the ſame Bodies, are conceiv'd to be united, one may conceive the Weight of the whole Cylinder applied in the Centre of Gravity of its Maſs, *i. e.* in a Point in the Middle of its Axis; and the *Reſiſtence* of the Cylinder applied in the Centre of Gravity of its Baſe, *i. e.* in the Centre of the Baſe: It being the Baſe which *reſiſts* the Fracture.

When the Cylinder breaks by its own Weight, all the Motion is on an immoveable Extremity of a Diameter of the Baſe.—This Extremity, therefore is the fix'd Point of a Lever, whoſe two Arms are the Radius of the Baſe, and half the Axis; and of conſequence the two oppoſite Forces don't only act of themſelves, and by their abſolute Force, but alſo by the relative Force they derive from their Diſtance with regard to the fixed Point of the Lever.

Hence it evidently follows, that a Cylinder, *e. gr.* of Copper, which, vertically ſuſpended, will not break by its own Weight if leſs than 480 Fathom long, will break with a leſs Length in a horizontal Situation; in regard the Length in this latter Caſe contributes two Ways to the Fracture; both as it makes it of ſuch a Weight, and as it is an Arm of a Lever to which the Weight is applied.—Hence, alſo, the ſmaller the Baſe is, the leſs Length or Weight will ſuffice to break it; both becauſe the *Reſiſtence* is really leſs, and becauſe it acts by a leſs Arm of a Lever.

If two Cylinders of the ſame Matter, having their Baſes and Lengths in the ſame Proportion, be ſuſpended horizontally; 'tis evident that the greater has more Weight than the leſſer, both on Account of its Length, and of its Baſe. But it has leſs *Reſiſtence* on Account of its Length, conſidered as a longer Arm of a Lever, and has only more *Reſiſtence* on Account of its Baſe.—Therefore it exceeds the leſſer in its Bulk and Weight, more than in *Reſiſtence*; and conſequently muſt break more eaſily.

Hence, we ſee why upon making Models of Machines in ſmall, People are apt to be miſtaken as to the *Reſiſtence* and Strength of certain horizontal Pieces, when they come to execute their Deſigns in large; by obſerving the ſame Proportion as in the ſmall.—*Galileus*'s Doctrine of *Reſiſtence* therefore is no idle Speculation, but becomes applicable in Architecture and other Arts.

The Weight required to break a Body placed horizontally, being always leſs than that required to break it in a vertical Situation; and this Weight being to be greater or leſs according to the Ratio of the two Arms of the Lever: The whole Theory is always reducible to this; *viz.* to find what Part of the abſolute Weight the relative Weight is to be, ſuppoſing the Figure of the Body known; which indeed is neceſſary, becauſe 'tis the Figure that determines the two Centres of Gravity, or the two Arms of the Lever.—For if the Body, *e. gr.* were a Cone, its Centre of Gravity would not be in the Middle of its Axis, as in the Cylinder; and if it were a Semi-parabolical Solid, neither its Centre of Gravity would be in the Middle of its Length or Axis; nor the Centre of Gravity of its Baſe in the Middle of the Axis of its Baſe. But ſtill, wheresoever theſe Centres fall in the ſeveral Figures, 'tis theſe that regulate the two Arms of the Lever.

It may be here obſerved, that if the Baſe whereby the Body is faſtened into the Wall be not circular, but, *e. gr.* parabolical, and the Vertex of the Parabola a-top, the Motion of the Fracture will not be on an immoveable Point, but on a whole immoveable Line; which may be call'd the Axis of Equilibrium, and 'tis with regard to this, that the Diſtances of the Centres of Gravity are to be determined.

Now a Body horizontally ſuſpended, being ſuppoſed ſuch, as that the ſmalleſt addition of Weight would break it; there is an Equilibrium between its poſitive and relative Weight; and of Conſequence thoſe two oppoſite Powers are to each other reciprocally as the Arms of the Lever to which they are applied.—On the other Hand, the *Reſiſtence* of a Body is always equal to the greateſt Weight which it will ſuſtain in a vertical Situation, without breaking, *i. e.* is equal to its abſolute Weight. Therefore, ſubſtituting the abſolute Weight for the *Reſiſtence*, it appears that the abſolute Weight of a Body ſuſpended horizontally, is to its relative Weight as the Diſtance of its Centre of Gravity from the Axis of Equilibrium, is to the Diſtance of the Centre of Gravity of its Baſe from the ſame Axis.

The Diſcovery of this important Truth, at leaſt of an equivalent hereto, and to which this is reducible, we owe to *Galileo*.—From this fundamental Propoſition are eaſily deduced ſeveral Conſequences.—As, for Inſtance, that if the Diſtance of the Centre of Gravity of the Baſe from the Axis of Equilibrium, be half the Diſtance of the Centre of Gravity of the Body; the relative Weight will only be half the abſolute Weight: And that a Cylinder of Copper horizontally ſuſpended, whoſe Length is double the Diameter, will break, provided it weigh half what a Cylinder of the ſame Baſe, 4801 Fathoms long, weighs. See WEIGHT.

On this Syſtem of *Reſiſtence* of *Galileo*, M. *Mariotte* made a very ſubtile Remark, which gave Birth to a new Syſtem.—*Galileo* ſuppoſes that where the Body breaks, all the Fibres break at once; ſo that the Body always *reſiſts* with its whole abſolute Force; *i. e.* with the whole Force all its Fibres have in the Place where it is to be broke.—But M. *Mariotte* finding that all Bodies, even Glaſs it ſelf, bends before it breaks, ſhews that Fibres are to be conſidered as ſo many little bent Springs, which never exert their whole Force till ſtretch'd to a certain Point; and never break till entirely unbent. Hence, thoſe neareſt the Axis of Equilibrium, which is an immoveable Line, are ſtretch'd leſs than thoſe further off; and of Conſequence employ a leſs Part of their Force.

This Conſideration only takes Place in the horizontal Situation of the Body: In the vertical the Fibres of the Baſe all break at once; ſo that the abſolute Weight of the Body muſt exceed the united *Reſiſtence* of all its Fibres: A greater Weight is therefore required here, than in the horizontal Situation; *i. e.* a greater Weight is required to overcome their united *Reſiſtence*, than to overcome their ſeveral *Reſiſtences* one after another.—The Difference between the two Situations ariſes hence, that in the Horizontal there is an immoveable Point or Line, a Centre of Motion, which is not in the Horizontal.

M. *Varignon* has improved on the Syſtem of M. *Mariotte*, and ſhewn that to *Galileo*'s Syſtem, it adds the Conſideration of the Centre of Percuſſion.—The Compariſon of the Centres of

Gravity, with the Centres of Percuſſion, afford a fine view; and ſet the whole Doctrine in the moſt agreeable Light. See CENTRE.

In each Syſtem, the Baſe whereby the Body breaks, moves on the Axis of Equilibrium, which is an immoveable Line in the ſame Baſe; but in the ſecond, the Fibres of this Baſe are continually ſtretching more and more; and that in the ſame Ratio as they recede farther and farther from the Axis of Equilibrium, and of Conſequence are ſtill exerting a greater and greater Part of their whole Force.

Theſe unequal Extentions, like all other Forces, muſt have ſome common Centre where they all meet; and with regard to which they make equal Efforts on each Side: And as they are preciſely in the ſame Proportion as the Velocities which the ſeveral Points of a Rod moved circularly would have to one another; the Centre of Extention of the Baſe whereby the Body breaks, or tends to break, muſt be the ſame with its Centre of Percuſſion.—*Galileo's* Hypotheſis, where Fibres ſtretch equally, and break all at once, correſponds to the Caſe of a Rod moving parallel to it ſelf; where the Centre of Extenſion or Percuſſion does not appear, as being confounded with the Centre of Gravity.

The Baſe of Fraction being a Surface whoſe particular Nature determines its Centre of Percuſſion; 'tis neceſſary it be firſt known to find on what Point of the vertical Axis of that Baſe it is placed; and how far it is from the Axis of Equilibrium.—Indeed, we know, in the general, that it always acts with ſo much more Advantage as it is further from it, in regard it acts by a longer Arm of a Lever; and of Conſequence 'tis the unequal *Reſiſtence* of the Fibres in M. *Mariotte's* Hypotheſis, which produces that Centre of Percuſſion; but this unequal *Reſiſtence* is greater or leſs, according as the Centre of Percuſſion is plac'd more or leſs high on the vertical Axis of the Baſe, in the different Surfaces of the Baſe of the Fracture.

To expreſs this unequal *Reſiſtence*, accompanied with all the Variations it is capable of, regard muſt be had to the Ratio between the Diſtance of the Centre of Percuſſion from the Axis of Equilibrium, and the Length of the vertical Axis of the Baſe.—In which Ratio, the firſt Term, or the Numerator, is always leſs than the ſecond or the Denominator: So that the Ratio is always a Fraction leſs than Unity; and the unequal *Reſiſtence* of the Fibres in M. *Mariotte's* Hypotheſis is ſo much the greater, or which amounts to the ſame, approaches ſo much nearer to the equal *Reſiſtence* in *Galileo's* Hypotheſis, as the two Terms of the Ratio are nearer to an Equality.

Hence it follows, that the *Reſiſtence* of Bodies, in M. *Mariotte's* Syſtem is to that in *Galileo's*, as the leaſt of the Terms in the Ratio is to the greateſt.—Hence, alſo, the *Reſiſtence* being leſs than what *Galileo* imagined, the relative Weight muſt alſo be leſs; ſo that the Proportion already mentioned between the abſolute and relative Weight, cannot ſubſiſt in the new Syſtem, without an Augmentation of the relative Weight, or a Diminution of the abſolute Weight: Which Diminution is had by multiplying the Weight by the Ratio, which is always leſs than Unity. This done, we find that the abſolute Weight multiplied by the Ratio, is to the relative Weight, as the Diſtance of the Centre of Gravity of the Body from the Axis of Equilibrium, is to the Diſtance of the Centre of Gravity of the Baſe of Fracture, from the ſame Axis. Which is preciſely the ſame thing with the general Formula given by M. *Varignon*, for the Syſtem of M. *Mariotte*. In effect, after conceiving the relative Weight of a Body, and its *Reſiſtence* equal to its abſolute Weight, as the two contrary Forces applied to the two Arms of a Lever, in the Hypotheſis of *Galileo*; there needs nothing to convert it into that of M. *Mariotte*, but to imagine that the *Reſiſtence*, or the abſolute Weight is become leſs; every thing elſe remaining the ſame.

We have here only conſidered Bodies as to be broke by their own Weight.—It will amount to the ſame, if we ſuppoſe them void of Weight themſelves, and to be broken by a Weight applied to their Extremities: Only it is to be obſerved, that a foreign Weight acts by an Arm of a Lever equal to the whole Length of the Body; whereas their own Weight being all united in their Centre of Gravity, is only the Diſtance of that Centre from the Axis of Equilibrium.

One of the moſt curious, and perhaps the moſt uſeful Queſtions in this Reſearch, is to find what Figure a Body muſt have, that its *Reſiſtence* may be equal in all its Parts; whether it be conceived as charg'd with a foreign Weight; or as only ſuſtaining its own Weight.—We ſhall, here, only conſider the latter Caſe, from which the former will be eaſily determined.

For a Body, then, ſuſpended horizontally, to reſiſt equally in all its Parts; 'tis neceſſary ſome Part of it being conceived as cut off in a Plane parallel to the Baſe of Fracture of the Body; the Weight of the Part retrench'd be to its *Reſiſtence*, in the ſame Ratio, as the Weight of the whole to its *Reſiſtence*; theſe four Powers acting by Arms of Levers proper to themſelves.—Now the Weight of any Body thus conceived, is its whole Weight multiplied by the Diſtance of the Centre of Gravity of the Body, from the Axis of Equilibrium; and the *Reſiſtence* is the Plane of the Baſe of Fracture multiplied by the Diſtance of the Centre of Gravity of the Baſe from the ſame Axis: Conſequently theſe four Quantities are to be proportional in the whole, and in each Part of a Solid of equal *Reſiſtence*.

From this Proportion M. *Varignon* eaſily deduces two Solids, which ſhall *reſiſt* equally in all their Parts. *Galileo* had found one before: That diſcovered by M. *Varignon*, is in form of a Trumpet, and is to be fix'd into the Wall at its greater End; ſo that its Bigneſs and Weight is always diminiſh'd in Proportion as its Length, or the Arm of the Lever whereby its Weight acts, increaſes. To added, (which ſeems very remarkable) that howſoever different the two Syſtems may be, the Solids of equal *Reſiſtence* are the ſame in both.

For the RESISTENCE *of a Solid ſupported at each Extreme; as, of a Beam between two Walls.* See BEAM.

RESISTENCE *of Fluids*, in Hydroſtaticks, is the Force wherewith Bodies moving in fluid Mediums, are impeded and retarded in their Motions. See FLUID and MEDIUM.

Laws of the RESISTENCE *of fluid Mediums.*

A Body moving in a Fluid, is *reſiſted* from two Cauſes; the firſt, the Coheſion of the Parts of the Fluid.—For a Body in its Motion ſeparating the Parts of a Liquid, muſt overcome the Force with which thoſe Parts cohere. See COHESION.

The ſecond is the *Inertia*, or inactivity of Matter, whereby a certain Force is required to move the Particles from their Places, in order to let the Body paſs. See VIS INERTIÆ.

The Retardation from the firſt Cauſe, is always the ſame in the ſame Space, the ſame Body remaining; be the Velocity what it will.—Hence, the *Reſiſtence* increaſes as the Space run through; in which Ratio, the Velocity alſo increaſes; therefore the *Reſiſtence* is as the Velocity it ſelf. See VELOCITY.

The *Reſiſtence* from the ſecond Cauſe, when the ſame Body moves through different Liquids, with the ſame Velocity, follows the Proportion of Matter to be removed in the ſame time; which is as the Denſity of the Liquid. See DENSITY.

When the ſame Body moves through the ſame Liquid with different Velocities, this *Reſiſtence* increaſes in Proportion to the Number of Particles ſtruck in an equal Time; which Number is as the Space run through in that Line, that is, as the Velocity. But farther it increaſes in Proportion to the Force with which the Body ſtrikes againſt every Part; which Force is alſo as the Velocity of the Body. And therefore if the Velocity be Triple, the *Reſiſtence* is Triple, from a triple Number of Parts to be removed.—It is alſo triple from a ſtroke three times ſtronger againſt every Particle; therefore the whole *Reſiſtence* is ninefold, that is, as the Square of the Velocity. Hence a Body moved in a Liquid, is *reſiſted* partly in a Ratio of the Velocity, and partly in a duplicate Ratio of it.

The *Reſiſtence* from the Coheſion of Parts in Liquids, except glutinous ones, is not very ſenſible in reſpect of the other *Reſiſtence*; which, increaſes in a Ratio of the Square of the Velocities, but the firſt in a Ratio of the Velocity itſelf. By how much the Velocity increaſes, by ſo much more do theſe *Reſiſtences* differ; wherefore in ſwifter Motions the *Reſiſtence* alone is to be conſidered, which is as the Square of the Velocity.

If a Liquid be included in a Veſſel of a priſmatical Figure, and there be moved along in it with equal Velocity, and in a Direction parallel to the Sides of the Priſm, two Bodies, the one ſpherical, the other cylindric; ſo that the Diameter of the Baſe of the latter be equal to the Diameter of the Sphere; and the Cylinder be moved in the Direction of its Axis; theſe Bodies will ſuffer the ſame *Reſiſtence*.

To demonſtrate this, ſuppoſe the Bodies at reſt, and that the Liquid moves in the Veſſel, with the ſame Velocity that the Bodies had; by this the relative Motion of the Bodies, and the Liquid is not changed: Conſequently the Actions of the Bodies on the Liquid, and of the Liquid on the Bodies, are not changed.—The Retardation which the Liquor ſuffers in paſſing by the Body, ariſes only from this, that in that Place it is reduced to a narrower Space; but the Capacity of the Veſſel is equally diminiſhed by each Body; therefore each Body produces an equal Retardation. And becauſe Action and Re-action are equal to one another, the Liquid acts equally upon each Body; wherefore alſo each Body will be equally retarded, when the Bodies are moved, and the Liquid is at reſt.

Reſiſtence and *Retardation* are uſed indifferently for each other, as being both in the ſame Proportion; and the ſame *Reſiſtence* always generating the ſame Retardation.—But with regard to different Bodies, the ſame *Reſiſtence* frequently generates different Retardations; the *Reſiſtence* being the Quantity of Motion, and the Retardation the Celerity.—*For the Difference and Meaſure of the two*, ſee RETARDATION.

The Retardations from this *Reſiſtence* may be compared together, by comparing the *Reſiſtence* with the Gravity.—It is demonſtrated that the *Reſiſtence* of a Cylinder, which moves in the Direction of its Axis, (to which the *Reſiſtence* of a Sphere of the ſame Diameter is equal) is equal to the Weight of a Cylinder of that Liquid through which the Body moves, having its Baſe equal to the Body's Baſe, and its Height equal to half the Height, from which a Body falling in *vacuo*, may acquire the Velocity with which the Cylinder is moved through the Liquid.

From the given Celerity of the Body moved, the Height of the Liquid Cylinder is found, as alſo the Weight of it from the known ſpecific Gravity of the Liquid, and Diameter of the Body.—Let a Ball, for Inſtance, of three Inches Diameter be moved in Water with a Celerity wherewith it would go ſixteen Foot in a Second: From Experiments on falling Bodies, and others made on Pendulums, it has been found that this is the Celerity which a Body acquires in falling from a Height of four Foot; therefore the Weight of a Cylinder of Water, of three Inches Diameter, and two Foot high, that is, a Weight of about ſix Pound and three Ounces, is equal to the *Reſiſtence* of the aforeſaid Ball. See DESCENT.

Let the *Reſiſtence* ſo diſcovered be divided by the Weight of the Body, which determines its Quantity of Matter, and you will have the Retardation.

RESISTENCE *of fluid Mediums to the Motion of Pendulums.*

The Arch deſcribed by a Pendulum oſcillating in *vacuo*, with the Celerity it has acquir'd in deſcending, is equal to the Arch deſcribed by the Deſcent; but the ſame does not happen in a Fluid, and there is a greater Difference between thoſe Arches the greater the *Reſiſtence* is; that is, the greater the Arch is which is deſcrib'd in the Deſcent.

Let the *Reſiſtence* of the Liquid be in Proportion to the Velocity; and let two Pendulums, entirely alike, oſcillating in a Cycloid, perform unequal Vibrations, and begin to fall the ſame Moment; they here begin to move by Forces that are as the Arches to be deſcribed. If thoſe Impreſſions alone, which are made the firſt Moment, be conſidered; after a given Time the Celerities will be in the ſame Ratio, as in the Beginning; for the Retardations which are as the Velocities themſelves, cannot change their Proportions, the Ratio between Quantities not being changed by the Addition and Subſtraction of Quantities in the ſame Ratio. Therefore in equal Times, however the Celerities of Bodies are changed in their Motion by the *Reſiſtence*, the Spaces gone through, are as the Forces in the Beginning; that is, as the Arches to be deſcribed by the Deſcent; therefore after any time the Bodies are in the correſpondent Point of thoſe Arches. But in theſe Points the Forces generated are in the ſame Ratio as in the Beginning, and the Proportion of the Celerities, which is not varied by the *Reſiſtence*, ſuffers no Change from the Gravity. In the Aſcent, Gravity retards the Motion of the Body; but in correſpondent Points, its Actions are in the ſame Ratio as in Deſcents. And therefore every where in correſpondent Points, the Celerities are in the ſame Ratio. But as in the ſame Moments the Bodies are in their correſpondent Points, it follows that the Motion of both is deſtroy'd in the ſame Moment, that is, they finiſh their Vibrations in the ſame Time. The Spaces run through in the Time of one Vibration, are as the Forces by which they are run thro'; that is, the Arches of the whole Vibrations are as the Arches deſcribed by the Deſcent, the doubles whereof are the Arches to be deſcribed in Vacuo. The Defects of the Arches to be deſcribed in Liquids from the Arches to be deſcribed in Vacuo, are the Differences of Quantities in the ſame Ratio, and are as the Arches deſcrib'd by the Deſcent. See PENDULUM.

RESISTENCE *of Fluid Mediums to the Motion of falling Bodies.*

The *Reſiſtences* are as the Squares of the Celerities, and therefore every where in correſpondent Points, as the Squares of the Arches deſcribed by the Deſcent, in which Ratio alſo, the Retardations are; but as each of them keep the ſame Proportion in correſponding Points, the Sums of them all will be in the ſame Proportion; that is, the whole Retardations, which are the Defects of the Arches deſcribed in the Liquid, from the Arches to be deſcribed in Vacuo, or which is the ſame, the Difference between the Arches deſcribed in the Deſcent, and the next Aſcent. Therefore theſe Differences, if the Vibrations are not very unequal, are nearly as the Squares of the Arches deſcribed by the Deſcent: Which is alſo confirm'd by Experiments in greater Vibrations; for in theſe the Proportion of *Reſiſtence*, here conſidered, obtains.

A Body freely deſcending in a Fluid is accelerated by the reſpective Gravity of the Body, which continually acts upon it, yet not equably, as in a Vacuum: the *Reſiſtence* of the Liquid occaſions a Retardation, that is, a Diminution of Acceleration, which Diminution increaſes with the Velocity of the Body. Now there is a certain Velocity, which is the greateſt a Body can acquire by falling; for if its Velocity be ſuch that the *Reſiſtence* ariſing from it becomes equal to the reſpective Weight of the Body, its Motion can be no longer accelerated; for the Motion here continually generated by the reſpective Gravity, will be deſtroy'd by the *Reſiſtence*, and the Body forced to go on equably. A Body continually comes nearer and nearer to this greateſt Celerity, but can never attain to it.

When the Denſities of a Liquid Body are given, the reſpective Weight of the Body may be known; and by knowing the Diameter of the Body, it may be found from what Height a Body falling in Vacuo, can acquire ſuch a Velocity, as that the *Reſiſtence* in a Liquid ſhall be equal to that reſpective Weight, which will be that greateſt Velocity above mentioned.—If the Body be a Sphere, it is known that a Sphere is equal to a Cylinder of the ſame Diameter, whoſe Height is two third Parts of that Diameter; which Height is to be increaſed in the Ratio wherein the reſpective weight of the Body exceeds the weight of the Liquid, in order to have the Height of a Cylinder of the Liquid, whoſe weight is equal to the reſpective weight of the Body; but if you double this Height, you will have a Height from which a Body falling in Vacuo, acquires ſuch a Velocity as generates a *Reſiſtence* equal to this reſpective weight, and which therefore is the greateſt Velocity which a Body can acquire falling in a Liquid from an infinite Height. Lead is eleven times heavier than Water, wherefore its reſpective weight is as to the weight of Water as 10 to 1; therefore a leaden Ball, as it appears from what has been ſaid, cannot acquire a greater Velocity in falling in Water, than it would acquire in falling in Vacuo, from an Height of 13 $\frac{1}{3}$ of its Diameters.

A Body lighter than a Liquid, and aſcending in it by the Action of the Liquid, is moved exactly by the ſame Laws as an heavier Body falling in the Liquid. Wherever you place the Body, it is ſuſtained by the Liquid, and carried up with a Force equal to the Difference of the weight of the Quantity of the Liquid, of the ſame Bulk as the Body, from the weight of the Body. Therefore you have a Force that continually acts equably upon the Body, by which not only the Action of the Gravity of the Body is deſtroyed ſo as that it is not to be conſidered in this Caſe, but the Body is alſo carried upwards by a Motion equably accelerated, in the ſame manner as a Body heavier than a Liquid deſcends by its reſpective Gravity; but the equability of the Acceleration is deſtroyed in the ſame Manner by the *Reſiſtence*, in the Aſcent of a Body lighter than the Liquid, as it is deſtroyed in the Deſcent of a Body heavier.

When a Body ſpecifically heavier than a Fluid is thrown up in it, it is retarded upon a double Account; on Account of the Gravity of the Body, and on Account of the *Reſiſtence* of the Liquid; conſequently, a Body riſes to a leſs Height than it would riſe in Vacuo with the ſame Celerity. But the Defects of the Height in a Liquid from the Heights to which a Body would riſe in Vacuo with the ſame Celerities, have a greater Proportion to each other than the Heights themſelves; and in leſs Heights the Defects are nearly as the Squares of the Heights in Vacuo.

RESISTENCE *of the Air*, in Pneumaticks, is the Force wherewith the Motion of Bodies, particularly Projectiles, is retarded by the *Reſiſtence* of the Air or Atmoſphere. See AIR and PROJECTILE.

The Air being a Fluid, the general Laws of the *Reſiſtence* of Fluids obtain therein; only the different Degrees of Denſity in the different Stages or Regions of the Atmoſphere, occaſion ſome irregularity. See ATMOSPHERE.

The different RESISTENCE *of the ſame Mediums to Bodies of different Figures.*

Sir *Iſaac Newton* ſhews, That if a Globe and a Cylinder of equal Diameters, be moved with equal Velocity in a thin Medium, conſiſting of equal Particles, diſpoſed at equal Diſtances, according to the Direction of the Axis of the Cylinder; the *Reſiſtence* of the Globe will be leſs by half than that of the Cylinder.

Solid of the leaſt RESISTENCE.—From the laſt Propoſition the ſame Author deduces the Figure of a *Solid*, which ſhall have the *leaſt Reſiſtence* of any containing the ſame Quantity of Matter and Surface. See SOLID.

The Figure is this.—Suppoſe DNFB (*Tab. Mechanicks, Fig.* 57.) to be ſuch a Curve, as, that if from any Point N, be let fall a Perpendicular NM, to the Axis AB; and from a given Point G, be drawn a right Line GR, parallel to a Tangent to the Figure in N, and cut the Axis when continued, in R: A Solid deſcribed by the Revolution of this Figure about its Axis AB, moving in a Medium from A towards B, is leſs *reſiſted* than in any other circular Solid of the ſame Area, *&c. Newt. Princ.* p. 327.

The Reſiſtence of a Globe, perfectly hard and in a Medium, whoſe Particles are ſo too; is to the Force wherewith the whole Motion may be either deſtroy'd or generated which it has when at the time, when it has deſcribed four thirds of its Diameter; as the Denſity of the Medium to the Denſity of the Globe.—Hence alſo, the ſame Author infers that the *Reſiſtence* of a Globe, is, *cæteris paribus*, in a duplicate Ratio of its Velocity. Or its *Reſiſtence* is *cæteris paribus*, in a duplicate Ratio of its Diameter. Or, *cæteris paribus*, as the Denſity of the Medium. Laſtly, that the actual *Reſiſtence* of a Globe is in a Ratio compounded of the duplicate Ratio of the Velocity, and of the duplicate Ratio of the Diameter, and of the Ratio of the Denſity of the Medium.

In theſe Articles the Medium is ſuppoſed to be diſcontinuous, as Air probably is: If the Medium be continuous, as Water, Mercury, *&c.* where the Globe does not ſtrike immediately on all the Particles of the Fluid generating the *Reſiſtence*, but only on thoſe next it, and thoſe again on others, *&c.* the *Reſiſtence* will be leſs by half. And a Globe in ſuch a Medium undergoes a *Reſiſtence* which is to the Force wherewith the whole Motion it has after deſcribing eight thirds of its Diameter might be generated or taken away, as the Denſity of the Medium to the Denſity of the Globe.

The Reſiſtence of a Cylinder moving in the Direction of its Axis is not alter'd by any Augmentation or Diminution of its Length: And therefore is the ſame with that of a Circle of the ſame Diameter moving with the ſame Velocity in a right Line perpendicular to its Plane.

The *Reſiſtence* of a Cylinder moving in an infinite unelaſtic Fluid, ariſing from the Magnitude of a tranſverſe Section; is to the Force wherewith its whole Motion while it deſcribes four times its Length may be taken away or generated; as the Denſity of the Medium to that of the Cylinder, very nearly.

Hence, the *Reſiſtences* of Cylinders moving Length-wiſe, in infinitely continued Mediums, are in a Ratio compounded of the duplicate Ratio of their Diameters, and the duplicate Ratio of their Velocities; and the Ratio of the Denſity of the Mediums.

The *Reſiſtence* of a Globe in an infinite unelaſtic Medium is to the Force whereby its whole Motion while it deſcribes eight thirds of its Diameter, might be either generated or taken away; as the Denſity of the Fluid to the Denſity of the Globe, *quam proxime*.

Mr. *James Bernoulli* demonſtrates the following Theorems.

Reſiſtence of a Triangle.—If an Iſoſceles Triangle be moved in a Fluid according to the Direction of a Line perpendicular to its Baſe; firſt, with the Vertex foremoſt, and then with its Baſe; the *Reſiſtences* will be as the Legs, and as the Square of the Baſe, and as the Sum of the Legs.

The Reſiſtence of a Square moved according to the Direction of its Side, and of its Diagonal, is as the Diagonal to the Side.

The Reſiſtence of a Circular Segment, leſs than a Semicircle carried in a Direction perpendicular to its Baſis, when it goes with the Baſe foremoſt, and when with its Vertex foremoſt, (the ſame Direction and Celerity continuing;) is as the Square of the Diameter, to the ſame, leſs $\frac{1}{3}$ of the Square of the Baſe of the Segment. Hence the *Reſiſtences* of a Semicircle when its Baſe and when its Vertex go foremoſt, are to one another in a ſeſquialterate Ratio.

Reſiſtence of a Parabola.—A Parabola moving in the Direction of its Axis firſt with its Baſis, and then its Vertex foremoſt, has its *Reſiſtences* as the Tangent to an Arch of a Circle, whoſe Diameter is equal to the Parameter, and the Tangent equal to half the Baſis of the Parabola.

The *Reſiſtence* if Vertex goes foremoſt, may be thus computed: Say, as the Sum (or Difference) of the Tranſverſe Axis, and *Latus Rectum*, is to the tranſverſe Axis; ſo is the Square of the *Latus Rectum* to the Square of the Diameter of a certain Circle, in which Circle apply a Tangent equal to half the Baſis of the Hyperbola or Ellipſis.—Then ſay again, as the Sum and Difference of the Axis and Parameter, is to the Parameter; ſo is the aforeſaid Tangent to another right Line. And farther as the Sum (or Difference) of the Axis and Parameter, is to the Axis: So is the circular Arch correſponding to the aforeſaid Tangent, to another Arch. This done, the *Reſiſtences* will be as the Tangent to the Sum (or Difference) of the right Line thus found, and that Arch laſt mentioned.

In the general, the *Reſiſtences* of any Figure whatever going now with its Baſe foremoſt, and then with its Vertex, are as the Figures of the Baſe to the Sum of all the Cubes of the Elements of the Baſe divided by the Squares of the Element of the Curve Line.

All which Rules may be of uſe in the Conſtruction of Ships, and in perfecting the Art of Navigation univerſally: As alſo for determining the Figures of the Bobs of Pendulums for Clocks, *&c.* See SHIP, NAVIGATION, PENDULUM, *&c.*

RESOLUTION, RESOLUTIO, SOLUTIO, in Phyſicks, the Reduction of a Body into its original or natural State, by a Diſſolution or Separation of its aggregated Parts. See DISSOLUTION.

Thus, Snow and Ice are ſaid to be reſolved into Water; a compound is *reſolved* into its Ingredients, *&c.* See SNOW, COMPOUND, *&c.*

Water *reſolves* into Vapour by Heat; and Vapour is again *reſolved* into Water by Cold. See VAPOUR, HEAT, *&c.*

Some of the modern Philoſophers, particularly, Mr. *Boyle*, M. *Mariotte*, *Boerhaave*, &c. maintain that the natural State of Water is to be congeal'd, or be in Ice; inaſmuch as a certain Degree of Heat, which is a foreign and violent Agent, is required to make it Fluid; ſo that near the Pole, where this foreign Force is wanting, it conſtantly retains its fix'd or Icy-State. See WATER.

On this Principle, the *Reſolution of Ice into Water*, muſt be an improper Phraſe. See FREEZING.

RESOLUTION, in Chymiſtry, is the Reduction of a Maſs or mix'd Body into its component Parts, or firſt Principles; by a proper Analyſis. See PRINCIPLE, ANALYSIS, *&c.*

The *Reſolution* of Bodies is perform'd variouſly; by *Diſtillation, Sublimation, Diſſolution, Fermentation*, &c. See each Operation under its proper Article, DISTILLATION, *&c.*

RESOLUTION, in Logic, is a Branch of Method, call'd alſo *Analyſis*. See METHOD and ANALYSIS.

The Buſineſs of the *Reſolution* is to inveſtigate or examine the Truth or Falſhood of a Propoſition, by aſcending from ſome particular known Truth, as a Principle, by a Chain of Conſequences, to another more general one, in Queſtion. See PROPOSITION, TRUTH, *&c.*

Reſolution, or the analytic Method, ſtands in direct oppoſition to *Compoſition*, or the *ſynthetic Method*; in which laſt we deſcend from ſome general known Truths, to a particular one in Queſtion. See COMPOSITION.

For an Inſtance of the Method of *Reſolution.*—Suppoſe the Queſtion this: Whether on the Suppoſition of Man's Exiſtence, we can prove that God exiſts?

To *reſolve* this, our Method is thus.—“ Mankind did not always exiſt: 'Tis evident from a thouſand Conſiderations, the Species had a Beginning; and that, according to all Hiſtory, not 6000 Years ago: But if it had a Beginning, there muſt be ſome Cauſe of its Beginning; ſomething to induce it to exiſt then more than it did before; in effect there muſt be a Cauſe or Author of its Exiſtence, for from nothing, nothing ariſes: This Cauſe, whatever it is, muſt at leaſt have all the Faculties we find in ourſelves; for none can give more than he has: Nay, he muſt have others which we have not, ſince he cou'd do what we cannot do, *i. e.* Create, make Man exiſt, *&c.*—Now, this Cauſe either exiſts ſtill, or has ceas'd to do ſo: If the former, he did not exiſt from Eternity; for what is from Eternity is neceſſary, and can neither by it ſelf nor any other Cauſe be reduced to nothing: If the latter, it muſt have been produced from ſome other; and then the ſame Queſtion will return upon the Producer.—There is then ſome firſt Cauſe; and this Cauſe has all the Properties and Faculties we have; nay more, exiſted from Eternity, *&c.* Therefore, from the Suppoſition of Man's Exiſtence, it follows there is a God, *&c.*

RESOLUTION, or SOLUTION, in Mathematicks, is an orderly Enumeration of the ſeveral things to be done, to obtain what is required by a Problem. See PROBLEM.

Wolfius makes a Problem to conſiſt of three Parts.—The *Propoſition*, (which is what we properly call the *Problem*) the *Reſolution*, and the *Demonſtration*. See PROPOSITION, *&c.*

The general Tenor of all Problems is, Thoſe things being done which are enjoyn'd by the *Reſolution*; the thing is done which was to be done.

As ſoon as a Problem is demonſtrated, it is converted into a Theorem; whereof the *Reſolution* is the Hypotheſis; and the Propoſition the Theſis. See THEOREM, THESIS, *&c.*

For an Idea of the Proceſs of a Mathematical *Reſolution*, ſee RESOLUTION *Algebraical*.

RESOLUTION, in Algebra, or Algebraical, is of two Kinds; the one practiced in numerical Problems, the other in Geometrical ones. See ALGEBRA.

To reſolve a given numerical Problem algebraically, the Method is thus: 1°. Diſtinguiſh the given Quantities from the Quantities ſought; and Note the former with the firſt Letters of the Alphabet, and the latter with the laſt. See QUANTITY.

2°. Find as many Equations as there are unknown Quantities; if that can't be, the Problem is indeterminate; and one or more of the ſought Quantities may be aſſumed at Pleaſure.—The Equations, unleſs they be contain'd in the Problem it ſelf, are found by Theorems relating to the Equality of Quantities. See EQUATION and EQUALITY.

3°. Since in an Equation the unknown Quantities are mix'd with the known; it muſt be reduced in ſuch manner as that only one unknown Quantity be found on one Side, and none but known Quantities on the other.—This Reduction is perform'd by adding the ſubtracted Quantities, dividing the multiplied Quantities, and multiplying the divided ones, extracting the Roots out of Powers, raiſing Roots to their Powers, *&c.* ſo as that the Equality may be ſtill preſerved. See REDUCTION.

To reſolve a Geometrical Problem Algebraically.

The Proceſs in the former Article is to be obſerved throughout: But as it rarely happens we come at an Equation in geometrical Problems by the ſame means as in numerical ones; there are ſome further things to be noted: Firſt then, Suppoſe the thing done which was propoſed to be done.—2°. Examine the Relations of all the Lines in the Diagram, without any regard to known or unknown; in order to find which depend on which; and from which being had, what others are had, whether by ſimilar Triangles, or Rectangles, *&c.*—3°. To obtain the ſimilar Triangles or Rectangles, the Lines are to be frequently produced, 'till they become either directly or indirectly equal to given ones, or interſect others, *&c.* Parallels and Perpendiculars to be frequently drawn: Points to be frequently connected; and Angles to be made equal to others.

If thus you don't arrive at a neat Equation; examine the Relations of the Lines in another Manner.—Sometimes 'tis not enough to ſeek the thing directly, but another thing muſt be ſought, whence the firſt may be found.

The Equation being reduced, the Geometrical Construction to be deduced there-from, which is done in various Manners, in the e various Kinds of Equations. See Constuction *of Equa-* ions.

Resolution, in Medicine, the Coction or Alteration of the Crude peccant Matter of any Diſeaſe, either by the natural trength of the Patient, or of its one accord, or by the Appli- ation of Remedies; whereby its Bulk, Figure, Cohæſion, *&c.* re ſo far chang'd as that it ceaſes to be Morbid, and becomes udable. See Coction, Disease, *&c.*

This, the learned *Boerhaave* obſerves, is of all others the moſt erfect Cure, where 'tis effected without any Evacuation; as uppoſing the Matter favourable, the Conſtitution excellent, and he Medicines good. See Crisis, *&c.*

Resolution, in Muſick, is when a Canon, or perpetual Fu- ue is not wrote all on the ſame Line, or in one Part; but all the Voices that are to follow the *Guida*, or firſt Voice, are wrote ſe- parately, either in *Score*, *i. e.* in ſeparate Lines, or in ſeparate Parts, with the Pauſes each is to obſerve, in the Beginning, and n the Tone proper to each.

Resolution, in Grammar. See Reduction.

RESONANCE, Resounding, in Muſick, *&c.* a ſound re- turn'd by the Air incloſed in the Bodies of String-Muſical-Inſtru- ments; as Lutes, *&c.* or even in the Bodies of Wind-Inſtru- ments, as Flutes, *&c.* See Sound, Musick, Instrument, *&c.*

We alſo ſay, Elliptic, and parabolic Vaults, *reſound* ſtrongly, *i. e.* reflect or return the Sound. See Eccho.

The Mouth, and the Parts thereof, as the Palate, Tongue, Teeth, Noſe, and Lips, Monſ. *Dodart* obſerves, contribute no- thing to the Tone of the Voice; but their effect is very great as to the *Reſonance*. See Voice.

Of this we have a very ſenſible Inſtance in that vulgar Inſtru- ment called the *Jews-Harp*, or *Trompe de Bearn*: For, if you hold it in your Hand, and ſtrike the Tongue or Spring thereof, which makes all the Sound of the Inſtrument, it ſcarce yields any Noiſe at all. But, holding the Body of the Inſtrument between the Teeth, and ſtriking the Spring as before, it makes a muſical Buzz, which is heard to a good Diſtance, and eſpecially the lower Notes.

So alſo in the Haut-bois, the Tone of the Reed is always the ſame; being a ſort of a Drone: The Chief variety is in the Tone of the *Reſonance*, produced in the Mouth by the greater or leſs Aperture, and the divers Motions of the Lips. See Hautboy.

RESOLVENTS, Resolventia, in Medicine, Remedies proper to *reſolve* and diſſipate Tumors and Gatherings; to ſoften Hardneſſes; and by their Tenuity and Warmth, evacuate redundant or peccant Humours through the Pores. See Resolution.

Under this Claſs come various Unguents, Emplaſters, *&c.* See Discutient.

RESPECTU *computi vice comitis habendo*, a Writ for the reſpiting a Sheriff's Accompt, upon juſt Occaſion. See Sheriff.

It is directed to the Treaſurer and Barons of the Exchequer.

RESPIRATION, Respiratio, the Act of *Reſpiring*, or Breathing. See Air and Breath.

Reſpiration is an involuntary Motion of the Breaſt, whereby the Air is alternately taken in and thrown out: It therefore includes two contrary Motions; the one call'd *Inſpiration*, whereby the Fluid is received into the Cavity of the Lungs. See Inspiration.

And the other *Expiration*, whereby it is again expell'd. See Expiration.

The principal Organs of *Reſpiration* are the *Lungs*, *Trachea*, *Larynx*, &c. the Deſcription whereof ſee under their proper Articles, Lungs, Trachea, Larynx, *&c.*

For the manner wherein Reſpiration is performed.—'Tis to be obſerved, that the Lungs, when ſuſpended in the open Air, by the contractive Power of the muſcular Fibres which tye together the ſquamous Parts of the Bronchia, are reduced to leſs Space than that they poſſeſs'd while in the Cavity of the Thorax: And when thus contracted, if a Quantity of new Air be injected through the Glottis; they again become diſtended, ſo as to poſſeſs an equal, nay a greater Space than that aſſign'd them in the Thorax. See Muscle.

Hence it appears, that the Lungs, by their proper Force, are always endeavouring to contract themſelves into leſs Compaſs than they poſſeſs when incloſed in the Thorax, and that therefore they are always in a State of violent Dilatation while the Man lives.—For the Air that encompaſſes them in the Thorax, ſhut up between their external Membrane and the Pleura, is not of equal Denſity with common Air.

In effect, the ingreſs of the Air through the Glottis into the Lungs, is always free, but that on the out-ſide wherewith they are compreſs'd, is impeded by the Diaphragm, ſo as it cannot enter the Thorax in Quantity ſufficient to make an Equilibrium.

Since then, in Inſpiration, the Air enters the Lungs in greater Quantity than it was before; it will dilate them more, and will overcome their natural Force.—The Lungs therefore are wholly Paſſive in the Matter: What it is that acts muſt be learnt from the Phænomena.

1°. Then, it is obſerv'd, that in Inſpiration, the nine upper Ribs articulated to the Vertebræ and the Sternum, riſe Archwiſe towards the Clavicles; and the three lower are turn'd downwards, and the eighth, ninth, and tenth, are drawn inwards. 2°. that the Abdomen is dilated; and 3°. the Thorax enlarged. 4°. the Diaphragm is brought from its convex and ſinuous Poſition to a flat Figure.

Now, as theſe are the only viſible Actions in Inſpiration, the Cauſe thereof muſt be refer'd to them; or rather to the Muſcles of theſe Parts, which are the Intercoſtals, the Subclavian, *&c.*

The Capacity of the Thorax being enlarged by the Action of theſe Muſcles on the Ribs, *&c.* a Space is left between the Pleura and the Surface of the Lungs; ſo that the Air entering the Glottis inflates them till ſuch time as they become contiguous to the Pleura and Diaphragm.—In this Caſe, now, the Air preſſes the Lungs as much as the Thorax reſiſts them. And hence, the Lungs become at reſt; the Blood paſſes leſs freely, and is forced in leſs Quantity into the left Ventricle of the Heart, and ſo leſs comes into the Cerebellum, and its Nerves, and the arterial Blood acts leſs on the intercoſtal Muſcles and Diaphragm.

The Cauſes, therefore, which at firſt dilated the Thorax, grow weaker, conſequently the Ribs become depreſs'd; the diſtended Fibres of the Muſcles of the Abdomen reſtore themſelves; the Viſcera thruſt the Diaphragm up again into the Thorax, the Space whereof being thus contracted, the Air is drove out of the Lungs; and thus is *Expiration* perform'd.

Immediately, the Blood being quickened in its Motion, begins to flow ſtronger and more plentifully to the Cerebellum and Muſcles; and thus the Cauſes of the Contraction of the Intercoſtals and Diaphragm, being renewed, *Inſpiration* is repeated.

Such is the true, immediate, adequate Manner of vital *Reſpiration*. See Heart.

For the uſes and effects of *Reſpiration*, they are greatly diſputed among Anatomiſts.—The learned *Boerhaave* takes the principal uſes thereof to be the further Preparation of the Chyle, its more accurate Mixture with the Blood, and its Converſion into a nutritious Juice proper to repair the Decays of the Body. See Nutrition.

Borelli takes the great uſe of *Reſpiration* to be the admiſſion and mixture of Air, with the Blood, in the Lungs, in order to form thoſe elaſtic Globules it conſiſts of; to give it its red florid Colour; and to prepare it for many of the uſes of the OEconomy: but how ſuch Admiſſion ſhould be effected is hard to ſay.—'Tis impoſſible it ſhould be done in the pulmonary Arteries; nor can it be proved in the pulmonary Veins.—In effect, ſuch a Communication muſt be hindered and obſtructed by the Airs diſtending the Veſiculæ, and compreſſing the Veins, in Inſpiration; by the ſlimy Humor that lubricates the Membrane lining the inſide of the *Trachea*. Add to this, the difficult Paſſage of Air through ſuch ſmall Pores as will admit Water; and the ill Effect Air ordinarily has when admitted into the Blood. See Pore and Water.

As to the Arguments for ſuch Communication, *viz.* the florid Colour the Blood here firſt aſſumes, and the abſolute Neceſſity of *Reſpiration* to Life; they are both well accounted for otherwiſe. See Blood.

Other Authors, as *Sylvius*, *Etmuller*, &c. take a great uſe of *Reſpiration* to be, by the Neighbourhood of the cold nitrous Air, to cool the Blood coming reeking hot out of the right Ventricle of the Heart, through the Lungs; and to act as a Refrigeratory. See Refrigeratory.

Mayow, and others, aſſert one grand uſe of Expiration to be to throw off the fuliginous Vapours of the Blood along with the expell'd Air; and for Inſpiration, he aſſerts that it conveys a nitro-aerial Ferment to the Blood, to which the animal Spirits and all muſcular Motion are owing.

But Dr. *Thurſton* rejects all theſe from being principal uſes of *Reſpiration*, which he ſhews to be to move or paſs the Blood from the right to the left Ventricle of the Heart, and ſo to effect the Circulation. See Circulation.

Whence it is that Perſons hang'd, drown'd, or ſtrangled, ſo ſuddenly dye, *viz.* becauſe the Circulation of the Blood is ſtop'd; and for the ſame Reaſon it is that Animals dye ſo ſpeedily in the Air-Pump. See Drowning, Vacuum, *&c.*

He Inſtances an Experiment by Dr. *Croon*, before the Royal Society, who, by ſtrangling a Pullet, ſo as not the leaſt Sign of Life appeared; yet by blowing into the Lungs through the Trachea, and ſo ſetting the Lungs a playing, he brought the Bird to Life again.—Another Experiment of the ſame Kind is that of Dr. *Hook*, who after hanging a Dog, cut away the Ribs, Diaphragm, and Pericardium, as alſo the Top of the Wind-Pipe, that he might tye it on to the Noſe of a pair of Bellows; and thus by blowing into the Lungs he reſtored the Dog to Life, and then ceaſing to blow, the Dog would ſoon fall into dying Fits, but recover again by blowing; and thus alternately as long as he pleaſed.

This uſe of *Reſpiration* Dr. *Drake* not only confirms, but carries farther; making it the true Cauſe of the Diaſtole of the Heart; which neither *Borelli*, Dr. *Lower*, nor Mr. *Cowper* had well accounted for. See Diastole.

The Weight of the incumbent Atmoſphere he ſhews to be the true Antagoniſt to all the Muſcles, ſerving both for ordinary Inſpiration, and the Contraction of the Heart.—As in the Elevation of the Ribs, that Author obſerves, the Blood by the Paſſage opened for it, is in a Manner ſollicited into the Lungs; ſo in the Depreſſion thereof by the Subſidence of the Lungs, and the contraction of the Blood Veſſels, conſequent thereon, the Blood is forcibly driven through the pulmonary Vein into the left Ventricle of the Heart. And this, together with the general Compreſſion of the Body by the Weight of the Atmoſphere, is that Power which cauſes the Blood to mount in the Veins, after the Force impreſs'd on it by the Heart, is ſpent; and which forces the Heart itſelf, from its natural State of Contraction, to that of Dilatation. See Heart.

The reciprocal Dilatation and Contraction of the ſuperficial Dimenſions of the Body conſequent on *Reſpiration*, are ſo neceſſary to animal Life, that there is no Animal how imperfect ſoever as to want it.

Though moſt Kinds of Fiſhes and Inſects want both Lungs and moveable Ribs, and conſequently have no dilatable Thorax, yet that Want is made up to them by an analogous Mechaniſm. Fiſhes, for Inſtance, have Gills which do the Office of Lungs, receiving and expelling alternately the Water, whereby the Blood Veſſels ſuffer the ſame Alteration of Dimenſions as they do in the Lungs of more perfect Animals. See Gills.

Inſects having no Thorax, or ſeparate Cavity for the Heart and Lungs or Air-Veſſels, have the latter diſtributed through the whole Trunk of their Bodies; by which they communicate with the external Air through ſeveral Spiracles or Vent-Holes, to which are faſtened ſo many little Tracheæ or Wind-Pipes, which ſend their Branches to all the Muſcles and Viſcera, and ſeem to accompany the Blood-Veſſels all over the Body, as they do in the Lungs only, of the more perfect Animals.—By this Diſpoſition in every Inſpiration, the whole Body of theſe little Animals is inflated, and in every Expiration compreſs'd; conſequently the Blood-Veſſels muſt ſuffer a Viciſſitude of Extention and Compreſſion.

The only Animal exempted from this neceſſity of Breathing, is a Fœtus: But this, while included in the Womb, ſeems to have little more than a vegetative Life, and ought ſcarce to be reckoned among the Number of Animals: 'Tis rather a Graft on, or Branch of the Mother. See Foetus.

The Laws of Reſpiration, are of the laſt Importance to a right underſtanding of the animal OEconomy; for which reaſon a Computation of the Force of the *reſpiring Organs*, and of the ſtreſs and preſſure of the Air upon the ſame, will not be unacceptable.—It may therefore be obſerved, that by blowing into a Bladder, a conſiderable Weight will be raiſed by the mere Force of the Breath: For with a Bladder that is oblong, nearly of a cylindrical Figure, and tied at both Ends, if a Pipe be fixed at one End, and a Weight at the other, and the Pipe faſtened at ſuch a Diſtance from the Ground, as juſt allows the Weight to reſt upon the Ground; the Bladder by an eaſy Inſpiration will raiſe ſeven Pound Weight, and by the greateſt Inſpiration of a pretty ſtrong Man, twenty eight Pound Weight.

Now, the Force by which the Air enters this Pipe, is that Force by which it is driven out of the Lungs; if therefore the Force by which the Air enters the Pipe can be determined, we ſhall have the Force by which the Air is drove into the Trachea.—But the Preſſure of Air upon the Bladder is equal to twice the Weight it can raiſe; becauſe the upper Part of the Bladder being fixed, it reſiſts the Force of the Air, juſt as much as the Weight at the other End. And again, ſince the Air preſſes every way equally, the whole Preſſure will be to that Part of it which preſſes on the Orifice of the Pipe, as the whole Surface of the Bladder is to the Orifice of the Pipe; that is, as the Surface of a Cylinder, whoſe Diameter, for inſtance, is four Inches, and Axis ſeven, is to the Orifice of the Pipe.

Thus, if the Diameter of the Pipe be 0. 28, and its Orifice 0. 616; the Surface of the Cylinder will be 88. Therefore, as 88 : 0. 616 : : 14. double the leaſt Weight raiſed, to 0. 098, which is almoſt 2 Ounces; and in raiſing the greateſt Weight it is near 7 Ounces.

Theſe therefore are the Forces by which the Air is drove through the Trachea, in an eaſy and a ſtrong Expiration.—Now if we conſider the Lungs as a Bladder, and the Larynx as a Pipe; the Preſſure upon the Orifice of the Trachea, when the Air is drove out, will be to the Preſſure upon the Lungs, as the whole Surface of the Lungs to the Orifice of the Trachea.

Suppoſe, *e. gr.* the Diameter of the Larynx to be 5; the Orifice of the Larynx will be 0. 19. And ſuppoſe the two Lobes of the Lungs to be two Bladders, or Spheres, whoſe Diameters are each ſix Inches; their Surfaces are each 113 Inches, and the Preſſure on the Larynx will be to the Preſſure upon the whole external Surface, as 0. 19 to 226, which is as 1 Pound 1189; and therefore if the Preſſure upon the Larynx in an ordinary Breathing be two Ounces, the Preſſure upon the whole external Surface of the Lungs will be 148 Pounds; and the utmoſt Force, when the Preſſure upon the Larynx is ſeven Ounces, will be equal to 520 Pound.—But the Lungs are not like an empty Bladder, where the Air preſſes only upon the Surface; for they are full of Veſicles, upon the Surface of each of which the Air preſſes as it would upon the Surface of an empty Bladder; and therefore to know the whole Preſſure of the Air, we muſt determine the internal Surfaces of the Lungs.

To do this, ſuppoſe that $\frac{1}{3}$ Part of the Lungs is taken up with the Branches of the Trachea, that another third Part the Blood-Veſſels fill, and the remainder is Veſicles, where we ſuppoſe the chief Preſſure upon the Blood-Veſſels to be made: Now, both Lobes of the Lungs contain 226 ſolid Inches, of which one third, or 75 Inches, are full of Veſicles.—Let the Diameter of each Veſicle be $\frac{1}{50}$ Part of an Inch, the Surface of a Veſicle will be .001256, and the Solidity 0000043, by which Sum if we divide 75 (the Space filled by the Veſicles) the Quotient gives us 17441860 for the Number of Veſicles in both Lobes of the Lungs.—This Number multiplied by .001256, the Surface of a Veſicle gives the Sum of the Surfaces of all the Veſicles, to wit, 21906.976 Inches. And therefore the Preſſure upon the Larynx will be to the Preſſure upon the whole Surface of the Lungs, as 0. 19 to 21906.976; and conſequently, when in an ordinary Expiration the Preſſure upon the Larynx is two Ounces, the Preſſure on the whole internal Surfaces of the Lungs will be 14412 Pound Weight; and the utmoſt Force of the Air in Breathing, when the Preſſure upon the Larynx is ſeven Ounces, will be 50443 Pound Weight.

Though theſe ſeem to be prodigious Weights, yet it muſt ſtill be underſtood, that the Preſſure upon each Part of the Surface of the Lungs equal to the Orifice of the Larynx, is not greater than it is at the Larynx; and that theſe vaſt Weights ariſe from the vaſt Extent of the Surfaces of the Veſicles upon which it was neceſſary that the Blood ſhould be ſpread in the ſmalleſt capillary Veſſels, that each Globule of Blood might, as it were, immediately receive the whole Force and Energy of the Air, and by that be broke into ſmaller Parts fit for Secretion and Circulation.

And hence we may learn the mechanical Reaſon of the Structure of the Lungs: For, being the whole Blood of the Body was to paſs through them in order to receive the Effect of the Air, and that this could not be unleſs the Blood were diffuſed in ſmall capillary Veſſels; it was neceſſary that the Surfaces upon which they were to be ſpread, ſhould be proportioned to their Number: Which is admirably well provided for by the wonderful Fabrick of the Lungs.

If the Gravity of the Air was always the ſame, and if the Diameter of the Trachea, and the time of every Expiration were equal in all; this Weight upon the Lungs would be always the ſame. But ſince we find by the Barometer, that there is three Inches difference between the greateſt and the leaſt Gravity of the Air, which is a tenth Part of its greateſt Gravity; there muſt be likewiſe the Difference of a tenth Part of its Preſſure upon the Lungs at one time and another: For the Momenta of all Bodies, moved with the ſame Velocity, are as their Gravities. See Barometer.

This is a Difference which ſuch as are aſthmatic muſt be very ſenſible of; eſpecially if we conſider that they likewiſe breathe thicker, that is, every Expiration is performed in leſs time; if in half the time, and the ſame Quantity of Air drawn be in, then the Weight of the Air upon the Lungs muſt be 57648 Pounds, of which a tenth Part is 5764 Pounds: And conſequently aſthmatick People upon the greateſt riſe or fall of the Barometer, feel a difference of the Air, equal to above one third of its Preſſure in ordinary Breathing. See Asthma, Weather, *&c.*

Again, if the Trachea be ſmall, and its Aperture narrow, the Preſſure of the Air increaſes in the ſame Proportion as if the times of Expiration were ſhorter; and therefore a ſhrill Voice is always reckoned amongſt the prognoſtick Signs of a Conſumption, inaſmuch as that proceeds from the narrowneſs of the Larynx or Trachea; and conſequently increaſes the Preſſure of the Air upon the Lungs, which upon every Expiration beats the Veſſels ſo thin, that at laſt they break, and a ſpitting of Blood comes on apace. See Phthisis.

RESPITE, Respectus, in Law, *&c.* a Delay, Forbearance, or Prolongation of Time, granted any one for the Payment of a Debt, or the like.

Menage derives the Word *Reſpite* from the *Latin*, *reſpectus*; as *deſpite* from *deſpectus*.—*Du Cange* will rather have it come from *reſpirare*, to Breathe; *Reſpite* being, in effect, a breathing-while, granted a Debtor, *&c.*

Letters of Respite, or Credit, are Inſtruments antiently granted by Sovereign Princes to honeſt, but unfortunate Debtors, to ſcreen them from their too rigorous Creditors.

Theſe ſtill obtain in *France*.—They were firſt introduced by Pope *Urban* II. in favour of the *Croiſes*, i. e. of Perſons who went to the Holy War. See Croises.

S. *Louis* granted three Years *Reſpite* to all who made the Voyage of the Holy Land with him.—In the Cuſtomary of *Normandy*, *Reſpite* is a judicial Delay, or Demur, given to Procedures.

Respite *of Homage*, is a forbearance of the Homage due from the Vaſſal or Tenant holding by Homage, or by Knight-Service to his Lord. See Homage, *&c.*

Antiently thoſe who held by theſe Tenures, paid a ſmall Sum every fifth Year into the Exchequer, to be *reſpited* doing their Homage or Service.

By Stat. 12 *Car.* II. this *Reſpite* of Homage is taken away, as a Charge ariſing from Knight-Service; which is thereby likewiſe annull'd. See Tenure, *&c.*

RESPONDEAT *Superior*, a Law Phraſe.—Where the Sheriffs are removeable, as in *London*, for Inſufficiency; *Reſpondeat Superior*, that is, the Mayor and Aldermen are to anſwer for them. See Sheriff, *&c.*

For the Inſufficiency of a Bailiff of a Franchiſe, *Reſpondeat Superior*, that is, the Lord of the Franchiſe is to anſwer.

RESPONSALIS, in Law, he who appears for another in Court at a Day aſſign'd.

Fleta makes this Difference between *Reſponſalis*, *Eſſoniator*, and *Attornatus*: That the *Eſſoniator* came only to alledge the Cauſe of the Parties Abſence, be he Demandant or Tenant; and *Reſponſalis* come for the Tenant, not only to excuſe his Abſence, but to ſignify what Trial he meant to undergo, the Combat or the Country. See ATTOURNEY.

RESPONDENT, in the Schools, a Perſon who maintains a Theſis in any Art or Science. See THESIS.

He is thus call'd as being to *anſwer* all Objections propoſed by the Opponent or Impugner, *&c.* See OPPONENT.

The *Reſpondents* Buſineſs is to ſee whether the Oppoſition made by the contrary Party be Juſt and Legitimate; or whether ſome of the Laws and Conditions of Oppoſition be not broke, which is call'd *Ignoratio Elenchi.*—He is alſo to examine the Moods and Figures of the Syllogiſms, to ſee whether the Premiſſes be juſt, *&c.* And through the whole to anſwer rather by Diſtinguo's than by direct Negation. See SYLLOGISM, MOOD, FIGURE, DISTINCTION, *&c.*

RESPONDENT, in Law, a Perſon who undertakes to anſwer for another; or binds himſelf as Security for the good Behaviour of one another. See SURETY.

The *Reſpondent* is to anſwer for the Damages done by the Perſon for whom he *reſponds.*—There are four Ordonnances of the Kings of *France*, whereby the Citizens are expreſly forbid to take Servants without *Reſpondents*, bound in Writing.

The Word is form'd from the *Latin*, *reſpondere*, to anſwer; q. d. *pro alio Spondere*, to promiſe for another.

RESPONSARY *Song*, an Anthem in which the Quiriſters ſing by turns. See ANTHEM.

RESPONSE, RESPONSAL, RESPONSATIO, an Anſwer, Reply, or Reparty.

The Word is but little uſed, except for the Anſwers made to the Prieſt, by the People, in the Litany, the Pſalms, and other Parts of the Office.

It has its uſe too in ſpeaking of the Opinions or Anſwers of the antient *Juriſconſulti*; when conſulted on Points of Law. See CIVIL *Law* and JURISCONSULTI.

The fifty Books of the *Digeſt* are compoſed of *Reſponſa prudentum*, the *Reſponſes* of *Papinian*, *Ulpian*, *Scevola*, &c. collected by *Juſtinian*, who afterwards gave them the Force of Laws. See DIGEST.

The *Reſponſes* of the Emperors were properly call'd *Reſcripts.* See RESCRIPT.

RESPONSIONS, RESPONSIONES, a Term uſed in the military Orders, for certain Penſions or Charges which the Knights, or the Commanderies they held, paid to the Order.

Such a Knight-Templer paid a *Reſponſion* of fifty Pounds *per Annum* to his Order, on Account of ſuch a Commandery. See COMMANDERY and CONVENTUAL.—In *Rot. Parl. 9 Richard* II. it is written *Reſponcies.*

RESSAUT, in Architecture, the effect of a Body which either Projects or Sinks; *i. e.* ſtands either more out, or in, than another; ſo as to be out of the Line or Level therewith.

Such is a Socle, an Intablature, a Cornice, *&c.* upon an Avant Corps, arriere Corps, or the like.

The Term is *French*; and but little uſed in *Engliſh*; though the want of a Word of equal Import, pleads for its Naturalization.

RESSORT, a Term purely *French*; yet frequently uſed by our late Writers.

The Word in its popular meaning ſignifies *Spring*, or the Force of Elaſticity.—Hence it is alſo uſed for a Juriſdiction, and the Extent or Diſtrict thereof; as, when we ſay ſuch a thing belongs to his *Reſſort*; a Judge out of his *Reſſort* has no Authority.

But its chief uſe among us is for a Court or Tribunal, where Appeals are judged; or for a Court or Perſon who judges finally and ultimately, and whence there is no Appeal. See COURT, APPEAL, *&c.*

The Houſe of Lords judge *en dernier Reſſort*, i. e. in the laſt *Reſſort.*—Preſidials judge in the laſt *Reſſort*, of all Criminals proſecuted by the Provoſts of the Marſhals.

RESSORT, is alſo uſed in a Writ of Tayle or Couſenage, in the ſame Senſe as *Deſcent* in a Writ of Right. See DESCENT, TAYLE, COUSENAGE, RIGHT, *&c.*

RESSOURCE, a Term purely *French*, yet uſed by our *Engliſh* Writers.

It ſignifies a Means or Foundation of Man's recovering himſelf from his Fall or Ruin; or an after-Game for the repairing his Damages.

This Merchant has Credit and Friends ſtill left; he has great *Reſſources.*—His *laſt Reſſource* was to throw himſelf into a Convent.—The Jargon of a Diſtinction, is the ordinary *Reſſource* of a Divine at a Pinch.

Skinner derives the Word from the *French*, *reſoudre*, to reſolve: A *Reſſource* ſtrictly and litterally, expreſſes a Means which preſents it ſelf a-freſh.

REST, QUIES, in Phyſicks, the Continuance of a Body in the ſame Place: Or its continual Application or Contiguity to the ſame Parts of the ambient and contiguous Bodies. See SPACE.

Reſt is either *abſolute* or *relative*; as Place is. See PLACE.

Some define *Reſt* by the State of a thing without Motion; and hence, again, *Reſt* becomes either *abſolute* or *relative*, as Motion is. See MOTION.

Sir *Iſaac Newton* defines *true* or *abſolute Reſt* to be the Continuance of a Body in the ſame Part of abſolute and immoveable Space: And *relative Reſt* to be the Continuance of a Body in the ſame Part of relative Space.

Thus, in a Ship under Sail, *relative Reſt* is the Continuance of a Body in the ſame Region of the Ship, or the ſame Part of its Cavity.—*True*, or *abſolute Reſt* is its Continuance in the ſame Part of univerſal Space, wherein the Ship with its Cavity and Contents are all contain'd.

Hence, if the Earth be really and abſolutely at *reſt*, the Body *relatively at reſt* in the Ship, will *really* and *abſolutely* move; and that with that Velocity wherewith the Veſſel moves.—But if the Earth do likewiſe move, there will then ariſe a real and abſolute Motion of the Body at *reſt*, partly from the real Motion of the Earth in abſolute Space; and partly from the relative Motion of the Ship on the Sea.—Laſtly, if the Body be likewiſe relatively moved in the Ship, its real Motion will ariſe partly from the real Motion of the Earth in immoveable Space, and partly from the relative Motions of the Ship on the Sea, and of the Body in the Ship.

Thus, if that Part of the Earth where the Ship is, move Eaſtward with a Velocity of 10010 Parts; and the Veſſel be carried by the Winds Weſtward 10 Parts; and at the ſame time a Seaman aboard walk with a Velocity 1 Part: The Seaman will be moved really and abſolutely in immoveable Space Eaſtwards, with 10001 Parts of Velocity; and relatively on the Earth, with nine Parts of Velocity Weſtwards. See EARTH.

'Tis an Axiom in Philoſophy, that Matter is indifferent as to *Reſt*, or Motion. See MATTER and BODY.

Hence, Sir *Iſaac Newton* lays it down as a Law of Nature, that every Body perſeveres in its State either of *Reſt* or uniform Motion; except ſo far as it is diſturbed by external Cauſes. See NATURE.

The Carteſians will have Firmneſs, Hardneſs, or Solidity of Bodies to conſiſt in this, that their Parts are at *Reſt*, with regard to each other: And this *Reſt* they eſtabliſh as the great Nexus, or Principle of Cohæſion, whereby the Parts are connected together. See FIRMNESS, HARDNESS, *&c.*

Fluidity, they add, conſiſts in a perpetual Motion of the Parts, *&c.*—But the *Newtonian* Philoſophy furniſhes us with much better Solutions. See SOLIDITY, FLUIDITY, and COHÆSION.

REST, REPOSE, in Poetry, is uſed for the *Cæſura*, which, in *Alexandrian* Verſes, falls on the ſixth Syllable; and in Verſes of ten or eleven Syllables, on the fourth. See CÆSURA.

This Verſe is naught, there wants a *Reſt* in it.—The *Reſt* ſhou'd never fall on a Monoſyllable, whereon the Voice may not dwell: 'Tis call'd *Reſt* becauſe the Ear, and the Pronunciation have both a repoſe or reſpite.

REST, in Muſick, is a Pauſe or Interval of Time, during which there is an Intermiſſion of the Voice or Sound. See PAUSE and TIME.

Reſts are ſometimes uſed in *Melody*, that is in Muſick of a ſingle Part, to expreſs ſome ſimple Paſſion, or even for Variety ſake; but more uſually in *Harmony*, or in Compoſitions of ſeveral Parts, for the ſake of the Pleaſure of hearing one Part move on while another *reſts*; and this interchangeably. See MELODY and HARMONY.

Reſts are either for a whole Bar, or more than a Bar, or but for the Part of a Bar.—When the *Reſt* is for a part, it is expreſs'd by certain Signs correſponding to the Quantity of certain Notes of Time; as Minim, Crotchet, *&c.* and is accordingly call'd *Minim-reſt*, *Crotchet-reſt*, &c.

The Characters or Figures whereof, ſee under CHARACTERS *of Muſick*; where the Note and correſponding *Reſt* are found together.

When any of thoſe Characters occur either on Line or Space; that Part is always ſilent for the Time of a Minim, or Crotchet, *&c.*—Sometimes a *Reſt* is for a Crotchet and Quaver together; or for other Quantities of Time, for which there is no particular Note: In which Caſe the Signs of Silence are not multiplied; but ſuch Silence is expreſs'd by placing together as many *Reſts* of different Time, as make up the deſigned *Reſt*.

When the *Reſt* is for a whole Bar, the Semibreve *Reſt* is always uſed.—If the *Reſt* be for two Meaſures, 'tis mark'd by a Line drawn a-croſs a whole Space.—For three Meaſures 'tis drawn a-croſs a Space and a half; and for four Meaſures a-croſs two Spaces. But to prevent Ambiguity, the Number of Bars is uſually writ over the Sign.

Some of the more antient Writers in Muſick, make theſe *Reſts* of different Value in different Species of Time.—*E. gr.* The Character of a Minim-*Reſt*, in common Time, ſay they, expreſſes the *Reſt* of three Crotchets in triple Time; in that the Triples $\frac{6}{8}$, $\frac{6}{16}$, $\frac{12}{8}$, $\frac{12}{16}$, it always marks an half Meaſure, how different ſoever theſe may be among themſelves.

They add that the *Reſt* of a Crotchet in common Time is a *Reſt* of three Quavers in the Triple $\frac{9}{8}$; and that the *Quaver Reſt* of common Time is to equal to three Semi-quavers in the Triple $\frac{9}{16}$. But this variety in the Uſe of the ſame Characters, is now laid aſide.

RESTAUR, RESTOR, in antient Cuſtoms, the Remedy or Recourſe which Aſſurers have againſt each other, according to the Date of their Aſſurances; or againſt the Maſters, if the Average ariſe through his Default, as through ill loading, want of caulking, or want of having the Veſſel tight. See ASSURANCE.

The Word is alſo uſed for the Remedy or Recourſe a Perſon has againſt his Guarantee or other Perſon, who is to indemnify him from any Damage ſuſtain'd.—Hence *Reſtaurant* and *Reſtauration.*—In the lower *Latin* they alſo uſe the Words, *Reſtor* and *Reſtour.*

RESTAURATION, RESTORATION, the Act of re-eſtabliſhing, or ſettling a thing in its former good Eſtate.

Thus we ſay, the *Reſtauration* of a Minor to the Poſſeſſion of his Effects, alienated in the Time of his Minority. In the *French* Laws is an antient *Formula,* uſed for the *reſtoring* a Perſon to his good Name, after he has been wrongfully accuſed and condemned.

Sour and decay'd Beer and Ale are *reſtored* various Ways.—By a handful of Wheat thrown into the Veſſel, or by Salt made of the Aſhes of Barly-Straw, put into the Veſſel and ſtirr'd.

Glauber commends three or four handfuls of Beech Aſhes applied in the ſame manner.—Chalk ſcraped into it, renders it drinkable immediately. The ſame effect is produced by calcined Oyſter-Shells, burnt Egg-Shells, Sea-Shells, or Crab's Eyes. See BEER, ALE, BREWING, *&c.*

In *England* we ſay, *the Reſtauration,* by way of Eminence, for the return of King *Charles* II. in 1660; after the Interregnum. See INTERREGNUM.

The 29th of *May* is an Anniverſary Feſtival held in Commemoration of the *Reſtoration:* The *Reſtauration* of Regal and Epiſcopal Government. See CIVIL-*War.*

RESTAURATION, in Architecture, the Repairing of all the Parts of a Building gone to decay, either through the Courſe of Time, or other Injuries; in ſuch manner as that it is not only re-eſtabliſhed in its firſt Form, but conſiderably augmented. See REPAIR and REPARATION.

'Tis evident from the Plinths of the Corinthian Columns of the Pantheon, which are almoſt wholly under Ground, that the Pavement of this Temple is only a *Reſtauration* made in the Time of *Septimius Severus. Daviler.*

The Temple of Concord, behind the Capitol at *Rome,* having been burnt long after it was built, and having angular Baſes different from the reſt; ſeems to have been *reſtored* from the Ruins of ſeveral antient Buildings. *Id.*

RESTAURATION, in Sculpture, is the repairing of a mutilated Statue, *&c.* See MUTILATION, *&c.*

Moſt of the Antique Statues have undergone the *Reſtauration;* as the *Farneſe Hercules,* the *Faunus* in the *Villa Borgheſe* at *Rome,* The Wreſtlers in the Gallery of the Great Duke of *Florence;* the *Venus* of *Arles* in the Gallery at *Verſailles.*—But theſe *Reſtaurations* have only been made by the ableſt Sculptors. *Daviler.*

RESTINCTION, in Chymiſtry, the quenching of a Metal or Mineral in ſome Lquor; in order either to correct, or give it ſome new Quality, Power, *&c.* See EXTINGUISHING, *&c.*

RESTITUTION, in Phyſicks, the returning of elaſtick Bodies forcibly bent, to their natural State; properly call'd, the *Motion of Reſtitution.* See ELASTICITY.

Contraction being the proper and natural Action of muſcular Fibres, ſome Authors aſcribe Dilatation to a Motion of *Reſtitution;* but the Expreſſion, as well as the Idea, are very faulty. See FIBRE, MUSCULAR, *&c.* See alſo HEART, *&c.*

RESTITUTION, in a moral and legal Senſe, is the Act of reſtoring a Perſon to his Right; or of returning ſomething unjuſtly taken or detain'd from him. See RESTAURATION.

Reſtitution is reducible to commutative Juſtice; and till it be made, the Caſuiſts determine the Party all the while guilty of Theft. See JUSTICE, INJURY, *&c.*

The illegal Incumbents of Benefices are condemn'd to a *Reſtitution* of the Fruits of the Benefices.—In the *Romiſh* Church Aſſurers, *&c.* are obliged to a *Reſtitution* of their ill-gotten Goods, otherwiſe the Prieſt has no Authority to give him Abſolution. See USURY.

Reſtitution in Integrum, is uſed for what is otherwiſe called *Reſciſſion.* See RESCISSION.

Religious obtain *Reſtitution* againſt their Vows, *i. e.* are freed from their Obligation, when they proteſt againſt them within five Years of their Profeſſion. See VOW, *&c.*

In the Hiſtory of *Germany* for the XVIIth Century, the firſt Day of *January* 1624, is call'd the *Term of Reſtitution:* Becauſe by the Peace of *Munſter,* then concluded, the *Lutheran* and *Calviniſt* Princes were obliged to *reſtitute,* reſtore what they had taken from the *Roman* Catholick Churches in their Territories, till that Day.

RESTITUTIONS *of Medals,* or RESTITUTED *Medals,* is a Phraſe uſed by Antiquaries, for ſuch Medals as were ſtruck by the Emperors, to renew or retrieve the Memory of their Predeceſſors. See MEDAL.

Hence it is that in ſeveral Medals we find the Letters REST.—*Claudius* was the firſt who begun this Practice, by ſtriking afreſh ſeveral Medals of *Auguſtus. Nero* did the ſame; and *Titus,* after the Example of his Father, ſtruck *Reſtitutions* of moſt of his Predeceſſors

Gallian ſtruck a general *Reſtitution* of all the preceding Emperors in two Medals, the one bearing an Altar, the other an Eagle, without the REST. F. *Jobert* chuſes rather to call them *Conſervations* than *Reſtitutions;* as being done quite a-new.

RESTITUTIONE *Temporalium,* a Writ which lies where a Man is elected and confirmed Biſhop of a Dioceſs; for the Recovery of the Temporalities or Barony of the ſaid Biſhoprick. See BISHOP, TEMPORALITIES, *&c.*

It is directed from the King to the Eſcheator of the County.

RESTITUTIONE *extracti ab Eccleſia,* a Writ antiently granted for the reſtoring a Man to the Church or Sanctuary from which he had been forced away. See SANCTUARY.

RESTIVE, a Term applied to a Horſe, *&c.* that ſtops, or runs back, inſtead of advancing forwards.

In the Manage, a *reſtive* Horſe is a rebellious, refractory, ill broken Horſe; which only goes where it will, and when it will.—The Word is form'd from the *Latin, reſtivus,* which ſignifies the ſame thing.

RESTORATIVE, in Medicine, a Remedy proper for the reſtoring and retrieving of Strength and Vigour. See REMEDY.

Reſtoratives belong to the Claſs of Balſamicks. See BALSAMICK.

The Medicines that come under this Denomination are of an emollient, ſoftening Nature, but nutritive withal; and are rather adminiſtred to repair the Waſtes of the Conſtitution, than to alter and rectify its Diſorders. See NUTRITION.

Such are the Leaves of white Maiden-hair, Adianthum Nigrum; black Hellebore; Rocket, Eruca; Scabious; Tuſilago; Colts-Foot; Bohea-Tea; Chich-peas; Hops; Chocolate; Piſtach-Nuts; Balſom of *Tolu;* Bdellium; Benzoin; Storax; Eryngo; Iris; Satyrion, *&c.* See HELLEBORE, TEA, PISTACH, CHOCOLATE, BALSOM, BDELLUM, STORAX, *&c.*

RESTRAINT, is when an Action is hindered or ſtop'd, contrary to Volition, or the Preference of the Mind. See LIBERTY, NECESSITY, WILL, VOLITION, VOLUNTARY, *&c.*

RESTRICTION, the Act of modifying, limiting, or reſtraining a thing to narrower Bounds.

General Laws always bear ſome *Reſtriction.*—In Contracts 'tis uſual to have *reſtrictive Clauſes,* which bind the Diſpoſitions down to certain Bounds. See CLAUSE, CONDITION, *&c.*

Mental RESTRICTION. See RESERVATION.

Among Logicians, *Reſtriction* is underſtood of the limiting a Term, ſo as to make it ſignify leſs than it uſually does.—In this Senſe the Name *Philoſopher* is reſtrain'd to *Ariſtotle; Great* to *Alexander; City* to *Rome,* &c.

'Tis obſerved to be good arguing affirmatively from a non-reſtrain'd to a reſtrain'd Term, but not contrarily: And negatively, from reſtrain'd to a non-reſtrain'd Term; but not contrarily.

RESTRINGENT, in Medicine. See ASTRINGENT.

RESULT, what is gathered from a Conference, an Examen, Meditation, Diſcourſe, or the like; or the Concluſion and Effect thereof.

The Aſſembly was ſo tumultuous that there was no knowing the *Reſult.*—The uſual *Reſult* of Diſputes, Mr. *Bayle* obſerves, is that each Perſon remains more attach'd to his own Opinion.

RESUMMONS, a ſecond Summons; or calling a Man to anſwer an Action where the firſt Summons is defeated, or ſuſpended by any Occaſion; as the Death of a Party, *&c.* See SUMMONS.

RESUMPTION, in a large Senſe, ſignifies the taking again into the King's Hands ſuch Lands or Tenements as before, upon falſe Suggeſtion, or other Error, he had delivered to the Heir, or granted by Letters Patent to any Man.

RESUMPTION, in the Schools, a ſummary Repetition, or running over of an Argument; or of the Subſtance thereof, in order to refute it.

The Reſpondent *reſumed* all the Points of the Objection, and anſwers them one by one. See RECAPITULATION, *&c.*

RESUMPTION is alſo uſed by Logicians for the reduction of ſome figurative or quaint Propoſition, to a more intelligible and ſignificant one.—As, *Peter* is half-ſeas over; that is, he is half fuddled.—The Meadows ſmile; that is, look pleaſant.

RESUMPTIVE, in Pharmacy, an Epithet given to a kind of Unguent, uſed to recruit and reſtore arid languiſhing Conſtitutions, and to diſpoſe the dry Body to receive Nouriſhment.—'Tis called in *Latin, Unguentum reſumptivum.* See RESTORATIVE and UNGUENT.

RESURRECTION, RESUSCITATION, the Act of returning to a new, or ſecond Life, after having been dead. See LIFE and DEATH.

The great Argument for the Truth of Chriſtianity, and that urged with the moſt Force and Conviction for the ſame; is drawn from the *Reſurrection* of our Saviour.—The Circumſtances thereof are ſuch as almoſt admit of a Demonſtration; which has accordingly been attempted on the ſtrict Principles of the Geometricians. See *Ditton on the Reſurrection.*

The Chriſtians generally believe the *Reſurrection* of the ſame identic Body, the very ſame Fleſh and Bones at the Day of Judgment.—The two principal philoſophical Objects againſt it are theſe. 1°.

1°. The ſame Piece of Matter or Subſtance may happen to be a Part of two or more Bodies.—Thus a Fiſh feeding on a Man, and a Man afterwards feeding on the Fiſh; Part of the Body of the firſt Man becomes firſt incorporated with the Fiſh, and afterwards in the Fiſh, with the laſt Man. Again, Inſtances have been known of one Man's feeding immediately on another; and among the Cannibals of the *Weſt Indies* the Practice is frequent.

Now, where the Subſtance of one is thus converted into the Subſtance of another, each can't ariſe with his whole Body; and to which ſhall the common Part be allotted?

To this Objection ſome anſwer, that as all Matter is not fit or diſpoſed to be aſſimilated to the Body, and incorporated with it: Human Fleſh may very probably be of this Kind, and therefore what is thus eaten, may be again excreted and carried off.—But Mr. *Leibnitz*'s Anſwer ſeems the more ſolid.—All that is eſſential to the Body, he urges, is the original Stamen, which exiſted in the Semen of the Father; nay, and on the footing of the modern Theory of Generation, which exiſted in the Semen of the firſt Man. This we may conceive as the moſt minute Speck or Point imaginable, and therefore not to be ſeparated, or tore aſunder, and any Part of it united with the Stamen of any other Man. All this Bulk we ſee in the Body, is only an Accretion to this original Stamen; an Addition of foreign Matter, of new Juices to the primary, ſolid Stamen. There is therefore no reciprocation of the proper Matter of the human Body. See STAMEN, SOLID, &c.

The ſecond Objection is this.—The human Body, we know by the late Diſcoveries in the Animal OEconomy, is continually changing: A Man has not entirely the ſame Body to Day as he had Yeſterday; and it is even computed, that in leſs than ſeven Years time, his whole Body undergoes a change, and not a Particle of the ſame Body remains.—Which of theſe many Bodies, then, which the ſame Perſon has in the Courſe of his Life, is it that ſhall riſe? Or does all the Matter that has ever belong'd to him, riſe again? Or does only ſome particular Syſtem thereof? The Body, *e. gr.* he had at 20, at 30, or at 60 Years old? If only this or that Body ariſe, how ſhall it be rewarded or puniſhed for what was done by the other? With what Juſtice does one Perſon ſuffer, &c. for another?

To this it may be anſwered, on Mr. *Lock*'s Principles, that perſonal Identity, or the ſameneſs of a rational Being, conſiſts in Self-conſciouſneſs; in the Power of conſidering it ſelf the ſame thing in different Times and Places.—By this every one is to himſelf what he calls *ſelf*; without conſidering whether that ſelf be continued in the ſame or divers Subſtances. So far reaches the Identity of that Perſon. 'Tis the ſame ſelf now it was then; and 'twas by the ſame ſelf which now reflects on an Action, that Action was performed.

Now, 'tis this perſonal Identity is the Object of Rewards and Puniſhments, which we have obſerved may exiſt in different Succeſſions of Matter; ſo that to render the Rewards and Puniſhments juſt and pertinent, nothing needs but that we riſe again with ſuch a Body as that we retain the Conſciouſneſs of our paſt Actions. See IDENTITY.

RESUSCITATION. See RESURRECTION and REVIVIFICATION.

RETAINER, or RETEINER, in Law. See RETEINER.

To RETAIN, ſpoken of Mares, ſignifies to hold, *i. e.* to Conceive after Covering.

RETAINING-*Fee*, is the firſt Fee given to a Serjeant or Counſellor at Law, whereby to make him ſure, that he ſhall not be on the contrary Side. See FEE.

RETAIL, in Commerce, &c. the buying of Goods in the Great, or by Wholeſale, and ſelling them out again in ſmall Parcels.—*Qui rem integram ementes, per minutiores eam partes diſtrahebant.* See COMMERCE.

RETALIATION, the Act of returning like for like. See TALIONIS *Lex*.

RETARDATION, in Phyſicks, the Act of *retarding*, that is, of delaying the Motion or Progreſs of a Body, or of diminiſhing its Velocity. See MOTION.

The *Retardation* of moving Bodies ariſes from two great Cauſes: The *Reſiſtence of the Medium*, and the *Force of Gravity*.

The *Retardation from the Reſiſtence* is frequently confounded with the Reſiſtence it ſelf; becauſe with reſpect to the ſame moving Body, they are in the ſame Proportion. See RESISTANCE.

With reſpect to different Bodies, however, the ſame Reſiſtence often generates different Retardations.—For if Bodies of equal Bulk, but different Denſities, be moved through the ſame Fluid, with equal Velocity, the Fluid will act equally on each; ſo that they will have equal *Reſiſtences*, but different *Retardations*. And the *Retardations* will be to each other as the Velocities which might be generated by the ſame Forces in the Bodies propoſed: That is, they are inverſely as the Quantities of Matter in the Bodies, or inverſely as the Denſities.

Suppoſe, then, Bodies of equal Denſity, but of unequal Bulk, to move equally faſt through the ſame Fluid; the Reſiſtences increaſe according to their Superficies, that is, as the Squares of their Diameters; but the Quantities are increaſed in Proportion to the Cubes of the Diameters: the Reſiſtences are the Quantities of Motion, the *Retardations* are the Celerities ariſing from them; and dividing the Quantities of Motion, by the Quantities of Matter, you will have the Celerities; therefore the *Retardations* are directly as the Squares of the Diameters, and inverſely as the Cubes of the Diameters, that is, inverſely, as the Diameters themſelves.

If the Bodies be equal, move equally ſwift, and are of the ſame Denſity, but moved through different Liquids; their *Retardations* are as the Denſities of thoſe Fluids. See FLUID.

When Bodies equally denſe, and of Bulk equal, are carried through the ſame Liquid with different Velocities, the *Retardations* are as the Squares of the Velocities. See DENSITY, &c.

The *Retardation from Gravity* is peculiar to Bodies projected upwards.—A Body thrown upwards is *retarded* after the ſame Manner as a falling Body is *accelerated*; only in the one Caſe the Force of Gravity conſpires with the Motion acquired; and in the others acts contrary to it. See ACCELERATION.

As the Force of Gravity is uniform, the *Retardation* from that Cauſe will be equal in equal times. See GRAVITY.

Hence, as 'tis the ſame Force which generates Motion in the falling, and diminiſhes it in the riſing Body, a Body riſes till it has loſt all its Motion; which it does in the ſame time wherein a Body falling would have acquired a Velocity equal to that wherewith the Body was thrown up. See PROJECTILE.

Thus alſo, a Body thrown up will riſe to the ſame Height from which falling it would acquire the Velocity wherewith it is thrown up: Therefore the Heights which Bodies thrown up with different Velocities can riſe to, are to each other as the Squares of the Velocities. See PROJECTILE and DESCENT.

Hence the *Retardations* of Motions may be compared together: For they are firſt, as the Squares of the Velocities; ſecondly, as the Denſities of the Liquids, through which the Bodies are moved; thirdly, inverſely as the Diameters of thoſe Bodies; laſtly, inverſely, as the Denſities of the Bodies themſelves.

The Numbers in the Ratio compounded of thoſe Ratio's, expreſs the Proportion of the *Retardations*; multiplying the Square of the Velocity by the Denſity of the Liquid, and dividing the Product by the Product of the Diameter of the Body, multiplied into its Denſity, and working thus for ſeveral Motions; the Quotients of the Diviſions will have the ſame compound Ratio to one another.

General Laws of RETARDATION *of Motion.*

1°. If the Motion of a Body be *uniformly retarded*; that is, if its Celerity be diminiſhed equally in equal Times, the Space it paſſes over is one half of that it would paſs over in the ſame time by an uniform Motion.

2°. The Spaces deſcribed in equal times by an uniformly *retarded* Motion; decreaſe according to the uneven Number, 9, 7, 5, 3, &c.—See farther under ACCELERATION.

RETCHING, or REACHING, the Effort or Endeavour to Vomit. See NAUSEA and VOMITING.

RETE *Mirabile*, in Anatomy, a ſmall Plexus, or Net-work of Veſſels in the Brain. See PLEXUS and BRAIN.

It ſurrounds the *Glandula Pituitaria*, and is very conſpicuous in Brutes, but either not exiſtent in Man, or ſo very minute that its Exiſtence is fairly doubted.

Willis will have it to conſiſt of Arteries, Veins, and Nerves; *Vieuſſens* of Arteries only; and others, of Arteries and ſmall Veins.—*Vieuſſens* aſſerts, with many other Anatomiſts, that there is no *Rete Mirabile* in Man, in the Horſe, Dog, &c. 'Tis found in the Calf, Sheep, Goat, &c.

It was firſt obſerved, and deſcribed by *Galen*; who upon finding it in ſome Brutes, concluded it to be likewiſe in Man: but all we ſee like it in Man, is, that on the Sides of the Pituitary Gland, where its Place ſhould be, the Carotid Arteries make a double Flexure, in Form of ∽, before they penetrate the *Dura Mater*.

The uſe of the *Rete Mirabile*, *Galen* takes to be for concocting and elaborating the animal Spirits; as that of the *Epididymides* is for elaborating the Seed. See SPIRIT and SEED.

Dr. *Willis* thinks, with more probability, it may ſerve to bridle the too rapid Incurſions of the Blood into the Brain of thoſe Creatures whoſe Head hangs down much; to ſeparate ſome of the ſuperfluous ſerous Parts of the Blood, and ſend them to the Salival Glands as the Blood enters the Brain; and to obviate Obſtructions which may happen in the Arteries.

RETE *Penny*, in antient Records, a cuſtomary Due of one Penny for every Perſon, to the Pariſh-Prieſt.

RETEINER, or RETAINER, in Law, a Servant not menial nor Domeſtic; that is, not continually dwelling in the Houſe of his Lord or Maſter; but only wearing his Livery, and attending on ſpecial Occaſions. See SERVANT.

This Livery was antiently given by great Men, and frequently for the Maintenance of Quarrels; whence it was juſtly prohibited by ſeveral Statutes; as, 1 *Richard* II. on Pain of Impriſonment, and grievous Forfeiture to the King. See LIVERY, YEOMAN, &c.

It was further prohibited by other Statutes of the ſucceeding Kings, whereby the Delinquents were ſubjected to make Ranſom at the King's Pleaſure; and Knights and Eſquires hereof duly attainted, were to loſe their ſaid Liveries, and forfeit their Fees for ever.

Edward IV. added a ſpecial Penalty of five Pounds *per* Month on every Man that gave ſuch Livery, and as much on every Perſon ſo *retain'd*, either by Writing, Word, or Oath.—But moſt of the Statutes are repealed by a Statute 3 *Car*. I.

RETENTIO, RETINENTIA, in our Law Books, is ſometimes uſed to ſignify *Retinue*. See RETINUE.

RETENTION, RETENTIO, a Faculty of the human Mind, whereby in order to a farther Progreſs in Knowledge, it keeps or *retains* thoſe ſimple Ideas which it before received by Senſatiſation or Reflection. See FACULTY, IDEA, *&c.*

This is done two ways.—Firſt, by keeping the Idea which is brought into the Mind for ſome time actually in view; called *Contemplation*. See CONTEMPLATION.

Secondly, By reviving thoſe Ideas in our Minds, which have diſappeared, and have been, as it were, laid out of ſight: this is *Memory*, which is, as it were the Repoſitory of our Ideas. See MEMORY.

Our Ideas being nothing but actual Perceptions in the Mind, which ceaſe to be any thing, when there is no Perception of them; this laying up of our Ideas in the Repoſitory of the Memory, amounts to no more than this, that the Mind has a Power in many Caſes to revive Perceptions it once had; with this additional Perception annexed to them, that it has had them before. See PERCEPTION.

It is by the Aſſiſtance of this Faculty, that we are ſaid to have all thoſe Ideas in our Underſtanding which we can bring in ſight, and make the Objects of our Thoughts, without the help of thoſe ſenſible Qualities, which firſt imprinted them there. See UNDERSTANDING.

Attention and Repetition help much to the fixing Ideas in our Memories; but thoſe which make the deepeſt and moſt laſting Impreſſions, are ſuch as come accompanied with Pleaſure and Pain.—Ideas but once taken in, and never again repeated, are ſoon loſt; as thoſe of Colours, in ſuch as loſe their Sight when very young.

The Memory in ſome Men is tenacious, even to a Miracle; but yet there ſeems to be a conſtant Decay of all our Ideas, even of thoſe which are ſtruck deepeſt; and in Minds the moſt *Retentive*: So that if they be not ſometimes renew'd, the Print wears out, and at laſt there remains nothing to be ſeen. See TRACE.

Thoſe Ideas which are often renewed by a frequent Return of the Objects or Actions that produce them, fix themſelves beſt in the Memory, and remain longeſt there: Such are the original Qualities of Bodies; *viz.* Solidity, Extenſion, Figure, Motion, *&c.* and thoſe that almoſt conſtantly affect us, as Heat and Cold; and thoſe that are the Affections of all kinds of Beings, as Exiſtence, Duration, Number; which are ſeldom quite loſt, while the Mind retains any Ideas at all. See QUALITY, HABITUDE, *&c.*

RETENTION, is alſo uſed in Medicine, *&c.* for that State of Contraction in the Solids, or vaſcular Parts of the Body, which makes them hold faſt their proper Contents. See SOLID, VESSEL, *&c.*

In this Senſe *Retention* ſtands oppoſed to *Evacuation*, or *Excretion*. See EVACUATION and EXCRETION.

Retention and Excretion make one of the ſix Non-Naturals. See NON-NATURAL.

RETENTION is frequently conſidered as a Diſorder; and defined the Act of retaining the Excrements, Humours, *&c.* ſo as they cannot be voided out of the Body. See EXCREMENT.

A *Retention* of Urine is very painful and dangerous. See URINE.

'Tis a *Retention* of peccant Humours which cauſes ſuch a Diſeaſe.

RETIARII, in Antiquity, a kind of Gladiators. See GLADIATOR.

The *Retiarii* were denominated from *Rete*, a Net which they made uſe of againſt their Antagoniſt, who was call'd *Secutor*, Follower. See SECUTORES.

This Net they carried under their Buckler, and when opportunity ſerv'd, caſt it on the Head of their Antagoniſt, and in this condition kill'd him with a Trident which they bore in the other Hand.

Lipſius, &c. obſerve that they fought in Tunics, and were furniſhed with Spunges to wipe off the Sweat, Blood, *&c.* and to ſtop their Wounds.—The Word is form'd from the *Latin*, *Rete*, *net*; or, perhaps from *Retejaculum*, for they call'd their Net, *Jaculum*, and ſometimes in one Word, *Retejaculum*.

RETICENCY, RETICENCE, RETICENTIA, a Figure in Rhetoric, whereby we make oblique mention of a thing, in pretending to paſs it over unmentioned. See FIGURE.

Thus: To ſay nothing of the Nobility of his Anceſtors: I forbear to ſpeak of his Courage, and paſs over the Severity of his Morals. See PRETERITION.

RETICULA, RETICULE, in Aſtronomy, a Contrivance for the exact meaſuring of the Quantity of Eclipſes; introduced about fifty Years ago by the Royal Academy of *Paris*. See ECLIPSE.

The *Reticule* is a little Frame, conſiſting of thirteen fine ſilken Threads, equidiſtant from each other, and Parallel; placed in the Focus of object Glaſſes of Teleſcopes; that is, in the Place where the Image of the Luminary is painted, in its full Extent.—Of Conſequence, therefore, the Diameter of the Sun or Moon is hereby ſeen divided into twelve equal Parts or Digits; ſo that to find the Quantity of the Eclipſe, there is nothing to do but to Number the luminous and the dark Parts. See DIGIT.

As a Square *Reticle* is only proper for the Diameter, not for the Circumference of the Luminary. 'Tis ſometimes made Circular, by drawing ſix concentrick equi-diſtant Circles, which repreſent the Phaſes of the Eclipſe perfectly.

But 'tis viſible that the *Reticule*, whether ſquare or circular, ought to be perfectly equal to the Diameter or Circumference of the Star, ſuch as it appears in the Focus of the Glaſs; otherwiſe the Diviſion cannot be juſt.

Now this is no eaſy Matter to effect, by reaſon the apparent Diameter of the Sun and Moon differ in each Eclipſe; nay that of the Moon differs from it ſelf in the Progreſs of the ſame Eclipſe.

Another Imperfection in the *Reticule* is, that its Bigneſs is determined by that of the Image in the Focus; and of conſequence will only fit one certain Magnitude.

But M. *de la Hire* has found a Remedy for all theſe Inconveniences; and contrived that the ſame *Reticule* ſhall ſerve for all Teleſcopes, and all Altitudes of the Luminary in the ſame Eclipſe.—The Principle whereon his Invention ſtands, is, that two Object-Glaſſes applied againſt each other, having a common Focus, and there forming an Image of a certain Magnitude; this Image will increaſe in Proportion as the Diſtance between the two Glaſſes is increas'd, as far as a certain Limit.

If then a *Reticule* be taken of ſuch Magnitude as juſt to comprehend the greateſt Diameter the Sun or Moon can ever have in the common Focus of two Object-Glaſſes applied to each other; there needs nothing but to remove them from each other, as the Star comes to have a leſs Diameter, to have the Image ſtill exactly comprehended in the ſame *Reticule*.

Another Improvement is, that whereas the ſilken Threads are ſubject to ſwerve from the Paralleliſm, *&c.* by the different temperature of the Air; a *Reticule* may be made of a thin Looking-Glaſs, by drawing Lines or Circles thereon, with the fine Point of a Diamond; which ſhall be ſafe from any Alteration of the Air.

RETICULAR *Body*, *Corpus* RETICULARE, in Anatomy, a Body of Veſſels lying immediately under the Cuticle or Scarf-Skin. See CUTICLE, *&c.*

Theſe Veſſels contain a mucous Liquor, from the Tincture whereof *Malpighi* imagines the Colour of the Skin to be derived; founding his Conjecture on this, that the Cutis as well as Cuticle of Blacks, is white; and that they differ in no other Circumſtance from thoſe of *Europeans*, but in this particular. See NEGRO. See alſo CUTIS and PAPILLA.

RETICULARIS *Plexus*, in Anatomy, the Choroides. See CHOROIDES.

'Tis thus call'd becauſe the Fibres are interwoven like a Net.

RETICULUM, the Caul, or *Omentum*; a Name ſometimes given from its Net-like Structure. See OMENTUM.

RETIFORMIS *Lacis*, in Anatomy, the ſame with *Rete Mirabile*. See RETE.

RETINA, in Anatomy, and Opticks, one of the Tunics of the Eye; call'd alſo *Amphibleſtroides*, *retiformis*, and *reticularis*, as being wove in manner of a Net. See TUNIC and EYE.

The *Retina* is the laſt or innermoſt of the Coats of the Eye, lying immediately under the Choroides. See CHOROIDES.

'Tis form'd of an Expanſion of the medullary Part of the Optic Nerve; whence, it is found very thin, ſoft, white, *&c.* reſembling the Subſtance of the Brain, with the tranſparency of the Horn of a Lanthorn. See OPTIC *Nerve*.—When ſeperated from the Choroides, it runs into a mucous Maſs, or Lump.

The *Retina* is uſually ſuppoſed to be the great Organ of Viſion, which is effected by means of the Rays of Light reflected from each Point of Objects, refracted in their Paſſage through the aqueous vitreous and cryſtallin Humours, and thus thrown on the *Retina*; where they paint the Image of the Object; and where they make an Impreſſion, which is continued thence, by the fine Capillaries of the Optic Nerves, to the Senſory. See VISION.

Indeed, whether the *Retina* or the Choroides be the principal Organ of Viſion, and that whereon the Images of Objects are repreſented; has been much controverted between ſeveral Members of the *French* Academy, particularly Meſſ. *Mariotte*, *Pecquet*, *Perrault*, *Mery*, and *de la Hire*.

Mariotte firſt ſtood up for the Choroides, and was ſeconded by *Mery*; the reſt aſſerted the Rights of the *Retina*.

The *Retina* was always judg'd to have all the Characters of the principal Organ.—'Tis ſituate in the Focus of the Refractions of the Humours of the Eye; and of Conſequence receives the Vertices of the Cones of Rays, proceeding from the ſeveral Points of Objects. It is very thin, and conſequently very ſenſible. It has its Origin from the Optic Nerve; and is it ſelf wholly nervous, and 'tis the common Opinion that the Nerves are the Vehicles of all Senſations. Laſtly, It communicates with the Subſtance of the Brain, where all Senſations terminate. See BRAIN, SENSATION, *&c.*

As to the Choroides, its uſe was ſuppoſed to be to ſtop the Rays, which the extreme tenuity of the *Retina* ſhould let paſs;

and to do the ſame Office to the *Retina* which the Quickſilver does to a Looking-Glaſs; eſpecially in Animals wherein it is black. See CHOROIDES.

But from an Experiment of a Cat plunged in Water, M. *Mery* conceiv'd a different Opinion.—He obſerv'd the *Retina* to diſabſolutely appear on that Occaſion, as well as all the other Humours of the Eye; but the Choroides ſtill to appear diſtinctly, and even with all the lively Colours it has in that Animal.—Hence he concluded, that the *Retina* was as tranſparent as the Humors, but the Choroides, opake: Conſequently the *Retina* was not a proper Inſtrument to terminate and ſtop the Cones of Rays, or to receive the Images of Objects; but that the Light muſt paſs through it, and could only be ſtop'd on the Choroides; which therefore would become the principal Organ of Viſion.

The black Colour of the Choroides in Man is extremely favourable to this Sentiment: The principal Organ ſhould ſeem to require that the Action of the Light ſhould terminate on it, as it arrives; which 'tis certain it here does in the black that abſorbs all the Rays, and reflects none; and it ſhould alſo ſeem neceſſary that the Action of the Light ſhould be ſtronger on the Organ of Sight than any where elſe: Now, 'tis certain that the Light being received and abſorbed in a black Body, muſt excite a greater Vibration there than any where elſe; and hence it is that black Bodies are inflamed by a burning Glaſs much ſooner than white ones. See BLACKNESS, *&c.*

The Situation of the Choroides behind the *Retina* is another Circumſtance on its Side; M. *Mery* having obſerved the ſame Poſition of the principal Organ behind a mediate Organ in the other Senſes; which makes a happy Analogy.—Thus the Cuticle extended over the Skin, is the mean Organ of feeling; but the Cutis underneath is the principal Organ. The like is obſerved in the Ear, Noſe, *&c.*

The *Retina*, therefore, ſhould ſeem, a kind of mediate or ſecondary Organ, ſerving to break the too ſtrong Impreſſion of the Light on the Choroides, or to preſerve it; which is the uſe aſcribed to the Cuticle.—Add to all this, that the *Retina* is inſenſible, as having its Origin from the medullary Subſtance of the Brain, which is ſo too; and the Choroides, on the contrary, very ſenſible, as ariſing from the *Pia Mater*, which is certainly ſo in a great Degree. See NERVE, MEDULLA, MENINX.

This laſt Argument being doubted of, M. *Mery* was engaged to prove it; which he did before the Royal Academy, where he ſhew'd that the Optic Nerve is not compoſed like the other Nerves, of Fibres; that 'tis only a Train of the Medulla incloſed in a Canal, out of which it is eaſily ſeparable. See OPTIC *Nerve*.

This Structure of the Optic Nerve, hitherto unknown, ſhews that the *Retina* can be no Membrane; 'tis only a Dilatation of the Medulla, incloſed under two Membranes, and a Medulla is no proper Subſtance to be the Seat of a Senſation.—It can ſcarce ſerve for any thing but to filtrate the Spirits neceſſary for the Action of Viſion.—The Vibration whereby the Senſation it ſelf is effected, muſt be made on a Part more ſolid, more firm, and more ſuſceptible of a brisk Impreſſion.

RETINUE, the Attendants or Followers of a Prince, or Perſon of Quality; chiefly in a Journey.

In Law, thoſe Perſons are ſaid to be of a Nobleman's *Retinue* who belong to him in Quality either of Servants or *Retainers*. See RETAINER.

RETIRADE, in Fortification, a kind of Retrenchment made in the Body of a Baſtion, or other Work, which is to be diſputed Inch by Inch, after the firſt Defences are diſmantled. See RETRENCHMENT, *&c.*

It uſually conſiſts of two Faces, which make a re-entering Angle. See RE-ENTERING.

When a Breach is made in a Baſtion, the Enemy may alſo make a *Retirade*, or a new Fortification behind it. See BASTION.

RETIRED *Flank*, in Fortification. See FLANK.

RETORT, in Chymiſtry, a kind of crooked Matraſs, or a round, bellied Veſſel, either of Earth or Glaſs, with a ſlender crooked Beak, or Noſe, to which the Recipient is to be faſtened. See MATRASS.

When the *Retort* is of Glaſs, 'tis uſually lin'd with a Lute or Paſt an Inch thick; to enable it to bear the Fire the better. See FIRE and HEAT.

The *Retort* ſerves to draw Spirits and Oils from Woods, Gums, Minerals, Earths, and other Matters which require a ſtrong Fire. See SPIRIT, *&c.*

The *Retort* is a kind of Compendium or Improvement of the Cucurbit and Bolt-head; anſwering all the Purpoſes of both, without the Aſſiſtance of a Capital or Head, which the other frequently require. See DISTILLATION, *&c.*

RETRACTATION, the Act of unſaying what a Perſon had ſaid, or wrote. See RECANTATION.

Gallileo made a public *Retractation* of his *Doctrine of the World*, *de Mundo*, after its being cenſured and condemned by the Popes.

Among St. *Auguſtin's* Works is a Book of *Retractations*; where, however, the Word is to be underſtood in a new Senſe; not as if he *recanted* or unſaid any thing he had taught, but only treated of the ſame Matter, or handled the ſame Subject a ſecond Time. This Senſe the Word will very well bear; being a compound of *re* and *tracto*, I handle, treat of.

RETRACTION, in Anatomy, the Contraction or ſhortening of a Part. See CONTRACTION.

The *Retraction* of the Nerves takes away the Uſe of the Limbs. See NERVE.

The Word is form'd from the *Latin*, *retrahere*, to draw back.

RETRACTS, among Horſemen, pricks in the Horſe's Feet, ariſing from the Fault of the Farrier in driving Nails that are weak, ill-pointed, or are driven amiſs. See SHOE.

Theſe, unleſs timely prevented, feſter, and prove very dangerous.—When the Farrier, in ſhooing, perceives the Horſe to ſhrink at every blow on the Nail; 'tis a ſign of a *Retract*, and the Nail is to be pull'd out again, which is done without any harm.

When the Horſe halts immediately after he is ſhod, 'tis concluded ſome of the Nails preſs the Veins, or touch him in the Quick.

To find where the Grievance lies, they knock the Nails round with a Hammer, till the Horſe's ſhrinking upon hitting a particular Nail, diſcovers the Place.

Some Farriers give this as a Rule, that throwing Water on the Hoof, the Place where he is hurt will be dry ſooner than any of the reſt. The Places where the Horſes are moſt uſually *prick'd*, are the Heel in the Fore-foot, and the Toe in the Hind-foot. See HOOF.

RETRACTOR, *Alæ Naſi*, in Anatomy, a pair of Muſcles, call'd alſo *Elevator Labii ſuperioris*. See ELEVATOR.

RETRAHENS *Auriculam*, in Anatomy, a pair of Muſcles of the external Ear; conſiſting of a Parcel of fleſhy Fibres, which in ſome Bodies are divided into three diſtinct Muſcles, ariſing from the *Os Temporale*, and fix'd to the hind Part of the *Concha*. See AURICLE.

But theſe Muſcles are ſo ſmall in Men, that the Auricle is ſeldom moveable at all. See EAR.

RETRAXIT, in Law, is where the Plaintiff comes into Court in Perſon, alone, or with the Defendant; and declares he will proceed no further.

A *Retraxit* is peremptory, and a perpetual Bar; and may be pleaded as ſuch to the Plaintiff in the ſame Action for ever.

RETREAT, in War, a retiring or moving back again of an Army, or Part thereof.

What they call a *Retreat* in the Armies is really a Flight; only a Flight made by Deſign, and with Conduct.

The Skill and Ability of the General, is known by his *Retreats*, more than his Engagements.—The *Retreat* of ten thouſand *Greeks* under the Command of *Xenophon*, has been admired in all Antiquity.

To ſound a *Retreat*, ſecure a *Retreat*, &c.

RETREAT, or RELAY, in Maſonry, a little Receſs or Diminution of the thickneſs of a Wall, Rampart, *&c.* in Proportion as 'tis rais'd. See WALL, *&c.*

The *Retreat* is properly the Diminution of a Wall, without Side; or the Contraction of its upper Courſes more than the Foundation.—Where the Foundation is very large, they uſually make two or three *Retreats*.—Parapets are always built with *Retreats*.

RETRENCHMENT, litterally ſignifies ſomething cut off a thing, and taken from it; in which Senſe it coincides with Subſtraction, Diminution, *&c.*—The Word is *French*, *Retranchement*, form'd of *re* and *trancher*, to cut.

RETRENCHMENT, in Architecture, Carpentry, *&c.* is uſed not only for what is cut off from a Piece when too large, in order to a better proportioning it, or ſome other Convenience; but alſo for the Projectures taken out of Streets, publick Ways, *&c.* to render them more even, and in a Line.

By a gradual *Retrenchment* of the ordinary Quantity of Food, a Man may bring himſelf to a great Degree of Abſtinence. See ABSTINENCE, FASTING, FOOD, *&c.*

The Reformation of the Calendar in 1582, occaſioned a *Retrenchment* of ten Days which had crept into the Account more than there ſhould have been. See CALENDAR.

The Frugality ſo much boaſted of among the antient *Romans*, St. *Everemond* obſerves, did not ſo much conſiſt in a voluntary Abſtinence or *Retrenchment* of things ſuperfluous, as a coarſe and ſordid Way of employing or uſing them.

RETRENCHMENT, in War, the Fortification of a Camp; or any Kind of Work caſt up to ſtrengthen or defend a Poſt againſt the Enemy. See FORTIFICATION, DEFENCE, WORK.

Such are Ditches, with Parapets, Gabions, Faſcines, *&c.* for a covering, *&c.* See DITCH, *&c.*

The Enemy came with Deſign to oblige them to raiſe the Siege, but could not force the *Retrenchments*.

RETRENCHMENT is particularly uſed for a ſimple Retirade made on a Horn-work or Baſtion; when 'tis intended to Diſpute the Ground Inch by Inch.

'Tis uſually a re-entering Angle, whoſe Faces Flank each other; and fortified with Ditches, Parapets, Gabions, *&c.* See RETIRADE.

RETRIBUTION, a handſome Preſent, Gratuity, or Acknowledgment, given in lieu of a formal Salary or Hire, to Perſons imploy'd in Affairs that do not ſo immediately fall under Eſtimation, nor within the common Commerce of Money.

Thoſe who miniſter'd at the Altar antiently lived of *Retributions*, which they received for the Services they did the Church. But theſe *Retributions* were afterwards judg'd proper to be fix'd to preciſe Sums. See Tith.

RETRIEVE, Retrouver, to recover, get again, or repair a thing loſt or damaged. See Recovery, Reparation, *&c.*

To Retrieve, in Falconry, ſignifies to ſpring or find Partridges again, which have been once ſprung before. See Hawking.

RETROACTIVE, in Law.—New Laws and Statutes, we ſay, have no *retroactive* Effect; that is, they have no Force or Effect as to what is already paſs'd; nor can be alledg'd as Rules for any thing done before their Promulgation.—Their Authority is wholly as to what is to come.

Indeed we have ſome Inſtances of Laws that have a Retroſpect, or *Retroaction*, i. e. were made with expreſs Deſign to extend to things already paſs'd.—Theſe we uſually call Laws *ex poſt facto*. See Law, *&c.*

The Word is compounded of the *Latin*, *retro*, backwards; and *ago*, I act.

RETROCESSION, the Act of going backwards; more uſually expreſs'd by *Retrogreſſion* or *Retrogradation*. See Retrogradation, *&c.*

Retrocession of the Equinox. See Præcession.

Retrocession of Curves, *&c.* See Retrogradation, *Contrary* Flexure, *&c.*

RETROGRADE, Retrogradus, ſomething that goes backwards, or in a Direction contrary to its natural one.

Such is the Motion of the Lobſter, the Crab, *&c.*

The Word is form'd from the *Latin*, *retro*, backwards; and *gradior*, I go.

If the Eye and the Object move both the ſame way, but the Eye much faſter than the Object; the Object will appear to be *Retrograde*, i. e. to go back, or to advance the contrary Way from what it really does. See Vision *of Motion*.

Hence, the Planets in ſome Parts of their Orbits appear to be *Retrograde*. See Planet and Retrogradation.

Retrograde *Order*, in Matters of Numeration, is when in lieu of accounting 1, 2, 3, 4, we count 4, 3, 2, 1. See Progression, Series, Number, *&c.*

Retrograde *Verſes* are ſuch as give the ſame Words, whether read backwards or forwards; call'd alſo *reciprocal Verſes*, and *Recurrents*; ſuch is,

Signa te Signa temerè me tangis et Angis.

RETROGRADATION, or Retrogression, the Act or Effect of a thing moving backwards. See Retrograde.

Retrogradation, in Aſtronomy, is an apparent Motion of the Planets, wherein they ſeem to go backwards in the Ecliptic, and to move contrary to the Order or Succeſſion of the Signs. See Planet, Ecliptic, *&c.*

When a Planet moves in *conſequentia*, i. e. towards the following Signs, or according to the Order of the Signs, as from Aries to Taurus, from Taurus to Gemini, *&c.* that is, from Weſt to Eaſt, it is ſaid to be *direct*. See Direct.

When it appears for ſome Days in the ſame Point of the Heavens, it is ſaid to be *Stationary*. See Stationary.

And when it goes in *Antecedentia*, i. e. towards the antecedent Signs, or contrary to the Order of the Signs, *viz.* from Eaſt to Weſt, it is ſaid to be *Retrograde*. See Antecedentia, Sign, *&c.*

The Sun and Moon always appear direct.—*Saturn*, *Jupiter*, *Mars*, *Venus*, and *Mercury*, ſometimes direct, ſometimes Stationary, and ſometimes *Retrograde*. See Saturn, Jupiter, Venus, *&c.*

The ſuperior Planets are *Retrograde* about their Oppoſition with the Sun; the inferior ones about their Conjunction. See Opposition and Conjunction.

The Intervals of Time between two *Retrogradations* of the ſeveral Planets, are unequal.—In *Saturn* 'tis a Year and 13 Days; in *Jupiter* a Year and 43 Days; in *Mars* two Years 50 Days; in *Venus* one Year 220 Days; in *Mercury* 115 Days.

Again, *Saturn* continues *Retrograde* 140 Days, *Jupiter* 120, *Mars* 73, *Venus* 42, *Mercury* 22: Yet are not the ſeveral *Retrogradations* of the ſame Planet conſtantly equal.

Theſe Changes of the Courſes and Motions of the Planets are not real: but apparent, when view'd from the Centre of the Syſtem, *i. e.* from the Sun, they appear always uniform and regular.—The Inequalities ariſe from the Motion and Poſition of the Earth whence they are view'd, and are thus accounted for.

Suppoſe PQO (*Tab. Aſtronomy, Fig.* 58.) a Portion of the Zodiac ABCD the Earths Orbit, and EMGHZ the Orbit of a ſuperior Planet, *c. gr.* Saturn. And ſuppoſe the Earth in A, and *Saturn* in E; in which Caſe he will be ſeen in the Zodiac at the Point O.—If now *Saturn* remain'd without any Motion, when the Earth arrives at B, he would be ſeen in the Point of the Zodial L, and would appear to have deſcribed the Arch OL, and to have moved according to the Order of the Signs from Weſt to Eaſt. But becauſe while the Earth is paſſing from A to B, *Saturn* likewiſe moves from E to M, where he is ſeen in Conjunction with the Sun, he will appear to have deſcribed the Arch OQ greater than that OL.

In this State, now, the Planet is direct, and its Motion, from Weſt to Eaſt, or according to the Order of the Signs. And its Motion, now that it is in Conjunction with the Sun and moſt remote from us, is quicker than at any other time. See Direction.

The Earth arriving at C, while *Saturn* deſcribes the Arch MG, he will be obſerved in the Zodiac at R. But the Earth being advanced to K, and Saturn to H, ſo as the Line KH joining the Earth and Saturn, be for ſome time Parallel to it ſelf, or nearly ſo; *Saturn* will be ſeen all that time in the ſame Point of the Zodiac at P, and with the ſame fix'd Stars, and is therefore *Stationary*. See Station.

But the Earth being come to D, and Saturn arrived in oppoſition to the Sun in X, he will appear in the Zodiac in V, and will ſeem to have been *Retrograde*, or to have gone backwards through the Arch PV.—Thus the ſuperior Planets, on Optical Conſiderations, are always *Retrograde*, when in Oppoſition to the Sun. See Sun, Opposition, *&c.*

The Arch which the Planet deſcribes while thus *Retrograde*, is call'd the *Arch of Retrogradation*. See Arch.

The Arches of *Retrogradation* of the ſeveral Planets are not equal.—That of *Saturn* is greater than that of *Jupiter*; that of *Jupiter* than that of *Mars*, &c.

Retrogradation *of the Nodes*, is a Motion of the Line of the Nodes, whereby it continually ſhifts its Situation from Eaſt to Weſt, contrary to the Order of the Signs; compleating its *Retrograde* Circulation in the Compaſs of about 19 Years: After which Time either of the Nodes having receded from any Point of the Ecliptic returns to the ſame again. See Node.

Retrogradation *of the Sun.*—When the Sun is in the torrid Zone, and has his Declination, AN, (*Tab. Aſtronomy, Fig.* 9.) greater than the Latitude of the Place AZ, but either Northern or Southern as that is; the Sun will appear to go backwards, or to be *Retrograde* both before and after Noon. See Sun and Zone.

For, draw the vertical Circle ZGN to be a Tangent to the Sun's Diurnal Circle in G, and another ZON, through the Sun in O.—'Tis evident all the intermediate vertical Circles cut the Sun's diurnal Circle twice: Firſt, in the Arch GO, and the ſecond time in the Arch GI.—Wherefore, as the Sun aſcends thro' the Arch GO, it continually arrives at further and further Verticals. But as it continues its Aſcent through the Arch GI, it returns to its former Verticals; and therefore is ſeen *Retrograde* for ſome time before Noon.

The ſame, it may be ſhewn after the ſame manner, it does for ſome time after Noon.

Hence, as the Shadow always tends the oppoſite Way to that of the Sun, the Shadow will be *Retrograde* twice every Day in all Places of the Torrid Zone, where the Sun's Declination exceeds the Latitude. See Shadow.

Retrogradation, or Retrogression, in the higher Geometry, is the ſame with what we otherwiſe call *contrary Flexion*. See *Contrary* Flexion.

The *Retrogreſſion* of Curves may be thus conceived.—Suppoſe a Curve Line AFK, (*Tab. Geometry, Fig.* 82.) to be partly Concave, partly Convex, in reſpect of the Right Line AB, or in reſpect of the determinate Point B; the Point F which ſeparates the Concave Part of the Curve from the Convex, or which makes the end of one, and the beginning of the other, is call'd the *Point of contrary Flexion*, when the Curve is continued from F towards the ſame Side as before.—When the Curve is continued backwards towards A, then is F the Point of *Retrogreſſion*. See Point and Curve.

RETROGRESSION, or Retrocession, the ſame with *Retrogradation*. See Retrogradation.

RETROMINGENTS, in natural Hiſtory, a Claſs or Diviſion of Animals, whoſe Characteriſtic is, that they ſtale or piſs backwards; as Cows, *&c.* See Animal.

The Word is compounded of the *Latin*, *retro*, backwards, and *mingo*, I make Water.

RETROPANNAGIUM, Retropannage, in our antient Law-Books, *Afterpannage*; or what is left when the Beaſts have done. See Pannage.

Et debent habere Retropannagium *à Feſto Sancti Martini uſque ad Feſtum Pur. Beatæ Mariæ. Petitio in Parl. temp. Edw.* III.

RETROSPECT, a look or view backwards. See Retroactive.

RETURN, in Law, hath two ſeveral Acceptations.

The one in *the Return of Writs* by Sheriffs and Bailiffs; which is only a Certificate made to the Court by the Sheriff, Bailiff, *&c.* of what is done with regard to the Execution of the Writ directed to them. See Writ.

Such alſo is the *Return of a Commiſſion*, which is a Certificate, or Anſwer of what is done by the Commiſſioners, to whom ſuch Commiſſions, Precepts, Mandates, or the like, are directed.

The other Application of the Word *return*, is in Caſe of a Replevin; for if a Man diſtrain Cattle for Rent, *&c.* and afterwards juſtify or avow his Act, ſo as it is found lawful, the Cattle before delivered unto him that was diſtrain'd, upon Security given to proſecute the Action, ſhall now be *returned* to him that diſtrained them. See DISTRESS, REPLEVY, *&c.*

RETURNS are alſo certain Days in each Term, peculiarly ſet a-part for the ſeveral Kinds of Proceedings, in any Cauſe to be determined. See TERM, *&c.*

They are alſo call'd *Days in Bank.* See DAY.

Hillary Term has four ſuch *Returns.*—viz. *Octabis Hillarii*, eight Days after *Hillary* Day; 2. *Undena Hillarii*, fifteen Days; *Craſtina Purificationis*, the Day after the Purification; and *Octabis Purificationis*, eight Days after, incluſive.

Eaſter Term has five *Returns*; viz. *Quindena Paſchæ*, fifteen Days after *Eaſter*; *Tres Paſcha*, three Weeks after; *Menſe Paſchæ*, the Day-Month after *Eaſter*; *Quinque Paſchæ*, the Day five Weeks from *Eaſter*; and *Craſtino Aſcenſionis Domini*, the Day after *Aſcenſion-Day*.

Trinity Term has four *Returns*; viz. *Craſtino Trinitatis*, the Day after *Trinity*; *Octabis Trinitatis*, eight Days after, incluſive; *Quindena Trinitatis*, fifteen Days after; and *Tres Trinitatis*, three Weeks after.

Michaelmas Term has ſix *Returns*; viz. *Tres Michaelis*, three Weeks after *Michaelmas*; *Menſe Michaelis*, the Day-Month after *Michaelmas*; *Craſtino Animarum*, the Day after *All-Souls*; *Craſtino Martini*, the Day after *Martinmas* Day; *Octabis Martini*, eight Days after, incluſive; and *Quindena Martini*, fifteen Days. See TERM.

RETURN, in Building. A Side or Part that falls away from the Foreſide of any ſtraight Work, is call'd the *Return*.

RETURNS of a Trench, in Fortification, are the turnings and windings which run from the Lines of a Trench. See TRENCH.

RETURNO *habendo*, or RETURNUM *Averiorum*, a Writ which lies for him who has avow'd a Diſtreſs made of Cattle, and proved his Diſtreſs to be lawfully taken; for the *Return* of the Cattle diſtrain'd unto him, which before were replevied by the Party diſtrain'd, upon Surety given to purſue the Action. See DISTRESS, *&c.*

The ſame Writ is granted when the Plaint or Action is removed by *Recordare*, or *Accedas ad Curiam*, into the Court of Common-Pleas; and he whoſe Cattle were diſtrain'd, makes Default, and does not proſecute his Action. See

RETURNUM *Irreplegiabile*, a Writ Judicial, ſent out of the Common-Pleas to the Sheriff, for the final Reſtitution or Return of Cattle to the Owner, unjuſtly diſtrain'd as Damage-feazant, and ſo found by the Jury before Juſtices of Aſſize in the County, or otherwiſe, through Default of Proſecution. See RETURN, DISTRESS, REPLEVY, *&c.*

REVE, or GREVE, in antient Cuſtoms, the Bailiff of a Franchiſe or Manor; thus call'd, eſpecially in the Weſtern Parts. See GREVE.

Hence *Shir-reve*, Sheriff, *Port-greve*, *Church-reve*, &c. See SHERIFF, PORTGREVE, *&c.*

REVE is alſo uſed in antient Cuſtoms for a Duty or Impoſition on Merchandices imported or exported. See DUTY and CUSTOM.

M. *du Cange* derives the Word from the *Latin*, *rogare*, to aſk; as being a Tribute antiently granted Princes at their Requeſt, as a Free-Gift.

REVEILLE, a Beat of the Drum, intended to give Notice that it is Day-break; and that the Soldiers are to riſe, and the Centries forbear challenging. See DRUM.

The Word is *French*, form'd of the Verb *reveiller*, to awake.

REVELATION, the Act of revealing, or making a thing publick which before was a ſecret, or unknown.

The *Revelation* of a Confeſſion made by the Confeſſor, is adjudg'd in the *Romiſh* Church, to deſerve the moſt exemplary Puniſhment. See CONFESSION.

The Word *Revelation* is uſed, by way of Eminence, for the Diſcoveries made by God to his Prophets, *&c.* and by them to the World. See PROPHECY.

The *Romaniſts* have two huge Volumes of the *Revelations* of St. *Bridget*. See LEGEND, VISION, *&c.*

The Word is form'd from the *Latin*, *revelo*, of *re* and *velum*, q. d. unvail.

REVELATION, in Religion, is the Diſcovery which God has made to the World by the Mouths of his Prophets; of certain Points of Faith and Duty, which they could not learn from natural Reaſon. See NATURE, REASON, FAITH, *&c.*

Religion is divided into natural Religion; and *Revelation*, or *revealed Religion*. See RELIGION.

The Chriſtian *Revelation* is that made by Chriſt, and his Apoſtles, in the New Teſtament. See TESTAMENT.

The *Jewiſh Revelation* is that made by *Moſes* and the Prophets, in the Old Teſtament. See BIBLE, PROPHET, *&c.*

A late Author obſerves, ſomewhat invidiouſly, that 'tis the common Method of all new *Revelations*, to be built on Precedent ones.—Thus, the Miſſion of *Moſes* to the *Iſraelites*, ſuppoſes a former *Revelation* to *Abraham*, &c. The Miſſion of Chriſt ſuppoſes that of *Moſes*; and the pretended Miſſion of *Mahomet*, ſuppoſes the Miſſion of Chriſt. The Miſſion of *Zoroaſter* to the *Perſians*, ſuppoſes the Religion of the *Magi*, &c.

The general Foundation of all *Revelation* is this, That God is pleaſed Man ſhould know ſomething relating to himſelf, his own Nature, Diſpenſation, *&c.* which the natural Faculties he was pleaſed to create him withal, could not attain to; and that he requires ſome Duty or Service at our Hands, more than what neceſſarily follows from the Relation we are under to him as our Creator, Preſerver, *&c.*

Particular or occaſional *Revelations* have their particular Genius's, Characteriſticks, and Deſigns.—That made by *Moſes* and the Prophets, chiefly related to the Nation of the *Jews*, conſidered as the Deſcendants of *Abraham*: Its Deſign ſeems to have been to reſcue that People from their Slavery; to ſettle them n a new Plantation; to give them a ſet of Laws; to new form their Manners; to ſupport them under Difficulties and Dangers of their Enemies, from an Opinion of their being under the immediate Direction and Appointment of God; to keep them from intermixing again with their Neighbours, from an Opinion of their being a *choſen People*, and of a Meſſiah to be born among them; and to lay a Foundation of a Reſtoration, in caſe of their being oppreſs'd, from the Opinion of a Deliverer.—To ſome or other of theſe Ends do all the Old Teſtament Propheſies ſeem to tend.

The Chriſtian *Revelation* is founded on a Part of the *Jewiſh*.—The Meſſiah promis'd in the one, is *reveal'd* in the other. All the reſt of the *Jewiſh Revelation*, which related peculiarly to the *Jewiſh* People, is here ſet a-ſide; and only that Part of it which was to affect the World in general, we mean that relating to the coming of the Meſſiah, is here built upon. See MESSIAH.

Indeed it muſt be own'd the *Jews* ever look'd on this Part as peculiar to themſelves, as any of the reſt: The Meſſiah was promiſed to *them*; he was to be *their* Deliverer, *their* Reſtorer, *&c.*—But upon the taking Place of this new *Revelation*, a new Scene was opened—This Part of the old *Revelation*, it was ſhewn, was all Typical, or Allegorical; and the Propheſies relating hereto, not to be underſtood in their primary or litteral Senſe. The Meſſiah was not to be the Reſtorer of the *Jewiſh* Sovereignty and Liberties, which were now fallen into the Hands of the *Romans*, but to reſtore and re-eſtabliſh the World, who had loſt their original Righteouſneſs, and were become Slaves of Sin; to preach Repentance and Remiſſion, and at laſt to ſuffer Death, that all who believ'd in him, might not die, but have everlaſting Life.

Such is the Tenor and Deſign of the Chriſtian *Revelation*, which in the Event, was ſo far from being what it had been apprehended to be, by the People to whom it was firſt promis'd; that it proved the very Reverſe; and inſtead of re-eſtabliſhing and confirming the other Branches of their *Revelation*, ſuperſeded, and ſet them all aſide.—The Pale was now broken down, and the being of the Seed of *Abraham*, ceas'd to be a Privilege; all the World being invited on the ſame Terms with the *Jews*.

The Conſequence was, that the *Jews* denying this to be the Meſſiah that had been promiſed to them, as not able to ſee the Prophecies fulfilled in him, for want of the typical Meanings thereof, were generally excluded from the Priviledges of that Miſſion which had been ſuppoſed wholly intended for them; And had their Ruin compleated from the very means whence they expected their Redemption. See TYPE, PROPHESY, *&c.*

REVELS, Entertainments of Dancing, Maſking, Gaming, Acting of Comedies, Farces, *&c.* antiently very frequent in Inns of Courts, at certain Seaſons, and in Noblemen's, *&c.* but now much diſuſed.

The Officer who has the Direction or ordering hereof, was called the *Maſter of the Revels*.

The Word is form'd from the *French*, *reveiller*, to awake.

REVENUE, the yearly Rent or Profits ariſing to a Man from his Lands, Poſſeſſions, *&c.* See RENT.

The *Revenue* of this Manor conſiſts in Tiths, Rents, &c. See MANOR, *&c.*

The *Revenues* of the *Engliſh* Clergy were firſt fix'd by King *Ethelwolf*, Anno 855; who granted them for ever, the Tith of all Goods, and the tenth Part of all the Lands of *England*, free from all Secular Service, Taxes, Impoſitions, *&c.* See TITH and CLERGY.

The certain *Revenues* of the King of *England* were antiently greater than thoſe of any King in *Europe*; and 'till the time of the Civil Wars they enjoy'd in Domains and Fee-Farm Rents almoſt enough to Diſcharge all the ordinary Expences of the Crown, without any Tax or Impoſition on the Subject.

Upon the Reſtauration, the Crown *Revenues* being found much alienated, and the Crown Charges increas'd; the Parliament ſettled a yearly Revenue of 1,200000 *l.* upon the King; ſo much as the former Crown *Revenues* fell ſhort of that Sum, to be rais'd on Goods exported and imported, upon Liquors, and Fire-Hearths. See DUTY, *&c.*

At the Death of King *Charles* II. the *Revenue* amounted to 1,800,200 *l. per Ann.*—In King *James* IIds. Time, it was rais'd to 2,000,000 *l.* which was computed to be one tenth of the *Revenues* of the whole Kingdom.

At the ſame time the *Revenues* of the King of *France* were computed at ſeven Millions Sterling; and thoſe of the States of

Holland, at three Millions.—*For more Particulars of this Kind*, ſee POLITICAL *Arithmetic*.

REVENUE, in Hunting, a Meſs of Fleſh, formed chiefly of a Cluſter of whitiſh Worms on the Heads of Deer, and occaſioning them to caſt their Horns, by gnawing the Roots thereof. See HEAD, HORN, *&c.*

The *Revenue* diſtill'd, is ſaid to help Women in Travel.

REVENUE is alſo uſed for a new Tail of a Partridge, growing out after the loſs of a former.—The *Revenue* is meaſured by Fingers. Thus we ſay, a Partridge of two, three, four Fingers *Revenue*.

The Word *Revenue* is *French*, form'd from *revenir*, to return. —Whence *Revenue* is ſometimes uſed in antient Authors for a Return: As the *Revenue* of *Eaſter*. See RETURN.

REVERBERATION, in Phyſicks, the Act of a Body repelling or reflecting another, after its unpinging thereon. See REFLECTION.

In the Glaſs-Men's Furnaces, the Flame *reverberates*, or bends back again, to ſcorch the Matter on all Sides.

Echo's are occaſioned by the *Reverberation* of Sounds from arch'd Obſtacles. See ECHO.

The Word is form'd from the *Latin*, *re* and *verbero*, I beat again.

Reverberation and *Reſilition* refer to the ſame Action; only the one to the Agent, the other to the Patient.—A poliſhed Body *reverberates* the Rays all around: The *Reſilition* of the Rays does not ariſe from their ſtriking againſt the ſolid Parts of Bodies. See RESILITION and REFLECTION.

REVERBERATION, in Chymiſtry, a kind of Circulation of the Flame, by means of a *Reverberatory*; or the return of the Flame from the top of the Furnace, back to the Bottom. See REVERBERATORY.

Reverberation is of two Kinds.—The firſt with a cloſe Fire; that is, in a *Reverberatory* Furnace, where the Flame has no Vent a-top; being cover'd with a Dome, or Capital, which repels its Action back on the Matter, or the Veſſel that contains it, with increaſed Vehemence.

After this Manner are Refining, the Diſtillation of acid Spirits, *&c.* perform'd. See DISTILLATION and REFINING.

Reverberation with an open Fire, is that performed in a Furnace or *Reverberatory* whoſe Regiſters are all open; chiefly uſed in Calcination. See CALCINATION, AIR, *&c.*

REVERBERATORY, or REVERBERATING *Furnace*, is a Chymical Furnace built cloſe all around, and cover'd a-top with a Capital of Bricks or Tiles, ſo as not to give any Vent to the Heat or Flame, but to determine it to *Reverberate* or turn back from the Brick Work with new Force, upon the Matters placed at Bottom. See REVERBERATION.

When the Fire has no Vent or Paſſage a-top, 'tis a *whole Reverberatory*; when the middle of the Capital is open, and only the Sides cloſe, ſo that there is only a half Circulation of the Flame, 'tis call'd a *half Reverberatory*.

The *reverberating* Furnace is chiefly uſed for the Fuſion of Metals, and Minerals, and other Occaſions where the moſt intenſe Heat is required, as in Aſſaying, *&c.* Whence it is alſo called the *Melting Furnace*, and *Aſſaying Furnace*. See FURNACE, FIRE, FUSION, ASSAY, *&c.*

REVEREND, a Title of Reſpect given to Eccleſiaſticks. See TITLE and QUALITY.

The Religious Abroad are call'd *Reverend Fathers*; Abbeſſes, Prioreſſes, *&c.* are call'd *Reverend Mothers*. See ABBOT, RELIGIOUS, *&c.*

With us, Biſhops are *Right Reverend*, and Archbiſhops *Moſt Reverend*.—In *France* their Biſhops, Archbiſhops, and Abbots, are all alike *Reverendiſſimo's*, *moſt Reverends*. See BISHOP, *&c.*

REVERIE, a Term purely *French*, yet now frequently uſed in *Engliſh*.

It ſignifies, litterally, a Delirium, Raving, or Diſtraction. See DELIRIUM.

Thus we ſay, 'tis an ill Sign when the Patient falls into a *Reverie*.

Hence it comes, likewiſe, to be uſed for a ridiculous, extravagant Imagination, Action, or Propoſition; a Chimera or Viſion. —Thus we ſay, Authors obtrude abundance of their *Reveries* upon us for ſolid Truths.

But its moſt ordinary uſe among *Engliſh* Writers is for a deep, diſorderly Muſing, or Meditation; equivalent to what we popularly call a *Brown-ſtudy*.—Thus: A little Diſtraction I would allow; but for that continued Series of *Reveries* ſome People are guilty of, who are ever abſent from the Place where you ſee them, and are never preſent any where, 'tis inexcuſable.

REVERSE, in Law, *&c.*—To *Reverſe*, *reverſer*, ſignifies to undo, repeal, or make void. See REPEAL, ANNUL, *&c.*

The Word is formed of the *Latin*, *re*, again, and *verſus*, turn'd.

REVERSE, of a Medal, Coin, *&c.* is the ſecond, or back-ſide; in Oppoſition to the Head or principal Figure. See COIN, MEDAL, *&c.*

F. *Chamillart*, a Jeſuit, has an expreſs Diſſertation on this Point, whether or no the *Reverſes* of Medals have always a Regard to the Emperor's or Empereſs's whoſe Heads are repreſented on the Front Side of the Medal? He ſays, that till of late the Antiquaries have made no doubt of it; but that there are now ſeveral Authors of another Opinion.

REVERSE, in Fencing, a Back-ſtroke. See GUARD, FENCING, *&c.*

REVERSED, in Heraldry, a thing turned backwards, or upſide-down.

REVERSED *Talon*, in Architecture. See TALON.

REVERSING, or RENVERSING, in Muſic, the inverting of the Order of the Parts; that is, the placing of the higher Part or Treble, in the room of the lower Part or Baſs. See PART, BASS, TREBLE, *&c.*

Reverſing is frequently practiced in figurative Counterpoint, where the Baſs ſerves as Treble; and the Treble, at the ſame time, as Baſs; and all this, in ſuch manner, as that the Harmony, though very different, is yet as correct as before the *reverſing*, when the Parts were in their natural Order.

To know how to diſpoſe the Parts, ſo as the *reverſing* mayn't do any Damage, is a ſecret, whereon M. *Broſſard* has promis'd a Treatiſe expreſs.

A *revers'd Figure*, or *Counterfugue*, call'd by the *Italians*, *per contrarii movementi*, is when the Guida falls; and the other inſtead of imitating in falling, imitates in riſing; or a Figure *per Arſin* and *Theſin*. See ARSIN.

REVERSION, in Law, is defined by *Coke*, a returning of Lands, *&c.* into the Poſſeſſion of the Donor, or his Heirs; after the Expiration of the Term for which they were given or granted. See DONATION, *&c.*

The Word has a double Acceptation.—The firſt is, *Jus revertendi cum ſtatus Poſſeſſionis defecerit*, which is no more than an Intereſt in the Land, when the Occupation or Poſſeſſion of it ſhall fall.

The ſecond is, when the Poſſeſſion and Eſtate, which was parted with for a time, ceaſeth, and is determined in the Perſons of the Alienees, Aſſignees, Grantees, or their Heirs; or effectually returns to the Donor, his Heirs or Aſſigns, whence it was derived.

This is the moſt proper Signification of the Word, which is derived from *Revertor*: *Et apte dici non poteſt Reverſio Antequam revertatur in facto.* Littlet.

The Difference between a *Reverſion* and a Remainder conſiſts in this, that a Remainder is general, and may remain or belong to any Man but him that granteth or conveyeth the Land, *&c.* See REMAINDER.

Whereby a *Reverſion* is to himſelf, from whom the Conveyance of the Land, *&c.* proceeded, and is commonly perpetual, as to his Heirs alſo.—And yet ſometimes *Reverſion* is confounded with Remainder.

For the Values of *Reverſions*, or Eſtates in *Reverſion*, the little Book of Tables for renewing and purchaſing College, and Church Leaſes, printed at *Cambridge* in 1700, and recommended by Sir *Iſaac Newton*, furniſhes us with a very uſeful Table, which ſhews what one Pound due at the end of any Number of Years to come, not exceeding 40, is worth in ready Money, at 5, 6, 7, 8, 10, and 12 *per Cent. per. Ann.*

Suppoſe, it required, what 1 *l.* due a Year hence, is worth in ready Money: To find this by the common Operations, the Method is this.—Let 100 *l.* with the Intereſt of a Year added to it, be the firſt Term in the Rule of Three; 100 *l.* the ſecond, and 1 *l.* the third; (for as 100 *l.* with its Intereſt going on to the end of the Year, is to a bare 100 *l.* then due: So muſt 1 *l.* with its growing Intereſt, be to the Decreaſe of 1 *l.* at the Years end) then, at 6 *l.* *e. gr.* and 10 *l.* *per Cent.* the Work will ſtand thus:

As, 106 . 100 : : 1 . . 94339, or 18 *s.* 10 *d.* $\frac{1}{4}$.
110 . 100 : : 1 . . 90909, or 18 *s.* 2 *d.*

Whence it appears, that 1 *l.* due a Year hence, at 6 *l.* *per Cent.* is worth 18 *s.* 10 *d.* $\frac{1}{4}$; and at 10 *per Cent.* to 18 *s.* 2 *d.* So that 18 *s.* 10 *d.* $\frac{1}{4}$. ready Money, is worth 20 *s.* to be paid a Year hence at 6 *per Cent.*; and 18 *s.* 2 *d.* ready Money, is worth 20 *s.* to be paid a Year hence at 10 *per Cent.* See INTEREST.

But this Table ſhortens the Work.—To find by it how to renew a Leaſe of 21 Years, that hath but one Year lapſed, at the Rate of 10 *per Cent*; look into the ſame, and under the Rate of Intereſt mentioned, and right againſt 21 Years, in the common Angle of meeting, you have 2 *s.* 8 *d.* $\frac{1}{2}$. which is the Fine to be paid to renew one Year lapſed in the ſaid Leaſe; ſuppoſing the Rent to be 1 *l.* *per Annum*. For it is 21 Years e're the Leaſe is compleated, in which time the Fine of 2 *s.* 8 *d.* $\frac{1}{2}$. will amount to 20 *s.* and therefore by paying that Fine, the Leaſe may fairly be made up again.

Suppoſe again, an Eſtate in Fee-ſimple, whoſe real Value is 100 *l.* but mortgaged, or Leaſed out for 20 Years; what is the *Reverſion* of it now worth at 6 *l.* *per Cent.* Intereſt?—By the Table you find, that 1 *l.* to be paid 20 Years hence, is worth but 6 *s.* 2 *d.* $\frac{3}{4}$. and multiplying that by 100, you'l find 100 times 6 *s.* is 30 *l.* 00 *s.* 00 *d.* 100 times 2 *d.* or 200 *d.* makes 00 *l.* 16 *s.* 8 *d.* and 100 times $\frac{3}{4}$, or 30 makes 00 *l.* 6 *s.* 3 *d.* the Sum is 31 *l.* 2 *s.* 11 *d.* which is the preſent Value of 100 *l.* to be paid 20 Years hence.

A TABLE of *Reverſions* ſhewing what 1 *l.* due any Number of Years hence, under 41, is worth in ready Money at 5, 6, 7, 8, 10, and 12 *l. per Cent.*

Years.	*5 per Cent.*			*6 per Cent.*			*7 per Cent.*			*8 per Cent.*			*10 p. Cent.*			*12 p. Cent.*		
	s.	d.	q.	s.	d.	q.	s.	d.	q.	s.	d.	q.	s.	d.	q.	s.	d.	q.
1	19	0	2	18	10	1	18	8	0	18	6	0	18	2	0	17	10	1
2	18	1	2	17	9	1	17	5	2	17	1	3	16	6	1	15	11	1
3	17	3	1	16	9	2	16	3	3	15	10	1	15	0	3	14	3	0
4	16	5	1	15	10	0	15	3	0	14	8	1	13	8	0	12	8	2
5	15	8	0	14	11	1	14	3	1	13	7	1	12	5	0	11	4	0
6	14	11	0	14	1	0	13	4	0	12	7	0	11	3	2	10	1	3
7	14	2	2	13	3	2	12	5	1	11	8	0	10	3	0	9	0	3
8	13	6	1	12	6	2	11	7	2	10	9	2	9	4	0	8	1	0
9	12	10	2	11	10	0	10	10	2	10	0	0	8	5	3	7	2	2
10	12	3	1	11	2	0	10	2	0	9	3	0	7	8	2	6	5	0
11	11	8	0	10	6	1	9	6	0	8	6	3	7	0	0	5	9	0
12	11	1	2	9	11	1	8	10	2	7	11	1	6	4	2	5	1	2
13	10	7	1	9	4	2	8	3	2	7	4	0	5	9	2	4	7	0
14	10	1	0	8	10	0	7	9	0	6	9	2	5	3	0	4	1	0
15	9	7	2	8	4	0	7	3	0	6	3	2	4	9	1	3	7	3
16	9	2	0	7	10	2	6	9	1	5	10	0	4	4	1	3	3	0
17	8	1	2	7	5	0	6	4	0	5	4	3	3	11	1	2	11	0
18	8	4	0	7	0	0	5	11	0	5	0	0	3	7	0	2	7	0
19	7	11	0	6	7	0	5	6	1	4	7	1	3	3	0	2	4	1
20	7	6	1	6	2	3	5	2	0	4	3	2	2	11	2	2	1	0
21	7	2	0	5	10	2	4	10	0	3	11	3	2	8	2	1	10	0
22	6	10	0	5	6	2	4	6	0	3	8	0	2	5	2	1	8	0
23	6	6	0	5	3	0	4	2	2	3	4	3	2	2	3	1	5	2
24	6	2	1	4	11	1	3	11	1	3	1	3	2	0	1	1	3	3
25	5	10	3	4	8	0	3	8	1	2	11	0	1	10	0	1	2	0
26	5	7	1	4	4	3	3	5	1	2	8	1	1	8	0	1	0	2
27	5	4	1	4	1	3	3	2	2	2	6	0	1	6	1		11	0
28	5	1	0	3	10	3	3	0	0	2	3	3	1	4	2		10	0
29	4	10	1	3	8	1	2	9	2	2	1	3	1	3	0		9	0
30	4	7	2	3	6	1	2	7	2	1	11	3	1	1	3		8	0
31	4	5	1	3	3	1	2	5	1	1	10	0	1	1	0		7	0
32	4	2	1	3	0	2	2	3	2	1	8	1		11	1		6	1
33	4	0	0	2	10	1	2	1	2	1	6	3		10	1		5	2
34	3	9	2	2	8	3	2	0	0	1	5	1		9	1		5	1
35	3	7	2	2	6	2	1	10	2	1	4	0		8	2		4	2
36	3	5	1	2	5	1	1	9	0	1	3	0		7	3		4	0
37	3	3	1	2	3	2	1	7	2	1	2	0		7	0		3	1
38	3	1	2	2	2	0	1	6	2	1	1	0		6	1		3	0
39	2	11	3	2	0	0	1	5	0	1	0	0		5	3		3	0
40	2	10	0	1	11	0	1	4	0	0	11	0		5	1		2	2

REVERSION *of Series*, in Algebra, is a Method finding of a natural Number from its Logarithm given; or the Sine from its Ark; or the ordinate of an Ellipſis from an Area given to be cut off from any Point in the Axis. See SERIES. See alſo LOGARITHM, SINE, ORDINATE, *&c.*

REVERT, in Law; a thing is ſaid to *revert* when it returns or falls back to its firſt Owner. See REVERSION.

All Honours, and Royal Fees, alienated, *revert* to the Crown; or are *revertible.*—Apanages, or Portions of younger Sons of Kings, are granted on Condition of *Reverſion*. See APANNAGE.

REVESTIARY, or REVESTRY. See VESTRY.

REVIEW, in War, the ſhew or Appearance of a Body of Soldiers ranged in form of Battle; and afterwards made to file off; to ſee if the Companies be compleat, or to receive their Pay, *&c.*

The General always *Reviews* his Troops before they go into Winter-Quarters, *&c.* See QUARTER.

REVIEW, in Chancery.—A *Bill of* REVIEW is, where the Cauſe has been heard, and the Decree ſign'd and enroll'd; but ſome Error in Law appers in the Body of the Decree; or ſome new Matter diſcovered in Time after the Decree made. See DECREE.

This Bill is not exhibited but by Leave of the Court. See BILL, CHANCERY, *&c.*

REVIVOR, in Law.—A *Bill of* REVIVOR is where a Bill has been exhibited in Chancery againſt one who anſwers; but before the Cauſe is heard, or at leaſt before the Decree is enrolled, one of the Parties dies.

In this Caſe, a Bill of *Revivor* muſt be brought, to the End the former Proceedings may ſtand *revived*; and the Cauſe be finally determined. See BILL.

REVISE, among Printers, a ſecond Proof of a printed Sheet. See PRINTING.

REVIVIFICATION, or RESUSCITATION, in Chymiſtry, the Art of reſtoring a mix'd Body to its firſt State, after it had been alter'd and diſguis'd by Diſſolution, Calcination, or the like.

Thus Cinnabar and other Preparations of Mercury, are *revived*, or *revivified* into fluid Mercury.—*Olaus Borrichius* aſſures us, that having tormented Mercury with ſeveral Fires, for the Space of a whole Year; having reduced it into Water, Turbith, into Aſhes, *&c.* it *revivified*, and reſumed its firſt Form in the middle of the Flames, by the Attraction of Salt of Tartar. See MERCURY.

Gold, and other Metals, 'tis ſaid, may be recovered or *revivified* into running Mercury, by the uſe of certain Salts, which penetrating the Subſtance of the Metals, abſorb the fixing Sulpher or Cement by which the Mercury was before bound into a malleable Maſs. See METAL, GOLD, *&c.*

REVIVING, in Law, a renewing of Rents and Actions, after they had been extinguiſhed. See RENT, EXTINGUISHMENT, *&c.*

REVOCATION, in Law, the Act of *revoking*, calling back, or annulling a Power, Grant, *&c.* made before.

The *Revocation* of an Offer after it is accepted of, is invalid.—All preceding Wills or Teſtaments are *revoked* by the laſt.—A Prior Clauſtral is *revocable* at Pleaſure.—The *Revocation* of the Edict of *Nants* was fatal to the *French* Proteſtants. See Edict.

REVOLT. See Rebellion.

REVOLUTION, in Politicks, is a grand Turn or Change of Government.

There are no States in the World but have undergone frequent *Revolutions.*—The Abbot *de Vertot* has furniſh'd us with two or three good Hiſtories, of the *Revolutions of Sweden,* the *Revolutions of Rome,* &c.

The Revolution, is uſed by Way of Eminence, for the great Turn of Affairs in *England* in 1688; when King *James* II. abdicating, the Prince and Princeſs of *Orange* were declared King and Queen of *England,* &c. See Abdication.

The Word is form'd from the *Latin, re-volvo,* to roll backwards.

Revolution, in Geometry. The Motion of any Figure quite round a fix'd Line, as an Axis, is called the *Revolution* of that Figure; and the Figure ſo moving is ſaid to *Revolve.* See Axis.

Thus a right angled Triangle revolving round one of its Legs, as an Axis, generates by that *Revolution,* a Cone. See Cone.

Revolution, in Aſtronomy, is the Period of a Star, Planet, Comet, or other Phænomenon; or its Courſe from any Point of its Orbit, till it return to the ſame. See Planet, Period, *&c.*

The Planets have a twofold *Revolution*; the one about their own Axis, uſually called their *Diurnal Rotation,* which conſtitutes what we call their *Day.* See Diurnal and Day.

The other about the Sun, called their *Annual Revolution,* or *Period*; conſtituting their *Year.* See Annual and Year.

Saturn, according to *Kepler,* makes his *annual Revolution* in the Space of 29 Years, 174 Days, 4 Hours, $58' 25'' 30'''$. *Jupiter* in 11 Years, 317 Days, 14 Hours, $49' 31'' 56'''$. *Mars* 1 Year, 321 Days, 23 Hours, $31' 56'' 49'''$. *Venus* in 224 Days, 17 Hours, $41' 55'' 14'''$. *Mercury* in 87 Days, 23 Hours, $14' 24''$. See Saturn, Jupiter, Mars, *&c.*

REVULSION, in Medicine, the turning of a violent Flux of Humours, from one Part of the Body to another, either neighbouring or oppoſite, Part. See Humour, Derivation, *&c.*

In very dangerous Wounds, where the loſs of Blood is great, and the ſtopping it ſpeedily enough, impracticable; 'tis uſual to open a Vein in ſome remote Part, to cauſe a *Revulſion*; that is, to turn the Courſe of the Blood from the former Part. See Phlebotomy.

Revulſions are alſo cauſed by Cupping, Friction, *&c.* See Cupping and Friction.

The Term *Revulſion* is alſo uſed for a great Turn or Revulſion of Humours in the Body.—Sudden Diſeaſes are occaſioned by great *Revulſions* of Humours, which fall all at once on certain Parts.

RHABDOIDES, in Anatomy, a Name given the ſecond true Suture of the Skull; call'd alſo the *Sagettal Suture.* See Suture.

The Word is form'd from the *Greek,* ῥάβδος, Rod, or Staff, and εἶδος, form.

RHABDOLOGY, in Arithmetick, a Name ſometimes given to the Method of performing the two moſt difficult and operoſe Rules, *viz.* Multiplication and Diviſion, by the two eaſieſt, *viz.* Addition and Subſtraction; by means of two little Rods or Laminæ, whereon are inſcribed the ſimple Numbers, and which are to be ſhifted according to certain Rules.

Theſe Rods are what we popularly call *Neper Bones,* from their Inventor, a *Scotiſh* Baron, who likewiſe invented Logarithms.

For their Deſcription and Uſe, ſee Nepairs-*Bones.*

RHABDOMANCY, an antient Method of Divination, perform'd by means of Rods, or Staves; whence its Name, from the *Greek* ῥάβδος, Rod, and μάντεια, Divination. See Divination.

St. *Jerom* makes mention of this Kind of Divination, in his Commentary on *Hoſeah,* Chap. iv. 12. where the Prophet ſays in the Name of God, *My People ask Council at their Stocks; and their Staff declareth unto them:* Which Paſſage that Father underſtands of the *Grecian Rhabdomancy.*

The ſame he finds over again in *Ezekiel* xxi. 21, 22. where the Prophet ſays, *For the King of Babylon ſtood at the parting of the Way, at the Head of the two Ways, to uſe Divination; he made his Arrows bright:* Or as St. *Jerom* renders it, *he mix'd his Arrows, he conſulted with Images, he look'd in the Liver.*

If it be the ſame Kind of Divination that is mentioned in the two Paſſages; *Rhabdomancy* muſt have been the ſame Superſtition with *Belomancy.* See Belomancy.

In effect the two are ordinarily confounded.—The Seventy themſelves Tranſlate the חצים of *Ezekiel* by ῥάβδον, a Rod; though in ſtrictneſs it ſignify Arrows.

This, however, is certain, the Inſtruments of Divination mentioned by *Hoſeah,* are different from thoſe of *Ezekiel.* In the former, 'tis עצה, *etſo,* מקלו, *maklo,* his Wood, his Staff: In the latter חצים, *hhitſin,* Arrows. Though 'tis poſſible they might uſe Rods or Arrows indifferently; the military Men Arrows, and the reſt Rods.

It appears by the Laws of the *Friſones,* that the antient Inhabitants of *Germany* practiced *Rhabdomancy.*—The *Scythians* were likewiſe acquainted with the uſe hereof; and *Herodotus* obſerves, *lib.* iv. That the Women among the *Alani* ſought and gathered together fine ſtraight Rods or Wands, and uſed them in the like Superſtition.

RHAGADES, in Medicine, a *Greek* Term uſed for the Chaps or Clefts in the Lips. See Lips.

Rhagades, are alſo a ſort of little chap'd Ulcers of the Oedematous Kind; form'd of a ſharp, ſaline Humour, and occaſioning a great Contraction, and ſtreightening of the Part, which is by this means ſhrivell'd up like a wet Parchment when held to the Fire. See Oedematous.

They ariſe chiefly on the Fundament, the Neck of the Womb, the Preputium, and even the Mouth; in which laſt Caſe the Patient is not able to ſpeak, chew, or the like.

They are ſometimes moiſt, and of a cancerous Nature, eating deep, and difficult of Cure; but are more commonly of a leſs malignant tendency, being the Conſequences of a Diarrhæa, Dyſentery, or the like. See Tumor, Ulcer, *&c.*

RHAGOIDES, in Anatomy, the ſecond Coat, or Tunic of the Eye; more uſually call'd the *Uvea.* See Uvea.

It has its Name *Rhagoides* as reſembling a Grape-ſtone.

In this is the Hole call'd the *Pupil.* See Pupil.

RHAPONTICUM, a medicinal Root, in form reſembling Rhubarb; and nearly of the ſame Virtues.—'Tis frequently mix'd with Rhubarb by thoſe who ſend that Drug into *Europe*: They are diſtinguiſh'd by this, that the Rhubarb is uſually in roundiſh Pieces, the internal Streaks or Lines whereof run tranſverſe: And *Rhaponticum* in longiſh Pieces, having its Streaks running length-wiſe.—Beſides, that *Rhaponticum* chew'd in the Mouth, leaves a Viſcidity behind it, which Rhubarb does not. See Rhubarb.

The ſcarcity of the *Rhaponticum* of the *Levaut,* occaſions the *Mountain Rhaponticum,* or *Monk's Rhubarb,* to be frequently ſubſtituted for it, which is a wild *Hypolapathum.*—They are diſtinguiſh'd by this, that the former is yellow without, and reddiſh within; but the latter blackiſh without and yellow within.

Dr. *Quincy,* however, confounds the two, when he ſays, the *Rhaponticum* grows plentifully in *England*; and that 'tis only uſed as an Alterative, and does not come up to a Cathartic.

'Tis certain, what now obtains in the Shops, under the Name of *Rhaponticum,* is no other than the Mountain *Rhapontic,* or Monk's Rhubarb; and is much inferior in Virtue to the *Rhaponticum Verum.*

The *Rhaponticum* was thus call'd, *q. d.* Root of *Pontus*; becauſe chiefly produced in the Country of *Pontus,* in *Aſia.*

RHAPSODI, Rhapsodists, in Antiquity, Perſons who made a Buſineſs of ſinging Pieces of *Homer*'s Poems.

Cuper informs us, that the *Rhapſodi* were cloath'd in red when they ſung the Iliad; and in blue when they ſung the Odyſſee.

They perform'd on the Theatres; and ſometimes for Prizes, in Conteſts of Poetry, Singing, *&c.*

After the two Antagoniſts had finiſhed their Parts, the two Pieces, or Papers they were wrote in, were joined together again; whence the Name, *viz.* from ῥάπτω, *ſuo,* I join together; and ᾠδὴ, Ode, Song.

But there muſt have been other *Rhapſodi* of more Antiquity than theſe; People who compoſed Heroic Poems, or Pieces in Praiſe of Heroes and Great Men, and ſung their own Compoſitions from Town to Town for a Livelihood: Of which Profeſſion was *Homer* himſelf.

Hence, ſome Criticks inſtead of the former Derivation, fetch *Rhapſodiſt* from ῥαβδῳ ᾀδειν, *to ſing with a Lawrel Rod in the Hand,* which it ſeems was the Badge of the Primitive *Rhapſodi.*

Philochorus, again, derives the Word from ῥάπτειν ᾠδὴν, *to procure Pieces of Poetry to be compoſed,* as if they were not the Authors of the Poems they ſung. This Opinion, to which *Scaliger* inclines, reduces theſe *Rhapſodi* to the firſt Kind.—In effect, 'tis probable that they were all of the ſame Claſs, whatever Diſtinction ſome Authors may Imagine; and that their Buſineſs was to ſing or rehearſe Poems, either of their own, or other People's Compoſition, as might beſt ſerve their Purpoſe, the getting of a Penny. So that we don't apprehend it any Injury to them, to ſet them on the Foot of our Ballad-ſingers; many of whom, no doubt, Pen their own Ditties. After *Homer*'s Time, 'tis no wonder they confined themſelves altogether to his Pieces, for which the People had the utmoſt Veneration: Nor is it ſurprizing they ſhould erect Stages, *&c.* and Diſpute the Point of Recitation in Fairs and Markets.

RHAPSODOMANCY, an antient Kind of Divination performed by pitching on a Paſſage of a Poet at hazard, and reckoning on it as a Prediction of what was to befall. See Divination and Chance.

There were various Methods of practicing *Rhapſodomancy.*—Sometimes they wrote ſeveral Verſes or Sentences of a Poet, on ſo many Pieces of Wood, Paper, or the like; ſhook them together in an Urn, and drew out one, which was accounted the Lot.

Sometimes they caſt Dice on a Table, whereon Verſes were wrote; and that whereon the Dye lodg'd, contain'd the Prediction.

A third Manner was by opening a Book, and pitching on ſome Verſe, at firſt Sight. This Method they particularly called the *Sortes Prœneſtinæ*; and, afterwards, according to the Poet thus made uſe of, *Sortes Homericæ*, *Sortes Virgilianæ*, &c. See SORTES.

RHAPSODY, in Antiquity, a Diſcourſe in Verſe, ſung or rehearſed by a *Rhapſodiſt*. See RHAPSODI.

Others will have *Rhapſody* properly to ſignify a Collection of Verſes, eſpecially thoſe of *Homer*; which having been a long time diſperſed in Pieces and Fragments, were at length by *Piſiſtratus*'s Order, digeſted into Books, call'd *Rhapſodies*: From the *Greek* ῥάπτω, *ſuo*, I ſew; and ᾠδὴ, Verſe, Song.

Hence, among the Moderns, *Rhapſody* is uſed for an Aſſemblage of Paſſages, Thoughts, and Authorities, raked together from divers Authors, to compoſe ſome new Piece.—*Lipſius*'s Politicks make ſuch a *Rhapſody*, wherein there is nothing of the Author's own, but Conjunctions and Particles.

RHETORICIANS, a Sect of Hereticks in *Egypt*, denominated from their Leader *Rhetorius*.

The diſtinguiſhing Doctrine of this Hereſiarch, as repreſented by *Philaſtrius*, was, that he approved of all the Hereſies before him; and taught that they were all in the right. What *Philaſtrius* mentions of him appears ſo abſurd and ridiculous that St. *Auguſtin, Hæres.* 7. could not perſuade himſelf it was true.

RHETORIC, RHETORICA, the Art of ſpeaking copiouſly on any Subject, with all the Advantages of Beauty and Force. See SPEAKING.

My Lord *Bacon* defines *Rhetoric*, very Philoſophically, the Art of applying and addreſſing the Dictates of Reaſon to the Fancy, and of recommending them there, ſo as to affect the Will and Deſires.—The End of *Rhetoric*, the ſame Author obſerves, is to fill the Imagination with Ideas and Images which may aſſiſt Nature, without oppreſſing it.

Voſſius defines *Rhetoric* the Faculty of diſcovering what every Subject affords of uſe for Perſuaſion.—Hence, as every Author muſt *invent* Arguments to make his Subject prevail; *diſpoſe* thoſe Arguments thus found out in their proper Places; and give them the Embelliſhments of Language proper to the Subject; and, if his Diſcourſe be to be delivered in Publick, utter them with that Decency and Force which may ſtrike the Reader: *Rhetoric* becomes divided into four Parts, *Invention*, *Diſpoſition*, *Elocution*, and *Pronunciation*; each whereof ſee under its proper Head, INVENTION, DISPOSITION, ELOCUTION, and PRONUNTIATION.

The Word is form'd from the *Greek* ῥέω, *dico*, I ſpeak; whence ῥήτωρ, Speaker, Orator, and ῥητορικὴ.

Rhetoric and *Oratory* differ from each other as the Theory from the Practice; the *Rhetorician* being he who preſcribes the Rules of Eloquence; and the Orator he who uſes them to Advantage; and ſpeaks Elegantly, *&c.*—Ordinarily, however, the two are uſed indifferently for each other. See ORATORY.

RHEUM, a thin ſerous Humour, occaſionally oozing out of the Glands about the Mouth and Throat. See HUMOUR.

A Fluxion of *Rheum*, uſually happening after taking Cold, occaſions Excoriations and Inflamations of the Fauces, Lungs, *&c.* See FLUXION and DEFLUXION.

RHEUM is alſo uſed for a *Catarrh*, or a Defluxion of ſuch Humours on the Trachea, and the neighbouring Parts; occaſioning a Coughing, Spitting, Hoarſeneſs, Running at the Noſe. See CATARRH, COUGH, HOARSENESS, *&c.*

The *Rheum* is not caus'd by a Pituita falling from the Brain on theſe Parts, as the Antients imagined, there being no Paſſage from the Brain thither; but from a thin, ſharp, ſerous Humour, oozing out of the Extremities of the Glands of theſe Parts.

The moſt ordinary Occaſion of *Rheums*, is external Cold; eſpecially the being expoſed to it when the Body is much heated. —And hence the Diſorder it ſelf is popularly call'd a *Cold*. See COLD.

Rheums falling on the Breaſt, Lungs, *&c.* are dangerous; others, not very violent, ſerve to clear the Head, *&c.* The uſual Remedies are Aſtringents, Agglutinants, and Abſorbents. See ASTRINGENT, *&c.*

The Word is form'd from the *Greek*, ῥέω, *fluo*, I flow.

RHEUMATISM, in Medicine, a painful Diſorder felt in various Parts of the external Body, accompanied with Heavineſs, Difficulty of Motion, and frequently a Fever.

Or, a *Rheumatiſm* is a Pain uſually wandering, but ſometimes fix'd in the muſcular and membranous Parts of the Body; happening chiefly in Autumn.

The proper Seat of the *Rheumatiſm* is ſuppoſed to be in the Membrana Communis of the Muſcles; which it renders rigid and unfit for Motion without great Pain. See MEMBRANE.

This Diſeaſe is either univerſal or particular.—*Univerſal Rheumatiſm* is that which attacks all the Parts of the Body, even the internal ones.

Particular Rheumatiſm is that which is confined to particular Parts: In which Caſe the Pains are uſually eratic, paſſing from one Side to another; but ſometimes fix'd, call'd alſo a *windy* and *ſcorbutic Rheumatiſm*.

The *Rheumatiſm* bears a great Analogy to the Gout; whence ſome call it the *univerſal Gout*.—The Difference between them conſiſts in this, that the *Rheumatiſm* attacks not only the Joints, as the Gout does, but alſo the Muſcles and Membranes between the Joints. See GOUT.

A Fit of the *Rheumatiſm* is frequently preceded by a Fever of two or three Days; and ſometimes by a Shivering.—The Attack happens in various Parts of the Body, as the Hands, Arms, Thighs, Legs, Feet, *&c.* a Redneſs, Swelling, and Lameneſs often ſucceeding.

The Pain ſometimes fixing on the Loins, and reaching as far as the *Os Sacrum*; the Diſorder is call'd *Lumbago*; and bears a near reſemblance to the *Nephritis*; being only diſtinguiſhable therefrom by this, that the latter is attended with a Vomiting, which the former is not.

The *Rheumatiſm* is ſuppoſed to ariſe from a ſharp ſerous Humour thrown on the ſenſible Parts, and occaſioning a Pain by its Veſication.—Dr. *Quincy* ſays, it proceeds from the ſame Cauſe, as that whereby the mucilaginous Glands become ſtiff and gritty in the Gout. See GOUT.

Dr. *Muſgrave* takes it to be occaſioned by a ſharp alcaline Salt, rather than an acid one; from this Conſideration, that the Urine of *Rheumatic* People does not afford above a thirtieth Part of the Alcaline Salt found in that of healthful People.

Hence, he conjectures, that the Salt is retain'd in the Blood, implicated and embarraſs'd in the Pituita; by which means it forms a Viſcidity which occaſions all the Pains and Tumours of the *Rheumatiſm*.

The expoſing of the Body too ſuddenly to the cold Air, after having heated it to a great Degree; is the moſt uſual remote Cauſe. —The Cure is by Evacuation, chiefly, according to *Sydenham*, by repeated Phlebotomy, with a plentiful Uſe of Volatiles and Diluters.

Schmitzius recommends Sudorificks; and *Muſgrave*, Catharticks, and Emeticks.

It uſually proves a tedious, laſting Diſeaſe; holding for ſeveral Months, ſometimes Years; not continually but by Paroxiſms.

In aged Perſons, and thoſe of weak Conſtitutions, and decay'd Viſcera, it ſometimes ſeizes the Head.

RHEXIS, or RHEGMA, among Occuliſts, a Rupture of the Cornea of the Eye. See CORNEA.

The Word is form'd from the *Greek* ῥῆξις, rupture, of ῥήγνυμαι, *frango*, I break.

RHIME, RIME, or RHYME, in Poetry. See RHYME.

RHINE-*Land-Rod*, in Fortification, *&c*, a Meaſure of ten Foot, call'd alſo *Decempeda*, &c. See MEASURE, FOOT, and DECEMPEDA.

RHINE-*Grave*, in *Germany*, a Count Palatine of the *Rhine*. See GRAVE and PALATINE.

RHODIUM *Lignum*, Rhodian-Wood. See ASPALATHUM.

RHODON, in Pharmacy, from ῥόδον, *Roſa*; a Name given to ſome Compoſitions wherein the Roſe is the chief Ingredient; as *Diarrhodon*. See DIARRHODON, *&c.*

Hence alſo *Rhodoſeccharum*, q. d. *Sugar of Roſes*, &c. See ROSE.

RHOMBOIDES, in Geometry, a quadrilateral Figure, whoſe Sides and Angles are unequal; but the oppoſite ones equal. See FIGURE.

Or, *Rhomboides* is a quadrilateral Figure, whoſe oppoſite Sides and Angles are equal; but is neither equilateral nor equiangular.

Such is the Figure NOPQ, (*Tab. Geometry*, *Fig.* 24.)

For the Method of finding the Area of a *Rhomboides*, ſee RHOMBUS.

RHOMBOIDES, in Anatomy, a Muſcle, thus called from its Figure. See MUSCLE.

It lies under the *Cucullaris*, and ariſes from the two inferior Spines of the Neck, and four ſuperior of the Back; and is inſerted fleſhy into the whole Brain of the Scapula, which it draws backwards, and a little upwards.

RHOMBUS, in Geometry, an obliquangular Parallelogram; or a quadrilateral Figure, whoſe Sides are equal and parallel; but the Angles unequal, two of the oppoſite ones being obtuſe, the other two acute. See FIGURE.

Such is the Figure ABCD, *Tab. Geometry*, *Fig.* 83.

To find the Area of a Rhombus, or Rhomboides.—Upon CD, which is here aſſumed as a Baſe, let fall a perpendicular AE; which will be the Altitude of the Parallelogram: Multiply the Baſe by the Altitude, the Product is the Area.

Thus, if CD be = 456, and ADE = 234; the Area will be found 106704.

For it is demonſtrated that an oblique angular Parallelogram is equal to a Rectangle upon the ſame Baſe CD, and of the ſame Altitude CE. (See PARALLELOGRAM.) But the Area of a Rectangle is equal to the Factum of the Baſe into the Altitude. Therefore the Area of an obliquangular Triangle is equal to the ſame. See RECTANGLE.

The Word is form'd of the *Greek* ῥόμβος, of ῥομβεῖν, to incompaſs.

RHOMBUS, among Surgeons, is a ſort of Bandage of a *Rhomboidal* Figure. See BANDAGE.

RHOPALIC *Verſes*, among the Antients, a kind of Verſes which began with Monoſyllables, and were continued in Words growing gradually longer and longer to the laſt, which was the longeſt of all. See VERSE.

They had their Name from the *Greek* ϱοπαλὸν, a Club, which, like them begins with a ſlender tip, and grows bigger and bigger to the Head.—Such is that Verſe of *Homer*,

> Ω᾽ μάκαρ᾽ Ἀτρείδη μοιρηγενὲς, ὀλβιοδαίμων.

And this *Latin* one,

> *Spes Deus æternæ eſt ſtationis Conciliator.*

RHOPOGRAPHI, in Antiquity, a Name given to certain Painters, who confined themſelves to low Subjects; ſuch as Animals, Plants, Landskips, *&c.*

The Title was alſo given to ſuch as cut Figures of Men, *&c.* in Box, Phileria, Yew, *&c.* in Gardens.

The Word is form'd from the *Greek* ϱοπος, Toys, or odd Ware, and γϱαφω, I write, I paint.

RHUBARB, a medicinal Root, large, compact, and heavy; yellow without, of a Nutmeg Colour within; an aſtringent, bitteriſh Taſte; and an agreeable, aromatic Smell: Of great uſe in Medicine, as a Purgative. See ROOT and PURGATIVE.

Conſidering the mighty Uſe of this Drug, 'tis ſurprizing we ſhould know ſo little of the Place where the Plant grows that produces it.—Some ſay it comes from the Kingdom of *Boutan*, in the Extremities of *India*; others, that 'tis found in the Provinces of *Xenſi* and *Suchen* in *China*. Others will have it only grow in *Perſia*; and others on the Confines of *Muſcovy*; deriving its Name from *Rha*, the River among us call'd *Volga*, and *Barbarum*, q. d. Root found by the Barbarians on the River *Rha*.

Rhubarb, in *Latin*, *Rhabarbarum Officinarum*, was not known of the Antients; and their *Rhaponticum*, which indeed reſembles it, is not the real *Rhubarb*. See RHAPONTICUM.

Good *Rhubarb* ſteep'd in Water gives it a Saffron Colour; and when broke, looks bright, with ſomewhat of a Vermillion Caſt.—Some Druggiſts have the Art of renewing their old Roots, by giving them a yellow hue; but the Cheat is eaſily known by handling them; the Powder wherewith they colour them ſticking to the Fingers.

Rhubarb is eſteemed an excellent Cathartic; proper for a Diarrhæa, to fortify the Stomach, and to create an Appetite.

M. *Boulduc* informs us, in the Memoirs of the *French* Academy, that he drew Extracts from *Rhubarb* both with Water and Spirit of Wine; but the purgative Virtue, he ſays, was much more viſible in the former than the latter; which ſhews that it conſiſts more in a Salt than an Oil.—He obſerves, however, that *Rhubarb* taken in Subſtance, has a ſtill better effect; and adds, that of all the Operations he could make with it, none gave any Credit to the common Opinion, which aſcribes an aſtringent Quality to it.

Monks RHUBARB. See RHAPONTICUM.

White RHUBARB. See MECHOACAN.

RHUMB, or RUMB, or RUM, RHOMBUS, in Navigation, a vertical Circle, of any given Place; or the Interſection of a Part of ſuch a Circle with the Horizon. See VERTICAL.

Rhumbs therefore coincide with *Points* of the World, or of the Horizon. See POINT and HORIZON.

And hence the Mariners diſtinguiſh the *Rhumbs* by the ſame Names as the Points, and Winds. See WIND.

They uſually reckon 32 *Rhumbs*; which are repreſented by the 32 Lines in the Roſe, or Card of the Compaſs. See COMPASS.

Aubin defines a *Rhumb* by a Line on the terreſtrial Globe, Sea-Compaſs, or Sea-Chart, repreſenting one of the 32 Winds which ſerve to conduct a Veſſel.—So that the *Rhumb* a Veſſel purſues is conceiv'd as its *Route* or *Courſe*. See COURSE.

Rhumbs are divided, and ſubdivided like Points.—Thus, the *whole Rhumb* anſwers to the Cardinal Point.—The *half Rhumb*, to a collateral Point, or makes an Angle of 45° Degrees with the former.—The *Quarter Rhumb* makes an Angle of 22° 30′ therewith.—And the *half-quarter Rhumb* makes an Angle of 11° 15′. See CARDINAL, COLLATERAL, QUARTER, *&c.*

A Table of the *Rhumbs*, or Points, and their Diſtances from the Meridian, ſee under the Article WIND.

RHUMB-LINE, or LOXODROMIA, in Navigation, is the Line which a Ship keeping in the ſame collateral Point or *Rhumb*, deſcribes, throughout its whole Courſe. See LOXODROMIA.

The great Property of the *Rhumb Line*, or *Loxodromia*, and that from which ſome Authors define it, is, that it cuts all the Meridians under the ſame Angle. See MERIDIAN.

This Angle is call'd the *Angle of the Rhumb, or Loxodromic* Angle. See ANGLE.

The Angle which the *Rhumb Line* makes with any Parallel to the Equator is call'd the *Complement of the Rhumb*. See COMPLEMENT.

Nature and Origin of the RHUMB-LINES.

An Idea of the Origin and Properties of the *Rhumb-Line*, the great Foundation of Navigation, may be conceived thus.—A Veſſel beginning its Courſe, the Wind wherewith it is driven makes a certain Angle with the Meridian of the Place; and as 'tis ſuppoſed the Veſſel runs exactly in the Direction of the Wind, it makes the ſame Angle with the Meridian which the Wind makes.

Suppoſing, then, the Wind to continue the ſame, as each Point or Inſtant of the Progreſ, may be eſteem'd the Beginning; the Veſſel always makes the ſame Angle with the Meridian of the Place where it is each Moment, or in each Point of its Courſe, which the Wind makes.

Now, a Wind, *e. gr.* that is North-Eaſt, and which of Conſequence makes an Angle of 45°, with the Meridian, is equally North-Eaſt wherever it blows; and makes the ſame Angle of 45° with all the Meridians it meets.—A Veſſel therefore driven by the ſame Wind, always makes the ſame Angle with all the Meridians it meets withal on the Surface of the Earth.

If the Veſſel ſail North and South, it makes an Angle infinitely acute with the Meridian, *i. e.* 'tis parallel to it, or rather ſails in it.—If it run Eaſt and Weſt, it cuts all the Meridians at right Angles.

In the firſt Caſe it deſcribes a great Circle; in the ſecond, either a great Circle, *viz.* the Equator, or a Parallel to it.—If its Courſe be between the two, it does not then deſcribe a Circle; ſince a Circle drawn in ſuch a manner would cut all the Meridians at unequal Angles, which the Veſſel cannot do.

It deſcribes, therefore, another Curve, the eſſential Property whereof is, that it cuts all the Meridians under the ſame Angle. —This Curve is what we call the *Loxodromic Curve*, *Rhumb-Line*, or *Loxodromy*. See CURVE.

'Tis a kind of Spiral, which, like the Logarithmic Spiral, makes an Infinity of Circumvolutions without ever arriving at a certain Point to which it ſtill tends, and towards which it approaches every ſtep. See SPIRAL.

This aſymptotic Point of the *Rhumb-Line* is the Pole; to which were it poſſible for it to arrive, it would find all the Meridians conjoin'd, and be loſt in them. See POLE.

The Courſe of a Veſſel, then, except in the two firſt Caſes, is always a *Rhumb-Line*; which Line is the Hypothenuſe of a Rectangle-Triangle, whoſe two other Sides are the Ships Way or Diſtance run in Longitude and Latitude. Now the Latitude is uſually had by Obſervation, (See LATITUDE); and the Angle of the *Rhumb*, with one or other of the two Sides, by the Compaſs. See COMPASS.

All therefore that is required by Calculation in Sailing, is the Value of the length of the *Rhumb-Line*, or Ships Courſe. See COURSE.

But as ſuch Curve Line would prove very perplexing in the Calculation; it was neceſſary to have the Ships Way in a right Line; which right Line however muſt have the eſſential Property of the Curve Line, *viz.* to cut all the Meridians at right Angles.—*The Method of effecting which ſee under the Article* CHART and MERCATOR.

If PA, PF, PG, *&c.* (*Tab. Navigation, Fig.* 19.) be ſuppoſed Meridians, AI the Equator, and AE another great Circle of the Sphere: AO will repreſent a *Rhumb-Line*, the Angles whereof with the ſeveral Meridians, being leſs than thoſe of the great Circle; it follows, that the *Rhumb* is not a great Circle of the Sphere.—If a Ship therefore be at firſt directed towards E, and conſtantly perſiſt in the ſame *Rhumb*, it will never arrive at the Place E, but at the Place O which is further from the Equator.

Hence, as on the Surface of a Sphere, the ſhorteſt Way between A and O is an Arch of a great Circle between A and O; the *Rhumb-Line* is not the ſhorteſt Way, or leaſt Diſtance from one Place to another. See CIRCLE, SPHERE, DISTANCE, *&c.*

Application of RHUMB-LINES *in Navigation.*

1°. If the Meridians PA, PC, PD, *&c.* be not very far apart, the *Rhumb-Line* AIHG is divided by the equidiſtant Parallels BI, KH, FG, *&c.* into equal Parts.

Hence, 1°. the Parts of the *Rhumb* AI, and AG, are as the Latitudes AL and AN of the Places I and G.—2°. Since the Arches AB, IK, HF, are equal in Magnitude, and therefore unequal in Number of Degrees; the Sum of the Arches, call'd the *Latus Mecodynamicum*, or *Miles of Longitude*, is not equal to the Difference of Longitude AB of the Places A and G. See MECODYNAMICUM.

2°. The Length of the *Rhumb-Line* AG is to the Change or Difference of Latitude GD, in the ſame Ratio, as the whole Sine to the Co-ſine of the Angle of the *Rhumb*.

Hence, 1°. the *Rhumb* ſail'd on being given, together with the Difference or Change of Latitude, turn'd into Miles; the length of the *Rhumb-Line*, or the Diſtance from the Place A to the Place G upon the ſame *Rhumb*, is had by the Rule of Three.—2°. The *Rhumb* being given, together with the Quantity of the Ship's Way on the ſame *Rhumb*, i. e. the length of the *Rhumb* AG; the Difference of Latitude DG, is had by the Rule of Three, in Miles to be converted into Degrees of a great Circle.—3°. The Difference of Latitude DG being given in Miles; as alſo the Length of the *Rhumb-Line* AG; the Angle of the *Rhumb*, and conſequently the *Rhumb* ſail'd on is had by the Rule of Three.—4°. Since the Coſine is to the whole Sine as the whole Sine to the Secant; the Difference of Latitude GD, is to the Length of the *Rhumb-Line* AG, as the whole Sine to the Secant of the Angle of the *Rhumb*.

3°. The Length of the *Rhumb-Line*, or of the Ship's Way in the ſame *Rhumb* AG, is to the *Latus Mecodynamicum*, or *Mecodinamic* Side AB+IK+HF, as the whole Sine to the Sine of the *Loxodromic* Angle GAP.

Hence, 1°. The *Rhumb*, or Angle of the *Rhumb*, being given, as alſo the Ship's Way in the ſame *Rhumb-Line* AG; the *Mecodynamic* Side is had by the Rule of Three, in Miles; *i. e.* in the ſame Meaſure wherein the Length of the *Rhumb* is given.—2°. In like manner, the *Mecodynamic* Side AB+IK+HF being given; as alſo the *Rhumb-Line*, or Ships Way AG; the *Rhumb* ſail'd in is found by the Rule of Three.

4°. The Change of Latitude GD, is to the *Mecodynamic* Side AB+IK+HF; as the whole Sine, to the Tangent of the *Loxodromic* Angle PAG or AIB.

Hence, the *Rhumb*, or *Loxodromic* Angle PAG, and the change of Latitude CD, being given; the *Mecodynamic* Side is found by the Rule of Three.

5°. The *Mecodynamic* Side AB+IK+HF is a mean Proportional between the Aggregate of the *Rhumb* AG, and the Change of Latitude GD and their Difference.

Hence, the Change of Latitude GD, and the *Rhumb-Line* AG, being given in Miles; the *Mecodynamic* Side is found in the ſame Meaſure.

6°. *The Mecodynamic Side* AB+IK+HF *being given; to find the Longitude* AD.

Multiply the Change or Difference of Latitude GD by ſix, which reduces it into Parts, of ten Minutes each: Divide the Product by the *Mecodynamic* Side; the Quotient gives the Miles of Longitude anſwering to the Difference of Latitude in ten Minutes. Reduce theſe Miles of Longitude in each Parallel into Differences of Longitude, from a *Loxodromic* Table. The Sum of theſe is the Longitude required. See Longitude.

7°. If a Ship ſail on a North or South *Rhumb*, it deſcribes a Meridian; if on an Eaſt or Weſt *Rhumb*, it deſcribes either the Equinoctial, or a Parallel thereto. See Sailing.

8°. *To find the Rhumb between two Places, by Calculation, or Geometrically.* We have two Canons, or Proportions: The firſt,—As the Radius, is to the Co-ſine of the middle Latitude; ſo is the Difference of Longitude to the whole Departure from the Meridian, in the Courſe between the two Places propoſed.

The ſecond,—As the Radius is to the half Sum of the Coſines of both Latitudes; or (rather for Geometrical Schemes) as the Diameter, is to the Sum of the Co-ſines of both Latitudes; ſo is the Difference of Longitude, to the Departure from the Meridian.

For an Example of the former Proportion.—Let the *Rhumb* be required between *Cape Finiſter*, Latitude 43°, Longitude 7° 20′; and St. *Nicholas Iſle*, Latitude 38°, Longitude 352°. The middle Latitude is 40° 30′, the Complement 49° Degrees 30′; and the Difference of Longitude 15° 20′. Out of theſe leſſer equal Parts, prick down 15° from C to L, (*Fig.* 20.) and deſcribe the Arch BD with 60° of the Chords, and make it equal to 49° 30′, and draw CD continued farther to A.—From L take the neareſt Diſtance to AC which is equal to LM, and make it one Leg of a Right-angled Triangle; make the other Leg the Difference of Latitude 5°, which prick from the equal Parts from L to F.—Then, the extent MF meaſured on the ſaid Parts, ſhews the Diſtance to be 13° 24′; which, allowing 20 Leagues to a Degree, is almoſt 268 Leagues.—Then, with the Radius CB ſetting one Foot at M, croſs the *Rhumb* Triangle at GH; which extent meaſured on the greater Chord is almoſt 22°, the Complement whereof is 68°; and ſo much is the *Rhumb* from the Meridian between the two Places, amounting to 6 Points, and upwards of 80 Minutes.

For an Inſtance of the latter Proportion.—Let it be required to find the *Rhumb* and Diſtance between the *Lizard* and *Bermudas*. The Latitude of the *Lizard* being 56°, and that of *Bermudas* 32°, 20′, or 32°, 41 Centeſms, and their Difference of Longitude, 55° Degrees; draw the Lines AC and CD (*Fig.* 21.) at Right Angles, and with 60° of the leſſer Chords deſcribe the Quadrant HI, and prick the Radius from I to D; ſo is CD the Diameter; then count both Latitudes from H to F and G, the neareſt Diſtance from F to CI, is the Co-ſine of *Bermudas* Latitude, which prick from C to E: Again, the neareſt Diſtance from G to CI, is the Co-ſine of the *Lizard*'s Latitude, which place from C to S, ſo is CS the Sum of both Co-ſines; draw DS, and prick down 55 Degrees, the Difference of Longitude from C to V, out of the greateſt equal Parts, and draw VB Parallel to DS, ſo is CB the Departure from the Meridian in the Courſe between both Places.—Making that, therefore, one Leg of a Right-angled Triangle, prick down 17°, 59 Centeſms, the Difference of Latitude between thoſe Places, out of the ſame equal Parts from C to L, and draw BL.—This repreſents the Courſe and Diſtance between the *Lizard* and *Bermudas*; and the extent LB meaſured on the ſame equal Parts, ſhews the Diſtance to be 44°, 31 Centeſms, which allowing 20 Leagues to a Degree, is 886 Leagues.

Then, to find the Courſe.—With 60° of the Chords, ſetting one Foot in L, with the other make Marks at Y and Z; then the Extent ZY, meaſured on the Chords, ſhews the *Rhumb* to be 66°, 37′ Minutes from the Meridian. This Proportion in the preſent Example, holds very juſt, according to *Mercator*'s Chart; whereas the former Proportion, by the middle Latitude, would have given the *Rhumb* 67°, 2′, from the Meridian, and the Diſtance 902 Leagues.

Again, making CA equal to CV, a Line joining LA would be the Courſe and Diſtance according to the ſame Longitudes and Latitudes laid down on the Plain Chart; whereby the Courſe ſhould be 72 Degrees 17 Minutes from the Meridian, and the Diſtance 1155 Leagues. See Sailing, Chart, *&c.*

RHYAS, in Medicine, a Diminution or Conſumption of the *Caruncula Lachrymalis*, ſituate in the great Canthus or Angle of the Eye. See Caruncula.

The *Rhyas* is uſed in oppoſition to the *Encanthis*, which is an exceſſive Augmentation of the ſame Caruncle. See Encanthis.

The Cauſe of the *Rhyas* is a ſharp Humour falling on this Part; and gnawing and conſuming it by Degrees; though it is ſometimes alſo produced by the too great Uſe of Cathereticks in the *Fiſtula Lachrymalis*.—It is cured by Incarnatives.

The Word is form'd from the *Greek* ῥέω, to flow.

RHYME, Rhime, Ryme, or Rime, in Poetry, *&c.* the ſimilar Sound, or Cadence and Termination of two Words which end two Verſes, *&c.* See Verse.

Or *Rhyme* is a Similitude of Sound between the laſt Syllable or Syllables of one Verſe, and the laſt Syllable or Syllables of a Verſe ſucceeding either immediately or at the Diſtance of two or three Lines.

Rhyme is a modern Invention, the Product of a *Gothick* Age: *Milton* calls it the *Modern Bondage*. Yet ſome Authors will have it, the *Engliſh*, *French*, &c. borrow their *Rhyme* from the *Greeks* and *Latins*.—The *Greek* Orators, ſay they, who endeavour'd to tickle the Ears of the People, affected a certain Cadence of Periods, ending in a Conſonance, and call'd them ὁμοιοτέλευτα. The *Latins*, who imitated them, call'd theſe meaſur'd Phraſes, *ſimiliter deſinentia*.

This Affectation increas'd as the *Latin* Tongue declin'd; ſo that in the later *Latin* Writers, ſcarce any thing is more common than *rhyming* Periods.

The *French*, and from them the *Engliſh*, &c. retain'd this Cadence of *Rhyme*, which ſeem'd to them more pretty, and even more agreeable than the meaſured Verſes of the *Greek* and *Roman* Poets.—This kind of *Latin* Poetry in *Rhyme* was much in Vogue in the XIIth Century; and the Verſes thus running were call'd *Leonine Verſes*; for what Reaſon *Cambden* owns he does not know; (for a Lion's-Tail, ſays he, does not anſwer to the middle Parts as theſe Verſes do) but doubtleſs they had their Name from a Canon call'd *Leoninus*, who firſt compoſed them with Succeſs, and of whom we have ſeveral Pieces remaining, addreſs'd to Pope *Adrian* IV. and *Alexander* III. See Leonine *Verſes*.

Cambden has given us a Collection of *Latin Rhymes* of our antient *Engliſh* Writers; among whom *Walter de Mapes* Archdeacon of *Oxford*, in the Time of King *Henry* II. makes a principal Figure: Eſpecially for two Pieces, the one in Praiſe of Wine, beginning,

Mihi eſt propoſitum in Taberna mori,
Vinum ſit appoſitum morientis ori;
Ut dicant, cum Venerint, Angelorum Chori,
Deus ſit propitius huic potatori.

The other againſt the Pope, for forbidding the Clergy their Wives; beginning,

Priſciani Regula penitus caſſatur,
Sacerdos per hic & hæc olim declinatur;
Sed per hic ſolummodo, nunc articulatur,
Cum per Noſtrum præſulem hæc amoveatur.

Since the Reſtoration of Learning in the 16th Century, Attempts have made to baniſh *Rhyme* out of the modern Poetry, and to ſettle the *Engliſh* and *French* Verſes on the footing of the antient *Greek* and *Latin* ones; by fixing the Quantities of the Syllables, and truſting wholly to thoſe, and the Numbers or Meaſure. See Quantity, Numbers, *&c.*

This, *Milton* has done with great Succeſs, in his *Paradiſe Loſt*, and other Pieces; and after him *Philips*, *Addiſon*, and ſome others.—Verſes of this Kind we call *Blank Verſes*. See Blank.

The *French* have attempted the ſame, but not with the ſame Succeſs.—*Jodelet* made the firſt Eſſay; and after him *Paſquier*; but they fail'd. *Paſſerat* and *Rapin* follow'd them, and fail'd like them. Their Hexameter and Sapphic Verſes were neither imitated nor approved; and the Cadence of *Rhyme* was prefer'd to Quantity, or to long and ſhort Syllables. *Des Portes* likewiſe made ſome Eſſays of Verſes conſtructed of long and ſhort Verſes without *Rhyme*, but the Attempt only ſerv'd to convince the World that this Kind of Meaſure is inconſiſtent with the Genius of the *French* Tongue.

To ſucceed in ſuch kind of Verſes there muſt be a Liberty of varying the Arrangement of the Words, or of changing their Situation as may beſt ſuit the Occaſions of the Poet; of making the Subſtantive either go before, or follow after the Verb, as the Verſe requires, *&c.* Now none of the modern Tongues admit of ſuch an arbitrary Situation of the Words, equally with the Antient; yet none more than the *Engliſh*, nor leſs than the *French*. See CONSTRUCTION.

Rhymes are either *ſingle*, or *double*, or *treble*; but the two laſt are now diſuſed.

Single Rhymes are divided into perfect or whole *Rhymes*; and imperfect or half *Rhymes*.

A *whole* or *perfect Rhyme* is where there is a Similitude of Sound, without any Difference; or where a thorough Identity of Sound appears in the Pronunciation of the two Syllables, notwithſtanding that there may be ſome Difference in the Orthography.

An *imperfect* or *half Rhyme* is where there is a Similitude with a Difference, either in reſpect of the Pronunciation or the Orthography; but chiefly the former.

In the time of S. *Louis*, the *French* began to be more exact in their Verſification; and to diſtinguiſh their *Rhymes* into *Maſculine* and *Feminine*; and to obſerve a regular Mixture of the two, in their Verſes.

The Invention of this Mixture is uſually attributed to *Marot*; however 'twas *Ronſard* who firſt practiced it with Succeſs.—The Feminine *Rhyme* is that where the laſt Syllable of the *Rhyme* ends with an *e* Mute or Quieſcent: As in *Dove*, *Belle*, &c.—*Maſculine Rhymes* are thoſe of all other Words. *Menage* obſerves that Maſculine *Rhymes* cloſe the Periods better: But that Feminines, being the ſofter and more languiſhing, end more agreeably, eſpecially in mournful Subjects.

They alſo diſtinguiſh further between *rich Rhymes*, which are thoſe where the two Words terminate alike, through the whole two laſt Syllables, as *ſquabble* and *rabble*, &c.—*Plain Rhymes* are thoſe where the two *rhyming* Verſes ſucceed immediately to each other.—*Croſs Rhymes*, thoſe where the Verſes are ſo diſpoſed as that the firſt *rhymes* with the third, and the ſecond with the fourth, *&c.*

They alſo diſtinguiſh Normand *Rhymes*, Pariſian *Rhymes*, Equivocal *Rhymes*, &c.

RHYPTICKS, or RYPTICKS, RHYPTICA, in Medicine. See RYPTICKS.

RHYTHM, RHYTHMUS, in Muſick, the Variety in the Movements, as to the quickneſs or ſlowneſs, length and ſhortneſs of the Notes. See NOTE.

Or, the *Rhythmus* may be defined more generally, the Proportion which the Parts of a Motion have to each other. See RHYTHMICA.

Ariſtides among the antient Muſicians, applies the Word *Rhythmus* three Ways; *viz.* either to immoveable Bodies, when their Parts are rightly proportioned to each other; as a well-made Statue, *&c.* or to things that move regularly, as in handſome Walking, in Dancing, in the dumb Shews of the Phantomimes, *&c.* or thirdly, to the Motion of Sound, or the Voice; in which, the *Rythmus* conſiſts of long and ſhort Syllables or Notes, join'd together in Succeſſion in ſome kind of order, ſo as their Cadence on the Ear may be agreeable.

This, in Oratory conſtitutes what we call a *numerous Style*, and when the Tones of the Voice are well choſen, a harmonious Stile. See STYLE and NUMBERS.

In effect, *Rythmus* in the general is perceiv'd either by the Eye or Ear; and may either be with or without Metre: But the ſtrict muſical *Rythm* is only perceiv'd by the Ear, and cannot exiſt without it. —The firſt exiſts without Sound, as in Dancing; in which Caſe it may be either without any Difference of Acute and Grave, as in a *Drum*, or with a Variety of theſe as in a *Song*.

The *Rythmus* of the Antients, Mr. *Malcolm* obſerves, was very different from the Moderns.—The former was only that of the long and ſhort Syllables of the Words and Verſes: It depended altogether on the Poetry, and had no other Forms or Varieties than what the metrical Art afforded. The Changes therein are none but thoſe made from one Kind of Metrum to another, as from Jambic to Choraic, *&c.*

In the modern Muſick, the Conſtitution of the *Rythmus* differs from that of the Verſe, ſo far, that in ſetting Muſick to Words, the thing chiefly regarded is to accommodate the long and ſhort Notes to the Syllables in ſuch manner, as that the Words be well ſeparated; and the accented Syllable of each Word ſo conſpicuous, that what is ſung may be diſtinctly underſtood. See MELODY.

Voſſius in his Book *de Pœmatum Cantu & viribus Rythmi*, extols the antient *Rythmus*.—Though he owns 'twas confined to the metrical Feet; yet, ſo well did they cultivate their Language, eſpecially in what relates to the *Rythmus*; that the whole effect of the Muſick was aſcribed to it, as appears, ſays he, by that ſaying of theirs, το πᾶν παρὰ μυσικοῖς ὁ ρυθμὸς. See MUSIC, PANTOMIME, *&c.* See alſo ODE, *&c.*

RHYTHM, RHYMUS, or RHYME, in the antient Poetry, was the Meaſure of the Feet, or the Number and Combination of long and ſhort Syllables; call'd alſo *Quantity*. See QUANTITY.

Voſſius attributes the whole Force of the antient Muſick to their happy *Rythmus*. But this is ſomewhat inconceivable: Mr. *Malcolm* rather takes it that the Words and Senſe of what was ſung had the chief effect: Hence it was that in all the antient Muſick the greateſt Care was taken that not a Syllable of the Words ſhould be loſt, leſt the Muſick ſhould be ſpoil'd.

Pancirollus ſeems of this Opinion; and the Reaſon he gives why the modern Muſick is leſs perfect than the Antient, is, that we hear Sounds without Words. See MUSICK.

Voſſius ſays, that *Rhythm* which does not expreſs the very Forms and Figures of things, can have no effect; and that the antient poetical Numbers alone are juſtly contrived for this End.—He adds, that the modern Languages and Verſe is altogether unfit for Muſick; and that we ſhall never have any right Vocal Muſick till our Poets learn to make Verſes capable to be ſung, *i. e.* till we new model our Languages, reſtore the antient Quantities and Metrical-feet, and baniſh our barbarous Rhimes.

Our Verſes, ſays he, run all as it were on one Foot; ſo that we have not any real *Rythmus* at all in our Poetry: He adds, that we mind nothing further than to have ſuch a Number of Syllables in a Verſe, of whatever Nature, and in whatever Order. But this is an unjuſt Exaggeration. See VERSE.

RHYTHMICA, RYTHMICE, in the antient Muſick, that Branch of Muſick which regulated the *Rhythmus*. See RHYTHMUS.

The *Rhythmica* conſider'd the Motions; regulated their Meaſure, Order, Mixture, *&c.* ſo as to excite the Paſſions, keep them up, augment, diminiſh, or allay them.

Ariſtides and other antient Muſical Writers, divided artificial Muſick into *Harmonica*, *Rhythmica*, and *Metrica*. See MUSICK.

But the *Rhythmica* with them likewiſe comprehends dumb Motions, and, in effect, all *Rhythmical*, i. e. regular, Motion.

Porphyry divides Muſick into *Harmonica*, *Rythmica*, *Metrica*, *Organica*, *Poetica*, and *Hypocritica*. See each under its proper Article.

The Antients ſeem to have had no *Rhythm* in their Muſick beſide the long and ſhort Syllables of their Words and Verſes, which were ſung, and always made a Part of their Muſick; ſo that the *Rhythmica* with them was only the Application of the Metrical-Feet, and the various kinds of Verſes uſed by them.—The Modern goes much further. See RHYTHM.

RYTHMOPÆIA one of the Muſicial Faculties, as they are call'd; which preſcribes Rules for the Motions, or *Rhythm*.

The antient *Rhythmopœia* is very defective.—We find nothing of it in the Books of the Antients but ſome general Hints; which can ſcarce be call'd Rules. In their Explications there appears nothing but what belongs to the Words and Verſes of their Songs, which is a ſtrong Preſumption they had no other. See RHYTHM.

RIAL, or RYAL, or REAL, a Coin ſtruck, and Current in *Spain*. See REAL and COIN.

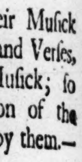
RIAL is alſo a Piece of Gold, antiently Current among us for ten Shillings.

In 1 *Henry* VI. by Indenture of the Mint, a Pound Weight of Gold of the old Standard was coined into 45 *Rials*, going for ten Shillings a-piece, or a proportionable Number of *half Rials*, going at five Shillings a-piece: Or *Rial Farthings*, which went at 2 *s.* and 6 *d.*

In 1 *Henry* VIII. the Gold *Rial* was ordered to go at 11 *s.* 3 *d.* —In 2 *Eliz.* Golden *Rials* were coined at 15 *s.* a-piece, when a Pound Weight of old Standard Gold was to be coined into 48 *Rials*.—In 3 *Jac.* I. the *Roſe Rials* of Gold were coined at 30 *s.* a-piece, and the *Spurr-Rials* at 15 *s.* See MONEY.

RIBBAND, or RIBBOND, a narrow ſort of Silk, chiefly uſed for Head Ornaments, Badges of Chivalry, *&c.* See SILK.

The Knights of the Garter wear a Blue *Ribbond*, thoſe of the Thiſtle, a Green *Ribbond*. See COLLAR, GARTER, *&c.*



RIBBON, in Heraldry, is the eighth Part of a Bend. See BEND.

It is born a little cut off from the out-lines of the Eſcutcheon; thus; He beareth Or, a *Ribbon* Gules.

RIBS, COSTÆ, in Anatomy, long, arch'd Bones; ſerving to form, or ſuſtain the inner-ſides of the Thorax, or Breaſt. See BONE and THORAX.

The *Ribs* are in Number 24; twelve on each Side.—Their Figure is an imperfect Segment of a Circle, harder, rounder, and more incurvated towards their Articulation with the *Vertebræ*, than at the other Extremity towards the *Sternum*, which is thinner, broader, and more ſpungy.

The *Ribs* are divided into *true*, or genuine, and *ſpurious*.

The *true* are the ſeven upper Pair, which are thus diſtinguiſhed, as forming the moſt perfect Arches, and as having a ſtrong Articulation with the *Sternum*. See STERNUM.

The five lower are call'd *Nothæ*, or *Spurious*, as being ſmaller, ſhorter, and more cartilaginous than the reſt, and not reaching ſo far as the *Sternum*, which makes their Articulation very lax; in regard they terminate in long, ſoft Cartilages, which bending upwards are join'd to the upper Ribs.

On the inſide of the true *Ribs*, except the loweſt, and ſometimes the next to it, runs a pretty deep *Sinus*, reaching from the end towards the Spine, almoſt to its Juncture with the Cartilage.

All the *Ribs*, together with the *Sternum*, are raiſ'd by the reſpiratory Muſcles, in the Action of Inſpiration; by which means, and the Deſcent of the Diaphragm in that Action, the Cavity of the Thorax is enlarged for the more commodious Expanſion of the Lungs. See RESPIRATION.

RIBS *of a Ship*, are the Timbers of the Puttocks, when the Planks are off; ſo called becauſe they are bent like the *Ribs* of a Carcaſe or Skeleton.

RICE, a Grain or Seed of a leguminous Plant of the ſame Name; frequent in the *Eaſt-Indies*, in *Greece*, and *Italy*. See LEGUMINOUS.

The Grains, which grow in Cluſters each terminated with a Spica or Beard, are incloſed ſeverally in yellow rough Capſulæ, or Caſes. When ſtript off its Skin the Grain is almoſt oval; of a ſhining white Colour, and as it were tranſparent. It grows in moiſt marſhy Places.

Throughout the *Eaſt*, and a great Part of the *Levant*, *Rice* is the principal Food, and ſerves for Bread. See BREAD.

In the *Indies*, the Women thraſh and dreſs all the *Rice*, which is a very painful Office, that the Men leave them either out of Idleneſs, or Diſreſpect.

Rice is a great Food in the *Roman Catholick* Countries in time of *Lent*.—The ordinary Preparation is by firſt ſteeping it in Water, then boiling it in Milk.—Some make it into a ſort of Farina, or Flower, by pounding it in a Mortar, after having firſt put it in hot Water, and again waſh'd it out in cold.

Rice is of ſome uſe in Medicine, being eſteem'd proper to ſoften and thicken ſharp Humours, to moderate the Flux of the Belly.—The Northern Nations eat their Fowls and other Meats with *Rice* and Saffron.—The *Chineſe* make a Wine of *Rice*, which is of an Amber Colour, taſtes like *Spaniſh* Wine, and ſerves them for their common Drink.

In ſome Parts of *Europe* they alſo draw a very ſtrong Brandy or Spirit from *Rice*. See BRANDY and SPIRIT.

RICKETS, RHACHITIS, in Medicine, a Diſorder affecting the Bones of Children, and cauſing a conſiderable Protuberance, Incurvation, or Diſtortion thereof. See CHILDREN, BONE, &c.

It ſometimes ariſes from a fault in ſwathing the Child; rolling him too tight in ſome Places, and too looſe in others; placing him in an inconvenient, or too often in the ſame Poſture, or ſuffering him to be long wet.—'Tis likewiſe attributed to the want of proper Motion, and the uſing of the Child to one Arm only; whence the Legs and Knees remain too long in the ſame incurvated Situation.

Or it may be occaſioned by ſome Fault in the Digeſtion occaſioning the Aliment to be unequally apply'd to the Body, by which ſome Parts of the Bones increaſe in Bulk more than the reſt.

The *Rickets* uſually appear between the firſt eight Months, and the ſixth Year of the Child's Age: The Part it affects grows lax, flaccid, and weak; and if it be the Legs, they become unable to ſupport the Body.—All the Parts ſubſervient to voluntary Motion are likewiſe debilitated and enfeebled; and the Child grows pale, ſickly, ſlothful, and cannot ſit erect.

His Head generally becomes too large for the Trunk, and cannot be ſupported or managed by the Muſcles of the Neck, which gradually wear away. Swellings, and knotty Excreſcencies appear in the Wriſts, Ancles, and Tops of the Ribs; and the Bones of the Legs and Thighs grow bowed or crooked.—The like Diſorder ſometimes ſeizes the Bones of the Arms.

If the Symptoms continue long, the Thorax becomes ſtrait, a difficulty of Reſpiration comes on, as alſo a Cough, and a hectick Fever; the Abdomen ſwells, the Pulſe grows weak and ſmall, and the Symptoms increaſing, at length prove mortal.

When the Child is able to talk before he can make uſe of his Legs, he is ſuppoſed to have the *Rickets*.

When the Diſorder is taken early, it may be remedied by proper Bolſters and Bandages, ſuited to the Parts affected: But when the Bones are grown rigid and inflexible, other mechanical Contrivances, as Padding, ſtrait Boots, and ſeveral ſorts of Machines or Engines, made of Paſtboard, Whalebone, Tin, &c. are made uſe of; to reſtore the diſtorted Bones to their natural ſtraitneſs.

Cold Bathing is alſo found of Service in the *Rickets*, before the Diſtemper comes to be confirmed, during *May* and *June*; continuing him in the Water two or three Seconds at each Plunge.

Others chuſe a Liniment of Rum and Palm Oil; and others a Plaiſter of Deminium and Oxycroceum, applied along the Back, to cover the whole Spine.—Dry Frictions over the whole Body, with a warm Linnen Cloth before the Fire, eſpecially on the Parts affected, are found of Service. The Oil of Snails is famous for the ſame Intention, being what Drops from them, after bruiſing and ſuſpending them in a Flannel Bag. With this the Limbs and ſpinal Bone, are anointed.

RIDDLE. See ENIGMA.

RIDDLE, or RUDDLE, is alſo a mineral Stone. See RUDDLE.

RIDE, of *Hazle*, or other Wood, is a Group or Plump of Sprigs ſhooting out of the ſame Root, or Foot.

RIDE, in the Manage.—To *ride* ſignifies to learn to *ride*.—Thus, He *rides* under a good Maſter. See HORSE.

RIDE, in the Sea Language, is a Term variouſly applied.—Thus, a Ship is ſaid to *Ride* when her Anchors hold her faſt, ſo that ſhe drives not away by the Force of the Wind or Tide.

A Ship is ſaid to *Ride well*, when ſhe is built ſo as not to over-beat herſelf into an Head Sea, as that the Waves overtake her (that is, overwaſh her) from Stem to Stern.

A Ship *Rides a-croſs*, when ſhe *rides* with her Main-Yards and Fore-Yards hoiſted up to the Hounds; and both Yards and Arms topped alike.

She is ſaid to *Ride a Peek* when one End of the Yard is peeked up, and the other hangs down: This is alſo ſaid of a Ship when in weighing, ſhe is brought directly over her Anchor.

She is ſaid to *Ride athwart*, when her Side is to the Tide.—And to *Ride betwixt Wind and Tide*, when the Wind hath equal force over her one Way and the Tide another.—If the Wind have more Power over her than the Tide, ſhe is ſaid to *Ride Wind Rode*.—She is ſaid to *Ride Hawſeful*, when in a Streſs of Weather ſhe falls ſo deep, that Water runs in at her Hawſes.—She is ſaid to *Ride Portoiſe*, when her Yards are ſtruck upon the Deck, or when they are down Aportlaſt.

RIDEAU, in Fortification, a ſmall Elevation of Earth, extending itſelf lengthways on a Plain; ſerving to cover a Camp, or give an Advantage to a Poſt.—It is alſo convenient for thoſe who would beſiege a Place at a near Diſtance, and to ſecure the Workmen in their Approaches to the Foot of a Fortreſs.

RIDEAU, is ſometimes alſo uſed for a Ditch, the Earth whereof is thrown upon its Side. See DITCH.

The Word in its original *French* ſignifies a Curtain or Cover; form'd from the *Latin*, *Ridellum*.—*Borel* derives it from *ridere*.

RIDERS, in a Ship, are great Timbers both in the Hold and Aloft, which are bolted on to other Timbers to ſtrengthen them, when the Ship is diſcovered to be too weakly built.

The Word RIDER is alſo uſed for after-Clauſes, added to Bills, whilſt they are depending in Parliament. See BILL.

RIDGE, in Building, the higheſt Part of the Roof or Covering of a Houſe. See ROOF.

Ridge is particularly uſed for the Piece of Wood wherein the Rafters meet. See RAFTER.

RIDGE-TYLE. See TYLE.

RIDGES *of a Horſe's Mouth*, are Wrinkles or Riſings of the Fleſh in the Roof of the Mouth, running a-croſs from one Side of the Jaw to the other, with interjacent Furrows. See HORSE.

It is commonly in the third or fourth Ridge that the Farriers ſtrike, in order to bleed a Horſe whoſe Mouth is over heated.

RIDGLING, or RIDGEL, among Farriers, &c. the Male of any Beaſt that has been but half Gelt. See GELDING.

RIDICULE. See LAUGHTER, RISIBILITY, &c.

RIDING, a Diviſion of *Yorkſhire*, whereof there are three, *viz.* the *Eaſt-Riding*, *Weſt-Riding*, and *North-Riding*.

In Indictments in that County, 'tis neceſſary the Town and *Riding* be expreſs'd.

RIDING-*Clerk*, one of the ſix Clerks in Chancery, who, in his turn, for one Year, keeps the Controllment Books of all Grants that paſs the Great Seal that Year. See CLERK, GRANT, &c.

RIENS *Arrear*, in Law, a kind of Plea uſed to an Action of Debt, upon Arrearages of Account, whereby the Defendant alledges that there is *nothing in Arrear*.

Riens paſſe par le fait, nothing paſſes by the Deed, is the Form of an Exception taken in ſome Caſes to an Action. See EXCEPTION, and DEED.

Riens par Deſcent, nothing by Deſcent, is the Plea of an Heir, where ſued for his Anceſtor's Debt; though he had no Lands from him by Deſcent. See DESCENT.

RIER, or REER-*County*, *Retro Comitatus*, is uſed in our Law Books in oppoſition to open County.

This appears to be ſome publick Place, which the Sheriff appoints for the Receipt of the King's Money, after the end of his County. See SHERIFF, &c.—*Fleta* ſays it is *Dies Craſtinus, poſt comitatum*.

RIGADOON, a kind of Dance, borrowed originally from *Provence*; perform'd in Figure, by a Man and a Woman.—The *Rigadoon* is gay, pleaſant, &c. The Word is form'd from the *French Rigodon*, which ſignifies the ſame thing.

RIGGING, *of a Ship*, includes her whole Cordage; or all the Ropes belonging to her Maſts, and Yards, &c. See CORDAGE, ROPE, &c.

A Ship is ſaid to be *well-rigg'd* when all her Ropes are of their fit Size, in Proportion to her Burden.—She is *over-rigg'd*, when her Ropes are too big for her; which wrongs her much in her Sailing, and is apt to make her Heel. See SHIP.

RIGHT, in Geometry, ſomething that lies evenly, and without inclining or bending one way or another.

Thus, a *Right Line* is that whoſe ſeveral Points all tend the ſame way. See LINE.

In this Senſe *Right* ſignifies as much as *ſtraight*, and ſtands oppoſed to *curved* or crooked. See CURVE.

RIGHT *Angle* is that form'd by two Lines falling perpendicularly on one another. See PERPENDICULAR.

The Quantity or Meaſure of a *Right Angle* is a Quadrant of a Circle, or 90°.—All *Right Angles* therefore are equal. See ANGLE.

In this Senſe the Word *Right* ſtands oppoſed to *Oblique*. See OBLIQUE.

RIGHT-*Angled*, is underſtood of a Figure when its Sides are at Right Angles, or ſtand perpendicularly one upon another. See FIGURE.

This ſometimes holds in all the Angles of the Figure, as in Squares and Rectangles: Sometimes, only in Part, as in *Right-angled* Triangles.

RIGHT *Sine*. See SINE.

The Word here ſtands contradiſtinguiſhed to *verſed*. See VERSED.

RIGHT *Sphere*, is that where the Equator cuts the Horizon at *Right* Angles. See SPHERE.

Or, *Right*, or *Direct Sphere*, is that wherein the Poles are in the Horizon, and the Equator in the Zenith. See SPHERE.

Such is the Poſition of the Sphere with regard to thoſe who live directly under the Equator.—The Conſequences hereof are, that they have no Latitude nor Elevation of the Pole.—They can ſee nearly both Poles of the World; all the Stars riſe, culminate, and ſet with them, and the Sun always riſes and deſcends at *right* Angles to their Horizon, and makes their Days and Nights equal. See LATITUDE, STAR, RISING, DAY, NIGHT, *&c.*

In a *Right Sphere* the Horizon is a Meridian; and if the Sphere be ſuppoſed to revolve, all the Meridians ſucceſſively become Horizons, one after another. See HORIZON, *&c.*

RIGHT *Aſcenſion*, of the Sun, or a Star, is that Degree of the Equinoctial, accounted from the beginning of Aries, which riſes with it in a *Right* Sphere. See ASCENSION.

Or, *Right Aſcenſion*, is that Degree and Minute of the Equinoctial, counted as before, which comes to the Meridian with the Sun or Star, or other Point of the Heavens. See SUN, STAR.

The Reaſon of thus referring it to to the Meridian, is, becauſe that is always at *Right* Angles to the Equinoctial, whereas the Horizon is only ſo in a *Right* or direct Sphere. See SPHERE.

Two fix'd Stars which have the ſame *Right Aſcenſion*, i. e. are at the ſame Diſtance from the firſt Point of Aries in a *Right* Sphere; or, which amounts to the ſame, are in the ſame Meridian, riſe at the ſame time: If they be not in the ſame Meridian, the Difference between the time when they riſe is the preciſe Difference of their *Right Aſcenſion*.—In an oblique Sphere, where the Horizon cuts all the Meridians obliquely, different Points of the Meridian never riſe or ſet together; ſo that two Stars on the ſame Meridian never riſe or ſet at the ſame time; and the more Oblique this Sphere, the greater is the interval of time between them. See RISING, SETTING, HEIGHT, *&c.*

RIGHT *Sailing*, is when a Voyage is perform'd on ſome one of the four Cardinal Points. See SAILING and CARDINAL *Point*.

If a Ship ſail under the Meridian; that is, on the North or South Points, ſhe varies not in Longitude at all; but only changes the Latitude, and that juſt ſo much as the Number of Degrees ſhe hath run. See LATITUDE.

If a Ship ſail under the Equinoctial, upon the very Eaſt or Weſt Points, ſhe alters not her Latitude at all, but only changes the Longitude, and that juſt ſo much as the Number of Degrees ſhe hath run. See LONGITUDE.

If ſhe Sail directly Eaſt or Weſt, under any Parallel, ſhe there alſo altereth not her Latitude, but only the Longitude; yet not according to the Number of Degrees of the great Circle ſhe hath ſailed in, as under the Equinoctial, but more according as the Parallel is remoter from the Equinoctial towards the Pole. For the leſs any Parallel is, the greater is the Difference of Longitude. See RHUMB.

RIGHT *Circle*, in the Stereographical Projection of the Sphere, is a Circle at *Right* Angles, to the Plane of Projection, or that which paſſed through the Eye. See CIRCLE, PROJECTION and STEREOGRAPHIC.

RIGHT, *Rectum*, in Logicks, Ethicks, *&c.* See RECTITUDE.

In this Senſe the Word ſtands oppoſed to *Wrong*, *Erroneous*, *Falſe*, &c. See ERROR, FALSHOOD, *&c.*

RIGHT, *Jus*, in Law, ſignifies not only a Property, for which a Writ of *Right* lies; but alſo any Title or Claim, either by Virtue of a Condition, Mortgage, or the like, for which no Action is given by Law, but only an Entry. See PROPERTY.

Thus is *Jus Proprietatis*, a Right of Propriety: *Jus Poſſeſſionis*, a Right of Poſſeſſion: And *Jus Proprietatis & Poſſeſſionis*, a Right both of Property and Poſſeſſion. See POSSESSION, *&c.*

This was formerly called *Jus duplicatum*.—As, if a Man be diſſeiſed of an Acre of Land, the Diſſeiſee hath *Jus Proprietatis*; the Diſſeiſor hath *Jus Poſſeſſionis*, and if the Diſſeiſee releaſe to the Diſſeiſor, he hath *Jus Proprietatis & Poſſeſſionis*.

Writ of RIGHT. See RECTUM.

RIGHT *in Court*. See RECTUS *in Curia*.

RIGHT *the Helm*, a Sea Phraſe, ordering to keep the Helm even with the middle of the Ship. See HELM.

RIGIDITY, among Philoſophers, a brittle-hardneſs; or that kind of hardneſs ſuppoſed to ariſe from the mutual Indentation of the component Particles within one another. See HARDNESS.

Rigidity is oppoſed to Ductility, Malleability, *&c.* See DUCTILITY.

RIGOL, a kind of muſical Inſtrument, conſiſting of ſeveral Sticks bound together, only ſeparated by Beads.—It makes a tolerable Harmony, being well ſtruck with a Ball at the End of a Stick.

RIGOR, in Medicine, a convulſive Shuddering, from Cold, or an Ague Fit. See HORROR, FEVER, AGUE, *&c.*

RILL, or RIVULET. See RIVER.

RIM, in a Watch or Clock, the Circumference, or circular Part of a Wheel. See WHEEL, WATCH, CLOCK, *&c.*

RIMA, litterally denotes a Fiſſure or Chink.—Hence it is applyed to ſeveral Parts of the Body, that bear a Reſemblance thereto; as the *Rima Pudendi*, or *Fiſſura Magna*, the ſame with the *Vulva*; *Rima Laryngis*, is the Aperture of the *Larynx*, call'd the *Glottis*. See GLOTTIS, *&c.*

RIMA, is alſo uſed for a narrow Aperture of a ſmall Cavity under the *Fornix*, opening into the *Infundibulum*; call'd alſo the third Ventricle of the Brain. See BRAIN and VENTRICLE.

RIME, RHIME, or RHYME. See RHYME.

RIND, the Skin of any Fruit that may be cut off, or pared. See SKIN, FRUIT, *&c.*

The outer Coat of the Cheſnut, ſet with prickles, is particularly called the *Urchin-like Rind*.

RIND, is alſo us'd for the Ble, or inner Bark of Trees; or that ſoft, whitiſh, juicy Subſtance, adhering immediately to the Wood. See TREE and WOOD.

Through this it is that the Sap, in the modern Theory of Vegetation, is ſuppoſed to return from the Extremities of the Branches to the Root; the Veſſels hereof being ſuppoſed to do the Office of Arteries; whence Mr. *Bradley* calls them *Arterial Veſſels*. See BARK. See alſo PLANT and VEGETATION.

RING, *Annulus*, a little moveable, put on the Finger, either by way of Ceremony, or of Ornament.

The Biſhops *Ring* makes a Part of the Pontifical Apparatus; and is eſteemed a Pledge of the ſpiritual Marriage between the Biſhop and his Church. See BISHOP.

The Epiſcopal *Ring* is of very antient ſtanding.—The fourth Council of *Toledo*, held in 633, appoints, that a Biſhop condemned by one Council, and found afterwards innocent by a ſecond, ſhall be reſtored, by giving him the *Ring*, Staff, *&c.*

From Biſhops, the Cuſtom of the *Ring* has paſs'd to Cardinals, who are to pay, I know not what Sum, *pro Jure annuli Cardinalitii*. See CARDINAL.

As to the Origin of Rings.—*Pliny*, lib. xxxviii. *Chap.* I. obſerves, that we are in the dark as to the Perſon who firſt invented, or wore the *Ring*; for that what is ſaid of *Prometheus*, as alſo of *Midas*'s Ring, are Fables. The firſt among whom we find the *Ring* in uſe, are the *Hebrews*, *Gen.* xxxviii. where *Judah*, *Jacob's* Son, gives *Thamar* his *Ring* or Signet, as a Pledge of his Promiſe: But the *Ring* appears to have been in uſe at the ſame time among the *Egyptians*, from *Gen.* xli. where *Pharoah* puts his *Ring* upon *Joſeph*'s Hand as a Mark of the Power he gave him. And in the third Book of *Kings*, Chap. xxi. *Jezebel* ſeals the Warrant ſhe ſent for the killing of *Naboth*, with the King's *Ring*.

The antient *Caldeans*, *Babylonians*, *Perſians* and *Greeks*, had likewiſe the uſe of the *Ring*; as appears from ſeveral Paſſages in Scripture, and from *Quintus Curtius*, who tells us, that *Alexander* ſeal'd the Letters he wrote into *Europe*, with his own Seal; and thoſe into *Aſia* with *Darius*'s *Ring*.

The *Perſians* will have *Guiamſchild* the fourth King of their firſt Race, to have firſt introduced the *Ring*, to ſeal his Letters and other Acts withal.—The *Greeks*, *Pliny* thinks, knew nothing of the *Ring* in the time of the *Trojan* War: The Reaſon he gives is, that we find no mention thereof in *Homer*, but that when Letters, *&c.* were to be ſent away, they were tied up, and the Strings knotted.

The *Sabins* had *Rings* in *Romulus*'s time; and 'tis to them, probably, the Practice firſt came from the *Greeks*; and from them paſs'd to the *Romans*; though 'twas ſome time e're it got footing there. —*Pliny* cannot learn which of the Kings of *Rome* firſt adopted it; but there are no Signs of it in any of their Statues, before thoſe of *Numa*, and *Servius Tullius*. He adds, that it was in uſe among the antient *Gauls* and *Britons*. See SEAL.

As to the Matter of Rings.—There were ſome of one ſingle Metal, and others of a Mixture, or of two. For the Iron and Silver were frequently gilt; or at leaſt the Gold was incloſed within the Iron, as appears from *Artimidorus*, lib. ii. cap. 5.— The *Romans* were contented with Iron *Rings* a long time; and *Pliny* aſſures us, that *Marius* firſt wore a Gold one in his third Conſulate, which was in the Year of *Rome* 650. Sometimes the *Ring* was Iron, and the Seal Gold; ſometimes 'twas hollow, and ſometimes ſolid; ſometimes the Stone was engraven, and ſometimes plain; and the Graving ſometimes in *Relievo*, and ſometimes in *Creux*: The laſt call'd *Gemmæ Ectypæ*; the firſt, *Gemmæ Sculptura prominente*.

As to the Manner of wearing the Ring.—It has been various: From *Jeremy*, Chap. xxii. it appears that the *Hebrews* wore it on the

right

ight-Hand. Among the *Romans*, e're they came to be adorned ith Stones, and while the Graving was yet on the Metal, eve-y body wore them at Pleaſure, on what Hand and Finger he iſted.—When Stones came to be added, they wore them altoge-her on the Left-Hand; and it would have been held an exceſſive Foppery to have put them on the Right.

Pliny ſays, they were at firſt wore on the fourth Finger, then on the ſecond, or Index; then on the little Finger; and at laſt on all the Fingers, excepting the middle one.—The *Greeks* wore it altogether on the fourth Finger of the Left-Hand, as we are inform'd by *Aul. Gellius*, lib. x. and the Reaſon he gives for it is, that having found from Anatomy, that this Finger had a little Nerve that went ſtraight to the Heart, they eſteem'd it the moſt honourable, by reaſon of this Communication with that noble Part.—*Pliny* ſays, the *Gauls* and antient *Britons* wore it on the middle Finger.

At firſt they only wore a ſingle *Ring*; then one on each Finger; and at length ſeveral on each Finger, *Martial*, lib. xi. Epig. 60. At laſt one on each Joint of each Finger, *Ariſtoph. in Nub.* &c.—Their Delicacy, at length went to that pitch, that they had their Weekly *Rings*. *Juvenal Sat.* VII. ſpeaks of *Annuli Semeſtres*; as alſo of Winter and Summer *Rings*. But of all others *Lampridius*, cap. 32. obſerves, *Heliogabalus* carried the Point furtheſt, who never wore the ſame *Ring*, or the ſame Shoe, twice.

Rings have been alſo wore in the Noſe, as Pendants in the Ears—*Bartholin* has an expreſs Treatiſe, *de Annulis Narium*, of *Rings* of the Noſtrils. St. *Auguſtin* aſſures us, 'twas the Faſhion of the *Moors*; and *Pedro delle Valle* obſerves the ſame of the modern *Orientals*.

In effect, there is no Part of the Body where it has not been wore.—Several *Eaſt-India* Travellers affirm, that the Natives commonly wear them in their Noſe, Lips, Cheeks, and Chin. *Ramuſio* tells us, that the Ladies of *Narſingua* in the *Levant*, and *Diodorus Siculus*, lib. 3. that thoſe of *Ethiopia*, uſed to adorn their Lips with Iron *Rings*.

As to the Ears, the Cuſtom ſtill obtains of wearing *Rings* therein, both for Men and Women, all over the World. See PENDANT.

The *Indians*, particularly the *Guzzerattes*, have wore *Rings* on their Feet.—And when *Peter Alvarez* had his firſt Audience of the King of *Calicut*, he found him all covered with Stones ſet in *Rings*; Bracelets and *Rings* both on the Hands and Fingers, and even the Feet and Toes. *Louis Bartome* repreſents a King of *Pegu*, as ſtill more extravagant, having *Rings* ſet with precious Stones on every Toe.

With regard to the Uſe of Rings.—The Antients had three different Kinds: The firſt ſerv'd to diſtinguiſh Conditions or Qualities. *Pliny* aſſures us, that the Senators at firſt were not allowed to wear the Gold *Ring*, unleſs they had been Ambaſſadors at ſome foreign Court. Nor was it even allowed them to wear the Gold *Ring* which was given them, in Publick; except on publick Occaſions. At other times they wore an Iron one. And thoſe who had had a Triumph, obſerved the ſame Rules.

At length the Senators and Knights were allow'd the common Uſe of the Gold *Ring*; but *Acron* on *Horace*, Lib. 2. Sat. VII obſerves, they cou'd not do it unleſs it were given them by the Prætor.

In after Days the Gold *Ring* became the Badge of the Knights; the People wearing Silver *Rings*, and the Slaves Iron ones. Tho' the Gold *Ring* was ſometimes allow'd the People, and *Severus* granted it his common Soldiers. *Auguſtus* allow'd it the *Liberti*, or Freedmen; and though *Nero* made a Regulation to the contrary, yet it was ſoon ſet aſide.

A ſecond Kind of *Rings* were the *Annuli Sponſalitii*, *Wedding Rings*. Some carry the Origin of this Cuſtom as far back as the *Hebrews*, on the Authority of a Text in *Exodus* xxxv. 22.—*Leon de Modena*, however, maintains that the antient *Hebrews* did not uſe any Nuptial *Ring*. *Selden*, in his *Uxor Ebraica*, Lib. II. Chap. 14. owns, that they gave a *Ring* in the Marriage, but that it was only in lieu of a Piece of Money of the ſame Value, which had uſed to have been given before.—The *Greeks* and *Romans* did the ſame; and from them the Chriſtians took it up very early, as appears from *Tertullian*; and in ſome antient Liturgies, where we find the Form of Bleſſing the Nuptial *Ring*. See MARRIAGE.

The third Kind of *Rings* were thoſe uſed as Seals, call'd *Cerographi*, or *Cirographi*, an Account whereof ſee under the Article SEAL.

Richard Biſhop of *Salisbury*, in his Conſtitutions, *Anno* 1217, forbids the putting of *Ruſh-rings*, or any the like Matter, on Women's Fingers; in order to the debauching of them more readily: And he inſinuates the Reaſon of his Prohibition, that there were ſome People weak enough to believe, that what was thus done in jeſt was a real Marriage.

De Bzevil in his Antiquities of *Paris*, ſays, 'twas an antient Cuſtom to uſe a *Ruſh-ring* in the Marriage of ſuch as had had an Affair together before Marriage. See CONCUBINE, *&c.*

RING, in Aſtronomy.—The *Ring* of *Saturn* is a thin, luminous Circle, incompaſſing the Body of that Planet, but without touching the ſame. See SATURN.

The Diſcovery hereof is owing to M. *Huygens*, who after frequent Obſervation of *Saturn*, perceiv'd two lucid Points, or *Anſæ*, ariſing out from the Body, in a right Line. See ANSÆ.

Hence, as in ſubſequent Obſervations, he always found the ſame Appearance, he concluded that *Saturn* was incompaſs'd with a permanent *Ring*; and accordingly produced his new Syſtem in 1659.

The Plane of the *Ring* is inclined to the Plane of the Ecliptic in an Angle of 23° 30'.—It ſometimes appears Oval; and according to *Campani*, its greateſt Diameter is double its leaſt. See PLANET.

RING, is alſo an Inſtrument uſed in Navigation, for taking the Altitudes of the Sun, *&c.* See ALTITUDE.

'Tis uſually of Braſs, about 9 Inches Diameter, ſuſpended by a little Swivel, 45° from the Point whereof is a Perforation; which is the Centre of a Quadrant of 90° divided in the inner Concave Surface.

To uſe it, they hold it up by the Swivel, and turn it to the Sun, till the Sun-Beams falling through the Hole, make a Spot among the Degrees, which is the Altitude required.

This Inſtrument is prefer'd to the *Aſtrolable* by reaſon the Diviſions are here larger than on the Aſtrolabe. See ASTROLABE.

RING-*Dial*, is a kind of Dial, uſually ſmall, and portable; conſiſting of a Braſs *Ring*, or Rim, ſeldom exceeding two Inches in Diameter, and one third of an Inch in Breadth. See DIAL.

In a Point of this Rim, is a Hole, through which the Sun-Beams being received, make a lucid Speck on the Concavity of the oppoſite Semicircle, which gives the Hour of the Day in the Diviſions mark'd therein.

But it only holds good about the Times of the Equinox.—To have the Dial perform throughout the whole Year, the Hole is made moveable; and the Signs of the Zodiac, or the Days of the Month are mark'd on the Convex Side of the *Ring*; by means whereof the Dial is rectified for the Time.

To uſe it, put the moveable Hole to the Day of the Month, or the Degree of the Zodiac the Sun is in; then ſuſpending it by the little Ring, turn it towards the Sun, till his Rays, as before, point out the Hour among the Diviſions on the Inſide.

Univerſal, or *Aſtronomical* **RING-*Dial***, is a *Ring-Dial* which ſerves to find the Hour of the Day in any Part of the Earth; whereas the former is confined to a certain Latitude. See DIAL.

Its Figure ſee repreſented in *Table*, *Dialling*, *Fig.* 7.

It conſiſts of two *Rings*, or flat Circles, from two to ſix Inches in Diameter; and its Breadth, *&c.* proportionable.—The outward Ring A repreſents the Meridian of any Place you are at; and contains two Diviſions of 90° each, diametrically oppoſite to one another; ſerving, the one from the Equator to the North, the other to the South Pole.—The inner *Ring* repreſents the Equator, and turns exactly within the outer, by means of two Points in each *Ring* at the Hour of 12.

A-croſs the two Circles goes a thin Reglet or Bridge, with a Curſor C, that Slides along the middle of the Bridge. In the Curſor is a little Hole for the Sun to ſhine through.

The middle of this Bridge is conceiv'd as the Axis of the World, and the Extremities as the Poles; and on the one Side are drawn the Signs of the Zodiack, and on the other the Days of the Month. On the Edge of the Meridian ſlides a Piece, to which is fitted a Ring to ſuſpend the Inſtrument by.

Uſe of the univerſal RING-*Dial.*

Place the Line *a* (on the middle of the ſliding Piece) over the Degree of Latitude of the Place (*e. gr.* 51° for *London*) put the Line which croſſes the Hole of the Curſor to the Degree of the Sign, or Day of the Month. Open the Inſtrument ſo as the two *Rings* be at right Angles to each other, and ſuſpend it by the Ring H, that the Axis of the Dial, repreſented by the middle of the Bridge, be Parallel to the Axis of the World. Then turn the flat Side of the Bridge towards the Sun, ſo as his Rays ſtriking through the little Hole in the middle of the Curſor, fall exactly on a Line drawn round the middle of the Concave Surface of the inner *Ring*; in which Caſe the bright Spot ſhews the Hour of the Day in the ſaid Concave Surface of the *Ring*.

Note, The Hour of 12 is not ſhewn by this Dial; by reaſon the outer Circle, being then in the Plane of the Meridian, hinders the Sun's Rays from falling on the inner: Nor will this Dial ſhew the Hour when the Sun is in the Equinoctial, by reaſon his Rays, then, fall Parallel to the Plane of the inner Circle.

RING is alſo uſed for the Sound or Tone of a Bell. See BELL, SOUND, *&c.*

RING-*Bone*, among Farriers, *&c.* a hard callous Subſtance, growing in the hollow Circle of the little Paſtern of a Horſe, above the Coronet. See HORSE.

It ſometimes goes quite round, like a *Ring*; whence its Name.

It is ſometimes hereditary, derived from the Stallion, or Mare, but oftener comes by Accident, as a Strain, blow of a Horſe, *&c.*

RING-*Walk*, among Hunters, a round Walk. See HUNTING.

RING-*Worm*, in Medicine, *&c.* See TETTER.

RIOT, in Law, the forcible doing of an unlawful thing, by three or more Perſons aſſembled together for that Purpoſe.

The Word is form'd from the *Latin, riota,* of *arietare,* to run at each other as Rams do. Though, from an antient *Gauliſh* Verſion of the Bible, quoted by *Skinner, Riot* ſhou'd rather ſeem originally to ſignify Luxury and Exceſs; whence our *Riot* might proceed; in regard theſe are frequently attended with Quarrels.

For the Difference between a *Riot,* Rout, and unlawful Aſſembly, ſee ROUT, and UNLAWFUL *Aſſembly.*

Kitchen gives us the following Caſes of *Riots.*—*viz.* The Breach of Incloſures, Banks, Conduits, Parks, Pounds, Barns, the burning of Stacks of Corn, *&c. Lambard* adds, the beating a Man, and entering on a Poſſeſſion forcibly.

By a late Act of Parliament, made on occaſion of the frequent pulling down of Meeting-Houſes, *&c.* by Mobs, or Riotous Aſſemblies, about the time of the laſt Rebellion; a *Riot* was made Felony, if the *Rioters* did not diſperſe after reading a Proclamation made for that Purpoſe.

RIPENERS, in Medicine, a ſort of topical Remedies, call'd *Digeſtives, Maturantia,* &c. See DRAWERS, DIGESTIVES, MATURANTIA, *&c.*

RIPENING. See MATURATION and DIGESTION.

RISING, in Aſtronomy, the appearance of the Sun, a Star, or other Luminary above the Horizon, which before was hid beneath it. See HORIZON, SUN, STAR, *&c.*

By reaſon of the Refraction of the Atmoſphere, the heavenly Bodies always *riſe* before their time, *i. e.* are ſeen above the Horizon, while they really are below it. See REFRACTION.

There are three *Poetical* Kinds of *Riſing* of the Stars.—The *Coſmical Riſing,* when a Star riſes at the ſame time with the Sun. See COSMICAL.

Acronycal Riſing is when the Star riſes at the ſame time that the Sun ſets. See ACRONYCAL.

Heliacal, Solar, or *Apparent Riſing,* is when the Star emerges out of the Sun's Rays near the Horizon, and is no longer hid in his Brightneſs; which happens about 20 Days after the Conjunction of ſuch Star with the Sun; more or leſs, according to the Magnitude of the Star, its Diſtance, *&c.*

Heſiod long ago obſerv'd, that *Sirius* was hid 40 Days; *viz.* 20 Days before his *Coſmical Riſing,* and 20 after.—Some Nations of *America,* and among others the Savages of *Cayenna,* regulate their Civil Year by the Courſe of *Sirius;* beginning it with the *heliacal Riſing* of that Star.

To find the Riſing, &c. *of the Sun and Stars by the Globe.* See GLOBE.

RISIBILITY, the Faculty of Laughing. See LAUGHING.

Riſibility is commonly ſuppoſed an Attribute peculiar to Man; as being the only Creature capable of judging of what is ridiculous.—Some Philoſophers go ſo far as to aſſert, that the Degree of Judgment is always ſeen in that of Laughter; Fools either have too little or too much.

Authors do not agree as to the peculiar Mechaniſm in Man, whereby Laughter is rais'd,—'Tis uſually attributed to the Communication between the *Plexus Nervoſus,* and the *Diaphragmatic Nerves.* See CONSENT *of Parts.*

RISK, RISQUE, the Hazard or Chance of a Loſs, Damage, *&c.* See CHANCE.

There is a great *Risk* run in letting Goods go upon Credit to great Lords, Wives not authorized by their Huſbands, and young People not yet arrived at the Age of Majority.

Skinner derives the Word from the *Spaniſh, Riſco,* ſteep: *Covarruvias,* from *rigeo.* In the barbarous *Greek,* they ſay, ῥιζικαζω, for *Periclitor,* I hazard; and ῥιζικον, for Lot, Chance; which Words, as well as *Riſque, Skinner* thinks, may be deduced from ῥίπτω, for ἀναῤῥίπτω τὸν κυβον, to caſt the Dice.

To prevent any *Risk* in Invoices of Merchandizes by Sea, 'tis uſual to inſure them. See POLICY *of Inſurance.*

The *Risk* of Merchandizes commences from the Time they are carried aboard.—In Matters of Inſurance, 'tis a Maxim, that all is never to be *risk'd* on one Bottom, or in the ſame Veſſel; to denote, that Aſſurers muſt act with Diſcretion in the ſigning of Policies, and not hazard too much on each Veſſel; there being more to be expected from ſeveral than from one.

RISUS. See LAUGHTER.

Riſus ſardonius, ſardonian Laughter is a forced, ſpightful Laughter; or a Laughter that does not go beyond the Teeth.—The Phraſe is founded on this, that in *Sardinia* there is a venomous Plant, which occaſions ſuch a Contraction of the Muſcles of the Face in Perſons it kills, that they ſeem to dye Laughing.

Riſus Caninus is a kind of Laughter wherein the Lips are contracted, ſo as to ſhow all the Teeth.

RITE, in the School Divinity, the particular Manner or Form of celebrating or performing the Religious Ceremonies, which obtains in this or that Place. See CEREMONY.

The *Eaſtern* People, *Armenians,* &c. celebrate Divine Service according to the *Greek Rite.*—The *Weſtern* World follow the *Latin Rite;* or that of the *Roman* Church.

The *Engliſh* obſerve the *Rite* of the Church of *England,* preſcribed in the Book of Common-Prayer, *&c.* See RITUAL.

RITORNELLO, or REFRECT, in Muſick, the Burthen of a Song, or a Repetition of the firſt Verſes of the Song, at the end of each Stanza or Couplet. See REPETITION.

The Word is *Italian,* and ſignifies properly a *little Return,* or a ſhort Repetition, ſuch as that of an Eccho; or of the laſt Words of a Song; eſpecially when the Repetition is made after a Voice by one or more Inſtruments.

But Cuſtom has extended the uſe of the Word to all Symphonies, play'd before the Voices begin, and which ſerve by way of Prelude or Introduction to what follows.

In the Partitions or Score of the *Italian* Muſick, we frequently find the *Ritornello*'s ſignified by the Words *ſi ſuona;* to ſhew that the Organ, Spinet, or the like, are to repeat what the Voice has been ſinging. See REPEAT.

RITUAL, a Church-Book, directing the Order and Manner of the Ceremonies to be obſerv'd in celebrating Divine Service, in a particular Church, Dioceſe, Religious Order, or the like. See RITE.

The antient Heathens had, likewiſe, their *Rituals;* call'd *Rituales Libri;* whereof thoſe of the *Hetrurians* were famed.

Theſe Books contain'd the Rites and Ceremonies to be obſerv'd in the building a City, in the conſecrating a Temple or an Altar, in Sacrificing, Deifying, in dividing the *Curiæ,* Tribes, Centuries, and in general, all their Religious Ceremonies. See SACRIFICE, APOTHEOSIS, ALTAR, *&c.*

There are ſeveral Paſſages in *Cato*'s Books, *De re ruſtica,* which may give us ſome Idea of the *Rituals* of the Antients.

RIVAL, RIVALIS, a Term of Relation, applied to two Perſons who have the ſame Pretenſions. See CORRIVAL.

'Tis properly uſed for a Competitor in Love; and figuratively for an Antagoniſt in any other Purſuit.—The Intriegues of Comedies and Romances uſually turn on the Jealouſies of *Rivals,* who diſpute for the ſame Miſtreſs.

The Lawyers derive the Word from the *Latin, Rivus,* Stream, *quod ab eodem rivo aquam hauriant. Donatus* ſuppoſes it to have taken its Name hence, that Beaſts coming to drink at the ſame Brook, or Fountain, frequently quarrel.

Cælius ſays, that *Rivales* were originally ſuch whoſe Fields were parted by a Brook or Rivulet; the Courſe whereof being liable to be varied ſeveral Ways, occaſions frequent Diſputes and Law-Suits.

RIVAGE, a Toll antiently paid to the King in ſome Rivers, for the Paſſage of Boats therein. See FERRY.

RIVER, FLUVIUS, FLUMEN, in Geography, a Stream or Current of freſh Water, flowing in a Bed or Channel, from a Source or Spring, into the Sea. See WATER, *&c.*

If the Stream be not large enough to bear Boats, or ſmall Veſſels, loaden; it is properly call'd in *Engliſh,* by the Diminutive, *Rivulet,* or *Brook;* by the *Latins, Rivus;* and the *French, Riviere.*—If it will only bear ſuch Veſſels, the *Latins* call it *Amnis.*—If it be conſiderable enough to carry larger Veſſels, 'tis call'd by the general Name *River;* by the *Latins, Fluvius,* and *Flumen;* and by the *French, Fleuve.*—In all which, the Difference is only as to greater and leſs.

Some will have none to be properly *Rivers,* except thoſe which bear the ſame Name from their Source to their Mouth.—Others, none but thoſe which empty themſelves immediately into the Sea; and not into any other River. See SEA.

Rivulets have their Riſe, ſometimes, from great Rains, or great Quantities of thaw'd Snow; eſpecially in mountainous Places; as in the long Ridges in *Africa, India, Sumatra,* &c. But the generality of *Rivulets* ariſe from *Springs.* See SPRING.

Rivers themſelves all ariſe either from the Confluence of ſeveral *Rivulets,* or from Lakes: Nor is there any great *River,* ſuch as the *Rhine, Elbe,* &c. known to flow from a ſingle Spring.—The *Volga, e. gr.* conſiſts of above two hundred *Rivulets,* all flowing into it, before it reach the *Caſpian:* And the *Danube* receives as many. *Pliny,* indeed, and *Cardan,* ſay, that the *Nile* receives none; but the later Travellers into *Abaſſia* aſſure us of the contrary.

The *Rhine, Rhoan, Danube, Boryſthenis,* &c. ariſe originally from Springs in the Mountains; the *Nile, Volga,* the great *River* of St. *Laurence,* &c. from Lakes. See LAKE.

Phænomena and Kinds of RIVERS.

Rivers are found ſubject to great Alterations, at different Seaſons of the Year, Day, *&c.* from frequent Rains, and melted Snow.—Thus in *Peru* and *Chili* many of the *Rivers* are almoſt inſenſible in the Night-time; and only flow by Day; as being then augmented by the Reſolution of the Snow on the Mountains, *Andes.*—Thus the *Volga* abounds in Water in *May* and *June;* ſo as to cover the Sand-Banks, *&c.* which all the reſt of the Year lie bare, ſo as ſcarce to allow a Paſſage to the loaden Ships.—Thus alſo the *Nile, Ganges, Indus,* &c. are frequently ſo increas'd as to overflow; and that either in the Winter, from Rain, or in the Summer, from the melting of the Snow.

Some *Rivers* bury themſelves under Ground in the middle of their Courſe, and break out again in other Places, like new *Rivers.*—Thus the *Niger,* which ſome Coſmographers derive by a ſubterraneous Channel from the *Nile,* becauſe it ſwells at the ſame time with the *Nile* without any other apparent Cauſe of its s ſwelling: The *Niger* it ſelf meeting the Mountains of *Nubia*, is hid under them, and riſes again on the Weſtern Side of the Mountains. Thus alſo the *Tygris* is loſt in the Mountain *Taurus*, &c.

Ariſtotle, and the Poets, mention ſeveral ſuch *Rivers* about *Arcadia*: *Alpheus*, a *River* of *Arcadia*, is particularly famed.—This, being ſwallowed up in the Ground, is ſuppoſed by the *Greek* Authors to continue its Progreſs under Earth and Sea, into *Sicily*; where breaking up near *Syracuſe*, it forms the *River Arethuſa*. The great Reaſon of this Opinion is, that every fifth Summer the *River Arethuſa* in *Sicily*, caſts up the Dung of Cattel about the time of the Celebration of the Olympic Games, in *Achaia*, when the Dung of Victims was uſed to be caſt into the *Alpheus*.

Some *Rivers* empty themſelves into the Sea by one Mouth, ſome by ſeveral,—Thus the *Danube* opens into the *Euxine* Sea by ſeven Mouths, the *Nile* by ſeven, and the *Volga* by at leaſt ſeventy. The Cauſe of this variety of Mouths *Varenius* attributes principally to Banks of Sand, *&c.* form'd therein; which gradually increaſing, form Iſlands, whereby the Channel is divided into ſeveral Branches.—Indeed, the Antients tell us that the *Nile* formerly only emptied it ſelf at one Mouth, call'd the *Oſtium Canobicum*; and add, that the other ſix are Artificial.

The Channels of *Rivers*, except ſuch as were form'd at the Creation, *Varenius* endeavours to prove to be all Artificial, and dug by Men.—His Reaſons are, that when a new Spring breaks forth, the Water does not make it ſelf a Channel, but ſpreads over the adjacent Land; ſo that the People have been neceſſitated to cut it a Channel to ſecure their Grounds; and that a great Number of Channels of *Rivers* are certainly known, from Hiſtory, to have been dug by Men, *&c.*

As to the Queſtion, whether thoſe *Rivers* which run into others, have made themſelves that way by their own Motion, or have been turn'd thither in Canals cut by Men? He takes the latter to be the more probable; and concludes the ſame of the Arms or Branches of *Rivers*; and of the Turns whereby Iſlands are form'd in the *Tanais*, *Volga*, &c.

To the Queſtion, why we have no *Salt-Rivers*, when as there are many Salt Springs? He anſwers, that 'tis becauſe Men having no Occaſion for Salt Water, have not dug Channels to conduct the Water of Salt Springs; Salt being procurable at leſs expence. See SALT.

The Water of moſt *Rivers* flows impregnated with Particles of Metals, Minerals, Sands, oily and fat Bodies, *&c.*—Thus ſome *Rivers* bring Sands intermix'd with Grains of Gold; of which Kind is, 1°. a *River* in *Japon*; a ſecond in the Iſlands *Lequeo*, near *Japon*; 3°. a *Rivulet* in *Africa*, call'd *Arroe*, breaking out of the Roots of the Mountains of the Moon, wherein are Gold Mines: 4°. a *River* in *Guinea*, where the Negroes ſeparate the Gold Duſt from the Sand, and ſell it to the *Europeans*, who Traffick hither for that very purpoſe. 5°. In ſome *Rivulets* near the City of *Mexico*, are Grains of Gold taken up: eſpecially after Rain; which is to be underſtood of all the other *Rivers*; none of which yield any thing conſiderable, except in rainy Seaſons. 6°. In *Peru*, *Sumatra*, *Cuba*, *Hiſpaniola*, and *Guiana*. Laſtly, there are ſeveral Brooks in the Countries about the *Alps*, eſpecially *Tirol*, out of whoſe Waters Gold is drawn, though there be no Grains conſpicuous therein. Add to this, that the *Rhine* in many Places brings a Golden Mud. See GOLD.

As to *Rivers* that bring Grains of Silver, Iron, Copper, Lead, *&c.* we find no mention of them in Authors; though doubtleſs there are great Numbers of each; and many of the medicinal Effects of mineral Waters are doubtleſs owing thereto.

We muſt not here omit a *River* in *Germany*, which is ordinarily ſuppoſed to change Iron into Copper.—The Truth is, there is no real Converſion of the Metal; all that is done is, that the Copper, and Vitriolic Particles in the Water, corrode the Iron, and detaching Parts thereof, by means of the Motion of the Water ſucceed in their room.

From this variety in the Mixture of the *River Water*, reſult various Qualities, different ſpecific Gravities, different Colours, *&c.* See *Mineral*-WATER.

Some *Rivers*, at certain Seaſons of the Year, ſwell, ſo as to overflow their Banks, and drown the neighbouring Lands.—Of theſe the moſt eminent is the *Nile*, which riſes ſo as to cover all *Egypt*, except the Hills. The Inundation begins about the 17th Day of *June*, and increaſes for the ſpace of forty Days; and decreaſes for as many: During which Period the Cities of *Egypt*, which are all built on Hills, appear as ſo many Iſlands.

To theſe Inundations *Egypt* owes all its Fertility; the Heavens there affording no Rain, or at leaſt none in any reſpect conſiderable.—Hence as the Inundation is great or ſmall, *Egypt*, for that Year is fruitful or barren.

The Antient *Greeks*, &c. were miſtaken as to the Cauſe of this Inundation; no body in thoſe Days having travelled up to its Source: But the modern *Engliſh* and *Portugueze* Traders into *Congo*, *Angola*, *Monomotapa*, &c. have let us into the Secret.—From them we learn that the Spring or Source of the *Nile* is in a large Lake call'd *Zaire*, round which are a great Number of huge Mountains, call'd the Mountains of the Moon. Now as theſe lie in the Southern Hemiſphere, their Winter will be at the time of our Summer: But by reaſon of their nearneſs to the Equator, (being only 10° diſtant from it) they never feel any notable Cold: Hence it is, that inſtead of Snow in the Winter, they have Rain every Day, at leaſt two Hours before, and two after Noon. In effect, the Tops of theſe Mountains are always cover'd with Clouds, and the Rains almoſt continual. Hence Torrents are conſtantly guſhing down from the Mountains; all ending in the Lake of *Zaire*; whence they flow into the Channel of the *Nile*, and other *Rivers* ariſing from the ſame Lake, as the *Cuama*, *Zaire*, &c. Hence the Inundation of the *Nile*.

The other *Rivers*, which have any notable ſtated Inundations, are; the *Niger*, which overflows at the ſame Time with the *Nile*. *Leo Africanus* ſays, it begins on the 15th Day of *June*, increaſes for 40 Days, and decreaſes as long.—The *Zaire*, a *River* of *Congo*, proceeding from the ſame Lake with the *Nile*, and therefore affected in the ſame Manner: The *Rio de la Plata* of *Braſil*, which *Maffeus* obſerves, overflows at the ſame time with the *Nile*: The *Ganges*: The *Indus*; both which laſt overflow in *June*, *July*, and *Auguſt*; at which Times the Natives ſave great Quantities of the Water in Ponds, to ſerve them the reſt of the Year: Several *Rivers* flowing out of the Lake *Chiamay*, into the Bay of *Bengal*, which overflow in *September*, *October*, and *November*. Theſe all bring a very great Fertility with them to the Ground: The *River Macoa* in *Cambodia*: The *River Parana*, or *Paranaguaſa*, which ſome will have to be the ſame with the Silver *River*: Several *Rivers* in *Coromandelia*, a Part of *India*, overflowing in the rainy Months from the great Quantity of Water iſſuing off the Mountain *Gatis*: The *Euphrates*, which overflows *Meſopotamia*, certain Days in the Year. Laſtly, the *River Sus* in *Numidia*.

The *Rivers* moſt celebrated for their Length, Breadth, Swiftneſs of Current, *&c.* are,—The *Nile*, which runs almoſt in a ſtraight Courſe 2520 Geographical Miles. The *Niger*, which runs 2400 Miles. The *Ganges*, 1200 Miles. The *Ob*, 1600 Miles. The *Jeniſcea* in *Aſia*, about the ſame Length with the *Ob*. The *River Orellana* in *America*, 60 Miles broad at its Mouth, and 5000 Miles long. The *Rio de la Plata*, 80 Miles broad at the Mouth. The *Omarranan*, another *River* of *Braſil*: And the great *River* of St. *Laurence*, near 2500 Miles long.

RIVER, in Phyſicks, a Water running by its own Gravity, in a Channel open above.—Such is AE *Tab. Hydroſtaticks*, *Fig.* 34.

Laws of the Motion of RIVERS.

The modern Philoſophers endeavour to bring the Motion and Flux of *Rivers* to preciſe Laws; and with this View have applied Geometry and Mechanicks thereto: So that the Doctrine of *Rivers* is become a Part of the new Philoſophy.

The *Italian* Authors have diſtinguiſhed themſelves herein, and 'tis chiefly to them we are indebted for the Improvement; particularly S. *Guglielmini*, who in his Treatiſe, *Della Natura de' Fiumi*, has abundance of new Obſervations and Diſcoveries relating thereto.

Rivers, he obſerves, uſually have their Sources in Mountains or Elevations of Ground; and 'tis in their Deſcent from theſe, that they acquire the Velocity or Acceleration which maintains their future Current.—In Proportion as they advance further, this Velocity diminiſhes; by reaſon of the continual Friction of the Water againſt the Bottom and Sides of the Channel, of the various Obſtacles they meet withal in their Progreſs; and of their arriving at length in Plains, where the Deſcent is leſs, and their Inclination to the Horizon, of conſequence, greater.—Thus the *Reno*, a *River* of *Italy*, which gave Occaſion in ſome Meaſure to theſe Speculations, is found near its Mouth, to have ſcarce a Deſcent of 52 Seconds.

If the acquired Velocity be quite ſpent through the many Obſtacles; ſo that the Current becomes horizontal; there will then nothing remain to propagate the Motion, and continue the Stream, but the Height, or the perpendicular Preſſure of the Water which is always Proportional to the Heighth.—And, happily for us, this Reſource increaſes as the Occaſion for it increaſes: For in Proportion as the Water loſes of the Velocity acquired by the Deſcent, it riſes and augments in Depth.

The upper Parts of the Water of a *River*, and thoſe at a Diſtance from the Banks, may continue to flow from the ſingle Cauſe or Principle of Declivity, how ſmall ſoever it be; for not being detain'd by any Obſtacle, the minuteſt Difference of Level will have its Effect: But the lower Parts, which roll along the Bottom, will ſcarce be ſenſible of ſo ſmall a Declivity, and will only have what Motion they receive from the Preſſion of the ſuperincumbent Waters.

The natural Viſcidity and Coheſion of the Particles of Water, and that Implication, as it were, which they ſeem to have with one another, makes the lower, which are moved by means of the Depth, carry along with them the upper, which in a horizontal Channel wou'd have no Motion at all, or in a Channel very little inclined, next to none. So that the lower, in this Caſe, communicate to the upper, a Part of the Motion they have receiv'd from it. Hence it frequently happens that the greateſt Velocity of a *River* is about the middle of its Depth; ſuch middle

Parts having the Advantage of being preſs'd with half the Depth of the *River*, and of being free, at the ſame Time, from the Friction of the Bottom.

To find whether the Water of a *River* almoſt Horizontal, flows by means of the Velocity acquired in it Deſcent, or by the Preſſure of its Depth; ſet up an Obſtacle Perpendicular thereto; and if the Water riſe and ſwell immediately againſt ſuch Obſtacle, it runs in Virtue of its fall; or if it ſtop a little while, in Virtue of its Preſſion.

Rivers, according to this Author, almoſt always make their own Beds.—If the Bottom have originally been a large Declivity; the Water in Conſequence hereof falling with a great deal of Force, will have ſwept away the moſt elevated Parts of the Soil, and carrying them lower down, will gradually make the Bottom horizontal; where the Stream is ſwifteſt, there will the Earth be moſt dug up, and conſequently there the greateſt Cavity will be made.

The Water having made its Bed horizontal, becomes ſo it ſelf, and conſequently rakes with the leſs Force againſt the Bottom; till at length that Force is only equal to the Reſiſtance of the Bottom. The Bottom is now arrived at a State of Permanency, at leaſt for a conſiderable Time; and the longer, according to the Quality of the Soil; Clay and Chalk reſiſting longer than Sand or Mud.

On the other Hand, the Water is continually gnawing and eating off the Brims of its Channel; and this with the more Force as by the Direction of its Stream it ſtrikes more perpendicularly againſt them. By this means it has a continual Tendency to render them parallel to its own Courſe; and when it has arrived as near that as poſſible, it ceaſes to have any Effect in that Way. At the ſame time that it has thus rectified its Edges, it has inlarged its own Bed; that is, has loſt of its Heigth, and conſequently of its Force and Preſſure: This it continues to do till there is an Equilibrium between the Force of the Water and the Reſiſtance of its Banks, upon which they will remain fix'd.—And it is evident from Experience, that theſe Equilibriums are all real; inaſmuch as we find that *Rivers* only dig and widen to a certain Pitch.

The very reverſe of all theſe things does alſo happen.—*Rivers* whoſe Waters are thick and muddy, raiſe their Bed by letting Part of the heterogeneous Matters contain'd in them fall to the Bottom: They alſo contract their Banks by a continual Appoſition of the ſame Matter in bruſhing over them. This Matter being thrown aſide far from the Stream of Water, might even ſerve, by reaſon of the obſcureneſs of the Motion, to form new Banks.

Now, theſe oppoſite Effects almoſt always ſeem to meet together, and are differently combined, according to the Circumſtances; whence 'tis very difficult judging of the Reſult. Yet muſt this Combination be known very accurately, e're any Meaſures can be taken about *Rivers*, eſpecially as to the diverting their Courſes.—The *Lamona*, which emptied it ſelf into the *Po*, being turn'd another Way to make it diſcharge it ſelf into the *Adriatic*, was ſo alter'd, and its Force ſo far diminiſh'd, now that its Waters were left to themſelves, that it rais'd its Bed a great Heighth, by continual Depoſitions of Mud; 'till it became much higher than the *Po*, in its utmoſt Accretions, and needed very high Banks or Dykes to keep it from overflowing. See ALLUVION.

A little *River* may be receiv'd into a large one, without either augmenting its Width or Depth.—This ſeeming Paradox ariſes hence, that the Addition of the little *River* may only go to move the Waters before at reſt near the Banks of the large one, and thus augment the Velocity of the Stream, in the ſame Proportion as it does that of the Quantity of Water.—Thus the *Venetian* Branch of the *Po* ſwallowed up the *Ferrareſe* Branch, and that of *Panaro*, without any inlargement of its own Dimenſions. And the ſame may be concluded proportionably of all other Acceſſions to *Rivers*; and in the general, of all new Augmentations of Water.

A *River* offering to enter into another, either perpendicularly, or in an oppoſite Direction, will be diverted by Degrees from that Direction, and obliged to make it ſelf a new and more favourable Bed next the Mouth.

The Union of two *Rivers* into one, makes it flow the ſwifter, by reaſon in lieu of the Friction of four Shores, they have only two to ſurmount; and that the Stream being further diſtant from the Banks, goes on with the leſs Interruption; beſide that a greater Quantity of Water moving with a greater Velocity digs deeper in the Bed, and of Courſe retrenches of its former Width.—Hence alſo it is that *Rivers*, by being united, take up leſs Space on the Surface of the Earth are more advantageous to low Grounds; which diſcharge their ſuperfluous Moiſture into them, and have leſs Occaſion for Dykes to prevent their overflowing.

Theſe Advantages are ſo conſiderable, that S. *Guglielmini* thinks them worthy of Nature's having had a View to them in her contriving to make the Confluence of *Rivers* ſo frequent as we find it.

To determine more preciſely the general Laws of the Motion of *Rivers*, it may be obſerved that a *River* is ſaid to remain in the *ſame State*, or to be in a *permanent State*, when it flows uniformly, ſo as to be always at the ſame Heighth in the ſame Place. 2°. That a Plane, which cutting a *River* is perpendicular to the Bottom, as $p\,o\,n\,g$, is call'd the *Section of a River*.

Hence, when a *River* is terminated by flat Sides, parallel to each other, and perpendicular to the Horizon, and the Bottom alſo is a Plane, either horizontal, or inclined, the Section of the *River* with theſe three Planes makes Right Angles, and is a Parallelogram.

Now in every *River* that is in a permanent State, the ſame Quantity of Water flows in the ſame Time through every Section; for unleſs there be in every Place as great a Supply of Water, as what runs from it, the *River* will not remain in the ſame State. This will hold good, whatever be the Irregularity of the Bed, or Channel, from which in another reſpect ſeveral Changes in the Motion of the *River* may ariſe: For Example, a greater Friction, in Proportion to the Inequality of the Channel.

The Irregularities in the Motion of a *River* may be infinitely varied, nor can any Rules be given to ſettle them. All Irregularities muſt be ſet aſide; and only the general Tenor or Flux be conſidered to examine the general Courſe of *Rivers*.

Suppoſe, then, the Water to run in a regular Channel, without any ſenſible Friction, and that the Channel is terminated with Plane Sides, parallel to one another, and Vertical; and alſo that the Bottom is a Plane, and inclined to the Horizon.—Let AE be the Channel, into which the Water runs from a greater Receptacle or Head; and let the Water always remain in the ſame Heighth at the Head, ſo that the *River* may be in a permanent State: The Water here deſcends along an inclined Plane, and is accelerated; whereby, becauſe the ſame Quantity of Water flows through every Section, the Heighth of the Water, as you recede from the Head of the *River*, is continually diminiſhed, and its Surface will acquire the Figure, $i\,q\,v$.

To determine the Velocity of the Water in different Places; ſuppoſe the hollow of the Channel ADCB to be ſhut up with a Plane; if there be an Hole made in the Plane, the Water will ſpout the faſter through the Hole, as the Hole is more diſtant from the Surface of the Water HI; and the Water will have the ſame Celerity that a Body falling from the Surface of the Water to the Depth of the Hole below it, would acquire: All which ariſes from the Preſſure of the ſuperincumbent Water.—There is the ſame Preſſure, that is, the ſame moving Force, when the Obſtacle at AC is taken away, upon which every Particle of Water enters into the Channel with the Celerity a Body would acquire in falling from the Surface of the Water to the Depth of that Particle. This Particle is moved along in an inclined Plane in the Channel, with an accelerated Motion; and that in the ſame manner, as if in falling vertically, it had continued its Motion to the ſame Depth below the Surface of the Water in the Head of the *River*.

So, if you draw the horizontal Line $i\,t$, the Particle at r will have the ſame Celerity as a Body falling the length i C, and running down Cr, can acquire; which is the Celerity acquired by the Body in falling down $t\,r$. Therefore the Celerity of a Particle may be every where meaſured, by drawing from it a Perpendicular to the horizontal Plane, which is conceived to run along the Surface of the Water in the Head of the *River*; and the Velocity which a Body acquires in falling down that Perpendicular, will be the Celerity of the Particle; which is greater, the longer the Perpendicular is. From any Point, as r, draw RS perpendicular to the Bottom of the *River*, this will meaſure the Heighth or Depth of the *River*. Since $r\,s$ is inclined to the Horizon, if from the ſeveral Points of that Line, you draw Perpendiculars to $i\,t$, they will be ſhorter, the more diſtant they are from r, and the ſhorteſt of them alſo will be $s\,v$: Therefore the Celerities of the Particles in the Line $r\,s$, are ſo much the leſs, the nearer they are to the Surface of the *River*, and the lower Water is moved faſter than the upper Water.

Yet the Celerities of thoſe Waters, as the *River* runs on, continually approach nearer and nearer to an Equality: For the Squares of thoſe Celerities are as $r\,t$ to $s\,v$, the Difference of which Lines, as you recede from the Head of the *River* is continually leſſened, becauſe of the Heighth $r\,s$, which is alſo continually diminiſhed as the Lines themſelves are lengthened. Now as this obtains in the Squares, it will much more obtain in the Celerities themſelves, whoſe Difference therefore is diminiſhed as they increaſe.

If the Inclination of the Bottom be changed up to the Head of the *River*, ſo as to become $y\,z$, and a greater Quantity of Water flow into the Channel, it will be higher every where in the *River*, but the Celerity of the Water will not be changed.—For this Celerity does not depend on the Heighth of the Water in the *River*, but, on the Diſtance of the moved Particle from the horizontal Plane of the Surface at the Head continued over the ſaid Particle; which Diſtance is meaſured by the Perpendicular $r\,t$, or $s\,v$; but theſe Lines, are not changed by the Afflux of Water, provided the Water remain at the ſame Heighth in the Baſon or Head.

Suppoſe the upper Part of the Channel ſtop'd by an Obſtacle, as X, which deſcends a little way below the Surface of the Water; here, the whole Water which comes cannot run through, therefore it muſt riſe: But the Celerity of the Water below this Cataract is not increaſed; and the Water that comes on, is continually heaped up, ſo that at laſt it muſt riſe ſo as to flow over the Obſtacle, or the Banks of the *River*. If the Banks be raiſed, and the Obſtacle be continued; the Heighth of the Water would riſe above the Line *i t*; but before that, the Celerity of the Water cannot be increaſed: In which Caſe the Heighth of all the Water in the Head will be increaſed; for, as we ſuppoſe the *River* in a permanent State, there muſt continually be as great a Supply of Water to the Head, as there runs from it down the Channel; but if leſs Water runs down, the Heighth muſt neceſſarily be increaſed in the Head, till the Celerity of the Water flowing under the Obſtacle be increaſed to ſuch Degree, that the ſame Quantity of Water ſhall run under the Obſtacle, as uſed to run in the open Channel before.

RIVULET, a Diminutive of *River*. See RIVER.

RIXDOLLAR, a Silver Coin, ſtruck in ſeveral States and free Cities of *Germany*; as alſo in *Flanders*, *Poland*, *Denmark*, *Sweden*, &c. See COIN.

There is but very little Difference between the *Rixdollar* and the *Doller*, another Silver Coin ſtruck in *Germany*; each being equal to the *French* Crown of three Livres, the *Spaniſh* Piece of Eight, or *4s. 6d. Sterling*. See CROWN, *&c.*

The *Rixdollar* is one of the moſt Currant and univerſal Coins in the World.—'Tis uſed equally in the Commerce of the *Levant*, the *North*, *Muſcovy*, and the *Eaſt-Indies*.

ROAD, VIA, an open Way or Paſſage, which makes a commodious Communication between one Place and another. See WAY.

The *Romans*, of all other People, took the moſt pains in their *Roads*: The Labour and Expences they were at to render them ſpacious, ſtraight, ſmooth, and agreeable to the very Extremities of their Empire, are incredible. See *Bergier's* Hiſtory of the great *Roads* of the *Roman* Empire.

Uſually, they ſtrengthened the Ground by ramming it, laying it with Flints, Pebbles, or Sand; ſometimes by a Lining of Maſonry, Rubbiſh, Bricks, Potſherds, *&c.* bound together with Lime.

F. *Meneſtriers* obſerves, that in ſome Places in the *Lyonnois* he has found huge Cluſters of Flints cemented with Lime, reaching 10 or 12 Foot deep, and making a Maſs as hard and compact as Marble it ſelf; and which, after reſiſting the Injuries of Time for 1600 Years, is ſtill ſcarce penetrable by all the Force of Hammers, Mattocks, *&c.* and yet the Flints it conſiſts of don't exceed the bigneſs of an Egg.

Sometimes they even paved their *Roads* regularly, with large, ſquare Free-Stones; ſuch is the *Appian* and *Flaminian Way*, &c. See PAVING.

The *Roads* paved of very hard Stones they uſually call'd *Viæ Ferreæ*, either becauſe they reſembled Iron, or becauſe they reſiſted the Iron of the Horſe's Feet, Chariots, *&c.*

Roads are either *Natural*, or *Artificial*; *Terreſtrial*, or *Aquatic*, *Publick*, or *Private*.

A *natural Road* is that which has been frequented for a long ſucceſſion of Time, and ſubſiſts with little Expence, by reaſon of its Diſpoſition, *&c.*

Artificial Road is that made by Labour of the Hand, either of Earth, or Maſonry; and wherein there were ſeveral Difficulties to be ſurmounted: Such are moſt of thoſe along the Banks of Rivers, through Marſhes, Lakes, *&c.*

Terreſtrial, or *Land Roads*, are not only thoſe made upon the Ground, but alſo thoſe form'd of Earth heaped up in Manner of a Bank, and ſuſtained by Spurs, Buttreſſes, and Counter-Forts.

Aquatic Road, is a *Road* made in the Waters, whether Currant, as over Rivers, *&c.* or Stagnant, as Banks and Cauſeways over Moraſſes, Ponds, *&c.* See CAUSEWAY.

Under this Denomination are alſo comprehended navigable Rivers, and artificial Canals; as thoſe in *Italy*, *Holland*, &c.

Publick Road, or *Grand Road*, is any common *Road*, whether ſtraight, or a-croſs, Military or Royal, *&c.*—*Private Road* is that made for the Convenience of ſome particular Houſe, *&c.*

Military ROADS, ſo call'd among the *Romans*, were grand *Roads* appointed for the marching of their Armies into the Provinces of the Empire, or for the Aſſiſtance of their Allies. See MILITARY.

The principal of theſe *Roads* in *England*, are *Watling-ſtreet*, *Ikenild-ſtreet*, *Foſs-way*, and *Erminage-ſtreet*; which ſee under the Article WAY.

Double-ROADS, among the *Romans*, were *Roads* for Chariots, *&c.* having two Pavements, or Cauſeways; the one for thoſe going one way, the other for thoſe returning the other; to prevent claſhing, ſtopping, and confuſion.

Theſe two Ways were ſeparated from each other by a Bank raiſed in the Middle, paved with Bricks, for the Convenience of Foot-People, with Borders, mounting Stones from Space to Space, and military Columns to mark the Diſtance.—Such was the *Road* from *Rome* to *Oſtia*; call'd *Via Portuentis*. See MILIARY.

Subterraneous-ROAD, is that dug in a Rock, with the Chiſſel, *&c.* and left vaulted.—Such is that of *Puzzuoli* near *Naples*, which is near half a League long, fifteen Foot broad, and as many high. See SUBTERRANEOUS.

Strabo ſays it was made by one *Cocceius*, a Relation, probably, of *Nerva's*; but it has ſince been widened by *Alphonſus* King of *Arragon* and *Naples*, and made ſtraight by the Viceroys.—There is another of the ſame Kind in the ſame Kingdom, between *Baiæ* and *Cumæ*, call'd the *Grotto of Virgil*, becauſe mentioned by the Poet in the ſixth Book of his *Æneid*. See GROTTO.

ROAD, in Navigation, a Place of Anchorage, at ſome Diſtance from Shore, and ſhelter'd from the Winds; where Veſſels uſually moor, to wait for a Wind or Tide proper to carry them into Harbour, or to ſet Sail. See HARBOUR, MOORING, ANCHOR, *&c.*

When the Bottom is clear of Rocks, and the Hold firm, and the Place well cover'd from a certain Wind; the *Road* is ſaid to be good.

A wild ROAD, among Sailors, is one which has but a little Land on any Side.

The *Roads* within his Majeſty's Dominions are free to all Merchant Veſſels, either of his Subjects or Allies.—Captains and Maſters of Ships who are forced by Storms, *&c.* to cut their Cables, and leave their Anchors in the *Roads*, are obliged to fix up Marks or Buoys, on Pain of a Forfeiture of their Anchors, *&c.* See BUOY.

The Maſters of Ships coming to Moor in a *Road*, muſt caſt Anchor at ſuch Diſtance as that the Cables, *&c.* mayn't mix, on Pain of anſwering the Damages: When there are ſeveral Veſſels in the ſame *Road*, the outermoſt to the Sea-ward, is oblliged to keep a Light in his Lanthorn in the Night-time, to apprize Veſſels coming in from Sea.

ROADER, among Sailors, a Ship that Rides at Anchor in a Road. See ROAD and ANCHOR.

ROB, in Pharmacy, a Preparation antiently much uſed, conſiſting of the Juices of Fruits, purified, and boil'd to a Conſumption of two thirds of their Moiſture. See MEDICINE, *&c.*

There are *Robs* made of Quinces, Mulberries, Elderberries, Aloes, Acacia, Liquorice, Barberries, Gooſeberries, and other Fruits, for variour Diſeaſes.—The Juice of Grapes thus prepared, is particularly call'd *Sapa*; which *Sapa* is almoſt of the Conſiſtence of a Syrup. See SAPA.

When only one third of the Humidity is boil'd away, 'tis call'd *Defrutum*; and when only boil'd to the Conſiſtence of a ſoft Electuary, a *Reſin*. See DEFRUTUM and RESIN.

The Word *Rob* is pure *Arabick*; and ſignifies, originally, a Juice dried in the Sun, or over the Fire; that it may keep the longer without Damage.

Sometimes it alſo denotes a Compoſition of ſome Juice made up with Honey or Sugar; in which Senſe it is confounded with *Loche* or *Lohoc*. See LOHOC.

The *Rob* is a Form now much out of uſe; though there are ſeveral directed in the College Diſpenſatory; as *Robs* of black Cherries, of Sloes, of Quinces, *&c.*

ROBBERY, in Law, a felonious taking away another Man's Goods, from his Perſon, Preſence, or Eſtate, againſt his Will; putting him in Fear, *&c.*—This is ſometimes call'd *violent Theft*. See THEFT.

The Word is ſaid to have taken its riſe hence, that antiently *Robbers* only took away the Robes or Cloaths from Travellers. Though my Lord *Coke* in the third of his *Inſtitutes*, takes the Name to have had its riſe from *Robin Hood*, who lived under *Richard* I. in the Borders of *England* and *Scotland*, by *Robbery*, burning Houſes, Rape, and Spoil.

Hence alſo *Robers-Men*, or *Roberds-Men*, mentioned in ſeveral Statues for mighty Thieves.

ROBE, a Gown or Garment wore by Lawyers, Divines, and other Graduates; who are hence call'd *Gentlemen of the long Robe*. See GOWN.

The *Robe* is an ample Garment bore over the ordinary Cloaths, hanging down to the Feet.—'Tis faſhion'd differently for Eccleſiaſticks, and for Laymen.

At *Rome*, they gave the Name *Virile Robe*, *Toga Virilis*, to a plain kind of Gown which their Youth aſſumed when arrived at Puberty. This, they particularly denominated, *Prætexta*. See TOGA, PRÆTEXTA, VIRILE, PUBERTY, *&c.*

In ſome Univerſities, Phyſicians wear the red *Robe*.—In the *Sorbonne* the Doctors are always in *Robes* and Caps. Beadles, *&c.* wear *Robes* of two Colours.

Among the *French* Officers, *&c.* they diſtinguiſh thoſe of the *ſhort Robe*; which are ſuch as have not been regularly examined.—They have alſo Barbers of the *ſhort Robe*, who are ſuch as are obliged to Practice in an inferiour Way to thoſe of the long *Robe*.

ROBE, is alſo taken in the general for, Civil Magiſtrature, or the Profeſſion oppoſite to that of Arms. See MAGISTRATE.

In this Senſe it was that *Cicero* ſaid, *Cedant Arma Togæ*.

Maſter of the ROBES, is an Officer of the Houſhold, who has the ordering of all his Majeſty's *Robes*; as thoſe of the Coronation, thoſe of St. *George's* Feaſt, of Parliament, *&c.* as alſo of his wearing Apparel, Collar of SS's, *&c.*

He has ſeveral Officers under him, as a *Clerk of the Robes*, a Yeoman, three Grooms, a Page, a Bruſher, Sempſtreſs, Laundreſs, Starcher; a Keeper of the Wardrobe at *Whitehall*, &c. See WARDROBE.

ROBERVALLIAN *Lines*, a Name given to certain Lines, uſed for the Transformation of Figures; thus call'd from their Inventor M. *de Roberval*. See TRANSFORMATION, *&c.*

The Abbot *Galloys*, in the Memoirs of the *French* Academy, *An.* 1693. obſerves, that the Method of transforming Figures, explain'd at the latter end of M. *de Roberval's Treatiſe of Indiviſibles*, is the ſame with that ſince publiſhed by Mr. *James Gregory*, in his *Univerſal Geometry*; and that, by a Letter of *Torricelli's*, it appears that *Roberval* had invented this manner of transforming Figures, by means of certain Lines which *Torricelli* called *Robervallian Lines*.

He adds, that 'tis highly probable that *J. Gregory* firſt learned the Method in the Journey he made to *Padua* in 1668; the Method it ſelf having been known in *Italy* from the Year 1646; though the Book was not publiſhed till the Year 1692.

This Account Dr. *David Gregory* has endeavour'd to refute, in Vindication of his Brother.—His Anſwer is inſerted in the *Phil. Tranſact. An.* 1694. and the Abbot has rejoin'd in the *French* Memoirs of the Academy, *An.* 1703.

ROBIGALIA, or RUBIGALIA, in Antiquity. See RUBIGALIA.

ROBORANTIA, in Medicine, *Strengtheners*; or ſuch Medicines as ſtrengthen the Parts, and give new Vigour to the Conſtitution. See STRENGTHENER.

ROCAMBOLES, a mild, pleaſing Sort of Garlick, by ſome call'd *Spaniſh* Garlick; being much of the Nature of Shalot; and well known in Cookery, in Quality of a Sauce.

ROCHET, a Lawn Garment, wore by Biſhops and Abbots; reſembling a Surplice, except in this, that the Sleeves are gathered at the Wriſt; whereas the Surplice is quite open. See SURPLICE.

The Regular Canons of St. *Auguſtin* do alſo wear *Rochets* under their Copes.—*Menage* derives the Word from the *Latin Rochettus*, a Diminutive of *Rocchus*, uſed in the Writers of the lower *Latin* for *Tunica*, and formed originally from the *German*, *Rock*.

ROCHETS are alſo the Mantles wore on Days of Ceremony, by the Peers ſitting in the *Engliſh* Parliament. See PEER and PARLIAMENT.

Thoſe of Viſcounts have two Bands or Borders and a half; thoſe of Earls three; thoſe of Marquiſſes three and a half; and thoſe of Dukes four. *Larrey.*

ROCK, RUPES, a large Maſs or Block of hard Stone, rooted in the Ground. See STONE.

There are various Ways of breaking *Rocks* with Wood, Gunpowder, *&c.* See QUARRY, WOOD, *&c.*

We have Roads, Grotto's, Labyrinths, *&c.* dug through *Rocks.* See ROAD, GROTTO, LABYRINTH, *&c.*

The Word is form'd of the *Greek* ῥὼξ, *Rima*, Cleft, Chink; and ῥὼξ from ῥήγνυμαι, I break; whence ῥαχία, a ſtony River.

ROCK-*Work*, ROCAILLE. See SHELL-*Work*.

ROCK-*Cryſtal*, or *Cryſtal of the Rock*, is that form'd by a Congelation of the lapidific Juices which trickle down in *Rocks* and Caverns. See CRYSTAL.

ROCK-*Alumn*, } See { ALUMN.
ROCK-*Salt*, } See { SALT.

ROCKET, in Pyrotechnia, an artificial Fire-work, conſiſting of a cylindrical Caſe of Paper, filled with a Compoſition of certain combuſtible Ingredients; which being tied to a Stick, mounts in the Air to a conſiderable Heighth, and there burſts. See PYROTECHNIA and FIRE-WORKS.

The *Rocket* has a great Part in all Fire-Works of Entertainment, being not only uſed ſingly, but ſometimes, alſo, as an Ingredient in others.

Beſides the *Rocket* here defined, which is properly call'd the *Sky-Rocket*, there is another, which from the Sphere it moves in, the Water, is denominated *Water-Rocket*.—The Mechaniſm, Preparation, *&c.* of each whereof, we ſhall here deſcribe.

Method of making a Sky-ROCKET.

1°. A Concave cylindrical Mould, or Frame, AB, *Tab. Miſcellany, Fig.* 7. is turn'd, of hard Wood, with a Baſe BD, and a Capital HC, uſually adorned with architectonical Mouldings.—The Cylinder is to be open at both Ends, and its Dimenſions, for *Rockets* of various Sizes, as in the following Article.—When large, they are ſometimes alſo made of Braſs or Tin; and when ſmall, of Bone.

2°. Of the ſame Matter with the Cylinder, is prepared a Quadra, or Foot E; in the middle whereof is turn'd a Hemiſphere G, conſiderably leſs than that of the Cavity of the Frame; making the Cap or Head of another Cylinder IK, and reaching up within the Caſe; where 'tis kept ſteady by a Pin LM.

Authors don't agree about the Proportions.—*Semionowitz* preſcribes thoſe that follow. If the Diameter of the Aperture HN be equal to that of a Leaden-Ball of a Pound, or at moſt two Pound Weight; the Heighth of the Cylinder, with the Baſe and Capital HC, are to be ſeven Diameters of the Heighth of the Quadra FE $1\frac{1}{3}$. The Altitude of the Cylinder KI, 1. The Diameter IN $\frac{19}{20}$. The Diameter of the Hemiſphere G, $\frac{2}{3}$. The Heighth of the Capital AC, 1.—The ſame Author adds, that he finds by abundant Experience, that if the Diameter of the Aperture be divided into 100 Parts, according to the different Weight of the Leaden-Balls to whoſe Diameter 'tis equal, the following Numbers being multiplied by 7 give the Heighth HE.

Weight of Leaden-Ball.	Subſeptuple of Altitude HE.	Weight of Leaden-Ball.	Subſeptuple of Altitude HE.
1	100	20	86
2	98	30	82
4	26	40	78
6	94	50	75
10	91	70	67
15	88	100	57

The Frame being ready, a wooden Cylinder or Mould AB (*Fig.* 8.) is provided, whoſe Diameter is $\frac{3}{4}$ of the Aperture of the Frame, and its Length equal to the Heighth of the ſame; to which is a-fix'd a Haft or Hilt AD. About this Mould is a thick ſtrong Paper roll'd, 'till ſuch time as it fill the Cavity of the Frame. This done, where the Haft is join'd to the Cylinder, as at A, 'tis *choak'd*, i. e. firmly bound round with fine Pack-thread, ſo as to conſtringe or ſtraighten the Cavity thereof.—The Part thus *choak'd* or bound up FG, (*Fig.* 9.) to be equal to the Hemiſphere G.

The Caſe is now taken off the Mould, and put into the Cavity of the Frame, *Fig.* 7. the *Choak* GP upon the Hemiſphere; and in this Diſpoſition is fill'd with a Compoſition deſcribed in the following Article, ramm'd ſtrongly in by means of a wooden Cylinder or Rammer fitting the Cavity, and a Mallet.

When fill'd, a Paper Cap of a conical Form is glued over the End of the Caſe fill'd laſt; and the Space left a-top fill'd with whole Gun-powder, to the Heighth of about one Diameter; then the *Rocket* bound, or choak'd in E, as before in G.

Laſtly, the *Rocket* is bored, as is repreſented in *a*L *Fig.* 9. care being taken to do it in the middle.—Some, indeed, bore the *Rocket* as they fill it, by thruſting a long, ſharp Spike through the lower Baſis, and drawing it out again when the *Rocket* is full: But 'tis beſt not to bore till the *Rocket* be to be uſed.

The boring is to go two thirds of the Heighth of the *Rocket*, abating one Diameter of the Cavity. The Diameter of the Bore in G is to be $\frac{1}{4}$ of the Diameter of the Cylinder; and in L $\frac{1}{7}$ of the lower Diameter.

To make the *Rocket* mount ſtraight up, it is tied faſt to the End of a long ſlender Stick, MN, eight times as long as the *Rocket*; in ſuch manner as that when poiz'd on the Finger near the Touch-hole F, the Stick (which is uſually made biggeſt at this End, and ſloping gently to the other) may preponderate, tho' very little.—The *Rocket* thus equip'd, is hung at freedom, and lighted with Port-Fire.

Note, Some inſtead of a Stick to make the *Rocket* mount, furniſh it with two Wings, as MN, (*Fig.* 10.) which have the ſame Effect: And inſtead of Paper ſome make the Caſes of Wood, cover'd with Leather; others of a thin Iron Plate. And ſome, inſtead of a wooden Stick uſe an Iron Wire, with a Plummet at the end of it.

The Compoſition wherewith *Rockets* are fill'd, conſiſts of the three following Ingredients, *viz.* Salt-petre, Charcoal, and Sulphur; all well ground: But the Proportions of theſe are various for *Rockets* of various Sizes; as in the following Table. Noting, that in ſmall *Rockets* Gun-powder Duſt is added.

Compoſitions for ROCKETS *of various Sizes.*

Weight of Rocket.	Salt-pet.	Sul-phur.	Char-coal.	Gun-powder Duſt.
℔	℔	℔	℔	
100, or 60	30	10	20	
50 30	30	7	18	
20 18	42	12	26	
15 12	23	8	16	
10 9	62	9	20	
9 6	35	5	10	
5 4	64	8	16	
3 2	60	2	15	
1		2	6	32
Ounces.	Oun.	Oun.	Ounce.	Ounces.
9	4	1	2	9
6	12	$1\frac{1}{2}$	4	15
3	2	$\frac{1}{2}$	$1\frac{1}{2}$	12
1			2	15

Note, ſeveral *Rockets* being diſpoſed round the Circumference of a Wheel, whether Circular or Polygonous, the Head of the one applied to the Tail of another, and the Wheel put in Motion; as one *Rocket* is ſpent another will take Fire: And the Wheel be continued in its Rotation.

As an additional Ornament to *Rockets*, 'tis uſual to furniſh them either with Stars or with Serpents, or Sparks, which take Fire when the *Rocket* burſts: And ſometimes little *Rockets* are incloſed in great ones, to take Fire when the great one is at its greateſt Heighth.

To make Stars for ROCKETS.

Mix 3 Pound of Salt-petre, with 11 Ounces of Sulphur, 3 Ounces of beaten Gun-powder, and 10 of Antimony. Moiſten the Maſs with Gum-Water, and form it into little Balls of the Size of Filberds; drying them well, either in the Sun or an Oven. When dry incloſe a Number of them in the Conical Cap of the Rocket.

Method of making a Water-ROCKET.

Make a *Rocket* AB after the uſual Manner, excepting in the Number of *Choaks*, expreſs'd in *Fig.* 11.—Let its Diameter be equal to that of a Leaden-Ball of two or three Inches Diameter, and let it be bored to a third Part of its Heighth. Incloſe the *Rocket* in a hollow Paper Cylinder; which ſmear over with melted Pitch or Wax, that it may reſiſt the Moiſture.

Note, The Weight of the *Rocket* is to be ſo proportioned to that of the Water, that the whole Cylinder may be immerg'd. —Some inſtead of a Cylinder uſe a truncated Cone, or even a Spheroid; and ſome hang a Weight to the End at which 'tis lighted.

Theory of the Flight of Sky-ROCKETS.

Mariotte takes the riſe of *Rockets* to be owing to the Impulſe or Reſiſtance of the Air againſt the Flame: Dr. *Deſaguliers* accounts for it otherwiſe.

Conceive the *Rocket* to have no vent at the Choak, and to be ſet on Fire in the conical Bore; the conſequence wou'd be, either that the *Rocket* wou'd burſt in the weakeſt Place, or that, if all its Parts were equally ſtrong and able to ſuſtain the Impulſe of the Flame, the *Rocket* would burn out immoveable.—Now, as the Force of the Flame is equable, ſuppoſe its Action downwards, or that upwards ſufficient to lift 40 Pounds. As theſe Forces are equal, but their Directions contrary, they will deſtroy each other's Action. See ACTION and REACTION.

Imagine, then, the *Rocket* open'd at the Choak; by this means the Action of the Flame downwards is taken away, and there remains a Force equal to 40 Pounds acting upwards, to carry up the *Rocket*, and the Stick it is tied to.—Accordingly, we find that if the Compoſition of the *Rocket* be very weak, ſo as not to give an Impulſe greater than the Weight of the *Rocket* and Stick, it does not riſe at all: Or if the Compoſition be ſlow, ſo that a ſmall Part of it only kindles at firſt, the *Rocket* will not riſe.

The Stick ſerves to keep it perpendicular: For if the *Rocket* ſhould begin to tumble, moving round a Point in the Choak, as being the common Centre of Gravity of *Rocket* and Stick, there wou'd be ſo much Friction againſt the Air, by the Stick between the Centre and the Point, and the Point wou'd beat againſt the Air with ſo much Velocity, that the Reaction of the Medium wou'd reſtore it to its perpendicularity.

When the Compoſition is burnt out, and the Impulſe upwards is ceas'd, the common Centre of Gravity is brought lower, towards the middle of the Stick; by which means the Velocity of the Point of the Stick is decreaſed, and that of the Point of the *Rocket* increas'd: So that the whole will tumble down, with the *Rocket*-end foremoſt.

All the while a *Rocket* burns, the common Centre of Gravity is ſhifting and getting downwards, and ſtill the faſter and the lower as the Stick is the lighter: So that it ſometimes begins to tumble, e're it be burn'd out: But, when the Stick being a little too heavy, the Weight of the *Rocket* bears a leſs Proportion to that of the Stick, the common Centre of Gravity will not get ſo low, but that the *Rocket* will riſe ſtrait, though not ſo faſt.

ROD, VIRGA, VERGE, a Wand, or long ſlender Stick or Staff. See VERGE, STAFF, *&c.*

ROD, is alſo a Land-Meaſure of 16 Foot $\frac{1}{2}$, the ſame with *Perch* and *Pole*. See PERCH and POLE.

ROD, in Gauging. See GAUGING-*Rod.*

ROD-*Knights*, in antient Cuſtoms. See REDMANS.

Black-ROD. See BLACK-*Rod.*

ROE, of a Fiſh, is that Part which contains the Sperm or Seed thereof. See FISH, SEED, *&c.*

That of Male-Fiſhes is uſually diſtinguiſhed by *ſoft Roe*, or *Milt*; that of the Female by *hard Roe*.

The ſoft *Roe* when ſqueez'd, yields a Liquor reſembling *Milk*; whence its Name *Milt*: The *French* call it expreſly *Milk*, *laite*. See MILT.

That of Carps is eſteemed an excellent Food.—M. *Leewenhoeck* upon examining the Milt of a Cod-Fiſh with a Microſcope, found it contain'd more living *Animalcules* than there are Men in the whole Earth. See EGG, ANIMALCULE, MICROSCOPE, *&c.*

ROE, one of the Beaſts of Chaſe. See BEAST and GAME.

ROE-*Buck*. See HUNTING.

ROE-*Buck*, a Beaſt of Chace or Foreſt. See BEAST, GAME, *&c.*

The *Roe-Buck* is called an *Hind* the firſt Year; *Gyrle* the ſecond; *Henuſe* the third; *Roe-Buck* of the *firſt Head* the fourth; and a *fair Roe-Buck* the fifth.

The *Roe-Buck* is a Deer well known in *Germany*; and ſeems to have alſo been formerly known in *England*, though now the Race be extinct. See HUNTING.

ROGA, in Antiquity, Donatives, or Preſents which the *Auguſti* or Emperors made to the Senators, Magiſtrates, and even the People; and the Popes or Patriarchs to their Clergy. See DONATIVE.

The Emperors uſed to diſtribute theſe *Roga* on the firſt Day of the Year, or on their Birth Day; or on the *Natalis Dies* of the Cities.—The Popes and Patriarchs in Paſſion Week.

This Cuſtom of *Roga*, or Largeſſes, was firſt introduced by the Tribunes of the People, to gain the Populace more effectually over to their Intereſt. The Emperors at length took it up, and made ſuch Diſtributions to the People, and even the Soldiery, call'd by the *Greek* Writers in the middle Age ΡΟΓΑΤΟΡΕΣ.

Rogum is alſo found uſed for the ordinary Pay of the Soldiery.

The Word is derived by ſome from the *Latin erogare*, to give, diſtribute; according to others from *rogo*, I aſk; hence, ſay they, it is that St. *Gregory* the Great calls ſuch Diſtributions *Precaria*; as being to be demanded, in order to be had. See PRECARIÆ.

Others, again, derive it from the *Greek* ῥογος, Corn; becauſe it antiently conſiſted in Corn diſtributed among the Populace, the Soldiery, *&c.*

ROGATIO, in the *Roman* Juriſprudence, a Demand made by the Conſuls, or the Tribunes, of the *Roman* People, when a Law was propoſed to be paſs'd. See LAW.

The Demand was made in theſe Terms; *Do you will and appoint that* (for Inſtance) *War be declared againſt* Philip? This was the *Rogatio*; and what the People return'd in anſwer, as, *The* Roman *People do appoint War to be made againſt* Philip, was the *Decretum, Decree.*

However, the Word *Rogatio* is frequently uſed for the Decree it ſelf; to diſtinguiſh it from a Decree of the Senate. See DECREE.

Frequently, alſo, *Rogation* is uſed in the ſame Senſe with *Law*; becauſe there never was any Law eſtabliſhed among the *Romans*, but what was done by this kind of *Rogation*.—Otherwiſe it had been null. See LAW.

ROGATION-*Week*, the Week immediately preceding *Whitſunday*; thus call'd from three Faſts therein, *viz.* on the *Monday*, *Tueſday*, and *Wedneſday*, call'd *Rogations*, or *Rogation Days*, becauſe of the extraordinary Prayers and Proceſſions then made for the Fruits of the Earth. See PROCESSION.

The firſt who appointed theſe *Rogations* was St. *Mammercus*, Biſhop of *Vienna*, who in 474 aſſembled ſeveral Biſhops, to implore the Mercy of God by a Faſt of three Days; on occaſion of an Incurſion then made upon the Country by a great Number of wild Beaſts.—Others ſay, 'twas firſt ſet on Foot by *Mammercus* in 468, on occaſion of ſome publick Calamities.

ROGUE, in Law, an idle and ſturdy Beggar; who for the firſt Offence is called *a Rogue of the firſt Degree*; and puniſh'd by whipping, and boring through the Griſtle of the Right Ear with a hot Iron, an Inch in Compaſs: And for the ſecond Offence is call'd a *Rogue of the ſecond Degree*, and put to Death as a Felon, if he be above eighteen Years of Age. See FELON, *&c.*

ROLL, in the Manufactories, ſomething wound or folded in a Circle. See ROLLING.

Few Stuffs are made up in *Rolls*, but Satins, Gawſes, and Crapes, which are apt to break, and take Plaits not eaſy to be got out if folded otherwiſe.—Ribbonds, however, and Laces, Galloons, and Padua's of all Kinds, are thus *roll'd.*

To Roll hot.—By an Arret of Council in 1698, Fullers, Shearmen, *&c.* in *Poictou*, are prohibited to *Roll* any Stuff *hot*, either by having Fire over or under it, or by heating the *Rollers*, or otherwiſe, on Forfeiture of 100 Livres for the firſt Offence; or of being degraded from the Privileges of Maſterſhip in Caſe of a Relapſe.

The Antients made all their Books up in Form of *Rolls*, or little Columns; and in *Cicero*'s Time, the Libraries conſiſted wholly of ſuch *Rolls*.—The dearneſs of Parchment, and the cheapneſs of Paper, whereof the *Rolls* were made, were the Reaſon that ſcarce any but Paper *Rolls* were uſed. See PAPER, PARCHMENT, *&c.*

Voſſius ſays, they paſted ſeveral Sheets end to end, when fill'd on one Side, and *roll'd* them up together; beginning with the laſt, which they call'd *Umbilicus*, and to which they faſtened an Ivory or boxen Stick, to ſuſtain the *Roll*.—To the other Extremity they paſted a Piece of Parchment, to cover and preſerve it. See VOLUME, UMBILICUS, *&c.*

Theſe *Rolls* were placed in the Libraries, perpendicularly, to the Horizon.—The *Jews* ſtill preſerve the antient uſage of *Rolls* for the Books they read in their Synagogues. See BOOK-BINDING.

ROLL *of Tobacco*, is Tobacco in the Leaf, twiſted on the Mill, and wound Twiſt over Twiſt, about a Stick or *Roller*.

The generality of Tobacco in *America* is there ſold in *Rolls*, of various Weights: And 'tis not till after its Arrival in *England*, *Spain*, *France*, and *Holland*, that it is cut.—*Roll* Tobacco is what is uſed both for chewing and raſping. See Tobacco.

Roll, *in Law*, a Schedule of Paper or Parchment, which may be wound up by the Hand into the faſhion of a Pipe. See Schedule, *&c.*

Of theſe there are in the Exchequer ſeveral Kinds, *viz.* the great *Wardrobe-Roll*, the *Cofferer's-Roll*, the *Subſidy-Roll*, &c. See Pipe, *&c.*

The Word is form'd from the *Latin Ratulus*, or *Rotulus*, becauſe moſt Inſtruments and Expeditions in Law were antiently wrote on Papers, or Parchments ſew'd or glued together: Whence the Words *enroll*, *controll*. See Enroll, Controll, *&c.*

ROLLS *of Parliament*, are the Manuſcript Regiſters or *Rolls* of the Proceedings of our antient Parliaments. See Parliament, Register, *&c.*

Before the uſe of Printing, and till the Reign of *Henry* VII. our Statutes were all engroſſed in Parchment, (and by virtue of the King's Writ for that purpoſe) proclaimed openly in every County. See Act.

In theſe *Rolls* we have a great many Deciſions of difficult Points of Law, which were frequently in former Times referr'd to the Deciſion of that high Court. See Statute, Common-Law, *&c.*

Rider-Roll, a Schedule, or ſmall Piece of Parchment, frequently ſew'd or added to ſome Part of a *Roll*, or Record.

Noy obſerves that the Court *ex officio*, may award a *certiorari ad Informandam Conſcientiam*; and that which is certified ſhall be annex'd to the Record, and call'd a *Rider-Roll*.

Roll, in the Cuſtoms, is a Liſt of the Names of ſeveral Perſons of the ſame Condition, or enter'd in the ſame Engagement.—Thus,

Court Roll, in a Manner, is that wherein the Names, Rents, and Services of each Tenant are copied and enrolled. See Court, Manor, Tenant, Rent, Service, *&c.*

Muſter-Roll, that wherein are enter'd the Soldiers of every Troop, Company, Regiment, *&c.* See Muster.

As ſoon as a Soldier's Name is wrote down on the *Roll*, 'tis Death for him to deſert. See Desertion.

Calves-Head-Roll, is a *Roll* in the two Temples, wherein every Bencher is tax'd yearly at 2*s.* every Barriſter at 1*s.* 6*d.* and every Gentleman under the Bar, at 1*s.* to the Cook, and other Officers of the Houſe, in Conſideration of a Dinner of Calves-Heads, provided in *Eaſter* Term. See Temple.

Ragman's-Roll, or *Ragimund's*-Roll, is a *Roll* denominated from *Ragimund* a Legate in *Scotland*, who calling before him all the People who held Benefices in that Kingdom, cauſed them upon Oath to give in the Value of their Eſtates; according to which they were afterwards tax'd in the Court of *Rome*.

Rolls, or *Office of the Rolls*, in *Chancery-Lane*, *London*, is an Office appointed for the Cuſtody of the *Rolls* and Records in Chancery. See Chancery, Record, *&c.*

The *Maſter* of this Office is the ſecond Perſon in that Court; and in the Abſence of the Lord Chancellor, ſits as Judge. See Master *of the Rolls*.

This Houſe or Office was antiently call'd *Domus Converſorum*; as being appointed by King *Henry* III. for the uſe of converted *Jews*; but their Irregularities occaſioned King *Edward* III. to expell them thence; upon which the Place was deputed for the Cuſtody of the *Rolls*. See Conversorum.

A Roll *of Parchment*, is the Quantity of ſixty Skins. See Parchment.

Roll, in Antiquity.—From the Time of *Anaſtaſius*, we find in the Hands of the Emperors, on Medals, a kind of narrow long *Roll*, or Sachell, the meaning whereof has puzled the Antiquaries.

Some imagine it to be a *Roll* or Bundle of Papers, Memoirs, Petitions, *&c.* preſented occaſionally to Princes and Conſuls.—Others take it to be a plaited Handkerchief, which the Perſons who preſided at the Games, caſt forth as a Signal for their beginning.—Others will have it a Bag of Duſt and Aſhes, preſented the Emperor at the Ceremony of his Coronation, and call'd AKAKIA, *q. d.* a Means of preſerving Innocence, by the remembrance of Duſt, *&c.* See Acacia.

Roll, or Roller, is alſo a Piece of Wood, of a cylindrical Form, uſed in the Conſtruction of ſeveral Machines, and in ſeveral Works and Manufactures; though ſometimes under other Names. See Rolling, Cylinder, *&c.*

'Tis on ſuch *Rolls* that the Woollen, Silken, and other Threads are wound, whereof the Weaver's Works conſiſt.—For which end each Loom has uſually two, that of the Gawſe-Weavers, three. See Loom.

In the Glaſs Manufacture they have a *running Roll*, being a thick Cylinder of caſt Braſs, ſerving to conduct the melted Glaſs to the end of the Table whereon large Looking-Glaſſes, *&c.* are to be caſt. See Glass-Work.

The Founders uſe a *Roller* to work the Sand which they uſe in making their Moulds. See Foundery.

The Preſſes call'd Calenders, as ſerving to Calender Stuffs withal, conſiſt, among other eſſential Parts, of two *Rollers*. See Calender.

'Tis alſo between two *Rollers* that the Waves are given to Silks, Mohairs, and other Stuffs proper to be tabied. See Tabby.

Prints, or Impreſſions from Copper-Plates, are alſo taken by paſſing the Plate and the Paper between two *Rollers*. See Print, and Rolling-*Preſs-Printing*.

Rolls, in Coining, are two Iron Inſtruments of a cylindrical Figure, which ſerve to draw or ſtretch out the Plates of Gold, Silver, and other Metal; whereof the Planks or Pieces are to be form'd for the Species. See Coining.

Rolls, in Printing, are two large Cylinders or Barrels of Wood, faſtened in the middle of what they call the Cradle or Gallows of the Preſs; and which by means of a Cord, or Girt, paſſing over each, and a Handle, which gives Motion to one of them, draws the Carriage of the Preſs backwards and forwards. See Printing.

Rolls, in the Sugar-Works, are two large Iron Barrels which ſerve to bruiſe the Canes, and expreſs the Juice.

They are caſt hollow, and their Cavities fill'd up with Wood; the Cylinders of which are properly the *Rollers*. See Sugar-*Works*.

Rolls, or Rollers, among Carpenters, Maſons, *&c.* are plain Cylinders of Wood, ſeven or eight Inches in Diameter, and three or four Foot long; uſed for the removing of Beams, huge Stones, and other like Burthens, which are cumberſome, but not exceeding heavy.

Theſe *Rollers* are placed ſucceſſively under the Fore-part of the Maſſives to be removed; which, at the ſame time, are puſh'd forwards by Levers, *&c.* applied behind. See Lever.

Endleſs-Rolls.—When Blocks of Marble, or other exceſſive heavy Loads are to be removed; they uſe what they call *Endleſs-Rolls*.

Theſe, to give them the greater Force, and prevent their burſting, are made of Wood jointed together by Croſs-Quarters, are about double the length and thickneſs of the common *Roller*; and beſides, are girt with ſeveral large Iron Hoops at each end.—At a Foot's Diſtance from the Ends are four Mortaiſes, or rather only two, but pierced through and through; into which are put the Ends of long Levers, which the Workmen draw by Ropes faſtened to the Ends; ſtill changing the Mortaiſe, as the *Roll* has made, a Quarter of a Turn.

Roll-*Rich-Stones*, in Antiquity, a Series of huge Stones, ranged in a Circle, near *Morton in-Marſh*, in *Oxfordſhire*.

There are a World of fabulous Traditions about them.—Among the Antiquaries, ſome take them to be a Monument of a Victory; others a Burying-Place; and others a Place for the Coronation of the *Daniſh* Kings.

ROLLER. See Roll.

ROLLING, Revolving, in Mechanicks, a kind of circular Motion, wherein the Moveable turns round its own Axis, or Centre, and continually applies new Parts of its Surface to the Body it moves upon. See Motion, Revolution, Axis, *&c.*

Such is that of a Wheel, a Sphere, or the like.—Such, particularly, are the Motions of the Earth, the Planets, *&c.* See Wheel, Planet, Earth, *&c.*

The Motion of *Rolling* is oppoſed to that of *Sliding*, wherein the ſame Surface is continually applied to the Plane it moves along. See Sliding.

It muſt be noted, that in a Wheel, 'tis only the Circumference that properly *Rolls*; the reſt proceeds in a compound, angular Kind of Motion, and partly *Rolls*, partly Slides.—The not diſtinguiſhing between which two, occaſioned the difficulty of that celebrated Problem the *Rota Ariſtotelica*, *Ariſtotle's* Wheel. See Rota *Ariſtotelica*, and Angular-*Motion*.

The Friction of a Body in *rolling*, or the Reſiſtance made to it by the roughneſs of the Plane it moves on, is found to be much leſs than the Friction in Sliding. See Friction.

Hence the great uſe of Wheels, *Rolls*, &c. in Machines; as much of the Action as poſſible being laid thereon, to make the Reſiſtance the leſſer. See Wheel, Machine, *&c.*

For the Laws of Bodies rolling *on inclined Planes*, ſee *Inclined*-Plane, Descent, *&c.*

Rolling-*Preſs-Printing*. See Printing.

ROMAN, ſomething belonging to the City of *Rome*.

The *Roman Commonwealth* laſted from the Expulſion of the *Tarquins*, to the Battle of *Pharſalia*, 460 Years.—The *Roman Empire*, from *Julius Cæſar* and the Battle of *Pharſalia*, to *Conſtantine*, and the taking of *Conſtantinople* by the *Turks* in 330. laſted 378 Years. See Commonwealth, Empire, *&c.*

A *Roman Citizen*, at firſt, was only a Citizen of *Rome*; at length the Right of Citizenſhip was given to other Cities and People, both in *Italy* and the Provinces.—'Twas thus St. *Paul* was a *Roman* Citizen, *Acts* xvi. 21. 37, 38. xxii. 25, 26, 27. xxxiii. 27. the City of *Tarſus* in *Cilicia*, a Native of which he was, having the Right of *Roman* Citizens. See Citizen.

For the *Roman Senate*, their *Magiſtracy*, *Conſuls*, *Soldiery*, *Tribes*, *Courts*, *Names*, *Weights*, *Meaſures*, *Coins*, and other Matters relating to the Antiquities of that People, their *Policy*, *Religion*, *Laws*, *Cuſtoms*, &c. ſee the reſpective Articles in this Work.

The *Roman Purple* is the Dignity of a Cardinal. See Cardinal.

The *Roman*, or *Romiſh Church*, that whereof the Pope is Head; in oppoſition to the reformed Churches. See Church, Pope, *&c.*

The *Roman Law* is the Civil Law, or the written Law, as compiled by the Emperor *Juſtinian*. See Civil *Law*.

A *Roman Charity*, among Painters, is a Picture of a Woman ſuckling an old Man.—*Roman Knight*, &c. See Knight, *&c.*

King of the Romans, in our Age, is a Prince elected, and deſign'd Succeſſor to the *German* Empire. See King, Empire, and Elector.

Roman *Games*, *Ludi Romani*, were ſolemn Games held in antient *Rome*. See Game.

They were thus call'd by way of Eminence, and on Account of their Antiquity; as having been inſtituted by *Romulut*.—They were alſo call'd, ſometimes, *Magni Ludi*, from the great Pomp and Expence thereof; ſometimes *Conſualia*, becauſe perform'd in Honour of the God *Neptune*, who was alſo call'd *Conſus*, in his Quality of God of ſecret Councils. See Consualia.

They alſo bore the Denomination of *Ludi Circenſes*, becauſe held in the *Circus*. See Circenses *Ludi*, &c.

This Solemnity, *Halicarnaſſæus* obſerves, was originally inſtituted by *Evander*, in Honour of *Neptune* under the Name of ἵππιος; whence the Feſtival it ſelf was call'd ἱπποκρατία; and was afterwards renew'd by *Romulus* in Honour of the ſame Deity, only under another Name.

For *Romulus* needing the Advice of a God to council him in the Deſign he had to furniſh his new Citizens with Wives, applied to the God of ſecret Council himſelf, *Conſus*; proclaimed the *Conſualia*, and invited his Neighbours all a-round to the firſt Celebration thereof.—The Conſequence was, the Rape of the *Sabine* Women, who came to be Spectators thereof.

The great Ceremony in theſe Games conſiſted in the Cavalcade of Horſes and Aſſes, adorn'd with Garlands; *Neptune* being reputed the firſt Author of Horſe-riding.

Their Horſes, here, were of two Kinds, *viz.* πομπικοὶ, or ſuch as were merely led up and down for State; and δρομικὺς, which were for Race and Exerciſe.

The other Diverſions were Fencing, and that 'till one of the Combatants were kill'd on the Spot; fighting with Beaſts, and at *Ceſtus*, or Whirlbats; Wreſtling, Running, Leaping, Sea-Fights, Horſe-Races, Chariot-Races, *&c.* See Circus, Gladiator, *&c.*

Theſe Games, *Livy* tells us, were improved, and render'd much more magnificent by *Tarquinius Priſcus*.—*Manutius* ſays, they were held on the Eve of the Nones of *September*, i. e. on the 14th Day of the Month.

Roman *Order*, in Architecture, is the more uſually called the *Compoſite*. See Composite.

Roman *Balance*, or *Statera* Romana, the *Steel-Yard*. See Balance and Steel-Yard.

Roman *Indiction*, } See { Indiction.
Roman *Year*, &c. } See { Year, *&c.*
Roman *Language*, &c. } See { Latin, *&c.*

ROMANCE, antiently Romaunt, and Romant, a fabulous Relation of certain Intriegues and Adventures in the Way of Love and Gallantry; invented to entertain and inſtruct the Readers. See Fable, Novel, *&c.*

M. *Fontenelle*, calls *Romances*, Poems in Proſe; and the great *Boſſu* is not averſe to their being admitted as poetical Pieces. See Poem and Poetry.

Setting aſide the Verſification, 'tis certain an Epic Poem, and a *Romance* are almoſt the ſame thing.—The juſt Notion, therefore, of a *Romance*, is, that it is a Diſcourſe invented with Art to pleaſe and improve the Mind and to form or mend the Manners, by Inſtructions diſguis'd under the Allegory of an Action or Series of Actions, related in Proſe, in a delightful probable, yet ſurprizing Manner. See Epic.

A juſt *Romance* conſiſts of two Parts, *viz.* a Moral, as its Foundation and End; and a Fable, or Action, as the Superſtructure and Means. See Action, *&c.*

It muſt have the *Manners*; that is, the Characters muſt be diſtinguiſhed, and the Manners muſt be neceſſary, and have all the other Qualities of Poetical Manners. See Manners.

The Incidents muſt be delightful, and to that end rightly diſpoſed and ſurprizing.—The Sentiments fall under the ſame Rules as in the Drama, See Sentiment.

But the Diction is allow'd to be more lofty and figurative; as being a Narration; and not having Terror or Pity, but Admiration for its End. See Narration, Passion, *&c.*

As theſe Kinds of Compoſitions have a long Time been little elſe but Hiſtories of amorous Adventures, and Feats of Knight-Errantry: The Origin of *Romances* is refer'd to that of Love-Hiſtories: And accordingly *Dearchus*, a Diſciple of *Ariſtotle*, who firſt wrote of thoſe Matters, is uſually eſteemed the Author of theſe.—Though *Photius* is of Opinion that *Anthonius Diogenes's* Book on the Errors and Amours of *Dinias* and *Deocyllis*, gave Birth to moſt of the Works of this Kind.

Be this as it will, 'tis certain the Antients have had their *Romances* as well as we.—Such are the Amours of *Rhodanis* and *Sinonides*, deſcribed in *Jambics*: Such is the *Romance* of *Leucippe* and *Clitophon*, compoſed by *Achilles Tatius*, a *Greek* Writer, afterwards a Biſhop; Such are the four Books of incredible things, wrote by *Damaſcius*: Such are the *Ethiopicks* of *Heliodorus*, wherein he relates the Amours of *Theagenes* and *Chariclea*.—Laſtly, under the ſame Claſs may be rank'd the Fables of *Parthenius*, *Nicenus*, of *Athenagoras*, *Theodorus Prodromus*, *Euſtathius*, and *Longus*.

Indeed Antiquity cou'd ſcarce be reconciled to ſuch Pieces, and always look'd on them as abuſes.—*Photius*, in his *Bibliotheca Cod.* LXXXVII. gives a frightful Account of that of *Tatius*; and the *Ethiopicks* of *Heliodorus*, though one of the modeſteſt and moſt reſerved Pieces of the Kind, met with very ſevere Treatment.—That Author was Biſhop of *Tricca* in the fourth Century. *Nicephorus* tells us, that a Synod, conſidering the Danger which might accrue to Youth from reading of his *Romance*, authoriz'd as it was by the Dignity of its Author, propoſed it to him, either to ſuppreſs his Book, or renounce his Biſhoprick; and that he choſe the latter.—But this Hiſtory is a little doubtful.

Be this as it will, *Heliodorus* has ſerv'd as a Model to all the *Romances* wrote ſince; the Marriage of *Theagenes* and *Chariclea*, has produced a very numerous Iſſue; even all the *Romances* now extant in the World.

In Imitation of the Archbiſhop *Turpinus*, who paſs'd for Author of the *Romance* of the Feats of *Charlemaign* and *Orlando*, a great Number of Hiſtories of the like Kind were wrote it *France*, in the Time of *Philip the Fair*; the Authors whereof ſeem'd to improve on each other, contending who ſhould go furtheſt in the *Merveilleux*.—Theſe Books, being intended for the polite People, were wrote in the Court Language of that Age; which was call'd the *Romans*, *Romant*, or *Roman*; whence the Books themſelves were call'd by thoſe Names: And thus by Degrees *Romans*, &c. became the general Name of all Books of this Kind; whence at length our *Romance*. See Romans.

Others derive the Word from the *Spaniſh Romanſero*, I invent, as intimating *Romances* to be mere Fictions.—And hence it is that the antient Poets of *Provence*, who were the firſt great Dealers in *Romances*, are call'd *Troubadours*, q. d. Finders or Inventors. See Troubadour.

The *French*, above all other Nations, have applied themſelves to this kind of Writing; whether it be from the natural Taſte and Genius of the People, or from the freedom, *&c.* wherewith they Converſe with the Women.—They begun chiefly with *Romances* of Chivalry; hence their *Amadis*, in 24 Volumes; *Palmerin de Oliva* of *England*, King *Arthur*, &c. whereof we have an agreeable Critique in *Don Quixot*. See Chivalry, *&c.*

The later are much more polite; the beſt of which are the *Aſtrea* of *D'Urfe*; the *Cyrus* and *Clelie* of Madamoiſelle *de Scuderi*; the *Caſſandra* and *Cleopatra* of *la Calprenede*; *Ariane*, *Francion*; and the Adventures of *Telemachus*, of the late Archbiſhop of *Cambray*, a Work never enough to be applauded.

The *Germans*, too, have their *Romances*; eſpecially *Hercules* and *Herculiſcus*; the *Syriaca Armena*, *Aramena*, and *Thuſnelda*, *Otbert*, &c.

The *Italians* have their *Eromena*, by *Biondi*; the Works of *Loredano*, *Marino*, &c.—The *Spaniards*, their *Diana*, and *Don Quixot*.—The *Engliſh* their *Arcadia*, &c. The *Argenis* of *Barclay* is rather a Satyr than a *Romance*. See Novel.

ROMAN-*Catholick-Church*. See Papist, Recusant, *&c.*

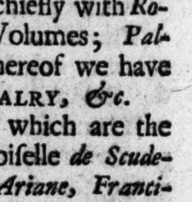
ROMANS, or Romant, the polite Language formerly ſpoke at the Court of *France*; in contradiſtinction to the *Walloon* ſpoke by the common People. See Language.

The *Romans* having ſubdued the *Gauls*, inſinuated Part of their Language among them; a mixture then of half *Latin*, half *Gauliſh*, conſtituted the *Romans*; whereof the modern *French* is only an Improvement. See French.

The vulgar Language was the *Walloon*, which was the original *Gauliſh*. See Gaulish.

Hence, to *Enromance*, was to write in *Romans*, &c. See Romance.

ROME-*Scot*, } See { Peter-*Pence*.
ROME-*Penny*, }



ROMPEE, or Rompu, in Heraldry, is applied to Arms, or other Ordinaries, that are repreſented broken; and to Chevrons whoſe upper Points are cut: As in the adjoining Figure.—He beareth a Chevron *rompee*, between three Mullets, Or, by the Name of Sault.

RONDEL, in Fortification, a round Tower, ſometimes erected at the Foot of a Baſtion. See Tower, Bastion, *&c.*

ROOD, a Quantity of Land, equal to the fourth Part of an Acre; and containing 40 ſquare Perches or Poles. See Acre, Perch, *&c.*

ROOF, in Architecture, the uppermoſt Part of a Building. See Building.

The *Roof* contains the Timber-Work, and its Furniture of Slate or Tile, wherewith a Houſe is cover'd, or that which ſerves it as a Cover.—Though Carpenters uſually reſtrain *Roof* to the Timber-Work only. See Covering and Ridge.

The Form of the *Roof* is various; ſometimes 'tis *pointed*, in which Caſe the moſt beautiful Proportion is to have its Profile an equilateral Triangle.

Sometimes *Square*, that is, the Angle of the Ridge, is a Right Angle; which, therefore, is a mean Proportional between the *pointed* and

Flat-Roof, which is in the ſame Proportion as a triangular Pediment. See PEDIMENT.—This is chiefly practiced in *Italy*, and the hot Countries, where little Snow falls.

Sometimes the *Roof* is in the *Pinnacle Form*. See PINNACLE.

Sometimes it has a *double Ridge*.—Sometimes 'tis *cut*, or *mutilated*, that is, conſiſts of a *true* and a *falſe Roof*, which is laid over the former: This laſt is particularly call'd a *Manſard*, from its Inventor M. *Manſard*, a famous *French* Architect.

Sometimes 'tis in Form of a *Platform*; as in moſt of the Eaſtern Building. See PLATFORM.

Sometimes 'tis *truncated*; that is, inſtead of terminating in a Ridge or Angle, 'tis cut ſquare off at a certain Heighth, and cover'd with a Terraſs, and ſometimes incompaſſed with Balluſtrade. See TERRASS.

Sometimes 'tis in Manner of a *Dome*, that is, its Plan Square, and the Contour Circular. See DOME, CUPOLA, *&c.*

Sometimes it is *round*, that is, the Plan is Round or Oval, and the Profile a direct Deſcent.—Sometimes the Baſe being very large, 'tis cut off to diminiſh its Heighth, and cover'd with a Terraſs of Lead, rais'd a little in the middle, with Sky-Lights from Space to Space, to give Light to ſome Corridor, or other intermediate Pieces, which without ſuch an Expedient would be too dark. See HOUSE, *&c.*

ROOF-*Trees*, or RUFF-*Trees*, are the Timbers in a Ship which go from the Half-Deck to the Fore Caſtle.

The Term is alſo uſed for the upper Timbers of any Building; whence in the Northern Counties, it is common to ſignify a whole Family, by ſaying, all under ſuch a one's *Roof-Tree*.

ROOM, in Building.—See BUILDING, HOUSE, PARTITION, APARTMENT, DISTRIBUTION, CHAMBER, *&c.*

ROOMER, in the Sea Language, a Ship is ſaid to be a *Roomer*, when ſhe is larger than ordinary. See SHIP, VESSEL, *&c.*

ROOT, RADIX, in Botany, that Part of a Plant which immediately imbibes the Juices of the Earth, aud tranſmits them to the other Parts, for their Nutrition. See NUTRITION, PLANT, VEGETABLE, *&c.*

The *Root* conſiſts of woody Fibres, cover'd with a Bark, more or leſs thick.—It ariſes from a little Point in the Seed, call'd the *Radicle*. See RADICLE.

'Tis no ſmall difficulty to conceive how the *Root* ſhould always get downwards, and turn up the Stem perpendicularly; conſidering that in the ſowing of Plants the *Radicle* muſt frequently happen to be upwards, and the Plumule downwards. See SEED, SEMINATION, PERPENDICULARITY, *&c.*

'Tis always found in the Ground in terreſtrial Plants, except in a very few Caſes: The Ivy and Cuſcuta, being perhaps the only Plants where Part of the *Root* lies bare.

The *Root* in Plants has been obſerv'd to do the Office of the Stomach in Animals; that is, to make the firſt and principal Preparation of the nutritious Matter.—M. *Reneame* ſhews that the *Root* does the Office of all the Parts in the Belly of Animals deſtined for Nutrition; it being the *Root* that receives the Nouriſhment, that prepares it, digeſts it, alters and changes it into Sap, to be afterwards diſtributed to all the Parts. See SAP.

The ſmall Colour, and even Taſte, ſhew how conſiderable an Alteration the Juices undergo in the *Root*; ſo that the *Root* may be laid down as the Principle of Vegetation. See VEGETATION.

Plants growing at the Bottom of the Sea have this peculiar to them, that they have no *Roots*; at leaſt the Parts which do the Office of *Roots* have nothing of the uſual Figure thereof.—Theſe Plants are uſually faſtened to ſome ſolid Body; adhering to it by a very ſmooth poliſh'd Lamina, which does not ſend forth any Fibre. Add to this, that the Body to which they adhere, being frequently a Rock or Flint, appears very unfit to feed them, in Caſe they had *Roots*. M. *Tournefort*, therefore, conjectures that they are fed by a Juice afforded them by the thick oily Mud at the Bottom of the Sea, which they receive by the Pores of the exterior Surface of the *Lamina*.

Boerhaave obſerves, that the *Root* may have any Situation at Pleaſure, with reſpect to the Body of the Plant, nor needs to be either loweſt or higheſt.—Accordingly in Aloes, Coral, Moſſes, Fungus's, *&c.* the *Root* is frequently uppermoſt, and its Growth downwards. See CORAL, MOSS, FUNGUS, *&c.*

Roots are divided by Botaniſts into 1°. *Fibrous*, which ſend out only ſmall Strings from the Bottom of the Plant, diſtinct from each other.

2°. More *thick and groſs*, which have a Body Thick and Groſs, either branched out into Subdiviſion or Arms; or elſe ſending out Fibres from it all along.

Theſe laſt are either *Carnous*, which again are either,

- 1. *Broad* and Swelling, or
- 2. *Long* and Slender, which are commonly harder and more woody.

The Broad and Swelling are,

- 1. *Bulbous*, which conſiſt but of one Globe or Head, and ſend out Fibres from the Bottom, and are either,
  - *Squammoſe*, or Scaly, as *Lillies* or *Martagon*,
  - *Coated*, which are involved in Skins or Coats, as *Cepa*, *Hyacinthus*, *Allium*, &c.
- 2. *Tuberous*, which are of a carnous, ſolid, and continued Conſiſtence, and theſe either,
  - 1°. *Simple*, with but one Globe or Head, as *Rapa*, *Crocus*, &c.
  - 2°. *Manifold*, as *Aſphodelus*, *Pæonia*, &c.

Long *Roots* are either,

- (1.) *Sarmentous*, i. e. twiggy, or branching, which ſhoot or creep out Tranſverſe or in Breadth: Of theſe ſome are *Geniculatæ*, knotty or jointy; as *Couch-Graſs*, *Mints*, &c.
- (2.) *Cauliformes*, i. e. *Stemmy* or *Stalky*, which ſhoot down deep directly, though often ſending out Fibres and Strings from the great Stem; which alſo it ſelf is ſometimes divided or branching.

ROOTS, in Medicine.—The principal *Roots* uſed in the Practice of Medicine, are, *Rhubarb*, *Rhaponticum*, *Sarſaparilla*, *Ipecacuanha*, *Jalap*, *Zedoary*, *Galangal*, *Caſſumenar*, *Gentian*, *Turmeric*, *Liquorice*, *Madder*, &c. See each deſcribed under its proper Article RHUBARB, RHAPONTIC, SARSAPARILLA, IPECAUANHA, *&c.*

ROOT, in Mathematicks, a Quantity which is multiplied by it ſelf; or a Quantity conſider'd as the Baſis or Foundation of a higher Power. See QUANTITY, POWER, *&c.*

Thus if any Number, as 2, be multiplied by it ſelf, the Product 4 is called the *Square*, or *ſecond Power* of 2; and 2 it ſelf, with regard to that Power, is called the *Root*; or particularly the *ſquare Root* of 4. See SQUARE-*Root*.

Since, as Unity is to the *ſquare Root*, ſo is the *Root* to the Square; the *Root* is a mean Proportional between Unity and the Square.—Thus 1 : 2 : 4.

If a ſquare Number, as 4, be multiplied by its *Root* 2, the Product 8 is call'd the *Cube*, or third Power of 2; and with reſpect to this Cubic Number 8, the Number 2 is call'd *Root*; or particularly the *Cube-Root*. See CUBE-*Root*.

Since as Unity is to the *Root*, ſo is the *Root* to the Square; and as Unity is to the *Root*, ſo is the Square to the Cube; the *Root* will be to the Square, as the Square to the Cube, *i. e.* Unity, the Root, the Square, and the Cube, are in continual Proportion: Thus: 1 : 2 : : 4 : 8. And the *Cube-Root* is the firſt of the two mean Proportionals between Unity and the Cube.

To *extract the Root* out of a given Number, or Power, as 8, is the ſame thing as to find a Number, as 2, which being multiplied into it ſelf a certain Number of Times, *v. g.* twice, produces the given Number, as 8.

To *extract the Square* ROOT, } See { EXTRACTION.
To *extract the Cube* ROOT,

A *Root*, whether Square or Cubic, or of any higher Power; if it conſiſt of two Parts, is call'd a *Binomial Root*, or ſimply *Binomial*; as 24, or 20+4. See BINOMIAL.

If it conſiſt of three, a *Trinomial*; as 245, or 240+5: Or 200+140+5.—If of more than three, a *Multinomial*; as 2456, or 2450+6, or 2400+56, or 2000+456, or 2000+400+50+6. See MULTINOMIAL.

ROOT *of an Equation*, in Algebra, is the Value of an unknown Quantity in an Equation. See EQUATION.

Thus, if the Equation be $a^2+b^2=x^2$, the *Root* of the Equation is the Square *Root* of *a*, and that of *b*; expreſs'd thus, $\surd a+b$.

Real ROOT.—If the Value of *x* be *poſitive*, i. e. if *x* be a poſitive Quantity; *e. gr.* $x=r$. the *Root* is call'd a *real* or *true Root*. See POSITIVE.

Falſe Root.—If the Value of *x* be Negative, *e. gr.* $x=-5$. The *Root* is ſaid to be *falſe*. See NEGATIVE.

Imaginary Root.—If the Value of *x* be the *Root* of a negative Quantity, *e. gr.* $\surd -5$; 'tis ſaid to be *imaginary*.

The great uſe of Algebra is to bring Problems to Equations; then to reduce thoſe Equations, or to exhibit them in the moſt ſimple Terms. See REDUCTION.

What remains after this to the Solution of the Problems, is to extract the *Roots* of the Equations thus reduced, be they Lines or Numbers. See RESOLUTION.

Extraction of the ROOTS *of Equations*. See EXTRACTION.

ROOTS, RADICES, in Grammar, are the primitive Words of a Language, whence others are compounded or derived. See PRIMITIVE, COMPOUND, and DERIVATIVE.

Thus, the *Latin Fluo* is the *Root* of *fluctus*, *fluxio*, *flumen*, *fluſtrum*, *influxus*, *refluens*, *fluctifer*, *fluctiſonus*, *fluctivagus*, &c.—Thus alſo the *Greek* θέω, is the *Root* of θεὸς, ἄθεος, ἐνθουσιασμὸς, &c.

And thus alſo, though in a leſs proper Senſe, the *Daniſh* Rood is the *Root* of the *Engliſh Root*: The *Latin Radix* the *Root* of the *French Racine*, as *rado* is the *Root* of *Radix*; and perhaps [illegible] the *Root* of *rado*.

The *Greek* and *Hebrew* Tongues are learnt by *Roots*.—Of Dictionaries, ſome are in Alphabetical Order, others are diſpoſed by *Roots*; as *Scapula*, and the firſt Edition of the Dictionary of the *French* Academy: In the Edition 1718, it is thrown into the uſual Alphabetical Order. See DICTIONARY.

ROPE, an Aſſemblage of ſeveral Twiſts or Strings of Hemp, twiſted together by means of a Wheel: Of various uſes, as in binding, ſtaying, drawing, ſuſpending, *&c.* See HEMP and CORDAGE.

When the *Rope* is made very thick, 'tis call'd a *Cable*, and when very ſmall, a *Cord*. See CABLE and CORD.

The greateſt Conſumption of *Ropes* is in Navigation, for the tackling of Ships; where, though *Ropes* include the whole Cordage. See TACKLE and SHIP.

Yet there are ſeveral *Ropes* particularly ſo denominated: As, the *entering Rope*, hung at the Ladder to help People up.—The *Top-Rope*.—A *Bolt-Rope*, wherein the Sail is ſowed.—*Buoy-Rope*, to which the Buoy of the Anchor hangs.—*Gueſt-Rope*, to tow the Long-Boat.—The *Keel-Rope*.—The *Bucket-Rope*.—*Rudder-Rope*, to ſave the Rudder if it ſhou'd chance to be beat off.—*Preventer-Rope*, to ſave the Yard in Caſe any Part of the Tyes ſhou'd be broke.—*Breaſt-Rope*, to laſh the Panels to the Maſts.—*Guy-Rope*, to keep the Foremaſt forwards, directly over the Hatchway. And *Boat-Rope*, by which the *Rope* hangs, or is faſtened a-ſtern of the Ship.

ROPE, CORD, or STRAP, in the Manage, is any of theſe tied round a Pillar to which the Horſe is faſtned when they begin to quicken and ſupple and teach him to flee from the Shambner, and not gallop faſtly or incompactly. See PILLAR.

In thoſe Manages where there is no Pillar, a Man ſtands in the Centre of the Ground, and holds the end of the *Rope*.

ROPES *of two Pillars*, are the *Ropes* or Reins of a Cavazon, uſed to a Horſe that works between two Pillars. See PILLAR.

ROPE-*Yarn*, is the Yarn of any *Rope* untwiſted. See YARN.

It commonly conſiſts of Cable-Ends, which are worn out; and are called *Junks of the Cables*.—It ſerves for many Purpoſes among the Sailors.

RORIFEROUS-*Duct*, q. d. Dew-dropping Pipe; a Name given the Thoracick Duct, from its ſlow Manner of conveying, and as it were, inſtilling, the Chyle into the common Stream of Blood. See THORACIC-*Duct*, &c.

ROS, *Dew*. See DEW.

ROS *Vitrioli*, among Chymiſts, is ſometimes uſed for the firſt Phlegm diſtill'd from Vitriol in *Balneo Mariæ*. See VITRIOL.

ROSADE, a kind of Liquor, prepared of pounded Almonds and Milk, mix'd with clarified Sugar.

ROSARY, in the *Romiſh* Church, a Chaplet, conſiſting of five or fifteen Decads or Tens of Beads, to direct the Recitation of ſo many *Ave Maria's*, in Honour of the Virgin. See CHAPLET.

ROSARY, is alſo a particular Maſs or Form of Devotion addreſs'd to the Virgin, to which the Chaplet of that Name is accommodated. See VIRGIN.

Some attribute the Inſtitution of the *Roſary* to St. *Dominick*; but F. *d' Achery* ſhews it was in uſe in the Year 1100; ſo that St. *Dominick* cou'd only make it more celebrated.—Others attribute it to *Paulus Libycus*, and others to St. *Benedict*; others to the *Chartreux*; others to venerable *Bede*; and others to *Peter* the Hermit.

Thoſe who attribute it to St. *Dominick*, differ as to the particular Time of its Inſtitution; ſome referring it to the Year 1208, when he preach'd againſt the *Albigenſes*; others will have him to have ſet it on foot in the Courſe of his Miſſions in *Spain*, e're he paſs'd into *France*.

Order of the ROSARY, or of *our Lady of the* ROSARY, is an Order of Knights, ſuppoſed by *Schoonebeck*, and the Jeſuit *Bonanni*, to have been inſtituted by St. *Dominick*; but by Miſtake; for that Saint never inſtituted any Order under this Name; and theſe Authors apparently make a military Order of an Army of Croiſees, who under the Command of the Count *de Montfort*, fought againſt the *Albigenſes*. See CROISADE and ALBIGENSES.

The Abbot *Juſtiniani*, and M. *Hermant*, will have this Order to have been eſtabliſhed by an Archbiſhop of *Toledo*, named *Frederick*, after St. *Dominick*'s Death; and to have bore for a Badge, a black and white Croſs, in the middle whereof was repreſented our Lady, holding her little Son in one Hand, and in the other a *Roſary*.—F. *Mendo* adds, that they were obliged to rehearſe the *Roſary* on certain Days.

After all, F. *Helyot* doubts whether or no ſuch an Order ever exiſted. See ORDER.

ROSE, ROSA, a medicinal Flower, produced by a Shrub of the ſame Name; which gives the Denomination to ſeveral Preparations in Pharmacy. See FLOWER.

The Kinds of *Roſes* are various: Thoſe uſed in Medicine are the Red and Damask *Roſes*.—The *Damask* are a good and ſafe purgative, adminiſtered in infuſion, or by way of Syrup.—The *Red* are aſtringent; and the Conſerve thereof uſed with ſucceſs againſt Diſtempers of the Breaſt and Lungs, and Diſorders of the Eyes. See CONSERVE.

Sugar of ROSES, is made of Red-*Roſe* Leaves, dried in an Oven, pulverized, and put into a proper Quantity of Sugar diſſolv'd with a little Water in a Chafing-diſh, over the Fire.

'Tis a Tradition among the Antients, that the God of Love made a preſent to *Hippocrates* the God of Silence, of a beautiful *Roſe*, the firſt that had been known; to engage him not to diſcover any of the private Practices of his Mother *Venus*.—And hence it became a Cuſtom to have a *Roſe* planted in their Rooms of Mirth and Entertainment; that under the Aſſurance thereof they might be induced to lay aſide all Conſtraint, and ſpeak what they pleaſed.—Thus did the *Roſe* become a Symbol of Silence; ſo that to be *ſub roſa*, under the *Roſe*, denotes as much as to be out of danger of having any Converſation divulged.

ROSE-*Water*, a Water drawn by Diſtillation from Red or Damask-*Roſes*. See WATER.

It is a good Cordial, and was formerly highly eſteemed; but is ſince fallen from its Reputation, and is little uſed but in Diſeaſes of the Eyes, and in Perfumes and Waſhes.

'Tis, however, in great eſteem in the *Eaſt*, particularly in *China* and *Perſia*, where the Trade thereof is very conſiderable. The *Roſe* Leaves remaining at the Bottom of the Still, have the natural cathartic Quality; and are alſo kept for a Perfume.

Golden-ROSE, is a *Roſe* which the Pope bleſſes at Maſs on the firſt Sunday in *Lent*, while they ſing *Lætare Jeruſalem*; and which, after Maſs, he carries in Proceſſion; and then ſends it as a Preſent to ſome Sovereign Prince.

The *Factions of the red and white* ROSE, are famous in our *Engliſh* Hiſtories.—They had their Riſe in 1454, under *Henry* VI. between the Houſes of *York* and *Lancaſter*, and ended in *Henry* VII. who united the two Branches.—The Houſe of *Lancaſter* had for its Badge a *white Roſe*; that of *York* a *red* one. See FACTION.

ROSE-*Wood, Lignum Rhodium*, or *Aſpalathum*. See ASPALATHUM.

ROSE, in Architecture and Sculpture, an Ornament cut in reſemblance of a *Roſe*. See ORNAMENT.

It is chiefly uſed in Frizes, Corniches, Vaults of Churches; and particularly in the Middle of each Face of the Corinthian Abacus. See ABACUS.

And in the Spaces between the Modillions; under the Plafonds of Corniches. See MODILLION.

ROSE-*Noble*; an antient *Engliſh* Gold Coin, firſt ſtruck in the Reign of *Edward* III. and then call'd the *Penny of Gold*; ſince call'd *Roſe-Noble*, becauſe ſtamp'd with a *Roſe*. See MONEY.

It was Current at 6 *s.* 8 *d.* See NOBLE and COIN.

ROSEMARY, ROSMARINUS, a medicinal Plant, whoſe Flowers are of conſiderable uſe in the preſent Practice.

They are eſteem'd the principal Aromatick of our Growth.—Dr. *Quincy* ſpeaks of them as good in moſt nervous Complaints, eſpecially ſuch as ariſe from too great Moiſture and Cold, as they are hot and drying.—In Epilepſies, Apoplexies, Palſies, *&c.* they are rarely omitted in Preſcription, under one Form or other. See AROMATICK.

They abound with a ſubtle detergent Oil, which makes them deobſtruent and opening, whence their uſe in uterine Obſtructions, the Jaundice, *&c.*

They are the Baſis of the celebrated *Hungary* Water; with a ſmall Quantity of which, diluted in common Water, the Confectioners make Conſerve of *Roſemary* Flowers, Eſſence of *Roſemary*, *Roſemary*-Water, *&c.* See HUNGARY-*Water*.

ROSICRUCIANS. See ROSYCRUCIANS.

ROSIN, RESINA, in Pharmacy. See RESINA.

ROSIN, is particularly uſed for a reſinous Matter, prepared from the Juice of the Pine-Tree; in ordinary uſe for the making of Wax, *&c.*

Mr. *Bent* in the *Phil. Tranſ.* gives us the Preparation of this coarſe Drug, in the Southern Parts of *France*; thus.—The Bark being pared off the Pine, to make the Sap run down into a Hole made at Bottom to receive it; as the Juice runs it leaves a Cream or Cruſt a-top; which being temper'd with Water, is ſold, by a Cheat, for white Bee's-Wax. See WAX.

When they have got a Quantity of the Juice they ſtrain it through a Basket, and what runs through it is the common *Turpentine*. See TURPENTINE.

What ſtays behind, they mix with Water, and diſtilling it in an Alembic, the Matter that riſes is the *Oil of Turpentine*; and the Calk that remains is the common *Roſin*.

ROSOLIS, popularly, ROSA-*ſolis*, *Sun-Dew*, an agreeable ſpirituous Liquor, chiefly taken after Meals, by way of Dram, to aid Digeſtion.

'Tis compoſed of burnt Brandy, Sugar, Cinnamon, and Milk-Water, and is ſometimes perfumed with a little Musk.

It had its Name becauſe antiently prepared wholly of the Juice of the Plant *Ros ſolis*; but that Plant is no longer any Ingredient therein.

The beſt is that of *Turin*.—The *French* have a particular Kind not called *Ros ſolis*, but *du Roy*; becauſe uſed with good Effect by the late King *Lewis* XIV.—'Tis compoſed of *Spaniſh* Wine, wherein are infuſed Anis, Fennel, Aneth, Coriander, *&c.* for three Weeks.

ROSTING. See DRESSING, FOOD, *&c.*

ROSTRA, in Antiquity, a Part of the *Roman Forum*, wherein Orations, Pleadings, Funeral Harangues, *&c.* were deliver'd. See FORUM.

The *Roſtrum* was a Kind of Chapel, taken out of the *Forum*, and furniſhed with a Suggeſtum, or Eminence, call'd alſo the *Roſtra*, where the Orators ſpoke.

It was adorn'd, or, as *Livy* ſays, built, with the Beaks of Ships taken from the People of *Antium*, in a Naval Engagement; whence the Name. See ROSTRUM.

ROSTRALIS *Corona*, ROSTRAL *Crown*, in Antiquity. See CROWN.

ROSTRALIS *Columna*, ROSTRAL *Column*. See COLUMN.

ROSTRI-FORMIS *Proceſſus*, in Anatomy, the ſame as *Coracoides*. See CORACOIDES.

ROSTRUM, in Chymiſtry, ſignifies the Noſe, or Beak which conveys the Liquor diſtill'd, into its Receiver; in the common Alembicks. See ALEMBICK, RECEIVER, DISTILLATION, *&c.*

ROSTRUM, is alſo a crooked Sciſſars, which the Surgeons in ſome Caſes make uſe of for the Dilatation of Wounds.

ROSTRUM litterally denotes the Beak or Bill of a Bird. See BILL.

Hence the Word is alſo figuratively underſtood of the Beak, or Fore-part of the Head of a Ship. See HEAD, SHIP, *&c.* See alſo ROSTRA.

ROSYCRUCIANS, ROSICRUCIANS, or, *Brothers of the* ROSY-CROSS, a Name aſſumed by a Sect or Cabal of hermetical Philoſophers; who aroſe, or at leaſt became firſt taken Notice of in *Germany*, in the Beginning of the laſt Century. See HERMETICAL.

They bound themſelves together by a ſolemn Secret, which they ſwore inviolably to preſerve; and obliged themſelves at their admiſſion into the Order, to a ſtrict Obſervance of certain eſtabliſh'd Rules.

They pretended to know all Sciences, and chiefly Medicine; whereof they publiſhed themſelves the *Reſtorers*.—They pretended to be Maſters of abundance of important Secrets; and among others, that of the Philoſopher's Stone; all which they affirm'd to have received by Tradition from the antient *Egyptians*, *Chaldeans*, the *Magi*, and *Gymnoſophiſts*. See PHILOSOPHER'*s-Stone*.

Their Chief was a *German* Gentleman, educated in a Monaſtery, where he learnt the Languages.—In 1378 he went to the Holy-Land, where falling Sick at *Damaſcus*, he conſulted the *Arabs*, and other *Eaſtern* Philoſophers, by whom he was ſuppoſed to be initiated into this wonderful Art.—At his return into *Germany*, he form'd a Society, to whom he communicated the Secrets he had brought with him out of the *Eaſt*, and died in 1484.

They have been diſtinguiſhed by ſeveral Names, accommodated to the ſeveral Branches of their Doctrine.—Becauſe they pretended to protract the Period of human Life, by means of certain *Noſtrums*, and even to reſtore Youth; they were call'd *Immortales*.

As they pretended to know all things, they have been call'd *Illuminati*; and becauſe they have made no appearance for ſeveral Years, but have kept altogether *incog.* they have been call'd the *Inviſible Brothers*.

Their Society is frequently ſignified by the Letters F. R. C. which ſome among them interpret *Fratres roris cocti*, it being pretended that the Matter of the Philoſopher's Stone is Dew concocted, exalted, *&c.*

Some, who are no Friends to Free-Maſonry, make the preſent flouriſhing Society of Free-Maſons a Branch of *Roſicrucians*; or rather the *Roſicrucians* themſelves under a new Name, or Relation; *viz.* as Retainers to Building.—And 'tis certain, there are ſome Free-Maſons who have all the Characters of *Roſicrucians*; but how the Æra and Original of Maſonry, as traced by Mr. *Anderſon*, and that of *Roſicrucianiſm*, here fix'd from *Naudæus*, who has wrote expreſly on the Subject, conſiſt, we leave others to judge. See MASONRY.

ROT, a Diſeaſe, which in moiſt Years is incident to Sheep, in the ſame Ground, where in drier Years they are free from it; which, yet, ariſes, not only from the Moiſture, but from a certain Principle of Putrefaction, both in the Air and the Graſs. See ROTTENNESS.

ROTA, in Mechanicks. See WHEEL.

ROTA *Ariſtotelica*, *Ariſtotle's Wheel*, is a celebrated Problem in Mechanicks, founded on the Motion of a Wheel about its Axis; thus called, becauſe firſt, that we know of, taken Notice of by *Ariſtotle*.

The Difficulty is this.—While a Circle makes a Revolution on its Centre, advancing at the ſame time in a Right Line along a Plane; it deſcribes, on that Plane, a Right Line equal to its Circumference. Now if this Circle, which we may call the *deferent*, carry with it another ſmaller Circle concentric with it, and which has no Motion but what it receives from the deferent; which is the Caſe of the Nave of a Coach-Wheel carried along by the Wheel; this little Circle, or Nave, will deſcribe a Line in the time of the Revolution, equal, not to its own Circumference, but to that of the Wheel: For that its Centre advances in a Right Line, as faſt as that of the Wheel does; as being in reality the ſame therewith.

The Matter of Fact is certain.—But how it ſhould be ſeems a Myſtery.—'Tis obvious, that the Wheel advancing during the Revolution, muſt deſcribe a Right Line equal to its Circumference; but how ſhould the Nave, which revolves like the Wheel, deſcribe a Right Line ſo much greater than its Circumference?

The Solution *Ariſtotle* gives is no more than a good Explication of the Difficulty.

Galileo, who attempted it, has recourſe to an Infinity of infinitely little Vacuities in the Right Line deſcribed by the two Circles; and imagines that the little Circle never applies its Circumference to theſe Vacuities; but in reality only applies it to a Line equal to its own Circumference; though it appears to have applied it to a much larger.

But 'tis evident this is all *gratis dictum*.—The Vacuities are imaginary; and why does not the great Circle apply its Circumference to them? Laſtly, the Magnitude of theſe Vacuities muſt be augmented or diminiſhed according to the different Proportion of the two Circles.

F. *Tacquet* will have it that the little Circle making its *Rotation* more ſlowly than the great one, does on that Account deſcribe a Line longer than its Circumference; yet without applying any Point of its Circumference to more than one Point of its Baſe.—But this is no more allowable than the former.

The Attempts of ſo many great Men proving vain; M. *d'Ortous de Meyram*, a *French* Gentleman, had the good Fortune to hit on a Solution, which he ſent to the Royal Academy of Sciences; where being examined by Meſſ. *de Louville* and *Saulmon*, appointed for that purpoſe, they made their Report that it was Satisfactory.—The Solution is to this effect.

The Wheel of a Coach is only acted on, or drawn in a Right Line: Its circular Motion, or Rotation, ariſes purely from the Reſiſtance of the Ground whereon it is applied. Now this Reſiſtence is equal to the Force wherewith the Wheel is drawn in the Right Line; inaſmuch as it defeats that Direction: Of conſequence the Cauſes of the two Motions, the one Right, the other Circular, are equal, and therefore their Effects, *i. e.* the Motions are equal. And hence, the Wheel deſcribes a Right Line on the Ground, equal to its Circumference.

For the Nave of the Wheel, the Caſe is otherwiſe.—'Tis drawn in a Right Line by the ſame Force as the Wheel, but it only turns round becauſe the Wheel turns, and can only turn with it, and at the ſame time therewith. Hence it follows that its Circular Velocity is leſs than that of the Wheel, in the Ratio of the two Circumferences; and therefore its circular Motion is leſs than its Rectilinear one.

Since then it neceſſarily deſcribes a Right Line equal to that of the Wheel, it can only do it by *ſliding*, or what they call the Motion of *Raſion*.—That is, a Part of the circular Nave cannot be applied to a Part of a Right Line greater than it ſelf, but by ſliding along that Part; and that more or leſs, as the Part of the Nave is leſs than that of the Circle. See ROLLING and SLIDING.

ROTA, is alſo uſed for a particular Court or Juriſdiction in *Rome*, eſtabliſhed for taking Cognizance of Beneficiary Matters, *&c.* See BENEFICE, *&c.*

The *Rota* conſiſts of twelve Doctors, choſen out of the four Nations of *Italy*, *France*, *Spain*, and *Germany*; three of them being *Romans*, one a *Florentine*, one a *Milaneze*, one of *Boulogne*, one of *Ferrara*, one a *Venetian*, one a *Frenchman*, two *Spaniards*, and one a *German*; each having four Clerks or Notaries under him.

Their Office is to judge of all Beneficiary Cauſes, both in *Rome*, and the State of the Church, in Caſe of Appeal; and of all Civil Proceſſes, of above 500 Crowns.

They are alſo called Chaplains of the Pope, as ſucceeding the antient Judges of the Sacred Palace, who held their Court in his Chapel.

The Name *Rota*, *Wheel*, ſome will have derived hence, that they officiate each in his Turn; others, becauſe the moſt important Affairs of the Chriſtian World turn upon them.—*Du Cange* derives it from *Rota Porphyretica*, becauſe the Pavement of the Chamber where they formerly ſat was of Porphyry; and faſhioned like a Wheel.

ROTATION, ROLLING, in Mechanicks. See ROLLING, ROTA, *&c.*

ROTATION, in Geometry, the Circumvolution of a Surface round an immoveable Line, call'd the *Axis of Rotation* See AXIS.

By ſuch *Rotation* of Planes, Solids are form'd or generated. See GENESIS, SOLID, *&c.*

The Method of cubing Solids, generated by ſuch *Rotation*, is well laid down by M. *de Moyvre*, in his Specimens of the uſe of the Doctrine of Fluxions.—For the Fluxions of ſuch Solids take the Product of the Fluxion of the Abſciſſa, multiplied by the circular Baſe; and ſuppoſe the Ratio of a Square to the Circle inſcribed, be as $\frac{n}{1}$: The Equation expreſſing the Nature or Property of any Circle, whoſe Diameter is d; is $yy=dx-xx$. Therefore $\frac{4dx\dot{x}-x^{2}\dot{x}}{n}$ is the Fluxion of a Portion of the Sphere, and conſequently, the Portion it ſelf $4\frac{1}{2}xdx-\frac{1}{3}x^{3}$, and the circumſcribed Cylinder is $\frac{4dxx-x^{3}}{n}$ therefore the Portion of the

Sphere is to the circumſcribed Cylinder, as $\frac{1}{2}d-\frac{1}{3}x$ to $d-x$. *Philoſoph. Tranſact.*

ROTATION, REVOLUTION, in Aſtronomy. See REVOLUTION.

Diurnal ROTATION. See DIURNAL *Rotation* and EARTH.

ROTATION, in Anatomy, the Action of the *Muſculi Rotatores*; or the Motion they give to the Parts they are fix'd to. See ROTATOR.

There are two Muſcles, the great and the little *Obliquus*, to perform the *Rotation* of the Eye.—The *Obturator Internus* and *Externus*, effect the *Rotation* of the Thighs. See EYE, *&c.*

ROTATOR, in Anatomy, a Name given the oblique Muſcles of the Eye; call'd alſo *Circulares* and *Amatorii*. See OBLIQUI and EYE.

ROTHER-*Beaſts*, a Word uſed in the old Statutes, and ſtill in the Northern Parts of *England*, for horned Beaſts, as Oxen, Cows, Steers, Heifers, *&c.*

Whence, *Rother-Soil*, in *Herefordſhire*, is taken for the Dung or Soil of ſuch Cattle. See MANURE.

ROTHER-*Nails*, are ſuch as have a very full Head, and are uſed to faſten the Rudder Irons in Ships. See NAIL.

ROTONDO, ROTUNDO, in Architecture, a popular Term for any Building that is round both within and without-ſide; whether it be a Church, a Salon, a Veſtible, or the like. See BUILDING, *&c.*

The moſt celebrated *Rotondo* of Antiquity is the Pantheon at *Rome*, dedicated to *Cybele*, and all the Gods, by *Agrippa*, Son-in-law of *Auguſtus*; but ſince conſecrated by Pope *Boniface* IV. to the Virgin, and all the Saints, under the Title of *Sta. Maria della Rotondo*. See PANTHEON.

The Chapel of the *Eſcurial*, which is the Burying-Place of the Kings of *Spain*, is alſo a *Rotondo*; and in Imitation of that at *Rome*, is alſo call'd *Pantheon*. See ESCURIAL.

ROTTENNESS, PUTREDO, See PUTRIFACTION, *&c.*

ROTULA, in Anatomy. See PATELLA.

ROTULUS, a Roll. See ROLL.

ROTULUS *contrarientium*.—The Earl of *Lancaſter* taking Part with the Barons againſt King *Edward* II. it was not thought fit, in reſpect of their Power, to call them Rebels or Traytors, but only *Contrarients*: Accordingly, we have a Record of thoſe Times call'd *Rotulus-Contrarientium*.

ROTULUS *Wintoniæ*, an exact Survey of all *England*, by Counties, Hundreds, and Tithings; made by King *Alfred*; not unlike that of *Domes-Day*. See DOMES-DAY.

It was thus call'd becauſe antiently kept at *Wincheſter*, among other Records of the Kingdom.

ROTUNDUS, in Anatomy, a Name given to ſeveral Muſcles, from the roundneſs of their Body. See MUSCLE.

Such are the *Rotundus Major*, call'd alſo *Teres Major*; and the *Rotundus Minor*, call'd alſo *Teres Minor*, and *Tranſverſalis*; which ſee under their proper Articles.

ROUGE-*Croſs*, q. d. *Red Croſs*,
ROUGE-*Dragon*, q. d. *Red Dragon*, } See { POURSUIVANTS.

ROUGH, ROUGHNESS, in Mechanicks. See FRICTION and RESISTENCE.

ROUGH-*Taſte*. See TASTE.

ROUGH-*Caſting*. See PLAISTERING.

ROUL, or ROLL, in the military Term.—Officers of equal Quality, who mount the ſame Guards, and take Their turns in relieving one another, are ſaid to *Roul*. See GUARD, *&c.*

ROULADE, in Muſick, a trilling or quavering. See QUAVERING.

ROUND, ROTUNDUS, in Geometry. See CIRCLE, GLOBE, SPHERE, *&c.*

ROUND, in Anatomy. See ROTUNDUS.

ROUND, in Muſick.—The *Italians* call b *round*, what we call b *flat*, and the *French* b *Mol*; and b *Square*, what we call b *ſharp*. See FLAT and SHARP, *&c.*

ROUND, is alſo a military Term, ſignifying a Walk or Turn which an Officer, attended with ſome Soldiers, takes in a Garriſon or fortified Place, *around* the Ramparts, in the Night-time; to liſten if any thing be ſtirring without the Works, and to ſee that the Centries are Watchful, and do their Duty, and all things in good Order.

In ſtrict Garriſon, the *Rounds* go every Quarter of an Hour, that the Rampart may be furniſhed.—The Centries are to Challenge at a Diſtance; and to Reſt their Arms as the *Rounds* paſs, and let no one come near them.

When the *Round* is near the *Corps de Garde*, the Centry calls aloud, *Who comes there?* And when the Anſwer is, *the Rounds*, he ſays, *ſtand*; then calls for the Corporal of the Guard, who draws his Sword, and calls alſo, *Who comes there?* And when it is anſwered, *the Rounds*, he that has the Word advances and delivers it to the Corporal, who receives it with his Sword pointed at the Giver's Breaſt. See WORD.

Among Maſons, *Rounds* are the broken Pieces of Statues.

ROUND-*Houſe*, in a Ship, is the uppermoſt Room or Cabin on the Stern of a Ship, where the Maſter lies. See SHIP and STERN.

ROUND-*Houſe* is alſo a kind of Priſon, for the Nightly-Watch to ſecure Perſons in, 'till they can be carried befor ea Magiſtrate. See WATCH.

ROUND-*Heads*. See WHIG and TORY.

A ROUND, in the Academies, is a circular Piſte or Tread. See PISTE.

To ROUND *a Horſe*, is a general Term for all ſorts of Manages upon a *Round*.—Hence, to *round* a Horſe upon a Trot, Gallop, *&c.* is to make him carry his Shoulders and Haunches roundly or compactly, upon a larger or ſmaller Circle, without traverſing or bearing to a Side.

ROUNDELAY, or ROUNDO, a kind of antient Poem, thus call'd, according to *Menage*, from its form; and becauſe it ſtill turns back again to the firſt Verſe, and thus goes round.

The common *Roundelay* conſiſts of thirteen Verſes, eight whereof are in one Rhime, and five in another.—'Tis divided into Couplets; at the end of the ſecond and third whereof, the beginning of the *Roundelay* is repeated; if poſſible, in an equivocal or punning Senſe.

The *Roundelay* is a popular Poem among the *French*, but little known among us.—*Marot* and *Voiture* have ſucceeded the beſt in it.

Rapin obſerves, that if the *Roundelay* be not very exquiſite, 'tis ſtark nought.—In all the antient *Roundelays*, *Menage* obſerves, the Verſe preceding has a finiſh'd Senſe; and yet joins agreeably with that of the Cloſe; without depending neceſſarily thereon. This Rule well obſerv'd makes the *Roundelay* more ingenious; and is one of the Fineſſes of the Poem.

The Word is form'd from *Round* and *Lay*. See LAY.—The *French* call it *Rondeau*. The *Spaniards Gloſes*.

ROUNDLET. See RUNLET.

ROUNDNESS, ROTUNDITY, in Phyſicks. See SPHÆRICITY.

ROUNDO, or ROUNDELAY, in Muſick, a kind of Burthen or Ritornello; where the beginning of each Couplet is repeated at the end thereof. See RITORNELLO.

ROUPIA, or ROUPIAS, or RUPEE, a Coin very current in the Territories of the *Great Mogul*, and ſeveral other Parts of the *Eaſt-Indies*. See COIN.

Roupia's are ſtruck both of Gold and Silver; and both the one and the other have their Diminutions; as *Half-Roupias*, *Quarter-Roupias*, &c.

The Gold *Roupia* is worth 1 *s.* 6 *d.* Sterl. The value of the Silver *Roupia* is various, according to its Quality, and the Place where 'tis coin'd. A general Obſervation is, that the *Roupias* are always Current for more, at the Place where they are ſtruck, than elſe-where; and the new *Roupias* for more than the old ones.—The reaſon of this laſt difference is, that the *Indians* being very fond of Silver, to ſave it, uſe, as ſoon as they have got a few *Roupias* together, to hide them under Ground. To prevent which Inconvenience, tending to drain the State of Current Monies, the Princes and Rajas ſtrike new *Roupias* every Year, ſtill augmenting the Value thereof without any augmentation of the Weight.

Beſides this difference of new and old *Roupias*, the *Indians* make three other Claſſes.—The firſt call'd *Roupias Siceas*, which at *Bengal* are worth 2 *s.* 11 *d.* Sterl.—The ſecond, *Roupias of Surat*, worth 2 *s.* 6 *d.* Sterl.—The third *Roupias of Madderas*, worth 2 *s.* 5 *d.* Sterl. All which is to be underſtood of the new *Roupias*.

As to the old ones, thoſe of *Madderas* are only Current at 1 *s.* 11 *d.* Sterl. Thoſe of *Surat* at 2 *s.* and the *Siceas* at 2 *s.* 4 *d.* Yet at other Places, the Order and Prices vary: At *Surat*, thoſe ſtruck there have the firſt Place; the *Siceas* the ſecond; and thoſe of *Madderas* the third. Along the Coaſt of *Coromandel*, the *Maderas* have the firſt Place, and the *Siceas* the ſecond, *&c.*

ROUSE *up a Hart*, among Hunters. See HUNTING.

To ROUSE, among Falconers, is when a Hawk lifts up and ſhakes himſelf. See HAWK and HAWKING.

To ROUSE *a Hawſer*, or *Cable*, in the Sea Phraſe, ſignifies to hale in Part of the Hawſer or Cable, which lies ſlack in the Water. See CABLE, *&c.*

ROUT, a publick Road, Highway, or Courſe; eſpecially that which military Forces take. See ROAD.

Sanſon and *Ogilby* have made Maps of the *Routs* and Poſt-Roads of *France* and *England*: Soldiers are prohibited going out of their *Routs*.—*Routs* are frequently cut in Parks, Foreſts, *&c.* both for Ornament and the Conveniencies of Hunting. See HUNTING.

Some uſe *Rout* for a Path cut a-croſs a Wood; in oppoſition to *Way*, which is a great Road. See WAY.

ROUT, in Navigation. See COURSE.

ROUT is alſo uſed for the Defeat and Flight of an Army. See DEFEAT.

The Serjeants endeavour to rally the Soldiers in a *Rout*. See RALLY.

The Word is form'd from the *Latin*, *rupta*, or *ruta*; or the *French*, *roux*, an old Word for Horſe; or rather from the old *Celtic*, *Rout*, Road; figuratively uſed to ſignify Example.—*Menage* has a learned Diſſertation on the Word.

ROUT, in Law, is an Aſſembly or Combination of three, or more Perſons, going forcibly to commit an unlawful Act; tho' they do not perform it. See ASSEMBLY.

If they go, ride, or move forwards, after their Meeting, 'tis a a *Rout*, though they don't put their Purpoſe in Execution; if they do, 'tis a *Riot*. See RIOT.

A *Rout*, therefore, ſeems to be an unlawful Aſſembly; and a Riot the diſorderly Fact committed thereby. See RIOT.

Two things, however, there are in common to *Rout Riot*, and *unlawful Aſſembly*: The one, that there be at leaſt three Perſons together; the other, that, being together, they diſturb the Peace, either by Words, ſhew of Arms, turbulent Geſture, or actual Violence. See UNLAWFUL-*Aſſembly*.

ROUT *of Wolves*, among Hunters, a Herd of theſe wild Beaſts. See HUNTING.

ROUTIER, in Navigation. See RUTTIER.

ROWEL, among Farriers, a kind of Iſſue, made by drawing a Skain of Silk, Thread, Hair, or the like, through the Nape of the Neck, or other Part of an Horſe; anſwering to what in Chirurgery is call'd a *Seton*. See SETON.

The ROWELLING *of Horſes* is a Method of Cure frequently had recourſe to in inward Strains; eſpecially about the Shoulders or Hips, as alſo for hard Swellings not eaſy to be reſolved.

The Operation is thus.—A little ſlit being made through the Skin, about a handful below the Part aggrieved, big enough to put a Swan's Quill in; the Skin is rais'd from the Fleſh, the end of the Quill put in, and the Skin blow'd from the Fleſh upwards, and all over the Shoulder.—Then the Hole being ſtop'd with the Finger, the Place blown is beaten with a Hazel-ſtick, and the Wind ſpread with the Hand all over; then let go.

This done, Horſe-hair, or red Sarſenet, half the thickneſs of the little Finger, is put in a *Rowelling Needle* ſeven or eight Inches long; the Needle is put into the Hole, and drawn through again ſix or ſeven Inches higher; then the Needle is drawn off, and the two ends of the *Rowel* tied together: Anointing it every Day, as well as before the putting it, with ſweet Butter and Hog's Greaſe, and drawing it backwards and forwards in the Skin, to make the putried Matter diſcharge it ſelf more plentifully.

Others, diſliking theſe *Rowels*, as making too great a Sore and Scar, uſe the *French Rowel*, which is a round Piece of ſtiff Leather, with a Hole in the midſt; laying it flat between the Fleſh and Skin, the Hole of the *Rowel* juſt againſt that in the Skin; ſowing it in with a Needle and Thread; drawn through the Hole and the Skin; cleaning it once in two or three Days, and anointing it freſh.

ROWING. See OAR, BOAT, *&c.*

ROWING *of Cloaths*, is the ſmoothing of them with a Roller, *&c.* See ROLL.

ROYAL *Fort*. See FORT.

ROYAL *Antler*, among Hunters, expreſſes the third Branch of the Horn of a Hart or Buck, that ſhoots out from the rear or main Horn above the Bayantler. See ANTLER, HEAD, HUNTING.

ROYAL, REGAL, ſomething relating to a King. See KING.

In this Senſe we ſay, the *Royal Family*, the *Royal Blood*, &c. See BLOOD, *&c.*

In *England*, the Prince and Princeſs of *Wales*, the King's Brother, *&c.* are addreſs'd under the Title of *Royal Highneſs*. See PRINCE and HIGHNESS.

The Dutcheſs of *Savoy* is called *Madame Royal*.

The Word is form'd from the *Latin*, *Regalis*, of *Rex*, King. See REGAL.

ROYAL *Crown*, is that worn by Kings. See CROWN.

This they alſo call *Imperial Crown*, being cloſed a-top. See IMPERIAL.

The *Engliſh* Crown is cloſed by Semicircles of Gold meeting at the Monde or Globe, on which the Croſs ſtands; and thoſe Semicircles adorned with Croſſes and Fleur-de-liſes: The whole embelliſhed with precious Stones.

A *Royal Abby* is an Abby founded by a King, or by a Prince who is ſucceeded by a King. See ABBY.

ROYAL *Army* is an Army marching with heavy Canon, capable of beſieging a ſtrong, well fortified City.—'Tis uſual to hang up a Governor who has the aſſurance to hold out a petty Place againſt a *Royal Army*.

The *Royal Oak* is a fair ſpreading Tree at *Boſcobel* in the Pariſh of *Donnington* in *Staffordſhire*, the Boughs whereof were all cover'd with Ivy; in the thick of which King *Charles* II. ſat in the Day time with Colonel *Careleſs*, and in the Night lodg'd in *Boſcobel-Houſe*: So that they are miſtaken who ſpeak of it as an old hollow Oak; it being then a gay flouriſhing Tree, ſurrounded with many more.—The poor remains hereof are now fenced in with a handſome Wall, with this Inſcription over the Gate in Gold Letters.—*Fæliciſſimam Arborem quam in Aſylum potentiſſimi Regis* Caroli II. *Deus op. max. per quem Reges regnant, hic creſcere voluit*, &c. Philoſoph. Tranſact. Nº. 310.

ROYAL-*Aſſent*, is that Aſſent which the King gives to a thing formerly done by others; as, the Election of a Biſhop by Dean and Chapter; or a Bill paſs'd in both Houſes of Parliament. See BISHOP, *&c.*

The *Royal* Aſſent in Parliament being given, the Bill is endors'd with theſe Words, *Le Roy le veult*; that is, it pleaſes the King.—If he refuſes it, thus; *Le Roy S'aviſera*, q. d. the King will adviſe upon it. See BILL, PARLIAMENT, *&c.*

ROYAL *Fiſhes*, are Whales and Sturgeons, and, ſome add, Porpoiſes too, which the King, by his Prerogative, is to have whenever caſt on Shore, or wreck'd, in all Places of the Realm, unleſs granted to Subjects by expreſs Words. See FISHES.

The King to have the Head and Body of the Whale to make Oil, *&c.* and the Queen the Tail to make Whalebone for her Garments. Stat. 1 *Edw.* I.

ROYAL-*Exchange*, the Burſe or Meeting-place of the Merchants in *London*. See EXCHANGE.

It was firſt built in 1566, at the Charge of Sir *Thomas Greſham*; and in a ſolemn Manner, by Herald with ſound of Trumpet, in Preſence of Queen *Elizabeth*, proclaimed the *Royal Exchange*.—'Till that time the Merchants met in *Lombard-ſtreet*.

'Twas built of Brick; yet then eſteem'd the moſt ſplendid Burſe in *Europe*.—An hundred Years after its Building, at the great Fire, it was burnt down; but ſoon rais'd again, in a ſtill more magnificent Manner; the Expence thereof amounting to 50000 *l.*

One half of this Sum was disburſed by the Chamber of *London*, the other by the Company of *Mercers*; who, to reimburſe themſelves, let to Hire 190 Shops above Stairs, at 20 *l.* each; which with other Shops, *&c.* on the Ground, yield a yearly Rent of above 4000 *l.* yet the Ground it ſtands on does not exceed ¾ of an Acre: Whence 'tis obſerv'd to be much the richeſt Spot of Ground in the World.

'Tis built Quadrangular, with Walks a-round, wherein the Merchants of the reſpective Countries aſſociate themſelves. In the middle of the Area or Court, is a fine marble Statue of King *Charles* II. in the Habit of a *Roman Cæſar*; erected by the Society of Merchant Adventurers; the Workmanſhip of *Grinlin Gibbons*. Around are the Statues of the ſeveral Kings ſince the *Norman* Conqueſt, ranged.

ROYAL *Society*, is an Academy, or Body of Perſons of eminent Learning; inſtituted by King *Charles* II. for the promoting of Natural Knowledge. See ACADEMY.

This illuſtrious Body had its original in an Aſſembly of ingenious Men, who before the Reſtauration met weekly in *Wadham-College*, in *Oxford*; at the Lodgings of Dr. *Wilkins*.

Afterwards, from about the Year 1658, many of them living in *London*, held Meetings at *Greſham-Colledge*; till they were at length taken Notice of by the King, who was pleas'd to grant them an ample Charter, dated 22d of *April*, 1663; whereby they were erected into a *Corporation, conſiſting of a Preſident, Council, and Fellows, for promoting the Knowledge of Natural Things, and uſeful Experiments*.

Their Manner of electing Fellows is by Balloting. Their Council are in Number 21, eleven of which are continued for the next Year, and ten more added to them, all choſen on St. *Andrew*'s Day.

Each Member at his Admiſſion ſubſcribes an Engagement, that he will endeavour to promote the Good of the Society; from which he may be freed at any Time, by ſignifying to the Preſident, that he deſires to withdraw.

The Charges are 40 *s.* paid to the Treaſurer at admiſſion; and 13 *s. per* Quarter, ſo long as the Perſon continues a Member.

Their Deſign is to " make faithful Records of all the Works " of Nature or Art, which come within their reach; ſo that the " preſent as well as after Ages may be enabled to put a Mark " on Errors which have been ſtrengthened by long Preſcription, " to reſtore Truths that have been neglected; to puſh thoſe al" ready known to more various uſes; to make the Way more " paſſable to what remains unrevealed, *&c.*

To this purpoſe they have made a great Number of Experiments and Obſervations, in moſt of the Works of Nature; Eclipſes, Comets, Meteors, Mines, Plants, Earthquakes, Inundations, Springs, Damps, Subterraneous Fires, Tides, Currents, the Magnet, *&c.*

Numbers of ſhort Hiſtories of Nature, Arts, Manufactures, uſeful Engines, Contrivances.

The Services they have been of to the Publick are very great.—They have improved Naval, Civil, and Military Architecture; advanced the Security and Perfection of Navigation; improved Agriculture; and put not only this Kingdom, but alſo *Ireland*, the Plantations, *&c.* upon Planting.

They have regiſter'd Experiments, Hiſtories, Relations, Obſervations, *&c.* reduced them into one common Stock; have from time to time pnbliſhed ſome of the moſt immediate Uſe, under the Title of *Philoſophical Tranſactions*, &c. and laid the reſt up in publick Regiſters, to be nakedly tranſmitted to Poſterity, as a ſolid Ground-work for future Syſtems. See TRANSACTIONS.

They have a Library adapted to their Inſtitution; towards which the late Earl Marſhal contributed the *Norfolcian* Library; and a Muſæum, or Repoſitory of natural and artificial Rarities, given them by *Daniel Colwal*, Eſq—Their Motto, *Nullius in Verba*.

ROYAL *Academy of Sciences*, &c. See ACADEMY, *&c.*

ROYAL *Parapet*, or *Parapet of the Rampart*, in Fortification, is a Bank about three Fathoms broad, and ſix Foot high, placed upon the Brink of the Rampart, towards the Country; to cover thoſe who defend the Rampart. See RAMPIRE and PARAPET.

ROYALTIES, REGALTIES, the Rights of the King; otherwiſe call'd the *King's-Prerogative*, and the *Regalia*. See PREROGATIVE and REGALIA.

Of theſe, ſome the King may grant to common Perſons;

others are inſeparable from the Crown. See KING, CROWN, GRANT, *&c.*

RUBARB, RHABARBARUM, in Medicine. See RHUBARB.

RUBBING. See FRICTION.

RUBIA *Tinctorum*, a Root or Drug popularly call'd *Madder*. See MADDER.

RUBIFYING, in Chymiſtry, *&c.* the act of turning a thing Red by Force of Fire, *&c.* See RED. See alſo RUBY.

Red Arſenic is ſuppoſed to be no more than the common yellow Arſenick *rubified* by Fire, with the Addition of Nut or Olive-Oil. See ARSENIC.

The Word is form'd of the *Latin*, *rubens*, ruddy, and *fio*, I become.

RUBIGALIA, or ROBIGALIA, in Antiquity, a Feaſt celebrated by the *Romans* in Honour of the God *Rubigus*, or the Godde*ſs Rubigo*; and to engage thoſe Deities to preſerve the Corn from blaſting. See FEAST.

The *Rubigalia* were inſtituted by *Numa* in the eleventh Year of his Reign; and were held on the 7th of the Calends of *May*, which is our 15th of *April*; being the Time when the blight or Mildew, call'd by the *Latins Rubigo*, uſes to attack the Corn. See RUBIGO.

Varro fixes it to the Time when the Sun enters the 16th Degree of *Taurus*.—Indeed the true Time ſeems rather to have been on the 18th Day before the Equinox; *viz.* the 28th of *April*; and the true Reaſon, becauſe then Canicula, or the little Dog, ſets; which is eſteem'd a malific Conſtellation.

Hence they ſacrificed a Dog to *Rubigo*: *Ovid* ſays, the Entrails of a Dog, and thoſe of a Sheep: *Columella*, only a ſucking Puppy. *Feſtus* inſinuates, that the Victim muſt be red.

RUBIGO, a Diſeaſe incident to Corn, popularly call'd the *Smut*, and ſometimes *Mildew* See SMUT and MILDEW.

The *Rubigo* is a Species of *Blight*. See BLIGHT.

RUBRICK, the Rules and Directions given at the Beginning, and in the Courſe of the Liturgy; for the Order and Manner wherein the ſeveral Parts of the Office are to be perform'd. See LITURGY.

There are *General Rubricks*, and *ſpecial Rubricks*, a *Rubrick for the Communion*, &c.—In the *Romiſh* Miſſal and Breviary are *Rubricks* for Matins, for Lauds, for Tranſlations, Beatifications, Commemorations, *&c.*

They are call'd *Rubricks* from the *Latin*, *ruber*, *red*; becauſe formerly printed in *Red-Ink*, to diſtinguiſh them from the reſt of the Office, which was in black; as they ſtill are in the *Romiſh* Miſſal, &c.

The great *Rubrick* for the Celebration of *Eaſter*, preſcribed by the *Nicene* Council, is to this Purpoſe.—*Eaſter-Day* to be the *Sunday* which falls upon, or next after, the firſt full Moon which immediately ſucceeds the Vernal Equinox. See EASTER.—Dr *Wallis* has a particular Diſcourſe on the antient *Rubricks* for the Seat of *Eaſter*; in the *Philoſoph. Tranſactions*.

RUBRICK, in the Canon Law, is a Title or Article in certain antient Law-Books; thus call'd, becauſe wrote, as the Titles of the Chapters in our antient Bibles are, in red Letters. See TITLE.—You'll find ſuch a Law under ſuch a *Rubrick*.

RUBY, a red, ſparkling Gem of the firſt Rank among precious Stones. See GEM and STONE.

There are but two Places in the *Eaſt* where the *Ruby* is found: The Kingdom of *Pegu*, and the Iſle of *Ceylon*.

The Mine in *Pegu*, where 'tis found in greateſt Plenty, is in the Mountain *Capelan*, 12 Days Journey from *Siren*, the Reſidence of that Prince.—The fineſt *Rubies* brought hence don't exceed three or four Caracts; the King reſerving all the larger to himſelf.

In *Ceylon*, the *Rubies* are found in a River which deſcends from the Mountains towards the middle of the Iſland: Some few are alſo found in the Ground.—The *Rubies* of *Ceylon* are uſually brighter and more beautiful than thoſe of *Pegu*; but they are rare; the King of *Ceylon* prohibiting his People to gather them, or Traffick with them.

There are *Rubies* alſo found in *Europe*, particularly *Bohemia* and *Hungary*; eſpecially the former, wherein is a Mine of Flints of divers Sizes, which upon breaking, are ſometimes found to contain *Rubies* as fine and hard as any of the *Eaſtern* ones.

Salmaſius will have the *Ruby* to be the Hyacinth of the Antients See HYACINTH.

The *Greeks* call it ἀπυρώτος, q. d. Reſiſting of the Fire. The Antients out of their Credulity and Superſtition have attributed many Virtues to the *Ruby*; as, that it expels Poiſons, cures the Plague, abates Luxury and Incontinence, baniſhes Sorrow, *&c.* See GEM.

They uſually only diſtinguiſh two Kinds of *Rubies*; the *Balaſs* and *Spinelle*. Some Authors, however, make four Kinds; the *Ruby*, *Rubacelle*, *Balaſs* and *Spinelle*.

'Tis the different Degree of Colour which makes their different Value and Beauty.—The *Balaſs-Ruby* is of a Vermeil-Roſe Colour; the *Spinelle* of a Flame Colour. 'Tis ſaid the Inhabitants of *Pegu* have the Art of heightening the redneſs and brilliant of *Rubies*, by laying them in the Fire, and giving them a proper Degree of Heat.

The *Ruby* is form'd in a ſtony Subſtance or Marcaſite of a Roſe-Colour, call'd *Mother of Ruby*; it has not all its Colour and Luſtre at once; but comes to it by Degrees.—At firſt it grows whitiſh, and as it approaches to Maturity, becomes red. Hence we have white *Rubies*; others, half white, half red; and others blue and red, call'd *Saphir-Rubies*.

When a *Ruby* exceeds twenty Caracts, it may be call'd a *Carbuncle*, the Name of an imaginary Stone, whereof the Antients and Moderns have given us ſo many Deſcriptions. See CARBUNCLE.—They have ſeveral manners of counterfeiting *Rubies*; and have carried the Imitation to that length, that the moſt able Lapidaries are ſometimes over-ſeen.

Furetiere aſſures us, though the thing ſurpaſſes all belief, that there have been *Rubies* in *France* of 240 Caracts.—*Tavernier* tells us, he ſaw one in the *Indies* of fifty Caracts, which he had a Mind to have bought. He adds, that the King of *France* has finer and larger *Rubies* than any of the Great *Mogul*.

The Value of *Rubies* from one Caract, or four Grains, to ten Caracts, is given us in the *Dictionnaire de Commerce*, by a good Hand.

	l.	*s.*	*d.*
A *Ruby* of one Caract, is worth,	1	15	0
Of two C.	9	00	0
Of three C.	22	10	0
Of four C.	33	15	0
Of five C.	45	00	0
Of ſix C.	67	10	0
Of ſeven C.	84	00	0
Of eight C.	106	00	0
Of nine C.	150	00	0
Of ten C.	216	00	0

RUBY, in Chymiſtry, is a Name given to ſeveral Preparations of natural Bodies, becauſe of their red Colour; as, *Ruby of Arſenick*, &c. See RUBIFYING.

RUBY, in Heraldry, is the red Colour wherewith the Arms of Noblemen are blazon'd; being the ſame which in the Arms of others not Noble, is call'd *Gules*. See COLOUR, GULES, *&c.*

RUCTATION, BELCHING, a Ventoſity ariſing from Indigeſtion, and diſcharging it ſelf at the Mouth with a diſagreeable Noiſe. See FLATULENCY.

There are Belches owing to Repletion, and others to Inanition, or Emptineſs.

Dr. *Quincy* ſays, Hypochondriac and Hyſteric People are particularly liable to this Diſorder.—They are rather to be cured with proper Stomachicks, than Carminatives and hot Liquors.—*Burnet* recommends the Iliac Pills of *Rhaſis* againſt *Ructation*.

RUDENTURE, in Architecture, the Figure of a Rope or Staff, ſometimes plain ſometimes carv'd, wherewith a third Part of the Flutings of Columns are frequently filled up. See FLUTING.

It is thus call'd from the *Latin*, *rudens*, *Cable*; whence ſome call it a *Cabling*; and the Colums whoſe Flutings are thus fill'd, *rudented*, or *cabled Columns*. See COLUMN, CABLING, *&c.*

There are alſo *Rudentures* in *Relievo*, laid on the naked of Pilaſters not fluted; an Inſtance of which we have in the Church of St. *Sapienza* at *Rome*.

RUDERATION, in Building, a Term uſed by *Vitruvius* for the laying of a Pavement with Pebbles or little Stones. See PAVEMENT.

To perform the *Ruderation*, 'tis neceſſary the Ground be firſt well beaten, to make it firm, and prevent its cracking.—Then a Stratum of little Stones are laid, to be afterwards bound together with Mortar made of Lime and Sand, call'd by *Vitruvius*, *Statumen*.

If the Sand be new, its Proportion to the Lime may be as 3 to 1; if dug out of old Pavements or Walls, as 5 to 2. See MORTAR, *&c.*

RUDERATION, *Daviler* obſerves, is alſo uſed by *Vitruvius*, Lib. 7. Cap. 1. for the coarſeſt and moſt artleſs Kind of Maſonry; where a Wall is, as it were, cobled up. See MASONRY.

RUDDER, in Navigation, a Piece of Timber turning on Hinges in the Stern of a Ship, and which oppoſing ſometimes one Side to the Water, and ſometimes another, turns or directs the Veſſel this Way or that. See SHIP.

The *Rudder* of a Ship is a Piece of Timber hung on the Stern-Poſts, by four or five Iron Hooks call'd *Pintles*; ſerving, as it were, for the Bridle of a Ship; to turn her about at the Pleaſure of the Steers-man. See STEERING.

The *Rudder* being perpendicular, and without-ſide the Ship, another Piece of Timber is fitted into it at Right Angles, which comes into the Ship; by which the *Rudder* is managed and directed.—This latter is properly call'd the *Helm*, though the two are ſometimes confounded together. See HELM.

The Power of the *Rudder* is reducible to that of the Lever. See LEVER.

As to the Angle the *Rudder* ſhould make with the Keel; the Author of a late Book on the Working of Ships, ſhews, that in order to ſtay or bear up the ſooneſt poſſible, the Tiller of the *Rudder* ought to make an Angle of near 55° with the Keel. See SAILING.

A narrow *Rudder* is beſt for a Ship's ſailing, provided ſhe can feel it, that is, be guided and turned by it; for a broad *Rudder* will hold much Water when the Helm is put over to any Side: Yet if a Ship have a fat Quarter, ſo that the Water cannot come quick and ſtrong to her *Rudder*, ſhe will require a broad *Rudder*. The aftermoſt Part of the *Rudder* is call'd, the *Rake* of the *Rudder*.

RUDDLE, or REDDLE, a ſort of red Chalk, found in divers Parts of *England*. See CHALK.

This ſome take for the *Lapis Hæmatites*. See HÆMATITES.

RUDIARIUS, in Antiquity, a Veteran Gladiator, who had got a Diſcharge from the Service. See GLADIATOR.

He was thus called, becauſe, as a Mark of Diſmiſſion a Rod was put into his Hand call'd *Rudis*. See RUDIS.

The *Rudiarii* were alſo call'd *Spectatores*. See SPECTATOR.

RUDIMENTS, Rudimenta, the firſt Principles or Grounds of any Art or Science; call'd alſo the *Elements* thereof. See Elements.

RUDIS, a knotty rough Stick, which the Prætor among the *Romans*, gave the Gladiators, as a Mark of their Freedom and Diſmiſſion. See Gladiator.

Hence the *Latin* Phraſe, *Rude donare*, to make a Gladiator free, to diſcharge him from fighting any more.—They were hence called *Rudiarii* See Rudiarii.

RUE, Ruta, a medicinal Plant, much uſed in the preſent Practice.—*Schroder* commends it as an Alexipharmic, and Cephalic; ſays it reſiſts Poiſons and Malignities, and is therefore to be uſed in Fevers; and that it is good in all convulſive Caſes.

It is replete with a fat viſcous Juice, and by that means yields little to any Purpoſe in Diſtillation, unleſs where firſt digeſted in a ſpirituous Menſtruum.—Hence its ſimple Water in the Shops, according to Dr. *Quincy*, is nothing worth. It ought to be raiſed with a ſpirituous Liquor, or uſed in Conſerve; or, which is beſt of all, eat alone freſh gathered, with Bread and Butter. It is of Service in nervous Caſes, particularly ſuch as ariſe from the Womb, as it deterges the Glands, and by its Viſcidity, bridles thoſe inordinate Motions, which frequently begin there, and affect the whole Conſtitution. See Hysteric, Uterine, *&c.*

RUELLE, a *French* Term, lately introduced into our Language.—*Ruelle* is a diminutive of *Rue*, Street; and ſignifies, literally, a *little Street*.

Its uſe among us, for an Alcove, or other genteel Apartment, where the Ladies receive Viſits either in Bed or up.—The Poets go reading their Works from *Ruelle* to *Ruelle*, to beſpeak the Approbation and Intereſt of the Ladies.

RUFTER-*Hood*, among Falconers, a plain Leather-Hood, large and open behind, to be worn by an Hawk, when ſhe is firſt drawn, See Hood, Hawk, Hawking, *&c.*

RUINS, a Term particularly uſed for magnificent Buildings fallen to decay by length of Time; and whereof there only remains a confuſed Heap of Materials.

Such are the *Ruins* of the Tower of *Babel*, or Tower of *Belus*, two Days Journey from *Bagdat*, in *Syria*, on the Banks of the *Euphrates*; which are now no more than a Heap of Bricks, cemented with Bitumen; and whereof we only perceive the Plan to have been Square.

Such, alſo, are the *Ruins* of a famous Temple or Palace near *Schiras* in *Perſia*; which the Antiquaries will have to have been built by *Ahaſſuerus*; and which the *Perſians* now call *Tchelminar*, or *Chelminar*, q. d. the forty Columns; becauſe there are ſo many Colums remaining pretty entire, with the Traces of others; a great Quantity of *Baſſo Relievo's*, and unknown Characters, ſufficient to ſhew the Magnificence of the Antique Architecture. See Chelminar.

RULE, Regula, or Ruler, a very ſimple Inſtrument, ordinarily of hard Wood, thin, narrow, and ſtraight; ſerving to draw right Lines withal. See Line.

The *Rule* is of principal uſe in all the mechanical Arts.—To prove whether or no it be juſt; draw a Line by it on a Paper; then turn the *Rule* about, the Right end to the Left; and apply the ſame Edge this way to the Line: If the Edge now agree exactly with the Line, the *Ruler* is true.

Deſmarets has a fine Poem on the Amours of the *Rule* and Compaſs.—The *Stone-Cutters-Rule* is uſually four Foot long; and divided into Feet and Inches.

The *Maſon's-Rule* is 12 or 15 Foot long, and is applied under the Level, to regulate the Courſes, to make the Piedroits equal, *&c.*

Rule is alſo uſed for certain Inſtruments which have other conſiderable Uſes beſide that of drawing Lines.—Such are the Carpenters *Joint-Rule*, *Everard's*, and *Coggeſhal's Sliding-Rules*, &c.

Carpenters-Joint-Rule, is an Inſtrument uſually of Box, 24 Inches long, and one and a half broad; each Inch being ſubdivided into eight Parts.—On the ſame Side with theſe Diviſions, is uſually added *Gunter's* Line of Numbers.

On the other Side are the Lines of *Timber* and *Board-Meaſure*; the firſt beginning at 82, and continued to 36, near the other End: The latter is numbered from 7 to 36, four Inches from the other End.

Uſe of the Carpenter's Joint-Rule.

The Application of the Inches in meaſuring Lengths, Breadths, *&c.* is obvious.—That of the *Gunter's* Line, ſee under *Line of* Numbers.—The uſe of the other Side is all we need here meddle with.

1. *The Breadth of any Surface, as Board, Glaſs,* &c. *being giving; to find how much in Length makes a Square Foot.*—Find the Number of Inches the Surface is broad, in the Line of Board Meaſure; and right againſt it is the Number of Inches required.

Thus if the Surface were 8 Inches broad, 18 Inches will be found to make a ſuperficial Foot.

Or, more readily thus:—Apply the *Rule* to the Breadth of the Board or Glaſs; that End mark'd 36 being even with the Edge; the other Edge of the Surface will ſhew the Inches and Quarters of Inches which go to a ſquare Foot.

2. *Uſe of the Table at the end of the Board Meaſure.*—If a Surface be one Inch broad, how many Inches long will make a ſuperficial Foot? Look in the upper Row of Figures for 1 Inch, and under it in the ſecond Row is 12 Inches, the anſwer to the Queſtion.

3. *Uſe of the Line of Timber Meaſure.*—This reſembles the former; for having learnt how much the Piece is Square, look for that Number on the Line of Timber-Meaſure: The Space thence to the End of the *Rule* is the Length, which at that Breadth makes a Foot of Timber.—Thus, if the Piece be 9 Inches Square, the Length neceſſary to make a ſolid Foot of Timber, is 21 $\frac{1}{3}$ Inches.—If the Timber be ſmall, and under 9 Inches Square, ſeek the Square in the upper Rank of the Table; and immediately under it is the Feet and Inches that make a ſolid Foot.—Thus, if it be 7 Inches Square, 2 Foot 11 Inches will be found to make a ſolid Foot.

If the Piece be not exactly Square, but broader at one End than another; the Method is to add the two together, and take half the Sum for the Side of the Square.—For round Timber, the Method is to girt it round with a String, and to allow the fourth Part for the Side of the Square.—But this Method is erroneous; for hereby you loſe above $\frac{1}{5}$ of the true Solidity. See Timber-*Meaſure*.

Everard's Sliding-Rule, } See { Sliding-*Rule*.
Coggeſhal's Sliding-Rule, }

Rule, Regula, is alſo a certain Maxim, Canon, or Precept, to be obſerved in any Art or Science. See Canon, Maxim, *&c.*—Thus we ſay, the *Rules* of Grammar, of Logic, of Philoſophizing, *&c.* See Grammar, Logic, Philosophizing, *&c.*

The School Philoſophers diſtinguiſh two Kinds of *Rules*; viz. *Theoretical*, which relate to the Underſtanding; being of uſe in the Diſcovery of Truth. See Understanding, Criterion, and Truth.—And *Practical*, which relate to the Will, and ſerve to direct it to what is good and right. See Good and Rectitude.

For the Management and Application of theſe two *Rules*, there are two diſtinct Arts; *viz. Logick*, and *Ethicks*. See Logick and Ethicks.

The *Rules of Knowing*, *Regulæ ſciendi*, are ſuch as direct and aſſiſt the Mind, in perceiving, judging, and reaſoning. See Perception, Judgement, and Reasoning.

Rules of Acting, *Regulæ agendi*, are thoſe whereby the Mind is guided in her Deſires, Purſuits, *&c.* See Will.

Authors are extremely divided about the regard to be had to the *Rules of Poetry* fix'd by the Antients *Ariſtotle*, *Horace*, *Longinus*, &c. and admitted by the modern Criticks, as *Boſſu*, &c. ſome contending that they be inviolably obſerv'd; others pleading for Liberty to ſet them aſide on occaſion.—*Rules*, 'tis complain'd, are Fetters; rank Enemies to Genius; and never religiouſly obſerv'd by any, but thoſe who have nothing of themſelves to depend on. *Voiture* frequently neglected all the *Rules* of Poetry; as a Maſter who ſcorn'd to be confined by them. See Poetry.

The Theatre has its particular *Rules*; the *Rule* of 24 Hours; the Unities of Action, Time, and Place, *&c.* See Unity. See alſo Theatre.

If it be true, ſays *Moliere*, that Plays conducted according to the *Rules*, don't pleaſe; but thoſe which are not, do: The *Rules* muſt be nought.—For my ſelf, when a thing hits and diverts me, I don't enquire if I have done amiſs; nor whether *Ariſtotle's Rules* forbid me to laugh. See Law.

Rule, in Arithmetick, is a certain Operation with Figures, to find Sums or Numbers unknown. See Arithmetick, Operation, *&c.*

Each *Rule* in Arithmetick has its particular Name, according to the uſe for which it is intended.—The four firſt, which ſerve as the Foundation of the whole Art, are call'd *Addition*, *Subſtraction*, *Multiplication*, and *Diviſion*; each whereof ſee under its proper Article.

From theſe ariſe ſeveral other *Rules*; as the *Rule of Three*, or of *Proportion*; call'd alſo, the *Golden Rule*; and diſtinguiſhed into *direct*, and *inverſe*, *ſimple*, and *compound*, *Rule of five Numbers*.—*Rule* of Fellowſhip, *ſimple*, and *with Time*.—*Rule* of Alligation, *medial* and *alternate*.—*Rule* of *Exchange*.—*Rule* of *falſe Poſition*, *ſingle* and *double*. See Fellowship, Alligation, Exchange, and Position.

Rule *of Three*, or of *Proportion*, commonly call'd the *Golden* Rule, is a *Rule* which teaches how to find a fourth proportional Number, to three others given. See Proportion.

As if 3 Degrees of the Equator contain 70 Leagues, how many do 360 Degrees, the Circumference of the Earth, contain?

The *Rule* is this.—*Multiply the ſecond Term* 70, *by the third* 360; *divide the Product* 25200, *by the firſt Term* 3: the *Quotient* 8400 *is the fourth Term required.*

The uſe of this *Rule* is of vaſt extent, both in common Life, and the Sciences; but has no Place, except where the Proportion of the given Numbers is known.—Suppoſe, *e. gr.* a large Veſſel full of Water to empty it ſelf by a little Aperture; and ſuppoſe 3 Gallons to flow out in 2 Minutes; and it were required to know in what time 100 Gallons would be thus evacuated?—Here indeed are three Terms given, and a fourth required: But as 'tis evident from Experience, that Water flows faſter at firſt than afterwards, the Quantity of flowing Water is not proportional to the Time; and therefore the Queſtion does not come under the *Rule of Three*.

The things which come under Commerce are proportionable to their Prices; Twice as much of any Commodity coſting twice as much Money, *&c.* The Price, therefore, of any Quantity of a Commodity being given, the Price of any other Quantity of the ſame, or the Quantity of the Commodity anſwering to any other given Sum, is found by the *Rule of Three*.—*E. gr.* If 3 Pounds coſt 17 *s.* what will 30 Pounds coſt? Since, as 3 Pounds are to 30 Pounds, ſo is the Value of the former 17 *s.* to the Value of the latter. The Queſtion ſtands thus:

3 ℔ ——— 30 ℔ ——— 17 *s.*
17
———
3) 510 (170 *s.* 8 ℔. 10 *s.*

Again; if 3 Pounds be bought for 17 *s.* how many will 170 *s.* buy? Since as 17 *s.* is to 170 *s.* ſo are 3 Pounds to the Pounds required. The Number will be found thus:

17 *s.*———170 *s.*———3 ℔.

3

17) 510 (30 ℔

51

00

If the given Terms be heterogeneous, *i. e.* have broken Numbers among them, they don't bear the ſame Proportion to each other, which the things they expreſs, bear.—They muſt therefore be reduced to homogeneous ones; or to the ſame Denomination as Pounds into Shillings, Shillings into Pence, *&c.* Hours into Minutes, *&c.* See REDUCTION.

E. gr. If 3 Pounds and 4 Ounces coſt 2 *s.* 4 *d.* what will 2 Pounds coſt? The Operation will be thus:

3 ℔ 4 ℥———2 ℔———2 *s.* 4 *d.*

16 16 12

52 32 28

28

256

64

52) 896 (17 *d.* $\frac{12}{52}$ of a Penny.

52

376

364

12

In many Caſes of Commerce and Accounts, we have more compendious Ways of working Queſtions that come under the *Rule of Three*, than by the *Rule* it ſelf; which, by reaſon of their expediting Practice, are call'd *Practice*; and conſtitute a particular *Rule* of themſelves. See PRACTICE.

RULE *of Three inverſe*, is where the natural Order of the Terms is inverted.—As, if 100 Workmen build a Houſe in 2 Years, in how long time will 200 Workmen build the ſame?

This is uſually conſider'd by the Writers of Arithmetick, and taught in the Schools, as a particular *Rule*: Being wrought by multiplying the firſt Term 100 by the ſecond 2, and dividing the Product 200 by the third Term 200; the Quotient 1 is the Number required.

But there is no neceſſity for making a particular *Rule* for the Matter; this coming naturally enough under the former, by only ranging the Terms as the Nature of the Queſtion requires.

Thus 'tis evident, that as the Number of Men 200, is to 100, ſo is the Space 2 Years, wherein 100 build the Houſe, to the Space wherein 200 will build the ſame.—For the leſs Time, the more Hands are required. The Queſtion then will ſtand thus:

200 M.———100 M.———2 Y.

2

200) 200 (1 Year.

RULE *of five Numbers*, or *Compound* RULE *of Three*, is where two *Rules* of three are required to be wrought, e're the Number ſought be found.—As if 300 *l.* in 2 Years yield 30 *l.* Intereſt, how much will 1000 *l.* yield in 10 Years?

Here the firſt thing to be done is to find by the *Rule of Three*, what Intereſt 1000 *l.* will give in 2 Years; and then by the ſame *Rule* what it will give in 10 Years.

This is conſider'd by the Writers, *&c.* of Arithmetick, as a particular *Rule*, but without any Neceſſity; a double Operation ſolving it better, as in this Example:

300 *l.*———1000 *l.*———30 Int.

30

3|00) 300|00 (100 Int.

2 Y.———12———100 *l.*

12

2) 12000 (600 Int.

But in Queſtions of this Kind a ſingle *Rule of Three* may do the Buſineſs: For 300 *l.* give the ſame Intereſt in two Years, which twice 300 give in one Year; and twelve times 1000 *l.* give the ſame Intereſt in one Year that 1000 gives in 12: Omitting therefore the Circumſtances of Time, ſay, if twice 300 (that is, 600) give 36 *l.* Intereſt, (in one Year) what will 12 times 1000 (that is, 12000) give (in one Year)?

600———12000———36

36

72000

36000

6|00) 4320|00 (720 *l.* Int.

RULE, in a monaſtic Senſe, is a Syſtem of Laws or Conſtitutions, whereby Religious Houſes are eſtabliſhed and regulated; and which the Religious make a Vow to obſerve at their Entrance. See RELIGIOUS, MONASTERY, VOW, *&c.*

The monaſtic *Rules* are all to be approved of by the Pope, to make them valid.—The *Rule* of St. *Benedict*, is by ſome Authors call'd the *Holy Rule*. See BENEDICTIN.

Thoſe of St. *Bruno*, and St. *Francis*, are of all others the moſt auſtere. See CARTHUSIAN and FRANCISCAN.

When a Religious cannot ſupport the Auſterities of his *Rule*, he ſues for a Diſpenſation. See DISPENSATION.

RULE, in the Canon Law.—The *Rule, de veriſſimili Notitia*, of *probable Notice*, renders all Proviſions to a Benefice Vacant by Death, to be null; if it appear that from the Day of the Deceaſe, to the Day of the Date of the Proviſions, or to the Day when the Courier arrives from *Rome*, there has not been Time ſufficient for regular Notice of the Perſon's Deceaſe to be convey'd to the Pope. See PROVISION.

The Proviſions are even null if it be proved the Courier ſet out e're the Perſon was deceas'd.—This *Rule* is ſtrictly obſerv'd in *France*; in other Countries the Pope finds frequent Occaſions to diſpenſe with it.

Rule of twenty Days, Regula viginti dierum. By this *Rule*, if an Eccleſiaſtick reſign his Benefice; to make the Reſignation valid, the Reſigner muſt ſurvive its Admiſſion in the Court of *Rome* twenty Days.—If he dye before the Expiration of the twenty Days, the Reſignation is void; and the Benefice becomes Vacant by Death.

This *Rule* does not hold of the Proviſions of ordinary Collators, nor of ſimple and pure Reſignations into the Hands of the Ordinary; but only in Caſe of Proviſions of the Pope, diſpatch'd on Reſignations *in Favorem*. See RESIGNATION.

This *Rule* antiently extended to ſuch as reſign'd in Health as well as Sickneſs.—Pope *Boniface* reſtrain'd it to the latter; whence it is commonly call'd, *Regula de Infirmis reſignantibus.*

Regula de publicandis. By this *Rule* the Reſignee of a Benefice, if he have a Proviſion from the Court of *Rome*, is obliged to publiſh the Reſignation and take Poſſeſſion within ſix Months; or if he have it from the ordinary Collator, within one Month. Otherwiſe, if the Reſigner dye, the Reſignation becomes null.

RUM, a Species of Brandy, or Spirit, drawn by Diſtillation, from Sugar Canes. See SUGAR, SPIRIT, DISTILLATION, *&c.*

Rum is very hot and inflamable; and is in the ſame uſe among the Natives of the Sugar Countries, as Brandy among us. See BRANDY.

The Word *Rum* is the Name it bears among the Barbarians.

RUMB, RUMB, or RHUMB, in Navigation. See RHUMB.

RUMB-*Line*, or *Loxodromia*. See RHUMB-*Line*.

RUMEN, the firſt Stomach of Animals which Chew the Cud; hence call'd *Ruminants*. See STOMACH and RUMINANT.

The Food is tranſmitted into the *Rumen* without any other Alteration in the Mouth, than being a little rowl'd and wrap'd up together. See FOOD.

The *Rumen* is of all others much the largeſt Stomach; as being to contain both the Drink, and the whole crude Maſs of Aliment, which there lie and macerate together; to be thence remitted to the Mouth, to be chewed and comminuted, in order to their farther Digeſtion in the other Ventricles. See DIGESTION.

In the *Rumen*, or firſt Ventricle of Camels, are found divers Sacculi, which contain a conſiderable Quantity of Water: Which is an admirable Contrivance for the Neceſſities of that Animal, which living in dry Countries, and feeding on dry hard Food, wou'd be in danger of periſhing, but for theſe reſervoirs of Water. See DRINK, THIRST, *&c.*

RUMINANT, in natural Hiſtory, an Animal which chews over again what it has eat before; popularly call'd *chewing the Cud.* See RUMINATION.

Joan. Con. Peyer has an expreſs Treatiſe *de Ruminantibus & Ruminatione*, where he ſhews, that there are ſome Animals which do really *ruminate*; ſuch are Oxen, Sheep, Deer, Goats, Camels, Hares, and Squirrels: Whereas others only appear to *Ruminate*; which he calls *Ruminantia ſpuria*; of which Number are Moles, Crickets, Bees, Beetles, Crabs, Mullets, and ſeveral other Fiſhes.

This latter Claſs, he adds, have their Stomachs compoſed of muſcular Fibres, by means whereof the Food is groun'd up and down, much as in real *Ruminants*.

Ruminants, Mr. *Ray* obſerves, are all Quadrupedal, Hairy, and Viviparous; ſome with hollow and perpetual Horns, others with deciduous ones. See QUADRUPED, HAIR, HORN, *&c.*

The horned *Ruminants* have all four Stomachs, appropriated to the Office; *viz.* the Κοιλία Μεγάλη of *Ariſtotle*, the *Venter Magnus*, or what we call the *Paunch* or *Inward*, which receives the Meat ſlightly chewed, retains it a-while, and then delivers it back again into the Mouth, which is what we call the *Cud*, to be re-chewed.—2°. The Κεκρύφαλος, or *Reticulum*, which we call the *Honey-Comb*, from its internal Coat being divided ſo into Cells, like *Honey-Combs*.—3°. The Εχῖνος, which Mr. *Ray* thinks hath been wrong tranſlated, *Omaſus*; and which he chuſes to call the *Echinus*: This being difficult to clear, our People throw it away, and call it the *Manifold*.—4°. The Ηνυςρον of *Ariſtotle*, by *Gaza* call'd the *Abomaſus*. See OMASUS, ABOMASUS, *&c.*

Again, all horned *Ruminant* Animals want the *Dentes Primores*, or broad Teeth in the upper Jaw; and have that kind of Fat, call'd *Suet, Sebum*, Στεας, which is harder and firmer, and leſs aquifiable in them, than the Adeps of other Animals. See FAT, SERUM, ADEPS, *&c.*

RUMINATION, an Action peculiar to a Claſs of Animals call'd *Ruminants*; whereby they return the Food they have formerly ſwallow'd, to be chew'd over again, and render'd more fit for Chyle. See RUMINANT.

Peyer defines *Rumination* a natural Motion of the Stomach, Mouth, and other Parts; By means of which the

Food eaten, at firſt, haſtily, is return'd back again to the Mouth; where 'tis re-chew'd and ſwallowed a ſecond time; and that much to the Benefit of the Animal. See FOOD, CHYLE, MASTICATION, *&c.*

Burnet, in his *Theſaur. Med.* gives ſeveral Inſtances of Men that *ruminated*, from *Salmuthius*, *Rhodius*, &c.—Dr. *Slare* in the *Philoſ. Tranſact.* gives us a freſher Inſtance in one of our own Countrymen, living at *Briſtol.* His account, as 'tis curious, and may let us ſee a little how it fares with *ruminating* Animals; we ſhall here add.

“ He begins to chew his Meat over again within a Quarter of
“ an Hour after Meals, if he drink with it; if not, ſomewhat
“ later. His chewing after a full Meal laſts about an Hour and
“ a half: And if he go to Bed preſently after Meals, he cannot
“ ſleep till the uſual time of chewing be over. The Victuals,
“ upon the return, taſte ſomewhat more pleaſantly than at firſt.
“ Bread, Meat, Cheeſe, and Drink, return much of ſuch Co-
“ lours as they wou'd be of were they mix'd together in a Mor-
“ tar. Liquids, as Spoon-Meat, return to his Mouth all one as
“ dry and ſolid Food. The Victuals ſeem to him to lye heavy
“ till they have paſs'd the ſecond chewing; after that it paſſes
“ clean away. If he eat variety of things, that which paſſes
“ down firſt comes up again firſt. If the *ruminating* Faculty
“ chance to leave him, it ſignifies Sickneſs; and 'tis never well
“ with him till it returns. He is about twenty Years of Age,
“ and was always thus ſince he can remember. His Father
“ does the like, ſometimes; but in ſmall Quantities.

RUMMAGE, in the Sea Language, ſignifies to clear a Ship's Hold, or remove Goods or Luggage from one Place to another. See HOLD.

The Word is probably derived from the *Saxon raum*, Room, or Space.

RUN *of a Ship*, ſo much of her Hull as is always under Water; growing thinner and lanker by Degrees, from the Floor-Timbers to the Stern-Poſts. See SHIP.

This is alſo call'd her *Way aftward on.*—A Ship is ſaid to have a *good Run*, when it is long, and the Water paſſes cleverly to her Rudder, her Tuck not lying too low, which is of great Importance to her Sailing. If the Water do not come ſtrongly to her Rudder, by reaſon of her being built too broad below, ſhe cannot ſteer well; and a Ship that can't ſteer well, cannot keep a good Wind, nor will have any freſh Way through the Sea, but will ſtill be falling to Leeward. See RUDDER, STEERING, *&c.*

And yet a Ship with a large and good *Run*, loſes much Stowage, becauſe made narrow below. See HOLD, BURTHEN, *&c.*

RUNDLES, or ROUNDELS, in Heraldry, the ſame as *Balls* or *Pellets*. See BALL and PELLET.

RUNDLET, or ROUNDLET, a ſmall Veſſel, containing an uncertain Quantity of any Liquor, from three to twenty Gallons. See MEASURE, *&c.*

RUNIC, a Term applied to the Language and Letters of the antient *Goths*, *Danes*, and other Northern Nations.

Some have been of Opinion that *Gulphilas*, or *Ulphilas*, a *Daniſh* Biſhop about the Year 370 was the firſt Inventor of the *Runic Character*: But *Olaus Wormius* ſhews at large that *Ulphilas* could only be the firſt who taught them to Foreigners; for that the Characters themſelves were older than he. See CHARACTER.

'Tis ſuppoſed they were called *Runic*, as being myſterious and ſcientifical, like the *Egyptian* Hieroglyphicks.

The *Runic* Language is more frequently call'd *Sclavonic*. See SCLAVONIC. See alſo *Wormius de Literatura Runica*; and *Hicks's Theſaurus* of the antient Northern Languages.

There are ſome *Runic Medals* in the Cloſets of the Curious; and ſome more Modern *Daniſh* and *Engliſh* Medals, the Inſcriptions whereof are *Latin*, and the Character *Runic*. See TALISMAN.

RUNNER, in the Sea Language, a Rope with a Block or Pulley at one End, and a Hook at the other; for hoiſting of Goods. See ROPE.

To *overhale the Runner*, is to pull down the hooked End, and hitch it into the Sling.

RUNNET, or RENNET, an acid Juice, found in the Stomachs of Calves that have fed on nothing but Milk, and are kill'd before the Digeſtion be perfected. See MILK.

'Tis this *Runnet* is chiefly uſed to curdle or turn Milk for Cheeſe. See CURDLING, CHEESE, *&c.*

Its proper Place is the *Abomaſus.*—The like Matter is alſo ſaid to be found in Goats and Hares. See ABOMASUS.

The longer the *Runnet* is kept, the better it is.—Though it readily coagulates Milk; yet if put into it when already coagulated, it diſſolves it. See COAGULATION and DISSOLUTION.

If Salt be put in the Milk, e're the *Runnet* be applied, it prevents its Coagulation.—If Salt be put in afterwards, it hardens the Coagulum. See SALT.

Ariſtotle will have the *Runnet* to be the proper Subſtance of the Milk; but he is miſtaken when he ſays 'tis found in all Animals which give Milk, eſpecially all Ruminants. See RUMINANT.

RUNNING *of Goods*, a clandeſtine landing of Goods without paying the legal Cuſtoms or Duties for the ſame. See SMUGLING, OWLER, DUTY, CUSTOM, *&c.*

RUPEE, or ROUPIA. See ROUPIA.

RUPTURE, in Medicine, call'd alſo *Hernia*, and popularly *Burſtneſs*; is when the Rim or thin Film or Caul, which holds up the Inteſtines, is broken or over-ſtrained or ſtretch'd, ſo as the Guts fall down either into the Groin, Cod, or Flank. See HERNIA.

According as the *Rupture* happens in the *Abdomen*, *Inguen*, or *Scrotum*, it is call'd *Exomphalus*, *Hernia Inguinalis*, or *Hernia Scroti.* See EXOMPHALUS, *&c.*

RURAL, or RUSTIC, ſomething that relates to the Country. See RUSTIC.

The Word is form'd of the *Latin Rus*, *Ruris*, Country.

RURAL *Dean*, in the antient Church, was a Temporary Dean, appointed by the Biſhop or Archbiſhop, for ſome particular Miniſtry, without Canonical Inſtitution. See DEAN.

The *Rural* Dean is the ſame with what in the Laws of *Edward* the Confeſſor, was call'd *Decanus Epiſcopi*, the *Biſhop's Dean.*

Heylin obſerves that each Dioceſe has in it one or more Archdeaconries for diſpatch of Eccleſiaſtical Buſineſs; and each Archdeaconry is ſubdivided into *Rural Deaneries*, fewer or more according to the extent thereof; the Deans whereof were alſo call'd *Archipresbyteri*, and *Decani Chriſtianitatis*. See ARCHIPRESBYTERI, *&c.*

The *Rural* Deans ſeem to have been the ſame with what in other Parts were call'd *Choreſpiſcopi*. See CHORESPISCOPUS, *&c.*

RUST *of a Metal*, the Flowers or Calx thereof; procured by corroding and diſſolving its ſuperficial Parts by ſome menſtruous Fluid. See METAL, CALX, FLOWER, MENSTRUUM, *&c.*

Water is the great Inſtrument or Agent in producing *Ruſt*; the Air apparently *ruſts* Bodies, but 'tis only in Virtue of the Water it contains. See AIR.

Hence, in a dry Air, Metals remain a long time without contracting *Ruſt*; and hence Oils and other fatty Bodies ſecure Metals from *Ruſt*; Water being no Menſtruum to Oil, *&c.* And therefore not able to make its Way through it. See WATER, *&c.*

All Metals are liable to *Ruſt*; even Gold it ſelf, though generally held incapable thereof, grows *Ruſty* if expoſed to the Fumes of Sea-Salt. See GOLD.

The reaſon why it is ſo rarely found to *ruſt*, is that Sea-Salt, which is the only Salt that will prey upon it, is of a very fix'd Nature, and therefore little of its Efluvia or Exhalations are found floating in the Air. See GOLD, *Aqua* REGIA, VOLATILISATION, *&c.*

Ruſt is uſually ſuppoſed a Corruption of the Metal, but without much Foundation: 'Tis the very Metal itſelf, only under another Form; and accordingly we find that *Ruſt* of Copper may be again turned into Copper.

The *Ruſt* of Copper, call'd *Ærugo*, makes what we call *Verdigreaſe.* See VERDIGREASE.

Ceruſs is made of Lead converted into *Ruſt* by Vinager. See CERUSS.—Iron, in time, turns wholly into *Ruſt*, unleſs preſerv'd from the Air by Paint or Varniſh. See IRON, PAINTING, *&c.*

RUSTIC *Gods*, in Antiquity, *Dii Ruſtici*, were the Gods of the Country; or thoſe who preſided over Agriculture, *&c.* See GOD, *&c.*

Varro invokes the twelve *Dii Conſentes*, as the principal among the *Ruſtic* Gods; *viz.* *Jupiter*, *Tellus*, the *Sun*, *Moon*, *Ceres*, *Bacchus*, *Rubigus*, *Flora*, *Minerva*, *Venus*, *Lympha*, and *Good Luck.*—Beſides theſe twelve Arch-*Ruſtic* Gods, there were an Infinity of leſſer ones. As *Pales*, *Vertumnus*, *Tutelina*, *Fulgor*, *Sterculius*, *Mellona*, *Jugatinus*, *Collinus*, *Vallonia*, *Terminus*, *Sylvanus*, and *Priapus.*—*Striuvius* adds, the Satyrs, Fauns, Sileni, Nymphs, and even Tritons; and gives the Empire over all the *Ruſtic* Gods to the God *Pan*. See SATYR, FAUN, SYLVAN, NYMPH, DRYADES, PANES, *&c.*

RUSTIC, in Artichitecture, a Manner of building in Imitation of Nature, rather than according to the Rules of Art. See BUILDING and ARCHITECTURE.

RUSTIC *Work*, is where the Stones in the Face, *&c.* of a Building, inſtead of being ſmooth, are hatch'd or pick'd with the Point of a Hammer.

RUSTIC-*Quoins*, by *Vitruvius* call'd *Lapides Minentes*; See *Ruſtic*-QUOIN.

RUSTIC *Order*, is an Order with *Ruſtic* Quoins, *Ruſtic* Work, *&c.* See ORDER.—*Felibien* ſays, 'tis properly where the ſeveral Parts of the five Orders are not exactly obſerv'd; but this confounds *Ruſtic* with *Gothic*. See GOTHIC.

RUT, in Hunting, *&c.* a Term uſed for the Venery, or Copulation of Deer.—*For the Terms which obtain in reſpect of other Beaſts of Game, with the Noiſe they make during the Act*, ſee HUNTING.

The *Rutting*-time with the Hart begins about the middle of *September*, and holds two Months; the older they are, the better, and the more beloved by the Hinds; and the earlier do they go to *Rut.*—At this Time they will turn Head, and furiouſly make at any living Creature. 'Tis eaſy killing them now; their whole Buſineſs being to ſcent and purſue the Track of the Females; ſcarce feeding at all. The young Herd are forced to fly with great Precipitancy when the Hart comes in Sight of his Mate. If there be any other of Bulk, they will diſpute it very hotly with their Horns.—As the Seaſon expires, they withdraw and dig themſelves Holes wherein to lye to aſſwage the ſtrong Savour of their Luſt: When become a little ſweet, they return to ther Paſture, and live in Herds. See *Hart*-HUNTING.

The *Rutting* or Tourning-time of the Roe-buck begins in *October*, and only laſts 12 or 15 Days. This over, he caſts his Horns. See HEAD.—After the Hind is fill'd, ſhe keeps no more Company with the Male 'till ſhe be deliver'd.—But the Doe always accompanies her Paramour 'till her time approaches, when ſhe retires, for the ſafety of her young, which he wou'd otherwiſe kill. See *Roe-buck* HUNTING.

RYPTICKS, in Medicine, detergent Remedies. See DETERGENT.—The Word is form'd of the *Greek* ῥύπτειν, to wipe, cleanſe.

S.

S, A Conſonant, and the Eighteenth Letter of the Alphabet. 'Tis accounted one of the four hiſſing Conſonants; the other three being Z, J, and CH. 'Tis alſo held a Semi-vowel; as forming a kind of imperfect Sound without the Aſſiſtance of any Vowel. Some of the Ancients avoided all Uſe of the S very ſtudiouſly; particularly *Pindar*, who ſcarce has it once in all his Verſes. And hence alſo in *Plautus*, and ſome others of the *Latin* Poets, we find it cut abruptly off, as in *dignu'*, *omnibu'*, &c. Others, on the contrary, affected the Uſe of it every where, inſerting it where 'twas not wanted; as *Caſmenæ* for *Camenæ*, *duſmoſæ* for *dumoſæ*, *cæſna* for *cæna*, &c. Of all others, 'tis the neareſt a-kin to the *r*; whence it was frequently changed, by reaſon of its diſagreeable Sound, into *r*. Thus the *Valerii*, *Furii*, &c. were at firſt call'd *Valeſii*, *Fuſii*, &c. and what we now call *ara*, *arena*, *carmen*, *feriæ*, *lares*, &c. were anciently wrote *aſa*, *aſena*, *caſmen*, *feſiæ*, *laſes*. Add to this, that the Latin Nouns now terminated in *or*, as *arbor*, *labor*, &c. anciently ended in *s*, as *arbos*, *labos*, &c. In the Inflections, 'tis variouſly changed: Sometimes into *rs*, as *fios*, *floris*, ſometimes into *n*, as *ſanguis ſanguinis*, ſometimes into *d*, as *pes pedis*; ſometimes into *t*, as *Nepos Nepotis*. On the contrary, in Verbs, 'tis frequently put for other Letters, for *b*, as in *jubeo juſſi*; for *c*, as in *parco parſi*; for *d*, as in *ludo luſi*; for *g*, as in *ſpargo ſparſi*, &c. The *Latins* frequently changed the *Greek s* into *l*, as Αννίβας *Annibal*; into *d*, as μεσσον *medium*, &c. The double *s* was frequently changed into *x*, as πισσα *pix*; and ſometimes even the ſingle one, as Αιας *Ajax*. The old and the new Orthography of the *French*, differ chiefly on the Uſe of the *s*; the latter omitting it in writing where 'tis not heard in the Pronunciation, and the former retaining it; thus the Followers of the one, particularly the Academy in their Dictionary, write *tempeſte*, *huiſtre*, *fluſte*; thoſe of the other, *tempête*, *huître*, *flûte*, &c.

The S was a Numerical Letter among the Ancients, ſignifying Seven: according to the Verſe,

S Verò ſeptenos numeratos ſignificabit.

In Books of Navigation, &c. S. ſignifies *South*, S. E. *South-Eaſt*, S. W. *South-Weſt*, S. S. E. *South South-Eaſt*, &c. *See* WIND. S. A. is frequently uſed in Medicinal Preſcription as an Abbrevation of *Secundum Artem*, According to the Rules of Art. Sometimes it alſo ſtands for *Socius*, Fellow, Member, and ſometimes for *Societas*, as R. S. S. *Regiæ Societatis Socius*, Fellow of the Royal Society.

SABÆANS, a Sect of Idolaters, much ancienter than *Moſes* and the *Jewiſh* Law, call'd alſo *Sabians*, *Sabaites*, *Zabæans*, *Tſabæans*, &c. See SABAISM. The *Sabæans* were very numerous throughout the Eaſt. In later Times they have mixed ſomething of Chriſtianity with their Superſtition. They ſet a great Value on the Baptiſm of St. *John*; whence they have been alſo denominated *Chriſtians of St.* John. Some, indeed, doubt whether the *Sabæans* be the ſame with the Chriſtians of St. *John*; but *Father Angelo de St. Joſeph*, a *Carmelite* Miſſionary, and *Maraci*, in his Notes on the *Alcoran*, aſſert it expreſly. Be this as it will, *Mahomet*, in his *Alcoran*, and the *Arabian* Authors ſince him, make frequent mention of them. *Beidavius*, in his Comment on the *Alcoran*, makes them a kind of Mean between the Chriſtians and the Maguſians, who are the Followers of the Magi, among the *Perſians*. He adds, That they pretend to be of the Religion of *Noah*, and *Keſſæus*: That they pretend to be in Poſſeſſion of the Books of *Seth* and *Enoch*; though they own none of the Books of Scripture. Some charge them with worſhipping the Stars, and others the Angels, or *Demons*. *Maimonides* attributes both to them; as is obſerved under the Article *Sabaiſm*.

Abu Joſeph Aſcheus, and *Keſſæus* place the *Sabæans* about *Charan*, or *Charres*, and *Ghezira* in *Meſopotamia*; which Opinion is confirmed by this that their Books are in the *Chaldee* Tongue, tho' in a Character very different from the *Chaldee*. *Hottinger* ſets aſide the common Derivation of *Sabæan* from צבא *Militia*, *Hoſt*; and will not have it the Name of a Sect of Religion, but of a People in *Arabia Felix*, the Deſcendants of *Saba*, Grand-ſon of *Cham*. But the Criticks, to a Man, conſpire againſt this Opinion.

SABAISM, a Kind of Idolatry very ancient; the firſt that ever entered into the World. *Sabaiſm* conſiſted in the Worſhip and Adoration of the Stars, as the Scriptures call צבא שמים *Tſeba Schamaim*, or *Seba Schamaim*, Hoſt or Militia of the Heavens; whence ſome of the Moderns have formed the Word *Sabaiſm* for the Worſhip of the heavenly Bodies, and *Sabæans* for the Worſhippers. But as the *Hebrew* Word, whence theſe are form'd, is wrote with [illegible] *Tzade*, which ſome expreſs in the modern Tongues by an *s*, ſome by a *z*, others by *ts*, and others by *tz*; hence ariſes a great many different Manners of writing the Word, among different Authors. Some writing it *Sabæans*, others *Zabiens*, or *Zabæans*, or *Zabæiſts*, as *Buxtorf*; others *Tſabians*, and others *Tſabæans*. *Maimonides* makes frequent mention of this Idolatry in his *More Nebuikin*: 'twas very general, he obſerves, in the Time of *Moſes*. The Retainers hereto taught, That God was the Spirit of the Sphere, that is the Soul of the World; *Abraham*, he adds, was brought up in the Doctrine of the *Sabæans*, who admitted no other Gods but the Stars, and who in their Books, many of which have been tranſlated into *Arabic*, maintain expreſly, That the fixed Stars and Planets, are inferior Gods, and the Sun and Moon the ſuperior ones. *Abraham* at length, he tells us, oppoſing theſe Errors, firſt aſſerted the Exiſtence of a Creator diſtinct from the Sun. The King of the *Cuthæans* clapt him up in Priſon; but he ſtill perſiſting, that Prince, from an Apprehenſion of his diſturbing the State by teaching a new Religion, confiſcated his Goods, and baniſhed him to the Extremities of the Eaſt. This Relation, he tells us, is found in a Book intitled, חעכוקיה חנכשיה, *The Religion of the* Nabathæans. And adds further, That the *Sabæans*, to the Adoration of the Stars, joined a great Reſpect for Agriculture; ſet a great Value on Cattle and Sheep; and taught, That it was unlawful to kill them. He even adds, That they worſhipp'd *Demons*, under the Form of Goats, and eat the Blood of Animals, (tho' they judged it unclean,) merely becauſe they imagined it was the Food of *Demons*. This is an Abridgment of what that *Rabbin* gives us of *Sabaiſm*; from whence, 'tis eaſy judging of what ſome People tell us, that *Sabaiſm* is a Mixture of *Judaiſm*, *Chriſtianity*, *Mahometaniſm*, and *Paganiſm*. The Truth is, The Worſhip of the Stars was eſtabliſhed long before not only Chriſtianity, but even before the Law of *Moſes*. Indeed ſome of the latter *Sabæans* have given into ſome Articles of almoſt all Religions. See SABÆANS.

SABATHIANS, a Sect of Hereticks thus called from *Sabathius*, their Leader, who lived under *Diocleſian*, was firſt a *Jew*, then converted, and made a Prieſt by *Marcian*; but afterwards left the Sect of *Marcianites*, on Account of the Celebration of *Eaſter*, which he would have on the Fourteenth Day of the Moon; whence he, and his Adherents were called *Quartodecimans*: Which ſee. The *Sabathians* are recorded by Eccleſiaſtical Hiſtorians, as having a great Abhorrence of the Left-hand; ſo as to make it a Point of Religion, not to receive any Thing therewith. This Cuſtom, which is now become a Piece of Manners among us, was then eſteemed ſo ſingular, that the *Sabathians* were thence denominated *Ariſteri*, *q. d. Siniſtri*; left-handed.

SABBATARIANS, a Sect of Anabaptiſts, in the XVIth Century; thus called, becauſe they held the *Jewiſh* or *Saturday*-Sabbath; from a Perſuaſion that it was never abrogated in the New Teſtament by the Inſtitution of any other. See ANABAPTIST.

SABBATH, the Seventh Day of the Week, held as a Feaſt among the *Jews*, in Memory of God's reſting on the Seventh Day of the Creation. See WEEK. The Word is pure *Hebrew*, and ſignifies *Ceſſation* or *Reſt*. *Philo* calls it, Τȣ κοσμȣ γενεσιον, The World's Birth-day. 'Twas appointed from the Beginning by God himſelf, *Gen.* ii. 2, 3. and by him ſet apart for the Commemoration of the great Work of the Creation; and when it had fallen into Neglect after the Flood, was re-eſtabliſhed by him, upon his ſettling the *Jewiſh* Polity after the Return out of *Egypt*. The Chriſtians alſo apply it, by Extenſion, to the firſt Day of the Week, popularly called *Sunday*, or *Lord's-Day*; as inſtituted by the Apoſtles to take Place of the *Jewiſh Sabbath*, and by us obſerved in Remembrance, not of the Creation, but of the Work of Redemption, being compleated by our Saviour's Reſurrection on that Day. The *Jews* had alſo their *Sabatick-Year*, which was every Seventh Year; Wherein they were obliged to ſet their Slaves at Liberty, and to let their Lands lie idle.

Thoſe who diſpute the Divine Appointment of a Chriſtian *Sabbath*, yet allow the Moral Neceſſity thereof, as a wiſe Deſignation of Time for the recruiting of our Bodies, and at the ſame Time, keeping up a Senſe of the great

Benefits we have received from God, and a ſpiritual Temper of Mind. By allowing Six Days to labour, the Poor hath Time to earn his Bread, and the Man of Buſineſs Time to diſpatch his Affairs. Had more Time been allotted to Labour and Buſineſs, and none to Reſt; our Bodies would have been too much fatigued and waſted, and our Minds too long engaged about worldly Matters, ſo as to have forgotten Divine Things. Greedy People, without ſuch an Injunction, would ſcarce have favoured their own Bodies, much leſs their Servants, Slaves, Cattle, *&c.* The Creation therefore would have ſuffered, had it not been provided for by the Inſtitution of a *Sabbath.* See SUNDAY.

SABBATH, is alſo uſed for a nocturnal Aſſembly Witches are ſuppoſed to hold on *Saturdays*, where the Devil appears in Form of a Goat, around whom they make ſeveral Dances, and magick Ceremonies, amply deſcribed in their Books of *Demonomania*. To prepare themſelves for this Meeting, they take certain ſoporific Drugs; after which they are fancied to fly up the Chimney, and to be ſpirited through the Air to the *Sabbath* on a Switch.

SABBATH-*days-journey*, is fixed by the Criticks, to a Space of 729 *Engliſh* Paces and 3 Feet; or of 2000 Cubits, or 3648 Feet. See MEASURE.

SABELLIANS, a Sect of ancient Hereticks in the Eaſt, who reduced the Three Perſons in the Trinity, to Three States or Relations; or rather reduced the whole Trinity to the One Perſon of the Father; making the Word and the Holy Spirit to be Virtues, Emanations, or Functions thereof. *Sabellius*, their Chief, firſt broached this Doctrine, in the Third Century, in a City of *Lybia*, called *Ptolemais.* He taught, That he, who in Heaven is the *Father* of all Things, deſcended into the Virgin, became a Child, and was born of her as a *Son*; and that having accompliſhed the Myſtery of our Salvation, he diffuſed himſelf on the Apoſtles, in Tongues of Fire; and was then denominated the *Holy Ghoſt. Epiphanius* tells us, That the God of the *Sabellians*, whom they called the *Father*, reſembled the *Sun*, and was a mere *Subſtratum*; whereof the *Son* was the illuminative Virtue or Quality, and the Holy Spirit the warming Virtue. The *Word*, they taught, was darted, like a Divine Ray, to accompliſh the Work of Redemption; and that, being re-aſcended to Heaven, as the Ray returns to its Source, the Warmth of the Father was communicated, after a like Manner, to the Apoſtles. The Council of *Antioch*, held by the *Euſebians* in 345, tells us, That, at *Rome*, they were called *Patripaſſians*, who, in the Eaſt, were called *Sabellians.* See PATRIPASSIAN.

SABLE, in Heraldry, a black Colour, in the Arms of Gentlemen; In thoſe of Nobility, it is called *Diamond*; and in the Coats of Sovereign Princes, *Saturn*. It is expreſſed in Engraving by Strokes drawn perpendicularly acroſs each other, as in the adjoyning Figure. The Name is borrowed from the little Animal called *Sable*, becauſe of its black Colour.

SABRE, a Kind of Cutting-ſword, or Cimetarre, having a very broad, heavy Blade; thick at the Back, and a little crooked towards the Point. See SWORD. The *Turks* are very expert in the Uſe of the *Sabre*, which is the Weapon they ordinarily wear by their Side, *&c.* With this, 'tis ſaid, they'll cleave a Man quite down, at a ſingle Stroke. The Word is formed from the *German Sabel*, of the *Sclavonic Sabla Cuttelas.*

SAC, or *Sacha*, in Law, a royal Privilege which a Lord of a Manor claims to have in his Court, of holding Plea in Cauſes of Debate ariſing among his Tenants and Vaſſals, and of impoſing and levying Fines and Amercements touching the ſame. *Raſtal* and ſome others, define *Sac* to be a Forfeiture or Amercement itſelf, pay'd him who denies that which is proved againſt him, to be true, or affirms that to be true which is not ſo. The Word is *Saxon*, and literally ſignifies, Cauſe, Conteſt, *&c.*

SACÆA, in Antiquity, a Feaſt which the ancient *Babylonians*, and other *Orientals*, held annually in Honour of the God *Anaitides*. The *Sacæa* were in the Eaſt what the *Saturnalia* were at *Rome*, *viz.* a Feaſt for the Slaves. One of the Ceremonies hereof, was to chuſe a Priſoner condemned to Death, and allow him all the Pleaſures and Gratifications he would wiſh, e'er he were carried to Execution. See SATURNALIA.

SACCADE, in the Manage, a violent Check the Cavalier gives his Horſe, by drawing both the Reins very ſuddenly; uſed when the Horſe bears too heavy on the Hand. The *Saccade* is a kind of Correction rarely to be uſed; for fear of ſpoiling the Horſe's Mouth.

SACCHARUM. See SUGAR.

SACCOPHORI, a Sect of ancient Hereticks, thus called from the *Greek*, σακκος a Sack, and φερω I bear, becauſe they cloathed themſelves continually in Sackcloth, and affected a world of Auſterity and Penance. We know but little of their Tenets: In all Probability they were the ſame with the *Maſſalians*; Which ſee. The Emperor *Theodoſius*, made a Law againſt the *Saccophori* and *Manichees.*

SACCO BENEDITTO, or *Sac-beni*, a Kind of linnen Garment given to Perſons condemned by the Inquiſition, to be wore at their Execution. 'Tis in Form of a Scapulary, of a yellow Colour, with two Croſſes on it; and painted over with Devils and Flames. The *Latins* call it *Habitello*, and the *Spaniards, Sacribenito*, and *Zamaretta.* 'Twas likewiſe in Uſe for public Penitents in the primitive Church, and called alſo *Samarra, Sau benito*, &c.

SACCULUS, a Diminutive of *Saccus*, a Bag; uſed in Anatomy, to expreſs ſeveral Parts of the Body, bearing ſome Reſemblance thereto; as *Sacculus Chyliferus*, or *Roriferus*, a Paſſage which makes the beginning of the *Thoracic Duct.* See THORAX.

SACCULUS *Cordis*, the *Pericardium*. Which ſee.

SACCULUS *Lacrymalis*, a little membranous Bag, into which the *Puncta Lacrymalia* of the Eye open; and which is, itſelf, the Entrance of a Canal, by which the Liquor ſeparated in the *Glandula Lacrymalis*, is diſcharged into the Cavity of the Noſe. 'Tis the Ulceration of this *Saccus*, that makes the *Fiſtula Lacrymalis.* See FISTULA.

SACCULI *Adipoſi*, little Cells or Veſicles, in the *Membrana adipoſa*, wherein the Fat of the Body is contained. See FAT.

SACCULUS *Medicinalis*, a topical Medicine, applied to ſome painful Part; conſiſting of Herbs or Drugs incloſed in a Linnen Bag.

SACCULI *Medicinales*, are alſo Bags of Ingredients, ſuſpended in Liquors, in making Diet-drinks.

SACER, in Anatomy, a Muſcle ariſing from the Hind-Part of the *Os Sacrum*, and running along under the *Longiſſimus Dorſi.* With its ſeveral Tendons, it lays hold on the Spine, and every Tranſverſe Proceſs of the Loins, and the loweſt of the Back. It aſſiſts in erecting the Trunk. See MUSCLE.

SACER *Ignis*, } See { HERPES *Exedens.*
SACER *Morbus*, } See { EPILEPSY.

SACERDOTAL, ſomething belonging to the Prieſthood. See PRIEST. *Sacerdotal* Benefices are ſuch as cann't be legally held by any but Perſons in Holy Orders: ſuch are all Cures of Souls, Biſhopricks, *&c.* The *ſacerdotal* Ornaments, are thoſe wherewith the Prieſts are cloathed, when they officiate, *&c.* The Word is formed from the *Latin*, *Sacerdos* Prieſt, of *Sacer* Holy.

SACK OF WOOL, is a determinate Quantity, containing juſt 26 Stone, and every Stone is 14 Pounds, by 14 *E.* 3. Stat. 1. c. 2. But in *Scotland*, a *Sack* is 24 Stone, and each Stone contains 16 Pounds. A *Sack of Cotton Wool*, is a Quantity from an hundred and half to 400 Weight. See WOOL.

SACKS *of Earth*, uſed in Fortification, are large Bags full of Earth, made of coarſe Cloth, the largeſt of about a Cubick-foot wide, and the leſſer ſomewhat more than half a Foot. They are uſed on ſeveral Occaſions; particularly for making Retrenchments in haſte, to place on Parapets, or the Head of the Breaches, *&c.* or to repair them when beaten down. They are of good Uſe alſo, when the Ground is rocky, and affords not Earth to carry on the Approaches, becauſe they can eaſily be brought on, and carried off; the ſame Bags, on Occaſion, are uſed to carry Powder in, of which, they hold about Fifty Pounds a piece.

SACKBUT, a muſical Inſtrument of the Wind Kind; being a kind of Trumpet, tho' different from the common Trumpet both in Form and Size. 'Tis very fit to play Baſs, and is contrived ſo as to be drawn out or ſhorten'd according to the Gravity or Acuteneſs of the Tones. The *Italians* call it *Trombone*, the *Latins*, *Tuba Ductilis.* It takes aſunder into Four Pieces, or Branches; and hath frequently a Wreath in the middle; which is the ſame Tube, only twiſted twice, or making two Circles in the middle of the Inſtrument; by which Means, it is brought down one fourth lower than its natural Tone. It has alſo two Pieces or Branches on the Inſide, which don't appear, except when drawn out by means of an Iron Bar, and which, lengthen it to the Degree requiſite to hit the Tone required. The *Sackbut* is uſually Eight Foot long, without being drawn out, or without reckoning the Circles. When extended to its full Length, 'tis uſually Fifteen Foot. The Wreath is Two Foot Nine Inches in Circumference. It ſerves as Baſs in all Conſorts of Wind Muſic.

There are *Sackbuts* of different Sizes, ſerving to execute different Parts; particularly a ſmall one, called by the *Italians*, *Trombone picciolo*, and the *Germans*, *Cleine* *alt-poſaune*, proper for a Counter-Tenor. The Part aſſigned it, is uſually called *Trombone primo*, or I°. There is another larger, called *Trombone maggiore*, which may ſerve as a Tenor: Its Part is uſually called *Trombone ſecondo*, or II°. or 2°. There is a third ſtill bigger, called *Trombone groſſo*; its Part is called *Trombone terzo*, or III°. or 3°. Laſtly, there is another which exceeds all the reſt, and which is much heard in the Muſic, eſpecially in the Baſs; its Part is called *Trombone quarto*, or IV°. or 4to. or ſimply *Trombone*. It has uſually the Key of *Fa*, *ut fa* on the fourth Line; tho' frequently alſo on the fifth Line from the Top, by Reaſon of the Gravity or Depth of the Sounds.

SACRAMENT, in Theology, is defined, in the general, A Sign of a holy or ſacred Thing. In which Senſe, the Word includes both the Sacraments of the Law of Nature, as ſound Morality, the Manner of offering the Bread and Wine practiſed by *Melchiſedech*, &c. and thoſe of the Law of *Moſes*, as the *Circumciſion*, the *Paſchal Lamb*, *Purifications*, *Order of Prieſthood*, &c. But with Regard to the Chriſtian Church *Sacrament* is defined, A viſible Sign of a ſpiritual Grace annexed to the Uſe thereof. There are Two Objects in a *Sacrament*; the one a material Sign, the Object of the Senſes; the other the Thing ſignified, which is the Object of Faith. Thus it has pleaſed God to give a Body or Subſtance to ſpiritual Myſteries, that our Faith might have the Aſſiſtance of ſenſible Signs. The *Roman Catholicks* own Seven *Sacraments*, viz. *Baptiſm*, *Confirmation*, the *Euchariſt*, *Penance*, *Extreme Unction*, *Ordination* and *Marriage*. See each under its proper Article. The *Proteſtants* admit of only Two, *viz.* *Baptiſm* and the *Euchariſt*.

The *Romaniſts*, however, call the *Euchariſt*, by way of Eminence, *H. Sacrament*, the *Holy Sacrament*. Thus to expoſe the *H. Sacrament*, is to lay a conſecrated Hoſt on the Altar to be adored. The Proceſſion of the *H Sacrament*, that wherein 'tis carried about the Church, or the Town. See PROCESSION. The *Feaſt of the H. Sacrament*; the *Congregation of the Sacrament*, &c.

The Word is formed from the *Latin*, *Sacramentum*, which ſignified an *Oath*, particularly that which the Soldiers took to be true to their Commanders. The Words whereof, according to *Polybius*, were, *Obtemperaturus ſum & facturus quicquid mandabitur ab Imperatoribus, juxta Vires.*

SACRAMENT, was alſo uſed in the *Roman* Law, for a Pledge or Gage of Money, which both the Plaintiff and Defendant, in any real Action, laid down in Court, to be forfeited by him who ſhould loſe the Cauſe.

SACRAMENTARIANS, a general Name given to all ſuch as have publiſhed, or held erroneous Doctrines of the *Sacrament* of the Supper. The Term is chiefly applied by the *Roman Catholicks*, by Way of Reproach, to the *Lutherans*, *Calviniſts*, and other *Proteſtants*. --- *Sacramentarium*, was an antient Church-Book, comprehending all the Prayers and Ceremonies practiſed at the Celebration of the *Sacraments*. Pope *Gelaſius* was the firſt Author of the *Sacramentarium*. It was afterwards reviſed, corrected and abridged by St. *Gregory*. It was the ſame with what the *Greeks* now call *Euchology*; Which ſee.

SACRED, ſomething *holy*, or, that is ſolemnly offered, and conſecrated to God with Ceremonies, Benedictions, Unctions, *&c.* See CONSECRATION. Kings, Prelates, and Prieſts are held *ſacred Perſons*, Abbots are only *bleſſed*. The Deaconhood, Sub deaconhood, and Prieſthood, are *ſacred Orders*, and impreſs a *ſacred*, indelible Character. The Cuſtom of *conſecrating* Kings with Holy Oil, is derived, according to *Guthingius*, from the *Hebrews*; among whom, he agrees with *Grotius*, it was never uſed but to Kings who had not an evident Right by Succeſſion. He adds, That the Chriſtian Emperors never uſed it before *Juſtin* the younger; from whom he takes it to have paſſed to the *Goths*, &c.

SACRED, is alſo applied to Things belonging to God and the Church: Church Lands, Ornaments, *&c.* are held *ſacred.* —— The *Sacred College* is that of the Cardinals. See CARDINAL. *Sacred Majeſty*, is applied to the Emperor and the King of *England*; yet *Loueay* ſays 'tis Blaſphemy.

The Ancients held a Place ſtruck with a Thunder-bolt, as a *ſacred* Thing. In the Civil Law, a *Sacred Place* is that, where a Perſon deceaſed, has been interr'd.

SACRIFICE, an Offering made to God on an Altar, by Means of a regular Miniſter, as an Acknowledgement of his Power, and a Payment of Homage. *Sacrifices* differ from mere *Oblations*, in that in a *Sacrifice* there is a real Deſtruction or Change of the Thing offered; whereas an Oblation is only a ſimple Offering or Gift, without any ſuch Change at all. See OBLATION. Divines divide *Sacrifices* into *Bloody*, ſuch as thoſe of the Old Law; and *Bloodleſs*, ſuch as thoſe of the New Law. They divide them again into *Impetratory*, which are thoſe offered, to obtain ſome Favour of God, or to thank him for ſome already received; and *Propitiatory*, which are thoſe offered to obtain Forgiveneſs of Sins.

The *Phœnicians* are uſually held the firſt Authors of *Sacrifices*. *Porphyry*, indeed, attributes the Invention to the *Egyptians*; who, he ſays, firſt offered the Firſt Fruits of their Grounds, to the Gods; burning them upon an Altar of Turfe. At length they came to burn Perfumes, and at laſt ſacrificed Animals; obſerving that they firſt eat ſome Herbs, or Fruits, regularly offered on the Altars. He adds, that [illegible]*ions* were very frequent e'er *Sacrifices* of Beaſts got [illegible]ng. See LIBATION. *Ovid* obſerves, That the very Names *Victim* and *Hoſtia* import, that they were not ſlain, till ſuch Time as Victories were obtained over Enemies. Indeed, while Men lived on Herbs and Pulſe, 'tis no Wonder they abſtained from *Sacrifices* of Beaſts; ſince the Law of Sacrifices required, that they eat ſome Part thereof. In Effect, 'tis ſuppoſed to be this that firſt introduced Fleſh as a Food, and made Man a carnivorous Animal. See CARNIVOROUS. The Truth is, in all Antiquity, both ſacred and profane, *Sacrifices* were ordinarily nothing elſe but Holy Banquets.

The Scriptures furniſh us with a ſomewhat different Account. *Noah* certainly ſacrificed Animals at his coming out of the Ark, and 'tis even ſuggeſted, that *Abel* himſelf ſacrificed the beſt and fatteſt of his Flocks: But *Grotius* ſhews, 'tis much more probable, he contented himſelf with making a mere *Oblation* of his Lambs, *&c.* to God without ſacrificing them.

Macrobius tells us, That the *Egyptians*, long accuſtomed to bloodleſs *Sacrifices*, being at length obliged to admit the Worſhip of *Serapis* and *Saturn*, to whom *Victims* were to be ſacrificed; would not allow their Temples to be built in the Cities. Theſe *Victims*, however, or *bloody Sacrifices*, at length obtained, in Excluſion of almoſt all the reſt. The moſt uſual *Victims* among the Ancients, were Bulls, Oxen, Cows, Sheep and Lambs, in regard theſe were the moſt ordinary Food of Man.

The Manner of *Sacrificing* among the ancient *Hebrews*, is amply deſcribed in the Books of *Moſes*. That in Uſe among the *Romans*, is as follows: In the Choice of the *Victims*, Care was taken it were without Blemiſh or Imperfection, his Tail not too ſmall at the End; the Tongue not black, nor Ears cleft, and the Bulls ſuch as had never been yoked. The *Victim* pitched upon, they gilt his Forehead and Horns, eſpecially if a Bull, Heifer, or Cow. The Head they alſo adorned with a woollen *Infula*, whence hung two Rows of *Chaplets* with twiſted Ribbons; and in the middle of the Body a kind of *Stole*, pretty large, hung down on both Sides: The leſs *Victims* were only adorned with Bundles of Flowers and Garlands, together with white Tufts or Garlands. The *Victims* thus made ready, were brought before the Altar; the leſſer were not led in a String, but driven to the Place; the greater were conducted in an Halter; if they made any Struggle, or refuſed to go, the Reſiſtance was taken for an ill Augury, and the *Sacrifice* ſet aſide. The *Victim* thus brought before the Altar, was examined very circumſpectly, to ſee if there were no Defect in it. Then the Prieſt, being clad in his *ſacerdotal* Habit, and accompanied with the Sacrificers and other Attendants, and being waſhed and purified according to the Ceremonies preſcribed, began the *Sacrifice*, with making a loud Confeſſion of his Unworthineſs, acknowledging himſelf guilty of divers Sins; for which he begged Pardon of the Gods, hoping they would be pleaſed to grant his Requeſts.

Theſe Confeſſions were like thoſe of the *Hebrews*: with this Difference, that the *Pagans* confeſs'd the Frailty of Mankind, and owned their Faults; the *Jews* confeſſed chiefly the Greatneſs of God, accompanying it with Hymns and muſical Inſtruments. The Confeſſion over, the Prieſt cry'd aloud, *Compoſe your ſelves, and mind your* Sacrifice; and preſently an Uſher, holding a Rod in his Hand, called *Commentaculum*, went through the Temple, and made all thoſe withdraw, who were not inſtructed in the Myſteries of Religion, or ſuch as were excommunicated. The Cuſtom of the *Greeks*, from whom the *Romans* borrowed theirs, was, That the Prieſt coming to the Altar, ſhould ask aloud Τίς τῇδε? Who is here? The People anſwered, Πολλοὶ ϗ ἀγαθοί, Many good Perſons: Then the Uſher went through the Temple, crying, Ἐκάς, ἐκάς, ἔστε βέβηλοι; that is, Away with the Wicked. The *Romans* commonly uſed the Words, *Nocentes*, *Profani abſcedite.* All thoſe who were driven out of the Temples among the *Greeks*, were comprehended under theſe general Words, βέβηλοι, ἀμύητοι, ἀκάθαρτοι. The Prophane withdrawn, they cry'd, *Favete linguis*, or *animis*, and *Paſcite linguam*, to require Silence, and Attention during the *Sacrifice*. Theſe Ceremonies ended, the chief Sacrificer being ſet down, and the reſt of them ſtanding, the Magiſtrates or private Perſons, who offered *Sacrifice*, came before him, and preſented him with the Firſt Fruits and *Victim*, and ſometimes made a ſhort Diſcourſe, by Way of Complement; as we find *Homer* makes *Ulyſſes* do, when he preſented the High-Prieſt with *Iphigenia* to be ſacrificed. As any Perſon came to preſent his Offering, he waſhed his Hands in a Place appointed in the Temple for that Purpoſe. Laſtly, when the Offering was made, the Prieſt that officiated, perfumed the *Victims* with Incenſe, and ſprinkled them with luſtral Water; and having waſhed his Hands, and got up again to the Altar, he prayed to the God to whom he preſented the *Sacrifice*, with a loud Voice, That he would accept of thoſe Offerings, and be pleaſed with the *Victims* he ſacrificed to him for the publick Good, and for ſuch and ſuch Things in particular. In the Cloſe of the Offertory and Prayer, made by the Prieſt to the Gods, he came down the Steps of the Altar, and from the Hand of one of his Aſſiſtants, received the Sacred Paſte, called *Mola ſalſa*, made of Barley or Wheat Flower, mixed with Salt and Water, which he threw upon the Head of the *Victim*, ſprinkling a little Wine upon it, which was called *Immolatio*. *Servius* ſays, The Prieſt ſcattered little bits of this Paſte upon the Head of the *Victim*, the Altar, where the ſacred Fire burned, and the Knives, by Way of Conſecration. He then took Wine in a Veſſel called *Simpulum*, and having taſted it himſelf firſt, and made his Aſſiſtants do all the ſame, to ſhew that they partook of the *Sacrifice*, he poured it between the Horns of the *Victim*, pronouncing theſe Words of the Conſecration, *Mactus hoc vino inferis eſto*; Let this *Victim* be improved and honoured by this Wine. This done, he pulled off the Hairs from between the Horns, and threw them into the Fire; and commanded the Sacrificer, (who asked him, *Agon'* Shall I ſtrike?) To knock down the *Victim* with a Blow on the Head with an Hammer or Ax; upon which, another Aſſiſtant, named *Popa*, preſently thruſt a Knife into his Throat, whilſt a third received the Blood, wherewith the Prieſt ſprinkled the Altar.

When the *Victim* was ſlain, they flead him, if it was not a Burnt Offering; (for then they burn'd Skin and all,) took the Fleſh off the Head, and adorning it with Garlands and Flowers, faſtened it to Pillars of the Temples, as well as the Skins, as Enſigns of Religion, carrying them about in Proceſſion in publick Calamities; not but that the Prieſts oft wore the Skins, and others went to ſleep upon them in the Temples of *Æſculapius* and *Faunus*, that they might receive favourable Reſponſes in their Dreams, or be cured of their Maladies. They then opened the *Victim*'s Entrails, and after circumſpectly viewing them, to draw Preſages therefrom, according to the Art of the *Aruſpices*, they flowered them with Meal, and ſprinkled them with Wine, and made a Preſent of them to the Gods, *reddebant exta Diis*, by throwing them into the Fire in ſmall bits, boiled or parboiled; and hence the Entrails were called *Porricæ*. The Entrails being burned, and the other Ceremonies finiſhed, they believed the Gods to be ſatisfied; and that they could not fail to find their Vows accompliſhed, which they expreſſed by the Word *Litare*, *q. d.* All is finiſhed, and well done; whereas *Non Litare*, on the contrary, intimated there was ſomething wanting for the Perfection of the *Sacrifice*, and that the Gods were not appeaſed. The Prieſt afterwards diſmiſſed the People with theſe Words, *I licet*. Hence it may be obſerved, that the *Sacrifices* conſiſted of four principal Parts, the firſt called *Libatio*, or the pouring a little Wine upon the *Victim*; the ſecond *Immolatio*, when, after they had ſcattered the Crumbs of ſalted Paſte thereon, they killed it; the third *Redditio*, when they offered the Entrails to the Gods; and the fourth *Litatio*, when the *Sacrifice* was perfected, and accompliſhed without any Fault.

SACRILEGE, the Crime of profaning ſacred Things, or Things devoted to God, or alienating to Laymen, or common Purpoſes, what was given to Religious Perſons, and pious Uſes. Our Fore-fathers were very tender in this Caſe; and therefore, when the Order of the Knights Templers was diſſolved, their Lands, &c. were all given to the Knights Hoſpitallers of *Jeruſalem*, for this Reaſon, *Ne in pios uſus erogata, contra donatorum voluntatem, in alios uſus diſtraherentur.*

SACRISTAN, a Church Officer, otherwiſe called *Sexton*. See Sexton.

SACRISTY, or *Sextry*, the Place where the Veſſels and other Utenſils, and the Ornaments of the Church, were anciently preſerved, called alſo in ancient Authors, *Secretarum*. The like with what we call *Veſtry*. See Vestry.

SACROLUMBARIS, or *Sacrolumbus*, in Anatomy, a Muſcle, that ariſeth fleſhy from the ſuperior Part of the *Os Sacrum*, poſterior Part of the *Ilium* and from all the Spines and tranſverſe Proceſſes of the *Vertebræ* of the Loins. It gives a ſmall Tendon to the poſterior Part of each Rib near its Root, where a ſmall Bundle of fleſhy Fibres ariſes and unites with each aſcending Tendon, to the third, fourth, fifth, and ſixth *Vertebræ* of the Neck. This with the *Serratus Poſticus inferior*, and *Triangularis*, help to contract the Ribs in Expiration. But they are but of ſmall Force, and ſeem only to accelerate the Motion of the Ribs, which fall down chiefly by their own Gravity, and the Elaſticity of the Ligaments, by which they are tied to the *Vertebræ*. See Muscle.

SACRUM OS, in Anatomy, is the lower Extremity of the *Spina Dorſi*, being that whereon we ſit. See Os Sacrum and Spina. 'Tis doubted whence this Name ſhould ariſe: Some think 'tis becauſe the Ancients offered it in Sacrifice to the Gods; others, becauſe 'tis very large, and others, becauſe it incloſes the Natural Parts. Its Figure is triangular. 'Tis hollow within-ſide, and by that Means, contributes to the forming of the Cavity at the Bottom of the *Hypogaſtrium*, called the *Pelvis*. Its Forepart is ſmooth, by which Means, the Parts it contains are ſecured from being wounded: Its Hind-part rough, that the Muſcles may faſten the better to it. It has Three different *Articulations*. The firſt is with the laſt of the *Vertebræ* of the Loins, and is like that of the other *Vertebræ*. The ſecond, with the *Os Coccigis*, by *Synchondroſis*: The third, with the Bones of the Hips. The *Os Sacrum* is uſually divided into five Parts, which are ranked among the Number of *Vertebræ*. The higheſt is the greateſt; the reſt growing leſs as they go lower. Theſe *Vertebræ* are eaſily ſeparated in Children, by Reaſon the *Cartilages* which joyn them, are not yet *oſſified*. But in Adults, they are ſo firm, that they only make one Bone. 'Tis in the *Os Sacrum*, that the Cavity which contains the Spinal Marrow, terminates. See Vertebræ. —— *Sacra Vena* is a Vein ariſing from the *Os Sacrum*, and terminating, uſually in the *Iliac* Vein; ſometimes in the Place where the two *Iliacs* meet with the aſcending *Aorta*. —— *Arterica Sacra*, is a Branch of the *Iliacus Internus*. See Vein, &c.

SADDLE, in the Manage, a Kind of ſtuffed Seat, laid on the Back of a Horſe for the Convenience of the Rider. The Origin of the *Saddle* is not well known. *Gorop. Becanus* attributes its Invention to the *Salii*, a People among the ancient *Franks*; and hence, ſays he, came the *Latin Sella*, *Saddle*. 'Tis certain, the ancient *Romans* were unacquainted with the Uſe either of *Saddle* or *Stirrups*: Whence *Galen* obſerves, in ſeveral Places, that the *Roman* Cavalry, in his Time, were ſubject to ſeveral Diſeaſes of the Hips and Legs, for want of having their Feet ſuſtained on Horſe-back. And long before him, *Hippocrates* had obſerved, that the *Scythians*, who were much on Horſe-back, were troubled with Defluxions in their Legs, becauſe of their hanging down. The firſt Time we hear of *Saddles* among the *Romans*, was *Anno.* 340; when *Conſtans*, endeavouring to deprive his Brother *Conſtantine* of the Empire, made Head againſt his Army, and entring the Squadron where he himſelf was, threw him off his *Saddle*, as we are informed by the Hiſtorian *Zonaras*. Before, they made Uſe of ſquare Pannels; ſuch as we ſee in the Statue of *Antoninus* in the Capitol. The Uſe of *Saddles* was firſt eſtabliſhed in *England*, by a Law of *Henry* VII. whereby the Nobility were obliged to ride on *Saddles*. 'Tis but very lately that the *Iriſh* have taken to it.

There are various Kinds of *Saddles*; as the *running Saddle*, a very ſmall one, with round Skirts. The *Burford Saddle*, which has the Seat and Skirts plain. The *Pad Saddle*, of which there are two Kinds, the one made with Burrs before the Seat, the other with Bolſters under the Thighs. The *French Pad-ſaddle*, the Burrs whereof, came all round the Seat. *Portmantua Saddle* furniſhed with a Cantle behind the Seat, to keep a Carriage off the Rider's Back. *War Saddle*, furniſhed with a Cantle, &c. Bolſter both behind and before.

Saddle-*gall'd*, is when a Horſe's Back is hurt or fretted with the *Saddle*; 'tis cured by bathing the Part with Urine, or warm Wine. When the Sore is large, 'tis cured by *Aqua Secunda*, ſtrewing over it the Powder of an old Rope or Flax, and conſuming the Proud-fleſh with *Vitriol* or *Colcothar*.

SADUCEES, a Sect among the ancient *Jews*, eſteemed as Deiſts, or Free-Thinkers, rather than real *Jews*; tho' they aſſiſted at all the Ceremonies of the Worſhip in the Temple. St. *Epiphanius* will have them to have taken their Riſe from *Doſitheus*, a *Samaritan* Sectary; and *Tertullian* is of the ſame Opinion. St. *Jerom*, and other Writers add, That the *Saducees* came near the *Samaritans* in many Things; particularly in this, that they allowed no Books of Scripture, but the five Books of *Moſes*. The Jeſuit *Serrarius*, has alſo embraced this Opinion; as ſeeming to be ſupported by the Authority of *Joſephus*. But all *Joſephus* ſays, is, That they admitted all that was written, *i. e.* all the Books of Scripture; intimating by that, they diſowned the unwritten Traditions of the *Phariſees*; and, in Effect, St. *Epiphanius* is forced to own, that the *Saducees* were *Jews*; inaſmuch, as they aſſiſted at the Worſhip and Sacrifices of the Temple at *Jeruſalem*: Whereas the *Samaritans* ſacrificed on *Mount Gerizaim.* See SAMARITANS.

Some Authors aſcribe the Original of this Sect, to one *Sadoc*, a Diſciple of *Antigonus Sochæus*, who frequently inculcated it on his Scholars, That God is to be ſerved for himſelf, and not out of View to any Reward to be received from him in the next World, as Slaves ſerve their Maſters merely for Recompence. *Sadoc*, add they, putting a falſe Interpretation on theſe Words of his Maſter, publiſhed, That there was no Reward to befall good Actions done in this World. And hence aroſe the Sect of *Saducees*, thus denominated from their Leader *Sadoc.* St. *Epiphanius*, and ſome modern Writers after him, take the *Saducees* to have been thus called from the *Hebrew*, *Sadic* Juſt, or *Sedec* Juſtice, in Regard of the great Juſtice they ſhewed in all their Actions.

'Tis obſerv'd, *Acts* xxiii. 8. that the *Saducees* ſay, There is no Reſurrection, neither any Angel or Spirit; but that the *Phariſees* believe both the one and the other. Theſe Words, *The one and the other*, ſeem to inſinuate, That Angel and Spirit are one and the ſame Thing. But as the Apoſtles, obſerves *Oecumenius* on that Paſſage, don't always uſe the exacteſt Terms, one may underſtand by *Spirit*, all ſpiritual Subſtances; as if the *Saducees* had believed that God himſelf was a Body. This, however, is not *Oecumenius*'s Opinion.* He asks, Why the Scripture ſays, *The one and the other*, tho' it ſpoke of Three Things, *Reſurrection*, *Angel*, and *Spirit*? And he anſwers, That 'tis either becauſe *Angel* and *Spirit* are the ſame thing; or that *one and the other*, which is only properly underſtood of Two Things, is, perhaps, here ſpoke of Three: Exact Propriety of Words not being to be required in Books wrote by ſimple illiterate Fiſhermen. 'Tis true, in explaining what goes before, he obſerves, That the *Saducees*, being very ignorant, might poſſibly disbelieve the Exiſtence of a God, and on that Account, might be repreſented as denying a Reſurrection, &c. But he does not ſay, that by Spirit, they might mean all ſpiritual Subſtance. 'Tis probable, all meant by it, is the Immortality of the Soul; it being the Opinion of the *Saducees*, That there is nothing immortal in Man. 'Tis certain, they denied all Reſurrection, and allowed of no Happineſs but what is enjoyed in this Life; believing, that every Thing told of the other World, had been invented by the *Phariſees.* Hence, alſo, they denied a Divine Providence, and attributed all Things to Free-Will; in which, they oppoſed the Opinion of the *Phariſees*, who admitted a kind of Deſtiny or Fatality in all our Actions. See PHARISEES.

SÆPHÆNA, in Anatomy, a Vein, which ariſing over the *Maleolus internus*, up along the Leg, and the Inner Part of the Thigh, diſcharges itſelf near the Groin, into the *Crural* Vein. 'Tis this Vein they uſually open when they bleed in the Foot. It has its Name probably from σαφὴς, *Manifeſtus*, as lying plain in Sight.

SAFE-CONDUCT, a Security given by the Prince under his Great Seal, to a Stranger for his quiet coming in and paſſing out of the Realm. The *Safe-Conduct* is granted to Enemies, the Paſſport to Friends. Judges ſometimes give *Safe-Conducts* to Delinquents, or Priſoners, to enable them to act in their Affairs.

SAFE-GUARD, *Salva guardia*, a Protection given by the King to a Perſon fearing the Violence of ſome other Perſon, for ſeeking his Right by Courſe of Law.

SAFE-GUARD, at Sea, is a Rope which ſaves and ſecures any Thing: For Inſtance, that whereby Perſons walk ſecurely over the Bolt-ſprit. The *Safe-guard of the Helm*, is a Rope which goes through the Helm, and is faſtened to the Buttocks of the Ship. See ROPE.

SAFE-PLEDGE, in Law, a Security given for a Man's Appearance againſt a Day aſſigned.

SAFFRON, or *Saffran*, a Plant which produces a Flower of the ſame Name; whence, alſo, a Drug called *Saffron* or *Crocus* is gathered. See CROCUS. The Root which produces the *Saffron*, is a kind of Onion, covered with ſeveral bulbous Cartilages. Its Leaves are long, narrow, thick and ſoft to the Hand. Its Flower, which appears a long Time before the Leaves, is a faint Blue, tinged with a little Yellow at the Extreme towards the Stalk. From the Middle of the Flower ariſe three reddiſh Filaments or Chives, which are properly the *Saffron*; the reſt of the Flower being of no Uſe. Aſſoon as the Flower is gathered, they ſeparate the Chives, and lay them on Hurdles, or in large Sieves, or on a little Kiln for that Purpoſe, with a little Coal-fire underneath to dry them. When dry, the *Saffron* is in its Perfection, and fit for Uſe. 'Tis obſerved, that five Pounds of freſh Chives only make one Pound of dry *Saffron.* The good Qualities of *Saffron* are, That its Chives be long and broad, that they be velveted over with a fine Red, of an agreeable Smell, free of yellow Threads, and very dry. The beſt *Saffron* in *Europe* is that of *England.* That brought from *Spain* is good for nothing; becauſe of the Oil the *Spaniards* mix with it to keep it. 'Tis uſed both in Foods and Medicines, to chear, fortify, and reſolve. 'Tis alſo uſed by Illuminors, to make a golden yellow Colour. The Word is formed from the *Arabic*, *Zapheran*, which ſignifies the ſame Thing.

SAFFRON is alſo a Name given to ſeveral Chymical Preparations, from the Reſemblance of their Colour to that of *Saffron*, but more uſually called *Croci:* Such is *Saffron of Venus.* See COPPER.

SAFFRON *of Mars.* See CROCUS MARTIS. *Saffron of Gold.* See AURUM *Fulminans.*

SAGAPENUM, or *Serapinum*, a Gum whoſe Smell comes very near that of the Pine, whence its Name. It flows by Inciſion, from the Trunk of a ferulaceous Plant growing in *Perſia.* The beſt is in bright tranſparent Tears, of a ſtrong Smell; and the whiter and freer of Dirt, the better. Sometimes 'tis found as white, both within and without Side, as Milk; tho' this is very rare. 'Tis eſteemed operative and purgative, proper in the Epilepſy, Aſthma and Palſy, and is alſo uſed externally to aſſuage Pains, and reſolve Tumors.

SAGATHEE, in Commerce, a ſlight woollen Stuff, being a kind of Serge or Rateen; ſometimes mixed with a little Silk. 'Tis manufactured chiefly at *Amiens*; tho' we have our Share in *England.* The Word is formed from the *French Sayette*, a Diminutive of *Saye*; which ſee. The *French* Name *Sayette*, is derived from that of the Thread uſed herein, which is chiefly prepared and ſpun in *Flanders*, about *Turcoing*, &c. and called *Fil de Sayette.*

SAGE, *Salvia*, a Medicinal Herb of an agreeable, aromatic Taſte; eſteemed an excellent Cephalic of the detergent Kind; and on that Score likewiſe uſed as a Vulnerary and Diuretic. There are ſeveral Kinds of *Sage*; thoſe uſed and cultivated by us are the *Tea-Sage*, or *Sage of Virtue*, the *Red Sage*, and the *Wormwood Sage.* The firſt has the moſt agreeable Flower; and on that Score is cut when young and full of Sap, dried, and kept for Tea. The *Dutch* dry and prepare their *Sage* like other Teas, and carry it to the *Indies* as a very precious Thing. They there find a good Market for it; the *Chineſe* preferring it to the beſt of their *Indian* Teas; and for every Pound of *Sage* Tea, giving, in Exchange, Four Pounds of theirs, which they ſell again very dear in *Europe.* But the Wormwood Sage is eſteemed of the moſt Efficacy in Medicine, and is that alone uſed in the Shops. It makes an excellent Gargariſm, eſpecially if ſharpened with a little Acid. Its Decoction is very grateful and cooling, with the Addition of a little Lemon-juice. 'Tis both detergent and abſorbent, and as ſuch, finds Place in Diet-drinks, and medicated Ales, intended for Sweetners and Cleanſers of the Blood. The School of *Salernum* recommend *Sage* as a Remedy in all Diſeaſes. Hence the Verſe,

Cur moritur homo cui ſalvia creſcit in horto?

Sage, when viewed with a Microſcope, appears covered all over with little Spiders, which are ſeen to walk, &c. about. It yields, by Diſtillation, a very agreeable, aromatic Oil, of ſome Uſe in the Shops.

SAGITTA, in Aſtronomy, the *Arrow*, a Conſtellation of the Northern Hemiſphere. See CONSTELLATION. The Stars in the Conſtellation *Sagitta*, in *Tycho*'s Catalogue, are Five, and as many in *Ptolomy*'s. In Mr. *Flamſtead*'s Catalogue they are Twenty Three; The Longitudes, Latitudes, &c. whereof are as follow.

Stars in the Conſtellation SAGITTA.

Names and Situation of the Stars.	Signs.	Longitude °	′	″	Lat. Nort. °	′	″	Mag.
	♑	20	00	08	43	07	45	6
		20	20	24	43	15	10	6
Informes over *Sagitta*, and preceding it		21	45	45	38	31	25	6
		21	53	27	38	31	18	6
5		22	47	43	41	16	27	6
		23	07	32	41	32	45	6
Preced. Glyphis or Nib tow. S.		24	07	59	41	34	28	6 5
Preced. of three in the Shaft		25	35	50	40	49	26	6
		25	29	42	37	27	09	5
10		26	45	16	38	49	52	4
In the Extremity of the Nib		26	53	23	38	15	17	4
In the middle of the Shaft		29	04	40	38	56	52	4 5
Laſt of three in the Shaft		29	43	47	39	27	05	6
	♒	0	35	41	38	48	23	6
15		1	02	13	36	36	54	6

Names and Situation of the Stars.	Signs.	Longitude			Latitude.			Mag.
		°	′	″	°	′	″	
		1	34	53	36	39	43	6
In the Point of the Arrow		2	42	58	39	13	39	4
In the Triangle under the Point North		2	28	06	37	14	03	6
South		3	00	24	35	35	06	6
Middle and Poſterior		3	33	10	36	35	02	6
20								
Preced. of 3 following the Point		4	46	28	39	18	22	6
Middle		6	29	53	39	52	58	6
Laſt	♒	8	37	48	40	07	17	6

Sagitta, in Botany, ſignifies the Upper Part of any ſmall Twig, Cyon, or Graft of a Tree.

Sagitta, in Mathematicks, is the ſame as the verſed Sine of any Arch, and is ſo called by ſome Writers, becauſe it is like a Dart, or Arrow, ſtanding on the Chord of the Arch. See Sine.

Sagitta, in Geometry, a Term ſome Writers uſe for the *Abſciſſe* of a Curve. See Absciss.

SAGITTAL SUTURE, in Anatomy, the ſecond of the genuine *Sutures* of the *Cranium*. See Suture. It reaches the whole Length of the Head; and has its Name from the *Latin Sagitta*, as being ſtreight, like an Arrow. 'Tis ſometimes alſo called *Rhabdoides*.

SAGITTARIUS, in Aſtronomy, the *Archer*, one of the Signs of the Zodiac; the Ninth in Number. See Sign.

The *Stars in the Conſtellation Sagittarius*, in *Ptolomy*'s Catalogue are Thirty One; in *Tycho*'s Sixteen; In the *Britannic* Catalogue Fifty. The Longitudes, Latitudes, Magnitudes, *&c.* whereof are as follow.

Stars in the Conſtellation SAGITTARIUS.

Names and Situations of the Stars.	Signs.	Longitude			Latitude.			Magn.
		°	′	″	°	′	″	
Inform. preced. the Bow	♐	22	55	01	4	22	42A	6
		25	38	16	0	19	45A	6
		25	43	17	0	47	41A	7
		26	19	47	0	47	50A	6
That in Point of the Arrow		26	55	47	6	55	51A	3
5								
More North in top of the Bow		28	54	10	2	22	54B	4
Subſeq.		29	15	05	2	42	28B	6
In handle of Bow agt. Hand	♑	0	14	10	6	25	21A	3
In the South part of the Bow		0	45	33	10	59	54A	2 3
		1	04	54	7	24	47A	7
10								
		1	37	40	2	48	39B	6
South. in North part of Bow		1	59	55	2	04	01A	4
Preced. the *Clara Humeri*		5	50	42	3	54	35A	4
		7	19	56	2	39	12B	6
		7	26	23	0	48	34B	7
15								
		7	45	55	1	01	30B	7
1ſt. of contig. Stars in the Eye		8	09	07	0	09	12B	5
		8	15	09	1	32	03B	6
Bright St. in preced. Should.		8	03	12	3	23	32A	3
Subſeqt. of contig. in the Eye	♑	8	22	14	0	12	33B	5
20								
		9	06	09	2	09	25B	6
Preced. of three in the Head		9	08	52	1	42	12B	4
That under the Arm-pit		9	17	22	7	07	55A	3
Middle one in the Head		10	40	42	0	54	38B	4
That und. preced. Shoul. bone		10	30	10	5	01	12A	4
25								
Laſt of three in the Head		11	56	44	1	28	59B	3 4
Between the Shoulders		12	43	06	2	52	57A	5
In North part of the Ephaptis of three South		14	02	22	3	17	59B	6
Middle		15	08	20	4	15	43B	5
Contiguous to that		15	06	17	3	48	43B	6
30								
North of 3 in the Ephaptis		15	21	49	6	08	42B	6
In the hind Shoulder		15	00	19	2	26	17A	5
Contiguous to that		15	02	43	2	21	05A	5
A Third more North		15	07	46	1	54	36A	6
		15	39	04	0	12	20B	6
35								
		17	24	12	3	01	53A	6
In the Cubitus of fol. Arm		17	31	15	3	13	01A	5
		18	28	04	1	54	04A	6
Thoſe follo. the N. part of Ephapt. of 2 Preced.		19	53	56	5	05	54B	6
Subſeq.		20	20	29	5	11	26B	6 5
40								
Preced. in South Ephaptis		20	37	36	1	27	02B	6
		22	06	02	1	54	03B	6
Preced. in the Root of Tail		21	29	46	5	22	55A	5
4 middle ones in the Root of the Tail South		21	35	15	6	16	34A	5
North		22	13	16	5	24	44A	5
45								
2. & North in South Ephaptis		24	07	49	5	08	03B	6
2. in the Root of the Tail		22	43	30	7	03	48A	5
		25	27	19	6	54	32B	6
		26	38	01	8	44	40B	6
50	♑	26	29	27	7	31	45B	6

SAGUM, in Antiquity, a military Garment wore by the *Greeks*, *Romans* and *Gauls*, in Manner of a Caſſock; covering the Thighs, and ſuſtaining the Sword. 'Twas made of Wool, and ſquare. They had one for the Winter, and another lighter for Summer.

SAICK, or *Saique*, a *Turkiſh* Veſſel, very proper for the Carriage of Merchandizes. It has ſquare Sails on the Middle-maſt; without either Mizzen, Top-gallant, or Shrouds: Only a Main-maſt, with a Main top-maſt, both very high; with a Bolt-ſprit, and a little Mizzen Maſt. The Height of the Main-maſt makes the *Saick* be ſeen at a great Diſtance. Their Make renders it impoſſible for them to go with a Side-wind; but when they have the Wind behind them, nothing can out-go them. The generality of them carry no Guns.

SAIGNER, in Fortification, a *French* Term, ſignifying to *bleed* or *drain*. Hence to *ſaigner* a Moat, is to empty or draw out the Water by Conveyances under Ground, that it may be paſſed over the more eaſily, after laying Hurdles or Ruſhes on the Mud remaining.

SAIL, in Navigation, an Aſſemblage of ſeveral Breadths of Canvas, or Cloth of raw Hemp, ſewed together by the Liſts, and edg'd around with a Cord; faſtened to the Yards and Stays of a Veſſel, to make it drive before the Wind which bears thereupon. There are two Kinds of *Sails*, the one ſquare, generally uſed in high-bottom'd Veſſels: This has various Names, according to the various Maſts 'tis faſtened to, as the *Main-ſail*, the *Mizzen-ſail*, the *Top-ſail*, &c. The other are triangular, called *Smack-ſails*, and by ſome *Latin-ſails*, becauſe chiefly uſed in *Italy*, and in flat-bottom'd Veſſels; tho' they are alſo uſed on the Mizzen-Maſts and Stays of other Veſſels. They need but few Ropes, and little Wind; but are dangerous, and not to be uſed in foul Weather. There are ordinarily Ten *Sails* in large Veſſels; which Number is increaſed at Bottom by the Addition of Bonnets, and at the Sides by *Caſe-ſails*.

A Veſſel is ſaid to ſet *Sail*, to go with full *Sail*, to make all her *Sail*, that is, to open all her *Sails*. To be under *Sail*, that is, ready to ſet *Sail*, &c.

Sails, are alſo the *Vanes* of Windmills, or the Arms or Flights, whereby the Wind has its Effect on Windmills. Theſe are either *Horizontal* or *Perpendicular*. See Windmill.

Sails, in Falconry, the Wings of an Hawk are ſo termed.

SAILING, in a general Senſe, is uſed for the Art, or Act of *Navigation*; or of determining all the Caſes of a Ship's Motion, by Means of *Sea-Charts*. See Navigation. Of this there are Three Kinds, *Plain*, *Mercator's*, and *Circular*.

Plain Sailing, is that performed by Means of Rhumbs drawn on a plain Chart. See Plain Chart.

Mercator's Sailing, is that performed by Rhumbs drawn on a *Mercator*'s *Chart*. See Mercator's *Chart*.

Circular Sailing, is that performed by the Arch of a great Circle; which, of all others, where practicable, is the ſhorteſt. See Circular.

Doctrine of PLAIN *and* MERCATOR'S-SAILING.

Caſe I. *The Longitude and Latitude of Two Places given; To find the Departure, or Miles of Longitude.*

In Plain Sailing. 1°. If both Places be more Eaſterly than the firſt Meridian, ſubtract the leſs Longitude from the greater, the Remainder is the Difference of Meridians. If one of the Places be more Eaſterly, and the other more Weſterly than the firſt Meridian, add the Longitude of the more Eaſterly to the Complement of the Longitude of the more Weſterly to a whole Circle; the Sum is the Difference of Meridians. 2°. Divide the Difference of Meridians into ſo many Parts as there are Degrees in the Difference of Latitude: Or, if the Difference of Latitude be greater than that of the Meridians, into ſo many fewer. 3°. Reduce the Minutes of Longitude anſwering to one Part, into Miles of the ſeveral Parallels, in the former Caſe; or into Miles of the Parallel, which is an arithmetically mean Proportional between the Two, in the latter Caſe. 4°. The Aggregates of theſe Parts collected into one Sum, exhibit the Departure or Miles of Longitude.

E. gr. Suppoſe the Longitude of the one Place 35°. and that of the other 47°. the Difference of Meridians is 12°. Suppoſe the Latitude of the firſt 4°. and that of the latter 8°. the Difference will be 4°, conſequently we have *ſailed* from the 4th to the 8th Parallel. Therefore divide 12 by 4, and reduce the Quotient 3°. into Miles in the ſeveral Parallels 4, 5, 6, and 7. (See Degree) the ſeveral Quotients will be 43°. 71′. 43°. 68′. 43°. 65′. 43°. 59′. the Sum of which is 174, the *Departure* or *Miles of Longitude* required.

In Mercator's Sailing. The Reduction is much more commodiouſly performed in *Mercator's Charts*; wherein the Arch intercepted between the Two Meridians, is applied to an Arch of the Meridian intercepted between the Two Parallels; and the Diſtance it there meaſures, gives the *Departure*, or *Miles of Longitude* required. See DEPARTURE and LONGITUDE.

Caſe II. *The Longitude and Latitude of Two Places, to and from which, a Ship is to ſail, being given; To find the Rhumb to be ſailed on, and the Diſtance to be run.*

In plain Sailing. 1. Find the *Departure* by the laſt Caſe. 2. From the *Departure*, and Difference of Latitudes, find the loxodromic Angle or Rhumb-line; which is done by this Proportion: as the Difference of Latitude is to the Departure, ſo is the whole Sine to the Tangent of the Angle of the Rhumb-line. The Diſtance then, to be run on this Rhumb, is to the Departure, as the whole Sine to the Sine of the Angle of the Rhumb. See RHUMB.

In Mercator's Sailing. 1. Apply the Center of the Mariners Compaſs on the Place ſailed from, on the *Mercator's Chart*, as *a*, (*Tab. Navigation* Fig. 7.) and ſo as that the North or South Line thereof be parallel to ſome of the Meridians. 2. Mark the Rhumb of the Compaſs, wherein the Place ſailed to, as *b*, is placed. For this is the Rhumb to be ſailed on. 3. The ſame Rhumb is likewiſe found by drawing a right Line from *a* to *b*; and with a Protractor, finding the Angle the Rhumb makes with any Meridian it cuts. 4. The Quantity or Diſtance *a b* is found by applying the Part *a* 1 to I K, 1 *a* to *k l*, 2 *b* to *l m*.

Note, the Rhumb and Diſtance may alſo be found after the ſame Manner on a plain *Chart*.

The ſame may likewiſe be found by *Loxodromic* Tables; thus, 1. Chuſe a Rhumb at Pleaſure, and under the ſame, in the Tables, find the Longitudes correſponding to the given Latitudes. The Difference whereof, if it coincide with the Difference of the given Longitudes, the Rhumb is well choſen; otherwiſe another muſt be pitched on, either more or leſs oblique, 'till the Tabular Difference agree with the given Difference. 2. The Rhumb thus found, the Diſtances anſwering to the given Latitudes, muſt be taken from the Tables, and the leſs ſubtracted from the greater; the Remainder is the Diſtance ſought.

Caſe III. *The Rhumb and Diſtance ſailed being given; To find the Longitude and Latitude of the Place arrived at.*

In Plain Sailing. 1. From the *Data*, find the Difference of Latitude of the the Two Places: (by the Proportion delivered under the Article RHUMB-*line*.) This Difference added to the Latitude of the Place ſailed from, or ſubtracted from the ſame, the Sum, or the Remainder, leaves the Latitude of the Place ſailed to. 2. From the ſame, find the Departure; and thence the Latitudes of the Place ſailed to (as directed under RHUMB-*line*.)

In Mercator's Sailing. 1. Place the Mariners Compaſs on the *Chart*, with the Center over the Place *a*; and the Meridian, or North or South Line, parallel to the Meridian thereof. 2. From the Point *a*, draw a right Line, as *a b*, for the Ship's Courſe. Take the Diſtance by Parts, in Parts of the Meridian IK, KL, &c. and ſet it off upon the right Line *a b*; *E. gr.* from *a* to *c*; Then will *c* be the Place the Ship is arrived at; the Longitude and Latitude whereof are given by the *Chart*. See CHART.

By the Loxodromic Tables. 1. Under the given Rhumb, ſeek the Diſtance anſwering to the Latitude of the Place ſailed from; and either add it to, or ſubtract it from the given Diſtance; as the Latitude of the Place ſailed to is greater, or leſs than that ſailed from. 2. Under the ſame Rhumb, aſcend or deſcend further, till you meet with the Diſtance corrected. 3. The Latitude anſwering thereto in the firſt Column, is the Latitude of the Place ſailed to. 4. From the ſecond Column of the Table take the Longitude correſponding to the Latitudes of the Places ſailed to and from. Their Difference is the Difference of Longitudes of the Places ſailed to and from.

Caſe IV. *The Latitudes of the Places ſailed to and from, together with the Rhumb ſailed in, being given; To find the Diſtance and Difference of Latitudes.*

In Plain Sailing. From the Difference of Latitude and the Rhumb given, find the Diſtance; and from the ſame *Data*, the Departure. See RHUMB. This converted into Degrees of a great Circle (See DEGREE) exhibits the Difference of Longitudes ſought.

In Mercator's Sailing. 1. Place the Compaſs on the *Chart*, as in the preceding Caſe. From the Place ſailed from, *a*, draw the Rhumb-line *a b*, ſailed in; till it cut the Parallel of the given Latitude. 2. The Point of Interſection will be the Place arrived in. 3. Hence its Longitude is eaſily found; and the Diſtances. See RHUMB.

By the Tables. Take both the Longitudes and the Diſtances anſwering to the Latitude of the given Places, out of the Tables; then ſubtract both the Longitudes and the Diſtances from each other. The firſt Remainder is the Difference of Longitude, the latter the Diſtance of the Places.

Caſe V. *The Latitudes of the Places ſailed from, and to, with the Diſtance given; To find the Rhumb and the Difference of Longitude.*

In Plain Sailing. From the Difference of Latitude, and the Diſtance, find the Rhumb, and from the ſame *Data* find the Departure; which may be alſo determined from the Rhumb now found, and the Differences of Latitude, or from the Rhumb and the Diſtance run. Laſtly, from the Departure find the Difference of Longitude. See RHUMB.

In Mercator's Sailing. On the Map draw the Parallel the Ship arrives at, C D. Reduce the Diſtance run into Parts proportional to the Degrees of the Map. The Diſtance reduced, being *a* 2; from *a* deſcribe an Arch cutting the Parallel C D in 2: Then will 2 be the Place in the Map; whoſe Longitude accordingly is eaſily found.

By the Tables. Subtract the given Latitudes from each other; and in the Tables ſeek the Rhumb; under which, the Diſtance run anſwers to the given Difference of Latitude. Subtract the Longitude under the Rhumb, anſwering to the Latitude of the Place ſailed to; and that under the ſame Rhumb againſt the Latitude of the Term ſailed to, from each other, the Remainder is the Difference of Longitude ſought.

Caſe VI. *The Difference of Longitudes of the Places ſailed to, and from, with the Latitude of one of the Places, and the Diſtance run, being given; To find the Rhumb, and the Latitude of the other.*

In Plain Sailing. Convert the Difference of Longitudes into Miles of Longitude or the Departure; from the given Departure and Diſtance run, ſeek the Rhumb: And from the ſame, and the Rhumb, ſeek the Difference of Latitude; which, and the Latitude of one Place being had, the Latitude of the other readily follows. See RHUMB.

In Mercator's Sailing. Through the given Place *a* in the Map, draw a right Line E F parallel to the Meridian IH; and make F L equal to the Difference of Longitudes. From F draw L M parallel to E F, which will be the Meridian the Ship is arrived at. Then from *a*, with the Interval of the Diſtance run, *a c*, deſcribe an Arch interſecting the Meridian M L; the Place ſought will be in *c*. If then a Compaſs be placed on the Map, as before directed, the Rhumb-line will fall in with *a c*; and conſequently the Rhumb will be known. Laſtly, If through *c* be drawn N O, parallel to A B; N A will be the Latitude of the Place required.

By the Tables. Take a Rhumb at Pleaſure, and under the ſame in the Tables, find the Longitude, and the Diſtance anſwering to the given Latitude. Add the given Diſtance to the Diſtance found in the Tables, if the Veſſel ſailed from the Equator; or ſubtract it therefrom, if it ſailed towards the ſame. With the ſame Sum, or the Difference, enter the Tables; and the Longitudes found againſt it, ſubtract or add from that juſt found. If the Remainder be found the given Difference of Longitudes, the Rhumb is well taken. Otherwiſe, it muſt be changed for a more or leſs oblique one, till the ſame Operation being repeated, the Remainder be found the Difference of Longitudes; then the Latitude in the firſt Column, correſponding to the Diſtance, will be the Latitude of the other Place.

Caſe VII. *The Difference of Longitude, and the Latitude of one of the Places, being given, together with the Rhumb; To find the Diſtance run, and the Latitude of the other Place.*

In Plain Sailing. Reduce the Difference of Longitude into Miles of Longitude, or Departure, as under the firſt Caſe. From the Departure and the Rhumb, find the Diſtance run. (See RHUMB) And from theſe, or from the Rhumb, and the Diſtance run, find the Difference of Latitude. This done, as the Latitude of the one is already had, that of the other is ſo too.

In Mercator's Sailing. Place the Compaſs on the *Chart* as before; and by the given Rhumb, draw the Rhumb-line, *a b.* Draw a Meridian E F through the given Place *a*; and with the Interval of the Difference of Longitude F L, draw another, L M, for that the Veſſel is arrived at. Where this interſects the Rhumb-line, is the Place *c* that the Veſſel is arrived at. Wherefore, if through *c* be drawn N O parallel to A B; N A will be the Latitude of the Place. The Diſtance run *a c* is eaſily reduced into Miles by the Scale.

By the Tables. Under the given Rhumb, ſeek the Diſtance run, and the Difference of Longitude anſwering to the given Latitude. If the Veſſel have ſailed towards the Pole, the Difference of Longitude is to be added to the given Difference of Longitude; if towards the Equator, 'tis to be ſubtracted from the ſame. In the former Caſe, deſcend in the Table, and in the latter, aſcend; 'till in the firſt, the Aggregate, in the latter, the Difference be ſeen in the Column of Longitude. The Latitude anſwering hereto in the firſt Column, is that ſought. And from the Diſtance anſwering to this Latitude in the firſt Caſe, the Tabular Diſtance is to be ſubtracted; or in the latter Caſe, that Diſtance to be ſubtracted from the Tabular Diſtance. What remains, is the Diſtance run.

From the Solution of theſe Caſes in *Sailing*, 'tis evident, ſome are more eaſily performed by the Charts than the Tables; and that the *Mercator's Charts* are preferable to the Plain ones; ſince in the latter, the Diſtance is not reduced by the Map, but by a particular Scale for that Purpoſe.

Doctrine of CIRCULAR SAILING.

I. *The Latitude and Longitude of the Places ſailed to and from, being given; to find the Angle* M (Fig. 8.) *which a Ship's Way* MO *proceeding in a Circular Courſe, includes, with the Meridian* P. M. *of the Place ſailed from.*

Since in the Triangle P M N, we have P M and P N, the Complements of the given Latitudes H M, and I N, together with the Angle M P N, meaſured by the Arch H I, the Difference of the given Longitudes H and I; the Angle P M N is found by *Spherical Trigonometry.* See TRIANGLE.

II. *The Latitude* H M, *and the Longitude* H, *of the Place ſailed from,* M, *with the Diſtance run, and the Latitude of the Place* L S *the Ship in a Circular Voyage arrives at, being given; to find the Longitude of the Place* L, *and the Angle* P L M *comprehended between the Ship's Way* M L, *and the Meridian* P S.

In the Triangle P M L, we have given P M the Complement of the Latitude H M, and P L the Complement of the Latitude L S. Wherefore, if the Ship's Way M L be turned into Degrees of the Equator; we ſhall find the Angle M P L, which is meaſured by the Difference of Longitudes H S; and likewiſe the Angle PLM by Spherical Trigonometry. See *Spherical* TRIANGLE.

After the like Manner may other Problems be ſolved; but as 'tis eaſier and better *Sailing* by Rhumbs, than by Circles, and as this latter Way is but very little in Uſe; we chuſe to paſs them over. See GLOBULAR SAILING.

SAILING, in a more confined Senſe, is the Art of conducting a Veſſel from Place to Place, by the working or handling of her *Sails* and *Rudder*; though what is done by Means of this latter, is more properly called *Steering.* See STEERING.

To bring *Sailing* to certain Rules, a late Author computes the Force of the Water, againſt the Ship's Rudder, Stem or Side; and that of the Wind againſt her *Sails*: in order to this, he conſiders all Fluid Bodies, as the Air or Water, *&c.* as being compoſed of little Particles, which, when they act upon, or move againſt any Surface, do all move parallel one to another, or ſtrike againſt the Surface after the ſame Manner. He conſiders, 2, That the Motion of any Body, with regard to a Surface, on which it is to ſtrike, muſt be either Perpendicular, Parallel, or Oblique. In the firſt Caſe, the Body ſtrikes with all its Force, which will be greater or leſs, according as the Body moves ſwifter or ſlower. In the ſecond Caſe, the Line of Motion *a b*, (*Tab. Navigation Fig.* 3.) will not affect the Surface at all, becauſe it is no way oppoſed to it; nor can the moving Body ſtrike upon it, or touch it. In the third, If the Line of Motion, A D, be oblique to the Surface D C, ſo that the Angle of Incidence be A D C, then the Motion of the Body in the Line A D may be reſolved into Two Directions, *viz.* into A E, or D B, and into A B. But the Direction or Line of Motion A E being *parallel* to the Surface D C, cannot affect it at all; ſo that the whole Motion of the Body A in that oblique Manner of ſtriking on the Surface, will be expounded by the *Perpendicular* Line, A B. And if D A be made the Radius of a Circle, whoſe Center is at D, B A will be the Line of the Angle of Incidence, A D C. Hence we deduce, That the Force of a Particle of Air or Water, as A, ſtriking againſt the Surface D C, which may repreſent, either a Sail or the Rudder of a Ship, in the oblique Direction A D, will be to the Perpendicular Force there, as B A is to D A: that is, as the Line of the Angle of Incidence is to the Radius. And ſince what is thus true of one Particle, ſingly conſidered, will be true of all the Particles of any Fluid Body collectively, it will follow, That the Force of the Air or Water ſtriking perpendicularly upon a Sail or Rudder, to the Force of the ſame, in any oblique Impingency, will be, as the Square of the Radius, to the Square of the Sine of the Angle of Incidence: and conſequently, that all oblique Forces of the Wind againſt the Sails, or of the Water againſt the Rudder, will be to one another, as the Squares of the Lines of the Angles of Incidence. If the different Degrees of Velocities be conſidered, it will be found, that the Forces will then be as the Squares of the Velocities of the moving Air or Water; that is, That a Wind that blows thrice as ſtrong, or moves thrice as ſwift as another, will have nine Times the Force upon the Sail. And it being alſo indifferent, whether you conſider the Motion of a Solid in a Fluid, whoſe Particles are at reſt; or of thoſe Particles moving all parallel againſt a Solid that is at reſt, the reciprocal Impreſſions being always the ſame: If a Solid be moved with different Velocities in the ſame Fluid Matter (as ſuppoſe Water) the different Reſiſtances which it will receive from that Water, will be in the ſame Proportion, as the Squares of the Velocities of that Body.

Let H M (Fig. 4.) repreſent a Ship, C D the Poſition of the Sail, and A B the Courſe of the Wind blowing towards B. Draw B G perpendicular to the Sail, and G K perpendicular to the Line of the Keel produced H M K. By what is ſaid above, the Sail C D, will be driven by the Wind A B, according to the Direction of the Line B G. So that if ſhe could divide the Water every Way with the ſame Facility, as ſhe doth with her Head, the Ship would go directly to the Point G, along the Line B G. And if H K repreſent her direct Courſe, ſhe would have got forward the Length B K, and Sideways ſhe would have gone the Quantity G K. But as her Length is much greater than her Breadth, ſo ſhe will divide the Water, or make her Way in it with more Difficulty with her Side, than with her Head or Stern; on which Account, ſhe will not run Sideways ſo far as K G, but fall ſhort of it in Proportion to the ſaid Difficulty of dividing the Water with her Side; that is, If the Reſiſtance ſhe finds in her paſſing thro' the Water Sideways, be to that of paſſing Lengthways, ſuppoſe, as ten to one, then will not the Ship get Sideways above a tenth Part of the Line G K. Wherefore if K G be found to G L, in the *Ratio* of the Reſiſtance of the Side to that of the Stern, and the Line B L, be drawn; the Ship will go to the Point L, along the Line B L, in the ſame Time as it would have gone to G, if it could have divided the Water every Way equally. This Part, K L, is called the *Drift* or *Lee-way* of a Ship, and the Angle KBL is her Degrees of *Lee-way*; as the Angle A B K, expreſſes how near the Wind ſhe lies. After this, he proceeds to demonſtrate, That the beſt Poſition or Situation of a Ship, ſo as ſhe may make the beſt *Lee-way*, but go to *Wind-ward* as much as is poſſible, is this: That, let the Sail have what Situation it will, *the Ship be always in a Line biſſecting the Complement of the Winds Angle of Incidence upon the Sail*; that is, Suppoſing the Sail in the Poſition B C (Fig. 4.) the Wind blowing from A to B, and conſequently, the Angle of the Wind's Incidence on the Sail A B C, and its Complement C B E; then muſt the Ship be put into the Poſition B K, or move in the Line B K, biſſecting the Angle B G E. He ſhews farther, That *the Angle which the Sail ought to make with the Wind, i. e.* the Angle A B C, *ought to be but* 24 *Degrees*; that being the moſt advantageous Situation to go to Wind-ward, the moſt that is poſſible. And in order to bring this to bear in Practice, he directs to put Marks to the Sheets, Braces, and Bow-lines of the lower Sails, to know when they are in their beſt Situation; and then, even in the Night, when the Marks of a Brace or of a Sheet ſhall come to the Cleat, one may be pretty well aſſured, that the Sail trims well. To this may be added, many curious Things from *Borelli de V. Percuſſionis*, concerning the different Direction given to a Veſſel from the Rudder, when *Sailing* with a Wind, or floating without Sails in a Current; in the former Caſe, the Head of the Ship always coming to the Rudder, and in the latter always flying off from it.

SAILORS, the elder Seamen, who are employed in managing the Sails, the Tackle, Steering, *&c.*

SAINTS, in the *Romiſh* Church, Holy Perſons deceaſed; and ſince their Deceaſe, Canonized by the Pope, after ſeveral Informations and Ceremonies. See CANONIZATION. One of the Points wherein the *Roman Catholicks* and *Proteſtants* differ, is, That the former addreſs, invoke, ſupplicate Saints, *&c.* to interceed for them; whereas the latter hold it ſufficient to propoſe their good Examples. The Number of *Saints*, allowed as ſuch, in the *Romiſh* Church, is prodigious. Father *Papebroch* reckons Seventeen or Eighteen Hundred to have died on the Firſt of *June*, only. Indeed, the Croud of *Saints* wherewith their Martyrologies are ſtocked, is ſcandalous, even to the more ſober of their own Communion. Father *Mabillon*, in an expreſs Diſſertation on the *Worſhip of unknown Saints*, obſerves, That Honours are given to *Saints*, who, perhaps, were not *Chriſtians*; and whoſe Names were never known. Hence, being under a Neceſſity of giving them Names, they are therefore called *Baptized Saints.* He adds, That they every Day beſeech *Saints* to interceed for them with God; when, 'tis much doubted, whether they themſelves be in Heaven. Father *Papebroch* was a long Time employed in writing the Lives of the *Saints.* He ranged them each on the Day of the Year wherein they died. For the firſt Six Months he publiſhed Twenty Four Volumes in Folio; and ſince his Death, in 1714, his Succeſſors have publiſhed Two more.

SAKER, is a Sort of *Cannon*; and is either extraordinary, ordinary, or leaſt Size: *Saker* Extraordinary, is Four Inches Diameter at the Bore, 1800 Pound Weight, 10 Foot long; its Load 5 Pounds, Shot 3 Inches and Half Diameter, and ſomething more than 7 Pound and a Quarter Weight; its Level Range is 163 Paces. *Saker* Ordinary, is a Size leſs, 3 Inches 3 Quarters Bore, 9 Foot long, 1500 Weight; its Charge, 4 Pounds of Powder; Bullets Diameter 3 Inches and a Half, Weight 6 Pounds, its Level Range 160 Paces. *Saker* of the leaſt Size, is 3 Inches and a Half Diameter at the Bore, 1400 Pound Weight, 8 Foot long, its Load near 3 Pounds and a Half; Shot 4 Pounds 3 Quarters Weight, and 3 Inches and a Quarter Diameter. See CANNON.

SAL, in Chymiſtry, *&c.*	See	SALT.
SAL *Armoniac*, or *Ammoniac*,		AMMONIAC.
SAL *Petræ*, or *Nitri*,		SALT-PETRE.
SAL *Prunellæ*,		PRUNELLÆ.
SAL *Tartari*,		TARTAR.
SAL *Polychreſtum*,		POLYCHREST.
SAL *Gemmæ*,		GEMMA.

SAL *Volatile Oleoſum*, an Aromatic *Volatile Salt*, firſt prepared by *Sylvius de la Boe*, and found a very notable Medicine, chiefly as a Cephalic and Cordial. 'Tis made thus: To an Ounce of *Volatile Salt* of *Sal Ammoniac*, diſtill'd with *Salt* of *Tartar*, and dulcified with Spirit of Wine, put a Dram and Half of ſome Aromatic Oil, or Eſſence, drawn from ſome generous Aromatic Vegetable, as Cinnamon, Cloves, Roſemary, Balm, &c. And when the Spirit and Oil are well ſtirred and incorporated together; draw off the Volatile *Salt* and Spirit in a Cucurbit. Some, inſtead of this, mix all the Ingredients together at firſt, *viz.* the *Sal Ammoniac*, *Sal Tartari*, Spirit of Wine and Powder of Cinnamon or Cloves, &c. and diſtill off the Volatile Spirit and *Salt* at once; but the former Way is preferred. See VOLATILE.

SALADE, in War, a light Covering, or Armour for the Head, anciently wore by the light Horſe; only differing from the Cask, in that it had no Creſt, and was little more than a bare Pot. That of the Foot-men was called *Morion*. *Nicod* derives the Word from *Sila*, which had the ſame Signification among the *Latins.* Others from *Saladinus*; adding, That it was borrowed from the Orientals; others from the *Italian Celeta*, as if the Head were hid hereby. Others from the *Spaniſh Celada*, a little Cask, *&c.*

SALADINE, a Tax, impoſed in *England* and *France*, in the Year 1188, to raiſe a Fund for the *Cruzade*, undertook by *Richard* I. of *England*, and *Philip Auguſtus* of *France*, againſt *Saladin* Sultan of *Egypt*, then going to beſiege *Jeruſalem*. The *Saladine-Tax* was thus laid; That every Perſon who did not enter himſelf a *Croiſe*, was obliged to pay a Tenth of his yearly Revenue, and the Value of all his Moveables, excepting his wearing Apparel, Books, and Arms. The *Carthuſians*, *Bernardines*, and ſome other Religions, were exempted from it.

SALAMANDER's BLOOD, a Term the Chymiſts give to Red Vapours, which in Diſtillation of Spirit of Nitre, towards the latter End do fill the Receiver with Red Clouds; they are the moſt fixed, and ſtrongeſt Part of the Spirit; and nothing but Nitre yields a Red Vapour in Diſtillation.

SALARY, *Salarium*, in old Law Books, a Toll, or Duty paid for Salt. Alſo a Stipend, or Wages for any Service done.

SALIANT, in Fortification. There are Two Kinds of Angles; the one *Saliant*, which are thoſe that preſent their Point outwards: The other *Re-entring*, which have their Points inward. Inſtances of both Kinds, we have in *Tenailles*, and Works in Form of Stars. See ANGLE. The Word is formed from the *French Saillant*, which ſignifies the ſame Thing; of *Sailler*, to project, advance outwards, and that, of the *Latin Salire*, to leap. See ANGLE.

SALIENT, in Heraldry, is applied to a Lyon, *&c.* when its Fore-legs are raiſed in a leaping Poſture; ſtanding ſo as that his right Fore-foot, is in the Dexter chief Point, and his hinder Left-Foot, in the Siniſter baſe Point of the Eſcutcheon; by which it is diſtinguiſhed from *Rampant.* See RAMPANT.

SALIC LAW, an ancient and fundamental Law of the Kingdom of *France*; ſuppoſed to have been made by *Pharamond*, or at leaſt by *Clovis.* *Du Haillan*, after a critical Examination of the *Salic Law*, declares it to have been an Expedient of *Philip the Long*, in 1316, for the Excluſion of the Daughter of *Louis Hutin*, from inheriting the Crown. Father *Daniel*, on the other Hand, maintains, That 'tis quoted by Authors more ancient than *Philip the Long*; and that *Clovis* is the real Author of it. The Stile, which is ſcarce intelligible, and which is in a *latinized* Dialect, is a Mark of its Antiquity. This *Law* has not particular Regard to the Kingdom of *France.* It only imports in the general, That *in Salic Land, no Part of the Inheritance ſhall fall to any Female; but the whole to the Male Sex.* So that 'tis a popular Error to ſuppoſe, That the *Salic Law* was eſtabliſhed purely on Account of the Succeſſion to the Crown: Since it extends to private Perſons as much as thoſe of the Royal Family. Part of it ſeems to have been borrowed by our *Henry* I. in compiling his Laws, *Cap.* 89. *Qui hoc fecerit ſecundum legem Salicam moriatur.* By *Salic Lands* or *Inheritances* was anciently expreſſed all Lands by whatever Tenure held, whether Noble or Baſe, from the Succeſſion whereto, Women were excluded by the *Salic Law*; and admitted to inherit nothing but Moveables, and Purchaſes, whenever there were any Males. Indeed, M. *Fenelon* obſerves, That there were originally *Salic Lands*, diſtinguiſhed from all others, and deſtined for the Military People of the Nation; and to theſe, 'tis ſuppoſed, the *Law* was originally intended to be confined. M. *Eccard*, a *Hanoverian*, is ſaid to have recovered an antient M S. of this famous *Law*, containing a third Part thereof, much more amply than any yet known, with a very curious Chronology of the ſame *Law*, hitherto unknown.

Some, as *Poſtellus*, will have this *Law* called *Salic*, *q. d. Gallic*, becauſe peculiar to the *Gauls.* *Cenal* takes the Reaſon to be, That the *Law* was only ordained for the Royal *Salles* or Palaces. *Claud. Seiſſel* ſays, 'Twas thus called, becauſe of the *Salt* and the *Prudence* it abounds withal. *Fer. Montanus* ſays, 'Twas becauſe *Pharamond* was at firſt called *Salic.* Others, with the Abbot *Uſperg*, derive its Name from *Salogaſt* his Principal Miniſter. And others from the frequent Repetition of the Words *Si aliqua*, at the beginning of the Articles. *Genebrand* ſays, 'Tis called *Salic* for *Salomonic*, by Reaſon *Solomon* ſet the firſt Example of it. *Daviſon* derives it from the *German* Words, *Salts* and *Lik*, *q. d.* like to Salt. The moſt probable Opinion is, That the Word is derived from the ancient *Franks*, called *Sali*, *Salici*, and *Salingi*, from the River *Sala*, a River of ancient *Germany*: This is the Sentiment of *Rhenanus* and *Emilius*, who are followed by ſeveral others; among the reſt, *Menage*, *Paſquier*, *Borel*, and *Juncker.* *Bouterove* gives another plauſible Origin of the Word: He ſays, it comes from the Word *Salich*, which, in the Old *Teutonic* Language, ſignified *Salutary*; and that the *French* in this *Law* imitated the Policy of the ancient *Romans*, who made *Salutary Laws*, which the Magiſtrates were to have before them when they adminiſtred Juſtice. This he proves from a curious Figure taken out of the *Notitia Imperii*, wherein the Book is repreſented covered with Gold, with this Inſcription; *Leges Salutares.*

SALII, in Antiquity, Prieſts of *Mars*, whereof there were Twelve, inſtituted by *Numa.* They were painted with Particoloured Garments and high Bonnets, with a Steel Cuiraſſe, or Breaſt-plate on the Breaſt. They had their Name

Salii from *Saltare*, to dance; becauſe, after aſſiſting at Sacrifices, they went dancing about the Streets with *Ancyles* or Bucklers in the Left-Hand, and a Rod in the Right, ſtriking muſically on one another's Bucklers with their Rods, and ſinging Hymns in Honour of the Gods. There were Two Companies or Colleges of *Salii*: The ancient eſtabliſhed by *Numa*, called *Palatini*; the latter by *Tullus Hoſtilius*, called *Collini*, and *Agonales*. *Servius*, indeed, tell us, That there were Two Kinds inſtituted by *Numa*, the *Collini* and *Quirinales*; and Two other Kinds by *Tullus*, the *Pavorii* and *Pallorii*. In Singing, they uſed a Song called *Saliare Carmen*; and after the Ceremony, were entertained with a Feaſt: Whence *Saliares Epulæ*, and *Saliares Dapes*, paſſed into a Proverb for good Eating. Their Chief, called *Præſul*, and *Magiſter Saliorum*, was one of their Number. 'Twas he led the Band, and begun the Dance; the reſt imitating all his Steps and Motions. The whole Company was called *Collegium Saliorum*.

Sex Pompeius makes mention of *Salian Maids*, *Virgines Saliares*, hired for the Purpoſe, and joyned with the *Salii*, wearing a Kind of Military Garb, called *Paludamentum*, with high round Bonnets like the *Salii*, and, like them, performing Sacrifice with the *Pontifices* in the Palaces of Kings. M. *Patin* takes it, there is a Figure of one of the *Salii* on a Medal of the *Saguinian* Family; who, beſides the Buckler in one Hand, holds the *Caduceus* in the other. But his Look is very grave and ſedate; and beſides, the Buckler he holds, does not ſeem to be an *Ancyle*, as being quite round, and not indented any where. And again, why ſhould a Prieſt of *Mars*, the God of War, be repreſented with a *Caduceus*, the Emblem of Peace? 'Tis probable therefore, this is no Figure of any *Salius*, as *Patin* imagines.

SALIVA, *Spittle*, a thin pellucid Humour, ſeparated by the Glands about the Mouth and Fauces; and conveyed by proper *Salival Ducts* into the Mouth, for ſeveral Uſes. See SALIVAL *Ducts*. It conſiſts of a great deal of Water or Phlegm, and a Volatile Salt; ſome add, a ſulphurous Spirit. The *Saliva*, *Boerhaave* obſerves, is void both of Taſte and Smell; does not harden by Heat; is more copious, fluid, ſharp, penetrating, and detergent, as a Perſon has faſted longer; and is ſeparated from the pure Arterial Blood. The Glands wherein the *Saliva* is ſeparated from the Blood, are the *Parotides*; the *Maxillary Glands*; the *Sublinguales*, or thoſe under the Tongue; the *Amygdalæ*, or Almonds of the Ears, and the *Palatinæ*, or Glands of the Palate: See each under its proper Article. The great Uſe of the *Saliva*, is in maſticating and diluting the Food, and making the firſt Digeſtion thereof. The other Uſes are to moiſten the Tongue, to render its Motion more quick and eaſy; to lubricate the Throat and *Oeſophagus*, in order to facilitate Deglutition, to prevent Thirſt, and to aſſiſt in the Senſation of Taſtes, by diſſolving the Salts. Some imagine it to do the Office of a *Menſtruum* to mix the oily and aqueous Parts of the Food more intimately, to diſſolve the Saline Parts, and to procure a Fermentation in the Stomach. But Dr. *Drake* will not allow it fit for that Purpoſe. Were the *Saliva*, ſays he, acrimonious enough for this, 'twould be impoſſible but it muſt offend the Stomach; eſpecially, conſidering the Quantities of it that many ſwallow, even upon an empty Stomach. See DIGESTION.

M. *Gaſtaldy*, who has a Medicinal Theſis on the Subject of the *Saliva*, obſerves, That it takes its Name from the *Salt* it contains; which Salt he will have to be partly a Volatile Acid, and partly Alcalious. He adds, That it contains ſome Oleaginous Parts, and a little Earth. By being compounded of ſo many different Kinds of Parts, it becomes a Diſſolvent proper for all the different Kinds of Foods whereof we live. Its natural and laudable State, is to be a little more Viſcid than common Water, and much leſs ſo than Milk. 'Tis preſerved in this State by the Application of the Spirits, and of the Particles of Air which inſinuate into it. According to all Appearance, the *Saliva* is derived from the Blood of the Arteries. Part of the Arterial Blood brought to the *Salival Glands*, ſerves to feed them; another Part is returned into the Veins, and continues the Circulation, and a third Part, which is the *Serum*, receiving a ſub-acid Quality from them, is converted into *Saliva*. Some Authors have imagined, that the Nervous Juice contributed to the Compoſition of the *Saliva*; the rather becauſe larger and more numerous Twigs of Nerves are communicated to theſe Glands, than to moſt other Parts, which yet have a more exquiſite Feeling than theſe. But Dr. *Nuck* has refuted this Opinion by ſeveral Experiments.

Too great an Excretion of *Saliva*, *Boerhaave* obſerves, diſorders the firſt Digeſtion; and hence cauſes Thirſt, Dryneſs, a black Bile, Conſumption, Atrophy: On the contrary, if no *Saliva* be diſcharged into the Mouth, or leſs than ordinary, it ſpoils both the Manducation of the Food, and its Taſte, Swallowing, and Digeſtion; and withal, occaſions Thirſt.

SALIVAL, or *Salivary Ducts*, in Anatomy, certain little Canals lately diſcovered; whereby the *Saliva* falls into the Mouth. The *Lower Salival Duct* comes from the *Maxillary* Glands, ſituate under the lower Jaw, and terminated behind the *Dentes Inciſores*. It was firſt deſcribed by our Dr. *Wharton*, in his Treatiſe of the *Glands*, in 1656. The *Upper Salival Duct* was diſcovered by *Nicolas Steno*, in 1660. It comes from the Parotid Glands; whence perforating the *Buccinator*, it terminates near the third Upper Grinder. *Caſp. Bartholine*, in 1682, diſcovered another *Salival Duct*, coming from the Glands ſituate on the Side of the Tongue; tho' *Rivinus*, a Phyſician of *Leipſic*, had mentioned it before, in a Diſſertation printed in 1679. *Anth. Nuck*, Profeſſor at *Leiden*, diſcovered a fourth *Salival Duct*, ariſing from a Gland ſituate in the Orbit of the Eye, between the *Muſculus Obductor*, and the Upper Part of the *Os Jugale*. Theſe Ducts are all double, there being one of each Kind on either Side. But 'tis pretended, the Two laſt are only found in ſome Brutes, and not in Man.

As the Demand of *Saliva* is greateſt in Maſtication, Deglutition, Talking, *&c.* ſo, Dr. *Drake* obſerves the Diſpoſition of the *Salival Ducts*, to favour the Diſcharge on thoſe Occaſions, is very remarkable: Thus the Ducts of the *Parotides* paſs cloſe over the *Muſculi Maſſeleres*, and thro' the *Buccinatores*. The *Salival Ducts* of the *Maxillary* Glands paſs cloſe under the *Mylohyoideus*, where the *ſublingual* Glands are placed; by Means whereof, the Intumeſcence of the *Maſſeters*, in Chewing, accelerate the Spittle in the *Parotid Salival Ducts*; as the *Mylohyoideus* does in the Action of Deglutition, in drawing the *Hyoides* upwards. The Agitation of the Cheeks and Lips, is ſufficient to promote the Diſcharge from the Glands of the Lips, *&c.*

SALIVATION, in Medicine, a promoting of the Flux of *Saliva*, by Means of Medicines; chiefly *Mercury*. See MERCURIALS. The chief Uſe of *Salivation* is in Diſeaſes adhering to the Glands, and the *Membrana Adipoſa*; principally in the Cure of the Venereal Diſeaſe. 'Tis ſometimes alſo uſed in Epidemic Diſeaſes. The Body is prepared for *Salivation* by a copious and continued Uſe of attenuating, diluting, ſoftening Decoctions; as of Scabious, Pellitory, China, Sarſaparilla, Saſſafras, and Santal. *Salivation* is either *Partial* or *Univerſal*. By the firſt, only, the Humours of ſome Part of the Body are to be diſcharged; as in *Catarrhs*, *Tooth-ach*, &c. By the ſecond, the whole Maſs of Blood is to be purged. The firſt is raiſed by a ſlow continued Chewing of ſome tenacious Matter, as Maſtich, Wax, Myrrh; eſpecially if other ſharp Things be mixed with them, as Pyrethrum or Bartram, Ginger, or Pepper. Or by drawing in ſharp irritating Vapours, as thoſe of Tobacco, Roſemary, Thyme, Marjoram, *&c.* The latter is effected by the Action of ſuch Medicines as create ſome ſlight but conſtant *Nauſea*; as *Stibium* not quite fixed, nor yet quite emetic; a little common Vitriol, *&c.* but chiefly ſuch as diſſolve all the Parts of the Maſs of Blood, turn them into *Lympha*, and thus cauſe a *Ptyaliſm*. Such is crude Quickſilver, Cinnabar, a Solution of Quickſilver in *Aqua-fortis*, White and Red Precipitate, Turbith Minerale, ſweet Sublimate of Mercury, *&c.*

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There are Two Manners of applying Mercury to raiſe a *Salivation*: The one *external*, by mixing it up with ſome Unguent, Plaiſter, or Perfume, and then rubbing it on the Joints, *&c.* The other *internal*, where 'tis taken at the Mouth. In each Caſe the Mercury inſinuates itſelf into the Maſs of Blood, and mixing with the Venereal Poiſon, the Two Bodies thus locked together, are drawn, with the Seroſity, into the *Salival* Glands, where they are ſeparated and diſcharged, as finding the Pores of the Glands proportioned to their Figures, and proper to receive them. But, for the Manner wherein the Mercury acts to raiſe the *Salivation*, ſee MERCURIALS. Dr. *Quincy*, will have the *internal* to be much the ſafer and better Method. The Mineral Globules, he thinks, being intimately combined with Salts, in the Preparations given inwardly, will, by the Irritation thereof, be eaſily and fully thrown off by the Secretory Organs, 'till the Blood is quite diſcharged of its Load: Whereas, in Mercurial Frictions, 'tis poſſible, ſome of the heavy Particles may be left lodged in the Interſtices of the Fibres, or Cells of the Bones. Add to this, that by computing the Proportion of Mercury in all the Doſes neceſſary to promote a Spitting, internally; and the Weight of the ſame Mineral uſed when 'tis done by Unction; the Quantity uſed in the latter Caſe, far exceeds that in the former; conſequently, the ill Effects apprehended from that dangerous Medicine, muſt be vaſtly more ſenſible in the one Caſe than the other. The external Application, therefore, is only to be allowed of, where either the Caſe will bear the Violence of ſuch a Management, or outward Ulcers and Tumours, require a particular Cure by Linements.

Indeed, a great *French* Phyſician, M. *Chicoyneau*, Chancellor of the Univerſity of *Montpellier*, has lately done ſome Diſcredit to the Practice of *Salivating* in any Manner; And that, in a little Treatiſe lately publiſhed, where he endeavours to prove, That the *Salivation* it ſelf contributes nothing to the Cure, but is rather prejudicial thereto: That the Salutary Effects of the Mercury are independant of any Evacuation at all; and that it acts purely as a Specific. 'Tis without Reaſon, therefore, he urges, that Venereal Patients are put to the Torture of a *Salivation*, ſince the full Effect of the Medicine is had without carrying Matters to that Extremity. The *Salivation* is only an Accident to the Cure; which is effectually obtained by a Mercurial Unguent rubbed on the Joints in ſuch Quantities, and at ſuch Intervals, as not to raiſe any *Salivation*. He ſupports the whole by the Experience of Forty or Fifty Cures wrought in one Year, by the New Method. This Method, it ſeems, has been lately, too, tried in *England*, and with Succeſs; as appears from a Tranſlation of *Chicoyneau*'s Piece juſt publiſhed with Notes.

SALLET, or *Salade*, a Diſh of eatable Herbs ordinarily accompanying Roaſt-meat, compoſed chiefly of crude, freſh Herbs, ſeaſoned with Salt, Oil, and Vinegar. Some add Muſtard, hard Eggs, and Sugar; others, Pepper, and other Spices, with Orange-Peel, Saffron, *&c.* Some define *Sallet* more generally, A Compoſition of Plants and Roots, of ſeveral Kinds, to be eaten raw or green, blanched or candied, by themſelves, or mixed with others; and even, occaſionally, boiled, pickled, or otherwiſe prepared and diſguiſed, to render them more grateful to the Palate. But this Definition includes *Pot-herbs*, &c. which the Generality of Authors deny to be any proper Salleting, though others ſtiffly maintain it. *Menage* derives the Word from the *Latin*, *Salate*, of *Sal*, Salt; others from *Salcedo*. *Du Cangſe* from *Salgama*; which is uſed in *Auſonius*, and *Columella* in the ſame Senſe.

Compoſition of SALLETS.

The principal *Sallet-herbs*, and thoſe which ordinarily make the Baſis of our *Engliſh Sallets*, are Lettice, Sellery, Endive, Creſſes, Radiſh, and Rape, *&c.* Along with which, by way of Furniture, or Additionals, are uſed Purſlane, Spinage, Sorrel, Taragon, Burnet, Corn-Sallet, and Chervil. The different Taſtes of Mankind will not allow any certain Mixture of theſe to be preſcribed as moſt agreeable; but ſtill, in mixing them, the Reliſh of the ſeveral Herbs is to be conſider'd: Thoſe, for Inſtance, which are moſt hot and biting; as Creſſes, Muſtard, Sellery, Taragon, Chervil, *&c* with thoſe that are more cool and inſipid to the Taſte; as Turnips, Rape, Spinage, Lettice, Corn-Sallet, Purſlane, *&c.* by this Means the Herbs may be ſo judiciouſly mixed, that the too ſtrong Taſte of one Kind may not over-power all the reſt; and the inſipid Kinds be diſcretely uſed to moderate and qualify the Heat and Pungency of the others, as the Seaſon of the Year is more hot or cold; ſo as every *Sallet* may not only be agreeable to the Taſte, but alſo Phyſic to the Body.

Culture of SALLETS.

The Gardeners call *Small-herbs*, in *Sallets*, thoſe which ſhould always be cut while in the Seed Leaf; as Creſſes, Muſtard, Radiſh, Turnip, Spinage, and Lettice; all which are raiſed from Seeds ſown in Drills or Lines, from Mid-*February* to the End of *March*, under Glaſſes or Frames, and thence to the Middle of *May*, upon natural Beds, warmly expoſed; and during the Summer Heats in more ſhady Places; and afterwards, in *September*, &c. as in *March*, &c. and laſtly, in the Rigour of the Winter, in hot Beds. If they chance to be frozen in very froſty Weather, putting them in Spring-Water two Hours, e'er they be uſed, recovers them. In gathering *Small-herbs*, the beſt Way is to pull them up by the Roots from the hot Beds. If the Roots be left, and a ſecond Crop of *Salleting* ſown on the ſame Bed, it will not proſper. In ſowing ſecond Crops, 'tis alſo to be obſerved, that Seeds of the ſame Kind be not ſown in the ſame Place; but the Ground is to be eaſed by varying its Burthen, putting hot Seeds where cold ones grew before, *&c.* Another Rule is, that no Plant be placed in the ſame Spot where the ſame Kinds have been growing.—— *Winter-Sallets* are greatly improved by blanch'd Sellery, which is a hot Herb, of a very rich Flavour; raiſed from Seed ſown in *March*, and *April*, in a well expoſed Place, and tranſplanted, ſix Weeks after its firſt Appearance, into Beds, where it remains till the Middle of *June*, and then planted in Trenches 8 or 10 Inches wide, and as many deep, firſt pruning off the Tops and Roots. As they grow large, they are earthed up within 4 or 5 Inches of the Top, which is repeated ſeveral times, till they be fit for Uſe.—— *Endive* blanch'd is much uſed in *Winter Sallets*, though it have neither Taſte nor Flavour; 'tis cultivated much after the ſame Manner as Sellery.—— Of Lettice there are various Kinds, the beſt are the *Roman*, *Dutch brown*, *Imperial*, and *Sileſia-Kinds*, all which cabbage well. They are all commonly ſown with other Crops in *March*, for *Summer-Sallets*, and in *Auguſt*, to be tranſplanted, or *September*, to ſtand the Winter, either to be cut for *Winter-Sallets*, or to cabbage early next Spring for *Seeds*. See SEEDS. Indeed the *Roman* will ſcarce bear the Froſt.

For the Additional, or Secondary *Sallet-herbs*: *Burnet* is a cool perennial Herb, whoſe tender Leaves, mixed with other Herbs in Winter, give the agreeable Flavour of a Cucumber: 'Tis propagated by Seed ſown in *March*. *Corn-Sallet*, raiſed at the ſame Time, and in the ſame Manner, makes a good *Winter-Sallet* Furniture; *Purſlane*, an inſipid, yet cooling Herb, is admired by ſome in *Summer-Sallets*: 'Tis raiſed by Seeds ſown in *March* in a warm Place. *Sorrel* is chiefly uſed in the Spring, when the young Leaves are very agreeable. 'Tis raiſed from Seeds ſown in *March*, uſually in Rows or Drills. *Spinage* is a neceſſary Ingredient in raw *Sallets*, to be cut in the Ear-leaf; but 'tis better for boiled *Sallets* in the Winter and Spring. 'Tis ſown in *March*, *April*, and *May*; and again in *Auguſt*, in a Place well expoſed to the Sun, that the Leaves may be large enough for boiling in the Winter. *Taragon*, of all others, ſhould never be wanting; 'tis a Cordial Herb, though not the moſt agreeably taſted: Yet a few Leaves, or three or four of the tender Tops, give a *Sallet* a good Reliſh. 'Tis propagated from Slips, taken from the Root, and planted in *March*.—— *Note*, in the Spring, *Dandelion* blanch'd, which is gather'd in almoſt every plough'd Field, makes an excellent Sallet mixed with other Herbs. Some likewiſe gather Violet Flowers, Cowſlips, and Bloſſoms of Burrage, as part of the *Sallet* Furniture; others, *Fennel*, and *Parſley*. See POT-HERBS.

Preparation and Dreſſing of SALLETS.

The *Sellery* and *Endive*, have their hollow, green Stem, or Stalk, ſtripp'd of all its outſide Leaves, and ſliced in the blanch'd Part, cutting the Root into four Parts. The other ingredient Herbs being exquiſitely culled and cleanſed, of all faulty Leaves, *&c.* are waſh'd rather by ſprinkling, than ſobbing them in Spring-water; laid to drain of all ſuperfluous Moiſture, then ſhook and ſqueezed together gently, in a coarſe Cloth, to diſpoſe them to receive the Seaſonings, *viz.* the Salt, Vinegar, Oil, *&c.* The Oil not to be yellow, or high colour'd, but of a pale Olive Green, without either Taſte or Smell. See OIL. The Vinegar perfectly clear, neither ſour nor pall'd. See VINEGAR. The Salt to be the beſt ordinary Bay-Salt, clean, bright, and dry. Some indeed recommend the Eſſential Salts and Spirits of Vegetables, or thoſe of the Alcalizate and Fix'd Kind, extracted from the Calcination of Balm, Roſemary, Wormwood, *&c.* and affirm, That, without eating the groſs *Sallet-herbs* themſelves, we might have healing, cooling, generous *Sallets*, wholly out of the *Salt-Setler*. See SALT. *Note*, In the Proportion of the Salt, Pepper, and Vinegar, Regard is to be had to the Seaſon, Conſtitution, *&c.* the two firſt being beſt for cold, the ſecond for hot Stomachs and Seaſons. For a moderate *Oxalme*, or *Sallet-Vehicle*, to three Parts of Oil, put one of Vinegar, or Lemon, or Orange Juice, and in the Mixture, ſteep Slices of Horſe-radiſh with a little Salt; occaſionally, add a little *Guinea* Pepper, and Muſtard, with the Yolks of two Eggs boiled, ſqueezed, and bruiſed into a Maſh therein. Pour the Whole on the Herbs, ſtirring and mingling them till they be thoroughly imbibed.

Salii from *Saltare*, to dance; becauſe, after aſſiſting at Sacrifices, they went dancing about the Streets with *Ancyles* or Bucklers in the Left-Hand, and a Rod in the Right, ſtriking muſically on one another's Bucklers with their Rods, and ſinging Hymns in Honour of the Gods. There were Two Companies or Colleges of *Salii*: The ancient eſtabliſhed by *Numa*, called *Palatini*; the latter by *Tullus Hoſtilius*, called *Collini*, and *Agonales. Servius*, indeed, tell us, That there were Two Kinds inſtituted by *Numa*, the *Collini* and *Quirinales*; and Two other Kinds by *Tullus*, the *Pavorii* and *Pallorii.* In Singing, they uſed a Song called *Saliare Carmen*; and after the Ceremony, were entertained with a Feaſt: Whence *Saliares Epulæ*, and *Saliares Dapes*, paſſed into a Proverb for good Eating. Their Chief, called *Præſul*, and *Magiſter Saliorum*, was one of their Number. 'Twas he led the Band, and begun the Dance; the reſt imitating all his Steps and Motions. The whole Company was called *Collegium Saliorum.*

Sex Pompeius makes mention of *Salian Maids*, *Virgines Saliares*, hired for the Purpoſe, and joyned with the *Salii*, wearing a Kind of Military Garb, called *Paludamentum*, with high round Bonnets like the *Salii*, and, like them, performing Sacrifice with the *Pontifices* in the Palaces of Kings. M. *Patin* takes it, there is a Figure of one of the *Salii* on a Medal of the *Saguinian* Family; who, beſides the Buckler in one Hand, holds the *Caduceus* in the other. But his Look is very grave and ſedate; and beſides, the Buckler he holds, does not ſeem to be an *Ancyle*, as being quite round, and not indented any where. And again, why ſhould a Prieſt of *Mars*, the God of War, be repreſented with a *Caduceus*, the Emblem of Peace? 'Tis probable therefore, this is no Figure of any *Salius*, as *Patin* imagines.

SALIVA, *Spittle*, a thin pellucid Humour, ſeparated by the Glands about the Mouth and Fauces; and conveyed by proper *Salival Ducts* into the Mouth, for ſeveral Uſes. See SALIVAL *Ducts.* It conſiſts of a great deal of Water or Phlegm, and a Volatile Salt; ſome add, a ſulphurous Spirit. The *Saliva*, *Boerhaave* obſerves, is void both of Taſte and Smell; does not harden by Heat; is more copious, fluid, ſharp, penetrating, and detergent, as a Perſon has faſted longer; and is ſeparated from the pure Arterial Blood. The Glands wherein the *Saliva* is ſeparated from the Blood, are the *Parotides*; the *Maxillary Glands*; the *Sublinguales*, or thoſe under the Tongue; the *Amygdalæ*, or Almonds of the Ears, and the *Palatinæ*, or Glands of the Palate: See each under its proper Article. The great Uſe of the *Saliva*, is in maſticating and diluting the Food, and making the firſt Digeſtion thereof. The other Uſes are to moiſten the Tongue, to render its Motion more quick and eaſy; to lubricate the Throat and *Oeſophagus*, in order to facilitate Deglutition, to prevent Thirſt, and to aſſiſt in the Senſation of Taſtes, by diſſolving the Salts. Some imagine it to do the Office of a *Menſtruum* to mix the oily and aqueous Parts of the Food more intimately, to diſſolve the Saline Parts, and to procure a Fermentation in the Stomach. But Dr. *Drake* will not allow it fit for that Purpoſe. Were the *Saliva*, ſays he, acrimonious enough for this, 'twould be impoſſible but it muſt offend the Stomach; eſpecially, conſidering the Quantities of it that many ſwallow, even upon an empty Stomach. See DIGESTION.

M. *Gaſtaldy*, who has a Medicinal Theſis on the Subject of the *Saliva*, obſerves, That it takes its Name from the *Salt* it contains; which Salt he will have to be partly a Volatile Acid, and partly Alcalious. He adds, That it contains ſome Oleaginous Parts, and a little Earth. By being compounded of ſo many different Kinds of Parts, it becomes a Diſſolvent proper for all the different Kinds of Foods whereof we live. Its natural and laudable State, is to be a little more Viſcid than common Water, and much leſs ſo than Milk. 'Tis preſerved in this State by the Application of the Spirits, and of the Particles of Air which inſinuate into it. According to all Appearance, the *Saliva* is derived from the Blood of the Arteries. Part of the Arterial Blood brought to the *Salival Glands*, ſerves to feed them; another Part is returned into the Veins, and continues the Circulation, and a third Part, which is the *Serum*, receiving a ſub-acid Quality from them, is converted into *Saliva.* Some Authors have imagined, that the Nervous Juice contributed to the Compoſition of the *Saliva*; the rather becauſe larger and more numerous Twigs of Nerves are communicated to theſe Glands, than to moſt other Parts, which yet have a more exquiſite Feeling than theſe. But Dr. *Nuck* has refuted this Opinion by ſeveral Experiments.

Too great an Excretion of *Saliva*, *Boerhaave* obſerves, diſorders the firſt Digeſtion; and hence cauſes Thirſt, Dryneſs, a black Bile, Conſumption, Atrophy: On the contrary, if no *Saliva* be diſcharged into the Mouth, or leſs than ordinary, it ſpoils both the Manducation of the Food, and its Taſte, Swallowing, and Digeſtion; and withal, occaſions Thirſt.

SALIVAL, or *Salivary Ducts*, in Anatomy, certain little Canals lately diſcovered; whereby the *Saliva* falls into the Mouth. The *Lower Salival Duct* comes from the *Maxillary* Glands, ſituate under the lower Jaw, and terminated behind the *Dentes Inciſores.* It was firſt deſcribed by our Dr. *Wharton*, in his Treatiſe of the *Glands*, in 1656. The *Upper Salival Duct* was diſcovered by *Nicolas Steno*, in 1660. It comes from the Parotid Glands; whence perforating the *Buccinator*, it terminates near the third Upper Grinder. *Caſp. Bartholine*, in 1682, diſcovered another *Salival Duct*, coming from the Glands ſituate on the Side of the Tongue; tho' *Rivinus*, a Phyſician of *Leipſic*, had mentioned it before, in a Diſſertation printed in 1679. *Anth. Nuck*, Profeſſor at *Leiden*, diſcovered a fourth *Salival Duct*, ariſing from a Gland ſituate in the Orbit of the Eye, between the *Muſculus Obductor*, and the Upper Part of the *Os Jugale.* Theſe Ducts are all double, there being one of each Kind on either Side. But 'tis pretended, the Two laſt are only found in ſome Brutes, and not in Man.

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SALIVATION, in Medicine, a promoting of the Flux of *Saliva*, by Means of Medicines; chiefly *Mercury.* See MERCURIALS. The chief Uſe of *Salivation* is in Diſeaſes adhering to the Glands, and the *Membrana Adipoſa*; principally in the Cure of the Venereal Diſeaſe. 'Tis ſometimes alſo uſed in Epidemic Diſeaſes. The Body is prepared for *Salivation* by a copious and continued Uſe of attenuating, diluting, ſoftening Decoctions; as of Scabious, Pellitory, China, Sarſaparilla, Saſſafras, and Santal. *Salivation* is either *Partial* or *Univerſal.* By the firſt, only, the Humours of ſome Part of the Body are to be diſcharged; as in *Catarrhs*, *Tooth-ach*, &c. By the ſecond, the whole Maſs of Blood is to be purged. The firſt is raiſed by a ſlow continued Chewing of ſome tenacious Matter, as Maſtich, Wax, Myrrh; eſpecially if other ſharp Things be mixed with them, as Pyrethrum or Bartram, Ginger, or Pepper. Or by drawing in ſharp irritating Vapours, as thoſe of Tobacco, Roſemary, Thyme, Marjoram, &c. The latter is effected by the Action of ſuch Medicines as create ſome ſlight but conſtant *Nauſea*; as *Stibium* not quite fixed, nor yet quite emetic; a little common Vitriol, &c. but chiefly ſuch as diſſolve all the Parts of the Maſs of Blood, turn them into *Lympha*, and thus cauſe a *Ptyaliſm.* Such is crude Quickſilver, Cinnabar, a Solution of Quickſilver in *Aqua-fortis*, White and Red Precipitate, Turbith Minerale, ſweet Sublimate of Mercury, &c.

MERCURIAL SALIVATION, is now a very uſual Method of Cure; eſpecially in Venereal Scrophulous, and Hypochondriac Caſes. In Effect, it proves the ſureſt Remedy yet diſcovered for the *Lues*; tho' the Diſcovery hereof, as that of moſt other Remedies, is owing to Chance. *Jac. Carpi*, a Phyſician of *Boulogne*, having read in *Avicenne* and *Meſve*, Two *Arab* Authors, that Mercury applied externally, was proper for the *Lepra*, and ſome Kinds of Puſtules, particularly the *Scabies* or the Itch; had a Mind to try it in a Pocky Itch: A *Salivation* was hereupon unexpectedly raiſed, and the Patient was cured not only of his Itch, but of his Pox. The ſame Method he afterwards uſed for the Pox itſelf; and meeting with great Succeſs therein, others were induced to follow him; and thus did it arrive at its preſent Height.

There are Two Manners of applying Mercury to raiſe a *Salivation*: The one *external*, by mixing it up with ſome Unguent, Plaiſter, or Perfume, and then rubbing it on the Joints, &c. The other *internal*, where 'tis taken at the Mouth. In each Caſe the Mercury inſinuates itſelf into the Maſs of Blood, and mixing with the Venereal Poiſon, the Two Bodies thus locked together, are drawn, with the Seroſity, into the *Salival* Glands, where they are ſeparated and diſcharged, as finding the Pores of the Glands proportioned to their Figures, and proper to receive them. But, for the Manner wherein the Mercury acts to raiſe the *Salivation*, ſee MERCURIALS. Dr. *Quincy*, will have the *internal* to be much the ſafer and better Method. The Mineral Globules, he thinks, being intimately combined with Salts, in the Preparations given inwardly, will, by the Irritation thereof, be eaſily and fully thrown off by the Secretory Organs, 'till the Blood is quite diſcharged of its Load: Whereas, in Mercurial Frictions, 'tis poſſible, ſome of the heavy Particles may be left lodged in the Interſtices of the Fibres, or Cells of the Bones. Add to this, that by computing the Proportion of Mercury in all the Doſes neceſſary to promote a Spitting, internally; and the Weight of the ſame Mineral uſed when 'tis done by Unction; the Quantity uſed in the latter Caſe, far exceeds that in the former; conſequently, the ill Effects apprehended from that dangerous Medicine, muſt be vaſtly more ſenſible in the one Caſe than the other. The external Application, therefore, is only to be allowed of, where either the Caſe will bear the Violence of ſuch a Management, or outward Ulcers and Tumours, require a particular Cure by Linements.

Indeed, a great *French* Phyſician, M. *Chicoyneau*, Chancellor of the Univerſity of *Montpellier*, has lately done ſome Diſcredit to the Practice of *Salivating* in any Manner; And that, in a little Treatiſe lately publiſhed, where he endeavours to prove, That the *Salivation* it ſelf contributes nothing to the Cure, but is rather prejudicial thereto: That the Salutary Effects of the Mercury are independant of any Evacuation at all; and that it acts purely as a Specific. 'Tis without Reaſon, therefore, he urges, that Venereal Patients are put to the Torture of a *Salivation*, ſince the full Effect of the Medicine is had without carrying Matters to that Extremity. The *Salivation* is only an Accident to the Cure; which is effectually obtained by a Mercurial Unguent rubbed on the Joints in ſuch Quantities, and at ſuch Intervals, as not to raiſe any *Salivation*. He ſupports the whole by the Experience of Forty or Fifty Cures wrought in one Year, by the New Method. This Method, it ſeems, has been lately, too, tried in *England*, and with Succeſs; as appears from a Tranſlation of *Chicoyneau*'s Piece juſt publiſhed with Notes.

SALLET, or *Salade*, a Diſh of eatable Herbs ordinarily accompanying Roaſt-meat, compoſed chiefly of crude, freſh Herbs, ſeaſoned with Salt, Oil, and Vinegar. Some add Muſtard, hard Eggs, and Sugar; others, Pepper, and other Spices, with Orange-Peel, Saffron, *&c.* Some define *Sallet* more generally, A Compoſition of Plants and Roots, of ſeveral Kinds, to be eaten raw or green, blanched or candied, by themſelves, or mixed with others; and even, occaſionally, boiled, pickled, or otherwiſe prepared and diſguiſed, to render them more grateful to the Palate. But this Definition includes *Pot-herbs*, &c. which the Generality of Authors deny to be any proper Salleting, though others ſtiffly maintain it. *Menage* derives the Word from the *Latin*, *Salate*, of *Sal*, Salt; others from *Salcedo*. *Du Cangſe* from *Salgama*; which is uſed in *Auſonius*, and *Columella* in the ſame Senſe.

Compoſition of SALLETS.

The principal *Sallet-herbs*, and thoſe which ordinarily make the Baſis of our *Engliſh Sallets*, are Lettice, Sellery, Endive, Creſſes, Radiſh, and Rape, *&c.* Along with which, by way of Furniture, or Additionals, are uſed Purſlane, Spinage, Sorrel, Taragon, Burnet, Corn-Sallet, and Chervil. The different Taſtes of Mankind will not allow any certain Mixture of theſe to be preſcribed as moſt agreeable; but ſtill, in mixing them, the Reliſh of the ſeveral Herbs is to be conſider'd: Thoſe, for Inſtance, which are moſt hot and biting; as Creſſes, Muſtard, Sellery, Taragon, Chervil, *&c* with thoſe that are more cool and inſipid to the Taſte; as Turnips, Rape, Spinage, Lettice, Corn-Sallet, Purſlane, *&c.* by this Means the Herbs may be ſo judiciouſly mixed, that the too ſtrong Taſte of one Kind may not over-power all the reſt; and the inſipid Kinds be diſcretely uſed to moderate and qualify the Heat and Pungency of the others, as the Seaſon of the Year is more hot or cold; ſo as every *Sallet* may not only be agreeable to the Taſte, but alſo Phyſic to the Body.

Culture of SALLETS.

The Gardeners call *Small-herbs*, in *Sallets*, thoſe which ſhould always be cut while in the Seed Leaf; as Creſſes, Muſtard, Radiſh, Turnip, Spinage, and Lettice; all which are raiſed from Seeds ſown in Drills or Lines, from Mid-*February* to the End of *March*, under Glaſſes or Frames, and thence to the Middle of *May*, upon natural Beds, warmly expoſed; and during the Summer Heats in more ſhady Places; and afterwards, in *September*, &c. as in *March*, &c. and laſtly, in the Rigour of the Winter, in hot Beds. If they chance to be frozen in very froſty Weather, putting them in Spring-Water two Hours, e'er they be uſed, recovers them. In gathering *Small-herbs*, the beſt Way is to pull them up by the Roots from the hot Beds. If the Roots be left, and a ſecond Crop of *Salleting* ſown on the ſame Bed, it will not proſper. In ſowing ſecond Crops, 'tis alſo to be obſerved, that Seeds of the ſame Kind be not ſown in the ſame Place; but the Ground is to be eaſed by varying its Burthen, putting hot Seeds where cold ones grew before, *&c.* Another Rule is, that no Plant be placed in the ſame Spot where the ſame Kinds have been growing.—— *Winter-Sallets* are greatly improved by blanch'd Sellery, which is a hot Herb, of a very rich Flavour; raiſed from Seed ſown in *March*, and *April*, in a well expoſed Place, and tranſplanted, ſix Weeks after its firſt Appearance, into Beds, where it remains till the Middle of *June*, and then planted in Trenches 8 or 10 Inches wide, and as many deep, firſt pruning off the Tops and Roots. As they grow large, they are earthed up within 4 or 5 Inches of the Top, which is repeated ſeveral times, till they be fit for Uſe.—— *Endive* blanch'd is much uſed in *Winter Sallets*, though it have neither Taſte nor Flavour; 'tis cultivated much after the ſame Manner as Sellery.—— Of Lettice there are various Kinds, the beſt are the *Roman*, *Dutch brown*, *Imperial*, and *Sileſia-Kinds*, all which cabbage well. They are all commonly ſown with other Crops in *March*, for *Summer-Sallets*, and in *Auguſt*, to be tranſplanted, or *September*, to ſtand the Winter, either to be cut for *Winter-Sallets*, or to cabbage early next Spring for *Seeds*. See SEEDS. Indeed the *Roman* will ſcarce bear the Froſt.

For the Additional, or Secondary *Sallet-herbs*: *Burnet* is a cool perennial Herb, whoſe tender Leaves, mixed with other Herbs in Winter, give the agreeable Flavour of a Cucumber: 'Tis propagated by Seed ſown in *March*. *Corn-Sallet*, raiſed at the ſame Time, and in the ſame Manner, makes a good *Winter-Sallet* Furniture; *Purſlane*, an inſipid, yet cooling Herb, is admired by ſome in *Summer-Sallets*: 'Tis raiſed by Seeds ſown in *March* in a warm Place. *Sorrel* is chiefly uſed in the Spring, when the young Leaves are very agreeable. 'Tis raiſed from Seeds ſown in *March*, uſually in Rows or Drills. *Spinage* is a neceſſary Ingredient in raw *Sallets*, to be cut in the Ear-leaf; but 'tis better for boiled *Sallets* in the Winter and Spring. 'Tis ſown in *March*, *April*, and *May*; and again in *Auguſt*, in a Place well expoſed to the Sun, that the Leaves may be large enough for boiling in the Winter. *Taragon*, of all others, ſhould never be wanting; 'tis a Cordial Herb, though not the moſt agreeably taſted: Yet a few Leaves, or three or four of the tender Tops, give a *Sallet* a good Reliſh. 'Tis propagated from Slips, taken from the Root, and planted in *March*.—— *Note*, in the Spring, *Dandelion* blanch'd, which is gather'd in almoſt every plough'd Field, makes an excellent Sallet mixed with other Herbs. Some likewiſe gather Violet Flowers, Cowſlips, and Bloſſoms of Burrage, as part of the *Sallet* Furniture; others, *Fennel*, and *Parſley*. See POT-HERBS.

Preparation and Dreſſing of SALLETS.

The *Sellery* and *Endive*, have their hollow, green Stem, or Stalk, ſtripp'd of all its outſide Leaves, and ſliced in the blanch'd Part, cutting the Root into four Parts. The other ingredient Herbs being exquiſitely culled and cleanſed, of all faulty Leaves, *&c.* are waſh'd rather by ſprinkling, than ſobbing them in Spring-water; laid to drain of all ſuperfluous Moiſture, then ſhook and ſqueezed together gently, in a coarſe Cloth, to diſpoſe them to receive the Seaſonings, *viz.* the Salt, Vinegar, Oil, *&c.* The Oil not to be yellow, or high colour'd, but of a pale Olive Green, without either Taſte or Smell. See OIL. The Vinegar perfectly clear, neither ſour nor pall'd. See VINEGAR. The Salt to be the beſt ordinary Bay-Salt, clean, bright, and dry. Some indeed recommend the Eſſential Salts and Spirits of Vegetables, or thoſe of the Alcalizate and Fix'd Kind, extracted from the Calcination of Balm, Roſemary, Wormwood, *&c.* and affirm, That, without eating the groſs *Sallet-herbs* themſelves, we might have healing, cooling, generous *Sallets*, wholly out of the *Salt-Setler*. See SALT. *Note*, In the Proportion of the Salt, Pepper, and Vinegar, Regard is to be had to the Seaſon, Conſtitution, *&c.* the two firſt being beſt for cold, the ſecond for hot Stomachs and Seaſons. For a moderate *Oxalme*, or *Sallet-Vehicle*, to three Parts of Oil, put one of Vinegar, or Lemon, or Orange Juice, and in the Mixture, ſteep Slices of Horſe-radiſh with a little Salt; occaſionally, add a little *Guinea* Pepper, and Muſtard, with the Yolks of two Eggs boiled, ſqueezed, and bruiſed into a Maſh therein. Pour the Whole on the Herbs, ſtirring and mingling them till they be thoroughly imbibed.

SALLY, in Architecture, from the *French Sallie*, is what we more uſually call *Projecture*. See PROJECTURE.

SALLY, in the Military Art, the iſſuing out of the Beſieged from their Town or Fort, and falling upon the Beſiegers to cut them off, nail their Cannon, hinder the Progreſs of their Approaches, deſtroy their Works, &c. To *Cut off a Sally*, is to get between thoſe who made it and the Town.

SALON, or *Saloon*, in Architecture, a very lofty, ſpacious Hall, vaulted at Top, and ſometimes comprehending two Stories, or Ranges, of Windows: As that at *Blenheim*-Houſe. The *Salon* is a Grand Room in the Middle of a Building, or at the Head of a Gallery, &c. Its Faces, or Sides, are all to have a Symmetry with each other; and as it uſually takes up the Height of two Stories, its Ceiling, *Daviler* obſerves, ſhould be with a moderate Sweep. The *Salon* is a State Room. 'Tis much uſed in the Palaces in *Italy*; and from thence the Mode came to us. Embaſſadors, and other Great Viſitors, are uſually received in the *Salon*: 'Tis frequently built Square, ſometimes Octogonal, as at *Marly*, and ſometimes in other Forms.

SALT, *Sal*, in Chymiſtry, a ſimple, acid Subſtance which enters the Compoſition of all Bodies, and is held one of the Five *Principles*, or Elements thereof; only to be extracted by Fire. See PRINCIPLE. *Salt*, M. *Homberg* obſerves, is an Ingredient in all Animal, Vegetable, and Mineral Bodies, excepting perhaps ſome Metals, and Stones. In Vegetables and Mineral Bodies, that have undergone a Fermentation, the *Salt* riſes firſt in the Alembic, then the Phlegm: If the Mixt have undergone a Fermentation, the *Salt* riſes after the Phlegm.

SALTS are diſtinguiſhed, with Regard to the Manner of extracting them, &c. into *Volatile*, *Fixed*, and *Eſſential*. *Volatile Salts*, are thoſe light, ſubtle ones, which riſe eaſily upon Diſtillation, or are even exhaled by the Noſe, and rendered ſenſible to the Smell. See VOLATILE SALT. *Fixed Salts* are ſuch as, being more Groſs and Material, reſiſt and ſuſtain the Fire; and are not raiſed by it, but remain, after Calcination, or Diſtillation, in the Earthy Part, at the Bottom. For the Manner of Extracting them, &c. ſee FIXED SALT. *Eſſential Salts* are thoſe drawn from Vegetables, without the Uſe of Fire, as by Cryſtallization, and other eaſy, natural Means. See ESSENTIAL SALTS. *Volatile Salts* become diſtinguiſhable to the Noſe, Tongue, and Brain, by their Tenuity and Briſkneſs; *Fixed Salts* by their Bitterneſs, and Heat in the Mouth. To theſe may be added an intermediate Kind of *Salt*, under the Title of *Mixed Salts*; which are thoſe reſulting from a Mixture of a *Volatile* with *Fixed Salt*.

SALTS are of different Kinds, according to the different Matters wherewith they are found mixed: Some are mix'd Bodies themſelves, and their Mixture ſeparable by Fire, and Lixivation; ſuch are all *Eſſential Salts* of Plants, and all *Foſſile Salts*, &c. but theſe are no proper Chymical Principles. There are others which we are ſenſible are mixed, and whoſe Mixture we know pretty nearly, though we are not yet able to decompound them: 'Tis theſe make the Chymical Principle *Salt*; for our Analyſes will not render them more Simple, which is the Character of a Principle: And in this Senſe *Salt* is defined, *A Matter diſſoluable by Water, and unchangeable by Fire*; to which ſome add, *Of a pungent Taſte*.

There are Three Kinds, or Claſſes, of *Salts*, which come under this Definition; Two whereof are *Volatile*, and the Third *Fixed*. The *Volatile* ones, are *Acid Salts*, and *Urinous Salts*; the *Fixed*, are thoſe drawn by a Lixivium after Calcination, and called *Lixivious Salts*. Nature produces none of theſe *Salts* ſimple and unmixed, but we eaſily extract them by Art, from the Mixts wherein ſhe has placed them. The Principal Natural Salts may be reduced to *Salt-petre*, *Sea-Salt*, and *Vitriol*. Each whereof has its different Kinds; of the various Combination whereof, with different Oily Matters, all the Natural *Salts*, we know of, are compounded. Theſe *Salts* are found, by Chymical Analyſes, to conſiſt of Aqueous, Earthy, Oily, or Sulphurous, and Acid Particles. The Acid Matter is the *Pure Salt*, or the *Salt-Principle*, and is the Baſe of all the reſt. This M. *Homberg* obſerves, is pretty uniform, and nearly the ſame in all *Salts*, before the particular Determination to form this or that *Salt*, by the particular Admixture of the Sulphur, &c. *Salt petre*, *Sea-Salt*, &c. therefore are not Principles, but the *Acid Salts* diſtilled from them are, and the Water wherein theſe *Salts* ſwim, and the Earth, or *Fixed Salt*, remaining in the Retort after Diſtillation, are other Chymical Principles. See PHLEGM, and EARTH.

The Principle *Salt* is held a *Mean* between the *Active* and *Paſſive* Principles. The pure *Acid*, though accompanied with its ſulphurous determinating Matter, never becomes ſenſible but when lodged either in ſome earthy Matter, or artificially in ſome ſimple aqueous Matter. In the firſt Caſe, it appears under the Form of a cryſtallized *Salt*, as *Salt petre*, &c. See SALT, &c. In the ſecond Caſe, it appears in the Form of an Acid Spirit, which, according to the Determination of the Sulphur that accompanies it, is either Spirit of Nitre, or Spirit of *Common-Salt*, or Spirit of Vitriol; and what we have here obſerved of the three Simple, or *Foſſile Salts*, may be applied to all other more Compound *Salts* of Plants, Animals, &c. with this Difference, That when, in Form of a *Concrete Salt*, theſe laſt always take a greater Quantity of earthy Matter, and when in Form of an Acid Spirit, a greater Quantity of aqueous Matter, than the Simple ones. Whence it follows, that the Acid Spirits of Compound *Salts* are always weaker, lighter, and leſs penetrating than thoſe of *Foſſile Salts*; and after Diſtillation leave a greater Quantity of earthy Matter behind them.

We don't know preciſely what Figures the three *Salt-Principles*, *Acid*, *Urinal*, and *Lixivial*, muſt have. But to judge by their Effects, one would conclude, the *Acids* to be pointed, only the Points ſheathed in ſome ſulphurous Matter. The *Urinous Salts* to be Spunges, containing ſome of the *Acid*, and ſome of the fœtid Oil of the Animal or Plant: And the *Lixivious Salts* to be Spunges, only containing the Remainder of the Acid, which the calcining Fire could not expel.

Acid Spirits may be conceived as pure, and without any Mixture; in which Caſe all Acids will be found of the ſame Nature: But if we conſider them as Diſtillation gives them, we ſhall always find them accompanied with ſome ſulphurous Matter, which we cannot ſeparate from them, and which gives the Degree of Activity to the Acid Spirits. 'Tis this ſulphurous Matter which characterizes them, and makes all the Difference we find between Acid Spirits. M. *Homberg* ranges all the Kinds of Acid Spirits under Three different Claſſes, according to the different ſulphurous Matters which accompany them. The Firſt Claſs is of thoſe which contained Animal or Vegetable Sulphur; under which come all Acids, diſtilled from Plants, Fruits, Woods, &c. as alſo Spirit of Nitre. 'Tis eaſy to conceive, that the Acids of Plants may have retained a Part of the Oil of the Plant, which is their Sulphur; ſince in reducing theſe Acids into *Salts*, we always find a little Oil therein; which can be nothing elſe but that of the Plants themſelves. And for *Salt-petre*, as this is always drawn from Earths moiſtened with the Excrements of Animals, or from old Walls, Plaiſter, &c. full of the ſulphurous Matters of the Animals that lived within them, the Soot, &c. 'tis thence, doubtleſs, *Salt-petre* borrows its Sulphur. See SALT-PETRE. The Second Claſs is of thoſe which contain a bituminous Sulphur: Under which come the Acids of Vitriol, Common Sulphur, and Alum. For thoſe are all uſually drawn from the ſame Mineral Stone, wherein the bituminous Matter, which makes one of the Principal Parts of *Common Sulphur*, predominates. See SULPHUR. The Third Claſs is of thoſe which contain a more fixed mineral, ſulphurous Matter; approaching nearer the Properties of Metaline Sulphur: Under which Claſs come the Acids drawn from ſeveral Kinds of *Sea Salts*, *Rock-Salts*, &c. For the *Rock Salt*, or *Sal-Gemmæ*, is always found in Places near Metalic Mines; and *Sea-Salt*, in all Appearance, is nothing but *Rock-Salt*, the Quarries whereof have been penetrated by the Sea-Water, which has extracted all the Saltneſs therefrom. See SEA-SALT.

The ſulphurous Matters of the Firſt Claſs of Acids being very light, and taking up a deal of Place, muſt augment the Bulk of the Points of the Acids to which they are joined. And hence theſe Acids become diſabled from penetrating very compact Bodies; but their Surface being increaſed from the ſame Cauſe, the Flame will have the greater Hold to drive them: And hence the Acids of this Claſs act more ſwiftly than any of the reſt. The bituminous Sulphur is the leaſt active of all the Sulphurs we know, as being loaden with a great Quantity of earthy Matter, which ſerves it as a Matrix. Hence it unites more difficultly with Saline Matters than any of the other Sulphurs; ſo that a leſs Quantity of it may be conceived to adhere to the Acids of this, than of either of the other Claſſes. Accordingly we find, that the Acids of this Claſs, uſed alone, ſcarce diſſolve any Metals; but mixed with the others, partake of their Sulphur, and thereby become enabled to diſſolve all Metals. The Metalick-Sulphur is of all others the moſt fixed; that is, its Parts are the ſmalleſt, and moſt compact. See FIXITY. Hence the Points of this Claſs of Acids will not be much ſwelled by it, and of Conſequence will be able to inſinuate themſelves into the moſt compact Bodies, or thoſe whoſe Pores are the ſmalleſt. And for the ſame Reaſon they will not give much hold to the Flame that agitates them, and will therefore act with leſs Violence than thoſe of the Firſt Claſs of *Salts*. Acids joined to *Fixed Salts*, compoſe *Mixed Salts*. Thus Spirit of *Nitre*, with *Salt* of *Tartar*, make *Salt-petre*; and Spirit of *Salt*, with *Salt* of *Tartar*, make a true *Common Salt*; and Spirit of *Vitriol*, with *Salt* of *Tartar*, a true *Vitriol*. However, the two ingredient *Salts* ſtill remain, the one *Fixed*, the other *Volatile*: Acids joined with *Urinous Salts*, compoſe another Kind of *Salts*, called *Sales Ammoniaci*, which are always *Volatile*.

Lixivial and *Urinous Salts*, are called *Alcalies*; the firſt a *Fixed Alcali*, the ſecond a *Volatile Alcali*. Theſe *Alcalies* are uſually eſteemed Antagoniſts to the *Acid Salts*, becauſe their Mixture always occaſions a ſudden Ebullition. But 'tis more probable this Ebullition is not the Effect of a Combat, but rather a proper Junction and Union of two Matters which had been naturally united together, and only ſeparated by the Fire, and now re-place themſelves in the ſame Parts whence the Flame had tore them off. Hence, the one are compared to Sheaths, and the other to Points fit to be ſheathed therein. Now, the Precipitation wherewith the Points of the *Acids* enter the Pores of the *Alkalies*, tears aſunder their Contexture, and reduces them into minute Parts inviſible to the Eye; and thus is the Buſineſs of *Diſſolution* accounted for. See DISSOLUTION.

Thus far will the mere Doctrine of *Alkali* and *Acid* go towards accounting for ſome of the great Phænomena of Nature. But the Theory is made vaſtly more compleat and adequate, by Sir *Iſaac Newton*'s Principle of *Attraction*, for which we refer the Reader to the Articles ACID, MENSTRUUM, &c. where the Operation of *Salts*, or *Acid Spirits*, are perhaps more ſatisfactorily accounted for.

The Principal *Chymical Salts* of Uſe in Medicine are; Salt of *Urine*, of *Lavander*, of *Viper*, of *Human Blood*, of *Wormwood*, of *Guayac*, of *Quinquina*, of *Tobacco*, of *Rhubarb*, of *Roſemary*, of *Calaureum*, of *Sage*, of *Juniper*, of *Vitriol*, of *Amber*, of *Saturn*, &c. moſt of which, with many others, are explained under the Articles of the reſpective Drugs, *&c.* whence they are drawn: To which the Reader may have recourſe.

SALT, in the popular Uſe of the Word, is uſed for a Kind of *Saline* Cryſtallization; or a ſharp, pungent, detergent and aſtringent Subſtance, uſed to Seaſon Fleſh, Fiſh, Butter, Hides, and other Things that are to be kept: As alſo to give a Reliſh to Meats, *&c.* This *Salt* we uſually call *Common-Salt*, in Contra-diſtinction to the *Chymical Salt*. M. *Guglielmeni*, in an expreſs Diſſertation *de Salibus*, lays it down as a Fundamental, that the firſt Principles of *Common-Salt*, *Salt-petre*, *Vitriol*, &c. have their Figures unalterably fixed at their firſt Creation, and are indiviſible as to any created Force. That of *Common-Salt*, he maintains to be a little Cube; that of *Salt* of *Vitriol*, a Parallelipiped; that of *Salt-petre* a Priſm, whoſe Baſe is an equilateral Triangle, *&c.* *Common-Salt* is of three Kinds, *viz.* *Sea-Salt*, *Foſſile*, or *Rock-Salt*, and *Salt* drawn out of *Salt* Springs and Wells.

For *Sea Salt*, the greateſt and beſt Part is made in *France*; little in *England*. *Foſſile*, or *Rock-Salts*, are chiefly found in *Poland*, *Hungary*, and *Catalonia*. For *Salt* Fountains, they are conſiderable in *Cheſhire*, *Worceſterſhire*, *Hampſhire*, *Northumberland*, *Franche Comte*, *Lorrain*, *Tirol*, and ſome other Places.

The Uſe of *Salt* is ſo univerſal, and the Commerce thereof ſo very conſiderable in the Places where Nature has produced the different *Salts*, and ſo neceſſary for thoſe which have not that Advantage; that a Detail of the Preparation, Commerce, *&c.* of the ſeveral Kinds, cannot fail of being acceptable.

Manner of Making SEA-SALT.

This *Salt* is made of *Sea* Water, thicken'd by frequent Evaporations, and at length Cryſtallized. Of *Sea-Salt* there are two Kinds: That which requires the Sun's Rays to give it its Conſiſtence, called, from its brown Colour, *Bay-Salt*: And that which receives its Conſiſtence from the Heat of a Fire, called *White Salt*. They uſe either this or that Manner of Preparation, according to the Diſpoſition of the Coaſts, where 'tis made. If the Coaſts riſe in Downs or Hills of Sand, the *Salt* is made by Fire, in Copper or Leaden Veſſels. If the Coaſts be flat, and low; eſpecially, if the Bottom be a little Clayey, the *Salt* is Cryſtallized wholly by the Action of the Sun. We have nothing very conſiderable of either Kind in *England*. Some indeed we have of the latter, at *Shields* in *Northumberland*; and of the former in the Iſle of *May*. *France* is the principal Place for theſe *Salts*; more being made there than in all *Europe*, perhaps in all the World beſide, and 'tis hence that we are chiefly furniſhed therewith. We ſhall therefore deliver the Method of making it, as it is practiſed there. The chief Coaſts for *Bay Salt* are thoſe of *Bretagne*, *Saintonge*, and the *Pays d' Aunis*. The chief *Salt-Works*, in the two latter Places, are *Brouage*, *Maran*, and the Iſle of *Rhe*. Thoſe in *Bretagne* are in the Bay of *Borneuf*, *Guerand*, and *Croiſil*: For *White-Salt* is chiefly made on the Coaſts of *Normandy*. In the Bay of *Borneuf* alone, are computed above Twenty Thouſand conſiderable *Salt-Works*.

Manner of Making BAY-SALT.

Low Marſhy Grounds, diſpoſed by Nature for the Reception of the Sea-waters when the Tide ſwells, and provided with Banks and Sluices to retain the ſame, are called a *Salt-marſh*. Theſe *Salt-marſhes*, the Bottoms whereof they ram with a deal of Care, are divided into ſeveral ſquare Pits or Baſons, ſome greater, others leſs, ſeparated by little Dikes 13 or 14 Inches broad: And into theſe Baſons, when the Seaſon is at hand, they let in the Sea-water. The *Salt Seaſon* is from the Middle of *May* to the End of *Auguſt*; in which Time the Days being long, and the Sun's Rays ſtrongeſt, the Salt is raiſed and cryſtallized better than in any other Seaſon. E'er they let in the Water, they take Care the Baſons be well cleared of what had been left in them during the Winter to keep them in Order. The Water is admitted to the Heighth of about ſix Inches, after having firſt let it reſt, and warm two or three Days in huge Reſervoirs, without the Works, that it may come in luke-warm. The Water admitted, the Sluices are ſhut, and the reſt of the Work left to the Wind and the Sun.

The Surface of the Water being ſtruck, and agitated by the direct Rays of the Luminary, thickens, at firſt, imperceptibly, and becomes, at length, cover'd over with a ſlight Cruſt, which hardening by the Continuance of the Heat, is wholly converted into *Salt*. The Water, in this Condition, is ſo hot, that the Hand can't be put into it without burning it. When the *Salt* has received its full Coction, they break it with a Pole, upon which it ſinks to the Bottom, whence being dragg'd out again, they leave it ſometimes in little Heaps, about the Edge of the Pit, to compleat the Drying; and at length in greater Heaps, containing ſeveral Thouſand Muids, which they cover over with Straw, or Ruſhes, to ſecure them from the Rain.

Eight, Ten, or at moſt Fifteen Days, having thus perfected the Cryſtallization of the *Salt*, they open the Sluices, when the Tide is riſing, for a freſh Stock of Water; and thus they continue alternately, taking in Water, and gathering the *Salt*, till the Seaſon be over. Rainy Weather is very pernicious to the Work; for Rain Water, mixing in any Quantity with the *Sea* Water, renders it uſeleſs, ſo that new Water muſt be called in. The *Salt* is brown when taken out of the Pits, and is uſually thus ſold, without farther Preparation. Indeed in ſome Places they make it into *White-Salt* by refining. They refine it by boiling it in large flat Caldrons, which not only takes away its Acrimony, but is found to increaſe the Quantity.

Method of Making White SEA-SALT.

The *White-Salt* of *Normandy* is not made by refining the *Bay-Salt*, but has this Colour naturally when taken out of the Pits. To make it, they gather a muddy Sand on the Flats of the Shoar, which the riſing Tide has covered and impregnated with its Waters for ſeven or eight Days. This Sand being removed into Pits for the Purpoſe, diſcharges itſelf by degrees of all its Water, which filtrates through ſome Straw wherewith the Bottom of the Pit is filled, and trickles into Veſſels ſet on purpoſe to receive it. Of this Water it is that they make their Salt.

Their Furnaces are of Earth, and their Boilers of Lead: Each Furnace boils four Leads. When the Water wherewith they have filled the Leads begins to boil, they take off the Skim, which ariſes in abundance, and in Proportion as it diminiſhes, throw in freſh Water, which they continue to skim, as before. When it thickens, they keep it continually ſtirring, with a crooked Stick, or Ladle; and when the Grain is form'd, take it off the Fire to purify it.

The Purifying is performed by letting it ſtand in large Oſier Baskets; where it drains itſelf of certain Humidities that remained. When dry, it is laid in Heaps, and thence carried into the Magazines. The Commerce of *White-Salt* brings an immenſe Profit to *France*, though more to the King than to the Makers and Sellers: The Duty is one Fourth Part of the Price the *Salt* is ſold at. The *Engliſh* and *Dutch*, and (when they are at War with *France*) the *Swedes* and *Danes*, take off moſt of the *Salts* of the *Compte Nantois*; paying for it, *communibus Annis*, from 20 to 35 Livres the Load. That of *Gue-*

rande is preſerred, by the *Engliſh* and *Iriſh*, to all the reſt, as the beſt and whiteſt. Yet that of *Borneuf*, though browner and heavier, is moſtly uſed in *France*, as alſo throughout the *Baltic*; particularly in *Poland*, where, beſides the ordinary Uſes, it ſerves in tilling the Ground; being found to warm it, and to prevent little Vermin from gnawing the Grain.

The *Engliſh* and *Dutch* have oft ſtrove hard, in Times of War, to do without the *French Salts*; and to that End, have endeavoured to take *Salts* from the *Spaniſh* and *Portugueze*; but there is a diſagreeable Sharpneſs and Seroſity natural to them, which renders them very unfit for the Salting of Fleſh, Fiſh, *&c.* To remove this, they boil them with *Sea*-Water, and a little *French Salt*, which they procure by Means of Neutral Nations; which not only ſoftens them, but increaſes their Quantity by one Third. But it ſhould ſeem their Refining does not ſucceed to their Wiſh, by the Eagerneſs wherewith they return to the Salts of *Bretagne*, &c. aſſoon as any Treaty has opened the Commerce.

FOSSILE, or ROCK-SALT, call'd alſo SAL-GEMMÆ.

The *Foſſile-Salt* is called *Sal-Gemmæ*, from a certain Brightneſs it has, which gives it ſome Reſemblance to Gems. Indeed, it ſhould have ſomething of the Gem in its Nature; if there be nothing exaggerated in the Account Dr. *Ed. Brown*, (who went down into the *Salt-Mines* in *Hungary*) gives us thereof in his Travels. This *Salt* was intirely unknown to the Ancients. *Pliny*, however, gives us ſome curious Things about *Salts* in *Nat. Hiſt. Lib.* 30. which we ſhould have tranſcribed hither, could we believe them as true as they are pretty. We ſhall here content ourſelves with what well warranted Relations we could get of the *Salt-Mines* of *Wiliſce* in *Poland*; thoſe in the *Upper Hungary*, and thoſe in the Mountains of *Catalonia*, which make a very conſiderable Article of Commerce in thoſe Three States; *Salt* being tranſported hence to the ſeveral Neighbouring Nations, who can't be conveniently ſupplied with *Sea-Salt*.

SALT-MINES of *Poland*, *Hungary*, &c.

The *Poliſh-Mines*, in the Village *Wiliſce*, five Leagues from *Cracow*, were firſt diſcovered in 1251. Their Depth and Capacity are ſurprizing. Within them is found a kind of ſubterraneous Republick, which has its Polity, Laws, Families, *&c.* and even publick Roads, and Cartiages, Horſes, *&c.* being kept here to draw the *Salt* to the Mouth of the Quarry, where 'tis taken up by Engines. Theſe Horſes, when once they are down never ſee the Light again; but the Men take frequent Occaſions of breathing the Village Air. When a Traveller is arrived at the Bottom of this ſtrange Abyſs, where ſo many People are interr'd alive, and where ſo many are even born, and have never ſtirred out, he is ſurprized with a long Series of lofty Vaults, ſuſtained by huge Pilaſters cut with the Chiſſel, and which, being themſelves *Rock-Salt*, appear, by the Light of Flambeaux which are inceſſantly burning, as ſo many Cryſtals, or precious Stones, of various Colours, caſting a Luſtre, which the Eye has much ado to bear.

The Rocks of *Salt* are hewn in Form of huge Cylinders; the Workmen uſing Hammers, Pinchers, and Chiſels, much as in our Stone Quarries, to ſeparate the ſeveral Banks of Stone. Aſſoon as the maſſive Pieces are got out of the Quarry, they break them into Fragments fit to be thrown into the Mill, where they are ground, and reduced into a coarſe Farina or Flower, which ſerves all the Uſes of *Sea Salt*.

In the *Salt-Mines* of *Wiliſce*, there are two Kinds of *Sal Gemmæ*; the one harder and more tranſparent, and the Cryſtallization whereof appears more perfect than that of the other: This is the real *Sal-Gemmæ* of the Druggiſts and Dyers. It cuts like Cryſtal, and is frequently uſed for Toys, Chapelets, little Veſſels, *&c.* the other is leſs compact, and only fit for Kitchen Uſes. One of the chief Wonders of the Place is, that through theſe Mountains of *Salt*, and along the Middle of the Mine, there runs a Rivulet of freſh Water ſufficient to ſupply the Inhabitants.

The *Salt-Mines* in the *Upper Hungary* are every whit as extraordinary. They are found in the Mountains, two Miles from *Eperies*, a City in the County of *Sarax*, on the River *Tarhz*. The Depth is 180 Fathoms. The Mineral runs in huge Veins, ſo that Pieces are ſometimes dug not leſs than an Hundred Thouſand Weight; which however, are afterwards reduced into Square Pieces two Foot long, and a Foot thick, for the Conveniency of drawing them out of the Mine. When out, they are broke farther, and put to the Mill to be ground. The Colour of the Stone is a little browniſh, and yet when ground, becomes as white as if it had been refined. Some of the Stones are found as hard and tranſparent as Cryſtal, ſome White, Yellow, Blue, *&c.* fit for various Works, whereon they engrave as on precious Stones. The Mine is cold and moiſt, whence there ariſes ſome Difficulty in reducing the *Salt* into Powder. Of the Water drawn out of it and boiled, is made a blackiſh *Salt*, which fattens Cattle.

The *Salt Mines* of *Catalonia* are found in the Mountains of the Dutchy of *Cardonna*, and belong to the Grandees of that Name. 'Tis the Opinion of the Country People, that the *Salt* grows again, and is re-produced, after ſeveral Years, in the ſame Places whence it had been dug. But the Naturaliſts will ſcarce allow of ſuch a Re-production. There is no Doubt, however, but it vegetates, or grows ſometimes: M. *Tournefort*, and the Specimens he had of it in his Cabinet, make it plain. The *Salt* is of four Kinds, White, Bay, Red, and Brilliant. The Firſt, is almoſt like our *Sea-Salt*, only that it is not granulated. The Second, of an Iron and Slate Colour, has moſt of the Qualities of the White. The Third, of a Conſerve Roſe Colour, only differing from the reſt by the Mixture of ſome Bole, or Earth, which gives it this Colour. The Fourth is a *Brilliant-Salt*, yet tranſparent as Cryſtal, which is the proper *Sal Gemmæ* of the Druggiſts. Of this Kind there is ſome Blue, others Green, Orange, Red, *&c.* but they all become white by grinding. Theſe four Kinds of *Salts* are found over each other in diſtinct Strata or Beds. The Commerce hereof is very conſiderable. The *Engliſh*, &c. when Commerce is prohibited with *France*, furniſh themſelves hence.

SAL-GEMMÆ is to be choſen in large, bright, tranſparent Pieces, eaſy to break, and dividing into little ſquare Grains. It grows red-hot in the Fire, like Iron, but diſſolves eaſily in Air: Yet the Druggiſts waſh it, to give it the greater Luſtre, but they take Care to wipe it dry again ſpeedily.

SALT *drawn from Saline Fountains and Springs.*

Our Method in *England* is thus. Near the Springs, or Place of the Brine, is built a *Saltern*, or Boiling-houſe, with a Convenience for the Conveyance of the Brine within it. The *Saltern* is uſually large enough to contain ſeveral huge flat Pans, or Boilers, each furniſhed with its Grate and Furnace. The Brine being in the Pan, the Fire is kindled; and after Two Hours Time, the Liquor begins to be ready to granulate, which is known by a thin Skin riſing at the top; this they skim off into Brine Tubs, that the Brine that goes with it may not be loſt: And whereas all Brines contain, or yield Sand, which is ſuppoſed to petrify in boiling; and upon boiling this Sand, if the Liquor be before hand ſtrained, will ariſe; and the Pan boiling violently in the Middle, the Sand is caſt towards the Corners, where it falls to the Bottom of the Pan, before the *Salt* precipitates; therefore, they rake it to one Corner of the Pan, with a broad Rake, and then take it out with Ladles, and put it into Wooden Veſſels, open at one End, placed on Stands. The Sand being removed, that the *Salt* floating in the Liquor may precipitate, they ſhut up the Vent-holes, and Door, and let the Fire go out, and in Twelve Hours Time the *Salt* falls to the Bottom, and grows hard; a Liquor called the *Bittern*, remaining at Top, which being again boiled away, yields more *Salt*. To make the *Salt* precipitate more readily, after the Liquor is ſcummed, *&c.* they frequently uſe ſome Beef-Suet, and Wine-Lees, of each a like Weight, melting and mixing them together; and putting an Ounce of this Mixture on the End of a Slice, turn it round in the Liquor till it be ſpent; then after two Hours, at moſt, open the Vent-holes and Door, quicken the Fire, and lade away the Liquor in a good meaſure, and ſo is the *Salt* found lying at the Bottom, fit to be removed. 'Tis now raked up to one Side, taken out and put into Cribs, or Sepels, like Hay-racks, with looſe Ribs on each Side, ſo cloſe to one another, that an Half-Crown will ſcarce go between: Here, after eight Hours draining, it is found an hard granulated *Salt*, and may be taken away; but yet continues dripping three Weeks, and afterwards, if not often moved, will become Rocky: The Liquor in the Pan, called *Bittern*, is to be all taken out, except a little to keep the Pan from burning; drained from the *Salt*, and caſt away, or reſerved for *Salt-Petre* Makers, and the Pan immediately filled with freſh Brine, for another Boiling. A Pan of Brine, of moderate Strength, in eight Hours Time will be compleatly made into *Salt*, with the Expence of about a Buſhel and Half of Coals, which will make a Pan of *Salt* from two Buſhels and Half to four Buſhels of *Salt*, or more, according as the Liquor is in Strength. This *Salt* they ſometimes mould into the Form of Sugar-Loaves, in which State it will keep dry without Fire, and that for a long Time. At *Nantwich*, they bake the Loaves twice, or thrice, in an Oven, and keep them in a Stove, or the Chimney-corner.

Salt *from Brine raiſed by the Sun.*

In ſome Parts of *England*, as at *Limington*, *Port-ſea*, &c. they uſe Water raiſed by the Sun, and then boiled, which they find preferrable to the natural Brines of Springs; thoſe being always found either too weak, or too ſtrong. To this End, they have ſeveral Ponds, or Ciſterns, called *Sun-Ponds*, built with Mud, and well expoſed to the Sun, with little Channels, to convey the Brine from them all to a large ſhallow Reſervoir, called the *Common-Sun-Pan*, not exceeding ſeven or eight Inches in Heighth. Here the Liquor is left to mellow, from twelve to twenty-four Hours, or till the Liquor will bear an Hen's Egg new laid; and when it has attained a ſufficient Strength, it is from thence derived by Channels into the Ciſterns, where the Rain and Sun breed Red Worms, which cleanſe and purify the Liquor, which ripens by Age, and is rendered fitter for boiling, which is perform'd after the ſame Manner as is already deſcribed.

Properties of SALT.

The great Property of *Salt* is, that it is incapable of Corruption, and that it even preſerves Meats, *&c.* ſeaſoned therewith, or ſteeped in Solutions thereof. It endures the Fire, and even comes out purified thereby, as being thereby freed of its Humidity. In very hot Fires it fuſes, and is converted into corroſive Waters. It gives Fertility to Lands, and promotes the Fuſion of all Metals; yet, we read of Princes, who, as a Mark of their Indignation, ſowed Grounds with *Salt* to render them barren. *Plutarch* obſerves, That the *Egyptians* believed *Salt* to be the Spittle, or Foam, of the Giant *Typhon*, the great Enemy of their Gods: And hence, adds he, they held it in the greateſt Horror —— *Salt* is found to have two oppoſite Qualities: By its ſubtle, penetrating Acidity, it breaks and diſſolves the hardeſt and moſt compact Minerals and Metals; and by a contrary Property coagulates Liquid Bodies, as Milk, Blood, *&c.* Some of its Spirits, mixed in a certain Proportion with Water, produce an exceſſive Heat, yet, when mixed in a leſs Quantity augment its Coldneſs, as *Salt-petre* in Snow, *&c.* Though all *Salts* diſſolve by Moiſture, yet Water only diſſolves, *&c.* a certain Quantity. However, when impregnated with any *Salt* as much as it can bear, it will ſtill diſſolve a Quantity of another *Salt*, whoſe Particles are of different Figures, proper to inſinuate into the remaining Vacuities of the Water: Thus, after *Common-Salt* will no longer diſſolve in it, Alum will; and after Alum, *Salt-petre*, then *Sal-Armoniac*, &c.

BAY-SALT, } See the preceeding Article SALT.
ROCK-SALT.

SALT of *Steel*,	See	VITRIOL OF MARS.
SALT of *Glaſs*,		GLASS.
SALT of *Saturn*,		SASCHARUM SATURNI.
SALT of *Tin*,		TIN.
SALT of *Sulphur*,		SULPHUR.
SALT of *Tartar*,		TARTAR.
VEGETABLE SALT, or *Soluble Tartar*,		TARTAR.

SALT-PETRE, called alſo *Nitre*, and by the Chymiſts *Dragon*, *Cerberus*, and *Salt of Hell*, a Kind of *Salt* either natural or fictitious; of very great Uſe both in Chymical Preparations, in the Compoſition of Gun-powder, and in Dying, in the Glaſs-Mauufacture, and in the making of *Aqua Fortis* for the Diſſolution of Metals. Its minute Parts, or Cryſtals, are in Form of Needles; though ſome will have them Triangular, as thoſe of Alum are Triangular, and thoſe of *Common Salt* Cubical. When perfect they are ſaid to be fiſtulous, or hollow, like *Capulæ*.

Of Natural *Salt petre* there are two Kinds: The Firſt formed by a natural Cryſtallization of ſaline ſulphurous Juices diſtilling in Caverns, or along old Walls. This is what they call *Salt-petre of the Rocks*; the ſame with the *Aphronitre* of the Ancients.

The Second Kind of *Natural Salt-petre* is furniſhed by the Water of a dead Lake in the Territory of *Terrane* in *Egypt*, called the *Nitrian Waters*, exalted and concocted by the Heat of the Sun, much after the Manner of our *Bay-Salt*. This is the *Natrum*, or *Anatrum* of the Ancients, which our Druggiſts call *Natron*; now little uſed but in the bleaching of Linnens. See NATRUM.

Artificial, or *Factitious Salt-petre*, is alſo principally of two Kinds. The firſt, called, by ſome, *Mineral Salt-Petre*, is found in ſeveral Places in the Kingdom of *Pegu*, and about *Agra*, in Villages anciently populous, but now Deſart. 'Tis alſo found in ſome Places along the Banks of the *Wolga*, that famous River, which after watering a good Part of *Muſcovy*, empties itſelf into the *Caſpian* Sea. The Natural *Salt-petre* is drawn from three different Kinds of Mineral Earths, Black, Yellow, and White. The beſt is that drawn from the Black, as being pureſt from *Common-Salt*, and needing no purifying after it come to us, to fit it for making of Gun-powder; as the reſt do. See GUN POWDER.

The Method of Working it is thus: Two flat Pits are dug; one of which they fill up with the Mineral Earth, turning Water upon it for ſome Time, and then tread it with their Feet into the Conſiſtence of Pap, letting it ſtand two Days for the Water to imbibe, and extract all the *Salt* therein. They then paſs the Water into another Pit, where ſtanding ſome Time, it ſhoots and cryſtallizes into *Salt-Petre*. This they boil once, or twice, as they would have it more or leſs white and pure, ſcumming it continually, and filling it out into Pots, holding 25 or 30 Pounds each, and expoſing theſe to the Air in clear Nights; by which Means if there be any Impurity, it ſinks to the Bottom: They then break the Pots, and dry the *Salt* in the Sun.

All the *Salt-petre* we now have, M. *Homberg* obſerves, is drawn either from Earths moiſtened, and manured with the Excrements of Animals, or from old Walls, and the Plaiſter of ruin'd Buildings, which have been filled with ſulphurous Matters as well from the Animals which inhabited them, as the Soot penetrating them, and the Air incompaſſing them. See SALT. However, we uſually make a Diviſion of *Salt-peire* into *Natural* and *Factitious*.

The ſecond Kind of *Artificial* or *Factitious Salt-petre*, is that prepared from Nitrous Matters collected in old Buildings, Dove-houſes, the Middle of ancient Ruins, *&c.* by means of *Lixiviums*, or Lyes made of Wood Aſhes, and ſometimes of thoſe of Herbs. Of this there are great Quantities made in *France*, particularly in the Arſenal at *Paris*, where there is a Corporation of *Salt-petre* Makers appointed for the Purpoſe. The *Salt-petre* gained thus, they refine, by boiling it three or four times, and paſſing it ſucceſſively through ſeveral Lyes.

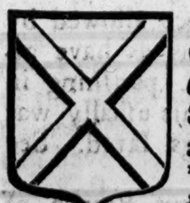
Some Naturaliſts pretend, that the Earths, which have already ſerv'd for *Salt petre*, may be re-animated, and made fit to ſerve again, by keeping covered for Twelve or Fourteen Years, and watering them with the Scum, *&c.* of the *Salt-petre*, and even with Brine.

Good common *Salt-Petre* ſhould be well clean'd, white, dry, and as free of *Salt* as poſſible. The beſt refined *Salt-Petre*, is that whoſe Cryſtals are the longeſt, largeſt, and fineſt.

There are abundance of Chymical Preparations made with *Salt-petre*, as Spirit of *Nitre*. See NITRE: *Aqua Regulis*, *Aqua-fortis*, *Cryſtal-Mineral*, *Sal-polychreſt*, Butter of *Nitre*, &c. each of which ſee under its proper Article.

The Philoſophers generally allow the Air to be impregnated with a Volatile Nitre, or *Salt-petre*, which is thence communicated to Plaiſter, Mortar, *&c.* 'Tis probable it may derive it from Soot and Smoak, which are actually found to abound with Volatile *Salt* of a Nitrous Nature. Dew and Rain are ſuppoſed to fertilize the Ground principally by their bringing down this Nitre. See AIR.

Salt petre has a Property of rarifying, or expanding itſelf to a prodigious Degree. 'Tis hence Gun-powder derives its Force, whereof *Salt-petre* is the Principal Ingredient. 'Tis computed, that when inflamed, it takes up above Ten Thouſand Times the Space it poſſeſſed before. See GUN-POWDER.



SALTIER, or *Salteer*, in Heraldry, an Ordinary in Form of a St. *Andrew's Croſs*; anciently called *Croſs of Burgundy*. See CROSS. Its ordinary Breadth, when alone, is one Third of the Eſcutcheon. 'Tis ſometimes bore *alaiſé*, and ſometimes *in Number*, placed in different Parts of the Field. Sometimes charged, countercharged with the Field, accompanied, engrailed, indented, quarterly-quartered, *&c.* The *Saltler* was anciently a Piece of the Knight's Harneſs; being faſtened to the Saddle, and ſerving him for a Stirrup to mount upon; and 'twas hence it had its Name *Saltier* from the *French Sauter*, to leap. It was made of a Silk Cord, or of ſome other Kind of Cord, covered with ſome rich Stuff. Others will have it, that the original *Saltier* was a Kind of *Paliſade*, ſerving to fence Parks, Woods, *&c.* where wild Beaſts were incloſed. Tho' *Spelman* ſays, 'Twas an Inſtrument for the taking them, thus called, *Quod ſit in uſu in Saltu*. Laſtly, others aſſure us, That *Saltier* was anciently the Figure of an Engine, which being full of Pins, was uſed in the Scaling of the Walls of a beſieged Place. Pearl a *Saltier* Ruby, the Coat of Lord *Maccleſfield*.

SALTNESS, the Quality of ſomething impregnated with *Salt*.—— The *Saltneſs of the Sea*, *Lakes*, &c. is a Thing that has long perplexed the Philoſophers to account for. Some take it to be the Effect of the dry, aduſt, and even ſaline Exhalations, which the Sun raiſes from the Earth, and the Winds, and Rains diſcharge into the Sea. And hence, ſay they, it is, that the Sea is found more *brackiſh* near the Surface, than towards the Bottom. Others contend, that the Sun being continually extracting the pureſt and ſubtileſt Parts from the Water; the coarſer Parts remaining, being exalted and concocted by this Heat, acquire by little and little, their Degree of *Saltneſs*. Others, as Father *Bouhours*, will have it, That the Creator gave the Waters of the Ocean their *Saltneſs* at the Beginning, not only to prevent their Corruption, but alſo to enable them to bear greater Burthens. *Bernier* ſeems to be nearer the Matter, when he aſcribes the *Saltneſs* of the Ocean, to the *Foſſile* or *Mineral Salts* brought into it by the Rivers, and diſſolved in the Water.

Dr. *Halley*, in an expreſs Diſcourſe *of the Saltneſs of the Ocean*, in the *Philoſophical Tranſactions*, obſerves, That all the Lakes in the World are *Salt*; ſome more, ſome leſs than the Ocean; which, in this Caſe, may be eſteemed a great Lake it ſelf. And that all the Vapours exhaled by the Sun from Lakes, are perfectly freſh; ſo that all the ſaline Particles brought in by the Rivers remain behind, while the freſh evaporate. Hence 'tis evident, their *Saltneſs* muſt be continually augmented. Now if this be the true Reaſon of the *Saltneſs* of Lakes, 'tis probable the *Saltneſs* of the Ocean it ſelf ariſes from the ſame Cauſe: Hence we are furniſhed with a Method of eſtimating the Age of the World, by obſerving the Increaſe of *Saltneſs* in the Waters of Lakes; and computing in how long Time the Ocean might, at that Rate, arrive at its preſent *Saltneſs*. See LAKE.

The Count *de Marſigli* obſerves, That in *Provence*, the Bottom of the Sea is wholly ſtony, and nothing but a Continuation of the Mountains of the *Cevennes*; being even found to conſiſt of ſeveral *Strata*; among which, are *Salt* and Pitcoal: And hence he derives the *Saltneſs* and *Bitterneſs* of the Sea-Water.

SALTS, or *Sauts*, in the Manage, the Leaps or Vaults of a Horſe; from the *French Saut*, of the *Latin Saltus*, a Leap, Dance, *&c.* A *Step* and a *Salt* is a high Air, wherein the Horſe riſing, makes a *Curvet* between Two *Salts*, or *Cabrioles*; ſo as to mount before, and fling back with his hind Feet. Two *Steps* and a *Salt* is a Motion compoſed of Two Curvets, ending with a Capriole.

SALTUARIUS, in Antiquity, an Officer, Servant or Slave among the *Romans*, *&c.* who had the Care and Cuſtody of a Country Houſe, with Lands and Woods, and who was to look to the Fruit, the Fences, *&c.* In *Nehemiah*, cap. ii. v. 8. mention is made of an Officer of this Kind; *Cuſtos Saltus Regis*, which *Saci* interprets, Keeper of the King's Foreſt; but he was more; having not only the keeping of a Foreſt, but of a Houſe with a Foreſt. *Saltus* being here uſed as *Horti* for a Houſe of Pleaſure; becauſe Gardens are the principal Part. —— In the Laws of the *Lombards*, *Saltuarius* is an Officer who has the Guard of the Frontiers.

SALTUM, as, *Ordination per* SALTUM. See ORDINATION.

SALTUS, in Law-Books, a high Wood. See BOSCUS.

SALTZ, or *Sultz*, a Pickle made of Salt, diſſolved by the Coldneſs or Moiſture of a Cellar.

SALVAGE-MONEY, is a Recompence allowed by the Statute and Civil Law, to ſuch Perſons as have aſſiſted in ſaving Merchandizes, Ships, *&c.* periſhing in Wrecks, or by Pyrates or Enemies. This uſually was a Tenth Part of the Value of the Things ſaved. See WRECK.

SALVATELLA, in Anatomy, a famous Branch of the Cephalic Vein, paſſing over the Metacarpus, between the Ring Finger, and the little Finger. Several Phyſicians, in Imitation of the *Arabs*, recommend Bleeding in the *Salvatella*, as proper in Tertian and Quartan Agues, and moſt Hypochondriac Diſeaſes.

SALVE, among the *Romaniſts*, the firſt Word of a *Latin* Prayer, or Sequence adreſſed to the Virgin, and ſung after Complines; as alſo upon the Point of executing a Criminal. *Durandus* ſays, 'Twas compoſed by *Peter* Biſhop of *Compoſtella*. The Cuſtom of Singing the *Salve Regina*, at the Cloſe of the Office, was begun by Order of St. *Dominic*; and firſt, by the Congregation of *Dominicans* at *Bologne*, about 1237. *Gregory* IX. firſt appointed it to be general. S. *Bernard* added the Concluſion, *O dulcis! O pia*, &c.

SALVER, a flat Diſh, uſually of Silver or other rich Metal, uſed to ſet Glaſſes on to ſerve Wines and other Liquors. The *French* call it *Sous-couppe*, *under-cup*. The *Italians* uſe to preſent a *Salver*, with ſeveral Kinds of Wines, with this Complement, *Si non e buono fatte lo.*

SALUTATION, the Action or Ceremony of Saluting, Greeting, or paying Reſpect, or Reverence to any one, There is a great Variety in the Forms of *Salutation*: We *ſalute* God by Adorations, Prayers, *&c.* Kings, by Genuflexion, *&c.* In *England*, *&c.* we *ſalute* one another by uncovering the Head, inclining the Body, *&c.* The Orientals by uncovering their Feet, laying their Hands on the Breaſt, *&c.* The Pope makes no Reverence to any Mortal but the Emperor of *Germany*, to whom he ſtoops a very little, when he admits him to kiſs his Mouth, —— In the Army, the Officers *ſalute* by certain orderly, ſtudied Motions of the Pike, *&c.* 'Twas held by the Ancients, That the Statue of *Memnon*, one of the Horſes of the Sun, in a Temple in *Egypt*, *ſaluted* that Luminary every Morning at his Riſing. The Deceit conſiſted in this, That the Statue being hollow, when the Warmth of the Morning began to rarify the included Air, it was driven out thro' a narrow Duct in the Mouth: Thus making a gentle Murmur, which the Prieſts interpreted a Neighing.

At Sea, they *ſalute* by a Diſcharge of Cannon, which is greater or leſs, with Ball or without, according to the Degree of Reſpect they would ſhew. Ships always *ſalute* with an odd Number of Guns; Galleys with an even one. A Veſſel under the Wind of another, is always obliged to *ſalute* firſt. To *ſalute* with Muſquets, is to fire One, Two or Three Volleys; which is a Method of *Salutation* that ſometimes precedes that of the Cannon; and is chiefly uſed on Occaſion of Feaſts. After the Cannon, they ſometimes alſo *ſalute* with the Voice; which *Salutation* alſo occaſionally obtains where they carry no Guns, or don't care to diſcharge any. *Saluting with the Flag*, is performed Two Ways; either by holding it cloſe to the Staff, ſo as it can't flutter; or by ſtriking it ſo as it can't be ſeen at all, which is the moſt reſpectful *Salutation*. *Saluting with the Sails*, is performed by hovering the Top-ſails half Way of the Maſts. Only thoſe Veſſels which carry no Guns, *ſalute* with the Sails. When there are ſeveral Ships of War together, the Commander alone *ſalutes*. Father *Fournier* has an expreſs Treatiſe of *Sea-Salutes* and Signals. See SIGNAL.

The *Angelical Salutation*, is an Addreſs which the *Romaniſts* make to the Virgin; containing the Form wherein the Angel *ſaluted* her, when he acquainted her with the Myſtery of the Incarnation. See AVE MARY.

SAMARITANS, an ancient Sect among the *Jews*; ſtill ſubſiſting in ſome Parts of the *Levant*, under the ſame Name. Its Origin was in the Time of *Rehoboam*; under whoſe Reign, a Diviſion was made of the People of *Iſrael* into Two diſtinct Kingdoms. One of theſe Kingdoms, called *Judah*, conſiſted of ſuch as adher'd to *Rehoboam*, and the Houſe of *David*; The other retain'd the ancient Name of *Iſraelites*, under the Command of *Jeroboam*. The Capital of their State was *Samaria*; and hence it was they were denominated *Samaritans*. *Salmanazar*, King of *Aſſyria*, having conquered *Samaria*, led the whole People Captive into the remoteſt Parts of his Empire; and filled their Place with Colonies of *Babylonians*, *Cutheans*, and other Idolaters. Theſe finding themſelves daily deſtroyed by wild Beaſts, deſired an *Iſraelitiſh* Prieſt to inſtruct them in the ancient Laws and Cuſtoms of the Land they inhabited. This was granted them; and they thence-forth ceaſed to be incommoded with any Beaſts. However, with the Law of *Moſes*, they ſtill retained ſomewhat of their ancient Idolatry. The *Rabbins* ſay, They adored the Figure of a Dove on *Mount Gerizim*. See Father *Souciet*. Be this as it will, 'tis certain, the modern *Samaritans* are far from all Idolatry. Some of the moſt learned among the *Jewiſh* Doctors own, That they obſerve the Law of *Moſes* more rigidly than the *Jews* themſelves. They have a *Hebrew* Copy of the *Pentateuch*, differing in ſome Reſpects from that of the *Jews*; and written in different Characters, commonly called *Samaritan* Characters; which *Origen*, *Jerom*, and other Fathers and Criticks, ancient and modern, take to be the primitive Characters of the ancient *Hebrews*; tho' others maintain the contrary. The Point of Preference, as to Purity, Antiquity, *&c.* of the Two *Pentateuch*'s, is alſo diſputed by the modern Criticks. See PENTATEUCH.

The *Samaritans* are now very few in Number; tho' 'tis not very long, ſince they pretended to have Prieſts deſcended directly from *Abraham*. They were chiefly found at *Gaza*, *Neapolis* (the ancient *Sichem*) *Damaſcus*, *Cairo*, &c. They had a Temple or Chapel on *Mount Gerizim*, where they performed their Sacrifices. *Joſeph Scaliger*, being curious to know their Uſages, wrote to the

Samaritans of *Egypt*, and to the High Prieſt of the whole Sect, who reſided at *Neapolis*. They returned Two Anſwers to *Scaliger*, dated in the Year 998 of the *Hegira* of *Mahomet*. Theſe Anſwers never came to the Hands of *Scaliger*. They are now in the *French* King's Library, and have been tranſlated into *Latin* by Father *Morin*, Prieſt of the Oratory; and printed in the Collection of Letters of that Father in *England*, 1682, under the Title of *Antiquitates Eccleſiæ Orientalis*. M. *Simon* has inſerted a *French* Tranſlation in the firſt Edition, of *Ceremonies & Coutumes des Juifs*, by Way of Supplement to *Leon de Modena*. In the Firſt of theſe Anſwers, wrote in the Name of the Aſſembly of *Iſrael* in *Egypt*, they declare, That they celebrate the Paſſover every Year, on the Fourteenth Day of the firſt Month, on Mount *Gerizim*; and that he who then did the Office of High Prieſt, was called *Eleazar*, Son of *Phineas*, Son of *Aaron*. At preſent they have no High Prieſt. In the ſecond Anſwer, which is in the Name of the High Prieſt *Eleazar* and the Synagogue of *Sichem*, they declare, That they keep the Sabbath in all the Rigor wherewith 'tis enjoyned in the Book of *Exodus*; none among them ſtirring out of Doors, but to the Synagogue. They add, That on that Night they don't lie with their Wives; That they begin the Feaſt of the Paſſover, with the Sacrifice appointed for that Purpoſe in *Exodus*; That they ſacrifice no where elſe but on Mount *Gerizim*; That they obſerve the Feaſts of Harveſt, the Expiation, the Tabernacles, *&c.* They add further, That they never defer Circumciſion beyond the eighth Day; never marry their Nieces, as the *Jews* do; have but one Wife; and, in fine, do nothing but what is commanded in the Law: Whereas the *Jews* frequently abandon the Law to follow the Inventions of their Rabbins. At the Time when they wrote to *Scaliger*, they reckoned 122 High Prieſts; affirmed that the *Jews* had no High Prieſts of the Race of *Phineas*; and, That the *Jews* belyed them, in calling them *Cutheans*, whenas they are deſcended from the Tribe of *Joſeph*, by *Ephraim*. The Truth is, The *Jews* impoſe abundance of Things on the *Samaritans*: They frequently confound them with the Saducees, as if they were infected with their Errors. Rabbi *Benjamin*, who lived in the XIIth Century, confirms the beſt Part of what we have obſerved of the *Samaritans*. He obſerves, They had Prieſts of the Tribe of *Aaron*, and who never married with any but thoſe of the ſame Tribe: That they ſacrificed on Mount *Gerizim*, where they had an Altar of Stone raiſed by the *Iſraelites* after paſſing over *Jordan*. He adds, That they are of the Tribe of *Ephraim*; That they change their Habit to go to the Synagogue, and waſh e'er they take it.

SAMARITAN *Characters*, or *Letters*. See LETTER.

SAMARITAN *Pentateuch*. See PENTATEUCH.

SAMARITAN *Medals*. In the Cabinets, we find ſome *Medals*, uſually called *Samaritan Medals*. The Inſcriptions and Legends of theſe are *Hebrew*; but the Character different from the *Hebrew* of our Bibles, which is the ſquare *Hebrew* or *Chaldee*; and 'tis hence, *viz.* from the Character, not from being ſtruck by the *Samaritans*, that they are denominated *Samaritan*. Theſe *Medals* have been infinitely canvaſſed by the Criticks, both *Jewiſh* and *Chriſtian*; particularly *Rabbi Alaſcher*, *R. Bartenora*, *Rabbi Azarias*, *Rabbi Moſes*, Father *Kircher*, *Villalpandus Waſerus*, *Conringius*, *Hottinger*, Father *Morin*, *Walton*, *Hardouin*, *Spanheim*, &c. The learned Jeſuit *Souciet*, in an expreſs Diſſertation on the *Samaritan Medals*, rejects all *Hebrew Medals*, whoſe Inſcriptions are in *Chaldee* Characters, as ſpurious; and allows of none to be genuine but the *Samaritan*. Of theſe there are Four Kinds. The firſt bear expreſly the Name of *Simon*, and the Subject for which they were ſtruck, *viz.* the Deliverance of *Jeruſalem*. The Second Kind have not the Name *Simon*, but only the Deliverance of *Sion*, or *Jeruſalem*. The Third Kind have neither *Simon*, nor the Deliverance of *Sion*; but only the *Epochas*, firſt Year, ſecond Year, *&c.* The Fourth Claſs have neither any Inſcriptions, nor any Thing whence one may judge of the Time when they were ſtruck. The Three firſt Kinds were certainly ſtruck after the Return from the *Babyloniſh* Captivity, and in the Time of *Simon Maccabeus*, after *Jeruſalem* had been freed from the Yoke of the *Greeks*. But tho' ſtruck after the Captivity, Father *Souciet* obſerves, their Character ſhews it ſelf to be that of the ancient *Hebrew*, which was uſed before the Captivity, and the Uſe whereof was loſt by the People, during their Sojourn in *Babylon* and *Chaldea*; but reſtored after their Return, on the ſame Footing as before. He adds, That the Inſcriptions are pure *Hebrew*, ſuch as it was ſpoke before the Captivity; That the Character, therefore, is the true ancient Character of the *Hebrew*: That it was the Cuſtom to write each Language in its proper Character: That if they had departed from this Rule, they had doubtleſs uſed the New Character they brought with them from *Babylon*: That there could be no other Reaſon but that of ſettling all Things on the ſame Foundation they were on before the Deſtruction of *Jeruſalem*, that could have induced them to uſe this Character on their Coins. And, laſtly, That theſe *Medals* were not ſtruck by the *Samaritans*, but by the *Jews*, and in *Jeruſalem*. He is very full on all theſe Points, and, to the Proofs drawn from *Medals*, adds Two others foreign thereto. The firſt drawn from the Reſemblance of the *Greek* Letters, introduced by *Cadmus* the *Phœnician*, with this *Hebrew* Character; which was the ſame with that of the *Phœnicians*, as the Language of thoſe People was the ſame with that of the *Hebrews*. The ſecond drawn from ſeveral various Readings in the Scriptures, which cannot be well accounted for otherwiſe, than by ſuppoſing, That the Books wrote before the Captivity, were in the ſame Character with theſe *Medals*, and which ſhew, that 'tis the Conformity which certain Letters have in that Character, that has deceived the Copiſts. From the whole, he concludes, That this Character of the *Medals* is the true ancient *Hebrew* Character; and, That to judge of the various Readings of the *Hebrew* Text, and the Differences of the ancient *Greek* and *Latin* Tranſlations, either with themſelves, or with the *Hebrew* Text, Recourſe muſt be had to this Character.

SAMBUCUS, an ancient muſical Inſtrument of the Wind Kind, and reſembling a Kind of Flute; probably thus called becauſe made of Elder, which the *Latins* call *Sambucus*. —— *Sambucus* was alſo an ancient Engine of War, uſed by *Marcellus* in beſieging the City of *Syracuſe*. 'Twas ſo big, that *Plutarch*, in the Life of that General, obſerves, Two Ships were required to carry it.

SAMIAN EARTH, an Earth brought from the Iſle of *Samos*, in the *Ægean* Sea. The beſt is called by *Dioſcorides*, *Collyrium*, becauſe uſed in the Medicines of that Name. 'Tis white, very light, ſoft, friable, well-taſted, and a little glutinous on the Tongue. There is another Kind, harder and fouler, called *Ater-Samius*, in Regard little ſhining Straws are frequently found in it, diſpoſed like little Stars. Each Kind is eſteemed very aſtringent, proper to dry, and draw Wounds.

There is alſo a *Samian Stone*, taken out of the Mines in the ſame Iſland. 'Tis white, and ſticks to the Tongue when applied to it. 'Tis aſtringent and cooling, and is alſo uſed by the Goldſmiths to burniſh their Gold, and give it a greater Luſtre.

SAMOSATENI, or *Samoſatenians*, a Sect of ancient *Antitrinitarians*, thus called from their Leader, *Paulus Samoſatenus*, Biſhop of *Antioch*, under the Emperors *Aurelian* and *Probus*. He renewed the Hereſy of *Artemon*, and had ſeveral Sentiments in common with *Sabellius*, &c. tho' he differed from them in the Manner of explaining them. He owned, That the Father, Son, and Holy Ghoſt were but one God, but denied that the Son and Holy Spirit had any real Subſiſtance. According to him, they only ſubſiſted in the Father, as the Word of Man ſubſiſts in his Underſtanding. St. *Epiphanius* will have the *Samoſatenians* to be real *Jews*, without any Thing more than the Name of Chriſtians; adding, That they uſe the ſame Arguments againſt the Myſtery of the Trinity that the *Jews* do; pleading againſt it, with them, on Pretence of maintaining the Unity of the Godhead, tho' they don't obſerve the Ceremonies of the Law. Their Chieftain was condemned by a Council held at *Antioch* whereat aſſiſted above Seventy Biſhops; and was depoſed from his Biſhoprick.

SAMPSÆI, or *Sampſeians*, ancient Sectaries, the ſame, according to St. *Epiphanius*, with the ELCESAITES, which ſee. The *Sampſeans* were not properly either *Jews*, *Chriſtians*, or *Gentiles*. They took their Name from the *Hebrew Semes*, Sun; as if they adored the Sun. They acknowledged one only God; waſhed themſelves often, and were attached, in almoſt every Thing, to the Religion of the *Jews*. Many among them abſtained from eating of Fleſh. *Scaliger*, after *Epiphanius*, will have the *Sampſæi* to be the ſame with the *Eſſeni*. In effect, the *Elceſaites*, *Sampſeans*, *Maſſalians*, and *Eſſeni*, appear to be no more than ſo many different Names for the ſame Thing; unleſs, perhaps, the firſt added ſomething to the Opinions of the laſt. See ESSENI.

SAN BENITTO. See SACCO *Beneditto*.

SANCTIFICATION, the Action of *Sanctifying*, or making a Thing Holy, and] ſeparate to God. See SACRED. The reformed Divines define *Sanctification* an Act of God's Grace, whereby a Man is renewed inwardly, his Deſires and Affections alienated from the World, and the Man put in a Courſe of dying to Sin, and living to Righteouſneſs. The *Sanctifying of the Sabbath*, among the *Jews*, is of Divine Right. By *Sanctifying* the Sabbath,

bath, is meant, the ſpending it in Prayer, Praiſe, *&c.* not in worldly Concerns. The firſt Petition in the Lord's Prayer is, *Hallowed*, or *ſanctified, be thy Name*: By which is meant, Let thy Name be ever accompanied with Bleſſing and Praiſe.

SANCTION, the Authority given to ſome judicial Act; or that, whereby it becomes legal and current. The Royal Aſſent gives the *Sanction* of Statutes, to all Bills in Parliament that have paſſed each Houſe Thrice. See Parliament. The Word is form'd from the *Latin Sancire*, to eſtabliſh.

Pragmatical Sanction. See Pragmatical.

SANCTI VITI CHOREA. See Sancti Viti.

SANCTUARY, among the *Jews*, the holieſt and moſt retired Part of the Temple of *Jeruſalem*; wherein was preſerved the Ark of the Covenant; and into which No-body was allowed to enter but the High Prieſt, and that only once a Year, to intercede for the People. The *Sanctuary*, called alſo *Sanctum Sanctorum*, or Holy of Holies, is ſuppoſed to be a Type or Figure of Heaven and of *Jeſus Chriſt* the true High Prieſt, who is aſcended thither to make Interceſſion for us. Some will have it, That the whole Temple was called the *Sanctuary*; and that the *Sanctum Sanctorum*, where the Ark was kept, was only a little Chapel or Oratory therein. See Temple.

Weight of the Sanctuary, to examine a Thing by the Weight of the *Sanctuary*, is to examine it by a juſt and equal Scale; in Regard among the *Jews*, 'twas the Cuſtom for the Prieſts to keep Weights of Stone, to ſerve as Standards for the regulating of all Weights by; tho' theſe did not differ from the royal or profane Weights. See Weight, Shekle, &c.

Sanctuary, in our ancient Cuſtoms, an *Aſylum*, or lace privileged by the Prince for the Safeguard of Mens Lives, who were guilty of Capital Crimes. See Asylum. 'Till *Henry* the VIIIth, all our Churches and Church-yards were *Sanctuaries*; and protected Traytors, Murderers, *&c.* if within Forty Days they acknowledged their Fault, and ſubmitted themſelves to Baniſhment; and during that Time, if any Lay-man expelled them, he was excommunicated; if a Clerk, he was made irregular: After Forty Days no Man might relieve them. St. *John*'s of *Beverly*, had an eminent *Sanctuary*, called by the *Saxons*, A Seat of Peace: So had St. *Martin's le Grand*, in *London*. *Rippon* had the like granted by *Whitlaſe*, King of the *Mercians*: So had St. *Buriens* in *Cornwal*, granted by King *Athelſtan*, *Anno* 936; and *Weſtminſter* the like, granted by *Edward* the Confeſſor. In *Scotland* they call the *Sanctuary*, *Girthole*, or *Grithol*. The *Saxons* alſo called it *Frodmortel*. See Abjuration.

Sanctuary, is alſo uſed in the *Romiſh* Church for the Chancel, or that Part of the Church wherein the Altar is placed, incompaſſed with a Rail or Balluſtrade. See Chancel.

SANCTUM SANCTORUM. See Sanctuary.

SAND, a fine, hard gravelly Earth, of great Uſe in Building, and many other Arts and Manufactures, as in the making of Glaſs, in Plumbery, Foundery, *&c.* There are Three Kinds of Sands, diſtinguiſhed by the Places whence they are drawn: *viz. Pit-Sand*, *River-Sand*, and *Sea-Sand*. See Earth.

The Uſe of *Sand* in Building, is as an Ingredient in Mortar: See Mortar. For this Uſe, *Pit-Sand* is of all others the beſt; and of *Pit-Sand*, the whiteſt is always the worſt. Of *River-Sand*, that found in the Falls of Waters is beſt, becauſe moſt purged. *Sea-Sand* is the worſt. *Pit Sand*, as being fat and tough, is moſt uſed in Walls and Vaults. *River-Sand* ſerves for rough caſting. All *Sand* is good in its Kind, if when ſqueezed and handled it crackles; and if being put on a white Cloth, it neither ſtains nor makes it foul. That *Sand* is naught, which, mixed with Water, makes it dirty and muddy, and which has been long in the Air; for ſuch will retain much Earth and rotten Humour. Hence ſome Maſons waſh their *Sand* e'er they uſe it. The *Sand* of *Puzzuolo*, *De Lorme* obſerves, is the beſt in the World; eſpecially for Maritime Building. See Puzzuol. Some diſtinguiſh a *Male Sand*, which is of a deeper Colour than another Sort in the ſame Bank or Bed, called *Female Sand*.

The *Sand* whereof Glaſs is made, is white and gritty, full of little ſparkling Grains. See Glass.

The *Sand* uſed by Founders, is Foſſile. 'Tis properly a yellow fat Earth, whereof they make their Moulds, for the Caſting of little Works; whence it is they ſay, *Caſting in Sand*. See Foundery. The Plumbers alſo uſe *Sand* to mould ſeveral of their Works, particularly large Sheets. To prepare the *Sand* for theſe Sheets, they wet it lightly, ſtir and work it with a Stick, then beat and plane it. See Plumbery.

Sand, in Agriculture, is one of the Three great Kinds of Soil; which are *Sand*, *Clay* and *Earth* or *Loam*. The Properties, *&c.* whereof ſee under the Article Soil.

M. *de la Quintine* attributes all the Difference we find in Soils, to the different Quality of *Sands* mixed in them. *Soft Sands*, according to him, make a ſoft, gentle Earth. *Unctuous Sands*, a ſtiff Earth. *Coarſe Sands* a rough untractable Earth, *&c.*

Sand is alſo applied to dry, crumbling Earths, which, wanting any Fatneſs to bind them together, the Wind eaſily breaks into Duſt, and carries them away. In this Senſe it is that Travellers tell us, the Caravans in *Africa* are frequently loſt, and buried under Clouds of *Sand*, tore up by Whirl-winds; and ſometimes heaped up into Mountains. The Deſarts of *Lybia* are mere *Sands*; and hence their Sterility.

A TABLE *of* Sands.

- Sharp, or *Rag Sand*, compoſed of ſmall Tranſparent Pebbles, naturally found upon the Mountains, not Calcinable.
- Fine
  - White. Grey. Reddiſh. Brown.
    - *Stitneham-Moor*, in the Road waſhed up very white Pebble.
    - *Flamborough Head*, of which the Light-Houſe there is cemented.
    - *Calais Sand*, burns reddiſh, but falls not in Water.
    - *Seaton-Banks*, near *Hartlepool*, on the *Tee's* Mouth; *Eſcrick* in the Gravel-pit there, a Vein of exceeding fine *Sand*.
    - The *Pillow Sand* in the *Baltick*.
- Coarſe
  - Grieſly. Brown.
    - In a Spring at *Heſlington*.
    - *Acome* near *York*, drifted *Sand*.
    - *Hutton-Moor*, waſht.
    - *Throp* Fells.
    - *Ouze* at *York*.
    - *Nid* at *Mountain*.
    - Dug up at *Rawcliff* near *Snath*.
    - Wharf at *Ickly* and *Denton*.
    - *Air* at *Carleton* in *Craven*.
    - *Eure* at *Craven*.
    - *Gauton*.
    - *Santon* in *Lincolnſhire*.
    - *Bromly-Common*.
    - *Skipwith-Common*.
- Soft or ſmooth, with flat Particles
  - From *Limeſtone*, with *Mica* of Glittering Particles,
    - At —— in *Yorkſhire*.
    - A Vein at *Oſwell*-Beacon, in *Lincolnſhire*.

Of *Weſtmoreland*
- Silver-like. Gold-like
  - *Sea-Sand*, about the *Scilly* Iſlands.
  - In *Cleveland*, and about *Scarborough*.
  - *Ouze Duct*, or *Sediment* at *Rawcliff*.
  - A Vein of *Mica* in *Heſlington* Gravel-pit.
  - *Mica Argentea* in *Red-Sand* Rock, near *Rippon*, plentifully.
  - *Mica Aurea* of *Cleveland*.

SANDAL, in Antiquity, a rich kind of Shoe or Wear for the Feet, made of Gold, Silk, or other precious Stuff, uſed by the *Roman* and *Greek* Ladies; conſiſting of a Sole, with a Hollow at one Extreme to embrace the Ancle. *Terence* ſpeaks of this *Sandal*, *Utinam tibi committigari videam* Sandalio *caput*: I wiſh ſhe wou'd break your Head with her *Sandal*. *Apollo* was ſometimes called *Sandalarius*, the Reaſon of which Appellation has given great Perplexity to the Criticks; ſome derive it from a Street called *Sandalarius*, becauſe chiefly inhabited by *Sandal*-Makers, wherein that God had a Temple: But others, with more Probability, derive the Name of the Street from that of the God, and take *Apollo* to have been thus called from his effeminate Dreſs, as if he wore Womens *Sandals*.

The Shoe anciently wore by the Pope, Biſhops, Prieſts, *&c.* when they officiated, was alſo called *Sandal*; being ſuch as was ſuppoſed to have been wore by St. *Bartholomew*. *Alcuin* obſerves, That there was ſome Difference between the *Sandals* of Biſhops, Prieſts, and Deacons. Monks were not allowed to wear *Sandals*, except in Travelling, as is obſerved by *Du Cange*, *Salmaſius*, &c.

Sandal is alſo a Shoe wore by ſeveral Congregations of reformed Monks. It conſiſts of no more than a mere Leathern Sole, faſten'd with Latches or Buckles, all the reſt of the Foot being left bare: The Capuchins wear *Sandals*, the Recollects, Socks: The former are of Leather, the latter of Wood.

SANDARAC, in Natural Hiſtory, *&c.* Some divide this *Sandaracha* into *Natural* and *Factitious*: The *Natural* is found in Gold, Silver, and Copper Mines, and is the ſame with the red Arſenic: The *Factitious* is only Ceruſs exalted by the Fire, and burnt into a kind of Minium. Both the one and the other is a violent Poiſon. See REALGAL, CERUSS, *&c.*

SANDARAC or *Sandarach*, in Pharmacy, *Red Arſenic*, called alſo *Realgal* and *Red Orpiment*; 'tis ſometimes alſo called *Sandaracha Græcorum*, in Oppoſition to the Gum.

SANDARACH, or *Gum-Sandarach*, called alſo *Sandaracha Arabum*, is a white Gum oozing out of the Trunk, and thick Branches of the great Juniper-Tree, by Inciſions made in the Heats of the Summer. The little or common Juniper yields very little *Sandarach*: Its Fruit yields Oils, Waters, Salts, Spirits and Extracts of ſome Repute in Medicine. The *Gum Sandarach* is an Ingredient in Varniſh. See VARNISH. 'Tis alſo reduced into an impalpable Powder, and uſed to prevent Paper from imbibing Ink. The beſt is in fine white Tears, free of Duſt: The *Engliſh*, *Swedes*, &c. drive a conſiderable Trade therewith. Some will have it, that the *Sandarach* of the Juniper is not the right, but only that of *Oxycedron*, which ſee.

SAND-BAGS, in Fortification, are Bags holding about a Cubic Foot of Earth or Sand. They are uſed for raiſing Parapets in haſte, or to repair what is beaten down; they are alſo of Uſe when the Ground is Rocky, and affords not Earth to carry on their Approaches, becauſe they can be eaſily brought on and off at Pleaſure. There are a leſſer Sort, which hold half what the former do, and which are placed upon the upper Talus of the Parapet, to cover thoſe who are behind, and who Fire through the Embraſures, or Intervals, that are between them.

SANDEVER, the Droſs of Glaſs, or the Scum that ariſes from the Aſhes of the Herb *Kali*, uſed in the Making of Glaſs. See GLASS.

SANDIX, a kind of Minium, or rather of red Maſticot made of Ceruſs calcined and rubified, called alſo a *Factitious Sandaract*. 'Tis of little Uſe in Painting, the real Minium or Vermilion, to which it is ſubſtituted, making a much better, brighter, and more durable Colour. See MASTICOT, and VERMILION.

SAND-HEAT, or *Sand-Bath*, in Chymiſtry, one of the Chymiſts Fires, conſiſting of hot Sand, wherein Herbs, Flowers, *&c.* are infuſed in a Cucurbit. See BALNEUM ARENOSUM. The *Sand-Heat* is eſteemed gentle, digeſtive, and alterative.

SANGUIFICATION, in the Animal Oeconomy, the Action whereby Chyle is converted into Blood. *Sanguification* ſucceeds to *Chylification*. See CHYLIFICATION. Alſo ſee BLOOD and CHYLE.

SANGUIFICATION is thus effected. The Chyle having paſſed the Lacteals of the ſeveral Kinds, is delivered into the Blood at the Subclavian; whence the two Humours paſs together to the right Ventricle of the Heart, where being yet more intimately mixed, they circulate together through the whole Body; 'till, after ſeveral Circulations and Depurations at the ſeveral Colatures and Strainers of the Body, they become aſſimulated, or, as the Chymiſts call it, *cohobated*, ſo as only to make one uniform compound Maſs, which appears to be nothing elſe but Chyle alter'd by the Artifice of Nature, and exalted into Blood. In Effect, it does not appear that any Thing extraneous is mixed with the circulating Liquor but Chyle, excepting what was before ſeparated from it for particular Occaſions; unleſs perhaps it ſhould receive ſome Portion of Air in the Lungs, which is a Point long diſputed, and yet ſcarce aſcertained. Indeed, that there is a Quantity of Air mixed with the Blood and circulating with it, is granted; but whether this be any more than was at firſt contained in the Bodies whereof the Chyle was form'd, is much doubted: The principal Arguments for it, are, The Neceſſity of Reſpiration, and the florid Colour the Blood receives in the Lungs, and firſt ſhews itſelf in the Pulmonary Vein; but the firſt is ſatisfactorily accounted for another Way. See RESPIRATION. The latter is chiefly ſupported by this Experiment, That Blood drawn by Veniſection, and ſuffered to coagulate, upon turning up the Bottom, which before was blackiſh, being now expoſed to the Air, acquires a florid Colour, like that we obſerve in the Blood of the Pulmonary Vein. The Action of *Sanguification* is ſucceeded by that of *Nutrition*, See NUTRITION.

The Antients were in great Perplexity about the Seat of *Sanguification*, or the Place where, and the Inſtrument whereby it is effected: Whether in the Heart, or the Liver, or the Lungs: But, according to the Doctrine of the Moderns, the Heart, Liver, Veſſels, *&c.* contribute no otherwiſe to the changing of the Chyle into Blood, than the Sun does to the changing of the Muſt into Wine. See HEART, LIVER, &c.

The Antients accounted for *Sanguification* from a plaſtic Power. In the laſt Century, when Chymiſtry was introduced, *Sanguification*, and almoſt every thing elſe, was to be effected by a Ferment; and the Phyſicians of thoſe Times, were very ſollicitous as to the particular *Officina* where this Ferment was prepared and kept. Some would have it the Liver, others the Spleen, *&c.* but the very Notion is now exploded.

Of *Sanguification* we may admit two Degrees; the firſt amounting to no more than a Confuſion, or ſuch an intimate Mixture of Parts, as ſuffices ſo to confound the different coloured Liquors, as that the Whiteneſs of the Chyle ſhall be loſt or drowned in the Redneſs of the Blood, ſo as never more to appear in its own Shape and Colour. This we ſuppoſe may be effected by repeated Circulations alone: How many Circulations are neceſſary thereto, 'tis difficult to determine.

The Second Degree of *Sanguification*, is, when the Parts of the Chyle are ſo exalted or communuted and ſubtilized, as to loſe all Tendency to a coagulatory Separation, ſuch as they have in Chyle and Milk. To theſe two Degrees may be added a third, wherein the Fibres and Filaments of the crude Blood are ſo broken and blended with the Serum, as not to be again ſeperable from them. This is a *Morbid Sanguification*, ſuch as happens in Fevers, *&c.* attended with a bloody Sweat, Spots, *&c.*

All theſe Degrees of *Sanguification*, Dr. *Drake* makes no doubt are procured by reiterated Circulations, wherein as well the Inteſtine, as the Progreſſive Motion, conſpire to the mixing and comminuting of the adventitious Parts. Doubtleſs they have their ſtated Period, wherein they are in Perfection; though where preciſely to fix it, we do not know.

SANGUINE, ſomething abounding in Blood; hence *Sanguine Temperament*, or Conſtitution, is that where Blood and Heat predominate. *Sanguine* Conſtitutions require a frequent Uſe of Phlebotomy. *Sanguine* People are uſually obſerved to be briſk, bold, daring, and even preſumptuous: Hence *Sanguine* Hopes, ſtrong, aſſured, *&c.* Hopes.

SANGUINE, in Heraldry, the Colour uſually called *Murry*, being made of Lake, with a little *Spaniſh* Brown: It is repreſented in Engraving, by Hatches like Purpure: It is moſtly uſed in the Coats of Knights of the *Bath*; when it is borne by Nobles, it is called *Sardonyx*, and in the Coats of Sovereign Princes they call it *Dragons-Tail*.

SANGUINE-STONE, *Lapis Sanguinalis*, or *Blood-Stone*, a kind of Jaſper brought from *New-Spain*, of a dark brown Colour, marked with Spots of a Blood-red; the *Indians* cut it in Form of a Heart, and uſe it in Hæmorrhagies, immoderate Menſes, and other Fluxes of Blood. The Patient applies it by graſping it in his Right Hand, having firſt dipt it in Water 'Tis ſometimes alſo hung on the Part whence the Blood flows. See JASPER.

SANGUIS, in Medicine, *&c.* See BLOOD.

SANGUIS, in our antient Cuſtoms, a Right, or Power, which the chief Lord of the Fee had to determine in Cauſes where Blood was ſhed. *De Murderia & Raptu, de Igne, de* Sanguine, *&c.* Monaſt.—— *Sanguinem Emere* was an Obligation the Inhabitants of ſome Manors, as that of *Grendon*, were under, to buy and redeem their Villain Blood or Tenure, and make themſelves Freemen.

SANGUIS CAPRINUS, or *Hircinus*, the Blood of the He Goat, either wild or tame, which is prepared, with great Precaution, to be uſed in Medicine, and ſuppoſed to have very extraordinary Qualities. The principal Precautions are theſe: The Goat is not to exceed four or five Years of Age; 'tis to be fed a conſiderable Time with Aromatic Herbs, and eſpecially thoſe of the Saxafrage Kind; to be drawn out of the Throat, or the Teſticles, by cutting them; but neither what comes firſt, nor laſt to be uſed, the former being too full of Humidity, and the latter too thick; and that the Operation be only performed in *July*, and the Blood put into Earthen Veſſels, and dried either in the Sun or the Shade, and, laſtly, bottled up to be uſed occaſionally.

Among other Specific Virtues attributed to Goatsblood, the two moſt conſiderable ones are, that it cures the Pleuriſy without bleeding; and that it diſſolves the Stone in the Bladder, by taking it in Vehicles proper for thoſe Diſeaſes. To be good, 'tis to be extremely hard and difficult to pulverize.

SANGUIS-DRACONIS, in Pharmacy. See DRAGONS-BLOOD.

SANHEDRIN, or *Synedrin*, among the Ancient *Jews*, the Supreme Council, or Court of Judicature of their Republic; wherein were diſpatch'd all the great Affairs both of Religion, and Policy. Many of the Learned agree, That it was inſtituted by *Moſes*, and conſiſted at firſt of Seventy Perſons, all inſpired of the Holy Ghoſt, who judged finally of all Cauſes and Affairs; and that it ſubſiſted, without Intermiſſion, from *Moſes* to *Eſdras*. Others will have it, That the Council of Seventy Elders, eſtabliſhed by *Moſes*, *Numb. Cap.* xi. was Temporary, and did not hold after his Death; adding, That we find no Sign of any ſuch perpetual and infallible Tribunal throughout the whole *Old Teſtament*. The *Jews*, however, contend ſtrenuouſly for the Antiquity of their Great *Sanhedrin*; M. *Simon* backs and defends their Proofs, and M. *le Clerc* attacks them. Be the Origine and Eſtabliſhment of the *Sanhedrin* how it will, 'tis certain it was ſubſiſting in the Time of our Saviour; that it was held at *Jeruſalem*; and that the Deciſion of all the moſt important Affairs belonged to it. The Preſident of this Aſſembly was called *Naſi*: There were ſeveral inferior *Sanhedrins* in *Paleſtine*, all depending on the Great *Sanhedrin* at *Jeruſalem*. The inferior *Sanhedrins* conſiſted each of Twenty-three Perſons; and there was one in each City and Town. Some ſay, That to have a Right to hold a *Sanhedrin*, 'twas requiſite there were One Hundred and Twenty Inhabitants in the Place. Where the Inhabitants came ſhort of the Number of One Hundred and Twenty, they only eſtabliſh'd Three Judges. Into the great as well as the inferior *Sanhedrins* were admitted Prieſts, Levites, and Laymen, of all the Tribes, provided they were of noble Extraction, Rich, Prudent, without any Blemiſh of Body, and expert in Magick; which laſt was eſteemed a neceſſary Qualification, to enable them to obviate and deſtroy it: Very old People and Eunuchs were excluded. In each *Sanhedrin* there were two Scribes; the one to write down the Suffrages of thoſe who condemned; the other to take down the Suffrages of thoſe who acquitted.

Selden has a very Learned Work on the Subject of the *Jewiſh Sanhedrins, de Synedriis*, Printed at *London* in 1635, in three Volumes *Quarto*. The Word is derived from the *Greek* Συνέδριον a Council, Aſſembly, or Company of People ſitting together, from σὺν *con* together, and ἕδρα Seat, of ἕζω, I place.

SANIES in Medicine, a thin, ſerous Matter, iſſuing out of Wounds and Ulcers. *Galen* compares it to Whey. It differs from *Pus*, which is thicker and whiter: The *Greeks* call it ἰχὼρ crude Blood.

SANTALUM, *Santal*, *Sandal* or *Saunders*, a hard, heavy, odoriferous, medicinal Wood, brought from the *Eaſt-Indies*. There are of three different Colours, Citron, White, and Red. The Trees whence they are taken are all of the ſame Kind; and 'tis ſuppoſed their different Colours only ariſe from the Difference of Climates where they grow. 'Tis about the Height of the *European* Walnut-tree. Its Leaves reſemble thoſe of the *Lentiſk*, its Flowers Blue, bordering on Black; its Fruit of the ſize of our Cherry, green at firſt, but blackening as it ripens, and of a faint Taſte. The Citron *Santal* is eſteemed the beſt. 'Tis brought from *China*, and *Siam*: Is yellow, heavy, and of a good Smell; 'tis uſed in Medicine, as alſo by the Perfumers. The *White-Santal* is leſs odoriferous; 'tis brought from the Iſle of *Timor*. The *Red-Santal* has the leaſt Smell of the Three: 'Tis brought from the Iſland *Tamaſſarin*, and the Coaſt of *Coromondel*. The *Santals* are all held to be a little Aſtringent, to ſtrengthen the Heart and Brain, and to ſtop Vomiting; and are frequently uſed in Diet-drinks, and medicated Ales, againſt Scorbutick Complaints.

SAP, or *Sapp*; to *Sap* a Wall, &c. is to dig or open a Hole in the Ground at the Foot of a Wall, &c. to bring it down all at once for want of Support. To *Sap*, according to *Daviler*, is to undermine a Work with Hammers, Clubs, Pickaxes, Mattocks, &c. *viz.* A Bank, or Hillock, by propping it up, digging underneath it, and then burning the Props, or Stays; or a Rock, by digging a Mine underneath it. To demoliſh the thick, firm Walls of old Caſtles, &c. *Sapping* is much the readieſt Way. See SAPPING.

SAPHÆNA, in Anatomy, a Vein which ariſing over the *Malleolus Internus*, up along the Leg, and the inner Part of the Thigh, diſcharges it ſelf, near the Groin, into the Crural Vein. 'Tis the Vein they uſually open when they bleed in the Foot. It has its Name, probably, from σαφὴς *manifeſtus*, as lying plain in Sight.

SAPHETA, in Architecture, is the Board over the Top of a Window, placed parallel and oppoſite to the Window-Board at the Bottom.

SAPHIC, in Poetry, a kind of Verſe much uſed by the *Greeks*, and *Latins*; denominated from the Inventreſs *Sapho*. The *Saphic* Verſe conſiſts of Eleven Syllables, or Five Feet, whereof the Firſt, Fourth, and Fifth, are Trochees, the Second a Spondee, and the Third a Dactyl, as in

Integer Vitæ ſceleriſq; purus.

Three Verſes of this Kind, cloſed with an Adonick Verſe, conſiſting of a Dactyl and Spondee, uſually make a Strophe. Though we have ſome Chorus's in the Ancient Tragic Poets, containing a much greater Number of *Saphicks* ſucceſſively. They generally run rough, unleſs they have a Cæſure after the Second Foot.

SAPIENTAL, an Epithet applied to certain Books of Scripture, calculated for our Inſtruction and Improvement in Prudence, or Moral Wiſdom; thus called, in Contra-diſtinction to *Hiſtorical* and *Prophetical* Books. The *Sapiental* Books are *Proverbs*, *Canticles*, *Eccleſiaſtes*, *Eccleſiaſticus* the *Pſalms*, and *Job*; though ſome reckon this laſt among the *Hiſtorical* Books.

SAPIENTIÆ DENTES, Teeth, thus called becauſe they appear not till Perſons are grown. See TEETH.

SAPPHIRE, or *Saphir*, a precious Stone of a beautiful Azure, or Sky-blue Colour. The *Saphir* is tranſparent, yet exceedingly hard, ſo as ſcarce to bear being Engraven. Different Colours conſtitute different Kinds thereof; the deepeſt Blues being eſteemed *Males*, and the whiteſt *Females*. The *Saphirs* of *Pegu* are the moſt eſteem'd. They are found in the ſame Mines with the Rubies. There are ſome alſo brought from the Kingdom of *Calecut*, *Cananor*, and *Ceylon*; from which laſt Place we ſhould be furniſhed with abundance, if the King of the Iſland did not prohibit all Commerce thereof with Foreigners. The ſoft *Water-Saphirs* of *Bohemia* and *Sileſia* are of ſome Account, though far inferior to the Oriental ones. Many People value the *Saphir* beyond the Ruby and give it the ſecond Place among precious Stones, *viz.* that next the Diamond: Others give that Place to the Ruby. Some Authors affirm, That a *Saphir* being heated to a certain Degree, between two Crucibles luted together, loſes all its Colour, and becomes perfectly White; ſo as to deceive even the Jewellers themſelves, and make it paſs for a Diamond.

The Chymiſts make ſeveral Preparations of *Saphir*; as a Salt, a Tincture, an Eſſence, a Water, an Oil, &c. and there are few Diſeaſes but they pretend themſelves able to cure by Remedies compoſed thereof. The Superſtitious attribute ſtill more ſtrange Virtues to it; as, that it grows foul, and loſes its Beauty, when wore by a Perſon that is letcherous, &c. The Rabbins hold, That *Moſes*'s Rod, and the Tables he received on Mount *Sinai*, were of *Saphir*. The Word is derived hence, that in the *Hebrew* the fineſt Things are all called *Saphirs*; whence, in Scripture, the Throne of God is ſaid to reſemble a *Saphir*.

Our Druggiſts ſell two Kinds of *Saphirs* uſed in the Confection of Hyacinth: The one red, the other blackiſh. The laſt, by reaſon of the deep Tincture they give that Medicine, are very improperly uſed there: The former are little reddiſh Stones, of the Size of Pins-heads, very hard, and difficult to pulverize.

There is a particular Kind of *Saphir*, called, by the *Latins*, *Oculus Felis*, *Cats-Eye*, remarkable for a fine Diverſity of Colours, as well as for its Hardneſs, which bears a Poliſh equal with that of the true *Saphir*.

SAPHIR-RUBIES are certain precious Stones, between blue and red, which, in effect, are nothing but Rubies, whoſe Colour is not yet perfectly form'd. See RUBY.

SAPPING, in War, a Working under Ground, to gain the Deſcent of a Ditch, Counterſcarp, &c. and the Attacking of a Place. 'Tis performed by digging a deep Trench, deſcending by Steps from Top to Bottom, under a Corridor, carrying it as far as the Bottom of the Ditch, when that is dry, or the Surface of the Water when wet. When the Cover'd-way is well defended by Musketeers, the Beſiegers make their Way down into it by *Sapping*. When they are got near the Foot of the Glacis, the Trench is carried on directly forwards; the Workmen covering themſelves with Blinds, Wool-packs, Sand-bags, and Mantelets upon Wheels. They alſo make Epaulements, or Traverſes, on each Side to lodge a good Body of Men: The *Sap* is made five or ſix Fathom from the Saliant Angle of the Glacis, where the Men are only covered ſide-ways, wherefore they lay Planks over-head with Hurdles, and Earth above them. When they have forced the Enemy to quit the Covered-way, the Pioneers immediately make a Lodgment, and cover themſelves as well as they can, from the Fire of the oppoſite Baſtion.

SARABAIT, a Name anciently given to vagabond Monks. St. *Benedict* gives a frightful Idea of theſe *Sarabaites* in the Firſt Chapter of his Rule. *Caſſian* does not ſpeak a whit more favourably of them in his Fourteenth Conference; nor S. *Jerom* in his Letter to *Euſtochius*. *Caſſian* calls them, *Renuitæ, quia jugum regularis diſciplinæ renuunt.* The Word *Sarabactæ* is derived from the *Hebrew* סרב *Sareb*, to be a Rebel.

SARABAND, a Muſical Compoſition in Triple Time; being, in reality, no more than a Minuet, whoſe Motions are ſlow, and ſerious. *Saraband* is alſo a Dance to the ſame Meaſure, uſually terminating when the Hand riſes, whereby 'tis diſtinguiſhed from the Courant, which Ends when the Hand that beats Time, falls. The *Saraband* is ſaid to be derived originally from the *Sarazens*, as well as the *Chacone*: It had its Name, according to ſome Authors, from a Comedian called *Sarabande*, who firſt danc'd it in *France*. Others derive it from the *Spaniſh Sarao* Ball: 'Tis uſually danced to the Sound of the Guitarre, or Caſtanettes.

SARCASM, in Rhetorick, a keen, bitter Irony, whereby the Orator ſcoffs and inſults his Adverſary. Such was that of the *Jews* to our Saviour: *Thou who deſtroyeſt the Temple, and raiſeſt it in three Days, ſave thy ſelf*, &c. and again, *He ſaved others, himſelf he cannot ſave.* Or that of *Tamus* to a *Trojan* ſlain by him in *Virgil*.

En agros, & quam bello, Trojane, *petiſti*
Heſperiam metere jacens. Hæc præmia qui me
Ferro auſi tentare ferunt: Sic Mænia condunt.

SARCOCELE, in Medicine, a fleſhy Excreſcence, very hard, yet indolent, riſing up by little and little about the Teſticle, or on the inner Membrane of the *Scrotum*. Sometimes indeed it is painful, in which Caſe there is Danger of its degenerating into a Cancer: It uſually owes its Origine to ſome external Cauſe, as a Blow, a Bruiſe, or Contuſion. Such Accidents occaſion the nutritious Juices to ſtop, and to be collected in great Quantities in the relaxed or compreſſed Pores of thoſe Parts, by which Means is form'd that kind of Fleſh called *Sarcocele*. 'Tis a very troubleſome and obſtinate Diſeaſe, and is frequently incurable by any other Means than cutting off the Teſticle. The Word is formed from the *Greek* σὰρξ *Caro*, Fleſh, and κήλη Tumor.

SARCOCOLLA, a Gum oozing out of a thorny Tree, either with or without Inciſions. Neither Authors nor Merchants are agreed as to the Place where it grows: Some ſay 'tis in *Perſia*, others, in *Arabia Deſerta*. It comes either in Grains, or in Tears of different Colours; ſometimes White, ſometimes Yellow, and ſometimes Red, but all equally good, provided they be very dry. Their Taſte is bitter, accompanied with ſomewhat of a diſagreeable Sweetneſs. 'Tis eſteemed warm and drying; very good to conſolidate and heal Wounds, whence its Name, which is from the *Greek*, σάρξ Fleſh, and κόλλα Glue. 'Tis ſometimes alſo uſed in Collyria to ſtop Defluxions, and take off Specks on the Eye.

SARCOLOGY, in Anatomy, a Diſcourſe on the Fleſh, or the ſoft Parts of the Human Body. Anatomy is divided into Two principal Parts; Oſteology and *Sarcology*. The firſt whereof treats of the Bones and Cartilages; the ſecond of the Fleſh and ſoft Parts. See FLESH.

SARCOMA, in Medicine, a fleſhy Excreſcence ariſing from the proper Nutriment of the Part where it grows, without any Defluxion, or Diſcharge of Humours from other Parts. If the Fleſh be not repreſs'd and kept under, it frequently produces Pipes like Veins and Arteries, whereby it receives Nouriſhment, as we ſee in Wens. It yields a very fetid Sanies, and ariſes chiefly about the Fundament, the Neck of the Womb, Fractures of the Cranium, &c. The *Latins* call it *Fungus*.

SARCOMPHALUM, in Medicine, &c. a fleſhy Excreſcence of the Navel, from the *Greek* σάρξ Fleſh, and ὄμφαλος Navel.

SARCOPHAGUS, or *Sarcophagum*, in Antiquity, a Tomb-ſtone, wherein the Antients laid thoſe they had not a mind to burn: The Word, derived from the *Greek*, literally ſignifies, one that eats Fleſh; becauſe at firſt, they uſed a Sort of Stones for the making of Tombs, which quickly conſumed the Bodies: The Quarries from whence they dug them were in a City of *Troas*, named *Aſſum*: They had the Virtue to waſte away a Body to nothing, ſave the Teeth, in Forty Days: This Stone reſembled a Reddiſh Pumice Stone, and had a ſaltiſh Taſte; they made Veſſels of it to cure the Gout, into which they put their Feet, not ſuffering them to continue there too long.

SARCOTICKS, in Medicine, Remedies proper to fill up Wounds and Ulcers with new Fleſh; the ſame as *Incarnatives*. *Sarcoticks* ſhould be deterſive and moderately hot. Such are *Sarcocolla*, *Dragon's-Blood*, *Incenſe*, &c. The Word is form'd from the *Greek* σάρξ Fleſh.

SARDOIN, or *Sardonian-Stone*, a precious Stone of a Blood Colour, half tranſparent; the ſame with what we otherwiſe call a *Cornelian*. See CORNELIAN. The moſt beautiful *Sardoins*, are thoſe brought from about *Babylon*: Thoſe of *Sardinia*, whence they take their Name, are in the ſecond Claſs. There are others, and thoſe no contemptible ones, found near St. *Mauro* in *Albania*; and other, very ſmall ones, about the *Rhine*, in *Bohemia*, *Sileſia*, &c. To give them the greater Luſtre, 'tis uſual in ſetting them, to lay Silver-leaf underneath. The *Sardoin* is moſt uſed for Seals, as graving eaſily, yet taking a fine Poliſh. The Author of the Book falſely aſcribed to *Albertus Magnus*, attributes ſeveral wonderful Virtues to this Stone. See AGATE.

SARDONIAN LAUGHTER. See RISUS *Sardoninus*.

SARDONYX, a precious Stone, partaking partly of the *Sardoin*, and partly of the Agate or *Onyx*. 'Tis reddiſh, bordering on White, like the Nail of the Hand. In ſome, the Red inclines to a Yellow. 'Tis brought from the *Eaſt Indies*, *Arabia*, and *Bohemia*. It was anciently much uſed for fine Veſſels. See AGATE and SARDOIN.

SARPLAR OF WOOL, otherwiſe called a *Pocket*, is half a *Sack*. See SACK. In *Scotland*, it is called *Serpliathe*.

SARRASIN, in Fortification, is a Kind of Portcullice, otherwiſe called an Herſe, which is hung with a Cord over the Gate of a Town, or Fortreſs, and let fall in Caſe of a Surprize.

SARSAPARILLA, or *Salſaparilla*, a Medicinal Plant, growing in *New Spain*, *Peru*, and the *Eaſt Indies*. Its chief Uſe is in Decoctions and Potions in the Venereal Diſeaſe, being eſteemed a great Obſervant and Sweetner; and, on that Score, ſometimes uſed as a Tea. Its Root, which is the Part in Uſe, divides its ſelf into a great Number of Filaments, Six or Seven Foot long; of the Thickneſs of a Quill. 'Tis Grey without Side, and White within, only mark'd with Two Red Streaks. Its Branches creep on the Earth, or along the Trunks of other Trees, &c. as the Ivy does. To be good, it muſt be very dry, its Filaments long, eaſy to cleave; and, in cleaving, muſt not yield any Duſt: When boiled in Water, it muſt give it a Red Tincture. Some of the Modern Phyſicians doubt the Medicinal Virtue of this Root, as it does not diſcover much, either in Taſte, Smell or Tincture. There is another Kind, the Filaments of whoſe Root are thicker, growing in the Iſland *Maregnan*, on the Coaſt of *Braſil*. This is not eſtemed ſo good as the former. There is a third Kind brought from *Muſcovy*, the Roots whereof are ſtill bigger, but good for nothing but to burn.

SARTORIUS, in Anatomy, the *Taylor's Muſcle*, a *Muſcle* thus called, becauſe ſerving to throw one Leg a-croſs the other. 'Tis alſo called *Poplitæus*. See POPLITÆUS.

SASSAFRAS or *Saxafras*, a Yellow odoriferous Wood, of a briſk aromatic Scent, ſomewhat reſembling Fennel. 'Tis the Wood of a Tree growing in *Florida*, whereof there are whole Foreſts. The Natives call it *Pavama*, the *Spaniards* and *French* alſo, *Cinnamon-Wood*; becauſe, at the Conqueſt of that Country, under *Ferdinand Soto*, in 1558, they imagined this to have been the true *Cinnamon* Tree. The Wood of *Saſſafras*, chiefly its Bark, wherein its principal Virtue is ſuppoſed to reſide, was formerly ſold at an incredible Price, to be uſed with Sarſaparilla and Eſquilina, in the Cure of the Venereal Diſeaſe. 'Tis very drying and hot, tho' not quite ſo much as the Guaiacum: It is ſomewhat come into Faſhion in Families, as the common Tea, which the Shavings of it make agreeably enough; but the Scandal of being good in Venereal Caſes, is a Detriment to it, and prevents a deal of Good being done by it: Indeed, with ſome, it doth not agree, eſpecially at firſt, and in a Morning, as it affects the Head, like ſome Perfumes, and occaſions Pains, Drowſineſs and Vapours: But Uſe, and drinking it, in the Beginning, in the Afternoon, will, with moſt Conſtitutions, wear out theſe Inconveniencies. 'Tis eſteemed in the Gout, Sciatica, and Green Sickneſs, Chuſe that covered with a thick Bark, reddiſh, and rough, of a ſharp Taſte, and a ſtrong aromatic Smell.

SASSE, in ſome of our Statutes, is a Kind of *Wear* with Flood-gates, commonly in Navigable Rivers for the damming and looſing the Stream of Water, as Occaſion requires, for the better paſſing of Boats and Barges to and from. This, in the Weſt of *England*, is called a *Lock*; in the River *Lee*, a *Turn-pike*, and in other Places a *Sluice*.

SATELLIT *Guard*, a Perſon attending on another, either for his Safety, or to be ready to execute his Pleaſure. Among the *Eaſtern* Emperors, *Satellite* expreſs'd the Dignity or Office of Captain of the Life-Guard. The Term was afterwards uſed for the Vaſſals of Lords, and afterwards for ſuch as held Fees, called SERGEANTIES: Which ſee.

SATELLITES, in Aſtronomy, certain ſecundary Planets, moving round the other Planets, as the *Moon* does round the Earth; thus called, becauſe always found attending them from Riſing to Setting, and making the Tour of the Sun together with them. See PLANET.

The *Satellites* move round their primary Planets, as their Centres, by the ſame Laws as thoſe primary ones do round their Centre, the Sun. For the Phyſical Cauſe of their Motions, ſee GRAVITY; ſee alſo SYSTEM.

The Words *Moon* and *Satellit*, are ſometimes uſed indifferently; and thus we ſay, either *Jupiter's Moons*, or *Jupiter's Satellites:* But ordinarily we diſtinguiſh, reſtraining the Term *Moon* to the Earth's *Satellit*; and *Satellit* to the little *Moons* lately diſcovered about *Jupiter* and *Saturn*. See MOON.

The *Satellites* were unknown till our Time, as needing the Aſſiſtance of the Teleſcope to render them viſible. We don't know of any *Satellites*, beſides thoſe juſt mentioned; nor is there any great Foundation to hope that more ſhall be diſcovered hereafter, as the longeſt, and the moſt exquiſite Teleſcopes have already been applied.

SATELLITES of *Jupiter* are Four little ſecundary Planets, performing their Revolutions about *Jupiter*, as that Planet does round about the Sun. See JUPITER. *Simon Marius*, Mathematician of the Elector of *Brandenburgh*, about the End of *November* in 1609, diſcerned Three little Stars moving round *Jupiter*'s Body, and proceeding along with him; and in *January* 1610, found a Fourth. In *January* 1610, *Gallilæo* obſerved the ſame in *Italy*; and the ſame Year publiſhed his Obſervations; from which time commenced the Obſervation of the *Circumjovial Satellites*. *Gallilæo*, in Honour of his Patron, firſt called them *Aſtra Medicæa*, Medicæan Stars. *Marius*, the firſt Diſcoverer, called that next *Jupiter*, *Mercurius Jovialis*, *Jupiter's Mercury*. The ſecond, *Venus Jovialis*, *Jupiter's Venus*; the third *Jupiter Jovialis*, and the fourth *Saturnus Jovialis*, *Jupiter's Saturn*.

Indeed, *Anthony Maria Schyrlæus de Rheita*, a Capuchin of *Cologne*, imagined, That, beſides the Four known *Satellites* of *Jupiter*, he had diſcovered Five more, the 29th of *December*, *Anno* 1642, and in Honour of *Urban* VIII, the Pope then reigning, denominated them *Sidera Urbanotaviana*. But upon *Nauda*'s communicating the Obſervation to *Gaſſendus*, who had obſerved *Jupiter* on the ſame Day, he ſoon perceived that the Monk had miſtaken Five fixed Stars, in the pouring out of the Water of *Aquarius*, mark'd in *Tycho*'s Catalogue 24, 25, 26, 27 and 28, for *Satellites* of *Jupiter:* Whence 'tis no Wonder they ſhould appear to the Diſcoverer to move a contrary Way to that of the reſt, *viz.* from Weſt to Eaſt. See *Epiſt. Gaſſend. ad Gab. Naud. de Novem Stellis. circa Jovem viſis.*

Phænomena, Nature, Properties, &c. of Jupiter's SATELLITES.

1°. The *Satellites* of *Jupiter* all diſappear in a clear Sky, when *Jupiter* interpoſes between them and the Sun; that is, are eclipſed by him.

Hence it follows, That they are deſtitute of Light, when the Sun's Rays, which are propagated in right Lines, are intercepted by *Jupiter:* And hence it follows, That they are opaque Bodies like our Moon, and are illumined by the Sun. And hence, ſince *Jupiter* does not illumine his *Satellites* when placed behind him; he himſelf, in that Side oppoſite to the Sun, is deſtitute of all Light.

2°. When the *Satellites* are interpoſed between *Jupiter* and the Sun, a round Macula or Spot is obſerved in *Jupiter*'s Disk; which is ſometimes found bigger even than the *Satellit* it ſelf.

Hence, ſince the *Satellites* are opaque Bodies, and are illumined by the Sun, and muſt therefore project a Shadow, oppoſite to the Sun; the round Spots ſeen in *Jupiter*, are the Shadows of the *Satellites*. Hence alſo, ſince the Interſection of the Shadow is a Circle, the Shadow it ſelf is Conical: And hence it follows, That the Figure of the *Satellites*, at leaſt, as to Senſe, is Spherical.

3°. If, when the Earth is between *Jupiter* and the Sun, any of the *Satellites* happen to be between the ſame, its Light diſappears, and is loſt in *Jupiter*'s Light. Thus M. *Maraldi* tells us, That on the 26th of *March* 1707, thro' a Teleſcope of Thirty Four Foot, he obſerved the Fourth of *Jupiter*'s Moons paſſing over his Body, in Form of a dark Spot; but it had no ſooner got off of the Disk, than it reſumed its uſual Brightneſs. A like Spot he obſerved on the 4th of *April*, from an Immerſion of the third *Satellit*; but, on the 11th of *April*, upon watching an Immerſion of the ſame *Satellit*, he found it appeared wholly, without leaving any Spot at all. The ſame Phænomenon was alſo obſerv'd at other Times by M. *Caſſini:* And both *Caſſini* and *Maraldi*, have frequently obſerved very ſurprizing Changes in the apparent Magnitudes of the *Satellites*, when there was nothing in their Diſtance, either from Earth, the Sun, or *Jupiter*, to occaſion ſuch Variations. *E. gr.* The fourth *Satellit*, which is frequently the leaſt of all, ſometimes appears the biggeſt: And the third, which is ordinarily the biggeſt, ſometimes only appears equal, and ſometimes leſs, than any of the reſt.

Hence, ſince *Jupiter's Satellites* are illumined by the Sun, even when immerged in the Light of *Jupiter*, and yet, notwithſtanding this, ſometimes appear dark, and ſometimes diſappear; there muſt be ſome Changes in their Atmoſpheres, to prevent the equable Reflection of the Sun's Rays, from the ſeveral Parts of the Atmoſphere. To the ſame Cauſe 'tis owing that their Shadows are ſometimes ſeen bigger than themſelves.

Periodical Times of the SATELLITES *of* Jupiter.

The Periods, or Revolutions of the *Satellites*, are found from their Conjunctions with *Jupiter*, after the ſame Manner as thoſe of the primary Planets are found from their Oppoſitions to the Sun. See PERIOD, *&c.*

Note, By this Method *Caſſini* determined the Periods of

The Firſt *Satellit*	1 Day	18 Hours	28 Min.	36 Sec.
Second *Satellit*	3	13	18	52
Third *Satellit*	7	3	59	40
Fourth *Satellit*	16	18	05	06

Diſtances of Jupiter's SATELLITES *from* Jupiter.

As in the primary Planets, with regard to the Sun, ſo in the *Satellites*, with regard to their Primaries, the Squares of the Periodical Times, are in a *Triplicate Ratio* of their Diſtances therefrom. To determine the Diſtance by Obſervation, they meaſure them with a Micrometer, in Semi-Diameters of *Jupiter*. Theſe Diſtances, according to *Caſſini*, are as follow.

The Firſt *Satellit* diſtant from *Jupiter*'s Center,	5 and two 3ds. Semi-diam.
The Second *Satellit*	9 Semi-diam.
The Third *Satellit*	14
The Fourth *Satellit*	25 and one 3d.

Hence, as the Semi-diameter of *Jupiter* is equal to 27 8 11ths Semi-diameters of the Earth, the Diſtance of the firſt *Satellit* from the Centre of *Saturn* is 166 Semi-diameters of the Earth: That of the ſecond 249 and a Half. That of the third 388; and that of the fourth 884.

Eclipſes of Jupiter's SATELLITES. See ECLIPSE.

SATELLITES of *Saturn*, are Five little Stars revolving about *Saturn*. See SATURN. The firſt was diſcovered by M. *Huygens*, *Anno* 1655, *March* the 25th, by means of a Teleſcope Twelve Foot long. The other Four, at different Times, by M. *Caſſini*, viz. Thoſe Two next *Saturn*, in *March* 1684, by Help of *Campani*'s Glaſſes, of One Hundred, and One Hundred and Thirty-ſix Foot long. The third in *December* 1672, by a Teleſcope of *Campani*'s, of Thirty-five Foot; and the fifth (that of *Huygens* being the fourth) in *October* 1671, by a Teleſcope of Seventeen Foot.

Moſt, perhaps all, of the Phænomena obſerved of *Jupiter*'s *Satellites*, are alſo found exhibited by thoſe of *Saturn:* Thus, they are found ſometimes bigger, and ſometimes leſs: The fifth is ſometimes, alſo, found eclipſed, *&c.* And hence, there is no doubt, but they are of the ſame Nature, *&c.* See SATELLITES *of Jupiter*.

The Periodical Times of the SATELLITES *of* Saturn, *according to M.* Caſſini, *are as follow.*

That of the

Firſt *Satellit*	1 Day	21 Hours	18 Min.	31 Seconds
Second *Sdtellit*	2	17	41	27
Third *Satellit*	4	13	47	16
Fourth *Satellit*	15	22	41	11
Fifth *Satellit*	74	7	53	57

The Diſtances of Saturn's SATELLITES *from his Centre, according to the ſame M.* Caſſini, *are as follow.*

Firſt *Satellit*	4 3 8ths	Semi-diam. of *Saturn*, or	1	Diameter of *Saturn*'s *Ring*.
Second *Satellit*	5 3 5ths		1 1 4th	
Third *Satellit*	8		1 2 3ds	
Fourth *Satellit*	18		4	
Fifth *Satellit*	54		5	

The great Diſtance between the fourth and fifth *Satellit*, gave Occaſion to *Huygens* to ſuſpect that there might be ſome intermediate one; or elſe, that the fifth might have ſome other *Satellit* moving round it, as its Centre.

Dr. *Halley*, in the *Philoſophical Tranſactions*, gives us a Correction of the Theory of the Motion of the fourth or *Huygenean Satellit*. Its true Period he makes 15 Days, 22 Hours, 41 Minutes, 6 Seconds. Its diurnal Motion, 22° 34′ 38″ 18‴. Its Diſtance from the Centre of *Saturn*, 4 Diam. of the Ring; and its Orbit to be little or nothing diſtant from that of the Ring, interſecting the Orbit of *Saturn* under an Angle of 23 ½ Degrees.

SATIR. See SATYR.

SATIRE. See SATYRA.

SATRAPA, or *Satrapes*, in Antiquity, the Governor of a Province among the ancient *Perſians*. King *Darius* uſually walked attended by his principal Lords, and *Satrapæ. Q. Curtius*. The Kingdom was divided into *Satrapies*, or Juriſdictions of *Satrapæ*. The Word is originally *Perſian*, ſignifying, ſtrictly, *Admiral* or *Commander* of a *Naval Army*, but was afterwards uſed indifferently for all Governors of Provinces; in which Senſe it was borrowed by the *Greeks*, who uſed σατράπης in the ſame Signification. We alſo find the Word uſed in ſome ancient *Engliſh* Charters of King *Etheldred*, where the Lords, who ſign next after the Dukes, take the Title of *Satrapes* of the King. *Du Cange* takes the Word here to ſignify *Miniſters* of the King.

SATTIN, or *Satten*, a kind of Silken Stuff very ſmooth, and ſhining, the Warp whereof is very fine, and ſtands out; the Woof coarſer, and hid underneath: Whence it is it receives that Gloſs, which is its Beauty, and which gives it its Price. There are *Sattins* quite plain, others wrought; ſome flowered with Gold, or Silk, others ſtriped, *&c.* All the Changes in the Faſhions of *Sattins* are made by adding new Warps or Woofs.

The fineſt *Sattins* are thoſe of *Florence* and *Genoa*; yet, the *French* will not allow thoſe of *Lyons* any thing inferior thereto.—— The *Sattins* of *Bruges* have their Warp of Silk, and their Woof of Thread. —— *Indian Sattins*, or *Sattins* of *China*, are Silken Stuffs, much like thoſe manufactured in *Europe*. Of theſe, ſome are plain, either white, or of other Colours, others worked, either with Gold, or Silk, flowered, damasked, ſtriped, *&c.* They are moſtly valued, becauſe of their Cleaning, and Bleaching eaſily, without loſing any thing of their Luſtre. In other Reſpects they are inferior to thoſe of *Europe*. F. *le Compte* obſerves, That the *Chineſe* prepare their *Sattins* in Oil, to give them the greater Luſtre; but this makes the Duſt liable to hang to them. *Menage* derives the Word from the *Latin Seta*, as who ſhould ſay, *Setinam*, or from the *Hebrew Sadin*, ſignifying the ſame thing; or from the old *French Sade* and *Sadinet*, handſome, gentile.

SATTINET, or SATTINADE, a very ſlight, thin Sattin, chiefly uſed by the Ladies for *Summer* Night-gowns, *&c.* and ordinarily ſtriped. The Word is a Diminutive of *Satten*.

SATURANTIA, is ſometimes uſed in the ſame Senſe as *Abſorbent*: Which ſee.

SATURDAY-STOP, a Space of Time, in which of old it was not lawful to take *Salmons*, in the North, *viz.* From Even-ſong on *Saturday*, till Sun-riſing on *Monday*.

SATURN, in Aſtronomy, one of the primary Planets, being the furtheſt from the Earth, and the Sun, and that whoſe Motion is the ſloweſt: Thus characteriz'd ♄. It ſhines but with a feeble Light, by reaſon of its Diſtance, on which Account, though the biggeſt of all the Planets, it appears the leaſt. See PLANET.

The Period of *Saturn*, or the Space of Time wherein he revolves round the Sun, which makes his Year, according to *Kepler*, is 29 Years, 174 Days, 4 Hours, 58 Minutes, 25 Seconds, and 30 Thirds, whence his Diurnal Motion muſt be 2 Minutes, 0 Seconds, 36 Thirds. Tho' *de la Hire* makes his Diurnal Motion 2 Minutes 1 Second. See REVOLUTION. The Inclination of his Plane to that of the Ecliptick, *Kepler* makes 2°. 32′, *De la Hire*, 2°. 33′. See INCLINATION. Its mean Diſtance from the Sun is 326925 Semi-diameters of the Earth; and from the Earth 210000 of the ſame: See DISTANCE. Its ſmalleſt Diameter, according to *Huygens*, is 30 Seconds. The Proportion of its Diameter to that of the Earth, as 20 to 1; of its Surface to that of the Earth, as 400 to 1; of its Solidity to that of the Earth, as 1 to 8000. See DIAMETER. Dr. *Halley* obſerves, in the Preface to his Catalogue of the Southern Stars, That he has found *Saturn* to have a ſlower Motion than is aſſigned him in the Tables: This Irregularity, we may hope, is abundantly rectified in his own Tables now in the Preſs. 'Tis doubted whether or no *Saturn*, like the other Planets, revolves on his *Axis*: It does not appear from any Aſtronomical Obſervations that he does; and there is one Circumſtance that ſhould ſeem to argue the contrary, *viz.* That whereas the Earth, and other Planets, which we know do revolve on their Axes, have their Equatorial Diameter greater than their Polar, nothing like this is obſerved in *Saturn*. See EARTH.

The Diſtance of *Saturn* from the Sun being ten times greater than that of the Earth from the ſame, tis found, that the apparent Diameter of the Sun ſeen from him, will not exceed 3 Minutes, which is but little more than twice the Diameter of *Venus*. The Sun's Disk, therefore, to an Inhabitant of *Saturn*, will appear 100 times leſs than it does to us, and both its Light and Heat be diminiſhed in the ſame Proportion. See SUN.

The Phaſes of *Saturn* are very various and extraordinary, and long perplexed the Aſtronomers, who could not divine the Meaning of ſuch Irregularity: Thus *Hevelius* obſerved him to be ſometimes Monoſpherical, ſometimes Triſpherical, Spherico-anſated, Elliptico-anſated, and Spherico-cuſpidated. But *Huygens* plainly ſhews, That all theſe monſtrous Appearances are owing to the Imperfection of the Teleſcopes that Author had uſed. *Huygens*, upon obſerving him very attentively with much better Glaſſes, reduced all his Phaſes to three Principal ones, *viz.* Round, Brachiated, and Anſated. See PHASES.

One Thing *Saturn* has peculiar to himſelf, *viz.* A Ring which ſurrounds his middle like an Arch, or like the Horizon of a Globe, without touching him any where; the Diameter thereof more than double that of the Planet which it ſurrounds; The former containing 45 Diameters of the Earth, the latter only 20. When raiſed enough to be out of the Shadow of the Body of *Saturn*, it reflects the Light of the Sun very ſtrongly. The Thickneſs of the Ring, Dr. *Keill* obſerves, takes up one half of the Space between its outer or convex Surface, and the Surface of the Planet. This Ring is found to be an opaque, ſolid, but ſmooth, and even Body. 'Twas *Gallilæo* firſt diſcovered that the Figure of *Saturn* was not round; But 'twas *Huygens* firſt found that its Inequality was in Form of a Ring; the Diſcovery of which he publiſhed in 1659, in his *Syſtema Saturnianum* 'Tis doubted whether or no the Ring revolves round the Planet: Its Uſe and Deſign are ſtill a Myſtery. For its Phænomena, *&c.* ſee RING.

Saturn performs his Courſe round the Sun, attended with five *Satellites*, or Secondary Planets; the Periods, Diſtances, *&c.* whereof, ſee under SATELLITES.

SATURN, in Chymiſtry, ſignifies Lead, in regard that Metal is ſuppoſed to lie immediately under the Influence of this Planet. See LEAD; Where the ſeveral Preparations thereof are deſcribed.

SATURN, in Heraldry, the Black Colour in the Coats of Arms of Soveraign Princes: anſwering to *Diamond* in the Coats of Noblemen; and *Sable* in thoſe of Gentlemen. See SABLE.

SATURNALIA, in Antiquity, Feaſts celebrated among the *Romans*, in Honour of the God *Saturn*: They held three Days, beginning on the 16th, others ſay, the 17th, and others the 18th Day of *December*. During the Solemnity the Slaves were reputed Maſters; they were allowed to ſay any thing; and, in fine, were ſerved at Table by the Maſters themſelves. Every thing run into Debauchery and Diſſoluteneſs, and nothing was heard or ſeen in the City of *Rome*, but the Din, Riot, and Diſorder, of a People wholly abandoned to Joy and Pleaſure. M. *Dacier* obſerves, That the *Saturnalia* were not only celebrated in Honour of *Saturn*, but alſo to keep up the Remembrance of the Golden Age, when all the World was on a Level. 'Twas a Piece of Religion not to begin any War, or execute any Criminal during this Feaſt. The *Saturnalia* were not only held at *Rome*, but alſo in *Greece*; and were, in reality, much older than *Rome* it ſelf. Some aſcribe their Inſtitution to the *Pelaſgi*, who were caſt upon the Iſland of *Delos*; others to *Hercules*, and others to *Janus*. *Goropius Becanus* makes *Noah* the Author of them. *Orig. lib.* 4. That Patriarch, he tells us, in the *Ark*, inſtituted a Feaſt to be held in the Tenth Month, in Memory of this, That in that Month, the Tops of the Mountains began to appear above the Water; and this he makes the Origine of the *Saturnalia*: But 'tis very probable the Year then begun in *Autumn*, and of conſequence *December* could not be the Tenth Month. *Voſſius* goes ſtill higher, and will have it, that the *Saturn*, in Honour of whom this Feaſt was inſtituted, was *Adam*.

SATURNINE, a Term applied to Perſons of dark, ſullen, melancholic Complections; as being ſuppoſed under the Predominancy of *Saturn*, or at whoſe Births *Saturn* was the Aſcendant.

SATURNINIANS, or *Saturnilians*, a Sect of ancient *Gnoſticks*, thus called from their Chief *Saturnil* or *Saturnin*, a Diſciple of *Menander*, a famous Gnoſtic. *Saturnil* taught the ſame Errors with his Maſter, in *Syria*. See MENANDRIANS.

SATYR, in the Heathen Theology, a fabulous Demi-God, who with the *Fauns*, and *Sylvans*, preſided over Groves, and Foreſts, under the Direction of *Pan*. The *Satyrs* were painted half Men, half Goats. The upper Part was Human, excepting for Horns on the Head: The lower Brutal, with the Tail and Legs of a Goat: The Whole cover'd with Hair. The Word is uſually derived from *Sathin*, which, in the antient *Greek*, ſignified the virile Member; theſe Deities being ſuppoſed much addicted to Laſciviouſneſs.

The Poets uſually confound the *Satyrs*, *Sylvans*, *Fauns*, and *Panes*: See each under its proper Article. *Nonnus* in his *Dionyſiaca*, makes the Satyrs the Offspring of *Mercury*, and a Doric Nymph, call'd *Iptitime*, and gives us the Names of ſeveral, *viz. Pæminius*, *Thyeſus*, *Hypſichorus*, *Oriſtas*, *Apæus*, *Phlegræus*, *Lycon*, &c. *Memnon*, in his Book againſt the Tyrants of *Heraclea*, derives the *Satyrs* from *Bacchus*, and a *Naiad*, called *Nicæa*.

SATYRA, or rather *Satira*, a Satyr: It is a Word that ſignifies all manner of Diſcourſe, wherein any Perſon is reprehended. But a *Satyr* is commonly meant of a Poem, that wittily reproves Men's Vices: *Caſaubon* makes a Diſtinction between the Satyrical Poetry of the *Greeks*, and the *Satyr* of the *Romans*, which was peculiar to themſelves only, and this is juſtified by *Quintilian*, l. 1. c. 10. *Satira quidem tota noſtra eſt*, for which Reaſon *Horace* calls it, *Græcis intactum Carmen*; a ſort of Poetry unknown to the *Greeks*: See *Caſaubon* on the Word. A *Satyr* ought to be lively, pleaſant, moral, and full of Variety, wherein *Juvenal* and *Horace* excelled, though their *Satyrs* ought to be read with Caution.

SATYRION, a Root called by this Name, becauſe of its fancied Promotion of Luſt: *Dioſcorides* diſtinguiſheth this from the *Orchis*, but Mr. *Dale* ranks it under that Tribe. It paſſeth for a great Cordial and Reſtorer; but its Shape, reſembling an Human *Penis*, ſeems to be the only Foundation for the Whimſey of making it a Provoker to Venery, and to forward Conception.

SAVAGES, or *Salvages*, wild, barbarous People, without any fix'd Habitation, Religion, Law or Policy: A great Part of *America* is peopled with *Savages*. Many, ſome ſay moſt, of the *Savages* are *Anthropophagi*. The Word is form'd from the *Italian Salvagio*, of *Salveticus* or *Silvaticus*, which we find uſed in the barbarous *Latin* for *Silveſtris*.

SAUCISSON, in Fortification, a kind of Faggot made of thick Branches of Trees, or of the Trunks of Shrubs bound together; the Uſe whereof is to cover the Men, and to ſerve as Epaulements. It differs from a Faſcine, which is only made of the ſmall Branches, and by its being bound at both Ends, and in the Middle. Anciently they made it 46 Foot long, and 15 Foot thick; ſince, 'tis uſually 23 Foot long, and 12 thick; bound ſtrongly together with three Bands furniſh'd with Iron. The Word is *French*, and ſignifies literally, a big Sauſage.

SAVER-DE-FAULT, in Law, to excuſe a Fault; which is properly when a Man having made Default in Court, comes afterwards, and alledges good Cauſe why he did it; as Impriſonment at the Time, or the like.

SAVIOUR. *Order of St. Saviour*, is a religious Order founded by St. *Bridget*, about the Year 1344, thus called from an Opinion, that Chriſt himſelf, the *Saviour of the World*, preſcribed the Rules and Conſtitutions thereof. They are alſo called, from their Foundreſs, *Bridgetins*. Their Origine was thus: *Wilphon* Prince of *Nericia*, to whom St. *Bridget* had been married, being dead at *Arras*, in his Return from *Galicia*, the Widow thought of nothing but devoting herſelf to a religious Life, and accordingly, ſoon after, built the Monaſtery of *Weſtern* in the Dioceſe of *Lincopen* in *Sweden*, where ſhe entred herſelf. By the Conſtitutions of this Order, 'tis to be principally appointed for Women, who are to pay a particular Honour and Service to the Virgin. The Monks are only to afford them the Spiritual Aſſiſtances they may need, to adminiſter them the Sacraments, *&c.* The Number of Nuns is fixed to Sixty in each Monaſtery, and that of Monks to Thirteen, according to the Number of Apoſtles, whereof St. *Paul* makes the Thirteenth. Four of them were to be Deacons, to repreſent the Four Doctors of the Church, and Eight Converts; the whole Number making Seventy-two, the Number of the Diſciples of our Saviour. Setting aſide theſe Circumſtances, and the Habit, this Order is under the Rule of St. *Auguſtine*. It was approved of by *Urban* V. and ſeveral ſucceeding Popes. In 1603, *Clement* VIII. made ſome Alterations in it, on account of the double Monaſteries which then began to be built in *Flanders*, &c.

SAVOR. See FAST.

SAUSAGE, or *Saucidge*, a Term of ſome Significancy in Commerce. The *Sauſage* is a popular Food prepared of ſome crude Meat, uſually either Pork or Veal ſhred ſmall, ſeaſoned, and put up in a Skin, in manner of a Pudding. The moſt eſteemed Confection of this Kind, is the *Bologna Sauſage*, which is much thicker than the common one, and is made with moſt Succeſs in ſome Cities in *Italy*, particularly *Bologna*, *Venice*, &c. whence great Quantities are exported to other Places. 'Tis made of raw Pork, well beaten in a Mortar, with a Quantity of Garlic, Pepper in the Grain, and other Spices. The *Italians* are furniſh'd with a great Part of the Skins or Guts for their *Sauſages* from *England*. The Quantities of that Commodity yearly exported, are greater than one would imagine. *Menage* derives the Word from *Salcicia* for *Salcicium*.

SAUSAGE, in War, a little long Linnen-Bag, in Form of a Gut, two Inches in Diameter, dipt in Pitch and Tar, and filled with Powder, having a ſlow Fuſee faſten'd thereto, to ſerve as a Train to ſet Fire to Mines, Fougades, or Bomb-Cheſts, being made to reach into the Chamber of the Mine. Two of theſe *Sauſages* are commonly applied to every Mine, to the End, that if one ſhould fail, the other may take Effect. See MINE.

SAUT, in the Manage. See SALTS.

SAW, an Inſtrument ſerving to cleave, or divide into Pieces, divers ſolid Matters, as Wood, Stone, Marble, Ivory, *&c.* The *Saw* is one of the moſt uſeful Machines, in the Mechanic Arts, ever invented. The Fable, which is perhaps founded on ſome ſurer Tradition, attributes the Invention thereof to *Icarus*, who, vying with his Father *Dedalus*, enrich'd the riſing Arts with ſeveral Diſcoveries. 'Tis added, he firſt contrived it on the Model of the Spine or Backbone of a flat Fiſh, ſuch as the Soal. The *Saw* is made of Steel with Teeth, but thoſe differently filed, and turned, according to the Uſe it is deſigned for. There are alſo Saws without Teeth, uſed in the ſawing of Marbles and other Stones.

The beſt *Saws* are of Steel, ground bright and ſmooth; thoſe of Iron are only Hammer-hardned: Hence, the firſt, beſides their being ſtiffer, are likewiſe found ſmoother than the laſt. They are known to be well hammer'd by the ſtiff bending of the Blade; and well or evenly ground, by bending equally into a Bow. The Edge, wherein the Teeth are, is always thicker than the Back, in regard the Back is to follow the Edge. The Teeth are cut and ſharpened by a Triangular File, firſt fixing the Blade of the *Saw* in a Whetting-block. When filed, the Teeth are to be *ſet*, that is, to be turned a-skew, or out of the right Line, to make the wider Kerf or Fiſſure, that the Back may follow the better: This is done by putting an Inſtrument, called a *Saw-wriſt*, between every other two Teeth, and giving it a little Wrench, which turns one of the Teeth a little towards you, and the other a little from you. The Teeth are always ſet ranker for coarſe cheap Stuff, than for hard and fine, in regard the ranker the Tooth is ſet, the more Stuff is loſt in the Kerf; and if the Stuff be hard, the greater the Labour of ſawing it.

The Workmen who make the greateſt Uſe of the *Saw*, are, The Sawyers, Carpenters, Joiners, Eboniſts, Stone-Cutters, Carvers, Sculptors, *&c.* The Lapidaries too have their *Saw*, as well as the Workers in *Moſaick*, but theſe bear little Reſemblance to the common *Saws*. See LAPIDARY and MOSAICK Work.

But of all Mechanicks, there are none have ſo many as the Joiners, nor ſo many different Kinds. The chief are as follow. The *Pit-Saw*, a large two-handed *Saw*, uſed to ſaw Timber in Pits. 'Tis ſet rank for coarſe Stuff, ſo as to make a Kerf or Fiſſure of almoſt a Quarter of an Inch; but for finer Stuff, finer. The *Whip-Saw*, which is likewiſe two-handed, uſed to ſaw ſuch large Pieces of Stuff as the *Hand-Saw* will not eaſily reach.—— The *Hand-Saw* is made for a ſingle Man's Uſe. Of theſe are various Kinds; as, The *Bow*, or *Frame-Saw*, furniſhed with Cheeks; by the twiſted Cord and Tongue in the Middle thereof, the upper Ends are occaſionally drawn cloſe together, and the lower ſet the further apart.—— The *Tenant-Saw*, which being very thin, has a Back to keep it from bending.—— The *Compaſs-Saw*, which is very ſmall, and its Teeth, uſually, not ſet; its Uſe is to cut a round, or any other Compaſs-Kerf: Hence, the Edge is made broad, and the Back thin, that it may have a Compaſs to turn in.

The Chirurgeons likewiſe uſe a *Saw*, to cut off Bones: 'Tis to be very ſmall, and light, in order to be managed with the more Eaſe and Freedom. The Blade exceedingly fine, and the Teeth exquiſitely ſharpened, to make its Way more gently, and yet with more Expedition in Amputations of Legs, Arms, *&c.*

The *Saw* is alſo a Gardener's Inſtrument, uſed in the pruning of Trees, *&c.* 'Tis chiefly applied in the cutting of old, dry, and, conſequently, hard Woods, whether Roots or Branches, which might ſpoil the Pruning-Knife; and big Branches, *&c.* which the Knife could not well take off at one Stroke. Except on theſe Occaſions, *Quinteney* will have us always uſe the Knife.

SAWING, the Application of the *Saw*, in the dividing of Timber, *&c.* into Boards, *&c.* See SAW. There are Wind-mills, and Water-mills, which do the Office of *Sawing* Wood, with infinitely more Expedition and Eaſe than 'tis done by the Hand: They conſiſt of ſeveral parallel Saws, which riſe and fall perpendicularly, by means of one of the grand Principles of Motion. But a very few Hands are here needed, *viz.* only to puſh along the Timber, which are laid on Rollers, or ſuſpended by Ropes, in Proportion as the *Sawing* advances. Theſe are frequently found abroad, and were lately begun to be introduced in *England*; but the Parliament, in Conſideration of this, that they would ſpoil the Sawyers Trade, and ruin great Numbers of Families, thought fit to prohibit them.

M. *Felibien*, in his Principles of Architecture, *&c.* mentions a Kind of long *Saws*, invented by one *Miſſon* Inſpector of the Marble Quarries in the *Pyreneans*, by means whereof Stones are ſawed even in the Rock itſelf whence they are taken. He adds, That ſome of them are twenty-three Foot long, but does not deſcribe either their Form or Application: He only ſays, They are of Iron, without Teeth.

SAXIFRAGE, a Medicinal Plant thus called from its ſuppoſed Virtue in diſſolving the Stone in the Bladder, from the *Latin Saxum*, *& Frango*, I break. Its Leaves are almoſt round, indented, fat and ſhining, like thoſe of Ivy. In the Middle of the Leaves riſe Stalks, about a Foot high, which, at their Extremities, bear little white Flowers, conſiſting of five Leaves, diſpoſed in Form of a Roſe. Its Seed, which is very ſmall, is incloſed in the *Capſula* of a roundiſh Pod. Its Root divides itſelf into ſeveral Fibres, at the Bottom whereof are found little reddiſh Tubercles, like *Coriander* Seed. 'Tis theſe Grains are commonly called the Seed of the *Saxifrage*, and are uſed in Medicine. The beſt manner of uſing them is to take them infuſed in White-Wine, or in a Decoction in common Water. Some uſe the Decoction of the Root itſelf: 'Tis held a great Diuretick. Dr. *Quincy* obſerves, That its Lithontriptic Vertue is but little ſeen in Practice. He adds, That the Simple Water thereof, ſold in the Shops, is good for nothing; the Virtue of the Plant, if it have any, conſiſting in ſomething too groſs to riſe over the Helm. Some take it to derive its Name from its growing in the Clefts of Rocks, which it ſeems to pierce through.

SAXON LANGUAGE. See ENGLISH.

SAY, or *Saye*, in Commerce, a kind of Serge, or a very light, croſs'd Stuff, all Wooll, much uſed abroad for Linings, and by the Religious for Shirts; and with us, by the Quakers, for Aprons, for which Purpoſe 'tis uſually green. There are very conſiderable Manufactures hereof at *Sedbury*, near *Colcheſter*; at *Ypres*, *Houdſcot*, *&c.* in *Flanders*, *&c.* Thoſe made in *England*, are chiefly exported to *Portugal*, and *Leghorn*.

SAYETTE. See SAGATHEE.

SCABELLUM, in the ancient Architecture, a kind of Pedeſtal, uſually ſquare, ſometimes polygonous, very high and ſlender, commonly terminating in a kind of Sheath or Scabbard, or profiled in manner of a Balluſter. Its Uſe is to bear *Buſto's*, *Relivo's*, &c.

SCABIES, in Medicine. See ITCH.

SCABIOUS, a Medicinal Plant, very common in the Fields, and flowers in *July*. It has a great Character amongſt many Diſpenſatory Writers, but ſeems to grow much out of uſe to what it has been: It paſſes for a very great Pectoral, and to do great Things in Aſthma's and Pleuriſies, and *Etmuller* gives it the Pre-eminence in inward Abſceſſes. It hath a Place alſo amongſt the *Alexipharmicks*. But hardly any thing is in better Eſteem for the Itch, and other cutaneous Foulneſſes; whence it has its Name, *viz.* from *Scabies*, Itch, and upon which Account it is often met with in Decoctions, and ſometimes in a Syrup, among ſuch as are called Sweetners. Some call it the *Widow's Flower.*

SCAFFOLD, a Timber-Work, raiſed in manner of an Amphitheatre to place Spectators upon for the commodious viewing of ſome Shew or Ceremony. —— The Word is alſo uſed for a little Stage, or Theatre, raiſed in ſome publick Place, to execute Criminals upon, either by beheading or breaking upon the Wheel. —— Alſo for an Aſſemblage of Planks and Boards ſuſtained by Treſſels, or by Pieces of Wood fixed in the Wall, whereon Maſons, Sculptors, Painters, *&c.* ſtand to work in high Places, Wells, Ceilings, *&c.* *Menage* derives the Word from the *German Schawhauſzch*, and *Guyet* derives it from the *Italian Catafalco*, which ſignifies the ſame thing. *Du Cange*, from *Eſchafaudus*, a Word in the corrupt *Latin*, ſignifying a Tribunal or Pulpit. He adds, That it might come from *Cata*, a Wooden Machine uſed to carry Earth to fill up Ditches, and carry over the Soldiers to the Attack; whence the *Italians* formed their *Catafalco*, the old *French* their *Chafaut*, and the *Engliſh* their *Scaffold*.

SCALA, in Anatomy, the Canal or Cochlea of the Ear is divided by a Septum into two Canals called *Scalæ*; whereof the one, looking towards the Tympanum, is called the *Scala Tympani*; the other, having a Communication with the Veſtibulum, is called the *Scala Veſtibuli*. See EAR.

SCALA, in the Ancient Architecture, is what in the Modern we call a Stair-caſe. See STAIR-CASE.

SCALADO, or *Scalade*, an Aſſault made on a City, to be ſurprized, by mounting the Walls thereof with Scaling-Ladders. Cities are now no longer taken by *Scalade*, ſince the Walls have been flank'd.

SCALE, in Muſick, a Series of Sounds riſing or falling towards Acuteneſs or Gravity, from any given Pitch of Tune to the greateſt Diſtance that is fit or practicable, through ſuch intermediate Degrees as makes the Succeſſion moſt agreeable and perfect, and in which we have all the harmonical Intervals moſt commodiouſly divided. This *Scale* is otherwiſe called an *Univerſal Syſtem*, as including all the particular Syſtems belonging to Muſick. See SYSTEM.

Origin and Construction of the SCALE *of Muſick.*

Every Concord or harmonical Interval, is reſolvable into a certain Number of Degrees or Parts; the Octave, for Inſtance, into three greater Tones, two leſs Tones, and two Semi-Tones; the greater Sixth, into two greater Tones, one leſs Tones, and two Semi-Tones; the leſs Sixth, into two greater Tones, one leſs Tone, and two Semi-Tones; the Fifth, into two greater Tones, one leſs Tone, and one Semi-Tone; the Fourth, into one greater Tone, one leſs Tone, and one Semi-Tone; the greater Third, into one greater Tone, and one leſs Tone; and the leſs Third, into one greater Tone, and one leſs Tone. 'Tis true, there are Variety of other Intervals or Degrees, beſides greater Tones, leſs Tones, and Semi-Tones, into which the Concords may be divided; but theſe three are preferred to all the reſt, and theſe alone are in Uſe: For the Reaſon whereof, ſee TONE. Further, 'Tis not any Order, or Progreſſion, of theſe Degrees, that will produce Melody: A Number, for Inſtance, of greater Tones will make no Muſick, becauſe no Number of them is equal to any Concord, and the ſame is true of the other Degrees: There is a Neceſſity, therefore, of mixing the Degrees to make Muſic, and the Mixture muſt be ſuch, as that no Two of the ſame Kind be ever next each other. A natural and agreeable Order of theſe Degrees Mr. *Malcolm* gives us in the following Diviſion of the Interval of an Octave; wherein, (as all the leſſer Concords are contained in the greater) the Diviſions of all the other ſimple Concords are contained. Under the Series are the Degrees between each Term, and the next. In the firſt Series, the Progreſſion is by the leſs Third; in the latter, by the greater Third.

	great 2d	gr. 3d	4th	5th	6th	7th	8th
1 :	$\frac{8}{9}$:	$\frac{4}{5}$:	$\frac{3}{4}$:	$\frac{2}{3}$:	$\frac{3}{5}$:	$\frac{8}{15}$:	$\frac{1}{2}$
Key or Fund.	great Tone.	leſs Tone.	Semi-Tone.	great Tone.	leſs Tone.	great Tone.	Semi-Tone.

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great Second.

1 :	$\frac{8}{9}$:	$\frac{5}{6}$:	$\frac{3}{4}$:	$\frac{2}{3}$:	$\frac{5}{8}$:	$\frac{5}{9}$	$\frac{1}{2}$
Key or Fund.	great Tone.	Semi-Tone.	leſs Tone.	great Tone.	Semi-Tone.	great Tone.	leſs Tone.

Now, the Syſtem of Octave, containing all the Original Concords; and the Compound Concords being only the Sum of Octave and ſome leſs Concord; 'tis evident, That if we would have the Series of Degrees continued beyond Octave, they are to be continued in the ſame Order through a Second as through the Firſt Octave, and ſo on through a Third and Fourth Octave, *&c.* and ſuch a Series is what we call the *Scale of Muſick.* Whereof there are two different Species; according as the leſs or greater 3d. or the leſs or greater 6th. are taken in; for both can never ſtand together in relation to the ſame Key or Fundamental, ſo as to make a harmonical Scale. But if, either of theſe Ways, we aſcend from a Fundamental or given Sound, to an Octave, the Succeſſion will be melodious; tho' the Two make two different Species of Melody. Indeed, every Note is Diſcord with regard to the next; but each of them is Concord to the Fundamental, except the 2d and 7th. In continuing the Series, there are two Ways of compounding the Names of the ſimple Interval with the Octave. Thus: A greater or leſſer Tone or Semi-tone above an Octave, or two Octaves, *&c.* or to call them by the Number of Degrees from the Fundamental, as 9th, 10th, *&c.* In the two *Scales* above, the ſeveral Terms of the *Scale* are expreſſed by the proportionable Sections of a Line, repreſented by 1, the Key or Fundamental of the Series: If we would have the Series expreſſed in the whole Numbers; they will ſtand as follows; in each whereof, the greateſt Number expreſſes the longeſt Chord, and the other Numbers the reſt in Order: So that if any Number of Chords be in theſe Proportions of Length, they will expreſs the true Degrees and Intervals of the *Scale* of Muſick, as contained in an Octave concinnouſly divided in the Two different Species abovementioned.

540 : 480 : 432 : 405 : 360 : 324 : 288 : 270

great Tone	leſs Tone	ſemi Tone	great Tone	leſs Tone	great Tone	leſs Tone

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216 : 192 : 180 : 162 : 144 : 135 : 120 : 108

great Tone	ſemi Tone	leſs Tone	great Tone	ſemi Tone	great Tone	leſs Tone

This *Scale* the Ancients called the *Diatonic* Scale, becauſe proceeding by Tones and Semi-tones. See Diatonic. The Moderns call it, ſimply, *The Scale*, as being the only one now in Uſe; and ſometimes *The natural Scale*, becauſe its Degrees and their Order are the moſt agreeable and concinnous, and preferable, by the Conſent both of Senſe and Reaſon, to all other Diviſions ever inſtituted. Thoſe others, are the *Chromatic* and *Enharmonic Scales*, which, with the *Diatonic*, made the Three *Scales* or *Genera* of Melody of the Ancients. See Genera: See alſo Enharmonic and Chromatic.

Office and Uſe of the Scale *of Muſick.*

The Deſign of the *Scale* of Muſick, is, To ſhew how a Voice may riſe and fall, leſs than any harmonical Interval, and thereby move from the one Extreme of any Interval to the other, in the moſt agreeable Succeſſion of Sounds. The *Scale* therefore, is a Syſtem, exhibiting the whole Principles of Muſick; which are either harmonical Intervals (commonly called *Concords*) or *Concinnous Intervals*; the firſt are the eſſential Principles, the others, ſubſervient to them, to make the greater Variety. See Concord and Intervals. Accordingly, in the *Scale*, we have all the Concords, with their concinnous Degrees, ſo placed, as to make the moſt perfect Succeſſion of Sounds from any given Fundamental or Key, which is ſuppoſed to be repreſented by 1. 'Tis not to be ſuppoſed, that the Voice is never to move up and down by any other more immediate Diſtances than thoſe of the concinnous Degrees: For though that be the moſt uſual Movement, yet to move by harmonical Diſtances, as Concords at once, is not excluded, but is even abſolutely neceſſary. In effect, the Degrees were only invented for Variety ſake, and that we might not always move up and down by harmonic Intervals, though thoſe are the moſt perfect; the others deriving all their Agreeableneſs from their Subſerviency to them. See Diastem. And that, beſides the harmonical and concinnous Intervals, which are the immediate Principles of Muſick, and are directly applied in Practice; there are other diſcord Relations, which happen unavoidably in Muſick, in a kind of accidental and indirect Manner: For, in the Succeſſion of the ſeveral Notes of the *Scale*, there are to be conſidered not only the Relations of thoſe that ſucceed others immediately; but alſo of thoſe betwixt which other Notes intervene. Now the immediate Succeſſion may be conducted ſo, as to produce good Melody; and yet among the diſtant Notes there may be very groſs Diſcords, that would not be allowed in immediate Succeſſion, much leſs in Conſonance. Thus in the firſt Series, or *Scale* above-delivered, though the Progreſſion be melodious, as the Terms refer to one common Fundamental, yet are there ſeveral Diſcords among the mutual Relations of the Terms; *e. gr.* from 4th to 7th is 32 : 45, and from the greater 2d to the greater 6th is 27 : 40, and from the greater 2d to 4th is 27 : 32, which are all Diſcords; and the ſame will happen in the ſecond Series. See Discord.

From what we have obſerved here, and under the Article Key, it appears, That the *Scale* ſuppoſes no determinate Pitch of Tune; but that being aſſign'd to any Key, it marks out the Tune of all the reſt, with relation to it, ſhews what Notes can be naturally joyned to any Key, and thereby teaches the juſt and natural Limitations of Melody: And when the Song is arrived through ſeveral Keys, yet 'tis ſtill the ſame natural *Scale*, only applied to different Fundamentals. If a Series of Sounds be fixed to the Relations of the *Scale*, 'twill be found exceedingly defective; but this Imperfection is not any Defect in the *Scale*, but follows accidentally from its being confined to this Condition, which is foreign to the Nature and Office of the *Scale* of Muſick.

This is the Caſe in muſical Inſtruments; and in this conſiſts their great Deficiency. For, ſuppoſe a Series of Sounds, as thoſe of an Organ or Harpſicord, fixed in the Order of this *Scale*, and the loweſt taken at any Pitch of Tune; 'tis evident, 1°. that we can proceed from any Note, only by one particular Order of Degrees: Since from every Note of the *Scale* to its Octave, is contained a different Order of the Tones and Semi-tones. Hence, 2°. we cannot find any Interval required from any Note upwards or downwards; ſince the Intervals from every Note to every other, are alſo limited. And hence, 3°. a Song may be ſo contrived, that, beginning at a particular Note of the Inſtrument, all the Intervals, or other Notes, ſhall be found exactly on the Inſtrument or in the fixed Series; yet were the Song, though perfectly *Diatonic*, begun in any other Note, it would not proceed. In effect, 'tis demonſtrable, there can be no ſuch thing as a perfect *Scale* fixed on Inſtruments, *i. e.* no ſuch *Scale* as from any Note upwards or downwards, ſhall contain any harmonical or concinnous Interval required. The only Remedy for this Defect of Inſtruments whoſe Notes are fixed, muſt be by inſerting other Notes and Degrees betwixt thoſe of the *Diatonic* Series. Hence ſome Authors ſpeak of dividing the Octave into 16, 18, 20, 24, 26, 31, and other Number of Degrees; but 'tis eaſy to conceive, how hard it muſt be to perform on ſuch an Inſtrument. The beſt on't is, we have a Remedy on eaſier Terms: For a *Scale* proceeding by Twelve Degrees, that is, Thirteen Notes, including the Extremes, to an Octave, makes our Inſtruments ſo perfect, that we have little Reaſon to complain. This, then, is the preſent *Scale* for Inſtruments, *viz.* Between the Extremes of every Tone of the natural *Scale* is put a Note, which divides it into two unequal Parts, called Semi-tones; whence the whole may be called the *Semitonic Scale*; as containing Twelve Semi-tones betwixt Thirteen Notes, within the Compaſs of an Octave. And to preſerve the *Diatonic* Series diſtinct, theſe inſerted Notes take either the Name of the natural Note next below, with the Mark ♯ called a *Sharp*; or the Name of the natural Note next above, with this Mark ♭ called a *Flat.* See Flat and Sharp: See alſo Semi-tone.

For the *Scale* of *Semi-tones*	See	Semitonic Scale.
For *Guido*'s *Scale*, commonly called the *Gamut*	See	Gamut.
For the *Scale* of the Ancients, commonly called the *Diagram* · · · · ·	See	Diagram.

Scale, a Mathematical Inſtrument, conſiſting of one or more Lines drawn on Wood, Metal or other Matter, divided into equal or unequal Parts, of great Uſe in laying down Diſtances in Proportion; or in meaſuring Diſtances already laid down.

There are *Scales* of ſeveral Kinds, accommodated to the ſeveral Uſes: The principal are the *Plain Scale*, the *Diagonal Scale*, *Gunter*'s *Scale*, and the *Plotting Scale.*

Plain Scale, is made, by dividing a Line, as A B (Tab. Geometry Fig.) into any Number of equal Parts, *e. gr.* 5 or 10, and then ſubdividing one of them, as *a b*, into 10 leſs Parts. This done, if one of the larger Diviſions repreſent 10 of any Meaſure; *e. g.* 10 Miles, 10 Chains, 10 Poles, 10 Feet or 10 Inches; each of the leſſer will repreſent One Mile, or One Chain, Pole, Foot or Inch. The Uſe of this *Scale* is very obvious, *exemp. gr.* To lay down a Diſtance by it of 32 Miles or 32 Poles, *&c.* I take in my Compaſſes the Interval of three of the larger Diviſions, which contain 30, and two of the ſmaller, for the two odd Ones: This Diſtance drawn on Paper, will contain 32 by the *Scale*. Again, Were I required to meaſure any Line by a given *Scale*: Taking the Length of the Line in my Compaſſes, I apply one Foot in one of the great Diviſions of the *Scale*, ſo as the other may reach over among the leſſer; then the Number of great and ſmall Diviſions intercepted between the Points, give the Number of Miles, *&c.* See the Uſe hereof further illuſtrated under the Article PLOTTING SCALE.

Diagonal Scale - - - - - } See { DIAGONAL.
Gunter's Scale - - - - - } See { GUNTER.
Plotting Scale - - - - - } See { PLOTTING SCALE.

SCALE, in Geography and Architecture, a Line divided into equal Parts, placed at the Bottom of a Map or Draught, to ſerve as a common Meaſure to all the Parts of the Building, or all the Diſtances and Places of the Map. In Maps of large Tracts, as Kingdoms and Provinces, *&c.* the *Scale* uſually conſiſts of Miles; whence it becomes denominated A *Scale of Miles*. In more particular Maps, as thoſe of Manors, *&c.* the *Scale* is uſually of Chains ſub-divided into Poles or Links. The *Scales* uſed in Draughts of Buildings, uſually conſiſt of Modules, Feet, Inches, Palms, Fathoms or the like. To find the Diſtance between two Towns, *&c.* in a Map, the Interval is taken in the Compaſſes, and ſet off in the *Scale*, and the Number of Diviſions it includes, gives the Diſtance. See MAP. To find the Height of a Story in a Deſign, the ſame Method is uſed. See DESIGN.

A *Front Scale* in Perſpective, is a right Line in the Draught, parallel to the Horizontal Line; divided into equal Parts, repreſenting Feet, Inches, *&c.* A *Flying Scale* is a right Line in the Draught, tending to the Point of View, and divided into unequal Parts, repreſenting Feet, Inches, *&c.*

SCALENUM, or *Scalenous* Triangle, in Geometry, a Triangle, whoſe Sides and Angles are all unequal. See TRIANGLE. A Cylinder, whoſe Axis is inclined, is alſo ſaid to be *Scalenous*. The Word is form'd from the *Greek* σκαληνὸς, which ſignifies the ſame Thing; and which *Hermol* tranſlates *Scalarium*.

SCALENUS, in Anatomy, a Name given to three Pair of Muſcles, from their Form; all of them ſerving to draw the Ribs upwards, in conjunction with the *Serratis ſuperiores poſtici*, &c.

SCALENUS *Primus* ſprings, Fleſhy, from the tranſverſe Proceſſes of the Second, Third and Fourth Vertebræ of the Neck, where deſcending laterally, it is inſerted into the firſt Rib, which it helps to draw upwards.

SCALENUS *Secundus*, ariſes from the ſame Proceſſes, as likewiſe from thoſe of the Fifth Vertebra of the Neck; and is inſerted into the Second Rib, and ſometimes into the Third.

SCALENUS *Tertius*, ariſes from the ſame Proceſſes with the former, and from thoſe of the Sixth Vertebra of the Neck; and is inſerted into the Firſt Rib.

SCALPEL, in Chirurgery, a kind of Knife chiefly uſed in Diſſections; but which may be occaſionally uſed in many other Operations, as in Amputations, and to cut off the Fleſh and Membranes that are between the Two Bones of an Arm or Leg, before the Limb be ſawed off: There are two Kinds of *Scalpels*; the firſt cuts on both Sides, and is fixed in an Ebony or Ivory Handle, which being very flat and thin at the Extremity, ſerves to part the membranous and fibrous Parts in Anatomical Preparations. The other has a Back, that is, it only cuts on one Side; 'tis crooked, and very commodious for ſtripping the Fleſh off the Bones in Embalming, making Skeletons, *&c.* *Scultetus*, in his *Arſenal*, deſcribes ſeveral other Kinds of *Scalpels*; as, A deceitful *Scalpel*, thus called, becauſe it deceives the Patient by hiding its Blade. 'Twas much uſed by the Ancients, in opening and dilating of Sinews; but as 'tis apt to deceive the Chirurgeon himſelf, and is beſides very ſlow, 'tis better uſing a Syringotomus: A *Scalpel*, ſharp on both Sides for Setons. A little crooked *Scalpel* for ſeparating the Coherence of the Eyelids. A ſharp, double-cutting *Scalpel*, with a Bone-Handle, for the cutting off an Ægilops. *Scalpels* like Scolopomachairions, *&c.* even the Scolopomachairion itſelf is a kind of *Scalpel*. See SCOLOPOMACHAIRIONS.

SCALPER, *Scalprum*, or Scalping-Iron, a Surgeon's Inſtrument uſed to raſp, and ſcrape foul, carious Bones.

SCALPTOR ANI, in Anatomy. See LATISSIMUS DORSI.

SCAMILLI IMPARES, in the Ancient Architecture, a Term much contended about among the Criticks; though, in effect, it ſignify no more than certain Benches, Zocco's or Blocks, ſerving to raiſe the reſt of the Members of an Order, Column, Statue or the like, and prevent their being loſt to the Eye, which may chance to be placed below their Level; or below the Projecture of ſome of the Ornaments thereof. Theſe *Scamilli* are well repreſented by the Pedeſtals of Statues.

SCAMMONY, in Pharmacy, the inſpiſſated Juice of the Root of a Plant of the ſame Name, growing in the *Levant*, particularly about *Aleppo* and St. *John de Acre*. The Juice flows from an Inciſion made in the Root; and is afterwards thickened by the Sun, as 'twas pretended, but in reality by the Fire. The Tree is much like an Ivy, its Leaves in Form of Hearts, its Flowers White, and it creeps on the Ground, or mounts on other Trees, Walls, *&c.* The good, genuine *Scammony* of *Aleppo*, is to be grey, tender, friable and reſinous; the Taſte bitter, and the Smell faintiſh and diſagreeable. The *Scammony* of *Smyrna* and that of the *Eaſt Indies* are leſs valued. The firſt as being more heavy, hard and black; the latter, though light, friable, *&c.* is in reality only a Compoſition of common Roſin with ſome other violent Purgers. *Pomet* ſhews, that both Kinds are rather Poiſons than Remedies. The true *Scammony* is one of the ſureſt Purgatives; but, at the ſame time, one of the moſt violent we have: Hence 'tis ſeldom uſed without Correcting it by ſome Preparation. From the Juice is drawn a Roſin of more Virtue than the *Scammony* itſelf. They alſo make a Syrup of it, which is found a very gentle Purgative. *Scammony* now in Uſe, muſt be very different from that of the Ancients, at leaſt in the Preparation; by reaſon the Ancients gave it in much greater Doſes: Hence *Fallopius* conjectures, the modern *Scammony* to be adulterated with Spurge. Some give the Name of *American Scammony* to *Mechoacam*. See MECHOACAM.

SCANDAL, in the Scripture Language, is any thing that may draw us aſide, or ſollicit us to Sin. In which Senſe 'tis uſed indifferently with Offence, and Stumbling-block. *Scandal* is either Active or Paſſive. An active *Scandal* is a real Induction to Sin; a paſſive *Scandal* is the Impreſſion an active *Scandal* makes on the Perſon induced to Sin. In the popular Language, *Scandal* is ſome Action or Opinion contrary to good Manners, or to the general Senſe of a People. The Word is form'd from the *Latin*, *Scandalum*, which, according to *Papeas*, was originally uſed for a ſudden, extemporary Quarrel, *quæ ſubito inter aliquos Scandit vel oritur*.

SCANDAL is alſo a diſadvantagious Rumor or Report; or an Action whereby any one is affronted in publick. Hence Stone of *Scandal*, *Lapis Scandali*, or *Vituperi*; a Stone raiſed in the great Portal of the Capitol in Old *Rome*; wherein was Engraven the Figure of a Lion; upon which the Ceſſionary or Bankrupt being ſeated bare-breech'd, cried with a loud Voice, *Cedo bonis*, I ſurrender my Effects; when, ſquatting his Breech violently, three Times on the Stone, he was acquitted. 'Twas called the *Stone of Scandal*, becauſe thence-forward the Ceſſionary became inteſtable, and incapable of giving any Evidence. *Julius Cæſar* introduced this Form of Surrender, after abrogating that Article of the Laws of the Twelve Tables, which allow'd the Creditors to diſmember their Inſolvent Debtors, and to take each his Member, or at leaſt to make a Slave of him.

SCANDALUM MAGNATUM, in Law, a ſpecial Name, for a Scandal or Wrong done to any high Perſonage of the Land, as Prelates, Dukes, Earls, Barons, *&c.* as alſo of the Chancellor, Treaſurer, Clerk of the Privy Seal, Steward of the Houſe, Juſtice of the Bench, or other great Officers of the Realm, by falſe News or Meſſages, whereby Debates and Diſcords between them and the Commons, or any Scandal to their Perſons, might ariſe; and hath given Name to a Writ granted to recover Damages thereupon.

SCANNING, in Poetry, the meaſuring of a Verſe, to ſee the Number of Feet and Syllables it contains, and whether or no the Quantities, that is the long and ſhort Syllables, be duly obſerved. The Term is chiefly uſed with regard to *Greek* and *Latin* Verſes; the Quantities not being well ſettled and obſerved in the Verſes of the Modern Languages. See QUANTITY. Hexameters are *Scanned* one Way, Jambic another, Saphics another. See HEXAMETER, *&c.* The Word is form'd from the *Latin*, *Scandere*, to climb.

SCANTLING, a Meaſure, Size, or Standard, whereby the Dimenſions, *&c.* of Things are to be determined. The Word is form'd from the *French Eſchantillon*, a Pattern or Specimen. See STANDARD.

SCAPHISM, in Antiquity, a kind of Torture or Puniſhment formerly in Uſe among the *Perſians*. It conſiſted in locking the Criminal cloſe up in the Trunk of a Tree bored to the Dimenſions of his Body, only with Five holes for his Head, Arms and Legs to come through. In this State he was expoſed to the Sun, and the Parts thus appearing anointed with Honey and Milk, to invite the Waſps and Flies. They forced him to eat abundantly, till his Excrements, cloſe pent up in the Wood, rotted his

Body. Some Authors obſerve, that they ordinarily lived Forty Days in this Torment. The Invention is aſcribed to *Pariſatis* Queen of *Perſia*, and Mother of *Artaxerxes*, *Mnemon*, and the young *Cyrus*. 'Tis added, ſhe firſt ordered it to be practiſed on the Perſon who brought the Tidings of the Death of *Cyrus*. The Word is form'd from the *Greek* σκαπτος of σκάπτω, I hollow or dig.

SCAPHOIDES, in Anatomy, a Bone, called alſo *Naviculare*, which ſee. The Word is formed of the *Greek* σκάφη, a Boat or Bark; of σκάπτω, I hollow; becauſe Boats were originally made of Trunks of Trees hollowed, as are ſtill the Canoes of ſeveral Savages; and εἶδος, Form.

SCAPULA, in Anatomy, called alſo *Omoplate* and *Blade*; a large and broad Bone, repreſenting a ſcalenous Triangle, ſituate on each Side of the upper and back Part of the *Thorax*: The Subſtance of the *Scapula* is thin, but ſolid and firm; its Outſide is ſomewhat Convex, and its Inſide Concave; its upper Edge is called *Coſta ſuperior*, and its lower, *Coſta inferior*; its broad End is called its Baſis, which, with the two Edges, make the upper and lower Angles. They have each three Proceſſes, of which the firſt runs all along the Middle of their Outſide, and it is called their *Spine*: That End of the *Spine*, which receives the Extremity of the Clavicula, is called *Acromium*. The ſecond Proceſs is a little lower than the *Acromium*; it is ſhort and ſharp, like a *Crow*'s Bill, therefore called *Coracoides*; theſe two Proceſſes are tied to one another by a ſtrong Ligament, which ſerves to keep the Head of the Humerus in the Cavity of the third Proceſs, which is called *Cervix*. This Proceſs is the Extremity of the *Scapula*, which is oppoſite to its Baſis. It has a round Sinus, tipp'd about its Brim, with a Cartilage, which receives the Head of the Humerus. The Uſe of the *Scapula* is to receive the Extremities of the Clavicula and Humerus, for the eaſier Motion of the Arm, and to give Riſe to the Muſcles, which move the Arm.

SCAPULAR, *Scapularis*, in Anatomy, an Epithet given to two Arteries, and as many Veins of the Body. The *Scapularis interna & externa*, or the inner and outer *Scapular* Arteries, ariſe out of the Subclavian, and are ſpread over the *Scapulæ*: The *Inner* and *Outer Scapular* Veins diſcharge themſelves into the Axillary, or Vein of the Arm-pits.

SCAPULARY, Part of the Habit of ſeveral Orders of Religious, wore over the Gowns, as a Badge of peculiar Veneration for the Virgin. It conſiſts of two narrow Breadths or Slips of Cloth, covering the Back and the Breaſts, and hanging down to the Feet of the profeſſed Religious, and to the Knees of the Lay-brothers, *&c.* The common Opinion of the Introduction of the *Scapular* is, That it was firſt given by the Virgin herſelf, in an Apparition ſhe made to *B. Stock*, General of the *Carmelites*, in the Thirteenth Century: Which Account of its Origine is aſſerted, or at leaſt ſuppoſed, in ſeveral Bulls of the Popes. *M. de Launy*, however, maintains, in an expreſs Treatiſe on the Subject, That the Apparition was falſe, and the Sabbaten Bull, which approves of the *Scapulary*, a Counterfeit. In effect, the *Carmelites* themſelves did not begin to wear the *Scapulary* till ſeveral Years after 'tis pretended the Virgin gave it to *B. Stock*. The Word is formed from *Scapula*, the Shoulder-Blade. There is alſo a Friery, or Fraternity of the *Scapulary*, conſiſting of Lay-Brothers, who profeſs a particular Devotion to the Virgin, and who, in Honour of her, wear a little *Scapulary*, in manner of a Bracelet, or otherwiſe, repreſenting the great One. They are obliged to certain Prayers, and to obſerve certain Rules in their Manner of Life.

SCAPUS, in Architecture, the Fuſt or Shaft of a Column. See Fust.

Scapus; in *Botany*, the ſtrait Stalk, or Stem of a Plant, ſtanding upright like a Pillar, or Column.

SCAR. See Eschar.

SCARIFICATION, in Chirurgery, an Operation whereby ſeveral Inciſions are made in the Skin, with an Inſtrument proper for that Purpoſe. See Scarificator. *Scarification* is chiefly practiſed in Cupping. See Cupping. It acts by ſtimulating and evacuating. *Salmaſius* will have us write *Scarifatio*, not *Scarificatio*, in regard the Word is derived from the *Greek* σκάριφος. See his Notes on *Solinus*, where he thus corrects the reading of *Plin. Lib.* XVII. *F. Hardouin* lets the old Reading *Scarificatio* ſtand; though he owns the M.SS. have it *Scarifatio*; but adds, That *Theod. Priſcian* writes *Scarificatio*.

SCARIFICATOR, a Chirurgical Inſtrument uſed in *Scarification*; which ſee. The *Scarificator* is made in Form of a Box, wherein are fitted 10, 12, or 15 Lancets, all perfectly in the ſame Plane; which being, as it were, *cock'd*, by means of a Spring, are all diſcharged at the ſame Time, by pulling a kind of Trigger, and driven equally within the Skin. 'Till of late, they uſed little ſharp cutting Wheels inſtead of Lancets. The Uſe of the *Scarificator* is to evacuate the Blood, and other Humours, ſpread under the Skin, by making a great Number of Apertures, or Outlets, therein; which being thus all ſtruck at once, gives much leſs Pain than when ſtruck ſucceſſively.

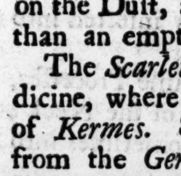
SCARLET, in Dying, one of the Seven Kinds of good Reds. There are two Kinds of *Scarlets*; the One given with *Scarlet Grain*, particularly called *Scarlet in Grain*, the other with *Cochineel*. See Red. See alſo Cochineel, *&c.*

Scarlet-Grain, a Matter uſed to dye a *Scarlet* Colour, uſually taken for the Grain of a Plant. This imaginary Grain, called by the *Arabs*, *Kermes*, is found on a kind of Holm, growing in great Plenty in the uncultivated Parts of *Provence*, *Languedoc*, *Spain* and *Portugal*. That of *Languedoc*, paſſes for the beſt, being big, and of a very bright Red; that of *Spain* is the worſt, being very thin, and of a blackiſh Red; 'tis to be gathered when ripe, and is only good while new, that is, within the Compaſs of the Year, after which Time a kind of Inſect is found in it, that eats out the Heart thereof. *F. Plumier* has made ſome particular Diſcoveries on the Subject of *Scarlet-Grain*. The *Arabic* Term *Kermes*, which ſignifies little Worms, he obſerves, agrees perfectly to the Nature of this Drug; which is the Work of a Worm, and not the Grain or Seed of a Tree, as is generally ſuppoſed. The Shrub 'tis found on, is the *Hexaculeate Cocci Glandifera*; on the Leaves, and little Shoots whereof, are ſeen, in the Spring Time, a kind of little Veſicle, which is at firſt no bigger than a Grain of Millet, and is occaſioned by the Puncture of an Inſect, which depoſites its Eggs therein. In Proportion as it grows, it becomes covered with a kind of Aſh-coloured Down, which hides the red Colour underneath. And when 'tis arrived at Maturity, which thoſe who gather them know very well, 'tis taken from the Tree, in Form of a little Gall. The Pod, or Skin, is very light and brittle, covered with a fine membranous Pellicle all around, except at the Place where it grows to the Leaf. A ſecond Skin, under the firſt, is full of a kind of Duſt, partly Red, and partly White. Aſſoon as the Gall is gathered, the Juice or Pulp is expreſſed from it; 'tis waſhed in Vinegar to deſtroy the little Inſect withinſide, which, without ſuch Precaution, would grow, feed on the Duſt, and, at laſt, be hatch'd, and leave no more than an empty Shell.

The *Scarlet-Grain* is alſo of conſiderable Uſe in Medicine, where 'tis better known under its *Arabic* Name of *Kermes*. See Kermes. *Menage* derives the Word from the *German Scarlak*, or the *Flemiſh Scharlaken*: Whence the *Engliſh* have form'd the *Scarlet*, the *Italians* their *Scarlato*, and the *French* their *Eſcarlate*. Others derive it from the *Celtic Squarlera*. *Dalechampius* will have it called *Scarlatum*, by Corruption, for *Caſculiatum*, a barbarous Word introduced into *Spain*; others fetch it from the *Arabic Yxquer late*.

SCARLETINA FEBRIS; or Scarlet-Fever; the ſame as Purple-Fever. See Purple and Fever.

SCARP, in Fortification, is the Foot of the Rampart-Wall, or the Sloping of the Wall from the Bottom of the Work to the Cordon on the Side of the Moat.



Scarpe, is a Term in Heraldry, probably derived from the *French Eſcharpe*, ſignifying the Scarf which Military Commanders wear for Ornament. It is borne ſomething like a Battoon Siniſter, but is broader, and is continued out to the Edges of the Field, whereas the Battoon is cut off at each End. He beareth Argent, a *Scarpe* Azure.

SCAVAGE, in our ancient Cuſtoms, called alſo *Schevage*, *Schewage*, and *Scheawing*, a kind of Toll or Cuſtom, exacted by Mayors, Sheriffs, *&c.* of Merchants-Strangers, for Wares ſhewed or offered to Sale within their Liberties. This Cuſtom is prohibited by *Stat.* 19. *Hen.* VII.

SCAVANT, or *Savant*, a Term purely *French*, ſignifying Learned; little uſed in our Language, except in the Phraſe *Journal des Scavans*, a Journal of the Works of the Learned, publiſhed Monthly at *Paris*, being the firſt Thing of that Kind, and that whereon all the reſt are founded. See Journal. *Menage* derives the Word from *Sapere*, to be Wiſe, and on that Footing will have it wrote *Savant*; others from *Scire*, to know, and for that Reaſon write it *Scavant*. The latter Etymology, and Orthography, are followed by the Academy; though all the ancient M.S.S. have it *Savant*, *Savoir*, *&c.*

SCAVENGERS, two Officers choſe yearly in each Pariſh in *London*, and the Suburbs, whoſe Buſineſs it is to hire Perſons called *Rakers*, and Carts to cleanſe the Streets, and carry away the Dirt and Filth thereof. The Word is derived from the *Dutch Schaven*, to ſcrape or ſhave away. The *Germans* call them *Dreck-ſimons*, from one *Simon* a famed *Scavenger* of *Marpurg*. The *Scavengers* are much the ſame with what were anciently called *Street-wards*.

SCENE, in the ancient Drama, in its general Senſe, was the Theatre whereon Dramatic Pieces, and other publick Shews, were repreſented. See THEATRE. In its proper Senſe, the ancient *Scene* was the Decoration of the Theatre. In the Extremity of the Theatre, were three large Gates or Openings, wherein appeared ſeveral perſpective Decorations, *viz.* A Palace for Tragedies, Houſes and Streets for Comedies, and Foreſts for Paſtorals. Theſe Decorations were all verſatile, *i. e.* either they turn'd on Pivots, as deſcribed by *Vitruvius*, or truſile, *i. e.* ſlided along Grooves, as thoſe in our Theatres; and as this or that Side, or Repreſentation, was turned towards the Spectators, the *Scene* was called a *Tragic*, a *Comic*, or a *Paſtoral Scene*. See STAGE. *Vitruvius* obſerves, That the *Scene* was properly a large Face or Front of Building, adorned with Columns and Statues, among which were three large Apertures for perſpective Repreſentations. See ſeveral curious Remarks on the ancient *Scene* in M. *Perrault*'s Notes on *Vitruvius*, lib. 5. cap. 6. According to *Roſinus*, the *Scene*, in its proper and original Senſe, is a Series of Trees diſpoſed againſt each other, ſo as to form a continued Arch, and Shade, σκια, to defend thoſe underneath it from the Injuries of the Weather: For in ſuch Places it was, that, in ancient Times, e'er Theatres were built, they acted their Plays. Thus alſo *Caſſiodorus* derives the Word *Scene*, from the cloſe Shade of the Grove, where, in the Spring Time, the ancient Shepherds uſed to Sing and Play.

SCENE is alſo uſed for the Place thus repreſented, or that where the Action is conceived to have paſſed. See ACTION. One of the grand Laws of the Drama, is, To obſerve the Unity of the *Scene*, which we more uſually call the *Unity of Place*. See UNITY. In Effect, to keep cloſe to Nature and Probability, the *Scene* ſhould never be ſhifted from Place to Place, in the Courſe of the Play. The Ancients were pretty ſevere in this Reſpect, particularly *Terence*: In ſome of his Plays, the *Scene* never ſhifts at all, but the Whole is tranſacted before the Door of an old Man's Houſe, whither, with inimitable Art, he brings all his Actors, occaſionally. The *French* too are very ſtrict in this Reſpect: But the *Engliſh* plead for a Diſpenſation from the Rule, which they think confines them to too narrow Bounds, and precludes them from that Variety of Adventures and Intrigues, which our *Engliſh* Audiences will never be ſatisfied without. However, the more judicious and accurate of our Writers are very moderate in the Uſe of this Licence, and take Care not to deviate too far from Probability, by ſhifting the *Scene*, between the Acts, much farther than the Perſons concerned may be ſuppoſed to have paſſed in the Interval. Hence they ſeldom carry the *Scene* out of the ſame Town: But others, who own no Subjection to the ancient Rules, take otherguiſe Liberties. With ſome of theſe 'tis nothing to skip at once from *Covent-Garden* to *Peru*. The great *Shakeſpear* is exceedingly faulty in this Reſpect, in almoſt all his Plays.

SCENE is alſo a Part or Diviſion, of a Dramatick Poem, determined by a new Actor's entering. Plays are divided into Acts, and Acts ſub-divided into *Scenes*. See ACT. In moſt of our printed Plays, a new *Scene* is never expreſſed to begin, but when the Place is ſuppoſed to be changed by ſhifting, or drawing, the moveable *Scene*; but this muſt be eſteemed as an Overſight. On our Stage, the *Scene* is, properly, the Perſons preſent to, or concern'd in the Action on the Stage at ſuch Time. Whenever, therefore, a new Actor appears, or an old one diſappears, the Action is changed into other Hands, and therefore a new *Scene* then commences.

'Tis one of the Laws of the Stage, That the *Scenes be well connected*: that is, that one ſucceed another, in ſuch Manner, as that the *Scene* is never quite empty till the End of the Act. The Ancients did not allow of above Three Perſons on the Stage at the ſame Time, excepting in the *Chorus*'s, where the Number was not limited. The Moderns have but little regard to this Reſtriction.

SCENIC GAMES, or *Repreſentations*. *Ludi Scenici*, among the Ancients, were Entertainments exhibited on the *Scene*, or Theatres, including what we now call *Plays*, of all Kinds, with Dancing, and other Theatrical Performances. The *Romans* were 400 Years without any *Scenic Games* at all. *Livy* obſerves, That they were firſt inſtituted in the Year of *Rome* 392, under the Conſulate of *C. Sulpitius Pæticus*, and *C. Licinius Stolon*. But the Criticks have obſerved a Trip here in *Livy*; the Conſulate of thoſe Perſons falling in the Year 389, which, therefore, is held the *Æra* of the Introduction of *Scenic Games*. For at the Beginning, ſome Actors were ſent for out of *Hetruria*; who, without reciting any Thing, danced about to the Sound of Inſtruments; ſo that thus far was no more than a Ball, or rather what the *French* call a *Ballet*. At length they began to rehearſe Verſe: thus, by degrees, growing more and more perfect, they were at laſt repreſented with a Juſtneſs, and Magnificence, beyond any Thing the World ever ſaw. See THEATRE. The Fathers, in their Writings, cry out loudly againſt theſe Games.

SCENOGRAPHY, in Perſpective, a Repreſentation of a Body on a perſpective Plane; or, a Deſcription thereof in all its Dimenſions; ſuch as it appears to the Eye. See PERSPECTIVE. The *Ichnography* of a Building, &c. repreſents the Plan, or Ground work of the Building. See ICHNOGRAPHY. The *Orthography*, the Front, or Upright, thereof. See ORTHOGRAPHY. And the *Scenography*, the whole Building, Front, Sides, the Heighth and all. The Word is formed from the *Greek* σκηνη Scene, and γραφια Deſcription.

To exhibit the SCENOGRAPHY *of any Body.*

1°. Lay down the Baſis, Ground-plot, or Plan of the Body, in the perſpective *Ichnography*, according to the Method laid down under the Article PERSPECTIVE. 2°. Upon the ſeveral Points of the Plan raiſe the Perſpective Heights: Thus will the *Scenography* of the Body be compleated; excepting that a proper Shade is to be added. The Method of raiſing the Heights is as follows.

On any Point given as C, (Tab. Perſpect. Fig. 1.) *to raiſe a Perſpective Altitude, anſwerable to an Objective Altitude* P Q. On the Terreſtrial Line raiſe a Perpendicular P Q. equal to the given objective Altitude. From P and Q, to any Point, as T, draw right Lines P T and Q T. From the given Point C draw a right Line C K, parallel to the Terreſtrial Line D E, meeting the right Line Q T in K. In the Point K, upon the Line K C, erect a Perpendicular I K. This I K is the *Scenographic* Altitude required. The Application of this general Method of drawing the *Scenography* of a Body, is not ſo obvious, in every Caſe, but that it may be neceſſary to illuſtrate it a little by a few Examples.

To exhibit the SCENOGRAPHY *of a Cube, viewed by an Angle.*

1°. As the Baſis of a Cube viewed by an Angle, ſtanding on a Geometrical Plane, is a Square viewed by an Angle; Draw a Square, viewed Angular wiſe, on the Perſpective Table, or Plane. 2° Raiſe the Side H I (Fig. 2.) of the Square perpendicularly on each Point of the Terreſtrial Line D E; and to any Point, as V, of the Horizontal Line H R, draw the right Line V I and V H. 3°. From the Angles d, b and c, draw c 1, d 2, &c. Parallel to the Terreſtrial Line D E. 4°. From the Points 1 and 2, raiſe L 1, and M 2. perpendicular to the ſame. Laſtly, Since H I is the Height to be raiſed in a, L 1 in c and b, and M 2 in d: In a raiſe the Line f a perpendicular to f a; in b and c, raiſe b g and c e perpendicular to b c 1; and Laſtly, Raiſe d h, perpendicular to d 2: And make a f = H I, b g = e c = L 1, and h d = M. 2: If then the Parts g h, e f be connected by right Lines, the *Scenography* will be compleat.

To exhibit the SCENOGRAPHY *of a Hollow* Quinquangular Priſm.

1°. Since the Baſe of a hollow *Quinquangular Priſm*, ſtanding on a Geometrical Plane, is a Pentagon, with a Limb or Breadth of a certain Dimenſion; find the Appearance of this Pentagon on a Table, or Plane. See PERSPECTIVE. 2°. On any Point, as H, of the Terreſtrial Line D E (Fig. 3.) raiſe a perpendicular H I, equal to the objective Altitude; and to any Point, as V, of the Horizontal Line H R, draw the Lines H V and I V. 3°. From the ſeveral Angles, a, b, d, e, c, of the Perſpective *Ichnography*, both the Internal and External ones, draw right Lines, as b 2, d 3, &c. parallel to the Terreſtrial Line; and from the Points 1, 2, 3, raiſe Perpendiculars to the ſame, as L 1, M 2 m 2, N 3 n 3. If theſe, then, be raiſed in the correſpondent Points of the *Ichnography*, as in the preceding Article, the *Scenography* will be compleat.

To exhibit the SCENOGRAPHY *of a Cylinder.*

1°. Since the Baſe of a Cylinder, ſtanding on a Geometrical Plane, is a Circle; ſeek the Appearance of a Circle. In the Points, a, b, d, f, h, g, e, c, (Fig. 4.) raiſe the apparent Altitudes, as in the preceding Articles. If now their upper Lines be connected by curve Lines, as in the Baſe, a, b, d, f, c, h, e, c, the *Scenography* of the Circle will be compleat.

'Tis evident that thoſe Lines are to be omitted, both in the Plan and in the Elevation, which are not expoſed to the Eye; though they are not to be diſregarded, from the Beginning, as being neceſſary for the finding of other Lines. *E. gr.* In the *Scenography* of the Cube, viewed Angle wiſe, the Lines b d and d c, (Fig. 2.) in the Baſe, and the d h in the Elevation, are hid from the Eye, and are therefore omitted in the Deſcription. But ſince the Point h is not to be found unleſs the Point d be had in the *Ichnography*; nor the Lines g h and d e be drawn without the Height d h; the Appearance of the Point d is as neceſſary to be determined in the Operation, as the Height h d.

To exhibit the SCENOGRAPHY *of a Pyramid, ſtanding on its Baſe.*

Suppoſe, *e. gr.* it were required to delineate a Quadrangular Pyramid, viewed by an Angle: 1°. Since the Baſe of ſuch Pyramid is a Square ſeen by an Angle, draw ſuch a Square. 2°. To find the Vertex of the Pyramid, *i. e.* a Perpendicular let fall from the Vertex to the Baſe, draw Diagonals mutually interſecting each other in e (Fig. 5.) 3°. On any Point, as H, of the Terreſtrial Line D E, raiſe the Altitude of the Pyramid H I; and drawing the right Lines H V, and I V to each Point of the Horizontal Line H R; produce the Diagonal a b, till it meet the Line V H in h. Laſtly, From h draw h i parallel to H I. This being raiſed on the Point e, will give the Vertex of the Pyramid c d; conſequently, the Lines d k, k a, and k b, will be determined at the ſame Time.—After the like Manner is the *Scenography* of a Cone delineated.

To exhibit the SCENOGRAPHY *of a Truncated Pyramid.*

Suppoſe the Truncated, Pyramid Quadrangular; 1°. then, If from the ſeveral Angles of the upper Baſe be conceiv'd Perpendiculars let fall to the lower Baſe, we ſhall have a Pentagon, with another inſcribed therein, whoſe Sides are parallel to thoſe of the former. This coincides with a Pentagon, furniſhed with a Rim or Breadth, &c. and may therefore be delineated in the ſame manner.— 2°. Raiſing the Altitude of the Truncated Pyramid (I H, Fig. 6.) determine the *Scenographic* Altitudes, to be raiſed in the Points a, b, c, d. If now the Points f, g, h, i, k, be connected by right Lines, and the Lines, l k, f m, g n, h o, be drawn, the *Scenography* will be compleat.——By drawing two concentric Circles in a Geometrical Plan, and doing every Thing elſe, as in this Problem, the *Scenography* of a Truncated Pyramid will be drawn.

To exhibit the SCENOGRAPHY *of Walls, Columns,* &c. *or to raiſe them on the Pavement.*

1°. Suppoſe a Pavement A F H I (Fig. 7.) repreſented in a Plan, together with the Baſes of the Columns, &c. if there be any. 2°. Upon the Terreſtrial Line ſet off the Thickneſs of the Wall B A and 1, 3. 3°. Upon A and B, as alſo upon 3 and 1, raiſe Perpendiculars A D and B C, as alſo 3, 6, and 1, 7. 4°. Connect the Points D and 6 with the Principal Point V, by the right Lines D V and 6 V. 5°. Upon I and H raiſe Perpendiculars H G and E F. Thus will all the Walls be delineated. Now to raiſe the Pillars, &c. there needs nothing but, from their ſeveral Baſes (whether Square, or Circular) projected on the Perſpective Plan, to raiſe indefinite Perpendiculars; and on the Fundamental Line, where interſected by the Radius F a paſſing through the Baſe, raiſe the true Altitude A D: for D V, being drawn as before, the *Scenographical* Altitudes will be determined.

To exhibit the SCENOGRAPHY *of a Door in a Building.*

Suppoſe a Door required to be delineated in a Wall D E F A (Fig. 7.) 1°. Upon the Fundamental Line ſet off its Diſtance A N from the Angle A, together with the Breadths of the Poſts N I and L M, and the Breadth of the Gate itſelf L I. 2°. To the Point of Diſtance K; from the ſeveral Points N, I, L, M, draw right Lines K N, K I, K L, K M, which will determine the Breadth of the Door l i, and the Breadths of the Poſts o n and m l. 3°. From A to O, ſet off the Height of the Gate A O, and from A to P, the Height of the Poſts A P, 4°. Joyn O and P with the Principal Point, by the right Lines P V and O V. 5°. Then, from n, i, l, m, raiſe Perpendiculars, the Middle ones whereof are cut by the right Line O V in o, and the Extremes, by the right Line V P in p. Thus will the Door be delineated, with its Poſts. If the Door were to have been exhibited in the Wall E F G H, the Method were nearly the ſame. For, 1°. Upon the Terreſtrial Line, ſet off the Diſtance of the Door from the Angle, and thence alſo the Breadth of the Door R T. 2°. From R and T, draw right Lines to the Principal Point V, to have the Breadth r t in the perſpective Plan. 3°. From r and t, raiſe indefinite Perpendiculars to F H. 4°. From A to O, ſet off the true Height A O. Laſtly, From O, to the principal Point V, draw the right Line O V, interſecting E F in Z, and make r r and t t equal to T Z. Thus is the Door r r, t t, drawn, and the Poſts are eaſily added, as before.

To exhibit the SCENOGRAPHY *of Windows in a Wall.*

When you know how to repreſent Doors, you'll find no Difficulty in adding Windows; all that is here further required, being to ſet off the Height of the Window from the Bottom of the Ground. The Whole Operation is as follows. 1°. From 1 to 2, ſet of the Thickneſs of the Wall at the Window; from 3 to 4, its Diſtance from the Angle 3; and from 4 to 5 its Breadth. 2°. From 4 and 5, to the Point of Diſtance L, draw the right Lines E 5 and L 4, which will give the Perſpective Breadth 10, 9 of the Window. 3°. From 10 and 9 raiſe Lines perpendicular to the Pavement; *i. e.* draw the parallel Lines 6, 3. 4°. From 3 to 11 ſet off the Diſtance of the Window from the Pavement 3, 11; and, from 11 to 12, its Height 11, 12. Laſtly, From 11 and 12, to the principal Point V, draw Lines V 11 and V 12; which interſecting the Perpendiculars 10, 13, and 9, 14, in 13 and 14, as alſo in 15 and 16, will exhibit the Appearance of the Window.

From theſe Examples, which are all no more than Applications of the firſt grand general Rule, it will be eaſily perceived what Method to take to delineate any other Thing, and at any Height from the Pavement.

A Mechanical Method of exhibiting the Scenography *of any Object*; See under the Article DESIGNING.

SCENOPEGIA, a Feaſt among the *Jews*, more uſually called, *The Feaſt of Tabernacles*, inſtituted after the People of *Iſrael* were in Poſſeſſion of the Land of *Canaan*, in Memory of their having dwelt under Tents in the Wilderneſs. 'Twas held for 8. Days ſucceſſively, commencing on the Fifteenth of *September*. The laſt Day was much the moſt ſolemn, both on Account of the Conflux of Perſons, and of the extraordinary Tokens they gave of their Joy. 'Tis of this Eighth Day, St. *John* muſt be underſtood to ſpeak, when he tells us, our Saviour was at the Feaſt of Tabernacles, on the laſt and great Day. When the Holy Scripture ſays abſolutely, *the Feaſt*, 'tis to be uſually underſtood of the *Scenopegia*. The Word is *Greek*, form'd of σκηνη Scene, Tabernacle, Tent; and πηγνυμι *Figo*, I fix.

SCEPTER, a Royal Staff, or Battoon, born, on ſolemn Occaſions, by Kings, as a Badge of their Command and Authority. See REGALIA. The *Scepter* is an Enſign of Royalty of greater Antiquity than the Crown. The *Greek* Tragic, and other Poets, put *Scepters* in the Hands of the moſt ancient Kings they ever introduce. *Juſtin* obſerves, That the *Scepter*, in its Original, was a *Haſta* or *Spear*: He adds, That in the moſt remote Antiquity, Men adored the *Haſtæ*, or *Scepters*, as immortal Gods; and, that it was upon this Account, that even, in his Time, they ſtill furniſhed the Gods with *Scepters*. *Neptune's Scepter* is his Trident, See TRIDENT. *Tarquin*, the Elder, was the firſt who aſſumed the *Scepter* among the *Romans*. *Le Gendre* tells us, That in the firſt Race of the *French* Kings, the *Scepter* was a Golden Rod, almoſt always of the ſame Heighth with the King who bore it, and crooked at one End like a Crozier. Frequently, inſtead of a *Scepter*, they are ſeen on Medals with a Palm in their Hand. *Nicod* derives the Word from the *Greek* σκῆπτρον, which he ſays, originally ſignified a Javelin, which the antient Kings uſually bore as a Badge of their Authority, in regard that Inſtrument was in very great Veneration among the Heathens. But, in Effect, σκῆπτρον does not properly ſignify a Javelin, but as a Staff, to reſt upon, from σκηπτω, *Innitor*, I lean.

SCEPTER, *Sceptrum*, in Anatomy, one of the Six new Conſtellations of the Southern Hemiſphere, conſiſting of 17 Stars; one of the 4th Magnitude, 8 of the 5th, and as many of the 6th.

SCEPTICISM, the Doctrine and Opinions of the *Scepticks*; called alſo *Pyrrhoniſm*, from the Name of its Author. See PYRRHONISM. The Ancient *Scepticiſm* conſiſted in doubting of every Thing, in affirming nothing at all, and in keeping the Judgment in Suſpenſe on every Thing. *Sextus Empiricus* makes *Scepticiſm* to conſiſt in a Faculty of oppoſing all Appearances, of making all, even contrary Things, equally probable, and of proceeding firſt to an ἐποχὴ, Suſpenſe of Mind, and then to an intire Undiſturbedneſs or Tranquillity. Hence theſe great Maxims of theirs, Ὀυ μᾶλλον τȣ͂το ἢ ἐκεῖνο, *This is no more than that.* Παντὶ λόγῳ λόγος, *&c. Every Reaſon has ſome Reaſon againſt it*; and Ὀυδὲν ὁρίζω, *I determine nothing.* The proper Character then of *Scepticiſm* is an ἀκαταληψία, *Neutrality*, or ſuch a Diſpoſition of Mind as does not, upon any Occaſion, incline to any thing more than the contrary thing. This Heſitancy of the *Scepticks* is well deſcribed by *Ariſtocles* in *Euſeb. de præpar. Evan.* All Things are equally indifferent, uncertain and undeterminate; neither our Senſes, nor our Opinions give us either Truth or Falſehood: Therefore, neither the one, nor the other are to be credited; but all Things to be left on a Level, without having any Opinion, Inclination or Motion of the Mind at all. 'Tis added, that the *Scepticks* carried this Suſpenſe of theirs ſo far, as to deny, that any thing is either good or evil, juſt or unjuſt, true or falſe; or that any thing is this, more than that. See Scepticks.

'Tis from this *Acatalepſia* of the *Scepticks*, that *Des Cartes* ſeems to have borrowed his great Principle of *doubting of all Things*; as is own'd by many of his Followers. It muſt be own'd, there is ſome Difference between the Doubting of the *Scepticks*, and that of the *Carteſians*. In Phyſical Matters, 'tis true, there does not ſeem a great deal of Difference; and *Des Cartes*, in that Reſpect, may, without much Injuſtice, be deem'd a *Sceptic*: But this may be ſaid in his Favour, That the great *Socrates* was ſo far a *Sceptic* himſelf; phyſical and ſenſible Things, he held, were all dubious, and, at beſt, but probable. See Carteſianism.

The Origin of *Scepticiſm* is ſomewhat obſcure; *Pyrrho*, who lived under *Alexander the Great*, and made the Tour of *India* in his Retinue, is uſually reputed the Author; whence *Pyrrhonians* and *Scepticks* are ordinarily uſed indifferently. See Pyrrhonian. It muſt be own'd, however, that the great Dogma of the *Scepticks* had been countenanced, and even cultivated before *Pyrrho* by *Democritus*, *Heraclitus*, *&c. Sextus Empiricus* ſays, expreſly, That all that *Pyrrho* did, was to improve, illuſtrate and inforce the Dogma; and form the Retainers thereto into a Sect. *Democritus*'s Philoſophy was near akin to *Scepticiſm*; for that, upon his obſerving, that Honey ſeemed ſweet to ſome, and bitter to others, he concluded, that 'twas neither ſweet nor bitter; and thereupon pronounced ȣ̓ μᾶλλον, *non magis*, which is pure *Scepticiſm*. Yet the ſame *Sextus* adds, That *Democritus* was no *Sceptic*. Though *Plato* argue very ſtrenuouſly againſt the Acatalepſy of the *Scepticks*; yet 'tis certain that Dogma received a great Part of its Encouragement from *Socrates*'s School, and *Plato*'s Academy. Nay, 'twas a great Controverſy among the Ancients, whether *Plato* himſelf were a *Sceptic* or *Dogmatiſt*. Indeed *Plato*'s deciſive Way of ſpeaking, in many caſes, ſeems to leave no great room for ſuch a Doubt; but 'tis certain, his Followers of the New Academy founded by *Arceſilas*, gave much into this Way; and *Nihil Scitu*, was held by them, a Principle. *Sextus Empiricus* obſerves, That *Socrates* himſelf had a Tincture of *Scepticiſm*; ſome even make him the Author of it, from that cuſtomary Saying of his, *I know nothing but this, that I know nothing.* If this were the Origin of *Scepticiſm*, it muſt be owned, it was mightily improved afterwards, e'er *Metrodorus* ſaid, *I know nothing, not even this, that I know nothing.* The ſame *Sextus* however adds, That *Plato*, introducing his Maſter in his *Gymnaſtic* Dialogues, diſputing with the Sophiſts, makes him act the Part of a *Sceptic*. Some have even charged *Job* and *Solomon* with *Scepticiſm*; from their propoſing a great Number of Queſtions, without deciding any of them. The Philoſopher of *Kiel*, who has publiſhed a Diſſertation on *Scepticiſm*, fetches its Origin ſtill higher: He will have the Devil the Author thereof, who made our firſt Parents doubt of the Word of God himſelf; and drew them in, the firſt Proſelytes to *Scepticiſm*.

SCEPTICKS, a Sect of Ancient Philoſophers, founded by *Pyrrho*, whoſe diſtinguiſhing Tenet was, That all Things are uncertain and incomprehenſible; Contraries equally true; that the Mind is never to aſſent to any thing; but to keep up an abſolute Heſitancy or Indifference. See Scepticism.

Plato refutes the great Principle of the *Scepticks* thus: When you ſay, that all Things are incomprehenſible, do you comprehend or conceive that they are thus incomprehenſible, or do you not? If you do, then ſomething is comprehenſible; if you don't, there is no Reaſon we ſhould believe you, ſince you don't comprehend your own Aſſertion.

The Term *Sceptic*, in its Original *Greek*, Σκεπτικὸς, properly ſignifies *Conſiderative*, or, A Man who is ever weighing the Reaſons on one Side and the other, without ever deciding between them. 'Tis form'd from the Verb σκέπτεσθαι, to conſider, weigh, deliberate. *Laertius* adds, That the Followers of *Pyrrho*, had various Denominations; from their Maſter, they were called *Pyrrhonians*; from their Dogma *Aporetici*, that is Doubters, of ἀπορεῖν, to doubt. From their Suſpenſion and Heſitation, *Ephectici*, of ἐπέχειν to ſtay, to keep back; and from their never getting beyond the Search of Truth, *Zetetici*.

SCELOTYRBE; from Σκέλος, *Crus*, the Leg, and Τύρβη, *Tumultus*, Uproar, ſignifieth thoſe Pains in the Legs, that generally attend Scorbutick Habits; whence it is alſo frequently uſed for the Scurvy itſelf, and applied to ſome Medicines contrived againſt ſuch Diſorders.

SCHAR-PENNY, *Scharn-Penny*, and ſometimes *Schorn-Penny.* It appears from our old Books, that ſome cuſtomary Tenants were obliged to pen up their Cattle at Night in the Pound or Yard of their Lord, for the Benefit of their Dung or *Sceam*, as is the *Saxon* Word. And if they did not do this, they were obliged to pay a ſmall Compenſation, which therefore was called by this Name of *Schar-Penny.*

SCHEAT or SEAT, in Aſtronomy, a fixed Star of the Second Magnitude in the Juncture of the Leg, with the Left Shoulder of *Pegaſus*. Some call it *Seat Alpharus*, and ſome *Scheat Pegaſi*. Its Longitude, according to Mr. *Flamſtead*, is 25° 2′ 13″ its Latitude 31° 8′ 6″ *North*.

SCHEDULE, or *Cedula*, a Scroll of Paper, or Parchment, annex'd or appended to a Will, Leaſe, Deed or other Inſtrument, containing an Inventory of Goods, or ſome other Matter, omitted in the Body of the Inſtrument. See Cedula.

SCHEMATISM. See Figure.

SCHEME, a Model, Draught, *&c.* or the Repreſentation of any Geometrical or Aſtronomical Figure, or Problem by Lines ſenſible to the Eye: Or of the Cœleſtial Bodies in their proper Places for any Moment. See Diagram. The Word is form'd from the *Greek* σχῆμα.

SCHERIF. See Cherif.

SCHIRE MOTE, was anciently a ſolemn Meeting of all the free Tenants and Knights in any County, to do Fealty to the King, and elect an Annual Sheriff. See Sheriff.

SCHIRRUS, in Medicine, called alſo *Schirrome* and *Schirroſis*, a hard, indolent Tumor, form'd gradually, in the ſoft, glandulous Parts of the Body; ſometimes internal, and ſometimes external. There are two Kinds of *Schirrus*'s; the one only beginning, and frequently painful when preſs'd by the Fingers; the other, confirm'd and ſenſeleſs. The *Schirrus* ariſes from a thick, viſcid, probably, gritty Matter, detained and indurated in the Pores and other minute Paſſages of the Parts affected. There are ſome *Schirrus*'s as hard as Stones; ſome are even painful in their confirm'd State, and partake of the Nature of a Cancer. The Word is form'd from the *Greek* σκιῤῥος, hardneſs.

SCHISM, a Term, which, in the general, ſignifies *Diviſion*, or *Separation*; but chiefly uſed in ſpeaking of Separations happening through Diverſity of Opinions among People of the ſame Religion and Faith: Thus we ſay, The *Schiſm* of the Ten Tribes of *Iſrael*, from the Two Tribes of *Juda* and *Benjamin*. See Samaritans. The *Schiſm* of the *Perſians* from the *Turks* and other *Mahometans*. Among Eccleſiaſtical Authors, the *Great Schiſm of the Weſt*, is that which happened in the Times of *Clement* VII. and *Urban* VI. which divided the Church for Forty or Fifty Years, and was at length ended by the Election of *Martin* V. at the Council of *Conſtans*. The *Romaniſts* number Thirty-four *Schiſms* in their Church: They beſtow the Name of the *Engliſh Schiſm* on the Reformation of Religion in that Kingdom; thoſe of the Church of *England* again apply the Term *Schiſm* to the Separation of the *Nonconformiſts*, *viz.* the *Presbyterians* and *Anabaptiſts*, who are earneſt for a further Reformation. Some call the Separation of the Proteſtants from the Church of *Rome*, a *Paſſive Schiſm*, becauſe that Church cut them off from her Communion. The Word is form'd from the *Greek* σχίσμα, cleft, fiſſure.

SCHOENOBATES, a Name the *Greeks* gave to their Rope-dancers. The *Romans* call them, *Funambuli*. The *Schœnobates* were Slaves, whoſe Maſters made Money of them, by entertaining the People with their Feats of Activity. *Mercurialis de Arte Gymnaſtica*, *Lib.* III. gives us five Figures of *Schœnobates* Engraven after ancient Stones. The Word is form'd from the *Greek* σχοῖνος, a Rope; and βαίνω, I walk.

SCHOLASTIC, ſomething belonging to the Schools, or that is taught in the Schools. See School.

The Title *Scholaſticus*, was, a long time a Title of Honour. At firſt it was only given to ſuch as diſtinguiſhed themſelves by their Eloquence, in Declaim-ing, *&c.* After *Nero*, 'twas alſo apply'd to the *Advocati*, and among others, to *Socrates* and *Euſebius*, the Eccleſiaſtical Hiſtorians, who were Advocates at *Conſtantinople*. *Conſtant. Hiermenopulus* alſo bore it in the twelfth Century, with ſeveral others. Afterwards it became reſtrained to ſuch as had the Government of the Eccleſiaſtical Schools, eſtabliſhed under the firſt Race of *French* Kings, who inſtructed the Clerks of each Church, firſt in the Humanities, then in Theology and the Liturgy. Theſe were alſo called *Primiciers Eſcolaſtres* and *Theologaux*. If the Church were ſituated in a City, the *Scholaſticus* was called the *Chancellor*. *Genebrand* obſerves, That among the *Greeks*, *Scholaſticus* was the Name of an Office or Dignity anſwering to our *Divine* or *Theologue*. Indeed, he adds, 'twas only properly applied to People of general Learning, and fine Parts, and who were well known to the World in that Character. This St. *Jerom* obſerves, That *Serapion* was ſurnamed *Scholaſticus*, by reaſon of the Delicacy of his Wit. *Walafrid Strabo*, calls the Poet *Prudentius*, *Scholaſticus*: *Fortunatus* was called *Scholaſticiſſimus*.

SCHOLASTIC, or SCHOOL *Divinity*, is that Part of *Divinity* which clears and diſcuſſes Queſtions, by means of Reaſon, and Arguments: In which Senſe, it ſtands, in good meaſure, oppoſed to poſitive *Divinity*, which is founded on the Authority of Fathers, Councils, *&c.* The *School Divinity*, like *Plato*'s School, has had its three ſeveral Ages or Periods: The *Ancient*, the *Mean* and the *New*. The Ancient began under *Lanfrank*, Archbiſhop of *Canterbury*, or, more properly, under *Peter Lombard*, the Maſter of the Sentences; and held about 200 Years; ending under *Albertus Magnus*. 'Twas ſucceeded by the *Mean School Divinity*, which laſted about 100 Years, to the Time of *Thomas Aquinas*; during which Time, the *Peripatetic* Philoſophy was raiſed to its utmoſt Reputation. The third Age began under *Durandus*, who ſet himſelf up againſt *Thomas*, the Chief of the *mean* Age. From him Peoples Wits began to be more and more ſubtile; and the *School* began to be wholly taken up in frivolous Queſtions. They diſputed, with great Heat, about mere Formalities; and even raiſed Phantoms on purpoſe to combat withal. 'Tis now fallen into the laſt Contempt; and is ſcarce regarded any where, but in ſome of the Univerſities, where they are obliged by their Charters to teach it.

SCHOLIAST, a Commentator, particularly a Perſon who writes *Scholia*, that is, Notes, Gloſſes, *&c.* upon the Ancient *Greek* Authors. See SCHOLIUM.

SCHOLIUM, a Note, Annotation, or Remark occaſionally made on ſome Paſſage, Propoſition, *&c.* 'Tis much uſed in Geometry, and other Parts of Mathematicks; where, after demonſtrating a Propoſition, 'tis frequent to point out where it might be done ſome other Way; give ſome Advice, or Precaution to prevent Miſtakes; or add ſome particular Uſe or Application thereof. *Wolfius* has given us abundance of curious and uſeful Arts and Methods, a good part of the Modern Philoſophy, the Deſcription of Mathematical Inſtruments, *&c.* all by way of *Scholia*, to the reſpective Propoſitions in his *Elementa Matheſeos*. The Word in the Original *Greek*, σχόλιον, ſignifies the ſame Thing.

SCHOOL, a publick Place, wherein the Languages, Humanities or other Sciences are taught. Thus we ſay, a *Grammar School*, the *School* of Medicine, of Natural Philoſophy, *&c.* The Word is alſo uſed for a whole Faculty, Univerſity, or Sect: as, *Plato's School*: The *School* of *Epicurus*, the *School* of *Paris*, *&c.* The *School* of the *Tiberiad* has been famous among the Ancient Jews; and 'tis to this we owe the *Maſſora* and *Maſſoretes*. See MASSORETES. The Word is form'd from the *Latin*, *Schola*, which *Du Cange* derives from *Schola*, which ſignifies *Diſcipline* and *Correction*; and adds, That it was anciently, in the general, uſed for all Places, where ſeveral Perſons met, either to ſtudy, to converſe, or do any other Matter. Accordingly, there were the *Scholæ Palatinæ*, being the ſeveral Poſts wherein the Emperor's Guards were placed; the *Schola Scutariorum*, *Schola Gentilium*, *&c.* At length the Term paſſed to Civil Magiſtrates; and accordingly in the Code, we meet with *Schola Chartulariorum*, *Agentium*, &c. and even to Eccleſiaſticks, as, *Schola Cantorum*, *Sacerdotum*, &c.

SCHOOL, in Painting, is a Term uſed to diſtinguiſh the different Manners of Places, and Perſons: As, the *Roman School*, the *Venetian School*, the *Flemiſh School*, &c. *Raphael's School*, *Titian's School*, *da Vinci's School*, &c. meaning their Diſciples, Pupils, *&c.* See PAINTING.

SCHOOL of *Athens*, in Painting, is a celebrated Piece of *Raphael*, now in the *Vatican*. It contains a great Number of Figures, repreſenting Philoſophers, Mathematicians, and other Perſons, engaged in the Arts and the Sciences. Several Authors have wrote of this Painting, and given different Explications thereof. *Vaſari* will have it to be, The Agreement of Philoſophy, and Aſtronomy, with Theology. The Engravers, by the Inſcription they add at the Bottom of the Print thereof, ſhew, That they take it for a Painting of St. *Paul* preaching at *Athens*. An *Auguſtin* of *Venice*, takes the Philoſopher who is writing, for a St. *Mark*; and he at his Knees, for the Angel *Gabriel*. M. *de Piles* rejects all theſe Explications of the *School* of *Athens*, and eſpecially the laſt: His Opinion is, That 'tis nothing more than the mere Image or Repreſentation of Philoſophy, which *Raphael* here deſigns under all the Philoſophers he has painted. In Behalf of the *Venetian* Engravers it may be ſaid, that they do not pretend to explain the Painting, but have only copied ſuch of the Figures as they thought proper to repreſent St. *Mark*, St. *Gabriel*, *&c.*

SCHOOL PHILOSOPHY, Theology, *&c.* See SCHOLASTIC.

SCHOONBIAH, a Sect among the Muſſulmans. The diſtinguiſhing Tenet of thoſe of this Sect is, That the *Sunnites* are not a whit preferable to the *Schaia* or *Rafadhites*, *i. e.* the Orthodox to the Heteredox; but that both the one and the other are equally good Muſſulmans. The *Schoonbiah*, therefore, ſhould be properly the *Latitudinarians* of *Muſſulmaniſm*. Yet are not they regarded by either Party, as much better than Gentiles or Heathens, as their Name imports. There are abundance among the Muſſulmans, who give into this Sect, only ſecretly; *Mahometiſm*, like all other falſe Religions, being an avowed Enemy to Toleration.

SCIATICA, in Medicine, the Gout in the Hip. See GOUT.

SCIENCE, in Philoſophy, a clear and certain Knowledge of any Thing, founded on ſelf-evident Principles, or Demonſtration. See KNOWLEDGE. In this Senſe, *Doubting* is oppos'd to *Science*; and *Opinion* is the middle between the Two. See OPINION. The *Scepticks* profeſs to deny, that we have any ſuch thing as *Science*; that is, any clear, certain Notices of any thing, capable of producing abſolute Conviction. See SCEPTICISM. The Word is form'd of the *Latin*, *Scire*, to know.

Divines ſuppoſe three Kinds of *Science* in God: The firſt, *Science* of mere Knowledge, whereby God knows himſelf, and all Things poſſible. The ſecond, a *Science* of Viſion, whereby he knows all Things he has reſolved to do, or to permit, in the ſame Order wherein he has reſolved to do, and to permit them. The third an intermediate *Science*, whereby he knows what Angels and Men will do, in certain Caſes and certain Circumſtances, if he reſolve to bring them about. 'Tis greatly diſputed among the School Divines, whether or no there be ſuch an intermediate *Science* in God; the Reaſon why ſome call it in queſtion is, becauſe it does not conſiſt well with their particular Schemes.

SCIENCE, is particularly uſed for a form'd Syſtem of any Branch of Knowledge; comprehending the Doctrine, Reaſon and Theory, of the Thing, without any immediate Application thereof to any Uſes or Offices of Life; in which Senſe, the Word is uſed in Oppoſition to *Art*. Indeed, the preciſe Notion of an *Art* and *Science*, and their juſt, adequate Diſtinction, are not yet well fixed. See the PREFACE to this Work.

As to the Number and Diviſion of the *Sciences*, Mr. *Lock* fixes them thus: All that can fall within the Compaſs of human Underſtanding, is, Firſt, Either the Nature of Things, their Relations, and their Manner of Operation: or, Secondly, That which Man himſelf ought to do as a voluntary and rational Agent, for the Attainment of any End, eſpecially Happineſs; or, Thirdly, the Ways and Means, whereby the Knowledge of both of theſe are attained and communicated: Whereupon, *Science*, may be properly divided into theſe Three Sorts. Firſt, the Knowledge of Things, their Conſtitutions, Properties and Operations, whether material or immaterial: This, in a little more inlarged Senſe of the Word, may be called φυσικὴ, or *Natural Philoſophy*. The End of this is bare ſpeculative Truth, and whatſoever can afford the Mind of Man any ſuch, falls under this Branch; whether it be God himſelf, Angels, Spirits, Bodies, or any of their Affections, as Number, Figure, *&c.* Secondly, Πρακτικὴ, the Skill of right applying our own Powers and Actions for the Attainment of Things good and uſeful. The moſt conſiderable under this Head, is *Ethicks*, which is the ſeeking out thoſe Rules and Meaſures of Human Actions, which lead to Happineſs, and the Means to practiſe them. The End of this is not bare Speculation; but Right, and a Conduct ſuitable thereto. Thirdly, Σημειωτικὴ, or the Doctrine of *Signs*: The moſt uſual being Words; it is aptly enough termed *Logick*: The Buſineſs whereof is to conſider the Nature of *Signs*, which the Mind makes uſe of for the underſtanding of Things, or conveying its Knowledge to others. Things are repreſented to the Mind by Ideas; and Mens Ideas are communicated to one another by articulate Sounds or Words. The Conſideration then of Ideas or Words, as the great Inſtruments of

Knowledge, makes no deſpicable Part of their Contemplation, who wou'd take a View of Human Knowledge in the whole Extent of it. This ſeems the firſt, and moſt general, as well as natural Diviſion of the Objects of our Underſtanding. For a Man can employ his Thoughts about nothing, but either the Contemplation of Things themſelves for the Diſcovery of Truth; or about the Things in his own Power, which are his Actions, for the Attainment of his own Ends; or the Signs the Mind makes uſe of, both in the one and the other, and the right ordering of them, for its clearer Information. All which Three, *viz.* *Things*, as they are in themſelves knowable; *Actions*, as they depend on us in order to Happineſs, and the right uſe of *Signs*, in order to Knowledge, being *toto Cœlo*, different, they ſeem to be the Three great Provinces of the Intellectual World, wholly ſeparate and diſtinct one from another.

SCIENTIFIC, ſomething relating to the pure, ſublimer *Sciences*; or, that abounds in *Science* or *Knowledge.* A Work, a Method, *&c.* is ſaid to be *Scientifical*, when 'tis founded on the pure Reaſon of Things, *&c.* conducted wholly on Principles thereof. In which Senſe, the Word ſtands oppoſed to *Narrative*, *Arbitrary*, *Opinionative*, &c.

SCILLA, or *Squill*, a Medicinal Plant, of the Onion-kind, but very large; chiefly brought from *Spain*: Uſed only in Infuſion, and that generally in Vinegar, which it renders Emetic. There are two Kinds, *Male* and *Female*; the Male are whitiſh, and the Female reddiſh. Their Infuſion, when boiled into the Conſiſtence of a Syrup, with Honey, called *Oximel Sylliticum* in the Shops, retains the ſame Properties. They wonderfully deterge and ſcour off the viſcid Adheſions in the Bowels, and gently irritate the Stomach to Ejection. They are alſo, as all of the Onion Kind are, very Diuretick, and therefore in great Eſteem, with ſome, in Dropſies: For if their Infuſion be mixed with Cinnamon-Water, they will ſeldom vomit, but work downwards, and very forcibly, by Urine: In Aſthmas, and all Obſtructions, or Infractions of the Lungs, which are to be removed by Deterſives and Expectoration, there is ſcarce any thing more effectual. They are alſo eſteemed *Alexipharmicks*, and upon that Account have a Place in the *Theriaca Andromachi*.

SCIOGRAPHY, the Profile, or Section of a Building, to ſhew the Inſide thereof. See SECTION and PROFILE.

SCIOGRAPHY, in Aſtronomy, *&c.* is a Term ſome Authors uſe for the Art of finding the Hour of the Day or Night, by the Shadow of the Sun, Moon, Stars, *&c.* See DIAL.

SCIOMANTIA, or *Sciomancy*, a kind of Divination, otherwiſe called *Pſychomancy*. *Sciomancy*, among the Ancients, was the Art of raiſing and calling up the Manes or Souls of deceaſed Perſons, to inſtruct them in Things to come. The Witch who conjured up the Soul of *Samuel*, to foretel *Saul* the Event of the Battle he was about to give, did it by *Sciomancy*. The Word is form'd from the *Greek*, σκία, Shadow, uſed metaphorically for the *Soul*, and μαντεία, Divination. See DIVINATION.

SCIOPTRICK, a Sphere or Globe of Wood, with a circular Hole or Perforation wherein a Lens is placed: 'Tis ſo fitted, that, like the Eye of an Animal, it may be turn'd round every Way; to be uſed in making Experiments of the darken'd Room. See CAMERA OBSCURA.

SCIRE-FACIAS, is a judicial Writ, moſt commonly to call a Man to ſhew Cauſe to the Court whence it iſſues, why Execution of a Judgment paſſed, ſhould not be made out. This Writ is not granted, until a Year and a Day be elapſed after a Judgment given: *Scire-facias*, upon a Fine, lies not but within the ſame Time after the Fine levied, otherwiſe it is the ſame with the Writ of *Habere facias ſeiſinam*.

SCLAVONIC, the Language of the *Sclavi*, an Ancient People of *Scythia Europæa*; who, about the Year 518, quitting their native Country, ravaged *Greece*, and eſtabliſhed the Kingdoms of *Poland* and *Moravia*, and at laſt ſettled in *Illyria*; which thence took the Name of *Sclavonia*. But the Modern *Sclavonia* is much narrower, being only a Province in *Hungary*. The *Sclavonic* is held, after the *Arabic*, the moſt extenſive Language in the World: 'Tis ſpoke from the *Adriatic* to the *North* Sea, and from the *Caſpian* to *Saxony*, by a great Variety of People, all, the Deſcendants of the Ancient *Sclavi*, *viz.* the *Poles*, *Muſcovites*, *Bulgarians*, *Carinthians*, *Bohemians*, *Hungarians*, *Pruſſians*, *Suabians*, *&c.* each of whom, however, have their particular Dialect; only the *Sclavonic* is the common Mother of their ſeveral Languages, *viz.* the *Poliſh*, *Ruſſian*, *Hungarian*, *&c.* By a *Latin* Chronicle of the *Sclavi*, compoſed by *Helmold*, a Prieſt of *Buda*, and *Arnoul* Abbot of *Lubec*, and corrected by *M. Leibnitz*, it appears, That the *Sclavi* anciently inhabited the Coaſts of the *Baltic* Sea, and were divided into *Eaſtern* and *Weſtern*: In the latter whereof, were the *Ruſſians*, *Poles*, *Bohemians*, *&c.* And in the former, the *Vandals*. *Dom. Maur. Orbini Rauſer*, Abbot of the Order of *Malta*, in an *Italian* Hiſtory of the *Sclavi*, intitled, *Il Regno de gli Slavi*, printed in 1601, will have them to be originally of *Finland* in *Scandinavia*. *Laur. Privero*, a *Dalmatian*, in an expreſs Diſcourſe on the Origin of the *Sclavi*, maintains them to be originally of *Thracia*, and the ſame with the *Thracians*, the Poſterity of *Thiras*, Seventh Son of *Japhet*. *Theod. Polycarpowitz*, in a *Greek*, *Latin* and *Sclavonic* Dictionary, printed at *Moſcow* in 1704, obſerves, That the Word *Sclava*, whence *Sclavonic* is form'd, ſignifies in their Language, *Glory*.

SCLEROPHTHALMIA, a kind of Ophthalmia, wherein the Eye is dry, hard, red and painful; and the Eyebrows likewiſe; ſo as not to be opened after Sleep, without great Pain, by reaſon of their exceſſive Dryneſs. See OPHTHALMIA.

SCLEROTICA, in Anatomy, *&c.* one of the common Membranes of the Eye, ſituate between the Adnata and the Uvea: 'Tis very firm and opaque behind; but tranſparent before. In Strictneſs, 'tis only the hind-part is call'd *Sclerotica*; the fore-part being properly called the *Cornea*; See CORNEA. The *Sclerotica* is a Segment of a larger Sphæroid than the Cornea. See EYE. The Word is form'd from the *Greek* σκληρὸς, hard.

SCLEROTICKS, Medicines, proper to *harden* and conſolidate the Fleſh, *&c.* of Parts they are applied to. Such are Purſlain, Jubarb or Houſe-leek, Pſyllium, Morel or Garden-night-ſhade, *&c.*

SCOLDING: The Puniſhment allotted by our Laws for *Scolding* Women, is, To be ſet in a Trebuchet, commonly called a *Cucking-Stool* (probably from the *French Coquine*, *Quean*, and the *German Stull*, *Chair*) placed over ſome deep Water, into which they are to be let down, and plunged thrice, under Water, to cool their Heat and Choler.

SCOLOPOMACHAIRION, in Chirurgery, a Kind of Scalpel, thus called, by the *Greeks*, from its reſembling a *Woodcock's Bill*. Its Uſe is to open, and dilate, narrow Wounds of the Breaſt, Abſceſſes, *&c.* *Aquapendente* recommends it for Tapping in Dropſies. 'Tis uſually furniſhed with a little Button at the Point, that it may be uſed to open Wounds of the Breaſt, without Danger of wounding the Lungs.

SCONCES are ſmall Forts, built for Defence of ſome Paſs, River, or other Place: Sometimes they are made regular of four, five, or ſix Baſtions; others of ſmaller Dimenſions, fit for Paſſes, or Rivers, and likewiſe for the Field: Such are (1.) Triangles with half Baſtions; which may be all of equal Sides, or they may be ſomething unequal. However it be, divide the Sides of the Triangle into three equal Parts, one of theſe three Parts will ſet off the Capitals and the Gorges; and the Flanks, being at Right Angles with the Sides, make half of the Gorge. (2.) Square, with half Baſtions; whoſe Sides may be betwixt 100 and 200 Feet, and let one Third of the Side ſet off the Capital and the Gorges, but the Flank (which raiſe at Right Angles to the Side) muſt be but one half of the Gorge or Capital, that is on the Sixth Part of the Side of the Square. (3.) Square with half Baſtions and Long. (4.) Long Squares. (5.) Star Redoubt of four Points. (6.) Star Redoubt of five or ſix Points. (7.) Plain Redoubts, which are either ſmall or great. The ſmall are fit for Court of Guards in the Trenches, and may be a Square of 20 Feet to 30. The middle Sorts of Redoubts may have their Sides from 30 to 50 Feet; the great ones from 60 to 80 Feet Square. The Profiles (that is the Thickneſs and Height of the Breaſt-works) to be ſet on theſe ſeveral Works, and the Ditches, are alterable, and uncertain; for ſometimes they are uſed in Approaches, and then the Wideneſs of the Breaſt-work, at the Bottom, may be 7 or 8 Feet, inward Height 6, and outward 5 Foot; the Ditch may be 8 or 10 Feet, and ſometimes 12; and for the Slopes, to be wrought according to the Nature of the Earth, they may ſometimes be made 14 or 20 Feet wide at the Bottom, and the Height of 7, 8, or 9 Feet, and to have 2 or 3 Aſcents to raiſe to the Parapet; the Ditch may be 16 or 24 Feet wide, and 5 or 6 deep; and ſometimes they may come near the ſmalleſt ſort of Ramparts, and have a Breaſt-work Cannon Proof, with a Ditch of 50 or 60 Feet wide, and are thus made to ſet upon Paſſes or Rivers to endure. See REDOUBT.

SCOPER-HOLES in a Ship, are Holes made through the Sides cloſe to the Deck, to carry off the Water that comes from the Pump, or any other Way. Theſe Holes in the Covert Deck, have round Leathers nailed over them, to keep the Sea Water from coming up into the Ship, which are called *Scoper-Leathers*; and the ſhort Nails, with broad Heads, which faſten theſe Leathers down, are called *Scoper Nails*.

SCORBUTUS, *Scurvy*, in Medicine, a Diſeaſe very frequent in the *Northern* Countries, particularly in fenny, wet, humid Places, open to the North, *&c.* 'Tis accompanied with a great Variety of Symptoms attacking the ſeveral Parts of the Body all at once. Hence *Willis* ſays, 'tis not any particular Diſeaſe, but a Legion of Diſeaſes. The moſt uſual are Bleeding, Coughing, Vomiting, Difficulty of Breathing, Looſeneſs, a Relaxation of the Parts, Swetting, a fœtid Smell of the Gums, a falling of the Teeth, ſtinking Breath, reddiſh or yellow livid Spots, Pains of the Arms and Legs, Wearineſs, Faintings, Head-ach, *&c.* Some diſtinguiſh it into *Hot* and *Cold*; but there is little Foundation for ſuch a Diſtinction, as the Cauſe is the ſame in all, *viz.* according to *Barbette* and *Decker*, a too thick Pituitous Lymph; whence various Symptoms in various Temperaments. *Charleton* obſerves, That it ariſes chiefly from ſharp, ſaline Particles, taken in by Inſpiration, from Salt and corrupted Meats eaten, from bad Waters drank, from Naſtineſs, deep Chagrins, *&c.* He adds, That 'tis contagious. Dr. *Quincy* will have it to conſiſt in ſuch a Conſtitution, wherein the Blood is unequally Fluid. And hence he obſerves, 'tis beſt remedied by Stimuli, Exerciſe, and ſuch means as promote Sanguification: 'Tis now become ſo frequent, that there is ſcarce any Diſeaſe appears, but 'tis judged to partake of the *Scorbutus.* The Cure is very difficult; and when the Diſeaſe is rooted, next to impoſſible. It ſometimes goes off in a Flux by Stool, ſometimes by the Hæmorrhoids, and ſometimes by Urine; but more often degenerates into a Dropſy, Atrophy, Apoplexy, Epilepſy or Convulſions. A very exact Diet is held of more Effect than the beſt Medicines; without this, it becomes incurable. Bleeding does not avail; ſtrong Purgatives are hurtful: So is Sugar, and all ſugar'd Things, *Mercurius Dulcis* uſed internally, ſo as not to Salivate, but only raiſe a Sweating, is found excellent. *Dolæus* undertakes to cure any *Scorbutus* in Twelve Days time, by the Uſe of this alone; only the Patient to drink nothing all that Time, but a proper Decoction, and to abſtain from Acids, and Hog's Fleſh. *Charleton* recommends a continued Uſe of Milk, particularly Milk Emulſions of Sweet Almonds, Decoctions of China, Broths and other Anti-acids and Analepticks. *Etmuller* makes the Baſis of the Cure of the *Scorbutus* and Hypochondriacal Diſeaſes the ſame, *viz.* copious Vomiting. Strong Cathárticks, he obſerves, are prejudicial; but gentle ones good; for the Body is to be ſtill kept open. He adds, That Vinegar is hurtful, and yet the Acid Juices of Fruits and Vegetables, wholeſome. Accordingly the Uſe of Lemon Juice is much recommended by *Liſter*. Milk, and all milky Things, while the Stomach is yet able to digeſt, are excellent. So are Martials. *Etmuller*, inſtead of Mercurials, recommends Antimonials. Thus much in the general; for the particular Symptoms, particular Medicines adapted thereto, are to be uſed; only mixing Antiſcorbuticks with them all.

The chief ſimple Antiſcorbuticks are, Horſe-radiſh, ſowre Sorrel, Butter-bur, Scorzonera, Sow-thiſtle, Zedoary, Polypody, Elecampane, Guiacum, Saſſafras, Muſtard-Seed, Naſturtium Aquaticum, Trifolium Paludoſum, Oranges, Lemons, Juniper-Berries, Cream of Tartar, Tartarum Vitriolum, *&c.*

SCORE, in Muſick, *Partition*, or the Original Draught of the whole Compoſition, wherein the ſeveral Parts, *viz.* Treble, Second Treble, Baſe, *&c.* are diſtinctly *ſcored* and marked. See PARTITION.

SCORPIO, in Aſtronomy, the Eighth Sign of the *Zodiac.* See SIGN.

The Stars in *Scorpio*, in *Ptolomy*'s Catalogue are 20; in that of *Tycho* 10; in that of Mr. *Flamſtead* 49: The Longitude, Latitudes, Magnitudes, *&c.* whereof, are as follow;

Stars in the Conſtellation SCORPIO.

Names and Situations of the Stars.	Signs.	Longitude			Latitude.			Magn.
		°	′	″	°	′	″	
In the firſt South Foot	♏	26	48	50	5	26	33A	6
Subſeq. in the firſt Foot		27	18	08	4	54	13A	5
Contiguous to this		27	30	49	4	46	19A	7
That preced. S. of Forehead		27	55	46	5	43	48A	6
In third South Foot.		28	48	52	8	33	25A	4 3
5								
South of 3 in the Forehead		28	37	25	5	25	46A	3
Middle of the Forehead		28	15	50	1	56	31A	3 2
North of the Forehead		28	52	56	1	03	09B	2
North } of the contig. ones		29	21	45	0	16	05B	5
South } underN.St.Forehead		29	32	09	0	05	56B	5
10								
		28	01	13	8	04	40B	6
Preced. in the laſt S. Foot	♐	2	00	35	7	07	03A	6
Contig. thereto Northward		1	55	59	6	38	22A	6 5
Moſt N. following Forehead		0	20	11	1	40	50B	4
	♏	28	19	54	12	29	24B	6
15								
		29	23	11	9	15	16B	6
		29	09	23	12	46	32B	6
Subſeq. in laſt South Foot	♐	3	22	10	7	02	25A	6 5
That over oth. preced. Heart		3	07	35	2	37	10A	6
That preced. Heart Northwd.		3	29	34	3	59	04A	4
20								
In preced. Heel of Ophiuchus		3	14	42	1	36	03B	5
Under the Sole of Ophi. Foot		4	07	17	1	42	45A	6
In Ophiuchus's Leg		3	40	27	3	16	29B	5
Scorpion's Heart		5	26	04	4	31	26A	1
That over the Heart		5	25	12	3	11	30A	5
25								
In the Calf of Ophiu. Fore-leg	♐	4	21	27	5	14	41B	5
In the fore Ancle of Ophiu.		5	19	53	0	28	40B	5
That follow. the Heart to S.		7	07	56	6	04	23A	4
Fore-knee of Ophiuchus		4	54	28	11	25	40B	3
Inform between Ophiu. Legs		6	59	26	4	28	18B	6
30								
		9	12	54	3	05	10A	6
In the 1ſt Ring of the Tail		11	03	32	11	39	47A	3
More N. and poſterior to this		12	22	01	10	29	56A	6
Poſterior Knee of Ophiuchus		13	39	28	7	14	12B	3
		15	28	32	3	56	17A	6
35								
In Toe of Ophiu. hind Foot		15	43	28	3	24	16A	5
		15	55	15	3	20	08A	6
		16	12	46	3	29	39A	6 7
In back of Ophiu. ſecond Foot		16	06	17	1	08	53A	6
In Tibia of Ophiu. hind Leg		16	34	52	2	04	47B	4
40								
		17	00	23	1	42	28A	6 7
Bright Star of Ophiu. Foot		17	05	02	1	47	38A	3
		17	34	53	4	54	52A	6
		17	43	57	0	59	54A	7
Preced. in Ophiuchus's Heel		18	01	32	0	53	48A	5
45								
Preced. of 2 in the Sting		19	41	16	13	57	14A	3 4
Subſequent		20	15	12	13	44	16A	2 3
Subſeq. in Ophiuchus's Heel		19	09	46	0	38	18A	5
That foll. Ophiu. Foot, N.	♐	20	46	23	1	28	55B	6

SCORPION, an ancient, military Engine, uſed chiefly in the Defence of Walls, *&c.* called alſo *Scorpio. Marcellinus* deſcribes the *Scorpio*, as conſiſting of two Beams bound together by Ropes. From the Middle of the Two, roſe a Third Beam; ſo diſpoſed, as to be pull'd up and let down at Pleaſure; and on the Top of this, were faſten'd Iron Hooks, where was hung a Sling, either of Iron or Hemp. Under the Third Beam lay a Piece of Hair-cloth full of Chaff, tied with Cords. To uſe the Engine, a round Stone was put into the Sling, and Four Perſons on each Side, looſening the Beams bound by the Ropes, drew back the erect Beam to the Hook: When, the Engineer ſtanding on an Eminence, giving a Stroke with a Hammer on the Cord to which the Beam was faſtned with its Hook, ſet it at liberty; ſo that hitting again the ſoft Hair-cloth, it ſtruck out the Stone with a vaſt Force. It had its Name *Scorpio*, becauſe when the long Beam or Tillar was erected, it had a ſharp Top, in manner of a Sting. The more modern Times have given it the Name *Onagar*, Wild Aſs, becauſe that Animal, when hunted, flings back Stones.

SCORIA, the Recrement or Droſs of any Metal, remaining after melting, or refining the ſame. The *Scoria* of Iron, is the Scum taken from that Metal in Forges where 'tis melted. See SCUM. *Scoria of Iron*, is alſo the ſulphurous Part of the Iron; which uniting with the ſulphurous Part of the Charcoal, makes together, thoſe porous Maſſes, reſembling Spunges, frequently ſeen in the Smiths Forges.

SCOT or *Scoth*, from the *Saxon Sceas*, a Part or Portion; is a certain Cuſtom or common Tallage, according to *Raſtal*, made to the Uſe of the Sheriff or his Bailiffs; but now ſignifies a cuſtomary Contribution laid upon all Subjects, according to their Ability; for whoever are aſſeſſed to any Contribution, are generally ſaid to pay *Scot and Lot.*

SCOTIA, in Architecture, a Semicircular Cavity or Channel between the Tores, in the Baſes of Columns. See BASE. The *Scotia* has an Effect juſt oppoſite to that of the Quarter-round. Our Workmen frequently call it the *Caſement.* The *Scotia* is a concave, dark Moulding; whence its Name, *viz.* from Σκότος, *Obſcurity, Darkneſs.* 'Tis alſo called *Trochilus*, partly from its Form. In the *Corinthian* Baſe, there are Two *Scotias*, the upper whereof is the ſmaller. According to *Filibien*, the *Cavetto* is a fourth Part of the *Scotia.* See CAVETTO.

SCOTISTS, a Sect of School Divines and Philoſophers, thus called from their Founder, *J. Duns Scotus*, an *Iriſh* Cordelier; who maintained the immaculate Conception of the Virgin; or, that ſhe was born without Original Sin; in Oppoſition to *Thomas Aquinas* and the *Thomiſts.* See THOMIST. As to Philoſophy, the *Scotiſts*

tiſts were, like the *Thomiſts*, Peripateticks; only diſtinguiſh'd by this, That in each Being, as many different Qualities as it had, ſo many different Formalities did they diſtinguiſh; all diſtinct from the Body itſelf; and making, as it were, ſo many different Entities: Only thoſe Metaphyſical, and, as it were, ſuperadded to the Being. See PERIPATETICKS.

SCOTOMY, in Medicine, a Dizzineſs, or Swimming in the Head, wherein the Animal Spirits are ſo whirl'd about, that external Objects ſeem to turn round. See VERTIGO.

SCRATCHES, among Farriers, a Diſtemper incident to Horſes, conſiſting of dry Scabs, Chops or Rifts, that breed between the Heel and the paſtern Joint. There are various kinds of *Scratches*, diſtinguiſh'd by various Names, as *Crepances*, *Rats-Tails*, *Mules*, *Kibes*, *Pains*, &c. which are all ſo many Species of *Scratches*; Engender'd from ſome dry Humour falling on the Legs, or from the Fumes of his own Dung lying under his Heels, or near them; or for Want of rubbing his Heels, eſpecially after a Journey, from over hard-riding, *&c.* It begins firſt, with dry Scabs in the paſtern Joint, in ſeveral Forms. 'Tis known by the ſtaring, dividing and curling of the Hair on the Spot.

SCRATCH-WORK, in *Italian*, *Sgrafitti*, was a Way of Painting in Freſco, by preparing a black Ground, on which was laid a white Plaiſter; which White being taken off with an Iron Bodkin, the Black appear'd through the Holes, and ſerv'd for Shadows: This kind of Work is laſting; but being very rough, is unpleaſant to the Sight.

SCREW, *Cochlea*, in Mechanicks, one of the Five mechanical Powers: Chiefly uſed in preſſing or ſqueezing Bodies cloſe, though ſometimes alſo in raiſing Weights. The *Screw* is a right Cylinder, as A B, (Tab. Mechanicks Fig. 11.) furrow'd Spiral-wiſe. 'Tis generated by the equable Motion of a right Line F G, around the Surface of a Cylinder; while, at the ſame Time, the Point I, deſcends equably from F towards G. If the furrow'd Surface be convex, the *Screw* is ſaid to be *Male*; if concave, 'tis *Female*. Where Motion is to be generated, the *Male* and *Female Screw* are always joined; that is, whenever the *Screw* is to be uſed, as a ſimple Engine, or mechanical Power. When joyned with an Axis in Peritrochio, there is no Occaſion for a *Female*; but in that Caſe, it becomes part of a compound Engine.

Doctrine of the SCREW.

1° If, as the Compaſs deſcribed by the Power in one Turn of the *Screw*, is to the Interval or Diſtance between any two immediate Threads or ſpiral Windings, as B I (meaſured according to the Length of the *Screw*) ſo is the Weight or Reſiſtance to the Power; then the Power and the Reſiſtance will be equivalent one to the other, and, conſequently, the Power being a little increaſed, will move the Reſiſtance.

For 'tis evident, that in one Turn of the *Screw*, the Weight is ſo much lifted up, or the Reſiſtance ſo much removed, or the Thing to be preſs'd, is ſqueezed ſo much cloſer together, as is the Diſtance between two immediate Spirals; and in the ſame Time, the Power to be moved is ſo much, as is the Compaſs, deſcrib'd by the ſaid Power in one Turn of the *Screw*. Wherefore the Velocity of the Weight (or whatſoever anſwers thereto) will be to the Velocity of the Power, as is the ſaid Diſtance between the Spirals to the Compaſs deſcribed by the Power, in one Revolution or turning round of the *Screw*: So that the gaining in Power, is here recompenſed by the Loſs in Time.

2° As the Diſtance between two Threads, B I, is leſs; the Power required to overcome the ſaid Reſiſtance is leſs; therefore the finer the Thread, the eaſier the Motion.

3° If the *Male Screw* be turned in the *Female*, at reſt, a leſs Power will be required to overcome the Reſiſtance, as the Lever or Scytala, B D (Fig 12) is the longer.

4° The Diſtance of the Power from the Centre of the *Screw*, C D; the Diſtance of two Threads I K, and the Power to be applied in K, being given, to determine the Reſiſtance it will overcome: Or, the Reſiſtance being given to find the Power neceſſary to overcome it;

Find the Periphery of a Circle deſcribed by the Radius C D: Then to the Diſtance between the two Threads, the Periphery juſt found, and the given Power: Or, to the Periphery found, the Diſtance of the two Threads and the given Reſiſtance, find a Fourth proportional. This in the former Caſe, will be the Reſiſtance that will be overcome by the given Power; and in the latter, the Power neceſſary to overcome the given Reſiſtance.

E. gr. Suppoſe the Diſtance between the two Threads, 3, the Diſtance of the Power from the Centre of the *Screw* C D, 25, and the Power 30 Pounds; The Periphery of the Circle to be deſcribed by the Power, will be found 157. Therefore, as 3, 157, 30, 1570, the Weight to which the Reſiſtance is equal.

5° The Reſiſtance to be overcome by a given Power, being given; to determine the Diameter of the *Screw*, the Diſtance of the two Threads I K, and the Length of the Scytala or Handle: The Diſtance of the Threads, and the Diameter of the *Screw* may be aſſumed at pleaſure, if the *Male* be to be turned in the *Female* by a Handle. Then, as the given Power is to the Reſiſtance it is to overcome, ſo is the Diſtance of the Threads to a fourth Number, which will be the Periphery to be deſcribed by the Handle C D, in a Turn of the *Screw*. The Semi-diameter of this Periphery, therefore being ſought, we have the Length of the Handle C D. But if the *Female Screw* be to be turn'd about the *Male*, without any Handle; then the Periphery and Semi-diameter found, will be very nearly thoſe of the *Screw* required.

E. gr. Suppoſe the Weight 6000, the Power 100, and the Diſtance of the Threads 2 Lines; for the Periphery to be paſſed over by the Power, ſay, As, 100, 6000: 2, 120; The Semi-diameter of which Periphery being $\frac{1}{3}$ of $120 = 40$ Lines will be the Length of the Handle, if any be uſed; otherwiſe the Side of the *Female Screw* muſt be 40 Lines.

Endleſs SCREW. If a *Screw* be ſo fitted as to turn a Wheel D F (Fig. 13) it is called an *Endleſs*, or *perpetual Screw*; in regard it may be turned for ever, without coming at any End. From the Scheme, 'tis evident enough, that while the *Screw* turns once round, the Wheel only advances the Diſtance of one Tooth.

Doctrine of the Endleſs SCREW.

1° If the Power applied to the Lever, or Handle of an *Endleſs Screw* A B, be to the Weight, in a *Ratio* compounded of the Periphery of the Axis of the Wheel E H, to the Periphery deſcribed by the Power, by turning the Handle; and of the Revolutions of the Wheel D F, to the Revolutions of the *Screw* C B; the Power will be equivalent to the Weight.

Hence, 1° as the Motion of the Wheel is exceedingly ſlow; a ſmall Power may raiſe a vaſt Weight, by means of an *Endleſs Screw*: For this Reaſon, the great Uſe of the *Endleſs Screw*, is either where a great Weight is to be raiſed through a little Space; or, where a very ſlow, gentle Motion is required. On which Account 'tis very uſeful in Clocks and Watches.

2° The Number of Teeth; the Diſtance of the Power from the Centre of the *Screw* A B, the Radius of the Axis H F, and the Power, being given; To find the Weight it will raiſe;

Multiply the Diſtance of the Power from the Centre of the *Screw* A B, into the Number of Teeth: The Product is the Space of the Power paſs'd through, in the Time the Weight paſſes through a Space equal to the Periphery of the Axis. Find a Fourth proportional to the Radius of the Axis; the Space of the Power now found, and the Power. This will be the Weight the Power is able to ſuſtain. Thus, if $AB = 3$, the Radius of the Axis $HF = 1$; the Power 100 Pounds; Number of Teeth of the Wheel D F 48; the Weight will be found 14400; whence it appears, that the *Endleſs Screw* exceeds all others, in increaſing the Force of Powers.

Archimedes's SCREW, or the *Spiral Pump*, a Machine for the Raiſing of Water, invented by *Archimedes*. Its Structure is as follows; A leaden Tube is wound round a Cylinder A B (Tab. Hydraulicks Fig. 1.) after the ſame Manner as the ſpiral Thread is drawn in the common *Screw* above deſcribed. This Cylinder is inclined to the Horizon, in an Angle of about 45 Degrees, and the Orifice of the Tube B immerged under Water. If then, the *Screw* be turned about by the Handle I, againſt the Water; the Water will riſe up the Spiral, and at length be diſcharged in A.

This Machine, with a very little Force, is able to raiſe a great Quantity of Water: Whence 'tis found of good Uſe, in the emptying of Lakes, *&c.* If the Water be to be raiſed to any conſiderable Height, one *Screw* will not ſuffice; but the Water drawn up by one, is to be taken by another, and ſo ſucceſſively.

SCRIBE, a principal Officer in the *Jewiſh* Law, whoſe Buſineſs was to write and interpret Scripture. We find no mention of *Scribes*, in the *Old Teſtament*, before *Eſdras*; whence ſome Learned Men have conſtrued, That the Office was brought from *Chaldea*, and *Aſſyria*, and firſt eſtabliſhed by the *Jews* after their Return from the *Babyloniſh* Captivity. The *Scribes* were in great Credit and Eſteem among the *Jews*, and had even the Precedency of the Prieſts, and Sacrificers: Indeed, there were three Kinds of *Scribes*, whereof thoſe juſt mention'd, properly called *Scribes of the Law*, were the firſt, and moſt conſiderable. The Deciſions of theſe were received with the ſame Reſpect as the Law of God itſelf. The ſecond Kind, properly called *Scribes of the People*, were a Kind of Magiſtrates, among the *Greeks*, as well as among the *Jews*. The third Kind were publick Notaries, or Secretaries of the Council: Theſe were the leaſt conſiderable.

Scribe, *Scriba*, was alſo an Officer, among the *Romans*, who wrote Decrees, or Acts, and gave out Diſpatches. Every Magiſtrate had his *Scriba* or Secretary, ſo that there were *Scribæ Edilitii*, *Prætorii*, *Quæſtorii*, &c. They were not admitted to the Management of the principal Offices of the Republick, unleſs they relinquiſhed their Profeſſion. In the Time of the Emperors, they were alſo called *Notarii*, becauſe they made uſe of Abbreviations, and ſhort Notes in Writing. See Notary.

SCRIBING, in Joinery, *&c.* A Term uſed, when one Side of a Piece of Stuff being to be fitted to the Side of ſome other Piece, which laſt is not regular; to make the Two, then, join cloſe together all the Way, they *Scribe* it, thus: That is, they lay the Piece of Stuff to be *Scribed* cloſe to the other Piece they intend to *Scribe* to, and open their Compaſſes to the greateſt Diſtance the two Pieces any where ſtand from each other; then, bearing one of the Legs againſt the Side to be *Scribed* to, with the other Point they draw a Line on the Stuff to be *Scribed*: Thus have they a Line on the irregular Piece parallel to the Edge of the regular One; and if the Stuff be wrought away exactly to the Line, when the two Pieces are put together, they will ſeem a Joint.

SCRIPTUARY, among the *Jews*. See Caraites.

SCRIPTURE, or *Scriptures*. See Bible.

SCROBICULUS CORDIS, the ſame as Anticardium; which ſee.

SCROPHULÆ, in Medicine, Schirrhous Tumours, ariſing uſually about the Neck, and ſometimes on other glandulous Parts, called alſo *Strumæ*, and popularly the *King's Evil*, or ſimply, the *Evil*. See Evil. The Word is *Latin*, formed by Diminution, from *Scropha*, Sow.

SCROTUM, or *Scroton*, in Anatomy, the common *Capſula* or Membrane, wherein the Teſticles are contained; thus called from its reſembling a Pouch or Purſe of Leather, called by the Ancients *Scortea*. The *Scrotum* conſiſts of two Membranes; the Exterior whereof is only a Production of the Cuticula or Cutis, which is here very thin, and without any Fat underneath it. The Inner, called *Dartos*, is only an Expanſion of the *Panniculus Carnoſus*, which, together with the Cutis, is drawn into the Figure of a Purſe, externally. 'Tis divided longitudinally into two Parts, right and left, by a Line, called the *Seam* of the *Scrotum*; anſwering to which inwardly is a Membrane, called the *Septum*, which divides the Cavity into two Parts, being only a Production of the *Dartos*. 'Tis diviſible into Lamellæ, and the Teſticles are on each Side looſely connected to it by means of their outer proper Tunic. Its Uſe is to ſuſtain them, prevent their Colliſion, as alſo their falling too low, and to promote the *Corrugation* of the *Scrotum*. See Testicle.

SCROTUM CORDIS, the ſame as Pericardium; which ſee.

SCROWLS, in Architecture. See Volutes.

SCRUPLE in Chronology. The *Chaldee Scrupule* is $\frac{1}{1080}$ Part of an Hour; called, by the *Hebrews*, *Helakim*. Theſe *Scruples* are much uſed by the *Jews*, *Arabs*, and other Eaſtern People.

Scruples, in Aſtronomy. *Scruples* eclipſed are that Part of the Moons Diameters which enters the Shadow, expreſſed in the ſame Meaſure wherein the apparent Diameter of the Moon is expreſſed. See Digit.

Scruples of half Duration, are an Arch of the Moon's Orbit, which the Moon's Centre deſcribes from the Beginning of the Eclipſe to its Middle. See Eclipse.

Scruples of Immerſion, or Incidence, are an Arch of the Moon's Orbit, which her Centre deſcribes from the Beginning of the Eclipſe, to the Time when its Centre falls into the Shadow. See Immersion.

Scruples of Emerſion, are an Arch of the Moon's Orbit, which her Centre deſcribes in the Time from the firſt Emerſion of the Moon's Limb, to the End of the Eclipſe. See Emersion.

SCRUPULUS, *Scruple*; the leaſt of the Weights uſed by the Ancients; and amongſt the *Romans* was the Twenty-fourth Part of an Ounce. See Ounce.

Scruple is ſtill a Weight among us, containing the Third Part of a Dram, or 20 Grains. See Grain. Among Goldſmiths, the *Scruple* is 24 Grains. See Weight.

SCRUTOIR, *Scritory*, from the *French Eſcritore*, a kind of long Cabinet, with a Door or Lid opening downwards, for the Conveniency of Writing on, *&c.*

SCRUTINY, in Antiquity, an Examination, or Probation, performed in the laſt Week of *Lent*, with regard to the Catechumens who were to receive Baptiſm on *Eaſter* Day. The *Scrutiny* was practiſed with a great many Ceremonies. Exorciſms and Prayers were made over the Heads of the Catechumens. Palms were given them on the *Sunday*, with the Lord's Prayer, and the Creed; which they were afterwards made to rehearſe. The Proceſs was called *Scrutinium*, *Scrutiny*; becauſe hereby the Hearts of the Catechumens were *ſcrutinized*, or ſearched, that the Prieſts might underſtand who were fit to be admitted to Baptiſm. This Cuſtom was more in Uſe in the Church of *Rome* than any where elſe: Though it appears, by ſome Miſſals, to have been likewiſe uſed, though much later, in the *Gallican* Church. 'Tis ſuppoſed to have ceaſed about the Year 860.

Scrutiny is alſo uſed, in the Canon Law, for a Ticket, or little Paper Billet, wherein, at Elections, the Electors write their Notes privately, ſo as it may not be known for whom they vote.

Among us, *Scrutiny* is chiefly uſed for a ſtrict Peruſal, and Examination of the ſeveral Votes haſtily taken at an Election; in order to find out any Irregularities committed therein, by unqualified Voters, *&c.*

SCULK, (amongſt Hunters) is a Company; as, A *Sculk* of Foxes.

SCULPTURE, the Art of Cutting, or Carving Wood, Stone, or other Matter, to form various Figures for Repreſentations; as alſo of faſhioning Wax, Earth, Plaiſter, *&c.* to ſerve as Models, or Moulds, for the Caſting of Metal Figures. *Sculpture*, in its Latitude, includes both the Art of working in Creux, properly called *Engraving*, and of working in Relievo, which is what we ſtrictly call *Sculpture*. See Engraving.

The Antiquity of this Art is paſt Doubt; as the Sacred Writings, the moſt ancient and authentic Monuments we have of the earlieſt Ages, mention it in ſeveral Places: Witneſs *Laban*'s Idols ſtollen away by *Rachel*, and the Golden Calf which the *Iſraelites* ſet up in the Deſart, *&c.* But 'tis very difficult to fix the Original of the Art, and the firſt Artiſts, from prophane Authors; what we read thereof, being intermixed with Fables, after the Manner and Taſte of thoſe Ages: Some make a Porter of *Sicyon*, named *Dibutades*, the firſt Sculptor. Others ſay, The Art had its Origin in the Iſle of *Samos*, where one *Ideocus* and *Theodorus*, perform'd Works of this Kind, long before *Dibutades*'s Time. 'Tis added, That *Demuratus*, Father of *Tarquin the Elder*, firſt brought it into *Italy* upon his retiring thither; and that by Means of *Enciropus* and *Entygramma*, Two excellent Workmen herein, who communicated it chiefly to the *Tuſcans*; among whom it was afterwards cultivated with great Succeſs. They add, That *Tarquin* ſent for *Tauranus*, one of the moſt eminent among them, to *Rome*, to make a Statue of *Jupiter*, *&c.* of baked Earth; for the Frontiſpiece of the Temple of that Deity. About this Time, there were many *Sculptors*, both in *Greece* and *Italy*, who wrought altogether in Earth. Some of the moſt noted, are, *Caliſthenes*, an *Athenian*, who made himſelf and his Houſe famous, by the great Number of Earthen Figures he adorned it withal. *Demophilus* and *Gorſanus*, two Painters, who inrich'd the Temple of *Ceres* with great Variety of Painting and Earthen Images. In effect, all the firſt Statues of the Heathen Deities, were either of Earth or Wood; and 'twas not ſo much any Frailty of the Matter, or Unfitneſs for the Purpoſe, as the Riches and Luxury of the People, that firſt induced them to make them of Marble, and other more precious Stones. Indeed, how rich ſoever the Matter were, whereon they wrought, yet they ſtill uſed Earth, to form Models thereof. And to this Day, whether they be for cutting Marble Statues with the Chiſſel, or for caſting them in Metal, they never undertake the one or the other, without firſt making a perfect Model thereof in Earth. Whence, doubtleſs, aroſe the Obſervation of *Praxiteles*, That the Art of Moulding Earthen Figures, was the natural Mother of that of making Marble and Metal Figures; which laſt never appeared in Perfection, till about 300 Years after the Building of *Rome*; though the Firſt was at its Height long before.

Phidias of *Athens*, who came next, ſurpaſs'd all his Predeceſſors, both in Marble, in Ivory and Metals: And about the ſame Time, appeared ſeveral others, who carried *Sculpture* to the higheſt Perfection it ever arrived at; particularly *Policletes* at *Sicyon*; then *Myron*; *Lyſippus*, who alone was allowed the Honour of caſting *Alexander*'s Image in Braſs. *Praxiteles* and *Scopas*, who made thoſe excellent Figures, now before the *Pope*'s Palace at *Montecavallo*: *Briaxis*, *Timotheus* and *Leochares*, who, with *Scopas*, wrought at the famous Tomb of *Mauſolus* King of *Caria*; *Ceſiſodorus*, *Canachus*, *Dedalus*, *Buthieus*, *Nyceratus*, *Euphanor*, *Theodorus*, *Xenocrates*,

crates, *Phiromachus*, *Stratonicus*, *Antigonus*, who wrote on the Subject of his Art; the famous Authors of the *Laocoon*, viz. *Ageſander*, *Polydore*, and *Athenodorus*, and infinite others, the Names of ſome whereof have paſſed to Poſterity; thoſe of others have periſhed with their Works: For though the Number of Statues in *Aſia*, *Greece*, and *Italy*, were ſo immenſe, that in *Rome* alone, as we are informed, there were more than there were living Perſons, yet we have but very few now left, at leaſt very few of the fineſt. When *Marcus Scaurus* was Ædile, his Office obliging him to provide what was requiſite towards the Publick Rejoycings, he adorned the ſtately Theatre, which he erected, with 3000 Brazen Statues; and though *L. Mummius*, and *Lucullus*, brought away a great Number out of *Aſia* and *Greece*, yet, there were ſtill above 3000 remaining in *Rhodes*, as many at *Athens*, and more at *Delphi*: but what is moſt extraordinary, is the Bigneſs of the Figures, which thoſe ancient Artiſts had the Courage to undertake. Amongſt thoſe *Lucullus* brought to *Rome*, there was one of *Apollo*, 30 Cubits high; the *Coloſſus* of *Rhodes*, made by *Cares* of *Lyndos*, the Diſciple of *Lycippus*, far exceeded it; *Nero*'s Statue, made by *Xenodorus*, after that of *Mercury*, was alſo of an extraordinary Size, being 110 Feet high: *Sculpture*, however, did not continue above 150 Years, after *Phidias*'s Time, till it began inſenſibly to decline; not, but that there were ſtill ſome fine Pieces of Workmanſhip both in *Greece* and *Italy*, though not performed with ſo good a Fancy, and ſuch exquiſite Beauty.

Beſides that the *Greek* Statues are moſt eſteemed for the Work; there is a ſpecial Difference between them, and thoſe of the *Romans*: in that the greateſt Part of the firſt are naked, like thoſe who wreſtle or perform ſome other bodily Exerciſe, wherein the Youth of thoſe Times placed all their Glory; whereas, the others are clad or armed, and particularly have the *Toga* on, which was the greateſt Mark of Honour amongſt the *Romans*.

To perform any thing in the Way of *Sculpture*, they begin with making a Model of Earth, or Wax. For Earthen Models, they uſe but few Inſtruments: Their Hands and Fingers do almoſt the Whole. For Waxen Models, to a Pound of Wax they put half a Pound of Colophony; ſome add Turpentine, melting the Whole with Oil of Olive: Some add a little Vermillion, or other Matter, to give it a Colour. 'Tis wrought and molded with the Fingers, like Earthen Models.

Sculpture *in Wood*.

For *Sculpture* in Wood, which we properly call *Carving*, the firſt Thing required, is, to chuſe a Wood proper for the particular Kind of Work. If it be any thing large, and require a deal of Strength and Solidity, the hardeſt and moſt durable Wood is to be choſen, as Oak or Cheſnut. For ſmaller Works they uſe Pear-tree, and Service-tree; but as theſe Woods are very hard, for little delicate Works they uſe ſofter Woods, only cloſe, and of a fine Grain: Such is the Linden-tree, which the Chiſſel is found to cut more eaſily, and cleanly, than any other Wood.

As to Statues, we find the Ancients have made them of almoſt all Kinds of Wood. At *Sicyon* was an Image of *Apollo* in Box; at *Epheſus*, that of *Diana* was in Cedar. As theſe two Kinds of Wood are very hard, and even held incorruptible, eſpecially Cedar; *Pliny* obſerves, they were judged particularly expedient for Repreſentations of the Deities. In a Temple, on Mount *Cyllenus*, dedicated to *Mercury*, was an Image of that God form'd of the Wood of the Lemon-Tree: Others there were of the Palm-Tree, Olive-Tree, Ebony, and even of the Vine.

For large Works, if it be only ſingle Figures, 'tis better they conſiſt of ſeveral Pieces, than of a ſingle one, by reaſon of the Liableneſs of the latter to warp; for every large Piece may probably not be dried to the Heart, however it may appear without Side. Obſerve, that the Wood will not be fit for working, till after it have been cut at leaſt ten Years.

Sculpture *in Marble, and other Stones.*

The firſt Thing they do, is out of a great Block of Marble to ſaw another of the Size required, which is performed with a ſmooth Steel Saw without Teeth, caſting Water and Sand thereon, from Time to Time: Then they faſhion it, by taking off what is ſuperfluous with a ſtubbed Point, and a heavy Mallet; after this, bringing it near the Meaſures required, they bring it ſtill nearer with another finer Point. They now uſe a flat cutting Inſtrument, having two Notches in its Edge, or three Teeth; then a Chiſſel to take off the Scratches the former has left. This laſt Inſtrument they uſe with a deal of Delicacy, giving thereby a Softneſs, and Tenderneſs to their Figure; till, at length, taking Raſps of different Degrees of Fineneſs, by degrees they bring their Work into a Condition for Poliſhing. To Poliſh, or make the Parts ſmooth and ſleek, they uſe Pumice-Stone, and Smalt; then Tripoli, and when a ſtill greater Luſtre is required, a Skin and burnt Straw.

When any conſiderable Work is undertaken, as a Statue, Baſſo Relievo, or the like, they always make a Model, before-hand, of Clay; but as this ſhrinks in drying, and eaſily cracks and breaks, they only uſe it to make a Mould of Plaiſter, or Stucco, wherein they make a Figure of the ſame Matter, which ſerves them thenceforth for a Model, and by which they adjuſt all their Meaſures and Proportions. To proceed the more regularly, on the Head of the Model they place an immoveable Circle, divided into Degrees, with a moveable Ruler, or Index, faſtened in the Centre of the Circle, and divided likewiſe into equal Parts. From the End of the Ruler hangs a Thread with a Plummet, which ſerves to take all the Points to be transferr'd thence to the Block of Marble, from whoſe Top hangs another Plummet like that of the Model. Indeed there are ſome excellent *Sculptors* who diſapprove of this Method, urging, That the ſmalleſt Motion of the Model changes their Meaſures; for which Reaſon they rather chooſe to take all their Meaſures with the Compaſſes.

For the Caſting of Statues, or Figures, of Metal; and the Moulding of Statues, &c. *of Stucco*, *Plaiſter*, &c. *See* Statue.

SCUM, a light Excrement, ariſing from Liquors when briskly ſtirred, called *Foam*, or *Froth*: See Froth. The Word is alſo uſed for the Impurities which a Liquor by boiling caſts up to the Surface; and alſo, for thoſe taken from off Metals when infuſed; called alſo *Droſs*.

Scum *of Lead* is a Kind of Smalt of various Colours, produced from the Smoak of Lead. See Lead.

Scum *of Silver* is what we commonly call *Litharge* of Silver. See Litharge.

Scum of *Nitre*, } See { Salt-Petre.
Scum of *Salt*, } See { Salt.

SCURVY, in Medicine, a Diſeaſe called by the Phyſicians *Scorbutus*. See Scorbutus.

M. *Poupart*, in the Memoirs of the *French* Academy, gives us a very accurate Hiſtory of a particular Kind of *Scurvy*, very frequent in *Paris* in the Year 1699. The Symptoms, and Conſequences, of this new *Scurvy* were very extraordinary; and ſoon determined M. *Poupart* to conclude it ſomewhat of that cruel Plague wherewith the *Athenians* were ſo long and ſo dreadfully harraſſed; Yet was it a true *Scurvy*, and the Perſons attacked with it had all the uſual Scorbutic Symptoms.

SCUTAGE, in ancient Cuſtoms; All Tenants who held from the King by Military Service, were either bound to attend perſonally in Wars and Expeditions, or, for Default of ſuch Service, to pay a *Scutage*, or Compoſition in Money, which was levied on every *Scutum Militare*, or Knights Fee, and the proportional Parts for the King's Uſe; and the Barons, and Knights, who then paid a *Scutage* to the King, had a Power to levy the ſame Tax on thoſe Tenants who held from them in Military Service. The *Scutage* was at one, two, or three Marks for each Knight's Fee. See Escuage.

SCUTCHEON. See Escutcheon.

SCUTIFORME OS, in Anatomy, the chief Bone of the Knee, called alſo *Patella*, *Mola*, &c. See Patella.

SCUTIFORMIS CARTILAGO, in Anatomy, one of the *Cartilages* of the *Larynx*, the broadeſt, and biggeſt of them all: Thus called, becauſe in Form of a Shield, or ſquare Buckler, called by the *Greeks* θυρεὸς, whence 'tis alſo called by us *Thyorides*. 'Tis alſo called the *Anterior*, becauſe ſituate in the fore Parts. Tis gibbous without Side, and hollow within: Sometimes double, chiefly in Women, in whom it does not advance ſo far forward as in Men. The People call it *Adam*'s *Apple*, or, *Pomum Adami*. See Pomum, &c.

SCUTTLES in a Ship, are ſquare Holes cut in the Deck, big enough to let in the Body of a Man; to let People down into any Room below, upon Occaſion. They are generally before the Main-maſt, before the Knight in the Fore-caſtle: In the Gun-Room to go down to the Stern-Sheets: In the Round-houſe to go down into the Captain's Cabin, when forced by the Enemy in a Fight aloft. There are alſo ſome ſmaller *Scuttles*, which have Gratings over them, and all of them have Covers to them, that Men may not tumble in, in the Night. Alſo, thoſe little Windows, and long Holes, which are cut out in Cabins to let in Light, are called *Scuttles.*

SYCRE GEMOT, in ancient Cuſtoms, a Court held twice every Year (as the Sheriffs Turn is at this Day) by the Biſhop of the Dioceſs, and the *Earldorman* (in Shires committed to *Eldormen*) or Sheriff in thoſe committed to Sheriffs, that were immediately under the King. In this Court both the Eccleſiaſtical and Temporal Laws were given in Charge to the County: At firſt it was held thrice every Year. *Edward* the Confeſſor, appointed it to be held twelve Times in the Year. See CONSISTORY.

SCYTALA, in Mechanicks, a Term ſome Writers uſe for a Kind of Radius, or Spoke, ſtanding out from the Axis of a Machine, as a Handle or Lever, to turn it round and work it by. See AXIS in *Peritrochio.*

SCYTALA LACONICA, in Antiquity, a Stratagem, or Invention, of the *Lacedæmonians*, for the ſecret writing of Letters to their Correſpondents, that if they ſhould chance to be intercepted, no Body might be able to read them. To this End they had two Wooden Rollers, or Cylinders, perfectly alike, and equal; one whereof was kept in the City, the other by the Perſon to whom the Letter was directed. For the Letter, a Skin of very thin Parchment was wrapped round the Roller, and thereon was the Matter wrote; which done, 'twas taken off, and ſent away to the Party, who, upon putting it in the ſame manner upon his Roller, found the Lines and Words in the very ſame Diſpoſition, as when they were firſt wrote: This Expedient they ſet a very high Value on, though, in Truth, artleſs, and groſs enough: The Moderns have improved vaſtly on this Method of Writing. See CYPHER.

SEA, in Geography, is frequently uſed for that vaſt Tract of Water incompaſſing the whole Earth, more properly called *Ocean.* See OCEAN.

For the Cauſe of the Saltneſs of the Sea. See SALTNESS.

SEA is more properly uſed for a particular Part or Diviſion of the *Ocean*, denominated from the Countries it waſhes, or other Circumſtances: As, The *Iriſh Sea*, The *Mediterranean Sea*, The *Baltic Sea*, The *Red Sea*, &c.

Till the Time of the Emperor *Juſtinian*, the *Sea* was common, and open, to all Men: Whence it is, that the *Roman* Laws give an Action againſt a Perſon who ſhall prevent, or moleſt, another in the free Navigation, or Fiſhing therein. The Emperor *Leo*, in his 56 Novel, firſt allowed ſuch as were in Poſſeſſion of the Lands, the ſole Privilege of Fiſhing before their reſpective Territories, excluſive of all others: He even gave a particular Commiſſion to certain Perſons, to divide the *Thracian Boſphorus* among them. From that Time the Soveraign Princes have been endeavouring to appropriate the *Sea*, and to withdraw it from the Public Uſe. The Republic of *Venice* pretends to be ſo far Miſtreſs in her Gulf, that there is a formal Marriage, every Year, between that Seignory and the *Adriatic.* In theſe laſt Ages, the *Engliſh* have particularly affected the Empire of the *Sea* in the Channel, and even that of all the *Seas* incompaſſing the Three Kingdoms of *England*, *Scotland*, and *Ireland*, and that as far as the Shores of the neighbouring States. In Conſequence of which Pretenſion it is, that Children born on theſe *Seas* are declared natural *Engliſhmen*, as much as if born on *Engliſh* Ground. The *Juſtice* of this Pretenſion is ſtrenuouſly argued between *Grotius* and *Selden*, in the *Mare Liberum*, and *Marum Clauſum.*

SEA-*Aſtrolabe*,	See	ASTROLABE.
SEA-*Chart*,		CHART.
SEA-*Compaſs*,		COMPASS.
SEA-*Laws*,		OLERON.
SEA-*Quadrant*,		BACK-STAFF.

SEA-DRAGS, among Mariners, are ſuch Things as hang over the Ship at Sea, as the Boat, &c. when towed.

SEA-WATER. To make *Sea-water* ſweet, or freſh, is a Thing long and much wanted, for the Advantage of Navigation and Commerce: A Method of doing which has been invented by Mr. *Hauton*, and the Secret publiſhed in the *Philoſophical Tranſactions.* 'Tis perform'd by precipitating the Water with the Oil of *Tartar*, and then diſtilling it: The Oil of *Tartar* he can draw very cheap, and the Diſtillation he performs very compendiouſly, ſo as to gain 24 *French* Quarts of freſh Water in a Day; for the Cooling of which, inſtead of making the Worm paſs through a Veſſel of Water, as uſual, he makes it paſs through a Hole in the Ship into the Sea, and enter in again through another. To the Precipitation, and Diſtillation, he adds a third Operation, *viz.* Filtration, to correct intirely the Malignity of the Water. The Filtration is performed by a peculiar Earth, mixed and ſtirred with the diſtilled Water, and at length ſuffered to ſettle to the Bottom. The Water thus manag'd, is found perfectly wholſom both to Man and Beaſt.

Dr. *Liſter* obſerves, That the *Sea-water* is made freſh by the Breath of Plants growing in it. This he found by putting a Quantity of *Sea-weed* in a Veſſel of *Sea-water*; and fitting the Hole with a head Beek and Receiver, he diſtilled daily, from the Plants, a ſmall Quantity of freſh, ſweet, potable Water: This he takes to be the moſt natural, ſafe, and ſpeedy Way of having freſh Water from the Sea. See WATER.

Mr. *Boyle* relates, from ſome Experiments he procured to be made of the Gravity of *Sea-water*, in different Climates, that ſtill, as you approach nearer the Equator, the *Sea-water* is heavier and heavier, as far as within 30 Degrees thereof, after which it continues much at one.

SEA-YOKE, when the Sea is ſo rough, that the Helm cannot be governed by the Hands, the Seamen make a *Yoke* to ſteer by; that is, they fix two Blocks to the End of the Helm, and reeving two ſmall Ropes through them, which they call *Falls*, by having ſome Men at each Tackle, they govern the Helm by Direction: They have other Ways of making *Sea-Yokes.*

SEAL, *Sigillum*, a Punchion, or Piece of Metal, or other Matter, uſually either round or oval; whereon is engraven the Arms, Device, &c. of ſome Prince, State, Community, Magiſtrate, or private Perſon, with a Legend or Inſcription: The Impreſſion whereof in Wax ſerves to make Acts, Inſtruments, &c. authentic.— The King's *Great-Seal* is that whereby all Patents, Commiſſions, Warrants, &c. coming from the King, are Sealed. The Keeping hereof is in the Hands of the Lord High-Chancellor, who is hence alſo denominated Lord Keeper. Indeed, there is ſome Difference between the Lord Chancellor and Lord Keeper; not in Office, but in the Manner of Creation, the latter being made by the Delivery of the *Great-Seal* to him by the King; but the former having likewiſe a Patent. See CHANCELLOR.——The King's *Privy-Seal* is a *Seal* uſually firſt ſet to Grants that are to paſs the *Great-Seal.* See PRIVY-SEAL.

The Uſe of *Seals* is very ancient. In *Daniel, cap.* xiv. we read that *Darius* ſet his Seal on the Temple of *Bel*: But *Seals* are ſtill more ancient; for *Jezabel*, in *Kings, cap.* xxi. ſeals the Orders ſhe ſent for *Naboth*'s Death with the King's Ring. In Effect, as the ancient *Seals* were all Engraven on the Collets, Stones, &c. of Rings, and as the Original Uſe of Rings, 'tis aſſerted, was only to be in a Readineſs for the Sealing of Acts, Inſtruments, &c. *Seals* ſhould be as ancient as Rings themſelves. See RING. Theſe Sealing Rings, called *Annuli Signatorii*, *Sigillaricii*, *Cirographi* or *Cerographi*, 'tis ſaid, in ancient Authors, were firſt invented by the *Lacedæmonians*, who, not content to ſhut their Cheſts, Armories, &c. with Keys, added *Seals* to them: And to this End, at firſt, made uſe of Worm-eaten Wood, the Impreſſions whereof they took on Wax, or ſoft Earth: But they at length found the Art of Engraving Figures, or Rings, the Impreſſions of which they took in the ſame Manner. This, however, muſt be granted, that even in *Moſes*'s Time, the Art was known of Engraving, not only on Metals, but alſo on precious Stones. See ENGRAVING. Indeed, it does not appear that the Ring had any other Uſe among the Primitive *Jews* beſides Ornament: At length they were uſed to ſeal Inſtruments, Contracts, Diplomas, Letters, &c. Inſtances whereof we have in the Third Book of *Kings* xxi. 8. *Heſter* viii. 10. *Xenophon. Hellen.* lib. l. *Quint. Curt.* lib. vi. *Juſt.* lib. xliii. cap. iii. where we learn, the Keeping of the Emperor's Seal was become a particular Office. *Lucian* adds, That *Alexander* gave his to *Perdiccas*, thereby appointing him his Succeſſor. *Pliny* obſerves, That in his Time there were no *Seals* uſed any where but in the *Roman* Empire. At *Rome*, he tells us, they were become of abſolute Neceſſity, inſomuch, that a Teſtament was null without the Teſtator's *Seal*, and the *Seals* of Seven Witneſſes: But it does not appear that the *Romans* had any ſuch Things as publick *Seals*; nor that their Edicts, and Contracts, were ſealed, not even in the Times of the Emperors. In *France*, the Cuſtom anciently was, inſtead of ſigning their Inſtruments, &c. only to ſeal them, as appears from an Infinity of ancient Charters, which are not ſigned at all: The Reaſon whereof was, That in thoſe Days very few People were then able to write; no Body could read and write but Clerks. In *England*, the firſt ſealed Charter we find extant, is that of *Edward* the Confeſſor, upon his Founding of *Weſtminſter* Abbey: Yet, we read of *Seals* in the MS. Hiſtory of King *Offa.* Before the Time of *William* the Conqueror, the *Engliſh* did not ſeal with Wax, but only made a Golden Croſs on the Parchment, and ſometimes

times an Impreſſion on a Piece of Lead, which hung to the Grant with a Silken String, and was deemed an abundant Authorizing of the Grant itſelf, without either Signing or Witneſſes. The Colour of the Wax wherewith the King s Grants were ſealed, was uſually Green, to ſignify that the Act continued for ever freſh, and of Force. The uſual Impreſſion on all Laymens *Seals*, till the Year 1218, was a Man on Horſe back, with a Sword in his Hand; afterwards, they began to Engrave their Coats of Arms on their *Seals*: Only the Archbiſhops, and Biſhops, by a Decree of Cardinal *Otto*, who was Legate here in 1237, were to bear in their *Seals*, their Title, Office, Dignity, and even their proper Names. *Du Cheſne* obſerves, that none below the Dignity of a Knight had any Right to a pendant *Seal*, called *Authentic*.

The Emperors long ſealed all their Acts of Importance with a Golden *Seal*; and the *Golden Bull* of *Charles* IV, for the Election of an Emperor, takes its Name from the Gold *Seal* hanging to it, which is called *Bull*. See BULL. The Pope has two Kinds of *Seals*: The firſt uſed in Apoſtolical Briefs, and private Letters, *&c.* called, the *Fiſherman's Ring*. This is a very large Ring, wherein is repreſented St. *Peter*, drawing his Nets full of Fiſhes. The other is uſed in Bulls, repreſenting St. *Peter*'s Head on the Right, that of St. *Paul* on the Left, with a Croſs between the two: On the Reverſe is ſometimes the Pope's Name, and Arms: The Impreſſions of the firſt *Seal* are taken in red Wax, thoſe of the ſecond, in Lead.

Theod. Hopkingk, a *German* Lawyer, has furniſhed the World with a very learned and curious Work on the Subject of *Seals*: It conſiſts of Sixteen Chapters, the 1st. whereof treats of the Name *Seal*, *Sigillum*. 2d. Of the Antiquity of the *Sealing-Rings*, mentioned in *Geneſis*, their Inventors, the Reaſons of bearing them, their Kinds, and Differences, Forms, Ornaments, Hieroglyphicks, Ends, Uſes, Effects, and Abuſes. 3°. Of *Bulls*, in the ſame Method, and under the ſame Circumſtances. 4°. Of different Kinds of *Seals*, which he divides into public and private, proper and foreign, formed and informed, ordinary and extraordinary, known and unknown, true and falſe; and, laſtly, ratificative, and confirmative, of Authority, Solemnity, Teſtimony, and Conſent. 5°. Of ſuch as have a Right to bear *Seals*. 6°. Of the Keeping of *Seals*. 7°. Of Things *Seals* are put to. 8°. Of the Images, Figures, Arms, *&c.* the Characters, Inſcriptions, and of the Places where the *Seals* are to be ſet, and the Order to be obſerved therein. 9°. Of the Number and Multitude of *Seals*, and the Advantage they bring. 10. Of their Uſe, End, Effects, Force, *&c.* 11°. Of the Proof of the *Seals* in general and particular, publick and private. 12°. Of the Verifying of *Seals*. 13°. Of the Manner of Cenſuring and Attaching *Seals*. 14°. Of Subſcriptions that have any Regard to *Seals*. 15°. Of other Particulars that have any Regard thereto; as the Signature of Emperors, Kings, Chancellors, Secretaries, and Notaries, all in the ſame Order and Method. The Book was Printed in 1642. at *Nurembergh*, in 4*to*, under the Title of *De Sigillorum Primo & Novo Jure, Tractatus Practicus*, &c. We have another Work of the like Kind, by *Heincujus*, in *Folio*, Printed at *Francfort*, and *Leipſic*, in 1709, under the Title, *De Veteribus Germanorum aliorumq; Nationum Sigillis, eorumq; uſu & præſtantia Syntagma Hiſtoricum*.

Engraving of Seals. See ENGRAVING.

L. Keeper of the *Great-Seal*,	See	CHANCELLOR.
L. Keeper of the *Privy-Seal*,	See	PRIVY-SEAL.
Hermetical-Seal, - - - - - -	See	HERMETICAL.

SEAL is alſo uſed for the Wax or Lead, and the Impreſſion affixed to the Thing ſealed. The Manufacturers *Seal* frequently apply'd to their Stuffs, *&c.* is of Lead. That of Knights enjoyn'd to be of hard Wax; that of Commiſſioners, of ſoft Wax. Some *Seals* are fixed on by way of Placard, others hung by Silken Strings. The *French* ſeal their Edicts in Green Wax, Arrets in Yellow Wax; Expeditions for *Dauphine* in Red Wax. The Letters of the *French* Academy are ſealed in Blue Wax. See WAX.

SEALER, an Officer in Chancery, appointed by the Lord Chanceller, or Keeper of the Great-Seal, to ſeal the Writs and Inſtruments there made.

SEALING, in Architecture, the fixing a Piece of Wood or Iron in a Wall, with Plaiſter, Mortar, Cement, Lead, or other ſolid Bindings. For Staples, Hinges and Joints, Plaiſter is very proper.

SEAM *of Corn*; is a Meaſure of Eight Buſhels: Of Glaſs, the Quantity of 120 Pounds, or 24 Stone, each Five pound Weight: Of Wood, an Horſe-load.

SEARCE. See SIEVE.

SEARCHER. See ALNEGAR.

SEAR-CLOTH, or *Cere-cloth*, in Chirurgery, an external Remedy ſomewhat harder then an Unguent, yet ſofter than an Emplaſter; though 'tis frequently uſed, both for the one and the other. The *Sear-cloth* is ſuppoſed to have Wax in its Compoſition, which diſtinguiſhes and even denominates it. In effect, when a Linament or Unguent has Wax in it, it does not differ from a *Sear-cloth*. *Sear-cloths* are a kind of Subſtitutes to Friction, for the raiſing a Salivation. They are uſually compounded of reſolutive Drugs, as Saffron, Myrrh and Aloes, incorporated with Wax and Gums, as Galbanum, Gum Ammoniac, and Sagapenum. The whole temper'd with Wine. The Word *Sear-cloth* is ſuppoſed to be a Corruption of *Cere-cloth*, and to be derived originally from the *Greek* κηρὸς, *Wax*.

SEASONING *of Timber*. See TIMBER.

SEASONINGS, in the *Weſt Indies*, a kind of aguiſh Diſtemper, which Foreigners are much ſubject to at their firſt coming.

SEASONS, in Coſmography, certain Portions or Quarters of the Year, diſtinguiſh'd by the Signs the Sun enters, or by the meridian Altitudes of the Sun; conſequent on which, are different Temperatures of the Air, different Works in Tilling the Ground, *&c.* The Year is divided into Four *Seaſons*, *Spring*, *Summer*, *Autumn*, and *Winter*. The Beginnings and Endings of each whereof, ſee under its proper Article. 'Tis to be obſerved, the Seaſons anciently began differently from what they now do: Witneſs the old Verſes,

Dat Clemens Hyemem; dat Petrus Ver Cathedratus;
Æſtuat Urbanus; Autumnat Bartholomæus.

The Word is form'd on the *French*, *Saiſon*, which *Menage* derives from the *Latin*, *Statio*, whence the *Italians* have form'd *Stagione*. *Nicod* derives it from *Satio*, *Tempus Sationis*, *Sowing Time*.

SEAT, in Medicine. See ANUS or FUNDAMENT.

SEBARAI, or *Sebaraen*, a Name the *Jews* gave to ſuch of their Rabbins or Doctors, as lived and taught ſome time after the finiſhing of the Thalmud. The Word is derived from סבר, *Sabar*, I think, whence סבבא, *Sebara*, Opinion, Sentiment; and thence סדראי, *Sebari*, or *Sebaraen*, Opinionative. The Reaſon of this Appellation, ſay the Rabbins, is, That the Thalmud being finiſh'd, publiſh'd and receiv'd in all the Schools and Synagogues, theſe Doctors had nothing to do, but diſpute for and againſt the Thalmud and its Deciſions. Others ſay, 'twas becauſe their Sentiments were not received as Laws, or Deciſions; as thoſe of the *Miſchnic* and *Gemaric* Doctors were; but were held as mere Opinions. Others, as the Author of *Schalſcheleth Hakkabala*, Chain of Tradition, tell us, That the Perſecution, the *Jews* underwent in thoſe Times, not allowing them to teach quietly in their Academies, they only propoſed their Opinion on the Compoſition of the Miſchna. The firſt and Chief of the *Sebarai*, was *R. Joſi*, who began to teach in the Year 787 of the Æra of Contracts; which, according to *R. David Gautz*, falls on the Year of the World 4236; and who, according to *R. Abraham*, was 38 Years Preſident of the *Jewiſh* Academy. This Æra of Contracts is the ſame with that of the *Seleucides*, the 787th Year whereof, falls on the Year of *Chriſt* 476, which of conſequence, is the Æra of the Origin of the *Sebarai*; whoſe Reign did not hold long: *Buxtorf* ſays, not above 60 Years; but *R. Abraham* and others, not 50. The laſt of them was *R. Simona*. They were ſucceeded by the *Gaons* or *Geonim*.

SEBESTUM, or *Sebeſtens*, in Pharmacy, *&c.* a Fruit reſembling a little Plumb; which when ripe, is of a deep red Colour, bordering on Black; very ſweet, and the Fleſh, or Pulp, glutinous, or ſticky. The *Syrians* make a kind of Glue or Birdlime, of the *Sebeſtum*, called *Glue of Alexandria*. The Fruit is eſteem'd Pectoral; but is little uſed in Medicine. The Stone within it is Triangular. It brought its Name from *Arabia*, whence *Pliny* obſerves it came in his Time into *Italy*.

SEBUÆI, a Sect among the ancient *Samaritans*. St. *Epiphanius* accuſes them of changing the Time expreſs'd in the Law, for the Celebration of the great annual Feaſts of the *Jews*. *Serrarius* conjectures, That they were thus call'd, from their celebrating the Feaſt of the Paſſover on the Seventh Month, called by the *Hebrews*, *Seba*, Seventh. *Douſius* rather takes them to have been denominated from *Sebaia*, the Leader of a Sect among the *Samaritans*; as the Followers of *Doſitheus*, were denominated *Doſithæi*; which two Sects, ſome *Jewiſh* Doctors ſuppoſe, to have ſubſiſted at the ſame Time. *Scaliger* derives the Name from the *Hebrew*, *Sebua*, Week; as, who ſhould ſay, *Hebdomadites*, becauſe of their celebrating every Second Day of the Seven Weeks, between *Eaſter* and *Whitſuntide*. Yet *Scaliger*, in his Anſwer to *Serrarius*, gives a different Explication. In effect, all that has hitherto been advanced on this Point, is mere Conjecture.

SECANT, in Geometry, a Line that *cuts* another, or divides it into Two Parts: Thus the Line A M (Tab. Geometry Fig. 12) is a *Secant* of the Circle AED, *&c.* as it cuts the Circle B. 'Tis demonſtrated by Geometers; 1° That if ſeveral *Secants* M A, MN, ME, *&c.* be drawn from the ſame Point M, that paſſing through the Centre M A, is the greateſt, and the reſt are all ſo much the leſs, as they are more remote from the Centre. On the contrary, the Portions thereof without the Circle MD, M O, M B, are ſo much the greater, as they are further from the Centre. The leaſt, is that of M A, which paſſes through the Centre. 2° That if Two *Secants* M A and M E, be drawn from the ſame Point M; the *Secant* M A, will be to M E as M D to M B. See TANGENT.

SECANT, in Trigonometry, a right Line, drawn from the Centre of a Circle, which *cutting* the Circumference, proceeds, till it meets with a Tangent, to the ſame Circle. Thus the Line FC (Tab. Trigonometry Fig. 1.) drawn from the Centre C, till it meet the Tangent E F, is call'd a *Secant*, and particularly the *Secant of the Arch* A E, to which F E is a Tangent. The *Secant* of the Arch A H, which is the Complement of the former Arch to a Quadrant, is call'd the *Co-Secant*, or *Secant of the Complement.*

The Sine of an Arch AD, being given; To find the *Secant* thereof F C, the Rule is, As the Co-ſine ADC is to the Sine A D, ſo is the whole Sine E C, to the *Secant* C F.

To find the Logarithm of the *Secant* of any Arch: The Sine of the Complement of the Arch being given; multiply the whole Sine of the Logarithm by Two, and from the Product ſubtract the Logarithm of the Sine Complement, the Remainder is the Logarithm of the *Secant*. See LOGARITHM.

Line of SECANTS. See SECTOR.

SECOND *in Anatomy*. See SECUNDI GENERIS.

SECOND *in Geometry*, *Aſtronomy*, &c. the Sixtieth Part of a Prime or Minute; either in the Diviſion of Circles, or in the Meaſure of Time. A Degree, or an Hour, are each divided into 60 Minutes, marked thus ′: A Minute is ſubdivided into 60 *Seconds*, marked thus ″; a *Second* into 60 Thirds, marked thus ‴, *&c.* See DEGREE. We ſometimes ſay a *Second Minute*, a *Third Minute*, *&c.* but more uſually, ſimply *Second*, *Third*, *&c.* A Pendulum Three Feet Three Inches, and two Tenths of an Inch long, vibrate's *Seconds*: According to Sir *Jonas Moor*'s Reduction of *Huygen*'s Three Feet Eight Lines and an Half of *Paris* Meaſure, to *Engliſh* Meaſure. See PENDULUM.

SECOND *in Muſick*, one of the muſical Intervals; being only the Diſtance between any Sound, and the next neareſt Sound; whether higher or lower. See INTERVAL. As in the Compaſs of a Tone, there are reckoned Nine ſenſible, different Sounds, which form thoſe little Intervals, call'd *Commas*; one might, in ſtrictneſs, ſay, there are Eight kinds of Seconds. But as theſe minute Intervals, though ſenſible, are not yet ſo far ſo, as to contribute much to the Harmony, they uſually only diſtinguiſh four Sorts. The Firſt called, *The diminiſh'd Second*, containing Four Commas, and is the Difference, for Inſtance of a natural *ut*, and an *ut* raiſed four Commas higher. The Second, call'd *Second Minor*, contains Five Commas, and is made either naturally, as from *mi* to *fa*, or from *ſi* to *ut*; or accidentally, by means of *b*, as from *ta* to *ſi*, *b flat*; or from *fa dieſis* to *ſol*; otherwiſe called a *Major Semitone*, or *imperfect Second*, or *Italian Semitone*. The Third is the *Major Second*, containing the Nine Commas, which compoſe the Tone. This the *Italians* call *Tono* or *perfect Second*. The Fourth is the *Second Redundant*, compoſed of a whole Tone and a minor Semitone.

SECOND *Terms*, in Algebra, thoſe where the unknown Quantity has a Degree leſs than it has in the Term where 'tis rais'd to the higheſt. The Art of throwing theſe *Second* Terms out of an Equation; that is, of forming a new Equation, where they have no Place, is one of the moſt ingenious and uſeful Inventions in all Algebra. See REDUCTION *of Equations*.

SECOND *Captain*, is a reform'd Captain, who acts as Lieutenant of another, into whoſe Company he is Incorporated. See CAPTAIN.

SECOND *Cauſe*. See CAUSE; and EFFICIENT.

SECOND *Sight*, an odd Qualification, many of the Inhabitants of the Weſtern Iſlands of *Scotland* are ſaid to be poſſeſs'd of. We have the Thing ſo well atteſted, by ſo many credible Authors (the lateſt of whom is Mr. *Martin*, the Ingenious Author of the natural Hiſtory of theſe Iſlands, and a Member of the *Royal Society*) that, notwithſtanding the Quaintneſs of the Thing, there is ſcarce Room to call it in Queſtion. The *Second Sight*, is a Faculty of ſeeing Things to come, or Things doing at a great Diſtance, repreſented to the Imagination as if actually viſible and preſent. Thus if a Man be dying, or about to die, his Image ſhall appear diſtinctly in its natural Shape, in a Shroud, and with other funeral Apparatus, to a *Second Sighted* Perſon, who, perhaps, never ſaw his Face before: Immediately after which, the Perſon ſo ſeen, certainly dies. This Quality of *Second Sightedneſs*, is not hereditary: The Perſon who has it, cannot exert it at pleaſure; nor can he prevent it, or communicate it to another; but it comes on him involuntarily, and exerciſes itſelf on him arbitrarily. And often, eſpecially in the younger *Second Seers*, to their great Trouble and Terror. There are a great Number of Circumſtances attend theſe Viſions, by Obſervation whereof, the particular Circumſtances as to Time, Place, *&c.* of the Death of the Perſon, are learnt. The Method of judging of them, or interpreting them, grows into a kind of Art; which is very different in different Perſons. *Second Sightedneſs*, is held a Diſcredit among them; ſo that none will counterfeit it; many conceal and diſſemble it.

SECONDARY *Circles*, in reference to the Ecliptick, or Circles of Longitude of the Stars, are ſuch, as paſſing through the Poles of the Ecliptick, are at right Angles to the Ecliptick (as the Meridian and Hour Circles are to the Equinoctial). By the Help of theſe, all Points in the Heavens are referred to the Ecliptick; that is, any Star, Planet or other Phænomenon, is underſtood to be in that Point of the Ecliptick, which is cut by the *Secondary* Semicircle, which paſſes through ſuch Star or Phænomenon. And if two Stars are thus referr'd to the ſame Point of the Ecliptick, they are ſaid to be in Conjunction; if in oppoſite Points, they are ſaid to be in Oppoſition: If they are referred to two Points at a Quadrant's Diſtance, they are ſaid to be in a Quartile Aſpect; if the Points differ a ſixth Part of the Ecliptick, they are ſaid to be in a Sextile Aſpect. And in general, all Circles which interſect one of the Six greater Circles of the Sphere at Right Angles, may be called *Secondary Circles*; as the Azimuth or Vertical Circles in reſpect of the Horizon, *&c.*

SECONDARY *Fever*, is that which ariſes after a Criſis, or the Diſcharge of ſome morbid Matter, as after the Declenſion of the Small Pox, or Meaſles; and ſuch a *Fever* is frequently dangerous. See FEVER.

SECONDARY *Planets*, thoſe moving round other *Planets*, as the Centres of their Motion, and along with them round the Sun. See PLANET.

Saturn, *Jupiter*, and the *Earth*, are each attended with *Secondary Planets*: *Jupiter* with four, and *Saturn* with five, called the *Satellites* of thoſe two *Planets*. See SATELLITES. The *Earth* with one called the *Moon*. See MOON.

The Motion of the *Primary Planets*, is very ſimple and uniform, as being compounded only of a Projectile Motion, forward in a right Line, which is a Tangent to the Orbit, and a Gravitation towards the Sun at the Centre. Add, That being at ſuch vaſt Diſtances from each other, the Effects of their mutual Gravitation towards one another are inſenſible: But the Matter is far otherwiſe, in reſpect of the *Secondary Planets*; for every one of theſe, though it chiefly gravitate towards its reſpective Primary One, as towards its Centre, yet at equal Diſtances from the Sun, is attracted towards him with equally accelerated Gravity, as the primary One is towards him, but at a greater Diſtance with leſs, at a nearer Diſtance with greater; from which double Tendency towards the Sun, and towards its own Primary Planet, the Motion of the *Satellites*, or *Secondary Planets*, comes to be mightily compounded, and affected, with many Inequalities: As for Inſtance, (1.) The *Satellite* ſhall be continually accelerated in its Motion, from the Time of its Quadrature with the Sun, to the next following Conjunction or Oppoſition; but contrary-wiſe from the Syzygies to the Quadratures, it ſhall be retarded, and therefore will not always move ſwifter in or near the Syzygies, and ſlower near the Quadratures. From whence will follow, (2.) That the Orbits of theſe *Secondary Planets*, will be of a Figure more Circular in the Quadratures than in the Syzygies, where the Swiftneſs of the Motion will make the Figure of the Orbit more Rectilinear, and therefore the *Satellite* will run farther from its Primary Planet at the Quadratures, than at the Syzygies, ſo that the Orbit will be a little elliptical, having the primary Planet for its Centre, and the longer Diameter will coincide with the Line of the Quadratures, and the ſhorter with that of the Syzygies. Which Irregularities will ariſe, if the Sun's Power of perturbing the Motion of the *Satellite* be excluded, and the Orbit be concentrick with that of the

Primary Planets. For if the Orbit be eccentrical, it may happen that the *Satellite* ſhall be farther off from the Primary One in the Syzygies, and ſo move ſlower than it does at the Quadratures: And when this is the Caſe, that the *Satellite's* Orbit is not a Circle concentrick to the Primary Orbit, but an Ellipſis, in one of whoſe Focus's the Primary Orbit is placed, then, the Motion of the *Satellite* will be ſo diſturbed by the Sun, that as it runs into its Orbit, the Apſes of the Orbit ſhall be moved ſometimes *in Conſequentia*, and ſometimes *in Antecedentia* (whereas the Nodes and Apſes of the primary Planets are at reſt). (3.) When the Plane of the *Satellite's* Orbit is inclined to the Plane of the Primary Orbit, the Line of the Nodes of the Secondary Orbit will be moved *in Antecedentia*, with an Angular Motion, and an unequal Velocity, for it will recede moſt ſwiftly, when the Nodes are in Quadrature to the Sun; after which, it will move ſlower, and at the Time of the Nodes being in the Syzygies, will be perfectly at reſt. (4.) The Inclination alſo of the Plane of the ſecondary Orbit, to the primary One, will be continually varying, and will be greateſt, when the Nodes are in the Syzygies with the Sun, and leſs (*cæteris paribus*) when they are in the Quadratures; and from the Time of the Nodes being in the Syzygies, to the Quadratures, it will be always decreaſing, and from the Time of their being in the Quadratures to the Syzygies, it will be always increaſing, and all thoſe Irregularities, whether in any eccentrick or concentrick Orbit, will always be ſomething greater, when the *Satellite* is in Conjunction with the Sun, than when he is in Oppoſition to him. See PLANET.

SECONDINE. See SECUNDINE.

SECRETARY, an Officer, who, by Order of his Maſter, writes Letters, Diſpatches, and other Inſtruments, which he renders Authentic by his Signature. Of theſe there are ſeveral Kinds; as, *Secretary of the King*, or of *State*; *Secretary of the Lord Chancellor*; *Secretary of War*, &c. The King's *Secretaries* were anciently call'd the *King's Clerks* and *Notaries*. As for the Name of *Secretary*, it was at firſt applied to ſuch as being always near the King's Perſon, received his Commands, and were call'd *Clerks of the Secret*; whence was afterwards form'd, the Word *Secretary*; *Regi a ſecretis*: And as the great Lords gave to their Clerks the Quality of Secretaries; thoſe who attended the King, were call'd, by way of Diſtinction, *Secretaries of the Commands*; *Regi a Mandatis*. This continued till the Reign of our *Henry* VIII. 1659, when, at a Treaty of Peace between the *French* and *Spaniards*, the former obſerv'd, that the *Spaniſh* Miniſters, who treated for *Philip* II. called themſelves *Secretaries of State*. Upon which the *French Secretaries des Commandements*, out of Emulation, aſſumed the ſame Title; which thence paſſed into *England*.

SECRETARIES *of State*, Officers attending the King, for the Receipt and Diſpatch of Letters, Grants, Petitions, and many of the moſt important Affairs of the Kingdom, both Foreign and Domeſtick.

Till the Reign of King *Henry* VIII. there was only one *Secretary of State*; but then Buſineſs increaſing, that Prince appointed a Second *Secretary*; both of equal Power and Authority, and both ſtiled *Principal Secretaries of State*: Before Queen *Elizabeth's* Time, they did not ſit at the Council-Board; but that Princeſs admitted them to the Places of Privy Counſellors; which Honour they have held ever ſince, and a Council is never, or at leaſt very ſeldom, held without one of them. On the Union of *England* and *Scotland*, Queen *Anne* added a Third *Secretary*, on account of the great Increaſe of Buſineſs, which, as to *Britain*, is equally and diſtinctly managed by all the Three, although the latter is frequently ſtil'd *Secretary of State for North Britain*: They have under their Management and Direction, the moſt conſiderable Affairs of the Nation, and are obliged to a conſtant Attendance on the King: They receive and diſpatch whatever comes to their Hands, be it for the Crown, the Church, the Militia, Private Grants, Pardons, Diſpenſations, *&c.* as likewiſe Petitions to the Sovereign, which, when read, are returned to the *Secretaries* for Anſwer, all which they diſpatch according to the King's Command and Direction. As to Foreign Affairs, they are divided into Two Provinces comprehending all the Kingdoms and Nations which have any Intercourſe or Buſineſs with *Great Britain*; each *Secretary* receiving all Letters and Addreſſes from and making all Diſpatches to the ſeveral Princes and States comprehended in his Province: Which Diviſion ſtill ſubſiſts, notwithſtanding the Addition of a Third *Secretary*. *Ireland* and the Plantations are under the Direction of the Elder *Secretary*, who has the *Southern* Province. Of theſe Three Principal *Secretaries*, the Two for *South Britain*, have each Two Under-*Secretaries*, and one chief Clerk; and the other for *North Britain* one Under-*Secretary*, and one chief Clerk, with an uncertain Number of other Clerks and Tranſlators, all wholly depending of them.

The SECRETARIES *of State* have the Cuſtody of that Seal, properly called the *Signet* (See SIGNET) and the Direction of the *Signet Office*; wherein are Four Clerks employ'd, who prepare ſuch Things as are to paſs the *Signet*, in order to the Privy or Great Seal. All Grants ſigned by the King are returned hither, which, tranſcrib'd, are carried to one of the Principal *Secretaries of State*, and ſeal'd, and then called *Signets*, which being directed to the Lord Privy Seal, are his Warrant. On the *Secretaries of State*, is likewiſe dependant another Office, call'd *The Paper Office*, wherein all Public Writings, Papers, Matters of State, *&c.* are preſerved. See PAPER OFFICE. All the Under *Secretaries* and Clerks are in the Choice of the *Secretary of State*, without Reſerve to any Perſon; the former of which receives Orders and Directions from them, for writing Diſpatches, Foreign and Domeſtick, which they give to the Chief Clerk, who diſtributes them to the Under-Clerks.

SECRETARY *of an Embaſſy*, is a Perſon attending an Embaſſador, for the writing of Diſpatches relating to the Negotiation. There is a deal of Difference between the *Secretary of the Embaſſy*, and the Ambaſſador's *Secretary*; the laſt is a Domeſtick or Menial of the Ambaſſador; the firſt a Servant or Miniſter of the Prince. See EMBASSADOR.

SECRETION, in Medicine, the Act, whereby the ſeveral Juices, or Humours in the Animal Body, are ſeparated from the Blood, by means of the Glands.

In the Bodies of Animals, we obſerve a great Number of Juices of different Natures, *viz.* the Blood, Lympha, Saliva, Stomach-liquor, inteſtinal Juices, Panchreatic Juice, the Bile, Urine, *&c.* Now, the Blood is the general Source of all; and from it they are all *Secerned* by particular Organs, called *Glands*. The Manner, wherein this *Secretion* is effected, has been greatly enquired into in theſe laſt Ages; though not with the greateſt Succeſs. The Ancient Phyſicians, indeed, contented themſelves to aſſert certain particular Virtues or Faculties inherent in the ſeveral Viſcera; whereby they were determined to ſeparate one Liquor rather than another: without troubling themſelves much about the Manner wherein it was done. But the Moderns, according to the Genius of their Philoſophy, muſt have this Point clear'd, and the Modus of *Secretion* rendered intelligible. Hence, as the exceeding Smallneſs of theſe Organs prevented any regular Search, they have imagined various Manners of explaining them.

Some, full of the Effects they have obſerved from Fermentations, maintain, that there are *Ferments* in the ſeveral Parts; by Aid whereof, certain Kinds of Particles mix'd in the Blood, are ſeparated therefrom; after the ſame Manner as we ſee in *Muſt*, or new Wine, from which, while fermenting, certain Parts are detach'd in form of Scum. But this Opinion has ſo many Inconveniencies to grapple withal, that 'tis almoſt univerſally abandoned. See FERMENT.

Others conſider the Glands as kinds of Sieves, whoſe Holes having different Figures, will only let paſs certain Particles or Molecules, whoſe Figures reſemble thoſe of the Holes: but the Falſity of this Hypotheſis was ſoon found out; and it was thought ſufficient to fix ſome Proportion between the Diameters of the Pores and of the Molecules that were to paſs through them, to account why very ſubtile Parts ſhould paſs through the Glands, through which the Coarſer could not paſs. Yet this Opinion was not found perfectly ſatisfactory: For on this Suppoſition, the moſt ſubtile Parts of the Blood muſt paſs in ſuch Quantity through the largeſt Pores, that there would not be enough left to furniſh the little ones with what they needed: And for the ſame Reaſon, thoſe Parts whoſe Pores are biggeſt, ought to furniſh Liquors much fuller of ſubtile Parts than thoſe whoſe Pores are ſmaller, which yet is contrary to Experience. For the Seroſity ſeparated in the Kidneys, under the Name of *Urine*, conſiſts of Parts much ſubtiler and ſmaller than the Bile ſeparated in the Liver: Why then don't this Seroſity eſcape in the Liver? the Pores whereof muſt be much greater than thoſe of the Kidneys. See BILE.

This Inconvenience, many Naturaliſts being aware of, has made them have recourſe to *Imbibition* (if the Word may be allowed us for want of a better). They maintain, then, That beſides the different Diameters of the Pores, 'tis required that the ſeveral Parts be already imbued or moiſten'd with a Liquor like to that they are to filter. This Opinion is rather the Reſult of Reaſon than of Experiment, and the Maintainers hereof, well pleas'd they had ſomething to ſatisfy their Reaſon withal, never troubled themſelves whether it were true: Till M. *Winſlow* fell into it.

Dr. *Keil*, whoſe Theory prevails moſt in *England*, accounts for *Secretion*, from the different Diameters of the Veſſels, the different Velocity of the Blood, the different Angles the Ducts make with the Arteries, and the different Attraction of the different Parts, under all theſe different Circumſtances. His *Theory* ſee at length, under the Article ANIMAL SECRETION. But even in this, there is ſomething Arbitrary and Conjectural. Beſides, the Reaſoning is carried ſuch a Length; that, in a Thing the Principles whereof are ſo obſcure, the Parts or Organs ſo imperfectly known, and the whole Proceſs carried on out of Sight, the Mind can ſcarce ſafely acquieſce in it.

Monſ. *Winſlow*, of the *Royal Academy* of *Sciences*, has taken a better Courſe for the Diſcovery of this important Action of *Secretion*. He does not take up with conjectural Principles, nor draw a plauſible Scheme of Reaſoning therefrom through the Dark; but applies himſelf to Experiment, and inveſtigates, in Nature herſelf, and the Structure of the Parts, the Manner *Secretion* is perform'd in. From a ſtrict Examination of the ſeveral Kinds of Glands, both in Men and other Animals, he finds, with ſome other Anatomiſts, that the Glands are only Pelotoons or Plexus s of Veſſels: but the Veſſels proper to the Gland, and which conſtitute the principal Part thereof, M. *Winſlow* firſt diſcovered to be Tubes, furniſhed, on the Inſide, with a kind of Down or Tuft, or rather a very fine, ſpongeous Tiſſue, which fills the whole Cavity of thoſe Veſſels like a Pith or Marrow. This he finds in all Glands, of all Animals: In different Glands, 'tis found of different Colours, and this different Colour is even found in the different Glands of Fœtus's themſelves.

The Gland, ther, is, at leaſt its main Part, a Compound of theſe downy or ſpongeous Veſſels, which, from their Office, we will call *Secretory Veſſels* or *Ducts*, and which frequently do, almoſt of themſelves, form what we call a *Gland* or *glandulous Body*: Tho' beſide theſe Veſſels, we uſually remark Four other Kinds, *viz.* Arteries, Veins, Excretory Ducts and Nerves. The *Secretory* Ducts we diſtinguiſh from the *Excretory* Ones; in that the former, by the peculiar Texture of their Down, ſerve to ſeparate a particular Liquor; and that the latter only ſerve to receive the Liquor thus *Secreted*, and to carry it to the Place 'tis deſtined for. For a more particular Account of the Structure and Organization of the Glands, See GLAND.

For the Manner wherein the Glands act, in ſeparating the ſeveral Liquors from the Body, M. *Winſlow* lays it down thus: 'Tis a Thing well known by Phyſicians and Chymiſts, that a Piece of brown Paper, which is only an Aſſemblage of ſmall Filaments drawn cloſe to each other, having once imbibed Oil or Water, will never let any other Liquor paſs through it, but of the ſame Kind with what 'tis impregnated withal. All others it ſtops. And the like is obſerved of a Wick of Cotton or other Matter, which having firſt imbibed its Fill of Oil or Water, and being then dipp'd at one End, in a Veſſel full of Oil and Water together; the Wick that had imbibed the Oil, will only raiſe and diſtil Oil, and that with Water, only Water. Now, in the *Secretory Ducts* of the Glands, we find a Parallel Structure; an Aſſemblage or Tiſſue of fine Threads or Filaments bound cloſe together, much as in brown Paper, or a Cotton-wick; only differently diſpoſed. This Tiſſue, then, having once imbibed a certain Juice, will not let paſs any of the Liquors which arrive at the Orifices of theſe Ducts, but that it had firſt imbibed. The Cauſe of this Phænomenon, is doubtleſs, to be referr'd to the great Principle of Attraction, which is found ſtronger between the Homogeneous than the Heterogeneous Parts of the ſame Fluid. But this is an Enquiry that belongs to another Place. See ATTRACTION and REPULSION.

As the Blood, now, is not a Homogeneous Liquor; but a Compound of an Infinity of different Parts or Molecules, ſome Oily, others Mucilaginous, Aqueous, Saline, Subtile, Groſs, &c. in its Motion along the Arteries of the Gland, it becomes divided into all the little Ramifications thereof; by which Means its Velocity is exceedingly abated, and its Molecules obliged to go off one by one, through the narrow Paſſage of the Artery into the Vein, and of conſequence to paſs over the Orifices of the *Secretory Ducts* of the Glands, whoſe Down is already tinged with a Juice of a certain Nature. Such of the Molecules therefore, as are found of the ſame Nature with the Juice they meet withal at the Entrance of the *Secretory Duct*, joyn themſelves to them, and enter the Ducts, driven on by others that follow them. Thus they paſs, ſucceſſively, through the whole Veſſel, and at length go out of it into the Excretory Duct, while the reſt, which are of a different Kind, run over the Orifice of the *Secretory* Veſſel, without ever mixing with the Juice thereof, and thus arriving in the Vein, are carried back to the Heart.

All that remains, is, to explain how theſe Parts ſhould have firſt imbibed the particular Juices neceſſary for their reſpective *Secretions*: How, for Inſtance, the Bile ſhould come to be ſeparated in the Liver, for the firſt Time, preferably to any other Liquor? To this M. *Winſlow* anſwers, That having obſerv'd the Glands of the ſmalleſt Fœtus's to be colour'd, much as in Adults; it appears highly probable they had been imbued with the Juices they were to filtrate, at the firſt Formation of the Animal; or at the ſame time when the ſolid Parts of the Organ themſelves were framed.

SECT, a collective Term, comprehending all ſuch as follow the Doctrines or Opinions of ſome famous Divine or Philoſopher, &c. The Sects of Philoſophers among the Ancients, particularly in ancient *Greece*, were various; as, *Pyrrhonians*, *Platoniſts*, *Epicureans*, *Stoicks*, *Peripateticks*, *Academicks*, &c. See each under its proper Article. At preſent the Sects of Philoſophy are chiefly reduceable to Three, *viz.* the *Carteſians*, the *Peripateticks*, and the *Newtonians*. In Theology, the *Sects* are much more numerous; yet the Ancients had Legions now extant, as, *Manichees*, *Gnoſticks*, *Montaniſts*, &c. The principal now on Foot, are the *Lutherans*, *Calviniſts*, *Anabaptiſts*, *Arians*, *Socinians*, *Arminians*, &c. The Riſe, Progreſs, and Fate, with the diſtinguiſhing Characters and Opinions of each; See under its reſpective Head.

SECTA, in Law. See SUIT.

SECTIO, or *Operatio Cæſarea*. See CÆSARIAN SECTION.

SECTION, a Part of a Thing divided; or the Diviſion itſelf: Such, particularly, are the Sub-diviſions of Chapters, by others called *Articles*. The Mark of a *Section* is §. The Ancients diſregarded the Dividing of their Books into Chapters and *Sections*; that was a Task left for future Editors, and Criticks. The Word is form'd from the *Latin*, *ſeco*, I cut.

SECTION *of a Building*, is its *Profile*; or a Delineation of its Heights and Depths raiſed on the Plan; as if the Fabrick was cut aſunder, to diſcover the Inſide. See PROFILE.

Horizontal SECTION. See ICHNOGRAPHY.

SECTION, in Geometry, a Side or Surface appearing of a Body, or Figure cut by another; or the Place wherein Lines, Planes, &c. cut each other. The common *Section* of two Planes is always a right Line, being the Line ſuppoſed to be drawn by the one Plane in its cutting or entering the other. See PLANE. If a Sphere be cut in any manner, the Plane of the Section will be a Circle, whoſe Centre is in the Diameter of the Sphere. See SPHERE. The *Sections* of the Cone are Four, *viz.* a *Circle*, *Parabole*, *Hyperbole* and *Ellipſis*. See each under its proper Article. See alſo CONE.

Conic SECTIONS. See CONIC SECTION.

SECTIONES SEQUENTES, in Conics, a Term, whoſe Import may be thus conceiv'd: Suppoſe Two Right Lines, as A B, C D (Tab. Conicks Fig. 5.) mutually interſecting one another in E, which Point E, is ſuppoſed to be the common Centre of the oppoſite Hyperbolic Sections, F G, H I, and whoſe common Aſymptotes, the propoſed Lines A B, C D alſo are. In this particular Caſe, the *Sections* G F and H I, are called *Sectiones Sequentes*, becauſe they are placed following one another in the contiguous Angles of Two interſecting Right Lines: And if the determinate Diameter H G, of one of the *Sectiones Sequentes* (which is coincident with the ſuppoſed indeterminate Diameter of its oppoſite) be equal to the vertical Tangent K L, applied between the Aſymptotes in the Point G, of the Diameter G F, then, *Apollonius* calls ſuch *Sections*, *Conjugate Sections*.

SECTOR, in Geometry, a Part of a Circle comprehended between two Radii, and the Arch. Thus the mix'd Triangle A C D (Tab. Geometry Fig. 13.) comprehended between the Radii A C and D and the Arch A D, is a *Sector of the Circle*.

'Tis demonſtrated by Geometricians, that the *Sector* of a Circle, as A C D, is equal to a Triangle, whoſe Baſe is the Arch A D, and its Altitude the Radius A C.

If from the common Centre of Two Concentric Circles, be drawn Two Radii, to the Periphery of the Outer, the Two Arches included between the Radii, will have the ſame *Ratio* to the Peripheries; and the Two *Sectors*, the ſame *Ratio* to the Areas of their Circles.

To find the Area of a *Sector* D C E; the Radius of the Circle C D, and the Area D E being given: To 100, 314 and the Radius A C, find a Fourth propotional Number; this will be the Semi-periphery. Then to 180°, the given Arch D E, and the Semi-periphery juſt found, find another fourth Proportional; this will give the Arch A B in the ſame Meaſure in which the Radius A C is given. Laſtly, multiply the Arch D E into the Semi-radius, the Product is the Area of the *Sector*.

SECTOR is alſo a Mathematical Inſtrument, of great Uſe in finding the Proportion between Quantities of the ſame Kind, as between Lines and Lines, Surfaces and Surfaces, &c. whence the *French* call it the *Compaſs of Proportion*.

The great Advantage of the *Sector* above the common Scales, &c. is, that 'tis made to fit all Radius's and Scales. For, by the Lines of Chords, Sines, &c. on the *Sector*, we have Lines of Chords, Sines, &c. to any Radius betwixt the Length and Breadth of the *Sector* when opened.

The *Sector* is founded on the Fourth Propoſition of the 6th Book of *Euclid*; where 'tis demonſtrated, That ſimilar Triangles have their homologous Sides proportional: An Idea of its Foundation may be conceived thus; Let the Lines A B, A C (Fig. 14.) repreſent the Leg of the *Sector*, and A D, A E two equal Sections from the Centre. If now the Points C B and D E be connected, the Lines C B and D E will be Parallel; therefore the Triangles A D E, A C B Similar, and conſequently the Sides A D, D E, A B and B C proportional: That is, as A D : D E : A B : B C; whence if A D be the Half, Third or Fourth Part of A B; D E will be a Half, Third or Fourth Part of C B, and the ſame holds of all the reſt. If, therefore, A D be the Chord, Sine, or Tangent of any Number of Degrees to the Radius A B; D E will be the ſame to the Radius B C.

Deſcription of the SECTOR.

The *Sector* conſiſts of two equal Rules or Legs of Braſs or other Matter, rivetted together; but ſo as to move eaſy on the Rivet. See its Figure, Tab. Geometry Fig. 15. On the Faces of the Inſtrument are placed ſeveral Lines; the principal are the Line of equal Parts, Line of Chords, Line of Sines, Line of Tangents, Line of Secants, and Line of Polygons.

The *Line of Equal Parts*, called alſo *Line of Lines*, marked L, is a Line divided into 100 equal Parts; and, where the Length of the Leg will allow it, each is ſubdivided into Halves, and Quarters. 'Tis found on each Leg, on the ſame Side; and the Diviſions numbred 1, 2, 3, 4, &c. to 10, which is near the Extremity of each Leg. Note, in Practice, 1 is taken for 10, or 100, or 1000, or 10000, &c. as Occaſion requires; in which Caſes 2 is taken for 20 or 200, or 2000, &c. and ſo of the reſt. *The Line of Chords*, marked C on each Leg, is divided after the uſual Manner, and numbred 10, 20, 30, &c. to 60. See CHORD. The *Line of Sines*, denoted on each Leg by the Letter S, is a Line of Natural Sines, numbred 10, 20, 30, &c. to 90. See SINES. *Line of Tangents*, denoted on each Leg by the Letter T, is a Line of natural Tangents, numbred 10, 20, 30, &c. to 45: beſides which, is another little Line of Tangents on each Leg, commencing at 45° and extending to 75° denoted by the Letter *t*. See TANGENT. *Line of Secants*, denoted on each Leg by the Letter S, is a Line of natural Secants, number'd 10, 20, 30, &c. to 75, and commencing, not from the Centre of the Inſtrument, but at Two Inches Diſtance therefrom. See SECANT. *Line of Polygons*, denoted by the Letter P on each Leg, is number'd 4, 5, 6, &c. to 12, which falls 3 Inches ſhort of the Centre of the Inſtrument. See POLYGON.

Beſide theſe Lines, which are eſſential to the *Sector*; there are others placed near the outward Edges on both Faces, and parallel thereto, which are, in all reſpects, the ſame as in *Gunter*'s Scale, and uſed after the ſame Manner. Such are the Line of *Artificial Sines* marked S; The Line of *Artificial Tangents*; A Line of 12 *Inches*, mark'd *In*; and *Gunter*'s *Line of Numbers*, mark'd N. For the Uſes of all which, See *Gunter*'s SCALE. There are ſometimes, other Lines placed, to fill the vacant Spaces, as the Lines of *Hours*, *Latitudes* and *Inclinations of Meridians*, which are uſed the ſame as on the common Scales. See SCALE.

The Lines found by the *Sector* are of two Kinds, lateral and parallel. The Firſt are ſuch as are found by the Sides of the *Sector* as A B, A C. The latter, ſuch as go acroſs from one Leg to the other, as D E, C B. Note, the Order of the Lines in the newer *Sectors*, is different from what it is in the old ones; for the ſame Line is not now put at the ſame Diſtance from the Edge on both Legs; but the Line of Chords, *e. gr.* is innermoſt upon the one, and the Line of Tangents on the other. The Advantage hereof is, that when the Inſtrument is ſet to a Radius for the Chords, it ſerves alſo for the Sines and Tangents without ſtirring it; for the Parallel betwixt 60 and 60 of the Chords, 90 and 90 of the Sines, and 45 and 45 of the Tangents, are all equal.

Uſe of the Line of Equal Parts on the SECTOR.

1° *To Divide a given Line into any Number of equal Parts, e. gr.* Seven: Take the given Line in your Compaſſes, and ſetting one Foot in a Diviſion of the Line of equal Parts, that may eaſily be divided by 7, *e. gr.* 70; whoſe Seventh Part is 10: Open the Sector till the other Point fall exactly on 70 in the ſame Line, in the other Leg. In this Diſpoſition, applying one Point of the Compaſſes to 10 in the ſame Line; ſhut them till the other fall in 10 in the ſame Line of the other Leg. This Aperture will be the 7th Part of the given Line. Note, if the Line to be divided be too long to be applied to the Legs of the *Sector*, only divide one Half, or one Fourth by 7, and the Double or Quadruple thereof will be the 7th Part of the whole.

2° *To meaſure the Lines of the Perimeter of a Polygon*, one of which contains a given Number of equal Parts: Take the given Line in your Compaſſes, and ſet it over, upon the Line of equal Parts, to the Number of Parts on each Side, expreſſing its Length. The *Sector* remaining thus, ſet off the Length of each of the other Lines parallel to the former; and the Numbers each of them falls on will expreſs their Lengths.

3° *A Right Line being given, and the Number of Parts it contains, e. gr.* 120, *to take from it a leſs Line, containing any Number of the ſame Parts, e. gr.* 25: Taking the given Line in your Compaſſes, open the *Sector* till the two Feet fall on 120 on each Leg; then, the Diſtance from 25 to 25 gives the Line required.

4° *To find a Third Proportional to Two given Lines, and a Fourth to Three.* For the Firſt, take the Length of the firſt given Line in your Compaſſes, and lay it off on the Line of equal Parts from the Centre, to find the Number where it terminates: Then open the *Sector*, till the Length of the Second Line be included in the Aperture of the Extreme of the firſt: The *Sector* remaining thus, lay off the Length of the Second Line on one of the Legs, from the Centre; and note the Number where it terminates; the Diſtance between that Number on the Two Legs, gives the Third Proportional. In the Second Caſe, take the Second Line in your Compaſſes, and opening the *Sector*, apply this Extent to the Ends of the Firſt, laid off from the Centre on both Legs. The *Sector* thus open'd, lay off the Third Line from the Centre, and the Extent between the Number whereon it terminates on both Legs, is the Fourth Proportional.

5° *To divide a Line in any given Proportion, e. gr.* into Two Parts, which ſhall be to each other as 40 to 70: Add the Two Numbers together, their Sum is 110. Then, between your Compaſſes take the Line propoſed, which ſuppoſe 165, and open the *Sector* till this Diſtance reach from 110, to 110 on both Legs. The *Sector* thus open'd, take the Extent from 40 to 40, as alſo from 70 to 70; the firſt will give 60, the laſt 105, which will be the Parts propoſed, for 40 : 70 : 60 : 105.

6° *To open the Sector, ſo as the Two Lines of equal Parts may make a Right Angle*: Find Three Numbers that may expreſs the Sides of a Right-angled Triangle, as 3, 4 and 5, or their Equimultiples, as 60, 80 and 100. Take, then, in your Compaſſes the Diſtance from the Centre to 100; and open the *Sector*, till, one Point ſet upon 80, the other full upon 60 in the other Leg; then do the Two Lines of equal Parts, include a Right Angle.

7° *To find a Right Line equal to the Circumference of a Circle*: The Diameter of a Circle being to the Circumference, nearly as 50 to 157, take the Diameter in your Compaſſes, and ſet it over on the Legs of the *Sector*, from 50 to 50. The *Sector* thus open'd, take the Diſtance from 157 to 157 in your Compaſſes. This will be your Circumference required.

Uſe of the Line of Chords on the SECTOR.

1°. *To open the* Sector, *ſo as the two Lines of Chords may make an Angle of any Number of Degrees*, e. gr. 40: Take the Diſtance from the Joint to 40, the Number of Degrees propoſed, on the Line of Chords; open the *Sector*, till the Diſtance from 60 to 60, on each Leg, be equal to the foreſaid Diſtance of 40; then does the Line of Chords make the Angle required.

2°. *The Sector being opened, to find the Degrees of its Aperture*: Take the Extent from 60 to 60, and lay it off on the Line of Chords, from the Centre: The Number, whereon it terminates, ſhews the Degrees of its Opening —— By applying Sights on the Line of Chords, the *Sector* may be uſed to take Angles, as a Surveying Inſtrument.

3°. *To make an Angle of any given Number of Degrees, with a given Line*: On the given Line deſcribe a Circular Arch, the Centre whereof is the Point whereon the Angle is to be made. Set off the Radius from 60 to 60; and the *Sector* remaining thus, take the Diſtance of the two Numbers on each Leg, expreſſing the propoſed Degrees, and lay it from the Line upon the Arch deſcribed. Laſtly, drawing a Line from the Centre, through the End of the Arch, it will make the Angle propoſed.

4°. *To find the Degrees a given Angle contains*: About the Vertex deſcribe an Arch, and open the *Sector*, till the Diſtance from 60 to 60 on each Leg, be equal to the Radius of the Circle: Then taking the Chord of the Arch between the Compaſſes, and carrying it on the Legs of the *Sector*, ſee what equal Number, on each Leg, the Points of the Compaſſes fall on: This is the Quantity of Degrees, the given Angle contains.

5. *To take an Arch, of any Quantity, from off the Circumference of a Circle.* Open the *Sector*, till the Diſtance from 60 to 60 be equal to the Radius of the given Circle: Then take the Extent of the Chord, of the Number of Degrees, on each Leg of the SECTOR, and lay it off, on the Circumference of the given Circle. By this Uſe may any regular Polygon be inſcribed in a given Circle, as well as by the Line of Polygons.

Uſe of the Line of Polygons on the SECTOR.

1°. *To inſcribe a regular Polygon, in a given Circle.* Take the Semi-diameter of a given Circle, in the Compaſſes, and adjuſt it to the Number 6, on the Line of Polygons, on each Leg of the *Sector*: Then the *Sector* remaining thus opened, take the Diſtance of the two equal Numbers, expreſſing the Number of Sides the Polygons is to have. *E. gr.* The Diſtance from 5 to 5 for a Pentagon, from 7 to 7 for a Heptagon, *&c.* Theſe Diſtances carried about the Circumference of the Circle, will divide it into ſo many equal Parts.

2°. *To deſcribe a regular Polygon,* e. gr. *a Pentagon on a given right Line:* Take the Length of the Line in the Compaſſes, and apply it to the Extent of the Number 5, 5, on the Lines of Polygons. The *Sector* thus opened, upon the ſame Lines take the Extent, from 6 to 6, this will be the Semi-diameter of the Circle the Polygon is to be inſcribed in. If, then, with this Diſtance, from the Ends of the given Line, you deſcribe two Arches of a Circle, their Interſection will be the Center of the Circle.

3°. *On a right Line, to deſcribe an Iſoſceles Triangle:* Having the Angles at the Baſe, double thoſe at the Vertex: Open the *Sector*, till the Ends of the given Line fall on 10 and 10 on each Leg; Then take the Diſtance from 6 to 6. This will be the Length of the two equal Sides of the Triangle.

Uſe of the Lines of Sines, Tangents, and Secants, on the SECTOR.

By the ſeveral Lines diſpoſed on the *Sector*, we have Scales to ſeveral Radius's; So that having a Length, or Radius given, not exceeding the Length of the *Sector* when opened; we find the Chord, Sine, *&c.* thereto. *E. gr.* Suppoſe the Chord, Sine, or Tangent, of 10 Degrees, to a Radius of 3 Inches, required: Make 3 Inches the Aperture, between 60 and 60, on the Lines of Chords of the two Legs; then will the ſame Extent reach from 45, to 45 on the Line of Tangents, and from 90 to 90 on the Line of Sines on the other Side; ſo that to whatever Radius the Line of Chords is ſet, to the ſame are all the other ſet. In this Diſpoſition therefore, if the Aperture between 10 and 10, on the Lines of Chords, be taken with the Compaſſes, it will give the Chord of 10 Degrees. If the Aperture of 10 and 10 be in like manner taken on the Lines of Sines, it will be the Sine of 10 Degrees. Laſtly, If the Aperture of 10 and 10 be in like manner taken on the Lines of Tangents, it gives the Tangent of 10 Degrees.

If the Chord, or Tangent, of 70 Degrees were required; for the Chord, the Aperture of half the Arch, *viz.* 35. muſt be taken as before; which Diſtance, repeated twice, gives the Chord of 70°. To find the Tangent of 70° to the ſame Radius, the ſmall Line of Tangents muſt be uſed, the other only reaching to 45: Making therefore, 3 Inches the Aperture between 45 and 45 on the ſmall Line; the Extent between 70 and 70 Degrees, on the ſame, will be the Tangent of 70°. to 3 Inches Radius.

To find the Secant of an Arch, make the given Radius the Aperture between 0 and 0 on the Line of Secants: Then will the Aperture of 10 and 10, or 70 and 70, on the ſaid Lines, give the Tangent of 10° or 70°.

If the Converſe of any of theſe Things were required; that is, if the Radius be required, to which a given Line, is the Sine, Tangent, or Secant, 'tis but making the given Line, if a Chord, the Aperture on the Line of Chords, between 10 and 10, and then the *Sector* will ſtand at the Radius required; that is, the Aperture between 60 and 60, on the ſaid Line, is the Radius. If the given Line were a Sine, Tangent or Secant, 'tis but making it the Aperture of the given Number of Degrees, then will the Diſtance of 90 and 90 on the Sines, of 45 and 45 on the Tangents, of 0 and 0 on the Secants, be the Radius.

Uſe of the SECTOR *in Tigonometry.*

1°. *The Baſe and Perpendicular of a rectangled Triangle being given, to find the Hypothenuſe:* Suppoſe the Baſe A C (Plate Trigonom. Fig. 2.) 40 Miles, and the Perpendicular A B 30; open the *Sector* till the two Lines of Lines make a right Angle: Then for the Baſe, take 40 Parts on the Line of Lines on one Leg; and for the Perpendicular 30 on the ſame Line on the other Leg: Then the Extent from 40 on the one, to 30 on the other, taken in the Compaſſes, will be the Length of the Hypothenuſe, which Line will be found 50 Miles.

2°. *The Perpendicular* A B *of a right-angled Triangle* A B C, *being given* 30, *and the Angle* B C A 37°, *to find the Hypothenuſe* B C: Take the given Side A B, and ſet it over, on each Side, upon the Sine of the given Angle A C B; then the Parallel Diſtance of Radius, or of 90 and 90, will be the Hypothenuſe BC; which will meaſure 50 on the Line of Sines.

3°. *The Hypothenuſe and Baſe being given, to find the Perpendicular:* Open the *Sector*, till the two Lines of Lines be at right Angles; then lay off the given Baſe on one of thoſe Lines from the Centre: Take the Hypothenuſe in your Compaſſes, and ſetting one Foot in the Point of the given Baſe, let the other fall on the Line of Lines, on the other Leg: The Diſtance from the Centre to the Point where the Compaſſes fall, will be the Length of the Perpendicular.

4°. *The Hypothenuſe being given, and the Angle* A C B, *to find the Perpendicular:* Make the given Hypothenuſe a Parallel Radius; *i. e.* make it the Extent from 90 to 90 on the Lines of Sines; then will the Parallel Sine of the Angle A C B be the Length of the Side A B.

5°. *The Baſe and Perpendicular* A B *given, to find the Angle* B C A: Lay off the Baſe A C on both Sides the *Sector*, from the Centre, and note its Extent: Then take the given Perpendicular, and to it open the *Sector*, in the Terms of the Baſe; the Parallel Radius will be the Tangent of B C A.

6°. *In any right-angled Triangle, two Sides being given, with the included Angle, to find the third Side:* Suppoſe the Side A C 20, the Side B C 30, and the included Angle A C B 110°; Open the *Sector*, till the two Lines of Lines make an Angle equal to the given Angle, *viz.* 110°. Lay off the given Sides of the Triangle from the Center of the *Sector*, on each of the Lines of Lines; the Extent between their Extremes is the Length of the Side A B ſought, *viz.* 412.

7°. *The Angles* C A B *and* A C B *given, and the Side* C B, *to find the Baſe* A B: Take the given Side C B, and turn it into the Parallel Sine of its oppoſite Angle C A B; and the Parallel Sine of the Angle A C B will be the Length of the Baſe A B.

8°. *The three Angles of a Triangle being given, to find the Proportion of the Sides:* Take the lateral Sines of the ſeveral Angles, and meaſure them in the Line of Lines; the Numbers anſwering thereto, give the Proportion of the Sides.

9°. *The three Sides being given, to find the Angle* A C B: Lay the Sides A C, C B, along the Line of Sines, from the Centre, and ſet over the Side A B in their Terms: So is the *Sector* opened, in theſe Lines, to the Quantity of the Angle A C B.

10°. *The Hypothenuſe* A C (*Fig.* 3.) *of a right-angled Spherical* A B C *given, e. gr.* 43°; *and the Angle* C A B 20°. *to find the Side* C B. The Rule is: As Radius is to the Sine of the given Hypothenuſe 43°, ſo is the Sine of the given Angle 20° to the Sine of the Perpendicular C B. Take, then, 20° from the Centre, along the Line of Sines, in your Compaſſes, and ſet the Extent, from 90 to 90, on the two Legs, and the Parallel Sine of 43°, the given Hypothenuſe, will, when meaſured from the Centre on the Line of Sines, give 13° 30′ the Side required.

11°. *The Perpendicular* B C, *and the Hppothenuſe* A C *given, to find the Baſe* A B: As the Sine Complement of the Perpendicular B C is to Radius, ſo is the Sine Complement of the Hypothenuſe, to the Sine Complement of the Baſe—Therefore, make the Radius a Parallel Sine of the given Perpendicular, *e. gr.* 76° 30′; Then the Parallel Sine of the Complement of the Hypothenuſe, *e. gr.* 47° meaſured along the Line of Sines, will be found 49° 25′, the Complement of the Baſe required: Conſequently the Baſe itſelf will be 40° 35′.

Particular Uſes of the SECTOR *in Geometry, &c.*

1°. *To make a regular Polygon, whoſe Area ſhall be of any given Magnitude:* Let the Figure required be a Polygon, whoſe ſuperficial Area is 125 Feet: Extract the Square Root of $\frac{1}{5}$ of 125, it will be found 5. Make a Square, whoſe Side is 5 Feet; and, by the Line of Polygons, as already directed, make the Iſoſceles Triangle C G D ſo, as that C G being the Semi-diameter of a Circle, C D may be the Side of a regular Pentagon inſcribed therein, and let fall the Perpendicular G E. Then continuing the Lines E G and E C, make E F equal to the Side of the Square before made: And from the Point F, draw the right Line F H parallel to G C; then a mean Proportional between G E and E F will be equal to half the Side of the Polygon ſought, which doubled, will give the whole Side. The Side of the Pentagon thus had, the Pentagon itſelf may be deſcribed, as above directed.

2°. *A Circle being given, to find a Square equal thereto.* Divide the Diameter into 14 equal Parts, by the Line of Lines, as above directed: Then will 12. 4 of thoſe Parts found by the ſame Line, be the Side of the Square ſought.

3°. *A Square being given, to find the Diameter of a Circle equal thereto.* Divide the Side of the Square into 11 equal Parts, by means of the Line of Lines; and continue that Side to 12. 4 Parts; this will be the Diameter of the Circle required.

4°. *To find the Side of a Square equal to an Ellipſis, whoſe tranſverſe and conjugate Diameters are given.* Find a mean Proportional between the tranſverſe and conjugate Diameters; which, being divided into 14 equal Parts; $12\frac{4}{10}$ thereof, will be the Side of the Square required.

5°. *To deſcribe an Ellipſis in any given Ratio of its Diameter; the Area whereof ſhall be equal to a given Square.* Suppoſe the Proportion of the tranſverſe and conjugate Diameters be required, as 2 to 1; divide the Side of the given Square into 11 equal Parts: Then as 2 is to 1, ſo is 11 X 14 = 154 to a 4th Number; the Square whereof is the conjugate Diameter ſought. Then, as 1 to 2, ſo is the conjugate Diameter to the tranſverſe. Now,

6°. *To deſcribe an Ellipſis, by having the tranſverſe and conjugate Diameters given.* Suppoſe A B and E D (Fig. 4.) to be the given Diameters; take A C in your Compaſſes, and to the Extent thereof open the *Sector*, till the Diſtance from 90 to 90, on the Lines of Sines, be equal thereto. Then may the Line A C be divided into a Line of Lines, by taking the parallel Extents of the Sine of each Degree, on the Legs of the *Sector*, in your Compaſſes, and laying them off from the Centre C. The Line thus divided into Sines, (in the Figure 'tis only done into every 10th Sine) from each raiſe Perpendiculars both Ways; then, find Points in thoſe Perpendiculars through which the Ellipſis muſt paſs, thus: Take the Extent of the Semi-conjugate Diameter C E between your Compaſſes, and open the *Sector*, till the Aperture of 90 and 90 on the Lines of Sines be equal thereto: Then take the parallel Sines of each Degree of the Line of Sines of the *Sector*, and lay them off on thoſe Perpendiculars drawn through their Complements in the Line of Sines A C; thus will you have two Points in each Perpendicular, through which the Ellipſis muſt paſs. *E. gr.* The *Sector* ſtill remaining the ſame, take the Diſtance from 80 to 80 on the Lines of Sines, in your Compaſſes, and ſetting one Foot in the Point 10, on the Line A C, with the other, make the Points *a* and *b* in the Perpendiculars paſſing through that Point: Then will *a* and *b* be the two Points in the Perpendicular, through which the Ellipſis muſt paſs. All the other Points, found after the ſame Manner, being connected, will give the Semi-Ellipſis D A E; and the other Half will be drawn after the ſame Manner.

Uſe of the SECTOR *in Surveying.*

The Bearings of three Places, as A, B, C, (*Fig.* 5.) *to each other*; i. e. *The Angles* A B C, B C A *and* C A B, *being given: And the Diſtance of each, from a Fourth ſtanding among them: as,* D, *i. e.* B D, D C, and A D *being given: To find the Diſtances of the ſeveral Places* A, B, C, *from each other*; i. e. *The Lengths of the Sides* A B, B C, A C. Having drawn the Triangle E F G (Fig. 6) ſimilar to A B C, divide the Side E G in H, ſo as that E H may be to H G, as A D to D C, after the Manner already directed: And, after the like Manner muſt E F be divided in I, ſo as E I may be to I F, as A D to D B. Then continuing the Sides E G, E F, ſay, As E H — H G is to H G, ſo is E H + H G to G H, and as E I — I F is to I F, ſo let E I + I F be to F M; which Proportions are eaſily wrought by your Line of Lines on the *Sector*. This done, biſſect H K and I M, in the Points L N; and about the ſaid Points as Centres, with the Diſtances L H, and I N, deſcribe two Circles interſecting each other, in the Point O; to which, from the Angles E F G, draw the right Line E O, F O, and O G, which will have the ſame Proportion to each other, as the Lines A D, B D, D C: Now, if the Lines E O, F O, and G O, be equal to the given Lines A D, B D, D C, the Diſtances E F, F G, and E G, will be the Diſtances of the Places required. But if E O, O F, O G, be leſs than A D, D B, D C, continue them, till P O, O R, and O Q be equal to them: Then the Points P, Q, R, being joined, the Diſtances P R, R Q, and P Q, will be the Diſtances of the Places ſought. Laſtly, if the Lines E O, O F, O G, be greater than A D, D B, D C, cut off from them Lines equal to A D, B D, D C, and join the Points of *Section* by three right Lines; the Lengths of the ſaid three right Lines will be the Diſtances of the three Places ſought. *Note*, If E H be equal to H G, or E I to I F, the Centres L and N, will be infinitely diſtant from H and I; that is, in the Points H and I, there muſt be Perpendiculars raiſed to the Sides E F, E G, inſtead of Circles, till they interſect each other; but if E H be leſs than H G, the Centre L will fall on the other Side of the Baſe continued, and the ſame is to be underſtood of E I, I F.

Uſe of the Sector *in the Projection of the Sphere, both Orthographic and Stereographic*; See ORTHOGRAPHIC and STEREOGRAPHIC.

SECULAR, ſomething Temporal, in which Senſe the Word is uſed in Oppoſition to *Eccleſiaſtical*. Thus we ſay, *Secular Power*, *Secular Arm*, &c.

SECULAR is alſo uſed for a Perſon who lives at liberty in the World, not ſhut up in a Monaſtery, not bound by Vows, nor ſubjected to the particular Rules of any Religious Community: In which Senſe the Word ſtands in Oppoſition to *Regular*. The *Romiſh* Clergy is divided into *Regular* and *Secular*. The *Regulars* pretend their State is much more perfect than that of the *Seculars*. *Secular* Prieſts may hold Abbies and Priories both ſimple and Conventual, though not regularly but only in *Commendam*. 'Tis a Maxim, in their Canon Law, *Secularia Secularibus*, and *Secular* Benefices are only to be given to *Secular* Perſons; Regular to Regular. See REGULAR.

SECULARE CARMEN, *Secular Poem*; A Poem ſung, or re-hearſed, at the *Secular* Games. Of this Kind we have a very fine Piece among the Works of *Horace*: 'Tis a Saphic Ode, which uſually comes at the End of his Epodes. In ſome Editions, the Twenty-firſt Ode of the firſt Book, is called *Carmen Seculare*.

SECULAR GAMES, *Seculares Ludi*: In Antiquity, ſolemn Games, held among the *Romans*, once in an *Age*; or, in a Period, deemed the Extent of the longeſt Life of Man, called by the *Greeks* αιών, and the *Latins*, *Seculum*. They laſted three Days, and as many Nights, during which, Sacrifices were performed, Theatrical Shews exhibited, with Combats, Games, *&c.* in the Circus. Their Origine, and Inſtitution, is delivered at Length by *Val. Maximus*: The Occaſion thereof was, to ſtop the Progreſs of a Plague. The firſt who had them celebrated at *Rome*, was *Valerius Publicola*, the firſt Conſul created after the Expulſion of the Kings, in the Year of *Rome* 245. The Ceremonies to be obſerved therein were found in one of the Books of the *Sibyls*. At the Time of their Celebration, Heralds were ſent to invite all the World to a Feaſt no body had ever yet ſeen, nor was ever to ſee again.

Authors are not agreed of the Number of Years wherein theſe Games returned; partly, becauſe the Quantity of an Age or *Seculum* among the Antients is not known; and partly on other Accounts: Some will have it, that they were held once every hundred Years, and that the *Seculum*, or Age, was our Century. This *Varro* and *Livy* ſeem to expreſs in very plain Terms; yet others will have it, that *Seculum* comprehended 110 Years, and that the *Secular Games* only returned in that Period, that is, at the Beginning of every 111th Year; which Opinion is countenanced by *Horace*, in his *Secular Poem*, *v.* 21. Be this as it will, it is certain they ſometimes did not ſtay for the 111th, nor even for the 100th Year, for the Celebration of theſe Games. *Auguſtus*, for Inſtance, held them in the Year of *Rome* 736; and *Caligula* again in the Year of *Rome* 814, and of Chriſt 38, *viz.* 64 Years after the former; and *Domitian*, again, in ſtill leſs Time, *viz.* in the Year of Chriſt 87, at which *Tacitus* aſſiſted in Quality of *Decemvir*, as he himſelf tells us, *Annal. Lib.* xi. *c.* ii. This was the Seventh Time that *Rome* had ſeen them from their firſt Inſtitution. The Emperor *Severus* exhibited them the Eighth Time 110 Years after thoſe of *Domitian*: *Zozimus* ſays, theſe were the laſt; but he is miſtaken, for in the Year of *Rome* 1000, Fifty Years after thoſe of *Severus*, the Emperor *Philip* had them celebrated with greater Magnificence than had ever been known. We find them repreſented on Medals.

The *Ludi Seculares* were alſo called *Ludi Tarentini*, from *Manius Valerius Tarentinus*, who gave Occaſion to their Inſtitution: for having been warned, in a Dream, to dig in the Ground in a Place near the *Campus Martius*, called *Tarentum*, he there found an Altar inſcribed to *Dis*, or *Pluto*, and *Proſerpine*: Upon which, as had been foretold him in his Dream, three of his Children born Blind, recovered their Sight, and he, in Gratitude, performed Sacrifices, on the ſame Altar, for three Days and three Nights ſucceſſively. Some ſay the Place it ſelf was called *Tarentum*, becauſe the Water of the *Tyber terram terreret*, eat into the Ground in this Place.

SECULAR YEAR. See JUBILEE.

SECULARIZATION, the Action of *Secularizing*, or of converting a regular Perſon, Place, or Benefice, into a Secular one: Almoſt all the Cathedral Churches were antiently Regular, *i. e.* the Canons were to be Religious, but they have been moſt of them *Secularized*: For the *Secularization* of a regular Church there is required the Authority of the Pope, that of the Prince, the Biſhop of the Place, the Patron, and even the Conſent of the People. In *France* all this muſt be confirmed by Parliament. Religious, that want to be releaſed from their Vows, obtain Briefs of *Secularization* from the Pope.

SECUNDA AQUA, among Chymiſts, *&c.* is *Aqua-Fortis*, which has been already uſed to diſſolve ſome Metal, *&c.* See AQUA FORTIS.

SECUNDARY, an Officer who acts as *Second*, or next to the chief Officer: Such are the *Secundaries* of the Fine Office; the *Secundaries* of the Compters, who are next the Sheriffs of *London* in each of the two Compters: *Secundary* of the Office of the Privy Seal; two *Secundaries* of the Pipe; *Secundary* to the Remembrancers, which are two Officers in the *Exchequer*, &c.

SECUNDI GENERIS, in Anatomy, a Diſtinction among the Lacteal Veſſels. There are two Kinds of Lacteals, *viz.* *Primary*, or thoſe of the firſt Kind, *Primi Generis*; and *Secundi Generis*, *Secondary*, or of the ſecond Kind. The Firſt carry the Chyle from the Inteſtines into Glands, diſperſed in great Numbers throughout the Meſentery. The Second carry it from theſe Glands, after its being diluted there with Lympha, into the common Receptacle. See LACTEALS.

SECUNDINE, in Medicine, the ſeveral Coats or Membranes wherein the *Fœtus* is wrap'd up, in the Mother's Womb, as the Chorion, Amnios, the Placenta, *&c.* thus call'd, becauſe they come out in the ſecond Place, *i. e.* after the Child, in Delivery. The Matrons or Midwives call the *Secundine*, The *After-birth*, as being eſteem'd a ſecond Burthen, whereof the Mother is freed. Others call it, The *Delivery*, becauſe when this is out, the Woman is reckon'd to be perfectly deliver'd. See FOETUS. The *Secundine* muſt never be left in the Matrix; 'tis a foreign Body, which wou'd deſtroy the Mother: 'Tis dangerous even to have a Piece of it left behind. *Hippocrates* obſerves, That Twins have always the ſame *Secundine*.

Dr. *Grew*, in his Anatomy of Plants, applies the Term *Secundine* to the Fourth and laſt Coat or Cover of Seeds; by reaſon this performs nearly the ſame Office in Plants, that the Membranes inveſting the *Fœtus* do in Animals. Indeed *Pliny*, *Columella*, *Apuleus*, *&c.* have uſed *Secundine* in the ſame Senſe.

SECURITATE PACIS, a Writ, which lies for one who is threaten'd with Death, or Danger; againſt the Perſon who ſo threatens him. It is taken out of *Chancery*, directed to the Sheriff. See PEACE.

SECUTOR, in Antiquity, a Kind of Gladiator among the *Romans*. The *Secutores* are thoſe who fought againſt the *Retiarii*. They were armed with a Sword, and a Buckler, to keep off the Net, or Nooſe, of their Antagoniſt, and wore a Cask on the Head. Some confound the *Secutores* with the *Mirmillones*, becauſe both had nearly the ſame Weapons. The Word is formed from the Verb *Sequi*, to follow; becauſe the *Secutores* uſe to purſue the *Retiarii*. See RETIARII —— *Secutor* was alſo a Name given to ſuch Gladiators, as took the Place of thoſe killed in the Combat; or, who fought the Conqueror. This Poſt was taken by Lot —— In Ancient Inſcriptions we alſo meet with *Secutor Tribuni*, *Secutor Ducis*, *Secutor Cæſaris*, &c. who were Officers attending the Tribunes, and Generals; perhaps like our *Aids de Camp*.

SE-DEFENDENDO; a Plea for him who is charged with the Death of another, ſaying, He was forced to do what he did, *in his own Defenſe*, the other ſo aſſaulting him, that had he not done as he did, he muſt have been in Danger of his own Life. To have this Plea admitted, the Danger muſt appear inevitable. But though the Party juſtify its being done *Se-Defendendo*, yet he is driven to procure his Pardon of Courſe from the Lord Chancellor, and forfeits his Goods to the King.

SEDER OLAM, in Philology, a *Hebrew* Term, literally ſignifying, *Order of the World*; being the Title of two Books of Chronology in that Language.

They are both very ſhort, though the one more ſo than the other; for which Reaſon the one is called *Seder Olam Rabva*, that is, the *great Seder Olam*; and the other, *Sedar Olam Zuta*, i. e. *little Sedar Olam*. The firſt commences at the Creation of the World, and comes down as low as the War of the Pſeudo Meſſiah *Bar Cockbah*, under *Adrian*, 52 Years after the Deſtruction of the Temple of *Jeruſalem*, and, of Conſequence, to the 122d Year of Chriſt: 'Tis almoſt all taken from the Scripture, excepting the End. 'Tis the Work of *R. Jeja*, Son of *Hbelpeta* of *Iſippora*, who lived in the ſecond Century, about the Year 130, and was Maſter of the famous *R. Juda Hakkadſoch*, the Compiler of the *Miſchna*. The *Seder Olam Zuta* is an Abridgment of the former, brought down as far as *Mar Sutra*, who lived 450 Years after the Deſtruction of the Temple, or 522 Years after Chriſt. *F. Morin*, continually bent upon diminiſhing the Antiquity of the Principal Books of the *Jews*, endeavours to prove it to have been wrote about the Year of Chriſt 1124, as indeed it is expreſſed at the Beginning; but *R. Dav. Gantz* has overthrown this Opinion in his *Teſmah David*, and ſhewn, that the Date, in the Beginning, is an Interpolation. The two Chronologies were firſt Printed at *Mantua* in 1514, *Quarto*; again, at *Baſil*, by *Froben*, in 1580, *Octavo*: At *Venice* in 1545 *Quarto*: At *Paris*, with a *Latin* Verſion of *Genebrard*, in *Twelves*. They have been ſince Printed at *Amſterdam*, in 1711.

SEDIMENT, the Settlement, or Dregs, of any Thing; or that groſs, heavy Part of a fluid Body, which, upon reſting, ſinks to the Bottom of the Veſſel. Some Phyſicians pretend to diſcover much of the Nature of the Diſeaſe, from the Sediment of the Urine. The Word is formed from the *Latin Sedimentum*, which *Mathæus Sylvaticus* derives *à diuturna Sede*. Dr. *Woodward* maintains, That at the Deluge, the whole Terreſtrial Globe was diſſolved into one uniform Maſs, and that the New World ariſing thence was perfectly Spherical, and without any Inequalities, conſiſting of ſeveral Strata, which the Earthy Sediment gradually produced, as it drained. See DELUGE.

SEDRA, the High-Prieſt of the Sect of *Ali*, among the *Perſians*. The *Sedra* is appointed by the Emperor of *Perſia*, who uſually confers the Dignity on his neareſt Relation. The Juriſdiction of the *Sedra* extends over all Effects deſtined for pious Purpoſes, over all Moſques, Hoſpitals, Colleges, Sepulchres, and Monaſteries. He diſpoſes of all Eccleſiaſtical Employments, and nominates all the Superiors of religious Houſes. His Deciſions, in Matters of Religion, are all received as ſo many infallible Oracles: He judges of all Criminal Matters, in his own Houſe, without Appeal, and is, without Contradiction, the ſecond Perſon in the Empire. He has not, however, any indelible Character, but frequently quits his Poſt for another purely Secular one: His Authority is balanced by that of the *Moudtehitekid*, or firſt Divine of the Empire.

SEED, a Matter prepared by Nature, for the Re-production and Conſervation of the Species, both in Men, Animals, and Plants: Some Naturaliſts add, That even Stones, Minerals, and Metals themſelves have each their proper Seed in their Mines, and are produced and perpetuated thereby. See MINERAL, STONE, &c.

SEED, *Semen*, in the Animal OEconomy, is a white, Liquid Matter, or Humour, the thickeſt of any in the Body, ſeparated from the Blood in the Teſticles, and reſerved in proper Veſſels, to be the Means of Generation. By Chymical Analyſis it is found to conſiſt almoſt intirely of Oil, and Volatile Salts, blended together by the Mediation of a little Phlegm. Its Activity Dr. *Drake* takes to be derived from the Salts, wherewith it abounds, far more than any other Animal Liquor. See HUMOUR.

The Parts concerned in the Preparation of the *Seed* are the *Spermatic Arteries*, which bring the Blood to be ſecreted into the *Teſticles*; The *Teſticles*, and *Paraſtatæ*, where the Secretion it ſelf is chiefly effected; The *Vaſa Deferentia*, which convey the ſecreted Matter out of the Teſticles; and the *Veſiculæ Seminales*, which receive and preſerve it to be emitted in Coition. See each of theſe Parts deſcribed under its proper Article TESTICLE, *&c.*

The Blood received, in ſmall Quantities, into the *Spermatic Arteries*, and there, by the particular Structures of the Parts, much diminiſhed of its Velocity, is yet farther retarded about the *Corpus Pyramidale*, or *Varicoſum*, and its redder, and thicker Parts, carried off by Canals opening into the Veins. Thus rendered paler, and ſlower, it is received into the winding Receſſes of the *Teſticles*, where, almoſt ſtagnating, it aſſumes an Aſh Colour, and is further prepared, thickened, *&c.* in the *Ductus Highmorianus*, whence, ſlowly driven into the *Epididymidæ*, or *Paraſtatæ*, it is further prepared and elaborated in the Folds and Complications thereof, and, at length, creeps ſlowly into the *Vaſa Deferentia*, or *Ejaculatoria*, which conſiſt, at firſt, of a thick, ſungous Matter, very narrow, but growing ſenſibly wider, and then again narrower; in the winding Meanders whereof it is collected, its Motion abated, further elaborated, and concocted, and at laſt driven into the *Veſiculæ Seminales*, in the various Cells and Meatus's whereof it is receiv'd, laid up, fix'd, thicken'd, whiten'd, and raiſed to its laſt Perfection: in which State it is called *Seed.*

It is obſerved, that no Humour in the Body is generated ſo ſlowly, meets with ſo many Means to retard it, or to elaborate, and concoct it, when at reſt, as the *Seed.* Some imagine that, in its whole retarded Progreſs, beſides what is apparent, there is ſomething ſtill added to it from the minute nervous Veſicles; and ſomething taken away, by the various Lymphatics, and diſcharg'd thereby into the Venous Veſicles of the *Corpus Pyramidale*, and the little Veins of the *Veſiculæ Seminales*, and thence into the Humours of the whole Body: *Boerhaave* takes both the one and the other to be very probable.

The *Seed*, or Humour, thus form'd in the Teſticles, *Paraſtatæ*, *Vaſa Deferentia*, and *Veſicula Seminales*, being, when new, diluted with a little warm Water, and view'd with a good Microſcope, is ſeen to conſiſt of innumerable, little, oblong, living, Eel-like Animalcula floating in the other Part of this Humour. This is always obſerv'd in the Seed of all Men, Quadrupedes, Birds, Fiſhes, amphibious Animals, and Inſects. Upon comparing this with the Bulk, Figure, Place, Change, &c. of the Carina of the Chick deſcribed by *Malpighi*, and with the known Law of Nature obſerv'd in the Generation of Frogs; it appears highly probable, that the Animalcula of the Male Seed, contain the Rudiments, or Stamina, of the future Human Body; and the more ſo, ſince, whenever the Teſticles, or this Humour is wanting, there is always Sterility on the Side of the Male. M. *Leewenhoeck*, the firſt Diſcoverer of theſe Animalcula, and many after him, make no Scruple to call them true *Fœtus*'s, little *Men*; and ſome have even pretended to diſcover ſomewhat of the Human Figure therein. But *Verheyen*, and others after him, deny the Exiſtence of any ſuch Animalcula, maintaining, That 'tis only the inteſtine Motion of the Parts of the Seed kept on Foot by the Warmth thereof, that exhibits this Appearance, which fanciful Perſons have improv'd into friſking Animalcula; and urging, in Confirmation hereof, That no ſooner is the Warmth gone, than all Appearance of Animals ceaſes: But this, notwithſtanding the Doctrine of the *Animalcula in Semine*, is now generally received. See ANIMALCULA.

Some admit of four ſeveral Kinds of *Seed:* The Seed of the *Teſticles*, that of the *Veſicula Seminales*, that of the *Proſtates*, and that of the Glands of the *Penis.* The two firſt, which we have deſcribed as one and the ſame Humour, only in different Stages, thoſe Authors take to be different, as not being able to find any ſtrict Communication between the *Deferentia* and the *Veſiculæ*; but that Communication is fully ſhewn, by Dr. *Drake*, ſo that nothing needs further, to ſhew the *Seeds* the ſame. The Liquor of the *Proſtates*, and that of the Glands of the *Penis* are generally allow'd not to be any true *Seed*, no more than that emitted by Women: Nor is there any good Reaſon why either of them ſhould be called ſo, as their Appearance is very different, and as other ſufficient Uſes are aſſign'd for them, *viz.* To line and lubricate the Parts, that the Seed, Urine, &c. may paſs more freely, and without adhering. See PROSTATES.

The Seminal Liquor, however, ſuch as emitted for Uſe, is a Mixture of ſeveral Liquors, pour'd at the ſame Time into the common Canal of the Urethra, either from the Glands that have ſecreted them, or the Reſervoirs that have kept them. M. *Du Verney* obſerves, That in different Species, the Number and Structure of theſe Organs is different. In Man, the Principal are the *Veſiculæ Seminales*, and the *Proſtates*, beſides what was diſcovered by Mr. *Cowper*, *viz.* A Number of new glandulous Bodies on each Side the Urethra, whoſe excretory Ducts open into the Urethra, towards the Root of the Yard. *M. du Verney* has found, that the ſame are likewiſe in moſt other Animals, and placed in the ſame Manner. 'Tis controverted, whether or no the Liquor filtrated hereby, be neceſſary to Generation. *M. de Verney* thinks it is, and his chief Reaſon is, That in Animals that have been caſtrated, theſe Glands, as well as all the other Sources of Generation, are found dried up, and decay'd. M. *Littre* oppoſes to this, that the *Veſiculæ Seminales*, and *Proſtates*, having little Cells, where their filtrated Liquor is depoſited, 'tis eaſily conceiv'd that their Humours may wait ſome Time, for an Occaſion of being emitted; but that theſe new *Proſtates*, or Glands, of Mr. *Cowper*, having no ſuch Reſervoirs, their Liquor muſt ooze out into the Cavity of the Urethra, in Proportion, as it is ſeparated, and be deſtined for ſome continual, not a momentary, or occaſional Uſe. He adds, That as the excretory Ducts of theſe Glands traverſe the ſpongeous Body of the Urethra, for two Inches e'er they penetrate into its Cavity, and that in the ſole Moments when the Liquor ſhould be diſcharg'd, to aſſiſt in Generation, that ſpongeous Body is extremely dilated, and its Sides in a State of Compreſſion, the Liquor muſt be then leſs diſpoſed to a Diſcharge than ever. See ERECTION.

For the Fate of the Seed *when lodged in the Uterus:* See CONCEPTION, GENERATION, &c.

SEED in Botany, a Product of a Plant, whereby the Species is propagated. See PLANT. The *Seed* is frequently the Fruit of the Plant, as is the Caſe in moſt Herbs: See FRUIT. Sometimes it is only a Part incloſed in the Fruit, and that in Form, either of Grain, Pippin, Kernel, or Berry. See GRAIN, PIPPIN, &c.

The *Seed* is the natural Off-ſpring of the Flower, and that for whoſe Production all the Parts of the Flower are intended; So that when this is once well form'd, theſe ſeveral Parts of the Flower dwindle, and diſappear. See FLOWER.

'Tis produced from the Farina of the Apices, let fall on the Head of the Piſtil, and thence forwarded to an Uterus, at the Bottom thereof, divided into ſeveral Cells; where, coming to receive the nutritious Juice of the Plant, it is firſt ſoften'd, then ſwell'd, increaſed both in Matter and Bulk, and at length comes to its State or Maturity. For more particular Account of the Manner of the Generation of the *Seed*, ſee GENERATION.

That the whole Plant is contained in the *Seed*, is an Opinion as old as *Empedocles*, and is ſtill the prevailing Doctrine among the Generality of Naturaliſts. Experience, the Microſcope, and the Modern Philoſophy, give it great Countenance. In effect, by the Uſe of good Microſcopes, we diſcover, in the Seed, ſeveral of the Parts of the future Tree, only in Miniature; particularly a little Root, called the *Radicle*, and the Stem called the *Plumule*. See RADICLE, and PLUMULE.

In *Malpighi*'s Life, we have a Debate between him and Seignior *Triumphetti*, Provoſt of the Garden at *Rome*, Whether the whole Plant be actually contained in the Seed: The Affirmative is maintained by *Malpighi*, with cogent Arguments; among which this is one, That in a Kidney Bean e'er ſown, the Eye, aſſiſted with a Microſcope, eaſily diſcovers Leaves, a Bud, and even the Knots, or Implantations of the Leaves on the Stem. The Stem itſelf is very conſpicuous, and plainly conſiſts of Woody Fibres, and Series's of little Utricles. And whereas Seignior *Triumphetti* had objected, That by Poverty, Tranſplantation, &c. ſeveral Plants degenerate into others, particularly Wheat into Tares, and Tares again into Wheat: In Anſwer to this, which is one of the ſtrongeſt Objections againſt that Opinion, *Malpighi* replies, That he is not fully ſatisfied as to the Truth of the Objection, for that both himſelf, and his Friends, making the Experiment, no Metamorphoſis of the Wheat ſucceeded: But granting the Metamorphoſis, 'tis the Soil, or the Air, or the Culture, is in the Fault. Now, from a morbid, and monſtrous Condition of Nature, there is no inferring her genuine and permanent State. See DEGENERATION.

To the ſame Effect, Mr. *Leewenhoeck*, after a nice Obſervation of an Orange Kernel he had made to germinate in his Pocket, &c. concludes, "Thus we ſee "how ſmall a Particle, no bigger than a coarſe Sand, "is increas'd, &c." A plain Demonſtration, that the Plant, and all that belongs to it, was actually in the *Seed*, *viz.* The Body, Root, &c. Mr. *Derham* adds, That of all the *Seeds* he has viewed, except the Maple, the Plant appears the plaineſt to the naked Eye in the Nux Vomica.

The Fecundity of Plants, in the Production of *Seeds*, is very ſurprizing. M. *Dodart*, in the Memoirs of the *French* Academy of Sciences, computes, That an Elm, living 100 Years, ordinarily produces of it ſelf 33000000 Grains; and adds, That had its Crown, or Head, been cut off, it would have put forth as many Branches, within half an Inch of the Place where it was cut, as it had before; and that at whatever Height it were cut off, the Effect would have been ſtill the ſame. Hence he concludes, That the whole Trunk, from the Ground to the Riſe of the Branches, is full of the Principles, or little Embryo's of Branches, which, it is true, cannot all appear at once, but which being conceiv'd, as ſeparated by Circular Rims, half an Inch high, compoſe ſo many Sets of Branches, each whereof is ready to appear, and will really appear if the Head be lopp'd off juſt over it. Now theſe inviſible Branches exiſt as really as thoſe which appear. For whence elſe ſhould they come? The

Trunk cannot produce them, as being it ſelf no more than a Packet of Fibres, deſtitute of all Action: Nor can the Sap, which, like the Blood, is fit to nouriſh the Parts, but not to form any new ones. The Branches thereof exiſted before the Tree was lopped, and if they had appeared, would have bore an equal Number of Grains as thoſe which did. Theſe Grains, therefore, they muſt already contain in little. On this Footing, the Tree may be ſaid actually to contain in itſelf 1584000000 *Seeds*, wherewith to multiply itſelf as many times: But what ſhall we ſay, if each *Seed*, or Grain of a Tree, contain in itſelf another Tree, containing the ſame Number of *Seeds*? And, if we can never come either at a *Seed* which does not contain Trees, nor at a Tree which does not contain *Seed*? By this Means we ſhall have an increaſing Geometrical Progreſſion, the firſt Term whereof is 1. the ſecond 15840000000, the third, the Square of 15840000000; the fourth, its Cube, &c. to Infinity.

Several Species of Plants have been always ſuppoſed to be deſtitute of *Seed*, in regard, no Obſervation, no Microſcope, no Anatomy, diſcovered any Thing like them: Such are the *Capillaries*, the ſeveral Kinds of *Fuci*, Sea-plants, Moſſes, &c. But the happy Induſtry of the preſent Age has diſcover'd the *Seeds* of ſome of them; and has left us out of all Doubt, that the reſt are not without the ſame. The *Seeds* of Fern, and the Capillary-Plants, were firſt diſcovered by *Cæſius*; and ſince, more fully and critically by M. *W. Cole*. The Seeds of ſome Sea-Plants, were diſcover'd by the Count de *Marſigli*, and thoſe of others, by M. *Reaumur*, the firſt mentioned in the Hiſtory of the *French* Academy, for the Year 1712, and the latter for the Year 1711. The *Seeds* of ſome Kind of Fuci have been diſcovered by Mr. *Samuel Doody*; thoſe of Coralloid Shrubs, by Dr. *Tanc. Robinſon*, as alſo, thoſe of ſeveral Fungi, particularly Truffles, and *Crepitus Lupi's*, or Puff-balls; and thoſe of ſome other by Dr. *Liſter*. See Mushroom. *Under which Article, a new Theory of a Propagation of theſe apparently Seedleſs Plants is laid down.*

Seeds, in Gardening, and Agriculture. Mr. *Bradley* obſerves, That the *Seeds* of Plants, though exceedingly good, will degenerate from the Mother-Plant, if they be ſown on the ſame Ground, whence they were gathered; ſo that there is a great Neceſſity for a yearly Change for Seeds of Foreſt Trees, as Acorns, Maſt, &c. If the Place be too cold to ſow them when gathered in *Auguſt*, they may be kept barrelled or potted up, in moiſt Sand or Earth, *ſtratum ſuper ſtratum*, during the Winter, at the End of which they are found ſprouted, and if gently ſown, will be as forward as if ſown in *Autumn*, beſides their miſſing the Vermine to which the Winter *Seed* is much expoſed. The *Seed* not to be choſen from the moſt fruitful Trees, ſo much as from the moſt ſolid and fair; nor covet the largeſt Acorns, but the moſt weighty, clean, and bright. Porous, inſipid, mild Sorts of *Seeds*, to be ſown as ſoon as ripe. Hot, bitter Seeds to be kept a Year before ſown. The Shape and Weight of *Seeds*, direct how they are to be ſet. Moſt of them, when they fall, lie on one Side, with the ſmall End towards the Earth, which ſhews that Poſture to be beſt to ſet any Stone or Nut in: If they be heavy, ſow them the deeper. Acorns, Peaches, &c. to be ſown 2 or 3 Inches deep. See Seminary and Semination.

Seeds, in Pharmacy, &c. The *Seeds* uſed in Medicine, &c. eſpecially thoſe imported from the *Indies*, *Levant*, &c. are ſeverally deſcribed under their reſpective Articles, which ſee. Among thoſe cultivated at Home, the Principal are the Four *hot*, and the Four *cold Seeds*, as they are called. The firſt are thoſe of Annis, Fennel, Cummin, and Caraway; the latter, thoſe of Gourd, Pumpkin, Melon, and Cucumber. The Uſe of the four cold *Seeds* is for the making of Emulſions, cool, refreſhing Drinks, Paſts for the Hands, and Oils uſed by the Ladies for the Complection.

Seed of Pearls, - - - - -	See	Pearl.
Semen *Sanctum*, or *Santonicum*,		Wormseed.

SEEDLINGS, are ſuch Roots of Gilliflowers, as come from Seed ſown; alſo the young tender Shoots of any Plants, that are newly ſowed.

SEEING, the Act of perceiving Objects by the Organ of *Sight*; or the Senſe we have of external Objects, by means of the Eye. See Sight.

For the Apparatus, or Diſpoſition of the Parts neceſſary to Seeing; *See* Eye.

For the Manner wherein Seeing *is perform'd, and the Laws thereof*; *See* Vision.

Our beſt Anatomiſts differ greatly as to the Cauſe why we don't *ſee* double with the Eyes. *Galen*, and others after him, aſcribe it to a Coalition or Decuſſation of the Optic Nerve behind the *Os Sphenoides*. But whether they decuſſate or coaleſce, or only barely touch one another, is not ſo well agreed. The *Bartholines* and *Veſalius*, ſay expreſly, they are united by a perfect Confuſion of their Subſtance: Dr. *Gibſon* allows them to be united by the cloſeſt Conjunction, but not Confuſion of their Fibres. *Des Cartes* and others, account for the Effect another Way, *v.z.* by ſuppoſing that the *Fibrillæ* conſtituting the medullary Part of thoſe Nerves, being ſpread in the Retina of each Eye, have each of them correſponding Parts in the Brain; ſo that when any of thoſe *Fibrillæ* are ſtruck by any Part of an Image, the correſponding Parts of the Brain are affected thereby. Somewhat like which is the Opinion of Dr. *Briggs*; who takes the Optic Nerves of each Eye to conſiſt of homologous Fibres, having their Riſe in the *Thalamus nervorum Opticorum*, and thence continued to both the *Retinæ* which are compoſed of them: And farther, that thoſe *Fibrillæ* have the ſame Paralleliſm, Tenſion, &c. on both Eyes: Conſequently, when an Image is painted on the ſame correſponding, ſympathizing Parts of each *Retina*, the ſame Effects are produced, the ſame Notice carried to the Thalamus, and ſo imparted to the Soul. Hence that double Viſion enſuing upon an Interruption of the Paralleliſm of the Eyes, as when one Eye is depreſſed by the Finger, or their Symphony interrupted by Diſeaſe. But Dr. *Briggs* maintains, that 'tis but in few Subjects, there is any Decuſſation; in none, any Conjunction more than mere Contact.

Whence it is that we ſee Objects erect, when, as 'tis certain, the Images thereof are painted invertedly on the Retina, is another Difficulty in the Theory of *Seeing*. *Des Cartes* accounts for it hence; That the Notice the Soul takes of the Object, does not depend on any Image, nor of any Action coming from the Object, but merely from the Situation of the minute Parts of the Brain; whence the Nerves ariſe. *E.gr.* the Situation of a Capillament of the Optic Nerve, correſponds to a certain Part of the Brain; which occaſions the Soul to ſee all thoſe Places lying in a right Line therewith. But Mr. *Molyneux* gives us another Account: The Eye, he obſerves, is only the Organ, or Inſtrument: 'Tis the Soul that ſees. To enquire, then, how the Soul perceives the Object erect by an inverted Image, is to enquire into the Soul's Faculties. Again, imagine that the Eye receives an Impulſe on its lower Part, by a Ray from the upper Part of an Object; muſt not the viſive Faculty be hereby directed to conſider this Stroke as coming from the Top rather than the Bottom of the Object, and conſequently, be determined to conclude it the Repreſentation of the Top?

SEELING. A Horſe is ſaid to *Seel*, when upon his Eye-brows, there grows about the Breadth of a Farthing of white Hairs, mixed with thoſe of his natural Colour; which is a Mark of Old Age: An Horſe never *Seels* till he is Fourteen Years old, and always before he is Sixteen at fartheſt: The light Sorrel and Black, ſooner *Seel* than any other. Horſe-Jockeys uſually pull out thoſe Hairs with Pincers; but if there be ſo many, that it cannot be done, without making the Horſe look bald and ugly, then they colour their Eye-brows, that they may not appear old.

SEGMENT *of a Circle*, in Geometry, a Part of a Circle comprehended between an Arch and the Chord thereof. Thus the Portion A F B A (Tab. Geometry Fig. 23) comprehended between the Arch A F B, and the Chord A B, is a *Segment* of the Circle A B E D, &c. a *Segment* of ſo many Degrees. The Term *Segment* is alſo applied by Extenſion, to Ellipſes and other Curvilinear Figures. As 'tis evident every *Segment* of a Circle muſt either be greater or leſs than a Semi-circle; the greater Part of the Circle cut off by a Chord, *i. e.* the Part greater than a Semi-circle, is call'd the *greater Segment*, as A D E B; and the leſſer part, the Part leſs than a Semi-circle, the *leſſer Segment*, as A F B, &c. The Angle which the Chord A B, makes with a Tangent L B, is called the *Angle of a Segment*. Some, indeed, call the Two mixt Angles comprehended between the Two Extremes of the Chord, made with the Arch, *Angles of the Segment*.

The Height of a Segment F a, *and half its Baſe or Chord* B a, *being given, to find the Area of the Segment*: Find the Diameter of the Circle. (See Diameter.) On this deſcribe a Circle, and draw the Baſe of the *Segment* A a B; draw R, A C, B C; and find the Number of Degrees of the Arch A F B. From the Diameter had, and its *Ratio* to the Periphery, find the Periphery itſelf; and from the *Ratio* of the Periphery to the Arch A D B, and the Periphery itſelf, find the Length of the Arch A D B. This done, find the Area of the Sector A F B C A. See Sector. And that of the Triangle A B. See Triangle. Laſtly, ſubtract the Triangle from the Sector, the Remainder is the Area of the *Segment*.

If the Area of the greater *Segment* A D E B were required, the Triangle A C B muſt be added to the Sector

A DE B C. SEGMENT *of a Sphere*, is a part of a Sphere terminated by a Portion of its Surface, and a Plane which cuts it off; paſſing ſomewhere out of the Centre: This is more properly called a *Section of a Sphere.* See SECTION. The Baſe of ſuch a *Segment*, 'tis evident, is always a Circle whoſe Centre is in the Centre of the Sphere. See SPHERE.

The ſolid Content is found, by multiplying the Surface of the whole Sphere by the Altitude of the *Segment*, and then dividing the Product by the Diameter of the Sphere, and to the Quotient adding the Area of the Baſe of the *Segment*; or, if it be leſs than a Hemiſphere, thus; Take the Altitude of the *Segment* from the Radius of the Sphere, and by the Difference multiply the Area of the Baſe of the *Segment*; and ſubtract this Product, from that which will ariſe by multiplying the Semi-Axis of the Sphere into the convex Surface of the *Segment*; then divide the Remainder by 3, and the Quotient is the Solidity ſought. This latter Method ſuppoſes the Axis of the Sphere to be given; if not, it may be found thus: Let the Altitude of the *Segment* be called a, and its Semi-diameter s, then will $a . s :: s . \frac{ss}{a}$; add $\frac{ss}{a}$ to a, and that ſhall give the Axis ſought.

Line of SEGMENTS. On *Gunter's* Sector there are uſually Two Lines, called *Lines of Segments*; they are numbered with 5, 6, 7, 8, 9, 10, and lie between the *Lines of Sines*, and thoſe of Superficies. They repreſent the Diameter of a Circle, ſo divided into 100 Parts, as that a Right Line drawn through thoſe Parts, and normal to the Diameter, ſhall cut the Circle into Two *Segments*, of which the greater ſhall have that Proportion to the whole Circle, as the Parts cut are to 100. See SECTOR.

SEGMENT-LEAVES; thus Botaniſts call thoſe Leaves, that are cut and divided into many Shreds or Slices, as Fennel, &c.

SEGMOIDAL VALVES, in Anatomy, are little *Valves* of the Pulmonary Artery; thus call'd from their reſembling Segments of Circles; but more uſually *Semilunar Valves.* See SEMILUNAR.

SEGREIANT, is the Herald's Word for Griffins, when drawn in a leaping, or ſalient Poſture.

SEJANT, is a Term uſed in Heraldry, when a Lyon, or other Beaſt, is drawn in an Eſcutcheon, ſitting like a Cat, with his Fore-feet ſtreight.

SEIGNOURAGE, a Right or Due belonging to a *Seigneur*, or *Lord.* The Term is particularly uſed for a Duty belonging to the Prince for the Coining of Money, called alſo *Coinage*; in the baſer *Latin, Monetagium.* This Duty is not always the ſame; but changes according to the Pleaſure of the Prince, and the Occaſions of State. 'Tis in ſome meaſure for the Diſcharge of this Duty that *Alloy* was invented; that is, the Mixture of other Metals with Gold and Silver.

Under our ancient Kings, for every Pound of Gold brought in the Maſs to be Coined, the King's Duty was Five Shillings; one Shilling, and ſometimes Eighteen Pence whereof went to the Maſter of the Mint. Under *Edward* the Third, the *Seignourage* of every Pound Weight of Silver, was Eighteen-penny Weight, which was then equivalent to a Shilling. Under *Henry* V. the King's *Seignourage* for every Pound of Silver was Fifteen-pence. At preſent, the King claims no *Seignourage* at all, but the Subject has his Money coined at the public Expence: Nor has the King any Advantage therefrom, but what he has by the Alloy. In *France*, under *Philip Auguſtus*, the *Seignourage* was one Third of the Profit made by the Coining. St. *Louis* fix'd it at one Fifteenth Part of the Value of the Money Coined. King *John* at Three Livres the Mark of Gold. *Charles* VII. by reaſon of the diſtreſs'd State of the Finances, rais'd it to Three Fourths of the Value. *Louis* XIII. fix'd it at Six Livres the Mark or Eight Ounces of Gold, and Ten Sols, the Mark of Silver. *Louis* the XIV. took away the Right of *Seignourage* in 1679, tho' 'twas re-eſtabliſhed in 1689 on the Foot of Seven Livres, Ten Sols the Mark of Gold, and Twelve Sols, Six Deniers the Mark of Silver.

It muſt be obſerved, that for the levying of this Duty of *Seignourage*, the juſt Value of the Money is augmented by the Value of the Duty.

SEISIN, in Law, from the *French Seiſine*, ſignifies Poſſeſſion; ſo *primier Seiſin* is the firſt Poſſeſſion. *Seiſin*, according to the common Law, is Two-fold; *Seiſin in Fact*, and *Seiſin in Law. Seiſin in Fact*, is, when a Corporal Poſſeſſion is taken. *Seiſin in Law*, is, when ſomething is done, which the Law accounteth a *Seiſin*; as an Inrollment: and this in Law, is as much as a Right to Lands and Tenements, tho' the Owner be by Wrong Diſſeiſed of them; and he, who hath had an Hour's Poſſeſſion quietly taken, hath *Seiſin de Droit, & de Claime*, whereof, no Man may *diſſeiſe* him by his own Force or Subtlety; and it is called by *Coke*, *Seiſin in Law*, or actual *Seiſin.* The Civilians call the one *Civilem Poſſeſſionem*, the other *Naturalem.* See POSSESSION.

SEIZE or SEASE, in the Sea Language, is to make faſt or bind; particularly to faſten Two Ropes together, with Rope-Yarn. The *Seizing* of a Boat is a Rope tied to a Ring, or little Chain in the Fore-ſhip of the Boat, by which means it is faſtened to the Side of the Ship.

SEIZING, (in Falconry) is when an Hawk gripes her Prey, or any thing, faſt within her Claws.

SEIZURE, in Commerce, an Arreſt made of ſome Merchandize, Moveable, or other Matter, either in conſequence of ſome Law, or of ſome expreſs Order of the King. Contraband Goods, thoſe fraudulently Entered, or landed without Entering at all, or landed at wrong Places, are ſubject to *Seizure.* See CONTRABAND. In *Seizures*, among us, one half goes to the *Seizor* or Informer, and the other Half to the King. In *France*, Half the painted Linnens, *&c. Seiz'd*, uſed to be burnt, and the other Half ſent Abroad: But in 1715, by an Arret of Council, it was appointed the Whole ſhould be burnt.

SELENITES, in Natural Hiſtory, *Moon-Stone*, ſaid to be a Stone ſtill found in *China*, which has this remarkable Property, That it increaſes and decreaſes, as the Moon waxes and wains. There are ſome of theſe *Selenites* preſerved in the Palace of *Peking*, valued at an incredible Rate. *Martinius.* The Word is form'd from the *Greek* Σελήνη Moon. Some give the ſame Appellation to *Muſcovy*-Talc, from an Opinion, that its Brightneſs increaſes and diminiſhes with the Moon.

SELENOGRAPHY, a Branch of Coſmography, which deſcribes the *Moon* and all the Parts and Appearances thereof; as Geography does thoſe of the Earth: from Σελήνη Moon, and γραφὴ, Deſcription. Since the Invention of the Teleſcope, *Selenography* is vaſtly improved. We have now diſtinct Names for moſt of the Regions, Seas, Lakes, Mountains, *&c.* viſible in the Moon's Body. *Hevelius*, a celebrated Aſtronomer and Bourgue-maiſter of *Dantzick*, who publiſhed the firſt *Selenography*, named the ſeveral Places of the Moon from thoſe of the Earth: *Ricciolus*, from the Names of the celebrated Aſtronomers and Philoſophers. Thus what the one calls *Mons Porphyrites*, the other calls *Ariſtarchus.* What the one calls *Etna, Sinai, Athos, Apermius, &c.* the other calls *Copernicus, Poſſidonius, Tycho, Gaſſendus, &c.* See MOON. At the Royal Obſervatory at *Paris*, they continue to make *Selenographic* Maps. M. *Caſſini* has publiſh'd a Work call'd *Inſtructions Seleniques.*

SELEUCIANS, a Sect of ancient Hereticks, call'd alſo *Hermians. Seleucus* and *Hermias* joyning Forces, and dogmatizing together, taught, That God was Corporeal; that the Elementary Matter was Coeternal with him; and that the Human Soul was form'd by the Angels, of Fire and Air: They denied that *Jeſus Chriſt* ſate at the Right Hand of God; aſſerting, That he had quitted that Right, and had removed his Throne into the Sun. See PHILASTRIUS, S. AUGUSTIN, *&c.*

SELEUCIDES, in Chronology. The *Æra of the Seleucides*, or the *Syro-Macedonian Æra*, is a Computation of Time, commencing from the Eſtabliſhment of the *Seleucides*, a Race of *Greek* Kings, who Reign'd as Succeſſors of *Alexander the Great* in *Syria*; as the *Ptolomy*'s did in *Egypt.* This *Æra* we find expreſs'd in the Book of *Maccabees*, and on a great Number of *Greek* Medals ſtruck by the Cities of *Syria*, *&c.* The Rabbins and *Jews* call it, The *Æra of Contracts*, becauſe being then ſubject to the Kings of *Syria*, they were obliged to follow their Method of computing in all Contracts. The *Arabs* call it *Therick Dilkarnain*, Æra of two Horns, which ſome ſay ſignifies the Æra of *Alexander the Great*; by reaſon that Prince bore Two Rams Horns on Medals, in Imitation of *Jupiter Ammon*, whoſe Son he would needs be. But others underſtand it much better of the Two Kingdoms of *Syria* and *Egypt*, which were now cloven or divided; and of one ſingle Empire parted into two Monarchies. The grand Point, is to know the Year wherein the Separation was made; or, which is the ſame Thing, when *Seleucus*, one of *Alexander*'s Captains, and the firſt of the *Seleucides*, eſtabliſh'd his Throne in *Syria.* Without detailing the various Sentiments of various Authors, it may ſuffice to obſerve, That, according to the beſt Accounts, the firſt Year of this Æra falls in the Year 311 before *Chriſt*, which was 12 Years after *Alexander*'s Death. See EPOCHA.

SELLA, in Anatomy, *Sella Equina, Sella Turcica*, and *Sella Sphænoides*; A Name given the Four Apophyſes of the *Os Sphænoides*, and *Os Cuneiforme* in the Brain, in regard of their forming a Reſemblance of a Saddle, which the *Latins* call *Sella.* See BRAIN. They are ſometimes alſo called by the *Greek* Name *Clinoides.* Herein are contained the pituitary Glands, and in ſome Beaſts, the *Rete Mirabile.* See SPHÆNOIDES.

SELL, in Building, is of Two kinds; *viz.* *Ground-Sell*, which is the loweſt Piece of Timber in a Timber Building, and that whereon the whole Superſtructure is raiſed; and *Window-Sell*, called alſo *Window-Soil*, the bottom Piece in a Window-Frame. See Window.

SEMBIANS, a Sect of ancient Hereticks, denominated from their Leader, *Sembius* or *Sembianus*, who condemn'd all Uſe of Wine, as Evil of itſelf; perſuaded his Followers, that the Vine was a Production of Satan and the Earth; denied the Reſurrection of the Dead, and rejected moſt of the Books of the *Old Teſtament*. *Jovet.*

SEMBRADOR, an Engine, invented by *Don Joſ. de Lucatello*, for the evenly Sowing of Seeds; deſcribed in the *Philoſophical Tranſactions*, under the Title of the *Spaniſh Sembrador*. The Perfection of Agriculture is allowed to conſiſt in ſetting the Plants in proportionable Spaces, and giving ſufficient Depth to the Roots, that they may ſpread, and receive their neceſſary Nouriſhment: yet is very little Care taken in the Practice of this important Part of Husbandry; but all ſorts of Grains ſown by Handfuls, caſt at Random; by which means Four Parts in Five of the Seed are loſt. To remedy this Inconvenience, the *Sembrador* or *Sower*, is invented, which being faſtened to the Plough, the whole Buſineſs of Plowing, Sowing and Harrowing is done at once, the Seeds-man's Trouble ſaved, and the Grain ſpread at equal Diſtances, and equally deep at the bottom of the Furrow. An Experiment hereof was made before the Emperor *Leopold* in the Fields of *Luxemburg* in *Auſtria*, where the Land uſually yields four or five fold; but the Crop from the Ground ſowed by this Inſtrument, was Sixty fold, as appears by a Certificate of the Emperor's Officer, appointed to ſee the Experiment: Sign'd *Vienna*, *Auguſt* 1. 1663. A Figure of the *Sembrador*, we have in the *Tranſactions*, by the Earl of *Caſtlemain*.

SEMEIOSIS, in Medicine. See Diagnosis.

SEMEIOTICA, that Part of Medicine, which conſiders the Signs or Indications of Health and Diſeaſes; and enables the Phyſician to judge what is, was, or will be the State, Degree, Order and Effect of Health or Sickneſs. See Sign and Indication; ſee alſo Medicine. The Word is form'd from the *Greek* Σημειωτικη, of Σημεῖον, *Sign*.

SEMENTINÆ FERIÆ, in Antiquity, Feaſts held annually among the *Romans*, to obtain of the Gods a plentiful Harveſt. They were held in the Temple of *Terra*, or the Earth; where ſolemn Sacrifices were offered to *Terra* and *Ceres*. The Time of the Celebration was about Seed-Time, uſually in the Month of *January*; for *Macrobius* obſerves, they were moveable Feaſts. They had their Name from *Semen*, Seed.

SEMETS, in Botany; Dr. *Grew* uſes the Word for the Apices of the Attire of Plants. See Apices.

SEMI, a Word borrow'd from the *Latin*, ſignifying *Half*; but only uſed in Compoſition with other Words, as in the following Examples. The *French*, inſtead of *Semi*, frequently uſe *Demi*.

In Muſic, *Semi* has three ſeveral Uſages: Firſt, when added to a Note, it expreſſes a Diminution of Half its Value, as *Semi-breve*, *&c.* which See. Secondly, when added to the Name of an *Interval*, it expreſſes a Diminution, not of Half, but of a minor Half-tone, or four Commas in the whole Compaſs. Thirdly, it ſometimes ſignifies an Imperfection. Thus *Semicircolo* or *Circolo-mezzo*, ſignifies an imperfect Circle, which is the Mark of imperfect Time, that is, of double Time; whereas, the Circle, being a Character of Perfection, marks triple Time.

SEMI-ARIANS, a Branch of the Ancient *Arians*; conſiſting of ſuch as, in Appearance, condemned the Errors of that Hereſiarch, but yet acquieſced in the Principles thereof; only palliating and hiding them under ſofter, and more moderate Terms. 'Tis true, they ſeparated from the *Arian* Faction; but yet could never be brought to acknowledge, that the Son was *Homoouſios*, that is, conſubſtantial, or of the ſame Subſtance with the Father. They would only allow him to be *Homoiouſios*, that is, of a Subſtance like the Father. Though, as to Expreſſion, they only differ'd from the Orthodox by a ſingle Letter; yet were they, in Effect, in the Error of the *Arians*; as they placed the Son in the Rank of Creatures. It did not avail the teaching, that there was no other Creature of the ſame Claſs with him; ſince by denying him conſubſtantial with God, they effectually precluded him from being truly God. Yet ſome, even among the Orthodox, uſe the Word *Homoiouſios*, in ſpeaking of the Son; applying ſuch an Idea to it, as, it ſeems, is conſiſtent with Orthodoxy. See Arians.

SEMI-BREVE, in Muſic, a Note, or Meaſure of Time, comprehending the Space of Two Minims, or Four Crotchets, or Half a *Breve*. The *Semi-breve* is accounted one Meaſure or Time; or the Integer, in Fractions and Multiples whereof the Time of the other Notes is expreſſed. Thus the Minim is expreſs'd by $\frac{1}{2}$; a Crotchet by $\frac{1}{4}$, *&c.* *i. e.* by $\frac{1}{4}$ of a Meaſure or *Semi-breve*. A *Breve* by 2; a *Long* by 4, that is, by 4 Meaſures or *Semi breves*. The Character of the *Semi-breve* is O.

Semi-Circle, in Geometry, a Figure comprehended between the Diameter of a Circle, and Half the Circumference. See Circle. Two *Semi-Circles* can only cut each other in one Point.

Semi-Circle, is alſo an Inſtrument in Surveying, call'd alſo *Graphometer*. It conſiſts of a *Semi-circular* Limb, as F I G (Tab. Surveying Fig. 16.) divided into 180 Degrees and ſometimes ſubdivided, Diagonally or otherwiſe, into Minutes. This Limb is ſubtended by a Diameter F G, at the Extremities whereof are Erected two Sights. In the Centre of the *Semi-circle*, or the Middle of the Diameter, is fix'd a Box and Needle. On the ſame Centre is fitted an Alidade or moveable Index, carrying two other Sights, as H I. The whole is mounted on a Staff with a Ball and Socket.

In Effect, the *Semi-circle* is nothing elſe but Half a *Theodolite*; with this only Difference, that whereas the Limb of the *Theodolite*, being an intire Circle, takes in all the 360° ſucceſſively; in the *Semi-circle*, the Degrees only going from 1 to 180, 'tis uſual to have the remaining 180°, or thoſe from 180° to 360°, graduated in another Line on the Limb, within the former.

To take an Angle with a Semi-Circle.

Place the Inſtrument in ſuch Manner, as that the Radius C G may hang over one Leg of the Angle, to be meaſur'd, and the Centre C over the Vertex of the ſame. The firſt is done by looking through the Sights F and G at the Extremities of the Diameter, to a Mark fixed up in one Extremity of the Leg: The latter is had by letting fall a Plummet from the Centre of the Inſtrument. This done, turn the moveable Index H I on its Centre towards the other Leg of the *Semi-circle*, till through the Sights fixed on it, you ſee a Mark in the Extremity of the Leg. Then, the Degree which the Index cuts on the Limb, is the Quantity of the Angle.

For further Uſes of the Semi-circle, *they are the ſame with thoſe of the Theodolite.* See Theodolite.

Semi-Cupium, a Half-Bath, wherein the Patient is only up to the Navel. See Bath.

Semi-Diameter, a Right Line drawn from the Centre of a Circle or Sphere, to its Circumference; the ſame with what we otherwiſe call *Radius*. See Radius. The Diſtances, Diameters, *&c.* of the Heavenly Bodies, are uſually eſtimated by Aſtronomers in *Semi diameters* of our Earth. See Earth; See alſo Sun, Planet, *&c.*

To find the Semi-diameters *of the Primary Planets in* Semi-diameters *of the Earth.*

Since the Sun's true *Semi-diameter* is 152 *Semi-diameters* of the Earth; and we have the *Ratio* of the *Diameters* of the Primary Planets to that of the Sun (See Diameter; their *Semi-diameters* are eaſily found by the Rule of Three: Thus, the *Semi-diameter* of *Saturn* will be found $20\frac{20}{37}$; that of his Ring $45\frac{7}{37}$; that of *Jupiter* $27\frac{8}{11}$; that of *Mars* $\frac{76}{63}$; that of *Venus* $\frac{4}{7}$; and that of *Mercury* $\frac{19}{9}$. See Planet.

Semi-Colon, in *Grammar*, one of the Points or Stops, uſed to diſtinguiſh the ſeveral Members of Sentences from each other. See Sentence and Point. The Mark or Character of the *Semi-colon* is (;) It has its Name, as having a ſomewhat leſs Effect than a Colon, or as demanding a ſhorter Pauſe. The Uſe of the *Semi-colon*, the Grammarians generally ſay, is, To mark a Senſe leſs compleat than the Colon, and more compleat than the Comma; but this only conveys a very obſcure Idea. In effect, the preciſe Uſe of the *Semi-colon*, or what it is diſtinguiſhes it from the Colon, is a Thing very little known in the World. Our beſt Authors ſeem to uſe them promiſcuouſly. See Colon.

Mr. *Ward*, we believe, is the firſt (and he in the preſent Year 1724) who ever ſettled the preciſe Uſe of the *Semi-colon*. His Obſervation is, *That the Semi-colon is properly uſed to diſtinguiſh the conjunct Members of Sentences*: Now, by a *conjunct Member of a Sentence*, he means, ſuch a one as contains at leaſt two ſimple Members. See Sentence. Whenever, then, a Sentence can be divided into ſeveral Members of the ſame Degree; which are again diviſible into other ſimple Members, the former are to be ſeparated by a *Semi-colon*. For an Inſtance: If Fortune bear a great Sway over him, who has nicely ſtated and concerted every Circumſtance of an Affair; we muſt not commit every Thing, without Reſerve to Fortune, leſt ſhe have too great a hold of us. Again, *Si quantum in agro locisque desertis audacia poteſt, tantum in Foro atque Judiciis*

Judiciis impudentia valeret; non minus in Cauſa, cederet Aulus Cæcina Sexti Æbutii impudentia quam tum in vi facienda ceſſit audaciæ. An Inſtance in a more complex Sentence we have in *Cicero*. *Res familiaris primum bene parta ſit, nulloque turpi quæſtu; tum quam plurimis, modo dignis, ſe utilem præbeat; deinde augeatur ratione, diligentia, parſimonia; Nec libidini potius luxuriæque, quam liberalitati & beneficientiæ pareat.* But though the proper Uſe of the *Semi-colon*, be to diſtinguiſh conjunct Members; 'tis not neceſſary that all the Members divided hereby, be conjunct. For upon dividing a Sentence into great and equal Parts, if one of them be conjunct, all thoſe other Parts of the ſame Degree are to be diſtinguiſhed by a *Semi-colon*. Thus: Whoever is overtaken with Poverty; the ſame will find, that Coldneſs, Contempt, Injuries, *&c.* are not far behind. Or thus: *Nihil eſt tam molle, tam tenerum, tam aut fragile, aut flexibile; quam voluntas civium.* Sometimes alſo it happens, that Members that are oppoſite to each other; but relate to the ſame Verb, are ſeparated by a *Semi-colon*: Thus *Cicero*. *Ex hac parte pudor, illinc petulantia; hinc fides, illinc fraudatio; tunc pietas, illinc ſcelus*, &c. Hither likewiſe may be referred ſuch Sentences, where the whole going before, the Parts follow: as, The Parts of *Rhetorick* are Four; Invention, Diſpoſition, Elocution and Pronunciation.

Semi-Diapason, in Muſic, a defective Octave; or an Octave diminiſhed, of a minor *Semi-tone*, or four Commas. See Diapason.

Semi-Diapente, in Muſic, a defective Fifth, call'd uſually by the *Italians*, *Falſa quinta*, and by us a *falſe Fifth*. See Fifth.

Semi-Diatessaron, in Muſic, a defective Fourth, call'd, properly, a *falſe Fourth*. See Fourth.

Semi-Double, in the *Romiſh* Breviary, a Term uſed for ſuch Offices and Feaſts as are celebrated with leſs Solemnity than the *double* ones; but yet with more than the ſingle ones. The *Semi-double* Office has double Veſpers, and Nine Leſſons at *Mattins*; but the Anthems are not redoubled. 'Tis perform'd on *Sundays*, in the Octaves, and in Feaſts mark'd for *Semi-double* in the Calendar.

Semi-Lunar *Valves*, in Anatomy, are little *Valves* or Membranes of a *Semilunar* Figure, placed in the Orifice of the Pulmonary Artery, to prevent the Relapſe of the Blood into the Heart at the time of its Dilatation. See Valve.

Semi-Ordinates, in Geometry, the Halves of the *Ordinates* or Applicates. See Ordinate.

Semi-Parabola, in Geometry, a Curve defined by the Equation $ax^{m-1} = y^m$; as $ax^2 = y^3$, $ax^3 = y^4$. See Parabola.

In *Semi-parabolas* $y^m : v^m :: ax^{m-1} : az^{m-1} = x^{m-1} : z^{m-1}$ or the Powers of the *Semi-ordinates*, are as the Powers of the Abſciſſes one Degree lower; *E. gr.* in Cubical *Semi-parabolas*, the Cubes of the Ordinates y^3 and v^3 are as the Squares of the Abſciſſes x^2 and z^2.

Semi-Pelagians, a Name anciently, and even at this Day, given to ſuch as retain ſome Tincture of *Pelagianiſm*. See Pelagians. S. *Proſper*, in a Letter to St. *Auguſtin*, calls them *Reliquias Pelagii*.

Many learned Men, principally among the *Gauls*, who cou'd not come into St. *Auguſtin*'s Doctrine of Grace, *&c.* were accuſed of *Semi-pelagianiſm*: They were alſo call'd *Prieſts of Marſeilles*; in regard their Errors had their firſt Riſe in that City. *Caſſian*, who had been a Deacon of *Conſtantinople*, and was afterwards a Prieſt at *Marſeilles*, was the Chief of theſe *Semi-pelagians*. S. *Proſper*, who was Co-temporary with him, and who attack'd him very vigorouſly, tells us, That *Caſſian* endeavouring to keep I know not what Medium between the *Pelagians* and the Orthodox, did not agree either with the one or the other. The *Semi-pelagians*, with the Orthodox, allowed of Original Sin; but denied, that Man's free Agency could be ſo wounded by this Sin, that he could not of himſelf do ſomething which might induce God to afford his Grace to one more than another. They taught, That the Grace which ſaves Men, was not given them from the mere Will of God, but according to his eternal Preſcience, whereby he foreſaw who they were that would believe in him. They own'd, that the Vocation or Call to the Goſpel, was gratuitous; but added, at the ſame Time, That it was common to all, inaſmuch as God deſired all ſhould be ſaved. As to Election, they held, that it depended on our Perſeverance; God only chuſing ſuch to Eternal Life, as ſhould perſevere in the Faith.

Semi-Proof, an imperfect Proof. The Depoſitions of a ſingle Evidence only make a *Semi-proof*. See Witness. The Teſtament of a Perſon deceaſed, is deemed a *Semi-proof*. In *France*, in enormous Caſes, the *Semi proof* frequently determines them to try the Torture.

Semi-Quartile, is an Aſpect of the Planets, when diſtant from each other 45 Degrees, or one Sign and an Half.

Semi-Quaver, in Muſic. See Quaver.

Semi-Quintile; is an Aſpect of the Planets, when at the Diſtance of 36 Degrees from one another. See Aspect.

Semi-Sextile, or *Semi-ſixth*; or *S. S.* an Aſpect of two Planets, wherein they are diſtant from each other, one Twelfth Part of a Circle, or 30 Degrees. See Aspect. The *Semi-ſixth* was added to the ancient Aſpects by *Kepler*; and, as he ſays, from Meteorological Obſervations.

Semi-Spinatus, in Anatomy. See Transversatis Dorsi.

Semi-Tone, in Muſic, one of the Degrees, or concinnous Intervals, of Concords: See Degree. There are three Degrees, or leſſer Intervals, by which a Sound can move upwards and downwards ſucceſſively from one Extreme of any Concord to the other, and yet produce true Melody; and, by means whereof, ſeveral Voices, and Inſtruments are capable of the neceſſary Variety in paſſing from Concord to Concord. Theſe Degrees, are the greater and leſſer Tone, and the *Semi-tone*. The *Ratio* of the Firſt is 8 : 9; that of the Second 9 : 10. See Tone. The *Ratio* of the *Semi-tone* is 15 : 16. which Interval is called a *Semi-tone*; not that 'tis geometrically the Half of either of the Tones, for 'tis greater; but becauſe it comes ſomewhat near it. 'Tis alſo call'd the *Natural Semi-tone*, and the *Greater Semi-tone*, becauſe greater than the Part it leaves behind, or its Complement to a *Tone*, which is 15 : 16 in the *Leſs Tone*, and 128 : 135 in the Leſſer. The *Semi-tone* is the Difference of the greater Third and Fourth, or of a Fifth, and leſſer Sixth.

Every *Tone* of the Diatonic Scale is divided into a *Greater* and *Leſs*, or a *Natural and Artificial Semi-tone*. Mr. *Malcolm* obſerves, 'Twas very natural to think of a Diviſion of each Tone, where 15 : 16 ſhould be one Part in each Diviſion, in regard this being an unavoidable and neceſſary Part of the Natural Scale, wou'd readily occur as a fit Degree, and the more, as 'tis not far from an exact *Half Tone*. In effect, the *Semi-tones* are ſo near equal, that, in Practice, at leaſt, on moſt Inſtruments, they are accounted equal, ſo that no Diſtinction is made into *Greater* or *Leſs*. Theſe *Semi-tones* are called *Fictitious Notes*, and, with reſpect to the Natural ones, are expreſs'd by Characters called *Flats* and *Sharps*: See Flat and Sharp. Their Uſe is to Remedy the Defects of Inſtruments, which having their Sounds fixed, cannot be always made to anſwer to the Diatonic Scale: See Scale. By means of theſe we have a new Kind of Scale, called the *Semi-tonic-Scale*.

Semi-Tonic *Scale*, or the Scale of *Semi-tones*; A Scale or Syſtem of Muſic, conſiſting of 12 Degrees, or 13 Notes, in the *Octave*; being an Improvement on the Natural or Diatonic Scale, by inſerting between each two Notes thereof, another Note, which divides the Interval of Tone into two unequal Parts, called *Semi tones*. See Semi-tone. The Uſe of this Scale is for Inſtruments that have fixed Sounds, as the Organ, Harpſichord, *&c.* which are exceedingly defective on the Foot of the *Natural*, or *Diatonic*, Scale. For the Degrees of the Scale being unequal, from every Note to its *Octave* there is a different Order of Degrees; ſo that from any Note we cannot find any Interval in a Series of fix'd Sounds: Which yet is neceſſary, that all the Notes of a Piece of Muſic carried through ſeveral Keys, may be found in their juſt Tune, or that the ſame Song may be begun indifferently at any Note, as may be neceſſary for accommodating ſome Inſtruments to others, or to the Human Voice, when they are to accompany each other in Uniſon.

The *Diatonic* Scale, beginning at the loweſt Note, being firſt ſettled on an Inſtrument, and the Notes thereof diſtinguiſhed by their Names *a . b . c . d . e . f . g*; the inſerted Notes, or *Semi-tones*, are called *Fictitious Notes*, and take the Name or Letter below with a ♯ as *c* ♯ called *c Sharp*; ſignifying, that it is a *Semi-tone* higher than the Sound of *c* in the natural Series, or this Mark ♭ (called a *Flat*) with the Name of the Note above, ſignifying it to be a *Semi-tone* lower. Now $\frac{15}{16}$ and $\frac{128}{135}$ being the two *Semi tones* the greater *Tone* is divided into; and $\frac{15}{16}$ and $\frac{24}{25}$, the *Semi-tones* the leſs *Tone* is divided into; the whole *Octave* will ſtand as in the following Scheme, where the *Ratio*'s of each Term to the next, are wrote Fraction wiſe between them below.

Scale of Semi tones.

c . c♯ *. d . d*♯ *e . f . f*♯ *g . g*♯ *. a . b . b. cc*

$$\frac{15}{16}\quad\frac{128}{135}\quad\frac{15}{16}\quad\frac{24}{25}\quad\frac{15}{16}\quad\frac{128}{135}\quad\frac{15}{16}\quad\frac{15}{16}\quad\frac{24}{25}\quad\frac{15}{16}\quad\frac{128}{135}\quad\frac{15}{16}$$

For the Names of the Intervals in this Scale it may be conſidered, that as the Notes added to the natural Scale are not deſign'd to alter the Species of Melody, but leave it ſtill *Diatonic*, and only correct ſome Defects ariſing from ſomething foreign to the Office of the Scale of Muſic, *viz.* the fixing and limiting the Sounds: We ſee the Reaſon why the Names of the *Natural* Scale are continued, only making a Diſtinction of each into a *Greater* and *Leſs.* Thus an Interval of one *Semi-tone* is called a *Leſſer Second*; of two *Semi-tones*, a *Greater Second*; of three *Semi-tones*, a *Leſs Third*; of four, a *Greater Third*, &c.

A ſecond Kind of *Semitonic-Scale* we have from another Diviſion of the *Octave* into *Semi-tones*; which is performed by taking an Harmonical Mean between the Extremes of the *Greater* and *Leſs Tone* of the Natural Scale, which divides it into two *Semi-tones* nearly equal: Thus the *Greater Tone* 8 : 9 is divided into 16 : 17, and 17 : 18; where 17 is an Arithmetical Diviſion, the Numbers repreſenting the Lengths of Chords; but if they repreſent the Vibrations, the Lengths of the Chords are reciprocal, *viz.* As 1 : 16 : $\frac{8}{9}$, which puts the *Greater Semi-tone* $\frac{16}{17}$, next the lower Part of the *Tone*, and the Leſſer $\frac{17}{18}$ next the Upper, which is the Property of the Harmonical Diviſion. After the ſame Manner the *Leſſer Tone* 9 : 10 is divided into the two *Semi-tones* 18 : 19 and 19 : 20, and the whole *Octave* ſtands thus:

c . *c* ♯ . *d* . *d* ♯ . *e* . *f* . *f* ♯ . *g* . *g* . ♯ . *a* . *b* . *b* . *c*

$\frac{16}{17}$ $\frac{17}{18}$ $\frac{18}{19}$ $\frac{19}{20}$ $\frac{15}{16}$ $\frac{16}{17}$ $\frac{17}{18}$ $\frac{18}{19}$ $\frac{19}{20}$ $\frac{16}{17}$ $\frac{17}{18}$ $\frac{15}{16}$

This Scale, Mr. *Salmon* tells us, in the *Philoſoph. Tranſact.* he made an Experiment of, before the Royal Society, on Chords, exactly in theſe Proportions, which yielded a perfect Conſort with other Inſtruments, touch'd by the beſt Hands. Mr. *Malcolm* adds, That having calculated the *Ratios* thereof, for his own Satisfaction, he found more of them falſe than in the preceding Scale; but their Errors were conſiderably leſs, which made Amends.

SEMINAL, in Medicine, *&c.* *Spermatic*, or ſomething belonging to the *Semen* or *Seed.* See Seed.

SEMINALIS CAPSULA, or *Seed-Bag*, is the Husk, that contains the Seed of any Plant.

SEMINALES *Veſiculæ.* See Vesiculæ *Seminales.*

SEMINAL *Leaves*: Much the greateſt Part of all Seeds, ſown in the Earth, come up, or ſhoot forth at firſt with little, plain, ſoft, and undivided Leaves; which, becauſe they are uſually very different from the Leaves of the ſucceeding Plant in Magnitude, Figure, Surface, and Poſition, are called *Seminal Leaves*: As the little embrionated Plant, which lies in Miniature in every Seed, is called the *Plantula Seminalis.* See Plant and Leaf.

SEMINARY, a Place appointed for the Inſtruction of young Perſons, deſtined for the Sacred Miniſtry, in the Duties, Ceremonies, and Offices thereof; firſt inſtituted, as *Thomaſin* tells us, by St. *Auguſtin.* Of theſe *Seminaries* there are many abroad, furniſh'd with Halls for the Aſſemblies of the Exercitants, and little Chambers, or Cells, where each Perſon retires, ſtudies, and prays apart: Such is the *Seminary* of St. *Sulpitius* at *Paris.* The Council of *Trent* decrees, That Children exceeding 12 Years of Age, be taken, brought up, and inſtructed in common, to qualify them for the Eccleſiaſtical State; and that there be a *Seminary* of ſuch belonging to each Cathedral, under the Direction of the Biſhop. In *France*, the Eſtabliſhment of *Seminaries* is ſomewhat different from the Decree of the Council. None are taken in but young People ready to ſtudy Theology, and be ordained: So that the *Seminaries* are a Kind of Houſes of Probation, where the Vocation of Clerks is examined, and they prepared to receive Orders. For the Subſiſtance of theſe *Seminaries*, there are ſeveral Unions of Benefices, or elſe the Clergy of the Dioceſe are obliged to contribute to maintain them. Pope *Pius* IV. having eſtabliſhed a *Seminary* at *Rome*, in Conſequence of the Decree of the Council of *Trent*; by Advice of the Cardinals, it was given to the Jeſuits, who have made good Uſe thereof——Among the Canons of S. *Auguſtine*, *Seminary* is uſed for a Kind of College, or School, where Penſionaries are kept, and inſtructed in the Claſſical and other Learning.

The Houſes of the Society *de propaganda Fide*, eſtabliſhed for the preparing of Eccleſiaſticks for Miſſions among Infidels and Hereticks, are alſo called *Seminaries*: The Principal whereof is that at *Rome*, called, The *Apoſtolical College*, *Apoſtolical Seminary*, *Paſtoral Seminary*, *Seminary* of the *Propaganda*, &c.

SEMINATION, in Natural Hiſtory, *&c.* the Act of ſowing or ſhedding *Seed*; particularly, that of Vegetables. See Seed.

Aſſoon as the Seed is ripe, Dr. *Grew* obſerves, Nature takes ſeveral Methods for its being duly *Sown*: Not only by the Opening of the Uterus, but in the Make of the Seed it ſelf. Thus, the Seeds of many Plants, which affect a peculiar Soil or Seat, as *Arum*, Poppy, *&c.* are heavy and ſmall enough, without farther Care, to fall directly down to the Ground. Others, that are large, and light enough to be expoſed to the Wind, are often furniſhed with one or more Hooks to ſtay them from ſtraying too far from their proper Place: Thus, the Seeds of Avens have a ſingle Hook; thoſe of Agrimony and Gooſe-graſs, many; both the former loving a warm Bank, and the laſt a Hedge for its Support. On the contrary, many Seeds are furniſhed with Wings, or Feathers; partly with the Help of the Wind to carry them, when ripe, off the Plant, as thoſe of Aſh, *&c.* and partly, to enable them to make their Flight more or leſs abroad, that they may not, by falling together, come up too thick; and, that if one ſhould miſs a good Soil or Bed, another may hit. So the Kernels of Pines have Wings, though ſhort ones, whereby they don't fly in the Air, but only flutter on the Ground. But thoſe of Typha, Dandelion, and moſt of the pappous Kind, have numerous long Feathers, by which they are wafted every Way. Others are ſown by being laid in ſpringy elaſtic Caſes, which, when they crack and burſt, dart their Seed at convenient Diſtances: Thus, Wood-Sorrel having a running Root, Nature ſees fit to ſow the Seed at ſome Diſtance, the doing of which is effected by a white, ſturdy, tendinous Cover, which beginning to dry, burſts open on one Side in an Inſtant, and is violently turn'd Inſide outwards. The Seed of Harts-tongue, and codded Arſmart, is flung, or ſhot away, by means of a Spring, wound, or girt round the Seed-caſe. When the Spring is become ſtark and tenſe enough, it ſuddenly breaks the Caſe into two Halves, like little Cups, and ſo flings the Seed.

Other notable Means of *Semination* are obſerved by other Authors: A Quantity of Fern-Seed, Mr. *Ray* tells us, laid in a Lump, on a Paper, the *Seminal Veſiculæ* are heard to crackle, burſt, and, by a Microſcope, the Seeds are ſeen to be projected to a conſiderable Diſtance from each other. Dr. *Sloane* obſerves, That the *Gentianella flore Cœruleo*, or Spirit Leaf, requiring wet Weather to be ſown in, aſſoon as the leaſt Drop of Rain touches the End of the Seed-Veſſels, with a ſmart Noiſe, and a ſudden Leap, it opens it ſelf, and, with a Spring, ſcatters its Seed. The Plants of the Cardamine-Family, throw their Cods open, and dart out their Seed upon a ſlight Touch of the Hand. Nay, Mr. *Ray* adds, That the Pods of the *Cardamine Impatiens* not only burſt upon the ſlighteſt Touch, but even by an Approach of the Hand to touch them, without any real Contact.——

Other Plants ſow their Seeds by inviting Birds, by their agreeable Taſte and Smell, to feed of them, ſwallow them, and carry them about; thereby alſo fertilizing them, by paſſing through their Bodies. In ſuch Manner are Nutmegs, and Miſſeltoe, ſown and propagated. See Nutmeg and Misseltoe.

SEMITA LUMINOSA, is a Name given to a Kind of Lucid Tract in the Heavens, which, a little before the Vernal Equinox, may be ſeen about Six a Clock at Night, extending from the Weſtern Edge of the Horizon, up towards the Pleiades. The Phænomenon hath been taken-Notice of by *Caſſini* and *Fatio*, who both evince, That this Light comes diffuſed from both Sides of the Sun: Its Brightneſs is much the ſame with that of the *Via Lactea*, or the Tail of a Comet: It is ſeen plaineſt with us about the Beginning of *October*, or the latter End of *February*. *Fatio* conjectures, That the Bodies, or rather the Congeries or Aggregate of thoſe Bodies, which occaſion a Light, doth conform to the Sun like a Lens, and takes it to have ever been the ſame; but, *Caſſini* thinks it ariſes from a vaſt Number of ſmall Planets, which encompaſs the Sun, and give this Light by Reflexion, eſteeming it alſo not to have exiſted long before he obſerved it.

SENA, or *Senna*, in Medicine, a purgative Leaf, much uſed in Compoſitions of that Kind: The Shrub which bears it, is cultivated in ſeveral Parts of the *Levant*, and grows five or ſix Foot high. It puts forth woody Branches, furniſhed with Leaves on one Side: Its Flowers are yellow, and yield a Fruit in Manner of a greeniſh flat Pod, containing ſeveral Lodges or Cells of Seeds, reſembling Grape-ſtones. Theſe Pods ſome Phyſicians prefer to the Leaves themſelves. There is alſo a Kind of *Sena* cultivated about *Florence*, but 'tis inferior to that of the *Levant*, as is owned by the *Italians* themſelves. Father *Plumier* mentions a Third Kind growing in the *Antilles* Iſlands. M. *Lemery* diſtinguiſhes three Kinds of *Sena* of the *Levant.* The firſt brought from *Seyda*, called *Sena of Appalto*, that is *Cuſtom Sena*, by reaſon of the Cuſtom paid the Grand Seignior, for the Privilege of exporting it. The ſecond comes from *Tripoli*: The third is called *Sena of Mocha*. The beſt of theſe Kinds is the firſt, which *Pomet* directs us to chuſe, in narrow Leaves, of a moderate Size, ſhaped like the End of a Pike, of a pale green Colour, a penetrating Smell, ſoft to the Touch, &c. The *Sena* of *Tripoli* holds the ſecond Rank in Goodneſs. Its Difference from that of *Seyda*, conſiſts in its Colour, which is green; its Smell which is very weak; and in a certain Harſhneſs, or Roughneſs, which it diſcovers upon the Touch. Beſides theſe three Kinds of *Sena*, and their Pods; the Druggiſts ſell the Duſt found at the Bottom of the Bales; which is a very poor Commodity; and yet much better than what they call the *Small Sena*, which comes with it in the Bales, by way of Package, and which many hold to be a Plant of no Virtue, put in by Chance, or, at beſt, to increaſe the Weight.

The beſt *Sena*, ordinarily found in our Shops, Dr. *Quincy* obſerves, is that which is ſharpeſt leaved, and which ſmells freſheſt. The Brightneſs of its Colour, and Quickneſs of its Flavour, are the Indications of its Goodneſs; for when it has loſt its Scent, and grows duſky, it is good for little: This Drug, at firſt taking, is apt to nauſeate the Stomach; and therefore, if a little Cinnamon, or a Dram or two of its diſtilled Water, be added, it paſſeth thro' with leſs Sickneſs. This is exactly conformable to the Sentiments of *Ludovicus*, who ſays, That the purgative Quality of this Herb reſides in its mucilaginous or gummy Juice; which, the more it is divided, gripes the leſs in its Operation. *Rulandus* imagined a Sudorifick Quality to be in it; and accordingly order'd it in ſome Compoſitions of that Intention. This is ſo ancient in Medicine, that *Schroder* ſays, *Serapion* firſt preſcribed it.

SENATE, an Aſſembly or Council of *Senators*; that is, of the principal Inhabitants of a State, who have a Share in the Government. See SENATOR. As, the *Senate* of *Rome*, of *Carthage*, &c. among the Ancients; the *Senate* of *Venice*, of *Genoa*, &c. among the Moderns. The *Senate of Ancient Rome*, was, of all others, the moſt celebrated, during the Splendor of the Republic. The *Roman Senate* exercis'd no contentious Juriſdiction. It appointed Judges, either out of the *Senate*, or among the Knights; but never ſtoop'd to judge any Proceſſes, in a Body. The *Senate* concerted Matters of War; appointed who ſhould command the Armies; ſent Governors into the Provinces; took Order, and diſpoſed of the Revenues of the Empire. Yet did not the whole Soveraign Power reſide in the *Senate*. It cou'd not elect Magiſtrates, make Laws, nor decide of War and Peace: But in all theſe Caſes they were to conſult the People. Under the Emperors, when the *Senate* became diſpoil'd of moſt of its other Offices; they began to judge Cauſes. For Cauſes of leſs Conſequence they appointed particular Judges; the reſt, principally Criminal Cauſes, they reſerv'd for their own Cognizance, to be judg'd by them in a Body, and that frequently in the Emperor's Preſence. This was to keep their Heads from State Affairs. *Nero* further committed to the *Senate*, the Judgment of all Appeals: But this did not hold long; nor do we find any Footſteps thereof any where but in the 62d Novel. The *Senate* aſſembled on certain ſtated Days, *viz.* ordinarily on the Calends, Nones and Ides of each Month. Their extraordinary Meetings were on any other Days; when the Conſul, Dictator, or Tribune, thought fit to call them. Their Place of Meeting, was either the Temple of *Concord*, at the Gate of *Capua*, or in the Temple of *Bellona*: The Conſul preſided at the *Senate*. Till *Auguſtus*'s Time, the *Senate* was always open'd with a Sacrifice. But that Prince, in Lieu thereof, appointed, That each *Senator*, e'er he took his Place, ſhou'd offer Wine and Incenſe on the Altar of the God, in whoſe Temple they were met; and take an Oath, That he would give his Vote according to his Conſcience.

Halicarnaſſæus, and other Authors, mention it as a great Defect in the Authority of the *Roman Senate*, That they had none under their Command, to execute their Orders. Hence the leaſt Tribune had it in his Power to obſtruct their Decrees; and hence it is, that when they gave their Orders to the Conſuls, and Prætors, they did it with a kind of Submiſſion, *Si eis ita videtur*; If they think fit.

SENATOR, a Member of a *Senate*. There were Two Orders, or Degrees, among the *Roman* Nobility; that of the *Senators*, and that of the *Knights*: After the Two, came the *People*. The firſt hundred *Senators* were appointed by *Romulus*, called *Patres*. Upon the Union with the *Sabines*, *Romulus*, or, as others ſay, *Tullius*, added a ſecond Hundred, called *Patres majorum Gentium*, to diſtinguiſh them from a third Hundred added by the elder *Tarquin*, and called *Patres minorum Gentium*. The Number of *Senators* was not fix'd. In the Time of *Gracchus* they were 600; during the Civil Wars, they were reduced to 300. *Julius Cæſar* augmented that Number to 800 or 900; and *Auguſtus* brought them back again to 600. The Choice of *Senators* belong'd at firſt to the Kings, then to the Conſuls, then to the Cenſors; who, in their Cenſus or Survey, every five Years, appointed new *Senators* in lieu of thoſe dead or degraded: At length it fell to the Emperors. Though, for a long Time, none were raiſed to the Dignity of *Senators*, but thoſe moſt conſpicuous for their Prudence, &c. yet ſome Regard was afterwards had to their Eſtate, leſt the Dignity ſhould become debaſed by Poverty. To hold the Dignity, a yearly Revenue of 800 Thouſand Seſterces was required, which amounts to nearly 6000 Pounds of our Money. Half as much was required for the Knights. The *Senators* who ſunk below this Revenue, were diſcarded, and expunged out of the Liſt by the Cenſor. The *Senators*; were ordinarily choſe from among the Knights, or among ſuch as had bore the Principal Magiſtratures. At firſt the Magiſtrates were taken wholly from among the *Senators*; whence *Tacitus* calls the *Senate*, The *Seminary of all Dignities*: But after the People had been admitted to Magiſtratures; *Senators* were taken from among ſuch as had diſcharged thoſe Offices, though, before, Plebeians. The *Senators* carried their Children with them to the *Senate*, to inform them betimes of Affairs of State: Their Children, however, had not Admittance till 17 Years of Age.

Some make a Diſtinction among the *Senators*. Beſides the *Senators* who were allow'd to ſpeak, and were ask'd their Sentiments, there were others, who, without ſpeaking, or being ever asked their Opinion, were only to follow the Opinion of thoſe they thought the moſt reaſonable, and were hence called *Pediarii*. *A. Gellius* gives us another Notion of the *Pediarii*, and ſays, Thoſe were thus called, who having never bore the Office of Curule Magiſtrate, were obliged to go to the *Senate* on foot.

The *Senators* alone were allowed to wear the Habit call'd *Laticlavium*: (which See) Had a Right to ſit, and be carried in Curule Chairs; to aſſiſt at Plays, and Shews, in the *Orcheſtra*; at Feaſts of the Gods, &c. All which Privileges were reſerved to ſuch as *Auguſtus*, (in the Reform he made of the too numerous *Senate* of *Julius Cæſar*) ſet aſide. They had the Names *Senators*, q. d. *old Men*, given them in Imitation of the *Greeks*, who called their Senate γερουσίαν. So when the *Athenians* aſſembled the People to conſult about the Affairs of the Public; the Officers ſummoned none but ſuch as were Fifty Years Old. The *Ægyptians* and *Perſians* followed the ſame Example, after the *Hebrews*. The *Lacedæmonians*, and *Carthaginians* received none but ſuch as were Sixty Years of Age.

SENATUS CONSULTUM, a Vote or Reſolution of the *Roman Senate*, pronounced on ſome Queſtion, or ſome Point of Law propoſed to it. The *Senatus conſulta* made a Part of the *Roman* Law, when paſs'd. They were depoſited in the Temple of *Ceres*, under the Cuſtody of the *Ædiles*, and at laſt carried, by the Cenſor, to the Temple of *Liberty*, and put up in an Armory called *Tabularia*. See LAW.

SENESCHAL, a Name anciently uſed for a *Steward*; form'd from the *Saxon Sein*, Houſe or Place, and *Schalc*, Governor. Thus the *Seneſchal* of a Baron is his Steward or Bailiff, who holds his Courts, and manages his Demeſne Lands: Sub-*Seneſchal*, his Under-Steward. High *Seneſchal* of *England*, is the High-Steward of *England*: High *Seneſchal del Hotel du Roi*, the Steward of the King's Houſhold. The Ancients uſed the Term *Seneſchallus* indifferently with that of *Dapifer*, whence we are ſure it ſignifies *Steward*. See STEWARD.

SENSATION, the Action of perceiving external Objects, by Means of the Organs of *Senſe*. See SENSE.

To conceive the Manner wherein *Senſation* is effected: Obſerve by the way, That all the Organs conſiſt of little Threads, or Nerves; which have their Origine in the Middle of the Brain, are diffuſed thence throughout all the Members which have any Senſe, and terminate in the exterior Parts of the Body: That when we are in Health, and awake, one End of theſe Nerves cannot be agitated, or ſhaken, without ſhaking the other; by reaſon they are always a little ſtretch'd, as is the Caſe of a ſtretch'd Cord, one Part of which cannot be ſtirr'd without a like Motion of all the reſt. Obſerve, again, That theſe Nerves may be agitated two ways; either by the End out of the Brain, or that in the Brain. If they be agitated from without, by the Action of Objects, and their Agitation be not communicated as far as the Brain; as frequently happens in

Sleep, when the Nerves are in a State of Relaxation; the Soul does not then receive any new *Senſation.* But if the Nerves happen to be agitated in the Brain, by the Courſe of the Animal Spirits, or any other Cauſe; the Soul perceives ſomething, though the Parts of thoſe Nerves, that are out of the Brain, diffuſed through the ſeveral Parts of the Body, remain at perfect Reſt: as likewiſe is frequently the Caſe in Sleep. Laſtly, obſerve, by the way, that Experience tells us, we may ſometimes *feel* Pain in Parts of the Body that have been entirely cut off; by reaſon the Fibres in the Brain correſponding to them, being agitated in the ſame Manner as if they were really hurt; the Soul feels a real Pain in thoſe imaginary Parts. All theſe Things ſhew evidently, that the Soul reſides immediately in that Part of the Brain wherein the Nerves of all the Organs of Senſe terminate: we mean, 'tis there it perceives all the Changes that happen with regard to the Objects that cauſe them, or that have been uſed to cauſe them; and, that it only perceives what paſſes out of this Part, by the Mediation of the Fibres terminating in it. See Nerve, Fibre, *&c.*

Theſe Things premiſed, 'twill not be difficult to explain how *Senſation* is perform'd; the Manner whereof may be conceiv'd from what follows. When the Point of a Needle, for Inſtance, is preſſed againſt the Hand, that Point ſtirs and ſeparates the Fibres of the Fleſh; which Fibres are extended from that Place to the Brain, and when we are awake, are in ſuch a Degree of Tenſion as that they cannot be ſtirr'd without ſhaking thoſe of the Brain. If then, the Motion of the Fibres of the Hand be gentle, that of the Fibres of the Brain will be ſo too; and if the firſt be violent enough to break any thing in the Hand, the laſt will be ſtronger and more violent in Proportion. In like Manner, if the Hand be held to the Fire; the little Particles of the Wood it throws off in great Numbers, and with a great deal of Violence, ſtriking againſt theſe Fibres, and communicating a Part of their Agitation thereto; if the Action be moderate, that of the Extremities of the Fibres of the Brain correſponding to thoſe of the Hand, will be moderate likewiſe: If it be violent enough to ſeparate any of the Parts of the Hand, as it happens in Burning; the Motion of the Fibres in the Brain will be proportionably more violent. This is what befals the Body, when Objects ſtrike upon it. We are now to conſider how the Mind is affected.

The Mind, we have obſerv'd, reſides principally, if we may be allow'd to ſay ſo, in that Part of the Brain where all the Fibres of the Nerves terminate. It attends here, as its Senſory, or Office, to look to the Preſervation of all the Parts of the Body; and, of conſequence, muſt be here advertiſed of all the Changes that happen, and muſt be able to diſtinguiſh between thoſe agreeable to the Conſtitution of the Body, and thoſe hurtful thereto. Any other, abſolute Knowledge, without a Relation to the Body, were uſeleſs. Thus, though all the Changes in our Fibres, do, in Reality, conſiſt in Motions, which ordinarily only differ as to more and leſs; 'tis neceſſary the Soul ſhould look on them as Changes eſſentially different; for though in themſelves they differ but very little, yet, with regard to Preſervation of the Body, they are to be look'd on as eſſentially different.

The Motion, for Inſtance, which cauſes Pain, frequently differs exceedingly little from that which occaſions Titillation: 'Tis not neceſſary there ſhould be an Eſſential Difference between thoſe two Motions, but 'tis neceſſary there be an Eſſential Difference between the Pain and the Tickling thoſe two Motions occaſion in the Soul; for the Agitation of the Fibres, which accompanies the Titillation, informs the Soul of the good State of the Body, that it is able to reſiſt the Impreſſion of the Objects, and that it need not apprehend its being hurt: But the Motion, which occaſions Pain, being ſomewhat more violent, is capable of breaking ſome of the Fibres of the Body; wherefore 'tis neceſſary the Soul be advertized hereof by ſome diſagreeable *Senſation*, that it may provide againſt it. Thus, though all the Motions which paſs in the Body only differ in themſelves, as to more or leſs, yet, when conſidered, with regard to the Preſervation of Life, they may be ſaid to be eſſentially different: For this Reaſon it is, that the Soul does not perceive the Shakes, or Motions themſelves, which Objects excite in the Fibres of the Fleſh: It would be uſeleſs to perceive them; and ſhe would never be able, thence, to learn whether the Objects were capable of doing Hurt or Good. But ſhe perceives herſelf affected with *Senſations*, which differ eſſentially, and which ſhewing preciſely the Qualities of the Objects, as they regard the Body, make her perceive, diſtinctly, whether or no thoſe Objects are capable of hurting it.

In Effect, from a ſtrict Examination of the ſeveral Senſes, it appears, that ſenſible Objects act no otherwiſe upon the Body, for the producing of *Senſation*, than by exciting a Change in the extreme Surface of the Fibres of the Nerves. The Quality of which Change depends on the Figure, Bulk, Hardneſs, and Motion of the Object; ſo that according to all Appearances, the moſt different Objects, which ſhould agree in theſe Four Circumſtances, would produce the ſame *Senſation.* From the various Texture of the Object; the Diverſity of the Nerve affected; the different Fabric of the Organ of Senſe; the different Place in the *Medulla* of the Brain, where the Nerve ariſes; and the different Degree of Motion, wherewith the Action of the Object is applied, ariſe various *Senſations*, and Ideas, in the Mind: none of which repreſent any thing in the Action of the Object, or in the Paſſion of the Organ. And yet the ſame Action of the ſame Object, on the ſame Organ, always produce the ſame *Senſation* or Idea: And the ſame Ideas neceſſarily follow the ſame Diſpoſition of the ſame ſenſible Organ, in the ſame manner as if the Idea perceiv'd, were the natural and neceſſary Effect of the Action on the Organ. See Idea.

SENSE, a Faculty of the Soul, whereby it perceives external Objects, by means of ſome Action or Impreſſion made on certain Parts of the Body, called *Organs of Senſe*, and propagated by them to the *Senſory.*

Some uſe the Word *Senſe* in a greater Latitude; and define it a Faculty whereby the Soul perceives Ideas or Images of Objects, either convey'd to it from without, by the Impreſſion of Objects themſelves, or excited within by ſome Effort of the Soul on the Senſory it ſelf: Under this Notion, *Senſe* becomes diſtinguiſhible into two Kinds, *External* and *Internal*; correſponding to the two ſeveral Manners wherein the Images of the Objects perceiv'd, either are occaſion'd, and preſented to the Mind, *viz.* immediately from without, or from within; that is, either by what we commonly call the *Five External Senſes*, *Hearing*, *Seeing*, *&c.* or by the Internal ones, *Imagination*, *Memory*, and *Attention*; to which ſome add *Hunger* and *Thirſt.* But as theſe *Internal Senſes* are not ordinarily conſider'd in the Notion of *Senſes*, nor implied under the Word *Senſe*; but are thus only denominated from Analogy; we ſhall wave them to be further conſider'd, under their reſpective Articles Imagination, Memory, &c.

External Senſes, or, ſimply, *The Senſes*, in their general Signification, are the Means whereby the Soul apprehends, or takes Cognizance of External Objects; the Means, we mean, both on the Part of the Mind, and of the Body. The Means, on the Part of the Mind, are always the ſame; it being one and the ſame Faculty, whereby we *See*, *Hear*, *&c.* The Means, on the Part of the Body, are different; as different as are the Objects we are concern'd to perceive: For the Being, and Well-being of the Animal, being the End, Nature had in View in giving him any Perception of external Bodies; by this, the Meaſure and Manner of that Perception is regulated; and we have ſo many Ways of perceiving, and of perceiving ſo many Things, as the Relation we bear to external Bodies renders neceſſary for the Preſervation, *&c.* of our Being. Hence thoſe ſeveral Organs of *Senſe*, call'd *Eye*, *Ear*, *Noſe*, *Palate*, and the univerſal one *Cutis*; each of which is ſo diſpoſed as to give it ſome Repreſentation and Report to the Mind, of the State of external Things, the Nearneſs, Convenience, Hurtfulneſs, and other Habitudes; and each of them a different one, according to the Degree, and Immediateneſs, *&c.* of the Danger, or Conveniency. And hence the ſeveral Exerciſes of thoſe Organs, *Hearing*, *Seeing*, *Smelling*, *Taſting*, and *Feeling.*

For the general Manner wherein our *Senſes* act; or, more properly, the Manner wherein we become *Senſible*, that is, perceive external Objects; See Sensation.

For the particular *Senſes*, or, more properly, the particular Manners, wherein we become *ſenſible*, by the particular Organs of *Senſe*; See Hearing, Seeing, Smelling, *&c.*

For the ſeveral Organs of *Senſe*, miniſtring to the ſeveral Manners of *Senſation*; See Eye, Ear, Noſe, *&c.*

Pliny obſerves, That of all the *Senſes*, Feeling and Taſting are what Man has in the greateſt Perfection: As to Seeing he is excelled by the Eagle, *&c.* as to Smelling, by the Vulture, *&c.* and as to Hearing, by the Mole, even when hid under Ground. *Nat. Hiſt. Lib.* 10. The *Senſes* have been ſometimes found greatly ſharpened and improved by Diſeaſes. Mr. *Boyle* mentions a Gentleman, who, during a Diſtemper he had in his Eyes, had his Organs of Sight brought to be ſo tender, that when he waked in the Night, he could, for a while, plainly ſee and diſtinguiſh Colours, and other Objects; and the ſame Author gives an Inſtance of another Perſon, who, after getting half-fuddled with Claret, if he waked in the Night, could ſee, for ſome Time, to read a moderate Print. In the *Philoſoph. Tranſ.* N°. 312. we have an Account of *Dan. Fraſer*, who continued Deaf and Dumb, from his Birth to the 17th Year of his Age; when, upon recovering from a Fever, he perceived an uneaſy Motion in his Brain, after which he began to hear, and, by degrees, to ſpeak. *Grimaldi* affirms, That ſome Women of *Megara* were able, by their Eyes alone, to diſtinguiſh between Eggs lay'd by black Hens, and thoſe by white ones, *Grimald. de Lum. & Col.*

SENSES. A late excellent Author, gives us a more Juſt, Extenſive, and Philoſophical Notion of *Senſe*. On his Principle, *Senſe* is defined, A *Power of Perception*; or, A *Power of receiving Ideas*; If what is abſolutely Paſſive may be properly called a Power. On ſome Occaſions, inſtead of *Power*, he chuſes to call it, A *Determination* of the Mind, to receive Ideas. See IDEA. The Ideas thus perceived, or raiſed in the Mind, he calls *Senſations*.

SENSE, he conſiders, either as *Natural*, or *Moral*: and the Natural, either as *External*, or *Internal*; though the Diſtribution is chiefly founded on the common Ways of conceiving; for, in Reality, they appear to be all *Natural*, and neceſſary: Some Reaſons, however, for the Diſtinction, will be ſhewn under the ſeveral Articles thereof.

External SENSES, are Powers of perceiving Ideas, upon the Preſence of external Objects. On ſuch Occaſions, we find the Mind is merely Paſſive, and has not Power directly to prevent the Perception, or Idea, or to vary it at its Reception; as long as the Body is continued in a State fit to be acted upon by the external Object. When two Perceptions are entirely different from each other, or agree in nothing but the general Idea of Senſation; the Power of receiving thoſe different Perceptions, are called *different Senſes*. Thus *Seeing* and *Hearing* denote the different Powers of receiving the Ideas of *Colours*, and *Sounds*. And though Colours, as well as Sounds, have vaſt Differences amongſt themſelves; yet is there a greater Agreement among the moſt oppoſite Colours, than betwen any Colour and a Sound: And hence all Colours are deemed Perceptions of the ſame *Senſe*. All the ſeveral *Senſes* ſeem to have their diſtinct Organs, except *Feeling*, which is, in ſome Degree, diffuſed over the whole Body.

Internal SENSES, are Powers, or Determinations of the Mind, to be pleaſed with certain Forms, and Ideas, which occur to our Obſervation, in Objects perceived by the external *Senſes*. Of theſe there are two different Species, diſtinguiſh'd by the different Objects of Pleaſure, *viz.* Pleaſurable or Beautiful Forms of natural Things, and Pleaſurable or Beautiful Actions, or Characters of rational Agents: Whence the Internal *Senſes* become diviſible into *Natural* and *Moral*; though what we call the *Internal Natural Senſe*, our Author calls ſimply, and by way of Eminence, *the Internal Senſe*.

In reflecting on our external *Senſes*, we plainly ſee, that our Perceptions of Pleaſure, or Pain, do not depend directly on our Will. Objects do not pleaſe us according as we incline they ſhould: The Preſence of ſome Objects neceſſarily pleaſe us, and the Preſence of others as neceſſarily diſpleaſes us; nor can we, by our Will, any otherwiſe procure Pleaſure, or avoid Pain, than by procuring the former Kind of Objects, and avoiding the latter. By the very Frame of our Nature, the one is made the Occaſion of Delight, and the other of Diſſatiſfaction. In Effect, our ſenſitive Perceptions are pleaſant, and painful, immediately, and without any Knowledge of the Cauſe of this Pleaſure and Pain, or of the Manner how they excite it, or are Occaſions of it, or without ſeeing to what further Advantage, or Detriment, the Uſe of ſuch Objects might tend. Nor would the moſt accurate Knowledge of theſe Things vary either the Pleaſure, or the Pain, of the Perception; however it might give a rational Pleaſure diſtinct from the ſenſible; or might raiſe a diſtinct Joy, from Proſpect of further Advantage in the Object, or Averſion, from Apprehenſion of Evil. There is ſcarce any Object, which our Minds are employed about, but is conſtituted the neceſſary Occaſion of ſome Pleaſure or Pain. Thus we ſhall find our ſelves pleaſed with a regular Form, a Piece of Architecture, or Painting, a Compoſition of Notes, a Theorem, an Action, an Affection, a Character; and we are conſcious that this Pleaſure naturally ariſes from the Contemplation of the Idea then preſent to the Mind, with all its Circumſtances, though ſome of thoſe Ideas have nothing of what we call ſenſible Perception in them; And in thoſe which have, the Pleaſure ariſes from ſome Uniformity, Order, Arrangement, Imitation, and not from the ſimple Ideas of Colour, or Sound, or Mode of Extenſion ſeparately conſider'd.

It ſeems hence to follow, that when Inſtruction, Education, or Prejudice, of any Kind, raiſe any Deſire or Averſion toward an Object; this Deſire, or Averſion, is founded on an Opinion of ſome Perfection, or Deficiency, in thoſe Qualities, for Perception whereof we have the proper *Senſes*. Thus, if Beauty be deſired by one who has not the *Senſe* of Sight; the Deſire muſt be raiſed by ſome apprehended Regularity of Figure, Sweetneſs of Voice, Smoothneſs, Softneſs, or ſome other Quality perceivable by the other *Senſes*; without relation to the Ideas of Colour.

The only Pleaſure of *Senſe*, which our Philoſophers ſeem to conſider, is that which accompanies the ſimple Ideas of *Senſation*; but there are vaſtly greater Pleaſures in thoſe complex Ideas of Objects, which obtain the Names of *Beautiful* and *Harmonious*. The Power, then, whereby we receive Ideas of Beauty, and Harmony, has all the Characters of a *Senſe*. 'Tis no Matter, whether we call theſe Ideas of Beauty, and Harmony, Perceptions of the external *Senſes* of Seeing, and Hearing, or not; we ſhould rather chuſe to call theſe Ideas an *internal Senſe*, were it only for the Convenience of diſtinguiſhing them from other *Senſations* of Seeing and Hearing, which Men may have without Perception of Beauty and Harmony. See PLEASURE, BEAUTY, and HARMONY.

Moral SENSE, is a Determination of the Mind, to be pleas'd with the Contemplation of thoſe Affections, Actions, or Characters of rational Agents, which we call *Virtuous*.

This Moral *Senſe* of Beauty, in Actions, and Affections, may appear ſtrange at firſt View: Some of our Moraliſts themſelves are offended at it in my Lord *Shaftsbury*, as being accuſtomed to deduce every Approbation, or Averſion, from rational Views of Intereſt. Our Gentlemen of good Taſte can tell us of a great many *Senſes*, Taſtes, and Reliſhes, for Beauty, Harmony, Imitation in Painting and Poetry; and may we not find, too, in Mankind, a Reliſh for a Beauty in Characters, in Manners? The Truth is, Human Nature does not ſeem to have been left quite indifferent in the Affairs of Virtue, to form to it ſelf Obſervations concerning the Advantage or Diſadvantage of Actions, and accordingly to regulate its Conduct. The Weakneſs of our Reaſon, and the Avocations ariſing from the Infirmity and Neceſſities of our Nature, are ſo great, that very few of Mankind could have found thoſe long Deductions of Reaſon, which may ſhew ſome Actions to be, in the whole, advantageous, and their Contraries pernicious. The Author of Nature has much better furniſhed us for a Virtuous Conduct than our Moraliſts ſeem to imagine; by almoſt as quick and powerful Inſtructions, as we have for the Preſervation of our Bodies: He has made Virtue a lovely Form, to excite our Purſuit of it, and has given us ſtrong Affections, to be the Springs of each virtuous Action. See VIRTUE.

SENSIBLE *Horizon* } See { HORIZON.
SENSIBLE *Point* } { POINT.

SENSITIVE or SENSIBLE *Soul*, the Soul of Brutes, or that which Man is ſuppoſed to have in common with Brutes. See SOUL. 'Tis thus call'd, as intimating its utmoſt Faculty, to be that of *Senſation*; or, perhaps, becauſe it is ſuppoſed to be material, and to come under our *Senſes*. My Lord *Bacon* aſſerts, That the *Senſible* or *Brute Soul*, is plainly no more than a Corporeal Subſtance, attenuated by Heat, and thus render'd Inviſible; or a kind of Aura or Vapour partly of an aërial, and partly a fiery Nature; endued with the Softneſs of Air, to be fit to receive Impreſſions, and with the Vigor of Fire, to communicate its Action; fed partly with oily Matters, and partly with aqueous ones; incloſed in the Body, and in the more perfect Animals; principally in the Head, moving along the Nerves; and reſtored and repaired by the Spirituous Blood of the Arteries. *Bac. de Augment. Scient. Lib.* IV.

SENSITIVE-PLANTS, a Species of *Plants*, call'd by the Ancients *Æſchynomenous*, and by us *Senſitive*, *Living* or *Mimic Plants*, as giving ſome Tokens of *Senſe*. Theſe are ſuch whoſe Frame and Conſtitution is ſo nice and tender, that at the Touch, or leaſt Preſſure of one's Hand, they will contract their Leaves and Flowers, as if *ſenſible* of the Contact. Botanick Writers mention many Kinds hereof; ſome of which contract with the Hand or a Stick; others with Heat, others with Cold. The Truth is, many, if not moſt, Vegetables expand their Flowers, Down, *&c.* in warm, Sun-ſhiny Weather, and again cloſe them towards Evening or in Rain, *&c.* eſpecially at the beginning of Flowering, whilſt the Seed is yet young and tender: As is very evident in the Down of *Dandelion*, *&c.* and in the Flower of the *Pimpernel*, the opening and ſhutting whereof are the Country-man's Weather-wiſer; whereby, *Gerard* ſays, he foretells what Weather ſhall follow next Day; for if the Flowers be cloſe ſhut up, it betokens Rain and foul Weather; if they be ſpread abroad, fair Weather. *Ger. Herb. Lib.* 2.

SENSORY, or *Senſorium Commune*, the Seat of the *Common Senſe*; or that Part where the ſenſible Soul is ſuppoſed more immediately to reſide. The *Senſory* is allow'd to be that Part of the Brain wherein the Nerves from all the Organs of Senſe, terminate. This is generally allowed to be about the Beginning of the *Medulla Oblongata*: *Des Cartes* will have it in the *Conarion*, or Pineal Gland. See CONARION. Sir *Iſaac Newton* deſcribes the *Senſory* of Animals as the Place to which the ſenſible Species of Things are carry'd through the Nerves and Brain; that they may be there perceiv'd by their immediate Preſence to the Soul. The Organs of Senſe, the ſame great Author obſerves, are not for enabling the Soul to perceive the Species of Things, in its *Senſory*; but only for conveying them thither. See SENSE. The Univerſe, he makes the *Senſory* of the Godhead. See GOD.

SENTENCE, in Law, a Judgment paſs'd in Court, by the Judge, upon ſome Proceſs either Civil or Criminal. *Sentences* are either Definitive, Interlocutory, Contradictory, *&c.* of Abſolution, Excommunication, *&c.* Superior Judges either confirm or annul thoſe of Inferior ones. See APPEAL. —*Three conformable Sentences*, Tres Sententiæ Conformes: In the *Romiſh* Eccleſiaſtical Law, 'tis allowed to Appeal Three Times; ſo that there muſt be Three conformable *Sentences* e'er the *Sentences* of the Judges can take effect. The firſt Degree of Juriſdiction is the Biſhop's Official: From him an Appeal lies to the Metropolitan; and from the Metropolitan to the Primate, or immediately to the Pope. If the Appeal come from the Metropolitan to the Pope, the Pope is obliged to delegate Judges *in Partibus*; and then if the Three *Sentences* paſs'd in theſe Three Stages be conformable, there is no further Appeal: but if one of them annul another, new Judges are to be required of the Pope for a Fourth *Sentence*; and thus they ſometimes proceed to a Sixth, or Seventh *Sentence*. Such a Number of Juriſdictions, is found infinitely prejudicial to the Public, and vexatious to private Perſons.

SENTENCE, in Grammar, *&c.* a Period; or a Set of Words comprehending ſome perfect Senſe, or Sentiment of the Mind. Every *Sentence* comprehends at leaſt Three Words. The Buſineſs of Pointing, is to diſtinguiſh the ſeveral Parts and Members of *Sentences*; ſo as to render the Senſe thereof the cleareſt, apteſt and fulleſt poſſible. See PUNCTUATION.

In every *Sentence* there are two Parts neceſſarily required; a Noun for the Subject, and a definite Verb: Whatever is found more than theſe Two, affects one of them, either immediately, or by the Intervention of ſome other, whereby the firſt is affected. Again, every *Sentence* is either Simple or Conjunct. A *Simple Sentence* is that conſiſting of one ſingle Subject, and one finite Verb: A *Conjunct Sentence* contains ſeveral Subjects and finite Verbs; either expreſly or implicitely. A *Simple Sentence* needs no Point or Diſtinction; only a Period to cloſe it: as, *A good Man loves Virtue for itſelf.* In a *Simple Sentence*, the ſeveral Adjuncts affect either the Subject or the Verb in a different Manner. Thus the Word *good*, expreſſes the Quality of the Subject, *Virtue* the Object of the Action, and, *for itſelf*, the End thereof. Now none of theſe Adjuncts can be ſeparated from the reſt of the *Sentence*: For if one be, why ſhould not all the reſt? And if all be, the *Sentence* will be minced into almoſt as many Parts as there are Words. But if ſeveral Adjuncts be attributed in the ſame manner either to the Subject or the Verb; the *Sentence* becomes *Conjunct*, and is to be divided into Parts.

In every *Conjunct Sentence*, as many Subjects, or as many finite Verbs as there are, either expreſly, or implied, ſo many Diſtinctions may there be. Thus, *My Hopes, Fears, Joys, Pains, all center in you*: And thus, *Cicero, Catalina abiit, exceſſit, evaſit, erupit.* The Reaſon of which Pointing is obvious; for as many Subjects or finite Verbs as there are in a *Sentence*, ſo many Members does it really contain. Whenever, therefore, there occur more Nouns than Verbs, or contrarywiſe; they are to be conceived as equal. Since, as every Subject requires its Verb; ſo every Verb requires its Subject, wherewith it may agree: Excepting, perhaps, in ſome figurative Dictions.

Indeed, there are ſome other Kinds of *Sentences* which may be rank'd amongſt the Conjunct Kind, particularly the abſolute *Ablative*, as 'tis call'd: Thus, *Phyſicians, the Diſeaſe once diſcovered, think the Cure half wrought*: Where the Words *Diſeaſe once diſcovered*, are equivalent to, *when the Cauſe of the Diſeaſe is diſcovered.* So alſo in Nouns added by Appoſition; as, *The Scots, a hardy People, endured it all*; ſo alſo in Vocative Caſes, and Interjections; as, *This, my Friend, you muſt allow me*: And, *What, for Heaven's Sake! would he be at?*

The Caſe is much the ſame, when ſeveral Adjuncts affect either the Subject of the *Sentence*, in the Verb, in the ſame Manner; or at leaſt ſomething, whereby one of them is affected: as, *A good, wiſe, learned Man, is an Ornament to the Commonwealth*: Where the ſeveral Adjectives denoting ſo many Qualities of the Subject, are to be ſeparated from one another. Again, when I ſay, *Your Voice, Countenance, Geſture terrified him*: The ſeveral Nominative Caſes denote ſo many Modes of the Verb, which are likewiſe to be diſtinguiſhed from each other. The Caſe is the ſame in Adverbs; as, *He behav'd himſelf modeſtly, prudently, virtuouſly.* In the firſt Example, the Adjuncts immediately affect the Subject; in the Third, the Verb, in the following one, another Adjunct: as, *I ſaw a Man loaden with Age, Sickneſs, Wounds.* Now, as many ſuch Adjuncts as there are, ſo many ſeveral Members does the *Sentence* contain; which are to be diſtinguiſhed from each other, as much as ſeveral Subjects, or finite Verbs. And that this is the Caſe in all Conjunct *Sentences*, appears hence; that all theſe Adjuncts, whether they be Verbs or Nouns, *&c.* will admit of a Conjunction Copulative, whereby they may be joyn'd together. But where-ever there is a Copulative, or Room for it, there a new Member of a *Sentence* begins. For the other Partitions, *&c.* of *Sentences*; See COLON, SEMICOLON, PERIOD.

SENTENCE, is alſo uſed in Poetry, *&c.* for a ſhort, pithy Remark or Reflection, containing ſome Sentiment of uſe in the Conduct of Life. As, *Diſcite Juſtitiam moniti, & non temnere divos*; or, *A teneris aſſueſcere multum eſt*, &c. *Sentences*, Father *Boſſu* obſerves, render Poems uſeful; And, beſides, add, I know not what Luſtre and Spirit, which pleaſes. But there is no Virtue which is not accompanied with ſome dangerous Vice. Too many *Sentences* give a Poem too Philoſophical an Air; and ſink it into a kind of Gravity, that is leſs fit for the Majeſty of a Poem, than the Study of a learned Man, and the Quaintneſs of a Dogmatiſt. Such Thoughts not only contain, but inſpire, a certain calm Wiſdom, which is directly oppoſite to the Paſſions: It cools them, both in the Hearers and in the Speaker. Laſtly, the Affectation of ſpeaking in *Sentences*, leads a Perſon to trifling and impertinent Ones; Inſtances whereof we have, in Abundance, in *Seneca*'s Tragedies. *Petronius* recommends it to Authors, to diſguiſe their *Sentences*, that they mayn't ſtand glaring above the Thread or Ground of the Diſcourſe. See ELLIPSIS.

SENTIMENTS, in Poetry, and particularly Tragedy, are the Thoughts which the Poet makes his Perſons expreſs; whether they relate to Matters of Opinion, Paſſions, Buſineſs or the like. The *Manners* form the Tragic Action, and the *Sentiments* explain it; diſcovering its Cauſes, Motives, &c. The *Sentiments* are to the *Manners*, what thoſe are to the *Fable*. See MANNERS. In the *Sentiments*, Regard is to be had to Nature and Probability; a Madman, for Inſtance, muſt ſpeak as a Madman; a Lover as a Lover; a Hero as a Hero. The *Sentiments*, in great meaſure, are to ſuſtain the Character. See CHARACTER, DICTION, *&c.*

SENTINEL, or SENTRY, in War, a Soldier taken out of a *Corps de Gard* of Foot, and placed in ſome Poſt to watch any Approach of the Enemy, to prevent Surprizes; and to ſtop ſuch as would paſs without Orders, or without diſcovering who they are. *Sentinel Perdue*, is a *Sentinel* plac'd at ſome very advanced and dangerous Poſt, whence 'tis odds he never returns. The *Sentinel*'s Word is, *Who is there? Qui va la?* Stand, *Demeure la.* The Word is Modern: 'Tis not long ſince they ſaid, *To be on the Scout*, in the ſame Senſe as we now ſay, *To ſtand Sentry*, &c. *Menage* derives the Word *a Sentiendo*, from perceiving.

SEPARATION, in Navigation, the ſame with what we more uſually call *Departure*. See DEPARTURE.

SEPARATION *of Man and Wife*. See MULIER.

SEPARATISTS, a Religious Sect in *England*, denominated from their ſetting up a ſeparate Church, in Oppoſition to that Eſtabliſhed by Law. At preſent, *Separatiſts*, is rather the Name of a Collection of Sects, than of any particular one; but nearer their Original, there was that Agreement among them, that one Name ſerved them all. Their Diviſion into *Presbyterians*, *Anabaptiſts*, *Independents*, &c. is a Modern Thing. *Hornius* tells us, *Hiſt. Eccl.* they are ſuch as under *Edward* VI. *Elizabeth* and *James* I. refuſed to conform to the Church of *England*: And who were firſt call'd *Puritans*, then *Separatiſts* and *Nonconformiſts*. The firſt Leader of the *Separatiſts*, was *Bolton*; who, upon quitting the Party he had form'd, was ſucceeded by *Robert Brown*, from whom the *Separatiſts* were call'd *Browniſts*, a Name they long retain'd: tho' *Brown* himſelf deſerted the Sect, and, in Imitation of *Bolton*, abjured his Errors. He was ſucceeded by *Barrow*, who was hang'd at the Inſtigation of the Biſhops. Their Fourth Chief was *Johnſon*, who ſet up a Church at *Amſterdam*; which afterwards divided into ſeveral Sects, at the Head of one whereof was *Johnſon*'s Brother, who Excommunicommunicated him, and was reciprocally Excommunicated by him. Soon afterwards, a Fifth, named *Smith*, erected a like Church at *Leyden*, but it dwindled away after his Death: And *Separatiſm* was brought very low, when *Robinſon* appeared, and rais'd its Head. He ſoften'd the Dogma's of *Brown*, and ſet on foot a good Underſtanding among them; but was not able to unite the whole Sect. Part of them ſtill adhered to the rigid Opinions of their old Maſter *Brown*, and part of them followed *Robinſon*. The firſt retained the Old Name of *Separatiſts*, the latter aſſumed that of *Semi-Separatiſts*, and at length degenerated into *Independants*, which is the Name whereby they are now uſually call'd, both in New and Old *England*. See INDEPENDANTS.

Hornius mentions another Claſs of *Separatiſts*, call'd *Seſqui-Separatiſts*, that is, *Separatiſts* and an Half. Some will have theſe to be a diſtinct Sect; others, the ſame with the *Semi-Separatiſts*: For 'tis added, that the *Semi-Separatiſts*, under pretence of taking a Medium between the *Browniſts* and the Church of *England*, went further even than the *Browniſts* themſelves, and under the Name of *Separatiſts* degenerated into *Separatiſts and a Half*.

SEPIÆ OS, Skuttlefiſh Bone: This is white and Spongy, and ſeems almoſt to be calcined by the Sun. It is rough and abſterſive, and chiefly uſed in Medicine as a Dentrifice.

SEPTA, in Antiquity, were Incloſures, or Rails, made of Boards; through which they went in, to give their Votes, in the Aſſemblies of the *Romans*.

SEPTEMBER, the Ninth Month of the Year, reckoning from *January*; and the Seventh, from the *Vernal Equinox*; whence its Name, viz. from *Septimus*, Seventh. The *Roman* Senate would have given this Month the Name of *Tiberius*; but that Emperor oppos'd it. The Emperor *Domitian* gave it his own Name *Germanicus*; the Senate under *Antoninus Pius* gave it that of *Anthoninus*. *Commodus* gave it his Sirname *Herculeus*; and the Emperor *Tacitus*, his own Name, *Tacitus*; but theſe Appellations have all gone into Diſuſe.

SEPTEMVIR, in Antiquity. See EPULO. The *Germans* ſometimes uſe the Word *Septemvirate*, for the Seven Electors of the Empire. See ELECTOR.

SEPTENTRIO, in Aſtronomy, a Northern Conſtellation, more uſually call'd *Urſa minor*, or the *little Bear*, and by the People, *Charles's Wain*. See URSA MINOR. The Word is form'd from the Latin, *Septem*, as conſiſting of Seven Stars, and *Triones* the *Bullocks*, which, in the Ancient Conſtellation, were yoak'd to the Chariot.

SEPTENTRIO, in Coſmography, the ſame with *North*; thus call'd from the ancient Conſtellation *Septentrio*, one of whoſe Stars, is the *Pole Star*. See NORTH, POLE-STAR, &c. Hence alſo *Septentrional*, ſomething belonging to the *North*; as *Septentrional Signs*; *Septentrional Parallels*, &c. thoſe on the Northern Side of the Equator.

SEPTIER or SETIER, a *French* Meaſure, differing according to the Species of the Things meaſured. For Liquors, the *Septier* is the ſame Thing with the *Chopine* or *Half-pint*. See CHOPINE. For dry Meaſure, the *Septier* is very different, in different Places and different Commodities; as not being any Veſſel of Meaſure, but only an Eſtimation of ſeveral other Meaſures. At *Paris*, the *Septier* of Wheat conſiſts of Two Mines, the Mine of Two Minots, and the Minot of Three Buſhels. See BUSHEL. Twelve *Septiers* make the *Mine*. See MINE. The *Septier* of Oats is double that of Wheat. See MEASURE.

SEPTIZON, in the Ancient Architecture, a Term almoſt appropriated to a famous Mauſoleum, of the Family of the *Anthonins*; which *Aur. Victor* tells us, was built in the Tenth Region of the City of *Rome*: being a very large inſulated Building, with Seven Stages or Stories of Columns. The Plan was ſquare; and the Upper Stories of Columns, falling back much, render'd the Pile of a Pyramidal Form; terminated a-top, with the Statue of the Emperor *Septimus Severus*, who built it. It had its Name *Septizon*, *Septizonium*, from *Septem* and *Zona*, *q. d.* Seven Zones or Girdles, by reaſon of its being girt with Seven Rows of Columns. Hiſtorians make mention of another *Septizon*, more Ancient than that of *Severus*, built near the *Thermæ* of *Anthoninus*.

SEPTUAGESIMA, the Firſt Sunday in Lent, or the Fourth Sunday before *Quadrageſima*; as *Quinquageſima* is the next before *Quadrageſima*, then *Sexageſima*, and *Septuageſima*: Being all Days appropriated by the Church to Acts of Penance and Mortification, by Way of Preparation for the Devotion of the *Lent* enſuing. The Laws of King *Canutus* ordained a Vacation from Judicature, from *Septuageſima* to *Quindena Paſchæ*. See QUINQUAGESIMA. From *Septuageſima* to the Octaves after *Eaſter*, Marriage is forbidden by the Canon-Law. It takes its Name from its being about 70 Days before *Eaſter*. Pope *Teleſphorus* firſt made it a Feaſt Day, and appointed Lent to commence from it. See LENT.

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SEPTUAGINT, LXX, or the *Seventy*, a Term famous among Divines and Criticks, for a Verſion of the *Old Teſtament*, out of *Hebrew* into *Greek*, perform'd by Seventy-two *Jewiſh* Interpreters, in Obedience to an Order of *Ptolomy Philadelphus*. The Ancients, till *Jerom's* Time, univerſally believed, that the *Seventy* were Inſpired Perſons, not mere Tranſlators; grounding their Belief on a fabulous Hiſtory of this Verſion, given by *Ariſtæus*: Who tells us, That the High-Prieſt *Eleazer*, choſe Six Doctors out of each Tribe for this Office, which made the Number of Seventy Two; and that theſe being ſhut up, each in his ſeveral Cell, each tranſlated the whole; and without ſeeing what any of the reſt had done, they were all found to agree, to a Letter. The Word is form'd from the *Latin*, *Septuaginta*, Seventy.

The *Chronology of the Seventy*, is an Account of the Years of the World, very different from what is found in the *Hebrew* Text, and the Vulgate; making the World 1466 Years older than 'tis found in theſe latter. The Criticks are much divided, as to the Point of Preference. *Baronius* prefers the Account of the *Seventy*: And *Iſ. Voſſius* makes an Apology for it. The Two lateſt and moſt ſtrenuous Advocates, are Father *Pezron*, a *Bernardine*, and Father *le Quien*, a *Dominican*, the firſt of which defends the Chronology of the *Septuagint*, and the latter that of the *Hebrew* Text.

SEPTUM, in Anatomy, a Term literally ſignifying an *Incloſure* or *Partition*; applied to ſeveral Parts of the Body, which ſerve to ſeparate one Part from another. The *Septum Lucidum*, is a Partition ſeparating the Two upper Ventricles of the Brain; thus call'd, as being Tranſparent. See BRAIN.

Septum Medium, or *Cordis*, is a Separation between the Two Ventricles of the Heart. 'Tis about a Finger thick, fleſhy, and of the ſame Subſtance with the Heart itſelf; conſiſting of muſcular Fibres, which aſſiſt it in its Motions. Some have imagined it to be perforated with a great Number of Holes; but miſtakenly. See HEART. *Septum Tranſverſum*, is the Separation of the Two Bellies, or Venters, call'd alſo *Diaphragm*. See DIAPHRAGMA. *Septum Narium*. See NOSE: *Septum Bulbi*, divides the Bulb of the Urethra lengthwiſe. See URETHRA. *Septum Gallinaginis*. See CAPUT GALLINAGINIS. *Septum Clitoridis*, a membranous Partition running all along between the Two *Corpora Cavernoſa*, from the Glans to its Divarication at the *Os pubis*. See CLITORIS. *Septum Auris*. See EAR. *Septum Teſtium*. See TESTICLE.

SEPULCHER, a Tomb, or Funeral Monument; or a Place deſtined for the Interment of the Deceas'd. The Term is chiefly uſed with regard to the Burying-Places of the Ancients: Thoſe of the Moderns we uſually call *Tombs*. See TOMB. Beſides, the uſual *Sepulchers* for the Interment, either of the whole Body, or of the Aſhes of the Body burnt; the Ancients had a peculiar Kind, call'd *Cenotaphium*; being an empty *Sepulcher*, made in Honour of ſome Perſon, who, perhaps, had no Burial at all; from a Superſtitious Opinion, That the Souls of thoſe who wanted Burial, wandered an Hundred Years, e'er they were admitted to paſs into the *Elyſian* Fields. See BURIAL, FUNERAL, &c. The Pyramids are built to ſerve as *Sepulchers* for the Kings of *Egypt*. See PYRAMID. And the *Obelisks* had generally the ſame Intention. See OBELISK. *Sepulchers* were held Sacred and Inviolable; and the Care taken thereof, deem'd a Religious Duty, grounded on the Fear of God, and the Belief of the Soul's Immortality. Thoſe who ſearch'd or violated them, were odious to all Nations, and ſeverely puniſhed. The *Egyptians* call'd their *Sepulchers*, *Eternal Houſes*, in Contradiſtinction to their Houſes and Palaces, which they call'd *Inns*; by reaſon of the ſhort Sojourn we have in the one, in Compariſon of the long Stay in the other. The *Eaſtern* Pilgrimages are all made with Deſign to viſit the *Holy Sepulcher*, that is, the Tomb of *Jeſus Chriſt*. No Body enters here but bare-footed, and with a World of Ceremonies. The *Turks* exact 24 Crowns of each Pilgrim, whom Devotion carries to the *Holy Sepulcher*.

St. SEPULCHER, or the *Holy Sepulcher*, an Order of Regular Canons, anciently inſtituted in *Jeruſalem*, in Honour of the *Holy Sepulcher*. They aſcribe their Inſtitution to *Godfrey* of *Boulogne*; who, they ſay, upon his taking *Jeruſalem* in the Year 1099, placed Canons in the Patriarchal Church of the *Holy Sepulcher*, which, indeed, is true; but then they were not Regulars. In effect, 'twas *Arnoul*, who, of Archdeacon of the Church of *Jeruſalem*, got himſelf elected Patriarch thereof; that in 1114, firſt obliged his Canons to live in Community, and to follow the Rule of St. *Auguſtin*. From the Holy Land, Numbers of theſe Canons were brought into *Europe*, particularly into *France* by *Louis the Younger*; into *England* by King *Henry*; into *Poland* by *Jaxa*, a *Poliſh* Gentleman; into *Flanders* by the Counts thereof. But the Order was afterwards ſuppreſs'd by *Innocent* VIII. and its Effects added to that of our Lady of *Bethlehem*, which itſelf, ceaſing, they were beſtowed in 1484, on that of the Knights of St. *John* of *Jeruſalem*. But the Suppreſſion did not take Place in *Poland*, nor in ſeveral Provinces of *Germany*, where they ſtill ſubſiſt: Their General is in *Poland*. Their Habit, Father *Helyot* obſerves, was different in different Places.

St. Sepulcher, or the *Holy Sepulcher*, is alſo the Name of a Military Order, Eſtabliſh'd in *Paleſtine*. Moſt Writers who mention this Order, carry its Inſtitution as far back as the Time of the Apoſtle St. *James*, Biſhop of *Jeruſalem*; or at leaſt to that of *Conſtantine*; pretending that *Godfrey* of *Boulogne*, and *Baldwin*, were only the Reſtorers thereof: But this Antiquity is Chimerical. 'Tis not even certain, that 'twas founded ſo early as *Godfrey* of *Boulogne*, or his Succeſſor *Baldwin*; though *Favyn* and *de Belloy*, attribute it to this latter. 'Tis certain, there was nothing but Canons in the Church of St. *Sepulchers*, till the Year 1114; and 'tis more than probable, the Knights were only inſtituted upon the Ruins of the Canons 400 Years after, and that by Pope *Alexander* VI. in order to excite Rich and Noble Perſons to viſit the Holy Places, by giving them the Title of *Knights of the Holy Sepulcher*, and to this End, inſtituting an Order under that Name, whereof he took the Quality of Maſter for himſelf and his Succeſſors. *Leo* X. and *Clement* VII. granted to the Guardian of the Religious of St. *Francis*, in the *Holy Land*, the Power of making theſe Knights; which Power, firſt granted *Vive voce*, was afterwards confirm'd by Bull of *Pius* IV. In 1558, the Knights of this Order in *Flanders*, choſe *Philip* II. King of *Spain*, their Maſter; and afterwards his Son: But the Grand Maſter of the Order of *Malta* prevail'd on him to reſign; and when afterwards the Duke of *Nevers* aſſumed the ſame Quality in *France*, the ſame Grand Maſter, by his Intereſt and Credit, procured a like Renunciation of him, and a Confirmation of the Union of this Order to that of *Malta*. See Malta.

SEPULCHRAL, ſomething belonging to *Sepulchers* or Tombs. See Sepulcher. *Sepulchral* Inſcriptions are the ſureſt Monuments we have of Antiquity. See Inscription. *Sepulchral Lamps*, are thoſe ſaid to have been found burning in the Tombs of ſeveral Martyrs and others. See Lamp. *Sepulchral Column*, is a Column erected on a Tomb, with an Inſcription on its Shaft. See Column.

Sepulchral, is alſo the Appellation of a Sect. — *Sepulchral Hereticks*, were thus call'd, from their principal Error, which was, That by the Word *Hell*, whither the Scripture tells us *Jeſus Chriſt* deſcended after his Death, they underſtood his *Sepulcher*. They maintained, That *Jeſus Chriſt* only deſcended into Hell according to the Fleſh; that this Hell was nothing elſe but the Grave where he was laid, and wherein his Soul could not reſt. See *Prateolus*.

SEQUEL, SEQUELA, in Logic, a Conſequence drawn from ſome preceding Propoſition: As if I ſay, *The Human Soul is immaterial*; *and therefore Immortal*: The laſt Member of the Sentence is a *Sequel* from the firſt.

SEQUENCE, in Gaming, a Series or Set of Cards following in the ſame Suit or Colour. A *Sequence* of Four Cards, of Five, &c. At *Piquet*, theſe are call'd Fourths, Fifths, &c. Quarts, Quints, &c.

SEQUESTRATION, in Common-Law, is the ſeparating of a Thing in Controverſy, from the Poſſeſſion of both Parties, till the Right be determined by Courſe of Law. This is of Two Sorts; *Voluntary*, or *Neceſſary*: *Voluntary*, is that which is done by Conſent of each Party. *Neceſſary*, is that, which the Judge doth by his Authority, whether the Parties will or not. *Sequeſtration*, in the Civil Law, is the Act of the Ordinary, diſpoſing of the Goods and Chattles of one Deceaſed, whoſe Eſtate no Man will meddle with. A Widow is particularly ſaid to *Sequeſter*, when ſhe diſclaims having any thing to do with the Eſtate of her deceaſed Husband.

Among the *Romaniſts*, in Queſtions of Marriage, where the Wife complains of Impotency in the Husband; ſhe is *Sequeſter'd* into a Convent, or the Hands of Matrons, till the Proceſs be determined.

Sequestration is alſo uſed, for the gathering the Fruits of a Benefice void, to the Uſe of the next Incumbent. In the Time of the Civil Wars, *Sequeſtration* was uſed for a Seizing of the Eſtates of Delinquents, for the Uſe of the Commonwealth.

SEQUIN, or CECHIN, a Gold Coin ſtruck at *Venice*, and in ſeveral Parts of the Grand Seignior's States, particularly *Cairo*; which laſt are call'd *Turkiſh Sequins*, or *Cheriſs*. At *Conſtantinople*, the Ducats ſtruck in ſeveral Parts of *Germany*, are call'd *Hungarian Sequins*.

The Value of theſe *Sequins* is different; thoſe of *Venice* exceeding thoſe of *Turkey* and *Germany*, by one Fifteenth. In the *Eaſt-Indies* the Difference is ſtill more ſenſible: The *Venetian Sequin* being current for Four Roupies, and Six Peſſas, or 9 *s.* 4 *d.* *Sterling*, and the *Turkiſh Sequin*, only for four Roupies, or 9 *s.* See Ducat. *Ablanccurt* derives the Word from *Ciziquin* or *Cizicenique*, as ſuppoſing the *Sequin* firſt ſtruck at *Cizicum*. *Menage*, from the *Italian Zecchino*, of *Zecca*, a Town belonging to *Venice*. See Coins.

SERAGLIO, among the *Levantines*, the Palace of a Prince or Lord. At *Conſtantinople* they ſay, The *Seraglio* of the Embaſſador of *England*, of *France*, &c. The Word is originally *Perſian*, where it has the ſame Signification. The *Seraglio* is uſed by way of Excellence for the Palace of the Grand Seignior at *Conſtantinople*, where he keeps his Court, and where his Concubines are lodg'd, and where the Youth are train'd up for the chief Poſts of the Empire. 'Tis a little Triangle about Two Miles round, wholly within the City, at the End of the Promontory *Chryſoceras*, now call'd the *Seraglio* Point. The Buildings run back to the Top of the Hill, from whence are Gardens that reach to the Edge of the Sea. The outward Appearance, *du Loir* tells us, is not beautiful, in regard the Architecture is irregular, being canton'd out into ſeparate Edifices and Apartments, in manner of Pavillions and Domes. No Stranger has ever yet been admitted to the inmoſt Parts of the *Seraglio*. The old *Seraglio* is the Place where the Emperor's old Miſtreſſes are kept. *Balſac* obſerves, That the *Seraglio* at *Conſtantinople*, is only a Copy of that which *Solomon* anciently built at *Jeruſalem*.

SERAPH, in the Hierarchy of Angels, a Spirit of the firſt, or higheſt Rank. The *Seraphs*, or rather *Seraphims*, make that Claſs of Angels, ſuppoſed to be the moſt inflamed with Divine Love, by their nearer and more immediate Attendance on the Throne; and communicate the Heat to the inferior and remoter Orders: Hence their Name, which is form'd from the *Hebrew* Root, שרק, to *burn*, *inflame*. See Hierarchy.

SERAPHICK, ſomething belonging to the *Seraphim*. See Seraph. Mr. *Boyle* has a Treatiſe of *Seraphic Love*, *i. e.* of the Love of God. St. *Francis*, the Founder of the *Cordeliers* and *Franciſcans*, is call'd the *Seraphic Father*, in Memory of a Viſion he ſaw on Mount *Alverna*, after a Faſt of Forty Days, accompanied with many other Severities; when, falling into an Extaſy, he ſaw a *Seraph* glide rapidly from Heaven upon him; which impreſs'd on him certain Stigmata or Marks, repreſenting the Wounds which the Nails and the Spear made in our Saviour's Body, at his Crucifixion. In the Schools, St. *Bonaventure* is call'd *The Seraphic Doctor*, from his abundant Zeal and Fervour.

SERENADE, a kind of Concert given in the Night-Time by a Gallant, at his Miſtreſs's Door, or under her Window. Sometimes it conſiſts wholly of Inſtrumental Muſic; ſometimes Voices are added; and the Pieces compos'd or play'd on theſe Occaſions, are alſo call'd *Serenades*. We don't know whence the Word ſhould derive, unleſs from the *French*, *Serein*, the Dew falling in the Night-Time.

SERENA GUTTA, in Medicine, a Diſeaſe, the ſame as *Amauroſis*. See Amaurosis.

SERENE, a Quality or Title of Honour given to certain Princes, and chief Magiſtrates of Republicks. The King of *England* is ſtil'd, *The moſt Serene*. The Term is alſo applied to the Doge of *Venice*. The Pope, and the Sacred College writing to the Emperor, to Kings, or the Doge, give no other Title but that of *Moſt Serene*. The *Venetians* ſet the Title of *Serenity* above that of Highneſs. In 1646, *Wicquefort* obſerves, there was a Claſhing between the Courts of *France* and *Vienna*; becauſe the Emperor refuſed the King of *France* any other Title than that of *Serene*. Biſhops anciently, were addreſs'd under the Title of *Serene*. The Kings of *France* of the Firſt and Second Race, ſpeaking of themſelves; uſe no other Quality, but *Nôtre Serenité*. The Emperor gives no other Title to the King of *England*, nor even to any other King, excepting the King of *France*. The King of *Poland*, and other Kings, give it to the Electors. The Emperor, writing to the Electors or other Princes of the Empire, only uſes the Term *Dilection*; but in treating with them, uſes *Electoral Sereneneſs* or *Serenity* to the Electors; and *Ducal Sereneneſs* to the other Princes.

SERGE, in Commerce, a Woollen croſs'd Stuff, manufactured on a Loom with four Treddles, after the Manner of Rateens, and other croſs'd Stuffs. The Goodneſs of *Serges* is known by the Croſſing, as that of Cloths by the Spinning.

Of *Serges* there are various Kinds, denominated either from the different Qualities thereof, or from the Places where they are wrought. The moſt conſiderable is the *London Serge*, now highly valued Abroad, particularly in *France*, where the Manufacture is carried on with good Succeſs, under the Title of *Serge Facon de Londres*.

Manufacture of London Serges.

For Wooll, the longeſt is choſen for the Warp; and the ſhorteſt for the Woof. Let either Kind is uſed, 'tis firſt ſcour'd, by putting it in a Copper of Liquor, ſomewhat more than luke-warm, compoſed of three Quarters of fair Water, and one of Urine. After having ſtay'd long enough therein to diſſolve, and take off the Greaſe, *&c.* 'tis ſtirred briskly about with a Wooden Peel; taken out of the Liquor; drain'd, and waſh'd in a running Water; dried in the Shade; beaten with Sticks on a Wooden Rack, to drive out the coarſer Duſt and Filth; and then picked clean with the Hands. Thus far prepared, 'tis greaſed with Oil of Olives, and the longeſt Part, deſtined for the Warp, combed with large Combs, heated in a little Furnace for the Purpoſe. To clear off the Oil again, the Wooll is put in a Liquor compoſed of hot Water, with Soap melted therein: Whence being taken out, wrung, and dried, 'tis ſpun on the Wheel. As to the ſhorter Wooll, intended for the Woof, 'tis only carded on the Knee, with ſmall fine Cards, then ſpun on the Wheel, without being ſcoured of its Oil. *Note*, The Thread for the Warp is always to be ſpun much finer, and better twiſted, than that of the Woof.

The Wooll, both for the Warp, and the Woof, being ſpun, and the Thread divided into Skains; that of the Woof is put on Spools (unleſs it have been ſpun upon them) fit for the Cavity or Eye of the Shuttle; and that for the Warp wound on a Kind of Wooden Bobins, to fit it for Warping. When warp'd, 'tis ſtiffen'd with a Kind of Size, whereof, that made of the Shreds of Parchment is held the beſt; and when dry, is put on the Loom.

When mounted on the Loom; the Workman raiſing and falling the Threads (which are paſs'd through a Reed) by means of four Steps placed underneath the Loom, which he makes to act tranſverſly, equally, and alternately, one after another, with his Feet, in Proportion as the Threads are raiſed and lowered, throws the Shuttle acroſs from one Side to the other; and each Time that the Shuttle is thrown, and the Thread of the Woof croſs'd between thoſe of the Warp, ſtrikes it with the Frame to which the Reed is faſtened through whoſe Teeth the Threads of the Warp paſs; and this Stroke he repeats twice, or thrice, or even more, till he judges the Croſſing of the *Serge* ſufficiently cloſe: Thus he proceeds, till the Warp is all filled with Woof.

The *Serge* now taken off the Loom is carried to the Fuller, who fulls, or ſcours it, in the Trough of his Mill, with a Kind of fat Earth, for the Purpoſe, firſt purged of all Stones and Filth. After three or four Hours ſcouring, the Fuller's Earth is waſhed out in fair Water, brought, by little and little, into the Trough, out of which it is taken when all the Earth is cleared: Then, with a Kind of Iron Pinchers, or Plyers, they pull off all the Knots, Ends, Straws, *&c.* ſticking out on the Surface, on either Side: Then return it into the Fulling Trough, where 'tis work'd with Water ſomewhat more than luke-warm, with Soap diſſolved therein; for near two Hours. 'Tis then waſh'd out, till ſuch Time as the Water becomes quite clear, and there be no Signs of Soap left: Then 'tis taken out of the Trough, the Knots, *&c.* pull'd off, and then put on the Tenter to dry, taking Care, as faſt as it dries, to ſtretch it out both in Length and Breadth, till it be brought to its juſt Dimenſions. When well dried, 'tis taken off the Tenter, Died, Shorn, and Preſſed. See Dying, Presssing, and Sheering.

SERGEANT, a Term in our Law, applied to ſundry Offices. As a *Sergeant at Law*, or *of the Coif*, is the greateſt Degree taken in that Profeſſion; as that of a Doctor is in the Civil Law. As they are the moſt Learned and Experienced, there is one Court appropriated to plead in by themſelves, which is the *Common-Pleas*, where the Common Law of *England* is moſt ſtrictly obſerv'd; but they are not prohibited pleading in other Courts, where the Judges (who muſt firſt be *Sergeants*) call them *Brothers*. They are called by the King's Mandate, or Writ, directed to them; commanding them, under a great Penalty, to take upon them that Degree, by a Day aſſigned. Out of theſe, one is made the King's *Sergeant* (more may be) to plead for him in all Cauſes, eſpecially Treaſon.

The *Sergeants* were anciently called *Servientes ad Legem*, and *Servientes Narratores*: Mr. *Selden* adds, That they were alſo called *Doctores Legis*; though others are of Opinion, that the Judges are, more properly, the *Doctores Legis*, and the *Sergeants*, Batchelors of Law. *Spelman* obſerves, That however a *Sergeant* may be richer than all the Doctors of the *Commons*, yet a Doctor is ſuperior in Degree to a *Sergeant*; for the very Name of a Doctor is *Magiſterial*, but that of a *Sergeant Miniſterial*. Hence the Doctors are ſeated and cover'd when they plead; but the *Sergeants* ſtand uncovered at the Bar, excepting for their Coif.

Sergeant *at Arms*, is an Officer appointed to attend the Perſon of a King, *An.* 7. *H.* 8. *c.* 3. To Arreſt Traitors, *&c.* and Perſons of Quality offending, and to attend the Lord High-Steward, when he ſits in Judgment on any Traitor. There are now Eight at Court, at 100 *l. per Ann.* Salary each: They are called the King's *Sergeants at Arms*, to diſtinguiſh them from others: They are created with great Ceremony; the Perſon kneeling before the King, his Majeſty lays the Mace on his Right Shoulder, and ſays, *Riſe up, Sergeant at Arms, and Eſquire, for ever.* They have, beſides, a Patent for the Office, which they hold for Life. They have their Attendance in the Preſence-Chamber, where the Band of Gentlemen Penſioners wait, and receiving the King at the Door, carry the Maces before him to the Chapel-Door, whilſt the Band of Penſioners ſtand foremoſt, and make a Lane for the King, as they alſo do when the King goes to the Houſe of Lords. There are likewiſe Four others created in the ſame Manner; One, who attends the Lord Chancellor; a Second, the Lord Treaſurer; a Third, the Speaker of the Houſe of Commons, and a Fourth, attending the City of *London*. They have a conſiderable Share of the Fees of Honour, and travelling Charges allowed them, when in waiting, *viz.* Five Shillings *per* Day, when the Court is within Ten Miles of *London*, and Ten Shillings when Twenty Miles off *London*: They are in the Lord Chamberlain's Gift.

Sergeant, in War, an inferior Officer of Foot, in each Company, arm'd with a Hallbard, and appointed to ſee Diſcipline kept, to form Ranks, and Files, *&c.*

SERGEANTY, a Service antiently due to the King for the Tenure or Holding of Lands; and which could not be due to any other Lord. 'Tis divided into *Grand* and *Petty Sergeanty*. *Grand Sergeanty*, is where one holds Land of the King by Service, which he ought to do in his own Perſon; as to bear the King's Banner, Spear, *&c.* *Petty Sergeanty* is where a Man holds Land of the King, to yield him yearly ſome ſmall Thing toward his Wars; as a Sword, Dagger, Bow, Spurs, *&c.*

Coke, on *Littleton*, tells us, That Sir *Richard Rockeſly* held Lands at *Seaton*, by *Sergeanty*; to be *Vantrarius Regis*, *i. e.* The King's Fore-footman, when he went into *Gaſcoign*, till he had worn out a Pair of Shooes of the Price of Four-Pence. By the Statute, 12 *Car.* II. all Tenures of any Honours, Manors, Lands, *&c.* are turn'd into Free and Common Soccage; but the Honorary Services of *Grand Sergeanty* are thereby continued.

SERIES, a continued Rank or Succeſſion of Things, in the ſame Order, and which have ſome Relation or Connection with each other.—— Medals are formed into *Series*, both with Regard to the Metal, and to the Subject. The different Metals of Medals, form three different *Series*, in the Cabinets of the Curious; we mean, as to the Order, and Arrangement, of the ſeveral Medals. The Gold *Series*, for Inſtance, of Imperials, amounts to about 1000 or 1200; that of Silver may amount to 3000; and that of Copper, in all the three Sizes, Great, Mean, and Little, to 6 or 7000. Of theſe, the *Series* of Middle Copper is the moſt compleat and eaſily found, as it may be brought down to the Fall of the Empire in the Weſt, and the Time of the *Paleogi* in the Eaſt. As to the Antique, the *Series* of Medals are uſually formed from the Side called the *Head*. In the Firſt Claſs, is diſpoſed the *Series* of Kings; in the Second, that of *Greek* and *Latin* Cities; in the Third, the *Roman* Conſular Families; in the Fourth, the Imperial; in the Fifth, the Deities: To which may be added a Sixth *Series*, conſiſting of Medals of illuſtrious Perſons. There are alſo *Series* of Modern Medals; That of the Popes only commences from *Martin* V. in 1430. From that Time we have a *Series* of Papal Medals, tolerably compleat, to the Number of 5 or 600. One might likewiſe have a *Series* of Emperors from *Charlemain*; provided one took in the current Coins: But, in Strictneſs, we commonly commence with *Frederick* II. in 1463. The *Series* of the Kings of *France* is the moſt numerous and moſt conſiderable of all the Modern Kings.

Series, in Algebra, a Rank or Progreſſion of Quantities, increaſing or decreaſing in ſome conſtant *Ratio*; which, in its Progreſs, approaching ſtill nearer and nearer ſome ſought Value, is called a *Converſing Series*, and if infinitely continued, becomes equal to that Quantity; whence its uſual Appellation of *Infinite Series*: Thus $\frac{1}{2}$ $\frac{1}{4}$ $\frac{1}{8}$ $\frac{1}{16}$ $\frac{1}{32}$ $\frac{1}{64}$, *&c.* make a *Series*, which always converges, or approaches, to the Value of 1, and infinitely continued, becomes equal thereto. See Infinite.

The Doctrine and Uſe of *Infinite Series*, one of the greateſt Improvements of the preſent Age, we owe to *Nic. Mercator* of *Holſtein*, who, however, firſt took it from Dr. *Wallis*'s Arithmetick of *Infinites.* It takes Place principally in the Quadrature of Curves: Where, as we frequently fall upon Quantities, which cannot be expreſſed by any preciſe definite Numbers, ſuch as is the *Ratio* of the Diameter of a Circle to the Circumference, we are glad to expreſs them by a *Series*, which, infinitely continued, is the Value of the Quantity requir'd: An Idea of the Nature, Uſe, *&c.* of *Infinite Series*, may be conceived from what follows.

Though Arithmetic furniſh us with very adequate and intelligible Expreſſions for all rational Numbers, yet it is very defective as to irrational Ones; which are infinitely more numerous than the other; there being, for Inſtance, an Infinity of them between 1 and 2. Were it now required to find a Mean, proportional between 1 and 2, in rational Numbers, which alone are clearly intelligible, (the Root of 2 being certainly a very obſcure Idea) we could ſtill approach nearer and nearer to the juſt Value of the Quantity required, but without ever arriving at it: Thus, if for the mean Proportional between 1 and 2, or the Root of 2, we firſt put 1, 'tis evident we have not put enough; if we add $\frac{1}{2}$ we put too much, for the Square of $1 + \frac{1}{2}$ is greater than 2. If then we take away $\frac{1}{8}$, we ſhall find we have taken away too much, and if we return $\frac{1}{16}$, the Whole will be too great: Thus may we proceed, without ever coming at the juſt Quantity ſought. Theſe Numbers thus found, and thoſe found after the ſame Manner to Infinity, being diſpoſed in their natural Order, make what we call an *Infinite Series.*

Sometimes the *Series* do not proceed by alternate Additions and Subtractions, but by ſimple Additions, or an Infinity of Subtractions; according to the Poſition of the firſt Term. In all theſe *Infinite Series*, 'tis viſible, that as all the Terms are only equal to a finite Magnitude, they muſt be ſtill decreaſing; and 'tis even convenient that they be ſo, as much as poſſible, that one may take only a certain Number of the firſt Terms for the Magnitude ſought, and neglect all the reſt.

But 'tis not irrational Numbers only, that are expreſſed in rational Ones, by *Infinite Series.* Rational Numbers themſelves may be expreſſed in the ſame Manner: 1, for Inſtance, being equal to the *Series* $\frac{1}{2}$ $\frac{1}{4}$ $\frac{1}{8}$, *&c.* but, there is this Difference between them, that whereas irrational Numbers can only be expreſſed in rational Numbers, by ſuch *Series*; rational Ones need no ſuch Expreſſion.

Among *Infinite Series*, there are ſome whoſe Terms only make a finite Sum, ſuch is the Geometrical Progreſſion $\frac{1}{2}$ $\frac{1}{4}$ $\frac{1}{8}$, *&c.* and in general, all Geometrical, decreaſing Progreſſions: In others, the Terms make an infinite Sum; ſuch is the Harmonical Progreſſion $\frac{1}{2}$ $\frac{1}{3}$ $\frac{1}{4}$ $\frac{1}{5}$, *&c.* 'Tis not that there are more Terms in the Harmonical, than in the Geometrical Progreſſion, tho' the latter has no Term which is not in the former, and wants ſeveral the former has: Such a Difference would only render the two infinite Sums unequal, and that of the Harmonical Progreſſion the greateſt; the Cauſe lies deeper. From the received Notion of infinite Diviſibility, it follows, that any finite Thing, *e. gr.* A Foot is a Compound both of Finite and Infinite: Finite, as it is a Foot; Infinite, as it contains an Infinity of Parts, into which it is diviſible. If theſe Infinite Parts be conceiv'd, as ſeparated from one another, they will make an *Infinite Series*, and yet their Sum only be a Foot; only, no Terms are to be here put, but ſuch as may, diſtinct from each other, be Parts of the ſame Finite Whole: Now this is the Caſe in the Geometrical, decreaſing *Series* $\frac{1}{2}$ $\frac{1}{4}$ $\frac{1}{8}$, *&c.* for 'tis evident, that if you firſt take $\frac{1}{2}$ of a Foot, then $\frac{1}{2}$ of what remains, or $\frac{1}{4}$ of a Foot, then $\frac{1}{2}$ of what remains, or $\frac{1}{8}$ of a Foot; you may proceed to Infinity, ſtill taking new decreaſing Halves, all diſtinct from each other, and which all together only make a Foot. In this Example, we not only take no Parts but what were, in the Whole, diſtinct from each other; but we take all that were there; whence it comes to paſs, that their Sum make the preciſe Whole again. But, were we to follow the Geometrical Progreſſion $\frac{1}{3}$ $\frac{1}{9}$ $\frac{1}{27}$, *&c.* that is, at firſt take $\frac{1}{3}$ of a Foot, and from what remains $\frac{1}{9}$ of a Foot, and from what ſtill remains $\frac{1}{27}$ of a Foot, *&c.* 'tis true, we ſhould take no Parts but what were diſtinct from each other in the Foot; but we ſhould not take all the Parts that were there, ſince we only take the ſeveral Thirds, which are leſs than the Halves; Of Conſequence, all theſe decreaſing Thirds, though Infinite in Number, could not make the Whole, and 'tis even demonſtrated, that they would only make Half: In like Manner, all the Fourths decreaſing to Infinity, would only make one Third, and all the Hundredths, only the Ninety-ninth Part; ſo that the Sum of the Terms of an *Infinite Series* decreaſing geometrically, is not only always finite, but may even be leſs than any finite Quantity that can be aſſigned. If an Infinite decreaſing *Series* expreſs Parts which cannot ſubſiſt in the Whole, diſtinctly from each other; but ſuch, as to take their Values, we muſt ſuppoſe the ſame Quantity taken ſeveral Times, in the ſame Whole; then will the Sum of theſe Parts make more than a Whole, nay, infinitely more; that is, the *Series* will be Infinite, if the ſame Quantity be taken, an Infinity of Times: Thus, in the Harmonical Progreſſion $\frac{1}{2}$ $\frac{1}{3}$ $\frac{1}{4}$, *&c.* if we take $\frac{1}{2}$ of a Foot, or 6 Inches, then $\frac{1}{3}$ 4 Inches, 'tis evident we cannot take further $\frac{1}{4}$ of a Foot, or 3 Inches, without taking 1 Inch more than was left in the Foot. Since then the Whole is already exhauſted by the Three firſt Terms, we can take no more of the following Terms, without taking ſomething already taken: And, ſince thoſe Terms are infinite in Number, 'tis very poſſible that the ſame finite Quantity may be repeated an infinite Number of Times, which will make the Sum of the *Series* infinite. We ſay *poſſible*; for though of two *Infinite Series*, the one may make a finite Sum, and the other an Infinite; 'tis true, that there may be ſuch a *Series*, where the Finites, having exhauſted the Whole, the following ones, though infinite in Number, ſhall only make a finite Sum: And, in Effect, ſince 'tis demonſtrated, by Geometrical Progreſſions, that there are *Series*, whoſe Sums are leſs than the Whole, nay, infinitely leſs; it follows, that there muſt likewiſe be *Series* which make infinitely more.

There are two further Remarks neceſſary to be made on *Series* in general. 1°. That there are ſome, wherein, after a certain Number of Terms, all the other Terms, though infinite in Number, become each a Cypher. Now, 'tis evident, that the Sum of theſe *Series* is finite, and eaſily found; they having only an Appearance of Infinity. 2°. That the ſame Magnitude may be expreſſed by different *Series*; and may be expreſſed both by a *Series*, whoſe Sum may be found, and by another, whoſe Sum cannot be found.

Geometry does not labour under the ſame Difficulty as Arithmetic. It expreſſes irrational Numbers exactly in Lines, and needs not have Recourſe to *Infinite Series.* Thus the Diagonal of a Square, whoſe Side is 1, is known to be the Root of 2. But, in ſome other Caſes, Geometry it ſelf is under the like Embarraſs; there being ſome Right Lines, which cannot be expreſſed otherwiſe than by an *Infinite Series* of ſmaller Lines, whoſe Sum cannot be found: Of which Kind are the Right Lines equal to Curves; ſo that in ſeeking, for Inſtance, a Right Line equal to the Circumference of a Circle, we find, that the Diameter being 1, the Line ſought will be $\frac{4}{1}$ Minus, $\frac{4}{3}$ Plus, $\frac{4}{5}$ Minus, $\frac{4}{7}$ Plus, $\frac{4}{9}$, *&c.*

As to the finding of *Infinite Series*, to expreſs Quantities ſought; *Mercator*, the firſt Inventor of the Method, did it by Diviſion: But Sir *I. Newton* and M. *Leibnitz*, have improved the Doctrine very conſiderably; The Firſt finding his *Series* by the Extraction of Roots, and the Second by another *Series* preſuppoſed.

To find a SERIES *expreſſing a Quantity ſought, by Diviſion.*

Suppoſe a *Series* required to expreſs the Quotient of b divided by $a + c$. Divide the Dividend by the Diviſor, as in common Arithmetic; continuing the Diviſion till the Quotient ſhew the Order of the Progreſſion, or the Law, according to which the Terms proceed to Infinity: Still obſerving the Rules of Subtraction, Multiplication, and Diviſion about the changing of the Signs. The Proceſs carried on, the Quotient will be found $\frac{b}{a} - \frac{bc}{a^2} + \frac{bc^2}{a^3} - \frac{bc^3}{a^4}$ *&c. in Infinitum.* Theſe Four or Five Terms thus found, both the Quotient and Manner of the Diviſion ſhew, That the Quotient conſiſts of an Infinite *Series* of Terms, whoſe Numerators are the Powers of c, whoſe Exponents differ from the Number of the Order by Unity, whoſe Denominators, are the Powers of a, and their Denominators equal to the Number of the Order of the Terms. *E. gr.* In the Third Term, the Power of c is the Second in the Numerator; and the Power of a the Third in the Denominator.

Hence, 1°, If $b=1$ and $a=1$ ſubſtituting this Value for that, we have, in that Quotient $1-c+c^2-c^3$, *&c.* to Infinity. Wherefore $\frac{1}{1+2} = 1 - c + c^2 - c^3$, *&c.* In infinite ——— 1. If then, 2dly, that Term in the Quotient continually decreaſe; the *Series* will give a Quotient as near the Truth as poſſible. *E. gr.* If $b=1$, $c=1$ and $a=2$; theſe Values ſubſtituted in the general *Series*, or the Diviſion performed as in the general Example; we ſhall find $\frac{1}{3}=\frac{1}{2+1}=\frac{1}{2}-\frac{1}{4}+\frac{1}{8}-\frac{1}{16}+\frac{1}{32}-\frac{1}{64}+\frac{1}{128}$, &c. Suppoſe then, the *Series* to be broke off in the Fourth Term; there will be a Deficiency: but 'twill be leſs than $\frac{1}{32}$. If it be broke off in the Sixth, there will be a Deficiency, but that leſs than $\frac{1}{128}$. The further therefore the *Series* is continued, the nearer it approaches to Truth, but never arrives at it.

After the like Manner we find $\frac{1}{4}=\frac{1}{3+1}=\frac{1}{3}-\frac{1}{9}+\frac{1}{27}-\frac{1}{81}+\frac{1}{243}$, &c. In infinit. $\frac{1}{5}=\frac{1}{4+1}=\frac{1}{4}-\frac{1}{16}+\frac{1}{64}-\frac{1}{256}$, &c. *In Infinitum* $\frac{1}{6}=\frac{1}{5+1}=\frac{1}{5}-\frac{1}{25}+\frac{1}{125}-\frac{1}{625}$, &c. *in Infinitum.* This is a conſtant Law, whereby all Fractions, whoſe Numerator is Unity, may be expreſſed by *infinite Series*: Thoſe *Series* being all Geometrical Progreſſions, decreaſing in ſuch Manner as that the Numerator is always Unity; and the Denominator of the firſt Term, which is alſo the Exponent of the *Ratio*, differs by Unity from the Denominator of the Fraction to be reſolved.

If the Terms of the Quotient be continually increaſing, the *Series* recedes ſo much the farther from the Quotient as it is continued longer; nor does it ever become equal to the Quotient, unleſs it be terminated; and the laſt Remainder be added under its Sign. *E. gr.* Suppoſe $\frac{1}{3}=\frac{1}{1+2}$; the Quotient will be found $1-2+4-8+16-64+128$, &c. One Term, 1 exceeds $\frac{1}{3}$ by an Exceſs of $\frac{2}{3}$; Two Terms come ſhort by $\frac{4}{3}$. Three Terms exceed by $\frac{9}{3}$; Four fall ſhort by $\frac{15}{3}$, &c. If the *Series* be ſuppoſed to terminate in -8; then will $\frac{1}{1+2}=1-2+4-8+\frac{16}{3}$. But $1-2+4-8=-5=\frac{15}{3}$. Therefore, $\frac{1}{1+2}=\frac{16}{3}-\frac{15}{3}=\frac{1}{3}$. Suppoſe the General *Series* to terminate in $-c^3$; then will $\frac{1}{1+c}=1-c+c^2-c^2+\frac{c^3}{1+c}=$

$$\frac{1+c-c^2+c^2+c^3-c^3-c^4+c^4}{1+c}=\frac{1}{1+c}$$

To find an *Infinite Series* by extracting of Roots - - } To find an *Infinite Series* by preſuppoſed *Series* - - - } See { QUADRATURE *of the* CIRCLE.

To extract the Roots of an *Infinite Series* - - - - - - - } See { EXTRACTION *of Roots.*

SERMOLOGIES, in Church Hiſtory, Books of Sermons, or Homilies of Popes and other Perſons of Eminence and Sanctity, read at the Feaſts of the Confeſſors, the Purification, All Saints, and on every Day from *Chriſtmas* to the Octave of the Epiphany. See HOMILY.

SERMONES, the Title *Horace* gives his Satyrs. The Criticks are divided about the Reaſon of the Name. The Opinion of Father *Boſſu* ſeems well grounded. A mere Obſervation of Feet, and Meaſure, ſuch as we find in *Terence*, *Plautus*, and in *Horace*'s Satyrs, he thinks, is not ſufficient to conſtitute Verſe; to determine the Work to be Poetical; or to diſtinguiſh it from Proſe: unleſs it have ſome further Air, or Character of Poetry; ſomewhat of the Fable, or the Sublime. See POETRY. Hence it is, that *Horace* calls his Satyrs, *Proſe*, *Sermones*. His Odes have quite another Air, and are therefore called, *Poems*, *Carmina*. See POEM, PROSE, and VERSIFICATION.

SERMONIUM, in Old Records, a kind of Interlude or Hiſtorical Play, which the Inferior Orders of Clergy, aſſiſted by Boys, &c. uſed to act in the Body of the Church, ſuitable to the Solemnity of ſome Feſtival or high Proceſſion Day. This is ſuppoſed to have been the Origin of the Modern Drama. See COMEDY.

SERON OF ALMONDS, is the Quantity of Two Hundred Weight; of Aniſe-ſeeds from 3 to 400; of Caſtle Soap, from 200 and a Half, to 300 and 3 Quarters.

SEROSITY, in Medicine, an aqueous Liquor, mixed with the Blood and other Humours. *Degori* defines it, a ſharp, bilious Juice, approaching nearly the Nature of Blood; but which, being extravaſated, does not coagulate like the Blood. See SERUM. Diſorders of the Spleen are attended with *Seroſities.* The Kidneys help to purge off *Seroſities.*

SERPENS, in Aſtronomy, a Conſtellation in the Northern Hemiſphere, called *Serpens Ophiuchi.*

The Stars in the Conſtellation *Serpens*, in *Ptolomy*'s Catalogue are 17; in *Tycho*'s 19; in the *Britannic* Catalogue 59. The Longitudes, Latitudes, Magnitudes, &c. whereof are as follow.

Stars in the Conſtellation SERPENS OPHIUCHI.

Names and Situations of the Stars.	Signs.	Longitude			Latitude.			Magn.
		°	′	″	°	′	″	
	♏	7	38	45	16	00	52	7
		8	42	07	16	21	30	7
		10	33	31	22	10	00	6 7
Inform. preceding the Neck		12	04	08	17	50	23	6
and Head of the Serpent		12	30	00	19	27	06	6
5								
		13	17	04	18	32	06	6
		10	01	04	29	59	11	7
		14	26	37	17	01	48	7
		9	57	20	32	58	55	6
	♏	14	45	18	20	07	02	6
10								
		16	49	57	17	27	54	6
Firſt of Three under the Jaw		11	29	35	34	01	52	7
That in firſt Bend of theNeck		14	00	35	28	54	23	3
Preced. in 2d Bend of Neck		17	35	18	18	17	38	6
		11	53	15	35	48	44	6
15								
		14	36	42	28	31	00	7
		13	00	57	33	24	38	6 7
Middle under the Jaw		12	40	02	34	23	28	6
Third and Subſequent		13	57	54	34	36	12	6
1ſt from the Root of theNeck		15	12	31	31	34	09	6
20								
Preced. in the □ of theHead,		12	51	05	38	08	21	5
or in Extrem. of the Cheek		13	23	17	36	59	54	6
Preced. of 2 bef. the 2d Bend		18	42	50	21	45	03	6
The lucid one of the Neck		17	43	22	25	31	56	2
Poſter. in the 2d Bend		20	19	46	17	39	25	6
25								
That follow. theLucida, toN.		14	36	34	36	02	33	6
by *Tycho* reckon. the 16 *Oph.*		18	04	56	26	34	53	4
S. of □ in Root of the Neck		15	37	03	34	21	30	3
		21	31	46	15	51	00	6
A ſmall one under that		16	21	06	33	09	36	6
30								
Behind 2dBend bef.*Oph.*Hand		21	37	08	16	16	11	4
Subſeq. before the 2d Bend		20	27	05	21	47	38	6
In Mouth, in mid. of □Head		15	26	47	37	08	50	4
Subſeq. behind the 2d Bend		21	57	13	16	41	49	6
That fol. theLucida to the S.		19	59	22	24	02	05	3
35								
North againſt the Noſtrils in		15	11	21	40	01	39	4 3
the □ of the Head		18	16	18	32	41	18	6
		19	58	18	28	15	34	7
In Temples, 1 ſubſeq. of □		18	23	04	35	19	32	3
That without the Head to N.		17	48	23	42	28	52	4
40								
		23	12	27	30	15	16	6
		23	45	58	28	58	33	7
		21	23	30	37	15	08	4
		22	29	59	37	03	33	6
That follo.preced. *Oph.*Hand		29	25	54	22	16	02	5
45								
		28	11	31	28	07	57	6
	♐	11	07	23	9	44	45	6
1ſt of 3, beh. *Oph.* hind Thigh		15	57	39	10	18	11	4
Theſe 3 Tycho *ranks am.* Ophi.		16	12	46	10	08	59	6
South of 2 following this		20	13	23	7	59	05	4
50								
North of theſe		21	07	05	10	32	52	5
In laſtBend, behind *Oph.*Hand		25	47	32	19	47	52	3
Laſt but one of the Tail	♑	1	31	03	20	31	56	3
Of Three ſmall ones { North		3	06	51	23	29	53	6
following that { South		3	38	38	21	17	24	6
55								
Middle and ſubſequent		4	19	15	22	14	04	6
		11	31	28	29	19	27	6
In Extremity of the Tail		11	26	30	26	54	41	3
Small one adjacent to this	♑	11	31	48	25	13	45	6

SERPENT, a Muſical Inſtrument, ſerving as a Baſſe to the Cornet, or ſmall Shawm, to ſuſtain a Chorus of Singers in a large Veſſel. It has its Name *Serpent*, from its Figure; as conſiſting of ſeveral Folds or Wreaths, ſerving to take off its Length, which would otherwiſe be Six or Seven Feet. 'Tis uſually covered with Leather; and conſiſts of Three Parts; a Mouth-piece, a Neck, and a Tail. It has Six Holes, by means whereof, they give it the Compaſs of Two Octaves.

SERPENTARIUS, in Aſtronomy, a Conſtellation of the Northern Hemiſphere, called alſo *Ophiuchus*, and anciently *Æſculapius.* See CONSTELLATION.

The Stars in the Conſtellation *Serpentarius* in *Ptolomy*'s Catalogue are 29; in *Tycho*'s 25; in the *Britannic* Catalogue 69. The Longitudes, Latitudes, Magnitudes, &c. whereof, are as follow.

Stars in the Conſtellation Serpentarius, or Ophiuchus.

Names and Situation of the Stars.	Signs	Longitude			Latitudes			Mag.
		°	′	″	°	′	″	
North in preced. the Hand	♏	27	58	15	17	17	15 B	3
South and ſubſequent		29	10	45	16	28	20 B	3 4
North in the preced. Knee	♐	0	58	20	13	00	18 B	5
South in the preced. Leg		3	14	18	1	36	09 B	5
Under the Soal of preced. Foot		4	07	58	1	42	35 A	6
5								
	♏	28	53	05	26	22	14 B	6
Middle in the preced. Leg.	♐	3	40	25	3	16	32 B	4
North of theſe		4	21	26	5	14	41 B	4
In preceding Heel		5	19	53	0	28	40 B	5
In the Cubitus of preced. Arm		1	15	38	23	35	38 B	4
10								
		1	03	21	27	08	34 B	6
	♏	29	53	43	33	00	52 B	5
	♐	3	23	19	19	34	17 B	6
South in preceding Knee		4	53	55	11	25	27 B	3
Informis between the Legs		6	58	10	4	28	25 B	5 6
15								
		3	30	28	26	10	57 B	5 6
		4	17	45	23	12	34 B	6
		5	20	03	23	11	30 B	6
		4	12	41	30	41	18 B	6
		5	38	12	24	17	04 B	6
20								
		5	18	15	27	27	47 B	5 6
		8	03	05	11	38	00 B	5 6
		5	41	28	29	30	33 B	5
		6	54	17	23	35	16 B	6
		8	42	16	16	22	01 B	6
25								
Preced. of 2 in fore Shoulder		6	17	51	32	32	16 B	4
Subſequent		7	30	12	31	52	20 B	4
		10	09	14	18	28	18 B	6
		8	12	21	36	42	00 B	6
		8	38	08	36	15	20 B	6
30								
		8	42	45	36	13	35 B	6
Againſt the hind Knee		13	39	28	7	14	12 B	3
		15	28	32	3	56	17 A	6
In the Toes of the hind Foot		15	43	28	3	24	16 A	6 5
		15	55	15	3	20	08 A	6 7
35								
		16	12	46	3	29	39 A	6 7
In the Back of the hind Foot		16	06	17	1	08	55 A	6
		11	48	47	37	18	55 B	3
In the Tibia of the hind Leg		16	34	52	2	04	47 B	4
		17	00	23	1	42	28 A	6 7
40								
Bright one in Soal of the Foot		17	05	02	1	47	38 A	4 3
		17	34	53	4	54	52 A	4 5
		17	43	57	0	59	54 A	7
		18	31	16	6	34	12 A	6
Preced. in Heel of hind Foot		18	01	32	0	53	48 A	4 5
45								
In the Middle of the Back		16	15	52	27	20	39 B	5
		19	00	57	0	31	20 A	7
Poſter. in the Heel		19	09	46	0	38	18 A	6
		17	53	59	36	28	22 B	7
Preced. of 2 follow. the Foot		20	46	23	1	28	55 B	6
50								
In Ophiuchus's Head		18	05	32	35	53	16 B	2
		18	06	51	36	27	27 B	7
In the Cubitus of hind Arm		20	02	33	15	15	23 B	4
Laſt of thoſe that fol. the Foot		21	48	44	1	44	45 B	5
N. of 2 in Poſterior Shoulder		21	00	44	27	58	00 B	3
55								
		21	22	46	26	01	24 B	7
South in the hind Shoulder		22	18	32	26	09	20 B	3
		24	31	30	1	24	08 A	5
South in the hind Hand		25	25	16	13	42	45 B	4
		25	46	01	5	28	51 B	7
60								
Of Three Inform. behind the Poſterior Shoulder: North		25	44	33	27	51	03 B	4 5
Middle		25	51	19	26	24	31 B	4
South		26	09	17	24	47	07 B	4
North in the Poſter. Hand		26	27	33	15	18	06 B	5
That follo. middle Inform.		27	09	16	26	03	54 B	4
65								
North of thoſe fol. the Head		27	47	41	32	11	53 B	6
South and bright. of thoſe		27	49	43	33	01	25 B	4
After 4 Informes follow. the Should.: Preced.		28	21	39	27	26	14 B	6
Subſeq.	♑	1	29	49	26	44	36 B	6

SERPENTARY, a Medicinal Plant, called by the Ancients *Piſtolochia*, and *Dracunculus*, and now by the People, *Snake Root*, and *Dragons Wort*. The Ancients were only acquainted with Two Kinds of this Plant; the *Great* and the *Small*: But ſince the Diſcovery of *America*, the Botaniſts have added ſeveral others; as, The *Serpentary*, or *Snake Root*, of *Virginia*, that of *Canada*, and that of *Braſil*. They are all ſuppoſed to be Alexipharmicks, or Counter-Poiſons; and as ſuch are Ingredients in Treacle. The Great *Serpentary*, called by the Antients *Dracunculus Major*, has its Stem very ſtreight, ſmooth, and mark'd with red Spots, like the Skin of a Serpent; whence, probably, as much as from its Virtues, it is, that it take its Name. Its Root is big, round and white, covered with a thin Skin. The ſmaller *Serpentary* has its Stalk much like that of the larger, only its Leaves are like thoſe of Ivy; whereas thoſe of the larger are folded in one another, after the Manner of Baſtard Rhubarb. Its Root is round and bulbous. The *Serpentary* of *Virginia*, called alſo *Viperia*, *Dittany*, *Snake Root*, and *Contrayerva* of *Virginia*, has its Leaves green and large, almoſt in Figure of a Heart; its Fruit round, and its Root, which is of a very ſtrong Aromatick Smell, has, at Bottom, an infinite Number of long ſmall Filaments, repreſenting a Kind of Beard. 'Twas firſt brought into *Europe* from *Virginia* by the *Engliſh*, where 'tis eſteemed a ſovereign Antidote againſt the Bite of the Rattle Snake. We are told by Travellers, That this *Serpentary* does not only cure the Bite of the Rattle Snake, but that that Animal flies the Smell thereof: For which Reaſon the *Indian*, and other Travellers, always carry it with them on the End of a Staff, to preſent towards the Snake, when, by Chance, they meet it.

SERPENTINE VERSES, are ſuch as begin and end with the ſame Word; as,

Ambo florentes ætatibus, Arcades Ambo.

SERPENTINE, in Chymiſtry, a *Worm*, or Pipe of Copper, or Pewter, twiſted into a Spiral, and aſcending from the Bottom of the Alembick to the Capital, and ſerving as a Refrigeratory in the Diſtillation of Brandy and other Liquors. See Refrigeratory.

SERPENTINE MARBLE, or *Stone*, a Kind of Marble called by the Ancients *Ophites*, from the *Greek* Ὄφις, *Serpent*, as being ſpeckled like a Serpent's Skin. The Ground is blackiſh, but covered with green and yellowiſh Stains, Streaks, *&c.* exceeding hard, precious and antique. The Scarceneſs of the *Serpentine* makes, that 'tis only uſed by Way of Incruſtation. The largeſt Pieces we know of, are ſome Tables in the Compartiments of the Attic of the Pantheon; and Two Columns in the Church St. *Laurence* in *Lucina* at *Rome*. There is alſo a ſoft Kind of *Serpentine* brought from *Germany*, uſed to make Veſſels of, but not in Building.

SERPIGO, in Medicine, a kind of Herpes, popularly call'd a *Tetter* or *Ring-worm*. It conſiſts of a Number of very ſmall Puſtules, riſing cloſe to each other, ſometimes in a circular Form, with great Pain and Itching. It never comes to Digeſtion, and is not cur'd without Difficulty. For after it appears to have been quite extinguiſh'd, it frequently breaks forth again at certain Seaſons of the Year. The common People uſe to anoint it with Ink: But where the Diſeaſe is fix'd, ſome Univerſals ſhould be firſt applied. See Lichen.

SERRATUS, in Anatomy, a Name given to ſeveral Muſcles, from their Reſemblance in Shape, to a *Saw*. Such are the

Serratus *Anticus Minor*, which ariſeth thin and fleſhy from the Second, Third, Fourth, and Fifth ſuperior Ribs, and aſcending obliquely, is inſerted Fleſhy into the *Proceſſus Coracoides* of the *Scapula*, which it draws forward. It alſo helps in Reſpiration.

Serratus *Anticus Major*, comes from the whole Baſis of the *Scapula*, and is inſerted into the ſeven true Ribs, and firſt of the falſe Ribs, by ſo many diſtinct Portions, repreſenting the Teeth of a Saw.

Serratus *Poſticus Superior*, ariſeth by a broad and thin Tendon, from the Two inferior Spines of the *Vertebræ* of the Neck, and the Three ſuperior of the Back, and growing fleſhy, is inſerted into the Second, Third, and Fourth Ribs, by ſo many diſtinct Indentations. Theſe Two help to draw the Ribs upwards, and bring them to Right Angles with the *Vertebræ*; and, conſequently, make the Cavity of the *Thorax* wider and ſhorter.

Serratus *Poſticus Inferior*, ariſes by a broad and thin Tendon, from the Three inferior Spines of the *Vertebræ* of the Back, and from the two Superior of the Loins; its Fibres, aſcending obliquely, grow fleſhy, and are inſerted by four Indentations, into the Four laſt Ribs.

SERVANT, a Term of Relation, ſignifying a Perſon who owes and pays a limitted Obedience for a certain Time, to another, in Quality of Maſter. See Slave. The *Romans*, beſides their *Slaves*, whom they alſo call'd *Servi*; had another kind of *Servants*, whom they call'd *Nexi & Addicti*, who were ſuch as being in Debt, were delivered up to their Creditors by the Prætor, to work out their Debt; after which they were again at Liberty. The Pope, out of his wonderful Humility, calls himſelf in his Bulls, *The Servant of the Servants of God. Servus Servorum Dei.* The firſt who uſed the Appellation, as *Diaconus* tells us, were

Pope *Damaſus* and *Gregory the Great*; which laſt is ſaid to have uſed it to check, by his Modeſty, the Arrogance of *John*, Patriarch of *Conſtantinople*, who took the Title of *Oecumenical*. *Du Cange* adds, That the Title *Servant* has been taken by ſome Biſhops, ſome Kings, and ſome Monk.

SERVITIUM, in Law. See SERVICE.

SERVETISTS, the Diſciples or Followers of *Michael Servet*, the Ringleader of the *Antitrinitarians* of theſe laſt Ages. In Reality, however, *Servet* had not any Diſciples; as being burnt, together with his Books, at *Geneva*, in 1553; But the Name *Servetiſts* is given to the Modern *Antitrinitarians*, becauſe they have follow'd his Foot-ſteps. *Sextus Senenſis* calls the *Anabaptiſts*, *Servetiſts*, and ſeems to uſe the Two Terms Indifferently. The Truth is, in many Things, the ancient *Anabaptiſts* of *Switzerland*, *&c.* chimed in with *Servet*. As the Books that he wrote againſt the Trinity, are very rare, his real Sentiments are but little known. M. *Simon*, who had a Copy of the firſt Edition, lays them down at length in his Critical Hiſtory. Tho' *Servet* uſes many of the ſame Arguments againſt the Trinity, as the *Arians*, yet he profeſſes himſelf very far from their Sentiments. He alſo oppoſes the *Socinians* in ſome Things; and declares his Diſſent from the Opinions of *Paulus Samoſatenus*, though *Sandius* miſtakenly charges him with having the ſame Sentiments. In effect, he does not ſeem to have had any fix'd regular Syſtem of Religion, at leaſt not in the firſt Edition of his Book againſt the Trinity, publiſh'd in 1531, under the Title of *De Trinitatis Erroribus, Libri Septem, per Michaelem Servetum, alias Reves, ab Arragonia Hiſpanum*. The Year following he publiſh'd his Dialogues on the Myſtery of the Trinity. In the Preface to which laſt Work, he declares himſelf diſſatisfied therewith. 'Twas on this Account he undertook another on the ſame Subject, of much greater Extent; which did not appear till the Year 1553, a little before his Death. Thoſe of *Geneva* having ſeiz'd the Copies of this Edition, had it burnt; nor were there above Two or Three that eſcaped; one of which was kept at *Baſil*, where the Book was printed, but is now in the Library at *Dublin*. It was lately put to the Preſs, ſecretly, in *England*; but being diſcovered, the Impreſſion was ſeiz'd, and deſtroy'd.

SERVICE, SERVITUM, in Law, a Duty which the Tenant, by reaſon of his Fee, owes to the Lord. See FEE. It is ſometimes alſo call'd *Servage*. Our ancient Law-Books make divers Diviſions of *Service*, *viz.* into *Perſonal*, *Real* and *Mixt*; *Military*, and *Baſe*; *Intrinſec* and *Extrinſec*, *&c.* But ſince the Statute 12 *Car.* II. whereby all Tenures are turn'd into free and common Soccage; much of that Learning is ſet aſide: Yet may it not be amiſs to mention how the ſeveral Kinds of *Service* are deſcribed in our ancient Law-Books.

Perſonal SERVICE, is that to be perform'd by the *Perſon*; ſuch is that due from a Slave to his Maſter.

Mixt SERVICE, is that due from the Perſon, by reaſon of the Thing, as an Uſu-fruit, *&c.* Our ancient Law-Books tell us of Lands held of the King, by the Tenant's letting a Fart before the King on *New-Years-Day*; others, by furniſhing the King with Whores whenever he travelled that Way; others, by bringing the King a Meſs of Pottage at his Coronation Feaſt, *&c.*

Real SERVICE, is either *Urbane* or *Ruſtic*; which two Kinds differ, not in the Place, but the Thing. The firſt is that due from a Building or Houſe, in whatever Place ſituate, whether City or Country, as the keeping a Drain, a Viſta or the like. *Ruſtic Services*, are thoſe due for Grounds where there is no Building; ſuch is the Right of Paſſage through Ways, *&c.* There are alſo *Natural Services*: For Inſtance, if a Man can't gather the Produce of his Lands without paſſing through his Neighbour's Grounds, the Neighbour is obliged to allow a Paſſage, as a *Natural Service*. By the *Lex Scribonia*, a *Servitude* can't be acquir'd by Cuſtom and Preſcription.

Military SERVICE } See { KNIGHTS SERVICE.
Baſe SERVICE } See { VILLENAGE.

Forinſec, or *Extrinſec*, or *Regal* SERVICE, was a *Service* which did not belong to the chief Lord, but to the King. 'Twas call'd *Forinſec* and *Extrinſec*, becauſe done *foris*, out of Doors; and *extra Servitium*. We read ſeveral Grants in the *Monaſticon*, of all Liberties, with the Appurtenances, *Salvo forenſi Servitio*.

Intrinſec SERVICE, that due to the Chief Lord from his Vaſſals.

Frank SERVICE, a Service done by the Feudatory Tenants, who were call'd *Liberi homines*, and diſtinct from Vaſſals: As likewiſe was their *Service*; for they were not bound to any of thoſe *Services*, as to Plough the Lord's Lands, *&c.* But only to find a Man and Horſe to attend the Lord into the Army or Court. This was ſometimes call'd *Liberum Servitium Armorum*.

SERVITES, an Order of Religious, denominated from a peculiar Attachment to the Service of the Virgin. The Order was founded by Seven *Florentine* Merchants, who, about the Year 1233, began to live in Community on Mount *Senar*, Two Leagues from *Florence*. In 1239, they received from the Biſhop, the Rule of St. *Auguſtine*; with a Black Habit, in lieu of a Grey one which they had wore before. In 1251 *Bonfilio*, one of the Seven, of ſimple Prior of Mount *Senar*, was named General. The Order was approved of by the Council of the *Lateran*, notwithſtanding the Decree it had paſs'd to prevent the Multiplication of Religious Orders. And it was again approved by Cardinal *Raynerius*, Legat of Pope *Innocent* IV; who put it under the Protection of the Holy See. The ſucceeding Popes have granted it a great many Favours, particularly *Alexander* IV. and *Innocent* VIII. It has had ſome Reform. At preſent it has Twenty-ſeven Provinces. 'Tis become famous in *Italy*, by the Hiſtory of the Council of *Trent*, of *Fra. Paolo*, a *Venetian*, who was a Religious *Servite*. *M. Hermant*, gives this Order the Name of the *Annunciate*, doubtleſs from this Miſtake, that in ſome Cities of *Italy*, they are call'd *Religious of the Annunciate*, becauſe in thoſe Cities, their Church is dedicated under that Name. *F. Archan Giani*, derives the Name *Servites*, *Servants* of the Holy Virgin, from hence; That when they appeared for the firſt Time in the Black Habit given them by the Biſhop, the Sucking Children cried out; *See the Servants of the Virgin.* —— There are alſo Nuns of this Order.

SERVITOR, in our Univerſities, a Scholar who attends or waits on another for his Maintenance there.

SERVITORS of Bills; are ſuch Servants or Meſſengers, of the Marſhal of the *King's-Bench*, as were ſent Abroad with Bills or Writs, to Summon Men to that Court. They are now commonly called *Tip-ſtaves*.

SERVITUDE, the Condition of a Servant, or Slave. See SERVICE. Under the Declenſion of the *Roman* Empire; a new kind of *Servitude*, was introduced, different from that of the ancient *Romans*: It conſiſted in leaving the Lands of ſubjugated Nations to the firſt Owners, upon Condition of certain Rents, and ſervile Offices, to be paid in Acknowledgement. Hence the Names of *Servi cenſiti*, *adſcriptitii & addicti Glebæ*: Some whereof were taxable at the reaſonable Diſcretion of the Lord; others at a certain Rate agreed on; and others were mainmortable, who, having no legitimate Children, could not make a Will to above the Value of Five-Pence, the Lord being Heir of all the reſt: Others were prohibited marrying, or going to live out of the Lordſhip. Moſt of which Services ſtill ſubſiſt in one Province or other of *France*; though all aboliſh'd in *England*. Such was the Original of our Tenures, *&c.* See TENURE.

SERUM, a thin, tranſparent, watry Liquor, ſomewhat ſaltiſh, which makes a conſiderable Part in the Maſs of Blood. The Blood conſiſts of Two Kinds or Parts; the *Cruor*, or red Part; and the *Serum*, or wheyiſh, limpid Part. See BLOOD. Mr. *Boyle*, and ſome others, have taken the *Serum* to be more ponderous than the *Cruor*; but Dr. *Jurin*, in the *Philoſophical Tranſactions*, from repeated Experiments, aſſures us of the contrary. See CRUOR. The *Serum* is, in Reality, the ſame with the *Lympha*: 'Tis carried by the Arteries throughout the ſeveral Parts of the Body; whence it returns partly in the Veins, and partly in the Lymphatick Veſſels. See LYMPHA. The Uſe of the *Serum* is to nouriſh the Parts of the Body; and to render the Chyle and Blood more Fluid. See NUTRITION. Urine and Sweat, are nothing but *Serum* drained of their Nutritious Parts, by repeated Circulations, and Secreted from the Blood in the Glands of the Kidneys and Skin. The Redundancy, and other Vices in the *Serum*, are the Cauſe of various Diſeaſes. See DISEASE.

SESAMOIDEA OSSA, in Anatomy, ſeveral very ſmall Bones, placed between the Joints of the Fingers, to fortify them; and prevent Diſlocations. See FINGER. They have their Name from their Reſemblance to a Grain of *Seſamum*, from *Seſamum*, and εἶδος, *form*.

SESQUI, a *Latin* Particle, ſignifying a Whole and a Half; which, joined with *Altera*, *Terza*, *Quarta*, *&c.* is much uſed in the *Italian* Muſic, to expreſs a Kind of *Ratio*'s; particularly, ſeveral Species of Triples. The *Ratio* expreſs'd by *Seſqui*, is the Second *Ratio* of Inequality, called alſo *Super-particular Ratio*; and is, when the greater Term contains the Leſs, once, and ſome certain Part, over: As 3 : 2; where the Firſt Term contains the Second once, and Unity over; which is a Quota Part of Two. Now, if this Part remaining, be juſt Half the leſs Term, the *Ratio* is called *Seſquialtera*: If the remaining Part be a Third Part of the leſſer Term, as 4 : 3, the *Ratio* is called *Seſqui-tertia*, or *Seſqui-terza*. If a Fourth Part, as 5 : 4, the *Ratio* is called *Seſqui-quarta*; and thus to Infinity, ſtill adding to *Seſqui* the ordinal Number of the ſmaller Term. In

Engliſh, we may ſay *Seſqui-alteral*, *Seſqi-third*, *Seſqui-fourth*, &c.

As to the Kinds of Triples expreſſed by the Particle *Seſqui*, they are theſe: The *Greater Perfect Seſqui-alteral*, which is a Triple, where the Breve is three Meaſures, or Minims, and that without having any Point. The *Greater Imperfect Seſqui-alteral*, which is where the Breve, when pointed, contains three Meaſures, and without any Point, two. The *Leſs Perfect Seſqui-alteral*, which is where the Semi-breve contains three Meaſures, and that without any Point. The *Leſs Imperfect Seſqui-alteral*, a Triple, mark'd C $\frac{1}{2}$, where the Semi-breve, with a Point, contains three Meaſures, and two without. According to *Bontempi*, one may likewiſe call the Triples $\frac{6}{4}$ and $\frac{12}{8}$, *Seſqui-alteral*.

The *Seſqui-octave*, is a Kind of Triple, mark'd C $\frac{8}{9}$, called by the *Italians Nonupla di Crome*, where there are 9 Quavers in every Meaſure or Bar, in Lieu of 8. The *Double Seſqui-quarta* is a Kind of Triple mark'd C $\frac{9}{4}$, called by the *Italians Nonupladi Semi-minime*, where there are 9 Crotchets in each Meaſure, inſtead of 4.

Sesqui-*alteral*, in Geometry, and Arithmetic, is a *Ratio* between two Lines, two Numbers, *&c.* where one of them contains the other once, with the Addition of an Half. Thus 6 and 9 are in a *Seſqui-alteral Ratio*, ſince 9 contains 6 once, and 3, which is Half of 6, over: And 20 and 30 are in the ſame; as 9 contains 20, and half of 20 or 10. See Ratio.

Sesqui-*duplicate Ratio*, is, when of two Terms, the greater contains the leſs twice, with half another over: As 15 and 6; 50 and 20. See Ratio.

Sesqui-*alteral*,
Sesqui-*octave*,
Sesqui-*quartan*,
Sesqui-*tertian*,
} In Muſic See } Sesqui.

SESQUIDITONUS, in Muſic, a Concord reſulting from the Sounds of two Strings, whoſe Vibrations, in equal Times, are to each other in the *Ratio* of 5 to 6. See Ditonus.

SESQUIQUADRATE, is an Aſpect, or Poſition, of the Planets, when at the Diſtance of four Signs and an Half; or 135 Degrees from each other.

SESQUIQUINTILE, is an Aſpect of the Planets, when 108 Degrees diſtant from each other.

SESSION, in the Schools, each Sitting, or Aſſembly, of a Council. In quoting Councils, we ſay, In ſuch a *Seſſion*, ſuch a Canon, *&c.* *Seſſion of Parliament*; is the Seaſon, or Space, from its Meeting to its Prorogation, or Diſſolution. See Prorogation.

Sessions, a Sitting of Juſtices in Court, upon Commiſſions; as the *Seſſions of Oyer and Terminer*; *Quarter-Seſſions*, called *General Seſſions*, or *Open Seſſions*, oppoſite whereto are *Eſpecial*, otherwiſe called *Privy-Seſſions*, which are procured upon ſome ſpecial Occaſion, for the more ſpeedy Diſpatch of Juſtice. See Quarter-Sessions. *Petit Seſſions*, or *Statute Seſſions*, are kept by the High-Conſtable of every Hundred, for the placing of Servants.

SESTERCE, *Seſtertius*, a Silver Coin, in Uſe among the Ancient *Romans*, called alſo *Nummus*, and ſometimes *Nummus Seſtertius*. The *Seſterce* was the Fourth Part of the *Denarius*, and contained Two *As*'s, and an Half; eſtimated in *Engliſh* Money, at One Penny Half-penny Farthing. The *Seſterce* was at firſt mark'd with L L S, the two L's ſignifying two *Libræ*, and the S Half. But the *Librarii*, afterwards, converting the two L's into an H, expreſſed the *Seſterce* by H S. The Word *Seſtertius* was uſed by way of Abbreviation for *Semiſtertius*, which ſignifies Two, and a Half of a Third; or, literally, only Half a Third: For in expreſſing Half of a Third, 'twas underſtood, that there were Two before. Some Authors make two Kinds of *Seſterces*; the *Leſs*, called *Seſtertius*, in the Maſculine Gender; and the *Great* one, called *Seſtertium* in the Neuter. The Firſt, that we have already deſcribed: The Latter containing a Thouſand of the other, or *7 l. 16 s. 3 d.* of our Money. Others will have any ſuch Diſtinction of great and little *Seſterces*, unknown to the *Romans*. *Seſtertius*, ſay they, was an Adjective, and ſignified *As Seſtertius* or two *As*'s and a Half: And when uſed plurally, as in *Quadraginta Seſtertium*, or *Seſtertia*, 'twas only by Way of Abbreviation, and there was always underſtood *Millia*, Thouſands: This laſt is the more probable Opinion. To be qualified for a *Roman* Knight, an Eſtate of Four Hundred Thouſand *Seſterces* was required; and, for a Senator, Eight Hundred Thouſand. Authors mention a Copper *Seſterce*, worth about $\frac{1}{3}$ of a Penny *Engliſh*.

Sesterce, *Seſtertius*, was alſo uſed in Antiquity, for a Thing containing Two Wholes and a Half of a Thing: As *As* was taken for any Whole, or Integer. See A S.

SESTUPLE SEXTUPLE, in Muſic, a Kind of mix'd Triple-time. M. *Broſſart* thinks, 'tis improperly thus called, and ought rather to be called *Binary-Triple*. We only find three Kinds of it in Authors; but one may add two others; the Firſt, the Seſtuple of the Semi-breve, or Triple, of 6 for 1, or Six-one. The Second, the Seſtuple of Minims, or Triple of 6 for 2, or Six-two. The Third, the Triple of Semi-minim, or Triple of 6 for 4, or Six-four. The Fourth, the Sextuple of the Croma, or Triple of 6 for 8, or Six-eight. The Fifth, the Sextuple of Semi-croma, or Triple of 6 for 16, or Six-ſixteen. See Triple.

SETHIANS, or SETHINIANS, a Branch of the Antient Gnoſticks; thus called, becauſe of their pretending to fetch their Origin from *Seth*, the Son of *Adam*, whom they called *Jeſus*, and *Chriſt*; from an Opinion, that *Seth* and *Jeſus* were the ſame Perſon, who came down from Heaven two ſeveral Times. As they had the ſame Philoſophy with the other Gnoſticks, they had numerous other Fables in their Syſtem. See Gnosticks. They pretended to have ſeveral Books of the Antient Patriarchs; particularly, Seven of their great Maſter *Seth*, and one of *Abraham*, full of manifeſt Falſities; which yet they call *Apocalypſe*, or *Revelation*. The Book called the *Little Geneſis*, anciently very common in the Churches of the Eaſt, was borrow'd from them. From this Book they learn'd the Name of *Seth*'s Wife, who, they ſay, was called *Horæa*. Some imagine, they borrowed a great many of their Fictions from the *Helleniſt Jews*.

SETON, *Setaceum*, in Chirurgery, *&c.* a Kind of topical Remedy, uſed, like a Cautery, or an Iſſue, to divert Defluxions from the Eyes; by making a Wound in the Skin of the Hind Part of the Neck, which is kept ſuppurating, by Means of a little Skain of Silk, or Cotton, paſſed through it. 'Tis alſo applied to ſuch as are apt to fall into Epileptic Fits: 'Tis of more Efficacy than a common Iſſue, but is preſcribed with much the ſame Intention. See Issue. The Operation is frequently practiſed on Horſes, *&c.* and called, by the Farriers, *Rowelling*: See Rowel. *Setons* evacuate with a gentle Pain; ſhake the nervous Kind; evacuate *Serum*, and give Vent to Repletions.

SETTER, among Farmers. To *Setter*, is to cut the Dew-Lap of an Ox or Cow, and into the Wound to put Helleboraſter, whereby an Iſſue is made, for all Humours to vent themſelves. See Issue, and Seton.

SETTING, in Aſtronomy, the Occultation of a Star or Planet; or its ſinking below the Horizon. Aſtronomers make three different Kinds of *Setting* of the Stars: Coſmical, Acronical, and Heliacal. The Firſt, when the Star ſets with the Sun: See Cosmical. The Second, when it ſets at the Time the Sun riſes: See Acronical. The Third, when it is immerged, and hid, in the Sun's Rays: See Heliacal.

To find the Times of the *Setting* of the Sun and Stars; See Globe.

Setting, in Sea Language. To *ſet the Ship by the Compaſs*, is to obſerve how the Land bears on any Point of the Compaſs; or, on what Point of the Compaſs the Sun is: Alſo, when two Ships ſail in Sight of one another, to mark on what Point the Chaſed bears, is termed, *Setting the Chaſe by the Compaſs*.

SEVENTH, in Muſic, an Interval, called by the *Greeks Heptachordon*; whereof there are four Kinds: The Firſt, The defective *Seventh*, conſiſting of three Tones, and 3 greater Semi-tones. The Second, called by *Zarlin*, and the *Italians*, *Semi-ditano condiapente*, or *Settimo Minore*; is compoſed Diatonically of ſeven Degrees, and ſix Intervals, four whereof are Tones, and the reſt greater Semi-tones, as from *de* to *ut*; and Cromatically of ten Semi-tones, ſix whereof are greater, and four leſs: It takes its Form from the *Ratio Quadripartiens Quintas*, as 9 to 5. The Third, called by the *Italians*, *Il Ditono con Diapentes*, or *Settimo Maggiore*, is compoſed Diatonically, like the former, of ſeven Degrees, and ſix Intervals, ſix whereof are full Tones, and a ſingle one a greater Semi-tone; ſo that only one major Semi-tone is wanting of the Octave: As from *ut* to *ſi*, and Cromatically of twelve Semi-tones, ſix whereof are greater, and five leſſer. It takes its Form, or Origin, from the *Ratio* of 15 to 8. The Fourth, is the redundant *Seventh*, compoſed of five Tones, a greater Semi-tone, and a leſſer; as from *ſi b* to *la*: So that it only wants a Comma of an Octave; that is, ſo much as it wants to render its ſecond Semi-tone greater. Hence many confound it with the Octave itſelf; maintaining, with good Reaſon, That only the three firſt *Sevenths* can be of any Uſe.

SEVERAL-TAIL, in Law, is that whereby Land is given, and *Entailed ſeverally* to two. *E. gr.* Land is given to two Men and their Wives, and the Heirs of their Bodies begotten. The Donees, here, have joint Eſtate for their two Lives yet they have *ſeveral* Inheritance; for the Iſſue of the one ſhall have his Moiety, and that of the other, the other.

SEVERANCE, in Law, the *Singling*, or *Severing*, two or more that joyn, or are joyn'd, in the ſame Writ. As if two join in a Writ, *De Libertate Probanda*, and the one be afterwards Non-ſuited; here, *Severance* is permitted, ſo, as notwithſtanding the Non-ſuit of the one, the other may ſeverally proceed. There is alſo *Severance of the Tenants* in an Aſſize; when one, two, or more Diſſeiſins appear upon the Writ, and not the other. And *Severance in Debt*, where two Executors are named Plaintiffs, and the one refuſes to Proſecute. *Severance of Coin*; *Severance of Summons*; *Severance in Attaints*, &c.

SEVERIANS. There were Two Sects of Hereticks thus call'd: The Firſt, who are as old as the beginning of the Third Century, were a Branch of impure Gnoſticks; thus call'd from their Chief, *Severus*. The Second, were a Sect of *Acephali* or *Eutychians*. Their Leader, *Severus*, was preferred to the See of *Antioch* in 513, where he did his utmoſt to ſet aſide the Council of *Chalcedon*. See MONOTHELITES. *Hoffman* calls theſe laſt *Severites*.

SEWER, in the Houſhold, an Officer who comes in before the Meat of a King or Nobleman, to place and range it on the Table. The Word is form'd from the *French*, *Eſcuyer*, Eſquire, Gentleman or Uſher.

SEWERS, in Building, are Shores or Conduits, or Conveyances for the Suillage and Filth of a Houſe. Sir *Henry Wotton* adviſes, that Art imitate Nature in theſe Ignoble Conveyances, and ſeparate them from Sight, (where there wants a running Water) into the moſt remote, loweſt and thickeſt part of the Foundation, with ſecret Vents paſſing up through the Walls, to the wide Air, like Tunnels; which all the *Italian* Architects commend for the Diſcharge of noiſom Vapours, though elſewhere little practiſed.

SEX, ſomething in the Body, which diſtinguiſhes *Male* from *Female*. See MALE and FEMALE. The Number of Perſons, of the two Sexes, are exceedingly well balanc'd; ſo that every Man may have his Wife, and every Woman her Husband. See MARRIAGE. Hermaphrodites have both the *Sexes* in one. See HERMAPHRODITE. 'Tis expreſly forbid by the Law of *Moſes*, to diſguiſe the *Sex*.

SEXAGENARY; ſomething relating to the Number Sixty: Particularly, a Perſon arrived at the Age of Sixty Years. Some Caſuiſts diſpenſe with *Sexagenaries* for not Faſting. The *Papian* Law prohibits *Sexagenaries* from Marriage; becauſe, at that Age, the Blood and Humours are frozen. The Word is formed from the *Latin*, *Sexagenarius*.

SEXAGENARY TABLES, are Tables of proportional Parts, ſhewing the Product of Two *Sexagenaries*, or *Sexagena's*, that are to be multiplied; or the Quotient of Two, to be divided.

SEXAGESIMA, the Second *Sunday* before *Lent*, or the next to *Shrove-Sunday*: So called, as being about the Sixtieth Day before *Eaſter*. *Sexageſima* is that which follows *Septuageſima*, and preceding *Quinquageſima*. See SEPTUAGESIMA.

SEXAGESIMAL, or *Sexagenary Arithmetic*, a Method of Computation, proceeding by Sixties: As in the Diviſion of a Degree into 60 Minutes; of the Minute, into 60 Seconds; of the Second, into 60 Thirds, *&c.*

SEXAGESIMALS, are Fractions, whoſe Denominators proceed in a *Sexagecuple Ratio*; that is, the Firſt Minute $= \frac{1}{60}$, a Second $= \frac{1}{3600}$, a Third, $\frac{1}{216000}$. See DEGREE. Antiently there were no other than *Sexageſimals*, uſed in Aſtronomical Operations, and they are ſtill retained in many Caſes; though Decimal Arithmetick begins to grow in Uſe now in Aſtronomical Calculations. In theſe Fractions, (which ſome call Aſtronomicals) the Denominator is uſually omitted, and the Numerator only written down; thus, $4^{\circ}, 59', 32'', 50''', 16''''$, is to be read, 4 Degrees, 59 Minutes, 32 Seconds of a Degree, or 60th Part of a Minute, 50 Thirds, 16 Fourths, *&c.* See FRACTIONS.

SEXTANS: The *Romans* divided their As, which was a Pound of Braſs, into 12 Ounces: The Ounce was called *Uncia*, from *Unum*; and two Ounces *Sextans*, being the ſixth Part of the Pound. *Sextans* was alſo a Meaſure, which contained two Ounces of Liquor: Thus, *Sextantes, Calliſte, duos infunde Falerni.*

SEXTANT, in Mathematicks, is the Sixth Part of a Circle; or an Arch, comprehending 60 Degrees. *Sextant* is particularly uſed for an Aſtronomical Inſtrument, made like a Quadrant; excepting, that its Limb only comprehends 60 Degrees: The Uſe and Application of the *Sextant*, is the ſame with that of the Quadrant. See QUADRANT. In the Obſervatories of *Greenwich*, and *Pekin*, are very large and extraordinary *Sextants*. See OBSERVATORY.

SEXTARIUS, an ancient *Roman* Meaſure. See MEASURE.

SEXTILE, is the Poſition, or Aſpect, of the Planets, when at 60 Degrees diſtant; or at the Diſtance of two Signs from one another. It is marked thus (*).

*

SEXTON, A Church Officer, thus call'd by Corruption of *Sacriſtan*, *Sagerſon*, and *Sagiſtan*. His Office is to take Care of the Veſſels, Veſtments, *&c.* belonging to the Church; and to ſerve and aſſiſt the Miniſter, Church-Wardens, *&c.* at Church: He is uſually choſe by the Parſon only. The Office of *Sexton of the Pope's Chapel* is particularly affixed to the Order of the Hermits of Saint *Auguſtin*: He is generally a Biſhop, though ſometimes the Pope only gives a Biſhoprick, *in partibus*, to him he confers the Poſt on. He takes the Title of *Prefect of the Pope's Sacriſty*; has the keeping of the Veſſels of Gold and Silver, the Relicks, *&c.* When the Pope ſays Maſs, the *Sexton* always taſtes the Bread and Wine firſt. If it be in Private he ſays Maſs; his Holineſs, of two Wafers gives him one to eat; and if in Publick, the Cardinal, who aſſiſts the Pope in Quality of Deacon, of three Wafers, gives him two to eat. When the Pope dies, he adminiſters to him the Sacraments of Extreme Unction, *&c.* and enters the Conclave, in Quality of firſt Conclaviſt.

SEXTRY. See SACRISTY.

SEXTUS, *Sixth*, in the Canon Law, is a Collection of Decretals, made by Pope *Boniface* the VIIIth; uſually thus called from the Title, which is *Liber Sextus*; as if it were a Sixth Book added to the Five Books of Decretals, collected by *Gregory* IX. The *Sextus* is a Collection of Papal Conſtitutions, publiſhed after the Collection of *Gregory* IX. containing thoſe of the ſame *Gregory*, *Innocent* the IVth, *Alexander* the IVth, *Urban* the IVth, *Clement* the IVth, *Gregory* X. *Nicholas* III. and *Boniface* VIII. by whoſe Order the Compilation was made. The Perſons employ'd in making of it were *Will. de Mandegot*, Archbiſhop of *Ambrun*; and *Berenger* Biſhop of *Beziers*, and *Richard* of *Vienna*.

SGRAFIT, in Painting, a Term derived either from the *Italian Sgrafficiata*, Scratch-work, or the *Greek* γραφω; ſignifying a Method of Painting in Black and White only, not in Freſco, yet ſuch as will bear the Weather. *Sgrafit* is both the Deſign, and the Painting, all in one: 'Tis chiefly uſed, to embelliſh the Fronts of Palaces, and other magnificent Buildings. See SCRATCH-WORK.

SHACK, in our Cuſtoms, a Liberty of Winter-Paſturage. In the Counties of *Norfolk*, and *Suffolk*, the Lord of the Manor has *Shack*, *i. e.* A Liberty of feeding his Sheep at Pleaſure upon his Tenant's Lands, during the Six Winter Months. In *Norfolk*, *Shack* alſo extends to the Common for Hogs, in all Mens Grounds, from the End of Harveſt, till Seed-time: Whence, to go *a-Shack*, is to feed at large.

SHADOW, SHADE, a Plan where the Light is weakened by the Interpoſition of ſome opake Body before the Luminary. The *Shadow* of Yew, Cypreſs, and Wall-nut-tree, are held dangerous to Men: The *Shadow* of Aſh is deadly to Serpents; for which Reaſon Serpents are never found under its Shade. The Doctrine of *Shadows* makes a conſiderable Article in Opticks, and Geography, and is the Foundation of Dialling.

SHADOW, in Opticks, is a Privation of Light, by the Interpoſition of an opake Body. But as nothing is ſeen but by Light; a mere *Shadow* is inviſible. When therefore we ſay, We ſee a *Shadow*; 'tis partly, that we ſee Bodies placed in the *Shadow*, and illuminated by Light, reflected from collateral Bodies; and partly, that we ſee the Confines of the Light. See LIGHT.

If the opake Body, that projects the *Shadow*, be perpendicular to the Horizon, and the Place 'tis projected on, be Horizontal; the *Shadow* is called a *Right Shadow*: Such are the *Shadows* of Men, Trees, Buildings, Mountains, *&c.* If the opake Body be placed parallel to the Horizon, the *Shadow* is called a *Verſed Shadow*; as the Arms of a Man ſtretched out, *&c.*

Laws of the Projection of SHADOWS *from Opake Bodies.*

1°. Every opake Body projects a *Shadow* in the ſame Direction with its Rays; that is, towards the Part oppoſite to the Light. Hence, as either the Luminary, or the Body changes Place, the *Shadow* likewiſe changes.

2°. Every opake Body projects as many *Shadows*, as there are Luminaries to inlighten it.

3°. As the Light of the Luminary is more intenſe, the *Shadow* is the deeper. Hence the Intenſity of the *Shadow* is meaſured by the Degrees of Light that Space is deprived of.

4°. If a luminous Sphere be equal to an opake one it illumines; the *Shadow* this latter projects, will be a Cylinder; and, of Conſequence, will be propagated ſtill equal to it ſelf, to whatever Diſtance the Luminary is capable of acting: So that, if it be cut in any Place, the Plane of the Section will be a Circle equal to a great Circle of the opake Sphere.

5°. If the Luminous Sphere be greater than the opake one; the *Shadow* will be conical. If therefore the *Sha-*

dow be cut by a Plane parallel to the Baſe, the Plane of the Section will be a Circle, and that ſo much the leſs, as it is a greater Diſtance from the Baſe.

6°. If the Luminous Sphere be leſs than the opake one, the *Shadow* will be a truncated Cone: Conſequently, it grows ſtill wider and wider; and therefore, if cut by a Plane parallel to the Section, that Plane will be a Circle ſo much the greater as 'tis further from the Baſe.

7°. To find the Length of the *Shadow*, or the Axis of the Shady Cone, projected by a leſs opake Sphere, illumined by a larger; the Diameters of the Two, as C D, and I N; Tab. Opticks, Fig. 12. and the Diſtances between their Centers G M being given.

Draw I M, parallel to C H; then will I M = C F; and therefore F G will be the Difference of the Semi-Diameters G C and I M. Conſequently, as F G, the Difference of the Semi-Diameters is to G M, the Diſtance of the Centers; ſo is C F, the Semi-Diameter of the opake Sphere, to M H, the Diſtance of the Vertex of the ſhady Cone, from the Centre of the opake Sphere. If then, the Ratio of P M to M H be very ſmall; ſo that M H and P H do not differ very notably, M H may be taken for the Axis of the *Shadowy* Cone: Otherwiſe the Part P M muſt be ſubtracted from it; which to find, ſeek the Arch L K: For, this ſubtracted from a Quadrant, leaves the Arch I Q; which is the Meaſure of the Angle I M P. Since then, in the Triangle M I P, which is rectangular at P; beſides the Angle IMQ, we have the Side I M; the Side M P is eaſily found by plain Trigonometry.

E. gr. If the Semi-Diameter of the Earth M I = 1; the Semi-Diameter of the Sun, according to *Ricciolus*, will be = 33; and therefore G F = 32; and of Conſequence M H = $228\frac{1}{8}$: Since then, M P is found by Calculation to bear a very ſmall Ratio to M H; P H is found to be $288\frac{1}{2}$ Semi-Diameters of the Earth.

Hence, as the Ratio of the Diſtance of the opake Body, from the Luminous Body G M; to the Length of the *Shadow* M H, is conſtant; if the Diſtance be diminiſhed, the Length of the *Shadow* muſt be diminiſhed likewiſe. Conſequently, the *Shadow* continually decreaſes as the opake Body approaches the Luminary.

8°. To find the Length of the *Shadow* projected by an opake Body, T S, Fig. 13, the Altitude of the Luminary; *E. gr.* of the Sun above the Horizon, *viz.* the Angle S V T, and that of the Body being given. Since, in the Rectangle Triangle S T V, we have given the Angle V, and the Side T S; the Length of the *Shadow* T V is had Trigonometry. See TRIANGLE.

Thus, Suppoſe the Altitude of the Sun 37° 40', and the Altitude of a Tower 187 Feet; T V will be found $241\frac{1}{2}$ Feet.

9°. The Length of the *Shadow* T V, and the Height of the opake Body T S, being given; to find the Altitude of the Sun above the Horizon.

Since, in the Rectangle Triangle S T V, the Sides T V and T S, are given; the Angle V is found thus: As the Length of the *Shadow* T V, is to the Altitude of the opake Body T S, ſo is the whole Sine to the Tangent of the Sun's Altitude above the Horizon. Thus, if T S be 30 Foot, and T V 45'; T V S will be found 33°. 41'.

10°. If the Altitude of the Luminary, *E. gr.* The Sun above the Horizon T V S, be 45°. the Length of the *Shadow* T V is equal to the Height of the opake Body.

11°. The Lengths of the *Shadows* T Z and T V of the ſame opake Body T S, in different Altitudes of the Luminary, are as the Co-tangents of thoſe Altitudes.

Hence, as the Co-tangent of a greater Angle is leſs than that of a leſs Angle; as the Luminary riſes higher, the *Shadow* decreaſes: Whence it is, that the Meridian *Shadows* are longer in Winter than in Summer.

12°. To meaſure the Altitude of any Object, *E. gr.* A Tower A B, (Fig. 14.) by means of its *Shadow* projected on a Horizontal Plane.

At the Extremity of the *Shadow* of the Tower C, fix a Stick, and meaſure the Length of the *Shadow* A C; Fix another Stick in the Ground of a known Altitude D E, and meaſure the Length of the *Shadow* thereof E F. Then, as E F is to A C; ſo is D E to A B. If, therefore, A C be 45 Yards, and E D 5 Yards; A B will be 327 Yards.

13°. The *Shadows* of equal opake Bodies have their Length proportionable to their Diſtances from the ſame Luminaries equally high. Hence, as the Opake approaches to the Luminary; or the Luminary to the Opake Body, the Length of the *Shadow* is increaſed; and as either of them recedes, is diminiſhed. Hence, from the different Lengths of *Shadows* of the ſame opake Bodies at the ſame Height of the *Sun*, *Moon*, *Jupiter*, *Venus*, &c. we may gather their different Diſtances from the Earth; tho' not accurately enough for Aſtronomical Purpoſes. See DISTANCES.

14°. The *Right Shadow* is to the Height of the opake Body, as the Co-ſine of the Luminary, to the Sine.

15°. The Altitude of the Luminary being the ſame in both Caſes, the opake Body A C, (Fig. 15.) will be to the *verſed Shadow* A D, as the *right Shadow* E B, to its opake Body D B.

Hence, 1°. The opake Body is to its *verſed Shadow*, as the Co-ſine of the Altitude of the Luminary to its Sine; Conſequently, the verſed A D is to its opake Body A C, as the Sine of the Altitude of the Luminary to its Co-ſine. 2°. If D B = A C; then will D B be a mean Proportional between E B, and A D; that is, the Length of the opake Body is a mean Proportional between its *right Shadow* and *verſed Shadow*, under the ſame Altitude of the Luminary. —— 3°. When the Angle C is 45°; the Sine, and Co-ſine are equal; and therefore the *verſed Shadow* equal to the Length of the opake Body.

15°. A *right Sine* is to a *verſed Sine* of the ſame opake Body, under the ſame Altitude of the Luminary, in a Duplicate Ratio of the Co-ſine, to the Sine of the Altitude of the Luminary.

Right and *verſed Shadows*, are of conſiderable Uſe in Meaſuring; as by their Means we can commodiouſly enough meaſure Altitudes, both acceſſible and inacceſſible, and that too when the Body does not project any *Shadow*. The *right Shadows*, we uſe when the *Shadow* does not exceed the Altitude; and the *verſed Shadows*, when the *Shadow* is greater than the Altitude. On this Footing, is made an Inſtrument call'd the *Quadrat* or *Line of Shadows*, by means whereof the Ratios of the *right* and *verſed Shadow* of any Object, at any Altitude, are determined. This Inſtrument is uſually added on the Face of the Quadrant. Its Deſcription and Uſe, ſee under the Article QUADRAT.

SHADOW, in Geography. The Inhabitants of the Globe are divided, with Reſpect to their *Shadows*, into *Aſcii*, *Amphiſcii*, *Heteroſcii*, and *Periſcii*. The firſt are ſuch as at a certain Seaſon of the Year have no *Shadows* at all, while the Sun is in the Meridian. See ASCII. The ſecond are ſuch, whoſe Meridian *Shadow*, at one Seaſon of the Year looks to the North, and at another to the South. See AMPHISCII. The third are ſuch, whoſe *Shadows* conſtantly tend either to the North or South. See HETEROSCII. The laſt are thoſe, whoſe *Shadows*, in one and the ſame Day, ſucceſſively tend to all the Points. See PERISCII.

SHADOW, in Painting, an Imitation of a real *Shadow*, effected by gradually heightening, and darkening the Colours of ſuch Figures as by their Diſpoſitions cannot receive any direct Rays from the Luminary, ſuppoſed to enlighten the Piece. The Management of the *Shadows* and Lights, makes what the Painters call the *Clair-obſcure*: The Laws whereof ſee under the Article CLAIR-OBSCURE.

SHADOW, in Perſpective. The Appearance of an opake Body, and a luminous one, whoſe Rays diverge, (*E. gr.* as Candle, Lamp, *&c.*) being given; To find the juſt Appearance of the *Shadow* according to the Laws of Perſpective: The Method is this. From the Luminous Body, which is here conſidered as a Point, let fall a Perpendicular to the Perſpective Plane or Table; *i. e.* Find the Appearance of a Point upon which a Perpendicular drawn from the Middle of the Luminary, falls on the Perſpective Plane; and from the ſeveral Angles, or rais'd Points of the Body let fall perpendicular to the Plane. Theſe Points whereon theſe Perpendiculars fall, connect by right Lines, with the Point upon which the Perpendicular let fall from the Luminary, falls. And continue the Lines to the Side oppoſite to the Luminary. Laſtly, thro' the raiſed Points, draw Lines thro' the Centre of the Luminary, interſecting the former; the Points of Interſection are the Terms or Bounds of the *Shadow*.

E. gr. Suppoſe it required to project the Appearance of the *Shadow* of a Priſm, A B C F E D (*Tab. Perſpective* Fig. 8.) Scenographically delineated: Since A D, B E, and C F, are perpendicular to the Plane, and L M is likewiſe perpendicular to the ſame; (for the Luminary is given, if its Altitude L M be given) Draw the right Lines G M and H M, thro' the Points D and E. Thro' the raiſed Points A and B, draw the right Line G L and H L, interſecting the former on G and H. Since the *Shadow* of the right Line A D terminates in G; and the *Shadow* of the right Line B E in H; and the *Shadows* of all the other right Lines conceived in the given Priſm are comprehended within theſe Terms; G D E M will be the Appearance of the *Shadow* projected by the Priſm.

SHAFT, in Building: the *Shaft of a Column*, is the Body thereof; thus call'd from its Streightneſs: but by Architects more frequently the *Fuſt*. See FUST. *Shaft*, is alſo uſed for the Spire of a Church Steeple. See SPIRE. And for the Tunnel of a Chimney. See CHIMNEY.

SHAFT *of a Mine*, is the hollow Entrance into a Mine, which is ſunk or dug to come at the Ore. In the Tin-Mines, after this is ſunk about a Fathom, they leave a little, long, ſquare Place, which is called a *Shamble*.

SHAGREEN. See CHAGREEN.

SHALLOP or SLOOP, is a ſmall light Veſſel, with only a ſmall Main-maſt, and Fore-maſt, and Lug-Sails, to hale up, and let down, on Occaſion: They are commonly good Sailers; and are often uſed as Tenders upon a Man of War.

SHAMADE. See CHAMADE.

SHAMOY, or SHAMMY. See CHAMOIS.

SHANKER, in Medicine, a malignant Ulcer, which gnaws and eats the Fleſh; uſually occaſioned by ſome Venereal Diſorder. See CARCINOMA.

SHARP, in Muſic, a kind of artificial Note or Character, (thus form'd #) which being prefix'd to a Note, ſhews that it is to be ſung or play'd a Semi-tone, or half a Note higher than the natural Note would have been without. When the Semi-tone takes the Name of the natural Note next above it, 'tis mark'd with a Character call'd a *Flat*. See FLAT. 'Tis indifferent, in the Main, which of the Two be uſed, tho' there are ſometimes particular Reaſons for the one rather than the other. See SEMITONE. The Uſe of *Flats* and *Sharps*, is by way of Remedy to the Deficiencies of the fixed *Scales* of Inſtruments. See SCALE.

SHARPING CORN, is a cuſtomary Preſent of Corn, which at every *Chriſtmas*, the Farmers, in ſome Parts of *England*, make to their Smith, for ſharpening their Plough-Irons, Harrow-tines, *&c.*

SHEADING, is a Riding, Tything, or Diviſion in the *Iſle of Man*; the whole Iſland being divided into Six *Sheadings*, in every one of which, is a Coroner or chief Conſtable.

SHEATHING *of a Ship* is the caſing that Part of her Hull, which is to be under Water, with ſomething to keep the Worms from eating into her Planks. It is uſually done with laying Tar and Hair mix'd together all over the old Plank, and then nailing on thin new Boards: But this hinders a Ship's ſailing, and therefore of late ſome have been ſheathed with mill'd Lead, which is much ſmoother, and conſequently better for ſailing, and alſo more cheap and durable than the other Way. It was firſt Invented by Sir *Philip Howard*, and Major *Watſon*.

SHEERING, in the Woollen Manufactures, the *Sheerman's Craft* or Office; or the cutting off, with large *Sheers*, the too long and ſuperfluous Nap, or Shag found on the Surface of Worſted Stuffs, Fuſtians, Cottons, *&c.* in order to make them more ſmooth and even. Stuffs are *Shorn* more or fewer Times, according to their Quality and Fineneſs. See CLOTH.

Some uſe the Phraſe *Sheering of Hats*, for the paſſing of Hats made of Wooll, over the Flame of a clear Fire made of Straw, or Spray, to take off the long Hairs. Others call this *Flaming* and others *Sindging*. Other Hats, as Caſtors, Semi caſtors, *&c.* are *Shorn*, by rubbing them over with Pumice-ſtone. See HAT.

SHEERING, is alſo the Sea Term for the Motion of a Ship, when ſhe is not ſteer'd ſteadily; in which caſe ſhe is ſaid to *Sheer* or go *Sheering*. When ſhe lies at Anchor, near Port, *&c.* by reaſon of the ſwift running of a Tide Gate, *&c.* ſhe is ſaid to be in danger of *Sheering home her Anchor*, or *Sheering a-ſhore.*— *Sheer-hooks*, are large Iron Hooks, uſed when a Ship deſigns to Board another.— *Sheer-ſhanks*, is a kind of Knot, by which they tie up and ſhorten a Runner when it is too long.

SHEKEL, an ancient *Hebrew* Coin, equal to Four *Attick Drachmas*, or Four *Roman Denarii*; amounting to 2 *s.* 6 *d. Sterling*. In the Bible, the *Shekel* is ſometimes alſo render'd *Solidus*, and ſometimes *Stater*. The *Jewiſh* Doctors are in great doubt of the Weight of the *Shekel*, and 'tis only by Conjecture, and by the Weight of the Modern *Shekel*, that the Ancient one is judg'd equal to Four *Attick Drachmas*. See BUDEUS. Father *Souciet*, has deſcribed ſeveral of theſe *Shekels*, in his Diſſertation on the *Hebrew* Medals. By the Way he obſerves, that the Third and Fourth Parts of a *Shekel*, deſcribed by *Waſerus de Ant. Num. Heb.* are Counterfeits of that Author.

The *Hebrew Shekel*, according to F. *Merſenne*, weighs 268 Grains, and is compoſed of 20 Oboli, each Obolus weighing 16 Grains of Wheat. This, he ſays, is the juſt Weight, as he found by Weighing one in the *French* King's Cabinet. He adds, that ſuch as come ſhort of this Weight, have been filed or clip'd. Biſhop *Cumberland* tells us, he has weigh'd ſeveral, and always found them near the Weight of a *Roman* Half-ounce. Some are of Opinion, that the *Hebrews* had two Kinds of *Shekels*. The Common, or Prophane *Shekel*, call'd *Didrachma*; and the *Shekel of the Sanctuary*, which laſt they will have double the former. By this Expedient they think we may get clear of ſome Difficulties occurring in Scripture, where Things are mentioned as of Incredible Weight; particularly that Paſſage where 'tis ſaid, That every Time *Abſalom* cut off his Hair, the Weight whereof uſed to incommode him; he cut off the Weight of 200 *Shekels*. But *Villalpandius* will not hear of it; nor does Biſhop *Cumberland*, *M. Morin*, *&c.* take the Opinion to have any Foundation. The Profane *Shekel*, or *Shekel* of Four *Drachmas*, they agree, was the ſame with the *Sacred Shekel*; and 'twas only ſo call'd, becauſe the Standard thereof was kept in the Sanctuary, by the Prieſts. 'Tis pretended by others, that the *Jews* had a Gold *Shekel* of the ſame Weight with the Silver one. The *Shekel* is ſuppoſed to have been firſt ſtruck in the Deſart, at the Rate of 100 to the *Attick* Mina, weighing 160 Grains of Wheat, and currant for 10 Geratis or Oboli. But afterwards they were ſtruck of double that Weight. Some will have the *Shekel* the oldeſt Piece of Money in the World, as being in Uſe in *Abraham's* Time; but this was not Coin'd, or Stamp'd; nor had any other Value beſides its Intrinſic Worth. See MONEY. *Xenophon* mentions *Shekels*, as current in *Arabia*: *Du Cange* ſays the ſame of *England* and *Germany*. The Word is form'd from a *Hebrew* Word, ſignifying *to Weigh*.

SHELF, is what the Miners (eſpecially in Tin Mines) call the *Faſt-Country*; by which they mean, an imaginary Surface of the Earth, which, at the Concuſſion of Waters at the Deluge, was never moved; and to the *Shelf*, they think, all the Loads or Mineral Veins at firſt lay even, and parallel; tho' after the Flood, ſome were elevated, ſome depreſſed. And by *Shelf* now, they mean that hard Surface or Coat of the Earth which lies under the Mould, uſually about a Foot deep; for they ſuppoſe, that ſince the Flood, the Earth hath gotten a new Coat of Vegetable Earth, or ſuch as is made by the Corruption of Vegetables and Animals. See DELUGE and STRATA.

SHELL, in Natural Hiſtory, a hard Cruſt, ſerving to cover and incloſe a kind of Animals, hence call'd *Teſtaceous*.

Naturaliſts have been generally miſtaken in the Manner of the Formation of *Shells*. The Animal and its *Shell* have been always ſuppoſed to ariſe from the ſame Egg. But M. *Reaumur* has ſhewn the Suppoſition to be falſe. He has found, by ſure Experiments, that the *Shells* of Garden Snails are form'd of a Matter which perſpires from their Bodies, and hardens and condenſes in the Air. 'Tis certain, that all Animals perſpire, and are encompaſs'd with a kind of Cloud or Atmoſphere, which exhales from them, and, in all Probability, aſſumes pretty nearly their external Figure. Snails have nothing peculiar in this reſpect; unleſs that the Atmoſphere of their Perſpiration, condenſes and hardens about them, and forms a viſible Cover, whereof the Body is the Mould or Model; whereas that of other Animals is evaporated and loſt in Air. This Difference ariſes from the different Subſtance perſpired; That coming from Snails, is viſcous and ſtony. This is no Suppoſition; but a Matter of Fact, which M. *Reaumur* has well proved by Experiments.

On this Principle, tho' the *Shell* ſerve the Animal as an univerſal Bone, yet it does not grow like a Bone, nor like any of the other Parts, by Vegetation; that is, by a Juice circulating within itſelf; but by an external Addition of Parts laid one over another; as is commonly ſuppoſed of Stones. But, to conſider the Thing more particularly; It is to be remembred, that the Snail's Head is always at the Aperture of the *Shell*, and its Tail in the Tip or Point of the *Shell*; and that its Body is naturally turn'd into a Spiral Form, the different Folds whereof are in different Planes. This ſuppoſed: Take the Snail juſt hatch'd; As the Matter it perſpires petrifies around it, there muſt be firſt form'd a little Cover, proportion'd to the Bigneſs of its Body; And as its Body is yet too little to make a Fold of a Spiral, at leaſt a whole Fold; this Cover will only be the Centre, or, at moſt, the firſt Beginning of a little Circle of a Spiral. But the Animal grows: If, then, it ceas'd to perſpire, 'tis evident, all that is added to its Body, would remain naked; but as it continues to perſpire, it makes itſelf a Cover in proportion as it needs it. Thus is an intire Fold of a Spiral found; and thus is a Second and a Third; and ſtill every new Fold is bigger than the laſt, in regard the Animal grows in Thickneſs, at the ſame Time as it grows in Length. When the Animal ceaſes to grow, yet it does not ceaſe to perſpire; Accordingly, the *Shell* continues to grow thicker, though not longer.

SHELLS make a conſiderable Article in the Cabinets of the Curious: The fineſt and rareſt are theſe that follow; *viz.* The *Papal Crown*, which takes its Name from its Form, and which is all ſtreak'd with Red on a White Ground. The *Feather*, *Pluma*, whoſe Whiteneſs, with its Carnation Stains, have an admirable Effect. The *Hebraica*, which, on a Ground as white as Snow, has Spots as black as Jet, much reſembling *Hebrew* Characters. The *Chineſe Snail*, which has a Green and Black Embroidery, on a dark Brown Ground. The *Cloth of Gold*, remarkable for an admirable Texture of Yellow, Brown and Black. The *Cloth of Silver*, which does not come behind that of Gold in Beauty. The *Leopard*, which is all ſpeckled. The *Tyger*, whoſe Spots exceed thoſe of the *Leopard*. The *Hart's-horn*, which has black Stains on a white Ground. The *Purſe*, thus call'd from its Figure; it is embroider'd with Three or Four Colours. The *Dial*: The *Caterpillar*, both denominated from their Forms. The *Nerites*, *White Nautilus*, *Lepaſia*, *Appcrays*, *Tuba*, *Galea*, &c.

In *Aldrovand*, *Geſner* and *Fabius Columna*, we have all that the Ancients have ſaid on the Subject of *Shells*. In 1692, Dr. *Liſter* publiſh'd a Natural Hiſtory of *Shells*, in Folio, full of Cuts, repreſenting the various Kinds of *Shells*. Under the firſt Claſs, he ranges the Terreſtrial or Land *Shells*; In the Second, the Freſh-water *Shells*, both thoſe call'd *Turbinata*, and thoſe *Bivalvia*. In the Third he diſpoſes all the Sea *Shells*, the *Bivalvia* and *Multivalvia*; and in the Fourth, he divides, into ſeveral Claſſes, the Sea *Shells*, call'd *Turbinata*.

Shells are frequently found under the Ground, in Places far remote from the Sea, in Mines, and even in the Tops of Mountains: but how they ſhould come there, is a Thing the Naturaliſts are greatly divided about. The moſt uſual and eaſy Opinion is, That thoſe Parts have been formerly Sea, or at leaſt have been over-flown thereby; and many even go as high as the grand Deluge. See Deluge. But others take theſe to be the natural Places of their Birth or Formation; ſome of them being found no other than raw Clay; others of the ſame Texture with the Rock whereto they grow; and others of as abſolute a *Shelly* Subſtance, as any in the Sea. In effect, theſe may be only ſo many different Gradations of Nature, which can as well produce *Shells* in Mines, as in the Sea; there being no want of Saline or Earthy Particles for the Purpoſe: nor is there any great Difference between ſome Sorts of *Spars*, and Sea *Shells*. See Spar.

Dr. *Liſter* judges, that *Shells* found in Stone-Quarries, were never any Part of an Animal; and gives this Reaſon for it; That Quarries of different Stone, yield quite different Species of *Shells*; different not only from one another, but from any Thing in Nature beſides, which either Sea or Land does yield. See Fossile.

SHELL-FISH, a collective Name for all Fiſhes naturally incloſed in *Shells*. See Testaceous. *Bonetus* obſerves, That *Shell Animals* have no Diverſity of Sex; that they lay no Eggs, as having no Blood; and that if they have any thing that appears analogous to Eggs, 'tis rather ſomething that ſerves for Nutrition, than for Generation.

SHERIF, or *Sheriſe*, or *Shire-reeve*, an Officer in each County of *England*, whoſe Buſineſs is to ſee to the Execution of the King's Orders, and all Writs directed to him out of the King's Courts; To impannel Juries; to bring Cauſes and Criminals to Tryal; to take Care of the Diſpatch of Affairs both Civil and Criminal; to collect the Revenues, Impoſts, Fines, Confiſcations, *&c.* ariſing in his County, for which he accounts to the Exchequer; and to attend and aſſiſt the itinerant Judges. The *Sherif* is, as it were, the Soul of the Policy of the County; and the Preſerver of the Peace thereof. His Office only laſts one Year; The *Sherif* was anciently choſe by the People in the County Court, as Knights now are for Parliament; but he is now nominated by the King. In order to which, the itinerant Judges every Year nominate Six Perſons for each County; whereof, the Lord Chancellor, Treaſurer, Privy Council, *&c.* aſſembled in the Exchequer Chamber, make Choice of Three; out of which Number, the King chuſes One. Only the County of *Middleſex* has Two *Sherifs*; choſe, as anciently, by the Citizens of *London*: And *Durham*, *Weſtmoreland*, and *Cumberland*, none.

The *Sherif*, beſides his Miniſterial Office, of executing Proceſſes and Precepts of the Courts, and making Returns of the ſame; has a judicial Office, whereby he holds Two ſeveral Kinds of Courts; the one called the *Sherif's Turn*, held in divers Places of the County, to enquire of all Offences againſt Common Law not prohibited by any Statute, The other called the *County Court*, wherein he hears and determines all Civil Cauſes of the County, under Forty Shillings. See Court, and Turn.

The Word is formed from the *Saxon*, *Scire-Gereſa*, Prefect of a Town or County; or rather from *Scyrian*, to divide; the *Sherif* being denominated from the firſt Diviſion of the Kingdom into Counties. In *Latin* he is called *Vice-comes*.

SHIELD, an ancient Weapon of Defence, made in Manner of a light Buckler, and bore on the Arm to fend off Lances, Darts, *&c.* The Form of the *Shield* is repreſented by the Eſcutcheon in Coats of Arms. See Buckler.

Shield, in Heraldry, the Eſcutheon or Field whereon the Bearings of an Armory are placed. See Escutcheon.

SHILLING, an *Engliſh* Silver Coin, equal to Twelve Pence, or the 20th Part of a Pound: See Pound and Penny. 'Tis obſerv'd, there were no *Shillings* or Twelve-penny-Pieces coin'd in *England* till the Year 1504; and theſe, *Stow* calls *Groats*, though *Fabian* mentions them under the Name of *Shillings*, 34 *Hen.* VIII. The *Dutch*, *Flemiſh*, and *Germans* have likewiſe their *Shilling*; call'd *Schelin*, *Schilling*, *Schelling*, *Scalin*, &c. But theſe not being of the ſame Weight or Fineneſs with the *Engliſh Shilling*, are not Current on the ſame Foot. The *Engliſh Shilling* is worth about Fifteen *French* Sols; thoſe of *Holland* and *Germany* about Seven Sols and a Half, or Six Deniers. Thoſe of *Flanders* about Six. The *Dutch Shillings* are alſo call'd *Sols de Groſs*, becauſe equal to 12 Groſs. The *Danes* have Copper *Shillings*, worth about ¼ of a Farthing *Sterling*. *Freherus* derives the Word from a Corruption of *Siliqua*; proving the Derivation by ſeveral Texts of Law, and among others by the XXI. Law, *De Annuis legatis.* See Coin.

SHINGLES, in Building, ſmall Pieces of Wood, or quarter'd oaken Boards, ſaw'd to a certain Scantling; or more uſually cleft to about an Inch thick at one End, and made like Wedges, Four or Five Inches broad, and Eight or Nine Inches long. They are uſed in Covering, eſpecially Churches and Steeples, inſtead of Tiles, or Slates. This Covering is dear; yet where Tiles, *&c.* are very ſcarce, and a light Cover required, is preferable to Thatch. If made of good Oak, and cleft, not ſawed, and well ſeaſon'd, they make a ſure, light, and durable Covering. The Building is firſt to be cover'd all over with Boards, and the *Shingles* nail'd thereon. See Covering.

Shingles, in Medicine, a kind of Herpes, call'd alſo the *Milliary Herpes.* It conſiſts of innumerable little Puſtules breaking out in various Parts of the Body, *viz.* the Neck, Breaſt, Loins, Thighs, *&c.* The Place affected is ſomewhat Inflamed, and the Patient a little Feveriſh. White Puſtules ariſe and ſuppurate, and are ſucceeded by little round Scabs reſembling Millet Seeds. It is to be attack'd with Diſcutients; and the higher Puſtules cut off with Sciſſars, and a Cerate of Oil and Wax to be applied. *Wiſeman* obſerves, the *Shingles* come near the Nature of a *Pſora*, and are therefore to be cured with Mercurial Cathartick.

SHIP, a general Name for all great Veſſels with Sails, fit for Navigation on the Sea; excepting Galleys, which go with Oars and Smack-Sails. See Galley. The Sieur *Aubin*, defines a Ship, A Timber-building, conſiſting of various Parts and Pieces, nail'd and pinn'd together with Iron and Wood, in ſuch Form as to be fit to float, and to be conducted by Wind and Sails, from Sea to Sea.

For the moſt convenient Form of Ships; *or that wherein they ſhall meet with the leaſt Reſiſtance from the Water*; See Vessel.

The Invention of *Ships* is very Ancient, and, at the ſame time, very uncertain. The Mythologiſts attribute it to *Dedalus*; and pretend, that the Wings he invented to ſave himſelf withal from the Labyrinth of *Crete*, were nothing but Sails, which he firſt gave to Veſſels, and wherewith he eluded the Vigilance and Purſuit of *Minos.* Others gave the Honour to *Janus*; on the Credit of ſome ancient *Greek* and *Latin* Coins, on one Side whereof, is repreſented his double Face, and on the Reverſe a *Ship*. Laſtly, others, and thoſe who go on the beſt Grounds, look on *Noah* as the Firſt *Ship-builder*. See Ark; See alſo Navigation.

Ships are uſually divided into Three Claſſes, *Ships* of War, Merchant *Ships*, and an intermediate Kind, half War, half Merchant; being ſuch, as, tho' built for Merchandiſe, yet take Commiſſions for War. *Ships* of War are again divided into ſeveral Orders, call'd *Rates*. See Rate. Merchant *Ships* are eſtimated by their Burthen, that is, by the Number of Tuns they bear, each Tun reckon'd at Two thouſand Pounds Weight. The Eſtimate is made by Gauging the Bottom of the Keel, which is the proper Place of Loading. See Burthen.

The moſt celebrated *Ships* of Antiquity are, that of *Ptolomy Philopater*, which was 280 Cubits long, 38 broad and 48 high. It carried 400 Rowers, 400 Sailors, and 3000 Soldiers. That he made to Sail on the *Nile*, we are told, was Half a Stadium long. Yet theſe were nothing in Compariſon with *Hiero*'s *Ship*, built under the Direction of *Archimedes*; on the Structure whereof, *Moſchion*, as we are told by *Snellius*, wrote a whole Volume. There was Wood enough employ'd in it to make Fifty Gallies. It had all the Variety of Apartments of a Palace; Banqueting Rooms, Galleries, Gardens, Fiſh-ponds, Equerries, Mills, Baths, a Temple of *Venus*, *&c.* It was incompaſs'd with an Iron Rampart, Eight Tours, with Walls and Baſtions, furniſh'd with Machines of War; particularly one, which threw a Stone of 300 Pounds, or a Dart of 12 Cubits, the Space of Half a Mile; with many other Particulars related by *Athenæus*. Among Modern *Ships*, one of the moſt conſiderable is a Firſt Rate *Ship* of War, built at *Woolwich* in 1701; The Dimenſions whereof, whence thoſe of other Rates may be deduced, are as follow: The Length 210 Foot; Number of Guns 110: Number of Men 1250: Number of Tuns 2300: Draught of Water 22 Foot; the Main-ſail in Length 54 Yards, Depth 19: Main-maſt in Length 39 Foot; in Diameter 38 Inches: Weight of the Anchor 82 Hundred 1 Quarter 14 Pound: Cable in Length 200 Yards: Diameter of the Cable 22 Inches. The Expence of building a common Firſt Rate *Ship*, with Guns, Tackling and Rigging, is computed at 60000 *l. Sterling*. See Navy, Freight, Charter-Party, Policy *of Aſſurance*, &c.

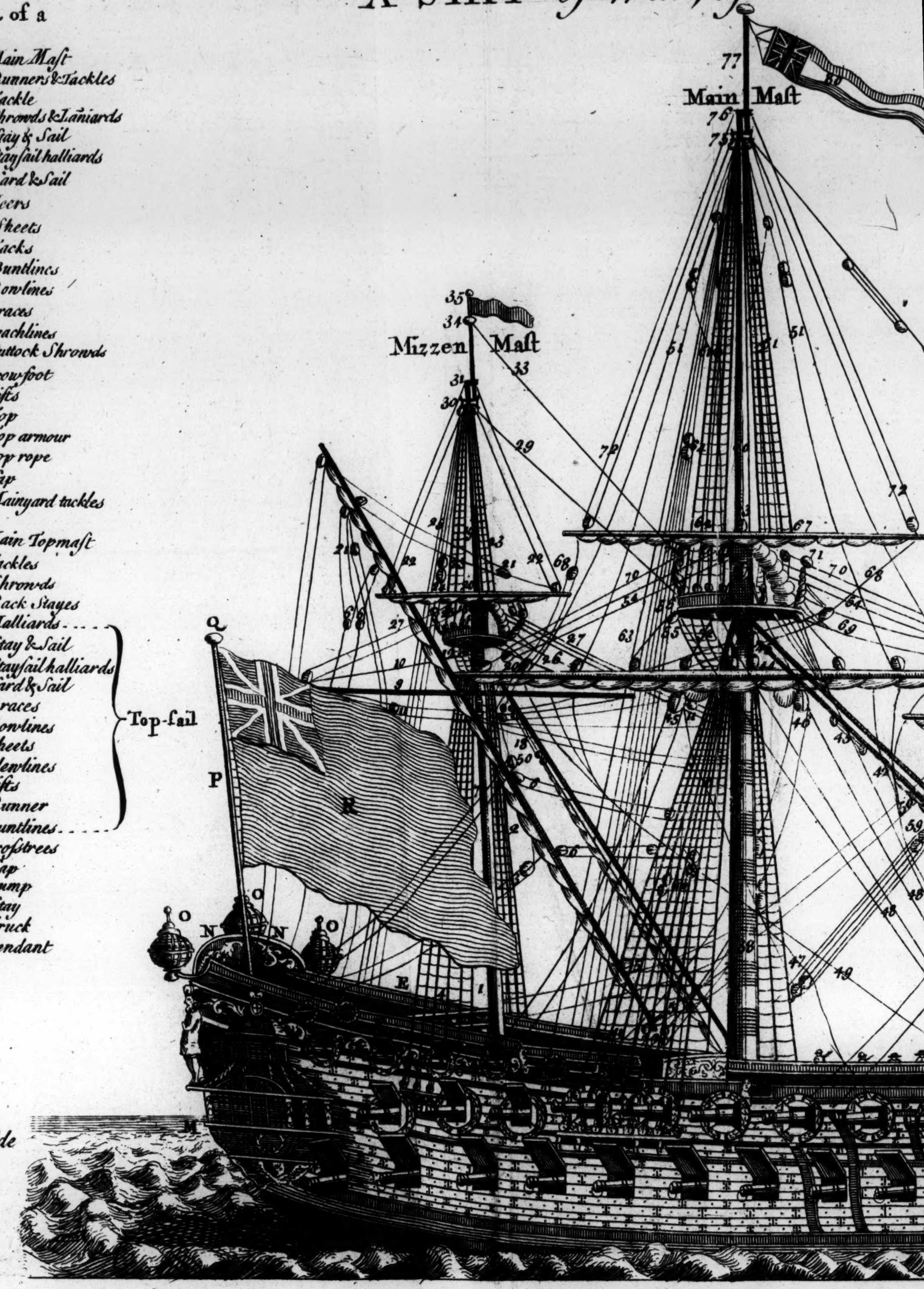
To give the Reader an Idea of the ſeveral Parts and Members of a Ship, both Internal and External, with their reſpective Denominations in the Sea Language (the Principal

whereof

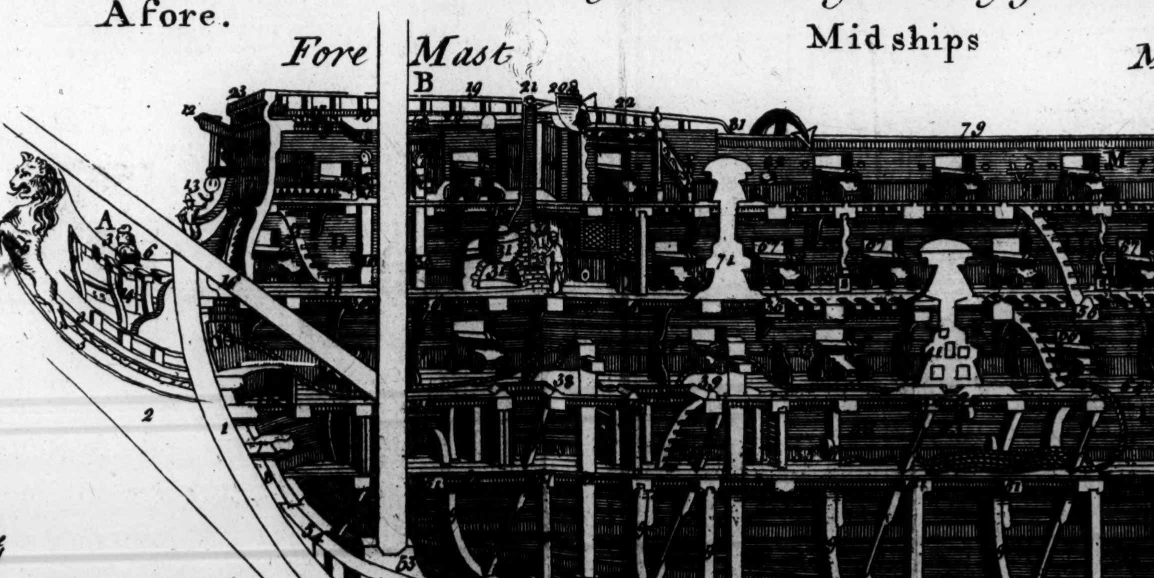
A SHIP *of War, of the thir*

Parts, Members &c. of a SHIP.

- Mizzen Mast and Rigging
  - 1 Mizzen Maſt
  - 2 Yard & Sail
  - 3 Sheet
  - 4 Shrowds & Laniards
  - 5 Bowlines
  - 6 Brayles
  - 7 Jeer
  - 8 Peak Hallyards
  - 9 Croſs jack Yard
  - 10 Lifts
  - 11 Braces
  - 12 Puttock Shrouds
  - 13 Mizzen top
  - 14 Top Armour
  - 15 The Capp
  - 16 Crowfoot
  - 17 Stay & Sail
  - 18 Halliards
- Mizzen Top Mast and Rigging
  - 19 Topmaſt
  - 20 Yard & Sail
  - 21 Braces
  - 22 Lifts
  - 23 Shrowds
  - 24 Halliards
  - 25 Back ſtays
  - 26 Bowlines
  - 27 Sheets
  - 28 Clewlines
  - 29 Stay
  - 30 Croſstrees
  - 31 Cap
  - 32 Stump
  - 33 Stay
  - 34 Truck
  - 35 Spindle
  - 36 Vane
  - 37 Slings of the Croſsjack Yard
- Main Mast and Rigging
  - 38 Main Maſt
  - 39 Runners & Tackles
  - 40 Tackle
  - 41 Shrowds & Laniards
  - 42 Stay & Sail
  - 43 Stayſail halliards
  - 44 Yard & Sail
  - 45 Jeers
  - 46 Sheets
  - 47 Tacks
  - 48 Buntlines
  - 49 Bowlines
  - 50 Braces
  - 51 Leachlines
  - 52 Puttock Shrowds
  - 53 Crowfoot
  - 54 Lifts
  - 55 Top
  - 56 Top armour
  - 57 Top rope
  - 58 Cap
  - 59 Mainyard tackles
- Main Top Mast and Rigging
  - 60 Main Topmaſt
  - 61 Tackles
  - 62 Shrowds
  - 63 Back Stayes
  - Top-sail
    - 64 Halliards
    - 65 Stay & Sail
    - 66 Stayſail halliards
    - 67 Yard & Sail
    - 68 Braces
    - 69 Bowlines
    - 70 Sheets
    - 71 Clewlines
    - 72 Lifts
    - 73 Runner
    - 74 Buntlines
  - 75 Croſstrees
  - 76 Cap
  - 77 Stump
  - 78 Stay
  - 79 Truck
  - 80 Pendant



Section *of a* SHIP *of War, of ye First*



Parts, Members &c. *Withinſide*

A. The Head, *Containing*
1 The Main Stem
2 The Knee of the Head, or Cutwater
3 The Lower and Upper Cheek
4 The Trail Board
5 The Figure
6 The Gratings
7 The Brackets
8 The falſe Stem
9 The Breſt hooks
10 The Hawſe-hole out of which runs the Cable
11 The Bulk head afore
12 The Cat-Head
13 The Cat Hook
14 Neceſsary Seat
15 The Manger within Board
16 The Bowſprit

B. Upon the Fore-Caſtle.
17 The Gratings
18 The Partners of the Foremaſt
19. The Gunwale.
20. The Belfry
21 The Funnel for Smoak
22 The Gangway going off ye Fore-Caſtle
23 The Fore Caſtle Guns

C In the Fore Caſtle
24 The door of ye Bulk head afore
25 The Officers Cabbins
26 The Stair Caſe
27 The Fore top-sail-Sheet Bits
28 The Beams
29 The Carlines

D. Middle Gun Deck afore
30 The Fore Jeer Bits
31 The Oven and Furnace of Copper
32 The Captains Cook Room
33 The Ladder or way up into the Fore Caſtle

E. The lower Gun Deck afore.
34 The Knees fore and aft
35 The Spirketings ye firſt Streak next to each Deck. ye next under ye Beams being call'd Clamps
36 The Beams of ye Mide Gun Deck Fore and Aft
37 The Carlines of ye Middle Gun Deck fore and aft
38 The fore Bits
39 The After or Main Bits
40 The Hatchway to the Gunners & Boatſwains ſtore Rooms
41 The Jeer Capſton

F. The Orlop.
Store Rooms:
42 The Gunners
43 Boatſwains
44 Carpenters
45 The Beams of the Lower Gun Deck
Fore & Aft:
46 The Pillars
47 The Riders
48 The Bulk Head of the Store Rooms

G. The Hold.
Fore & Aft:
49 The Foothook Rider
50 The Floor Rider
51 The Standirt
52 The Pillers
53 The Step of ye Fore Maſt
54 The Kelſon or falſe Keel and Dead Riſing
55 The Dead Wood

H. A Midſhips in ye Hold
56 The Floor Timber
57 The Keel
58 The Well
59 The Chain Pumps
60 The Step of ye Main Maſt
of the Orlop Fore & Aft:
61 Beams
62 Carlines

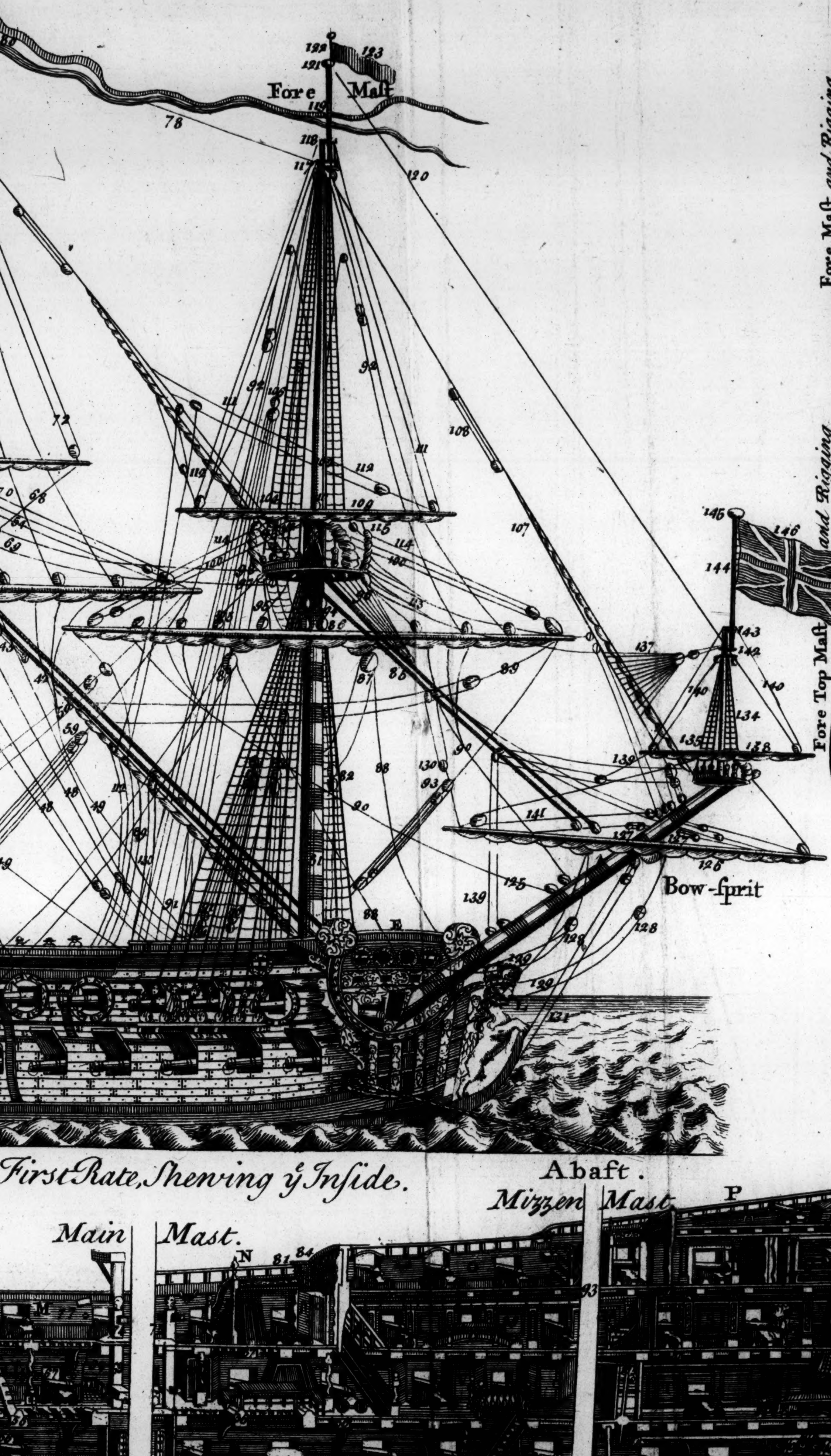
I. The Orlop A Midſhips
63 The Cable Tyre
64 The Main Hatch Way

K. The lower Gun Deck A Midſhips.
65 The Ladder leading up to the Middle Gun Deck
66 the Lower Tyre Ports

L The Middle Gun Deck A Midſhips.
67 The M
68 The En
69 The Ma
70 Twiſted
71 The Cap
72 The Gr
73 The Lad
Upper De

M. The U
A M
74 Mainta
75 The Up
of the Ma

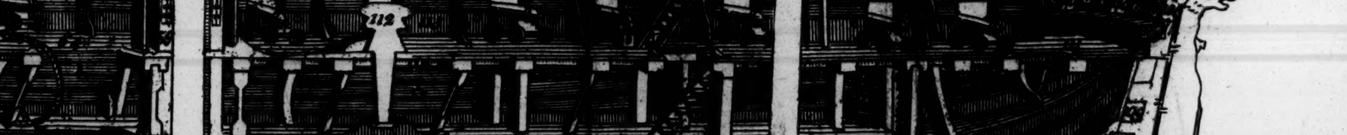
third Rate, With Rigging &c. at Anchor.



Parts, Members &c. of a SHIP

- Fore Mast and Rigging
  - 81 Foremast
  - 82 Runner & Tackles
  - 83 Tackle
  - 84 Shrouds & lanniards
  - 85 Stay
  - 86 Yard & Sail
  - 87 Sheets
  - 88 Tack's
  - 89 Braces
  - 90 Bowline
  - 91 Buntlines
  - 92 Leachlines
  - 93 Yard Tackle
  - 94 Jeers
  - 95 Puttock Shrowds
  - 96 Crowfoot
  - 97 Top
  - 98 Top Armour
  - 99 Top Rope
  - 100 Lifts
  - 101 Cap
- Fore Top Mast and Rigging
  - 102 Fore Topmast
  - 103 Tackles
  - 104 Shrowds
  - 105 Back Stays
  - 106 Halliards
  - 107 Stay & Sail
  - 108 Halliards
  - 109 Yard & Sail
  - 110 Runner
  - 111 Lifts
  - 112 Braces
  - 113 Bowlines
  - 114 Sheets
  - 115 Clewlines
  - 116 Buntlines
  - 117 Crosstrees
  - 118 Cap
  - 119 Stump
  - 120 Stay
  - 121 Truck
  - 122 Spindle
  - 123 Vane
- Bowsprit & Rigg.
  - 124 Bow sprit
  - 125 Horse
  - 126 Yard & Sail
  - 127 Lifts
  - 128 Sheets
  - 129 Clewlines
  - 130 Braces
  - 131 Bobstay
  - 132 Top
  - 133 Top Armour
  - (126–131) Sprit sail
- Sprit-Sail Top Sail & Rigging.
  - 134 Topmast
  - 135 Shrowds
  - 136 Halliards
  - 137 Craneline
  - 138 Yard & Sail
  - 139 Braces
  - 140 Lifts
  - 141 Sheets
  - 142 Crosstrees
  - 143 Cap
  - 144 Jackstaff
  - 145 Truck
  - 146 Jack
  - 147 Best Bower Buoy
  - 148 Cable
- Hull
  - A The Cutwater
  - B Stem
  - C Hawsholes
  - D Catthead
  - E Wastcloths
  - F Fore Channel
  - G Main Channel
  - H Mizzen Channel
  - I Chesiree
  - K Entring Port
  - L Head
  - M Gallery
  - N Taffarell
  - O Poop Lanthorns
  - P Ensign Staff
  - Q Truck
  - R Ensign

First Rate, Shewing ye Inside.



7 The Middle Tyre of Ports
3 The Entring Ports
9 The Main Jeer Bits
o Twisted Pillers or Stantion
The Capston
2 The Gratings
3 The Ladder up to the
pper Deck
. The Upper Gun Deck
A Midships.
4 Maintop sail Sheet Bits
, The Upper Partners
f the Main Mast

76 The Gallows, on which Spare Top Masts are laid
77 The Fore Sheet Blocks
78 The Kennets
79 The Gun Wale
80 The Upper Gratings
81 The Drift Brackets
82 The Piss Deal
83 The Capston Pall
N. A Baft the Main Mast
84 The Gang Way of the Quarter Deck.
85 The Bulk head of the Coach

86 The Stair Case down to the Middle Gun Deck
87 The Beams of ye Uppr. Deck
88 The Gratings A-Baft the Main Mast.
89 The Coach or Council Chamber
90 The Stair Case up to the Quarter Deck
O the Quarter Deck
91 The Beams
92 The Carlines
93 The Partners of ye Mizzen Mast

94 The Gang Way up to the Poop
95 Bulk head of ye Cuddy
P. The Poop
96 The Trumpeters Cabbins
97 The Taffarel
Q. The Capt. Lieut. Cabbn.
R. The Cuddy which is commonly divided for ye Master & Secretaries Officers
S. The State Room out of which is made ye Bed Chamber and other Conveniences for the Commander in Chief
98 Entrance into ye Gallery
99 Bulk head of the Great Cabbin
100 Stern Light and after Gallers
T. The Ward Room. Allotted for Voluntiers and Land Officers
101 The Lower Gallery
102 The Steerage and Bulk head of ye Ward Room

Parts, Members &c. Withinside

103 The Whipstaff comanding the Tillar.
104 The After Stair Case down to ye lower Gun Deck
V. Several Officers Cabins A baft ye Main Mast in which Place comonly the Soldiers Make their Guard from the Entring Port.
W. The Gun Room
105 The Tillar comanding the Rudder
106 The Rudder
107 The Stern Post
108 The Tillar Transom
109 The several Transoms viz 1.2.3.4.5
110. The Gun Room Port or Stern Chase.
111 Bread Room Scuttle down out of the Gun Room
112 The main Capston
112 The Pall of the Capston or Stopper of Iron
114 The Partners
X. The Bread Room
115 The Bulk Head of the Bread Room
Y. The Stewards Room Where all Provisions are weighed and Served out
Z. The Cock Pit. where are Subdivisions for the Purser and Chirurgeons & Mates
&. The Platform or Orlop where Provision is made in time of Service for the wounde
116. The Hold abaft the Main Mast
117. Step of ye Mizzen Mast
118. The Keelson or False Keel.
119. Dead Wood or Rising

No. XVII

whereof are explained in the reſpective Places of this *Dictionary*) we here give him Two Draughts; the one, a Section of the Body of a Firſt Rate, to ſhew its Conſtruction, the Diſpoſition of its Inſide, *&c.* The other, the ſame *Ship* entire, with the Sails, Rigging, *&c.*

SHIPPER, or *Scipper*, a *Dutch* Term, ſignifying the Maſter of a Ship. We alſo uſe the Word for any common Seamen.

SHIP-MONEY, an Impoſition anciently charged upon the Ports, Towns, Cities, Boroughs, and Counties of the Realm; by Writs commonly called *Ship-writs*, under the Great Seal of *England*. This Impoſition was revived by King *Charles* the Firſt, in the Years 1635 and 1636, for the providing and furniſhing certain *Ships* for the King's Service: But by Stat. 17 *Car.* I. it was declared to be contrary to the Laws and Statutes of the Realm, Claim of Right, Liberty of the Subject, *&c.*

SHIPWRACK. See WRECK.

SHIRE, (from the *Saxon Scir*, or *Scyre*, to divide) is a Part or Portion of the Land, call'd alſo *County*. See COUNTY. King *Alfred* firſt divided the Land into *Satrapias*, which we now call *Shires*, and thoſe into *Centurias*, which we now call *Hundreds*; ſee HUNDRED: And thoſe again into *Decanias*, which we call *Tythings*: See TYTHING. The antient *Latin* Word for *Shire*, was *Scyra*: The Aſſizes of the *Shire*, or Aſſembly of the People of a County, was call'd, by the *Saxons*, *Scirgemot*.

SHOAL, in the Sea Phraſe, is the ſame as *Shallow*, and is uſed for Flats in the Water: They ſay, It is good *Shoaling*, when a Ship ſailing towards Shore, they find by her Sounding, it grows ſhallower and ſhallower by degrees, and not too ſuddenly; for then the Ship goes in Safety. It is alſo uſed for a Company of Fiſh.

SHOALED, is the Miner's Term in the Tin Mines, for ſuch Fragments of Ore, which by Rains, Currents of Water, *&c.* are torn off from the Load or Veins of Ore. They are waſh'd down from the Mountains, and by finding of them, they gueſs where to look for a Load of Ore. Sometimes it is called *Squad*, and *Squod*.

SHOARS, Props, or Counterforts, ſet up to ſupport any Thing of Weight, which leans on one Side. See BUTTRESS.

SHOE, a Covering of Leather for the Foot: Its Structure, though the Object of a particular Art, is too popular to need explaining: (See CORD-WAINER). Its Hiſtory is more obſcure. *Bened. Baudoin*, a Shoe-maker, has an expreſs Treatiſe of the *Antient Shoes*; *De Solea Veterum*: Where the Origine, Matter, Form, *&c.* thereof, are particularly inquired into.

Baudoin maintains, that God, in giving *Adam* Skins of Beaſts to cloath him, did not leave him to go bare-footed; but gave him *Shoes* of the ſame Matter. That after raw Skins, Men came to make their *Shoes* of Ruſhes, Broom, Paper, Line, Silk, Wood, Iron, Silver, Gold; ſo different has their Matter been; nor was their Form more ſtable, with regard either to the Shape, Colour, or Ornaments. They have been ſquare, high, low, long, and quite even, cut, carved, *&c.* *Pliny*, *Lib.* 7. *c.* 56. tells us, That one *Tibus* of *Bœotia* was the firſt who uſed *Shoes*. M. *Nilant*, in his Remarks on *Baudoin*, obſerves, That he quotes *Xenophon* to little Purpoſe, to ſhew, that even in his Time they ſtill wore *Shoes* of raw Skins. *Xenophon* relates, That the Ten Thouſand *Greeks*, who had follow'd the young *Cyrus*, wanting *Shoes*, in their Retreat, were forced to cover their Feet with raw Skins, which occaſioned them great Inconveniencies. He will not even allow, that the *Shoes* of the Country People, call'd *Carbatinæ*, and *Peroneæ*, were of crude Skin, without any Preparation. The Patricians among the *Romans*, wore an Ivory Creſcent on their *Shoes*. *Heliogabalus* had his *Shoes* covered over with a very white Linnen; in Conformity to the Prieſts of the Sun, for whom he profeſſed a very high Veneration. This kind of *Shoe* was called ὑδῶν, *Udo*, or *Odo*. *Caligula* wore *Shoes* enrich'd with precious Stones. The *Indians*, like the *Egyptians*, wore *Shoes* made of the Bark of the Papyrus. The *Turks* put off their *Shoes*, and leave them at the Doors of the *Moſques*.

SHOOTING,	See	GUNNERY and PROJECTILE.
SHOOTING of Bombs,		BOMB.
SHOOTING by the Air,		WIND-GUN.

SHOP-LIFTER, a Perſon, who cheapening Wares, on Pretence of Buying, takes the Opportunity of ſtealing them.

SHORE, or *Common-Sewer*, a Corruption of *Sewer*. See SEWERS and CLOACA.

SHORT ACCENT, in *Grammar*, a Mark which ſhews, that the Time of pronouncing, ought to be ſhort; It is wrote thus (˘). See ACCENT.

SHORT-SAILS, in a Man of War, are the ſame with the *Fighting Sails*; being the *Fore-ſail*, *Main ſail*, and *Foretop-ſail*, which are all that are uſed in Fight, leſt the reſt ſhould be fired, and ſpoiled; beſides the Trouble of managing them when a Ship gives Chaſe to another. If the Chaſe have a Mind to fight, they ſay, The Chaſe *ſtrips into her* Short-Sails, *i. e.* puts out her Colours in the Poop, her Flag at the Main-top, and her Streamers, or Pendants, at the Yard's Arms; Furls her *Sprit-ſail*, Peeks her Mizzen, and ſlings her Main-Yard.

SHORT-SIGHTEDNESS, a Fault in the Conformation of the Eye, wherein the Cryſtallin, *&c.* being too Convex, the Rays reflected from diſtant Objects are refracted too much, and made to converge too faſt, ſo as to unite e'er they reach the *Retina*; by which Means the Viſion is render'd dim and confuſ'd. See MYOPIA.

The ordinary Remedy, for *Short-ſightedneſs*, is a Concave Lens, held before the Eye; which making the Rays diverge, or at leaſt, diminiſhing much of their Convergency, makes Amends for the too great Convexity of the Cryſtallin. See LENS.

Dr. *Hook* ſuggeſts another Remedy. Finding, that many *Short-ſighted* Perſons are but little helped by Concaves; he recommends a Convex Glaſs, placed between the Image and the Eye; by Means whereof the Object may be made to appear at any Diſtance from the Eye, and conſequently, all Objects may be thereby made to appear at any required Diſtance from the Eye; ſo that the *Short ſighted* Eye ſhall contemplate the Picture of the Object, in the ſame Manner, as if the Object it ſelf were in the Place. 'Tis true, the Image will appear inverted; but we have Expedients to remedy this too: For, in Reading, there needs nothing but to hold the Book upſide down. To write, the beſt will be for the Perſon to learn to read upſide down. For diſtant Objects, the Doctor aſſerts, from his own Experience, that, with a little Practice in contemplating inverted Objects, one gets as good an Idea of them, as if ſeen in their natural Poſture.

SHOT, for Ordnance, are of ſeveral Sorts; as *Round-ſhot*, or Bullets fitted to the Bore of the Piece. *Croſs-bar-ſhot*, Round-ſhot, with a long Spike of Iron caſt in it, as if it went through the Middle of it. *Trundle-ſhot*, being only a Bolt of Iron, 16 or 18 Inches long, ſharp-pointed at both Ends, and about an Hand's-breadth from each End, having a round broad Bowl of Lead caſt upon it, according to the Bore of the Piece. *Langrel-ſhot*, which runs looſe with a Shackle, to be ſhortened, when put into the Piece, and when it flies out it ſpreads it ſelf; at each End of the Bar, it hath half a Bullet, either of Lead or Iron. *Chain-ſhot*, is two Bullets, with a Chain betwixt them; ſome being contrived round, yet ſo, that they will ſpread in flying their full Length and Breadth. *Caſe-ſhot*, is any thing of ſmall Bullets, Nails, old Iron, and the like, to put into the Caſe, to ſhoot out of Ordnance.

SHOT, for Fowling. The Method of Caſting it is as follows. The Lead being melted, ſtirr'd, and ſkimm'd, a Quantity of powder'd yellow Orpiment is ſtrew'd in it; as much as will lie on a Shilling, to 12 or 15 Pounds of Lead. The Whole being well ſtirr'd, the Orpiment will flame. To judge whether there be Orpiment enough in, a little of the Lead is dropped into a Glaſs of Water, and if the Drops prove round, and without Tails, there is Orpiment enough, and the Degree of Heat is as it ſhould be. This done, a Copper Plate, Hollow in the Middle, and Three Inches in Diameter, bored through, with 30 or 40 ſmall Holes, according to the Size of the Shot, is placed on an Iron Frame, over a Tub of Water, four Inches above the Water: The Hollow Part is to be very thin. On this Plate are laid burning Coals, to keep the melted Lead in Fuſion. The Lead is now poured gently, with a Ladle, in the Middle of the Plate, and it will make its Way through the Holes in the Bottom of the Plate into the Water, in round Drops. Great Care is taken to keep the Lead on the Plate in its proper Degree of Heat: If too cold, it will ſtop the Holes; and if too hot, the Drops will crack and fly. The *Shot*, thus made, are dried over a gentle Fire, always ſtirring them that they do not melt: This done, the greater are ſeparated from the ſmaller, by paſſing them through Sieves for that Purpoſe.

SHOT-FLAGON, a *Flagon* ſomewhat bigger than ordinary; which in ſome Counties, particularly *Derbyſhire*, it is the Cuſtom for the Hoſt to ſerve his Gueſts in, after they have drank above a Shilling.

SHOULDER, among Farriers. *Shoulder-pitcht*, is a Diſeaſe in a Horſe, when the Pitch or Point of the Shoulder is diſplaced; which makes the Horſe halt downright.—*Shoulder ſplaiting*, or *Shoulder torn*, is a Hurt which befals a Horſe by ſome dangerous Slip, by which the *Shoulder* is parted form the Breaſt.

SHOULDER-BLADE, a Bone of the *Shoulder*, of a Triangular Figure, covering the Hind-part of the Ribs; call'd by the Anatomiſts *Scapula* and *Omoplata*. See SCAPULA.

SHOULDER-BONE. See HUMERUS.

SHOULDERING, in Fortification, is a Retrenchment, oppoſed to the Enemies; or a Work caſt up for a Defence on one Side: whether made of Heaps of Earth caſt up, or of Gabions, and Faſcines. A *Shouldring* alſo is a Square Orillon, ſometimes made in the Baſtions, on the Flank near the *Shoulder*, to cover the Cannon of a Caſement. It is alſo taken for a Demi-Baſtion, or Work, conſiſting of one Face, and one Flank, which ends in a Point, at the Head of an Horn-work, or Crown-work: Neither is it to be underſtood only of a ſmall Flank added to the Sides of the Horn-work to defend them, when they are too long; but alſo of the Redents which are raiſed on a ſtreight Line.

SHOULDERING-PIECE, in Building. See BRACKET.

SHOULDER-WRENCH is a Strain in the *Shoulder*.

SHOWER, a Cloud reſolved into Rain, and diſcharged on a certain Tract of Ground. See RAIN.

In Natural Hiſtory we meet with abundance of Inſtances of extraordinary and præternatural *Showers*: As, *Showers of Blood*, mention'd by *Gaſſendus*, and others; A *Brimſtone Shower*, mentioned by *Wormius*; *Showers of Frogs*, mentioned by *Pliny*, and even Dr. *Plot*; A *Shower of Millet-Seed*, in *Sileſia*, mentioned in the *Ephem. German. An.* 3°. *Showers of Aſhes*, frequent in the *Archipelago*. A *Shower of Wheat*, in *Wiltſhire*. *A Shower of Whitings*, mention'd in the *Philoſ. Tranſact.* The natural Reaſons of many whereof may be ſeen under the Article RAIN.

SHRINE, a Caſe to hold the Relicks of ſome Saint: See RELICKS. The Word is formed from the *Latin Scrinium*, a *Deſk* or *Cabinet*.

SHROVE-TIDE, the Time immediately before *Lent*; thus call'd by our Anceſtors, becauſe employed in *Shriving*, that is, in confeſſing their Sins to the Prieſt; in order to a more devout keeping the enſuing *Lent* Faſt.—*Shrove Tueſday* is the Day next before the firſt of *Lent*.

SHROWDING *of Trees*, the cutting or lopping off the Top-Branches thereof; which is only practiſed to Trees that are not fit for Timber, but deſigned for Fuel, or ſome other preſent Uſe. Such Trees the Husbandmen find much preferable to Copſe; as they need no Fence to ſecure them, becauſe ſtanding in no Danger of the Browzings and Rubbings of Cattle, which too, have the Benefit of Grazing under them.—For the Time of *Shrowding*, 'tis not to be practiſed till the Trees have ſtood three or four Years; either at the Beginning of the Spring, or the End of the Fall. The harder ſort not to be lopped above once in ten or twelve Years, and that at any Time in the Winter. The pithy and ſofter Woods are beſt *ſhrowded* in the Spring. The Stumps left, ſhould always be cut aſlope, and ſmooth, in order to caſt the Water off; and prevent its ſinking in, and rotting the Tree.

SHROWDS, are great Ropes in a Ship, which come from either Sides of all Maſts: They are faſtened below by Chains to the Ship's Sides, and aloft, over the Head of the Maſt; their Pendants, Fore-tackle, and Swifters, being firſt put under them. They are alſo ſewed there, to prevent their galling the Maſt. The Top-maſt *Shrowds* are faſtened to the Puttocks, by Plates of Iron, and by Dead-Mens-Eyes, and Lanniers alſo, as the others are: The Terms are, *Eaſe the Shrowds*; that is, Slacken them: *Set taught the Shrowds*; that is, Set them faſter: The Bolt-Sprit hath no *Shrowds*.

SHRUB, a little low Tree, or Dwarf; or a Woody Plant, of a Size leſs than a Tree; which, beſides its principal Stem, and Branches, frequently, from the ſame Root, puts forth ſeveral other conſiderable Sets or Stems: Such are *Privet*, *Phillyrea*, &c. Shrubs and Trees put forth in *Autumn*, a kind of Buttons, or Gems, in the Axes of the Leaves: Theſe Buttons are as ſo many little Eggs, which coming to expand by the Warmth of the following Spring, open into Leaves, and Flowers. By this, together with the Heighth, ſome diſtinguiſh *Shrubs* from *under Shrubs*; which are low Buſhes, that do not put forth any of theſe Buttons; as Roſemary, Thyme, &c.

SHUTTLE, in the Manufactures, a kind of Inſtrument uſed by the Weavers, which, with a Thread it contains either of Wooll, Silk, Line, or other Matter, ſerves to form the Woof of their Stuffs, Linnens, Ribbands, &c. by throwing the *Shuttle* alternately from Left to Right, and from Right to Left, a-croſs; between the Threads of the Warp, which are ſtretched out lengthwiſe on the Loom. In the Middle of the *Shuttle* is a Kind of Cavity, called *the Eye* or *Chamber* of the *Shuttle*, wherein is incloſed the Spoul, which is a Part of the Thread deſtined for the Woof; and is wound on a little Tube of Paper, Ruſh, or other Matter.

The Ribband-Weaver's *Shuttle* is very different from that of moſt other Weavers, though it ſerve for the ſame Purpoſe: 'Tis of Box, ſix or ſeven Inches long, one broad, and as much deep: Shod with Iron at both Ends, which terminate in Points, and are a little crooked, the one towards the Right, and the other towards the Left, repreſenting the Figure of an ⌒ horizontally placed.

SI, in Muſic, a Seventh Note, added within this Sixty Years, by one *le Maire*, to the Six ancient Notes; invented by *Guido Aretin*, *ut*, *re*, *mi*, *fa*, *ſol*, *la*, *ſi*; by Means whereof, the Embarraſs of the ancient Gamut is avoided. So buſy a Thing is Jealouſy, that, for a matter of Thirty Years, that *le Maire* kept preaching to the Muſicians of his Time, in Behalf of the new Note; not a Man would allow it: But he was no ſooner dead, than all the World came into it. See NOTE.

SIBYLS, SIBYLLÆ, in Antiquity, Virgin Propheteſſes, or Maids ſuppoſed to be divinely inſpired; and who, in the Height of their Enthuſiaſm, gave Oracles, and foretold Things to come. See PROPHESY. The Word is ſuppoſed formed of an Aſſemblage of the Two *Greek* Words, Σειω, to agitate, and Βύλλος, full, by Reaſon of the exceſſive Fury they were agitated withal, when they delivered their Oracles. Authors do not agree about the Number of the *Sibyls*. *Capella* reckons but Two, *viz.* *Europhile* of *Troy*, called *Sibylla Phrygia*, and *Sinuachia* of *Erithræa*, called, *Sibylla Erithræa*. *Solinus* mentions Three, *viz.* *Cumea*, *Delphica*, and *Erithræa*. *Ælian* makes their Number Four; and *Varro* increaſes it to Ten, denominating them from the Places of their Birth; the *Perſian*, *Lybian*, *Delphic*, Two *Cumeans*, *Erithræan*, *Samian*, *Helleſpontic* or *Trojan*, *Phrygian*, and *Tiburtin*. Of theſe, the moſt celebrated are, the *Erithræan*, *Delphic*, and *Cumean Sibyls*. See ORACLE.

The *Sibylline-Oracles*, were held in great Veneration by the more credulous among the Antients; but were much ſuſpected by many of the more knowing. The Books wherein they were written, were kept by the *Romans* with infinite Care, and nothing of Moment undertaken without conſulting them. *Tarquin* firſt committed them to the Cuſtody of Two Patrician Prieſts, inſtituted for that Purpoſe.

SICILIAN, in Muſic, &c. a Kind of gay ſprightly Air, or Dance; ſomewhat of the Nature of an *Engliſh* Jig: uſually marked with the Characters $\frac{6}{8}$ or $\frac{12}{8}$.

SICKNESS,	See	DISEASE.
Green-SICKNESS,		CHLOROSIS.
Sweating-SICKNESS,		SUDOR ANGLICANUS.
Falling-SICKNESS,		EPILEPSY.

SICUT ALIAS, a Writ ſent out in the Second Place, where the firſt was not executed. It is thus called from its Beginning, which is in this Form: *Georgius D. G.* &c. *Vicecomiti Heref. Salutem. Præcipimus tibi* (Sicut Alias) *præcepimus quod non omittas*, &c.

SIDE, *Latus*, in Geometry. The *Side of* a *Figure*, is a Line making Part of the Periphery of any Superficial Figure. See FIGURE. In Triangles, the *Sides* are alſo called *Legs*. In a Rectangle Triangle, the Two *Sides*, including the right Angle, are called *Catheti*; and the Third the *Hypothenuſe*. See CATHETUS and HYPOTHENUSE.

SIDE *of a Polygonal Number*, is the Number of the Terms of the Arithmetical Progreſſion, that are ſummed up. See POLYGONAL *Number*.

SIDE *of a Power*, is what we otherwiſe call the *Root*, or *Radix*. See ROOT.

Right SIDE,	See	LATUS *Rectum*.
Tranſverſe SIDE,		LATUS *Tranſverſum*.

SIDE-LAYS, is a Term made Uſe of by Huntſmen, when Dogs are ſet in the Way, to be let ſlip at a Deer, as he paſſes by.

SIDERATION, in Chirurgery, a Mortification of ſome Part of the Body; called alſo *Sphacelus* and *Necroſis*; which ſee.

SIDERATION, the blaſting or blighting of Trees, Plants, &c. by Eaſtern Winds, exceſſive Heat, Draught, or the like. See BLIGHT.

SIDERATION, is alſo uſed for a being ſuddenly benumb'd, and deprived of the Uſe of one's Limbs, Senſes, &c. which the People call being *Planet-ſtruck*.

SIDERIAL YEAR. See YEAR.

SIDERITES, a Name ſome Authors gives the Loadſtone. See MAGNET.

SIDES *of Hornworks*, &c. in Fortification, are the Ramparts and Breaſt-works, which incloſe them on the Right and Left from the Gorge to the Head.

SIDES-MEN, properly called *Synods-Men*, or *Queſt-Men*, Perſons, who in larger Pariſhes are appointed to aſſiſt the Church-Wardens, in enquiring into the Manners of inordinate Livers, and in preſenting Offenders at Viſitations.

SIEGE, in War, the Incampment of an Army around a Place, with Deſign to take it, either in the Way of Diſtreſs and Famine; or by making Lines all around it, to prevent any Relief from without; or by main Force, as by digging Trenches, and making formal Attacks. The moſt celebrated *Sieges* of Antiquity, are thoſe of *Troy*, *Tyre*, *Alexandria*, *Numantium*, &c. Thoſe of the Moderns are that of *Oſtend*, *Candia*, *Graves*, &c. The Word is *French*, and ſignifies, literally, *Seat*.

SIERRA, a *Spaniſh* Term ſignifying *Mountain*; applied to Mountains, and Mountainous Countries.

SIEVE, or *Search*, an Inſtrument ſerving to ſeparate the Fine from the Coarſe Parts of Powders, Liquors, &c. or to cleanſe the Pulſe from Duſt, light Grains, &c. 'Tis made of a Rim of Wood; the Circle, or Space whereof is filled with a Tiſſue of Silk, Tiffany, Hair, Line, Wire, or even thin Slices of Wood. The *Sieves* which have large Holes, are uſually called *Riddles*; ſuch is the *Coal* or *Lime Sieve*, *Garden Sieve*, &c. When Drugs, apt to evaporate, are to be paſſed thro' the *Sieve*, 'tis uſual to have it covered with a Lid.

SIEUR, a Kind of Title of Honour, or Quality among the *French*; chiefly uſed among the Lawyers, and in publick Acts and other Writings of that Kind: As I plead for the *Sieur* Marquis, &c. The Title *Sieur* is properly given by a Superior to an Inferior, in his Letters, and other particular Writings: As, Tell the *Sieur* ſuch a one, that he proceed, &c. In this Senſe, Authors ſometimes uſe it, by Way of Modeſty, in ſpeaking of themſelves. Thus, at the Heads of Books, we ſee, *Traduction du Sieur d' Ablancourt*, *OEuvres du Sieur d' Deſpreaux*, &c.

SIEUR, is alſo a Term expreſſing *Seigneury* or Lordſhip: As *Ecuyer* or *Sieur* of ſuch a Place.

SIGHT, the Exerciſe, or Action of the Senſe of Seeing. See SEEING.

Our *Sight*, the nobleſt and moſt uſeful of all our Senſes, Father *Mallebranch* ſhews, deceives us in abundance of Inſtances; Nay, almoſt in all: Particularly with Regard to the Magnitude, and Extent of Things; their Figures, Motions, &c. Our Eyes do not ſhew us any Thing leſs than a Mite: Half a Mite is nothing, if we believe their Report. A Mite is only a Mathematical Point, with Regard thereto; and we cannot divide it without annihilating it. In effect, our *Sight* does not repreſent Extenſion, ſuch as it is in it ſelf; but only the Relation and Proportion it has to our Body. Hence, as Half a Mite has no Relation to our Bodies, and that it cannot either preſerve or deſtroy, our *Sight* hides it intirely. Were our Eyes made like Microſcopes, or were we our ſelves as ſmall as Mites, we ſhould judge very differently of the Magnitude of Bodies. It may be added, That our own Eyes are really no other than a kind of natural Spectacles; that their Humours do the ſame Office as the Lens's in Spectacles; and that, according to the Figure of the Cryſtallin, and its Diſtance from the Retina, Objects are ſeen very differently; inſomuch, as we are not ſure, that there are any Two Perſons in the World, who ſee them equally big. 'Tis even very rare, that the ſame Perſon ſees the ſame Object equally big with both Eyes; as both Eyes are very ſeldom perfectly alike: on the contrary, we generally ſee Things bigger with the left than the right Eye; Of which we have ſome very good Obſervations in the Journal of the Learned at *Rome*, for the Year 1669. See VISION.

Short-SIGHT,	See	MYOPIA,
Second SIGHT,		SECOND *Sight*.
Point of SIGHT,		VIEW.

SIGHTS, in Mathematicks, are Two thin Pieces of Braſs raiſed perpendicularly on the Two Extremes of an Alidade or Index of a Theodolite, Circumferentor, or other like Inſtrument: Each whereof has an Aperture or Slit up the Middle, thro' which the uſual Rays paſs to the Eye, and diſtant Objects are ſeen. Their Uſe is for the juſt Direction of the Index to the Line of the Object. See TELESCOPE, CIRCUMFERENTOR, ALIDADE, &c.

Plain SIGHT,	See	SIGHTS.
Teleſcopic-SIGHTS,		TELESCOPIC SIGHTS.

Mr. *Flamſtead* and Dr. *Hook*, abſolutely explode the Uſe of *Plain Sights* in Aſtronomical Obſervations. The Errors in *Tycho*'s Latitudes of the Stars, Mr. *Flamſtead* aſcribes wholly to his uſing *Plain Sights*; and ſuſpects, that *Hevelius* uſing the ſame Kind of *Sights*, will fall into the like Errors. *Hevelius*, on the contrary, in a Paper in the *Philoſophical Tranſactions*, vindicates the Uſe of *Plain Sights*, and prefers them to *Teleſcopic* ones. The main Objection he makes to the latter, is, That no Obſervation can be ſafely taken with them, without firſt examining and rectifying them: In which Examination, many and groſs Miſtakes are liable to be committed. To which he adds, That in Sextants, Octants, Azimuth Quadrants, &c. he does not ſee how ſuch Examination can be made, at all times, without much Loſs of Time.

SIGILLARIA, a ſolemn Feaſt held among the ancient *Romans*; thus called from a Cuſtom which obtained therein, of ſending little Preſents from one to another; conſiſting of Seals, little Gravings, Sculptures, &c. The *Sigillaria* followed immediately after the *Saturnalia*, and held Four Days; which, with the Three Days of the *Saturnalia*, made a Solemnity of Seven Days. The Inſtitution of the *Sigillaria* is referred, by ſome, to *Hercules*; who, upon his Return from *Spain*, after killing *Geryon*, led his Flocks into *Italy*, where he built a Bridge over the *Tiber*, at a Place, where was ſince the *Pons Sublicius* in *Rome*. Others aſcribe it to the *Pelagians*; who conceiving, that by the Words *Head* and φῶς the Oracle did not require living Men to be ſacrificed to it, but Statues, or Figures of Men by the Firſt, and Lights by the Second; began to offer Torches to *Saturn*, and human Figures to *Pluto*.

SIGILLATA TERRA, a Kind of Earth or Clay, dug in the Iſle of *Lemnos*, thence alſo called *Lemnian* Earth; of conſiderable Uſe in Painting, and Medicine. 'Tis of different Colours, but moſt commonly Red; heavy, ſoft, and friable; held very aſtringent, and, as ſuch, uſed in Hæmorrhages; as alſo againſt the Plague and Poiſons. *Pliny* attributes ſeveral other Virtues, which Experience does not juſtify; nor is it in that Eſteem it anciently was; yet is ſtill an Ingredient in Treacle. 'Twas anciently found in a Mountain, in the Neighbourhood of the City *Hephæſtia*; where *Diana*'s Prieſts went at certain Times, with great Ceremony, to dig it up. After a little Preparation, they made it up into Troches, and ſeal'd them with *Diana*'s Seal; whence the Appellation of *Sigillata*, *Seal'd*. 'Tis now brought from *Conſtantinople* in little Cakes orbicular, on one Side flat, on the other ſealed. See TERRA.

SIGILLUM, a *Seal* or *Signet*. See SEAL and SIGNET.

SIGN, a ſenſible Mark or Character, denoting ſomething abſent, or inviſible. See CHARACTER and MARK. Antiently, the Monks, in all Religious Houſes, were not allowed to ſpeak; nor to expreſs their Minds otherwiſe than by *Signs*, which they learned in their Novitiate. *C. Rhodiginus* and *Porta* have wrote of the ancient *Signs* and Cyphers uſed in Speaking and Writing.

SIGN, in Medicine, ſome Appearance in the Body, diſtinguiſhable by the Senſes: Whence, by juſt Reaſoning, is inferred the Preſence, Nature, State, Event, of Health, a Diſeaſe, or Death. Thoſe which denote the preſent Condition of a Body, whether ſick or well, dying or the like, are called *Diagnoſtic Signs*. See DIAGNOSTIC. Thoſe which foretel the future State thereof, are called *Prognoſtic Signs*. See PROGNOSTIC. That *Sign* which is proper to the Diſeaſe, and inſeparable from it, as ariſing from the Nature thereof, is called a *Pathogenomic Sign*. See PATHOGENOMIC. As all theſe are Effects produced by the Cauſe of the Diſeaſe, the Diſeaſe it ſelf, and its Symptoms; they uſually note the preſent Condition of the Matter which firſt produced the Diſeaſe, and even of that produced by the Diſeaſe: On which Footing, the *Signs* are all reducible to theſe Three Claſſes, *viz.* *Signs* of the Crudity and Digeſtion of the Diſeaſe; of its Event, whether in Health, a Diſeaſe or Death; and of its Secretion and Excretion: Which laſt *Signs* are called *Critical* ones. See CRUDITY, DIGESTION, &c. each under its proper Article. See alſo HEALTH and DISEASE.

SIGN, in Aſtronomy, a Twelfth Part of the Ecliptic, or Zodiac; or a Portion containing Thirty Degrees thereof. The Zodiac was divided by the Antients into Twelve Segments, called *Signs*; commencing from the Point of Interſection of the Ecliptic and Equinoctial: Which *Signs* they denominated from the Twelve Conſtellations, which, in *Hipparchus*'s Time, poſſeſſed thoſe Segments; But the Conſtellations have ſince ſo changed their Places, by the Præceſſion of the Equinox, that *Aries* is now got out of the *Sign* called *Aries*, into *Taurus*, *Taurus* into *Gemini*, &c.

The Names of the Twelve *Signs*, and their Order, are as follow; *Aries*, *Taurus*, *Gemini*, *Cancer*, *Leo*, *Virgo*, *Libra*, *Scorpio*, *Sagittarius*, *Capricornus*, *Aquarius*, *Piſces*: Each of which, with the Stars thereof, ſee under its proper Article.

The *Signs* are diſtinguiſhed with Regard to the Seaſon of the Year when the Sun is in them, into *Vernal*, *Eſtival*, *Autumnal*, and *Brumal*. The *Vernal*, or *Spring-Signs*, are *Aries*, *Taurus*, *Gemini*: The *Eſtival*, or *Summer-Signs*, *Cancer*, *Leo*, and *Virgo*: The *Autumnal-Signs*, *Libra*, *Scorpio*, and *Sagittarius*; and the *Brumal*, or *Winter Signs*, *Capricornus*, *Aquarius*, *Piſces*. The *Vernal* and *Summer Signs*, are alſo called *Northern Signs*, and the *Autumnal* and *Brumal Signs*, *Southern Signs*.

For the Motion of the *Signs*. See PRÆCESSION *of the Equinox*.

SIGN *Manual*, the ſetting one's Hand and Seal to a Writing. See SIGNATURE. Among the *Saxons*, before the Invention of *Seals*, a + was a common *Sign* or *Signum*, prefixed to the Names of moſt ſubſcribing Witneſſes in Charters and other Deeds, as + *Signum Roberti Epiſcop. Lond.* &c.

SIGNAL, a certain Sign agreed upon for the conveying of Intelligence whither the Voice cannot reach. *Signals* are given for the beginning of a Battle, or an Attack: Sometimes

times with Drums and Trumpets. At Sea, *Signals* are given by Canon or Musket Shot, by Lights, Sails, Flags, *&c.*

Signals have been in Uſe in all Ages. The Ancients who had no regular Couriers or Poſts, made Uſe thereof to convey Intelligence of what paſs'd at a great Diſtance. For which Purpoſe they placed Sentinels on the Heights, from Space to Space; ſome Mention whereof, we find made by *Homer* himſelf. *Iliad Θ. v.* 553,' *&c. Odyſſ. Ξ. v.* 261. Thoſe People thus diſpoſed; lighted Fires, or Flambeaux in the Night-time. In the *Agamemnon* of *OEſchilus*, that Prince at his Departure for *Troy*, promiſes *Clytemneſtra*, that the very Day the City ſhould be taken, he would apprize her of his Victory by Fires lighted Expreſs. He keeps his Word, and Tidings are brought the Princeſs, that *Troy* is taken, and that *Agamemnon*'s *Signals* are ſeen. *Frontinus* obſerves, they were in Uſe among the *Arabs*; and *Bonaventura Vulcanius*, in his *Scholia* on *Ariſtotle*'s Book *de Mundo*, adds, That while the *Moors* were Maſters of the greateſt Part of *Spain*, they built on the Tops of the Mountains, an Infinity of Turrets, or Watch-houſes, call'd in the *Arabic*, *Atalayas*, a Word the *Spaniards* ſtill retain; whence, by Fires, they could immediately alarm the whole Kingdom. Indeed the Cuſtom was much more Ancient than the *Moors* in *Spain*. *Q. Curtius* obſerves, 'twas very frequent among the *Aſiaticks*, in the Time of *Alexander*. *Livy* and *Cæſar* both mention it as uſed among the *Romans*. *Polydore Virgil* ſhews it of great Antiquity in *England*; and *Boethius* adds, that in ſeveral Places in *England*, there are the Remains of huge Poles that have ſerved for this Purpoſe. See Beacon.

Signals *at Sea*, are Signs made at Sea, by the Admiral or Commander in Chief of a Squadron of Ships, either in the Day or by Night, either for Sailing or Fighting, or for the better Security of the Merchant Ships, under the Convoy of Men of War: Theſe *Signals* are very Numerous and very Important; all appointed and determined by Order of the Lord High Admiral, or Lords of the Admiralty.

Signals *by Day.*

When the Commander in Chief would have them prepare for Sailing, he firſt looſes his Fore-top-ſail, and then the whole Fleet are to do the ſame. When he would have them Unmoor, he looſes his Main-top ſail, and fires a Gun, which in the Royal Navy is to be anſwered by every Flag-ſhip. When he would have them Weigh, he looſes his Fore-top-ſail, and fires a Gun, and ſometimes hawls home his Sheets: The Gun is to be anſwered by every Flag-ſhip, and every Ship to get to Sail as ſoon as it can. If with the Leeward-ſide, the Stern-moſt Ship is to weigh firſt. When he would have the Weather-moſt, and Head-moſt Ships to Tack firſt, he hoiſts the Union-Flag at the Fore-top-maſt-head, and fires a Gun, which each Flag-ſhip anſwers; but if he would have the Stern-moſt, and Leeward-moſt Ships to Tack firſt, he hoiſts the Union Flag at the Mizen-top-maſt-head, and fires a Gun; and when he would have all the whole Fleet Tack, he hoiſts an Union, both on the Fore, and Mizen-top-maſt-heads, and fires a Gun. When in bad Weather, he would have them Wear, and bring to the other Tack, he hoiſts a Pendant on the Enſign-ſtaff, and fires a Gun: And then the Leeward-moſt and Stern-moſt Ships are to Wear firſt, and bring on the other Tack, and lie by, or go on with an eaſy Sail, till he comes a-head: Every Flag is to anſwer with the ſame *Signal*. If they are lying by, or Sailing by a Wind, and the Admiral would have them bear up and Sail before the Wind, he hoiſts his Enſign, and fires a Gun, which the Flags are to anſwer: And then the Leeward-moſt Ships are to bear up firſt, and to give Room for the Weather-moſt to Wear, and ſail before the Wind with an eaſy Sail, till the Admiral comes a-head. But if it ſhould happen when the Admiral hath Occaſion to Wear and Sail before the Wind, that both Jack and Enſign be abroad, he will haul down the Jack, before he fires the Gun to Wear, and keeps it down, till the Fleet is before the Wind. When they are ſailing before the Wind, and he would have them bring to, with the Star-board Tacks Aboard, he hoiſts a Red Flag at the Flag-ſtaff, on the Mizen-top-maſt-head, and fires a Gun. But if they are to bring to, with the Larboard Tack, he hoiſts a Blue Flag at the ſame Place, and fires a Gun, and every Ship to anſwer the Gun. When any Ship diſcovers Land, he is to hoiſt his Jack and Enſign, and keep it abroad, till the Admiral or Commander in Chief anſwer him, by hoiſting his; on Sight of which, he is to hawl down his Enſign. If any diſcovers Danger, he is to Tack and bear up from it, and to aw Jack abroad from the Main-top-maſt Croſs-trees, and fire two Guns; but if he ſhould ſtrike or ſtick faſt, then, beſides the ſame *Signal* with his Jack, he is to keep firing, till he ſees all the Fleet obſerve him, and endeavour to avoid the Danger. When any ſees a Ship or Ships more than the Fleet, he is to put abroad his Enſign, and there keep it, till the Admiral's is out, and then to lower it, as often as he ſees Ships, and ſtand in with them, that ſo the Admiral may know which Way they are, and how many; but if he be at ſuch a Diſtance, that the Enſign can't well be diſcovered, he is then to lay his Head towards the Ship or Ships ſo deſcry'd, and to brail up his low Sails, and continue hoiſting, and lowering his Top-ſails, and making a Weft with his Top-gallant Sails, till he is perceived by the Admiral. When the Admiral would have the Vice-Admiral, or he that commands in the Second Poſt of the Fleet, to ſend out Ships to Chaſe, he hoiſts a Flag, ſtriped White and Red, on the Flag-ſtaff, at the Fore-top-maſt-head, and fires a Gun. But if he would have the Rear-Admiral do ſo, he then hoiſts the ſame *Signal* on the Flag-ſtaff, at the Mizen-top-maſt-head, and fires a Gun. When the Admiral would have any Ship to Chaſe to Windward, he makes a *Signal* for ſpeaking with the Captain, and he hoiſts a Red Flag in the Mizen-ſhrouds, and fires a Gun: But if to Chaſe to Leeward, a Blue Flag; and the ſame *Signal* is made by the Flag, in whoſe Diviſion that Ship is. When he would have them give over Chaſe, he hoiſts a White Flag on his Flag-ſtaff at the Fore-top-maſt-head, and fires a Gun: Which *Signal* is to be made alſo, by that Flag-ſhip, which is neareſt the Ship that gives Chaſe, till the chaſing Ship ſees the *Signal*. In caſe of ſpringing a Leak, or any other Diſaſter, that diſables their Ship from keeping Company, they are to hawl up their Courſes, and fire two Guns. When any Ship would ſpeak with the Admiral, he muſt ſpread an *Engliſh* Enſign, from the Head of his Main, or Fore, Top-maſt, downwards on the Shrowds, lowering his Main, or Fore, Top ſail, and firing Guns, till the Admiral obſerve him; and if any Ship perceive this, and judgeth the Admiral doth not, that Ship muſt make the ſame *Signal*, and make the beſt of his Way to acquaint the Admiral therewith, who will anſwer by firing one Gun. When the Admiral would have the Fleet to prepare to Anchor, he hoiſts an Enſign, ſtriped Red, Blue and White on the Enſign-ſtaff, and fires a Gun, and every Flag-ſhip makes the ſame *Signal*. If he would have the Fleet Moor, he hoiſts his Mizen-top-ſail, with the Clew-lines hawled up, and fires a Gun. If he would have the Fleet cut or ſlip, he looſeth both his Top-ſails, and fires two Guns; and then the Leeward Ships are to cut or ſlip firſt, to give Room to the Weathermoſt to come to Sail. So if he would have any particular Ship to cut or ſlip, and to Chaſe to Windward, he makes the *Signal* for ſpeaking with that Ship, hoiſts a Red Flag in the Mizen-ſhrowds, and fires a Gun: But if the Ship is to Chaſe to Leeward, he hoiſts a Blue Flag as before. If he would have the Fleet exerciſe their Small Arms, he hoiſts a Red Flag on the Enſign-ſtaff, and fires a Gun; but if the great Guns, then he puts up a Pendant over the Red Flag.

Signals *by Night*;

To be obſerved at an Anchor, weighing Anchor, and Sailing, are as follow. When the Admiral would have the Fleet to Unmoor, and ride ſhort, he hangs out three Lights, one over another in the Main-top-maſt Shrowds, over the conſtant Light in the Main-top, and fires two Guns, which are to be anſwered by Flag-Ships; and each private Ship hangs out a Light in the Mizen Shrowds. *Note*, That all Guns, fired for Signals in the Night, muſt be fired on the ſame Side, that they may make no Alteration in the Sound. When he would have them Weigh, he hangs a Light in the Main-top-maſt Shrowds, and fires a Gun, which is to be anſwered by all the Flags, and every private Ship muſt hang out a Light in his Mizen-Shrowd. When he would have them Tack, he hoiſts two Flags on the Enſign-Staff, one over another, above the conſtant Light in his Poop, and fires a Gun, which is to be anſwered by all the Flags; and every private Ship is to hang out a Light extraordinary, which is not to be taken in, till the Admiral takes in his. After the *Signal* is made, the Leeward-moſt, and Stern-moſt Ships muſt Tack as faſt as they can, and the Stern-moſt Flag-ſhip, after he is about on the other Tack, is to lead the Fleet, and him they are to follow, to avoid running through one another in the Dark. When he is upon a Wind, and would have the Fleet Veer, and bring to on the other Tack, he hoiſts up one Light at the Mizen-peek, and fires three Guns, which is to be anſwer'd by the Flag-ſhips, and every private Ship muſt anſwer, with one Light at the Mizen-peek. The Stern-moſt, and Leeward-moſt Ships, are to bear up ſo ſoon as the *Signal* is made. When he would have them, in blowing Weather, to lie a Try, Short, or a Hull, or with the Head-ſails brac'd to the Maſt, he will form Lights of equal Height, and fire five Guns, which are to be anſwer'd by the Flag-ſhips, and then every private Ship muſt ſhew four Lights: And after this, if he would have them to make Sail, he then fires ten Guns, which are to be anſwered by all the Flags, and then the Head-moſt, and Weathermoſt Ships, are to make ſail firſt. When the Fleet is ſailing large, or before the Wind, and the Admiral would have them bring to, and lie by with their Star-board

Tacks aboard, he puts out four Lights in the Fore-Shrowds, and fires ſix Guns; but, if with the Lar-board Tacks aboard, he fires eight Guns, which are to be anſwered by the Flag-ſhips; and every private Ship muſt ſhew four Lights. The Wind-moſt Ships muſt bring to firſt. Whenever the Admiral alters his Courſe, he fires one Gun, (without altering his Lights) which is to be anſwered by all the Flag-ſhips. If any Ship hath Occaſion to lie ſhort, or by, after the Fleet hath made Sail, he is to fire one Gun, and ſhew three Lights in his Mizen-ſhrowds. When any one firſt diſcovers Land, or Danger, he is to ſhew as many Lights as he can, to fire one Gun, and to tack, or bear away, from it: And, if any one happen to ſpring a Leak, or any be diſabled from keeping Company with the Fleet, he hangs out two Lights of equal Height, and fires Guns till he is relieved by ſome Ship of the Fleet. If any one diſcovers a Fleet, he is to fire Guns, make falſe Fires, put one Light out on the Main-top, three on the Poop, to ſteer after them, and to continue firing of Guns, unleſs the Admiral call him off, by ſteering another Courſe, and fire two or three Guns; for then he muſt follow the Admiral. When the Admiral Anchors, he fires two Guns, a ſmall Space of Time one from the other, which are to be anſwered by the Flag-Ships; and every private Ship muſt ſhew two Lights. When the Admiral would have the Fleet to moor, he puts a Light on each Top-maſt-head, and fires a Gun, which is to be anſwered by the Flag-ſhips, and every private Ship is to ſhew one Light. If he would have them lower their Yards and Top-maſts, he hoiſts one Light upon his Enſign-ſtaff, and fires one Gun; which is to be anſwered by the Flag-ſhips; and every private Ship muſt ſhew one Light. And when he would have them hoiſt their Yards and Top maſts, he puts out two Lights, one under the other, in the Mizen-top-maſt Shrowds, and fires one Gun; which is to be anſwered by the Flag-ſhips; and each private Ship muſt ſhew one Light in the Mizen-ſhrowds. If any ſtrange Ship be diſcovered coming into the Fleet, the next Ship is to endeavour to ſpeak with her, and bring her to an Anchor, and not ſuffer her to paſs through the Fleet. And if any one diſcovers a Fleet, and it blow ſo hard that he cannot come to give the Admiral Notice timely, he is to hang out a great Number of Lights, and to continue firing Gun after Gun, till the Admiral anſwers him with one. When the Admiral would have the Fleet to Cut or Slip, he hangs out four Lights, one at each Main-yard-arm, and at each Fore-yard-arm, and fires two Guns, which are to be anſwered by the Flag-ſhips, and every private Ship is to ſhew one Light.

SIGNALS *uſed, when a Fleet ſails in a Fog.*

If the Admiral would have them Weigh, he fires ten Guns; which every Flag-ſhip is to Anſwer. To make them Tack, he fires four Guns, which are to be anſwered by the Flag-ſhips; and then the Leeward-moſt, and Stern-moſt Ships muſt tack firſt, and after they are about, to go with the ſame Sail they tacked with, and not to lie by, expecting the Admiral to come a-head: And this is to avoid the Danger of running thro' one another in thick Weather.

When the Admiral brings to, and lies with his Head-ſails to the Maſt; if with the Star-board Tack aboard, he fires ſix Guns; but if with the Lar-board Tack, he fires eight Guns, which the Flag-ſhips are to anſwer. And after this, if he makes Sail, he fires ten Guns, which the Flag-ſhips muſt anſwer, and then the Head-moſt, and Weather-moſt Ships are to make Sail firſt. If it grow thick and foggy Weather, the Admiral will continue ſailing, with the ſame Sail ſet, that he had before it grew foggy, and will fire a Gun every Hour, which the Flag-ſhips muſt anſwer, and the private Ships muſt anſwer, by firing of Muskets, beating of Drums, and ringing of Bells. But if he be forced to make either more or leſs Sail than he had, when the Fog began, he will fire a Gun every half Hour, that the Fleet may diſcern, whether they come up with the Admiral, or fall a-ſtern of him; and the Flags, and private Ships are to anſwer as before. If any one diſcovers Danger, which he can avoid, by Tacking and Standing from it, he is to make the Signal for Tacking in a Fog; but if he ſhould chance to ſtrike and ſtick faſt; he is to fire Gun after Gun, till he thinks the reſt have avoided the Danger. When the Admiral would have the Fleet to Anchor, he fires two Guns, which the Flags are to anſwer; and after he hath been Half an Hour at an Anchor, he will fire two Guns more, to be anſwered by the Flags, as before; that all the Fleet may know it.

SIGNALS *for calling Officers on Board the Admiral.*

When the Admiral puts aboard an Union Flag in the Mizen-ſhrowds, and fires a Gun, all the Captains are to come aboard him: And if, with the ſame *Signal*, there be alſo a Weſt made with the Enſign, then the Lieutenant of each Ship is to come on board. If an Enſign be put aboard in the ſame Place, all the Maſters of the Ships of War are to come on board the Admiral. If a Standard on the Flag-ſtaff be hoiſted at the Mizen-top-maſt-head, and a Gun fired, then all the Flag-Officers are to come aboard the Admiral. If the *Engliſh* Flags only; then a Standard in the Mizen-ſhrowds; and fire a Gun: If the Flags, and Land General Officers; then the Admiral puts aboard a Standard at Mizen-top-maſt-head, and a Pendant at Mizen-peek, and fires a Gun. If a Red Flag be hoiſted in the Mizen-ſhrowds, and a Gun fired; then the Captains of his own Squadron are to come aboard the Admiral; and if, with the ſame Signal, there be alſo a Weſt with the Enſign, the Lieutenant of each Ship muſt come aboard. If he hoiſts a White Flag, as before, then the Vice-Admiral, or he that commands in the Second Poſt, and all the Captains of his Squadron, are to go on board the Admiral: If a Blue Flag, *&c.* then the Rear-Admiral, and the Captains of his Squadron, muſt come on board; and if a Weſt, as before, the Lieutenants. When a Standard is hoiſted on the Enſign-Staff, and a Gun fired, the Vice and Rear Admirals muſt come on board the Admiral's Ship. When the Admiral would ſpeak with Captains of his own Diviſion, he will hoiſt a Pendant on the Mizen-peek, and fire a Gun; and if with the Lieutenants; a Weſt is made with the Enſign, and the ſame *Signal*: For whenever he would ſpeak with the Lieutenants of any particular Ship, he makes the *Signal* for the Captain, and a Weſt alſo with the Enſign. When the Admiral would have all the Tenders in the Fleet come under his Stern, and ſpeak with him; he hoiſts a Flag, Yellow and White, at the Mizen-peek, and fires a Gun. But if he would ſpeak with any particular Ship's Tender, he makes a Signal for ſpeaking with the Captain ſhe tends upon, and a Weſt with the Jack. If all the Pinnaces and Barges are to come on Board, manned and armed, the *Signal* is a Pendant on the Flag-ſtaff, hoiſted on the Fore-top-maſt-head, and a Gun fired; and if he would have them chaſe any Ship, Veſſel, or Boat, in View, he hoiſts the Pendant, and fires two Guns. The *Signal* for the Long-boats to come on board him, manned and armed, is the Pendant hoiſted on the Flag-ſtaff, and the Mizen-top-maſt-head, and a Gun fired; and if he would have them chaſe any Ship, Veſſel, or Boat, in open View, without coming on board him, he hoiſts the Pendant, as aforeſaid, and fires two Guns. When the Admiral would have all the Boats in the Fleet come on board him, manned and armed, he hoiſts a Pendant on the Flag-Staff, both on the Fore-top-maſt, and Mizen-top-maſt-head, and fires one Gun; but if he would have them chaſe, he hoiſts his Pendants, as before, and fires two Guns. When the Admiral would ſpeak with the Victualler, or his Agent, he puts an *Engliſh* Enſign in the Mizen top-maſt-ſhrowds; and when with him that hath the Charge of the Gunner's Stores, he will ſpread an Enſign at his Main-top-ſail-yard-arm.

SIGNALS *for managing a Sea-Fight.*

When the Admiral would have the Fleet form a Line of Battle, one Ship a-head of another; he hoiſts an Union Flag at the Mizen-peek, and fires a Gun; and every Flag-Ship does the like. But when they are to form a Line of Battle, one a-breaſt of another, he hoiſts a Pendant with the Union-Flag, *&c.* When he would have the Admiral of the White, or he that commands in the ſecond Poſt, to Tack, and endeavour to gain the Wind of the Enemy, he ſpreads a White Flag under the Flag at the Main-top-maſt-head, and fires a Gun; and when he would have the Vice-Admiral of the Blue do ſo, he doth the ſame with the Blue Flag. If he would have the Vice-Admiral of the Red do ſo, he ſpreads a Red Flag from the Cap, on the Fore-top-maſt-head, downward on the Back-ſtay: If the Vice-Admiral of the Blue, he ſpreads a Blue Flag, *&c.* and fires a Gun. If he would have the Rear Admiral of the Red do ſo, he hoiſts a Red-Flag at the Flag-ſtaff, at the Mizen-top-maſt-head; if the Rear Admiral of the White, a White Flag; if the Rear-Admiral of the Blue, a Blue Flag, and under it a Pendant of the ſame Colour, with a Gun. If he be to Leeward of the Fleet, or any Part of it, and he would have them bear down into his Wake or Grain, he hoiſts a Blue Flag at the Mizen-peek, and fires a Gun. If he would be to Leeward of the Enemy and his Fleet, or any Part of it be to Leeward of him; in order to bring theſe Ships into the Line, he bears down with a Blue Flag at the Mizen-peek, under the Union Flag (which is the *Signal* for Battle) and fires a Gun; and then thoſe Ships, that are to Leeward of him, muſt endeavour to get into his Wake or Grain, according to their Station in the Line of Battle. When the Fleet is ſailing before the Wind, and he would have him, who commands in the Second Poſt, and the Ship of the Star-board Quarter, to clap by the Wind, and come to the Star-board Tack, he hoiſts a Red Flag on the Mizen-top-maſt-head: But a Blue one, if he would have Ships of the Larboard Quarter, come to the Lar-board Tack, with a Gun. If the Van are to tack firſt, he ſpreads the Union Flag at the Flag-ſtaff, on the Fore-top-maſt-head, and fires a Gun, if the Red Flag be not Abroad; but if it be, then he lowers the Fore-top Sails a little; and the Union Flag is ſpread from the Cap of the Fore-top-maſt downwards; and every Flag-ſhip doth the ſame. If the Rear be to Tack firſt, he hoiſts the Union Flag on the Flag-ſtaff, at the Mizen-top-maſt-head, and fires a Gun; which all the Flag-ſhips are to anſwer. If all the Flag-ſhips are to come into his Wake or Grain, he hoiſts a Red Flag at his Mizen-peek, and fires a Gun; and all the Flag-ſhips muſt do the ſame. If he would have him that commands in the Second Poſt of his Squadron to make more Sail (though he himſelf ſhorten Sail) he hoiſts a White Flag on the Enſign-ſtaff. But if he that Commands in the Third Poſt be to do ſo, he hoiſts a Blue Flag, and fires a Gun, and all the Flag-ſhips muſt make the ſame *Signal*. Whenever he hoiſts a Red Flag on the Flag-ſtaff at the Fore-top-maſt-head, and fires a Gun; every Ship in the Fleet muſt uſe their utmoſt Endeavour to engage the Enemy, in the Order preſcribed them. When he hoiſts a White Flag at his Mizen-peek, and fires a Gun; then all the ſmall Frigates of his Squadron, that are not of the Line of Battle, are to come under the Stern. If the Fleet be ſailing by a Wind in the Line of Battle; and the Admiral would have them brace their Head-ſails to the Maſt, he hoiſts up a Yellow Flag, on the Flag-ſtaff, at the Mizen-top-maſt-head, and fires a Gun; which the Flag-ſhips are to anſwer: and then the Ships in the Rear muſt Brace firſt. After this, if he would have them fall their Head Sails, and ſtand on, he hoiſts a Yellow Flag on the Flag-ſtaff of the Fore-top-maſt-head, and fires a Gun, which the Flag-ſhips muſt anſwer, and then the Ships in the Van, muſt fall firſt, and ſtand on. If when this *Signal* is made, the Red Flag at the Fore-top-maſt-head be abroad, he ſpreads the Yellow Flag under the Red. If the Fleets being near one another, the Admiral would have all the Ships to tack together, the ſooner to lie in a Poſture to engage the Enemy; he hoiſts an Union Flag on the Flag-ſtaves at the Fore and Mizen-top-maſt-heads, and fires a Gun; and all the Flag-ſhips are to do the ſame. The Fleet being in a Line of Battle, if he would have the Ship that leads the Van, hoiſt, lower, ſet, or hawl up any of his Sails, he ſpreads a Yellow Flag, under that at his Main-top-maſt-head, and fires a Gun, which *Signal* the Flag-ſhips are to anſwer; and then the Admiral will hoiſt, lower, ſet, or hawl up the Sail, which he would have the Ship, that leads the Van, do; which is to be anſwered by the Flag-ſhips of the Fleet. When the Enemies run, and he would have the whole Fleet follow them, he makes all the Sail he can after them himſelf, takes down the *Signal* for the Line of Battle, and fires two Guns out of his Fore-chaſe, which the Flag-ſhips anſwer, and then every Ship is to endeavour to come up with, and Board the Enemy. When he would have the Chaſe given over, he hoiſts a White Flag at the Fore-top-maſt-head, and fires a Gun. If he would have the Red Squadron draw into a Line of Battle, one a-breaſt of another, he puts abroad a Flag, ſtriped Red and White, on the Flag-ſtaff at the Main, top-maſt head, with a Pendant under it; and fires a Gun: If the White or Second Squadron is to do ſo, the Flag is ſtriped Red, White and Blue: If the Blue or Third Squadron is to do ſo, the Flag is a Genoeſe Enſign and Pendant: But if they are to draw into a Line of Battle, one a-head of another, the ſame Signals are made without a Pendant. If they are to draw into the Line of Battle one a-Stern of another, with a large Wind, and he would have the Leaders go with the Star-board Tacks, a-board by the Wind; he hoiſts a Red and White Flag at the Mizen-peek, and fires a Gun: But if they ſhould go with the Larboard-tacks Aboard, by the Wind, he hoiſts a Genoeſe Flag at the ſame Place; which Signals, like others, muſt be anſwered by the Flag-ſhips.

SIGNATURE, *Signing*, a Subſcription or putting of one's Name at the Bottom of an Act or Deed, in one's own Hand Writing. Anciently, when very few People could write, they diſpenſed with the Uſe of *Signatures*; and contented themſelves with the Party's *Seal*: See SEAL.—*Signature of the Court of Rome*, is a Supplication anſwered by the Pope, whereby he grants a Favour, Diſpenſation, or Collation, to a Benefice, by putting the *Fiat* at the Bottom thereof, in his own Hand; or the *Conceſſum eſt* wrote in his Preſence. The *Signature*, at the Bottom of the Supplication, gives the Name to the whole Inſtrument. The *Signature* contains the Clauſes, Derogations, and Diſpenſations, wherewith the Pope grants the Favour, or the Benefice; with a Commiſſion for the Execution thereof, either in *Forma dignum*, or in gracious Form. A *Signature* of the Pope's own Hand, whereby he anſwers, *Fiat ut petitur*, is preferred to another, anſwered by the Prefect, in his Preſence, in theſe Words, *Conceſſum uti petitur in præſentia D. N. Papæ*. Sometimes, in *Signatures* with the *Fiat*, the Pope adds, *Proprio Motu*; which Clauſe gives them ſtill further Force. See PROVISION. There are three Kinds of *Signatures*; one in *Forma Gratioſa*, diſpatch'd on an Atteſtation of the Ordinary; another in *Forma dignum Antiqua*, diſpatch'd for Canonicates; the third in *Forma dignum Noviſſima*, which is a Kind of Second *Signature*, or Executorial Letter granted, where upon the Ordinary's failing to execute the firſt within Thirty Days, the neareſt other Ordinary is enjoyn'd to execute it.

SIGNATURE, in Printing, a Mark at the Bottom of each Sheet, to facilitate the Gathering and Binding of the Book; and to ſhew the Order, and Number, of the Quires and Sheets. The *Signatures* conſiſt of the Capital Letters of the Alphabet; and change in every Quire. If there be more Quires than Letters in the Alphabet; to the Capital Letter, they add a ſmall one of the ſame ſort, *i. e.* a little *a* after a great A, *&c.* which they repeat, as often as is neceſſary.

SIGNATURE is alſo uſed by ſome Naturaliſts for the Reſemblance a Vegetable or Mineral bears to any Part of the Human Body.

SIGNET, one of the King's *Seals*, uſed in ſealing his private Letters, and in ſigning all Grants, which paſs his Majeſty's Hand by Bill. The *Signet* is always in the Cuſtody of the King's Secretaries: On whom attend Four Clerks of the *Signet-Office*. See SECRETARY.

SIGNIFICAVIT, is a Writ which iſſues out of Chancery, upon a Certificate given by the Ordinary, of a Man that ſtands obſtinately Excommunicate for the Space of Forty Days, for the laying him up in Priſon, without Bail, or Mainprize, till he ſubmit himſelf to the Authority of the Church.

SIGNIFICATION, the Senſe of a Sign, Word, Phraſe, Emblem, *&c.* or the Thing meant or denoted by the Sign, Word, Figure, *&c.* We are perfectly at a loſs as to the *Signification* of the Hieroglyphic Characters of the Antients.

SIGNIFICATION, in Law, is the Notification of an Act, *&c.* made to the oppoſite Party, by a Copy, *&c.* thereof, given and atteſted by a proper Officer. Some *Significations* are to be made to the Perſon himſelf; or, at leaſt, at his Houſe: For others, 'tis enough they be made to the Party's Attorney, or Agent.

SILENCIARCY, *Silenciarius*, an Officer among the antient *Roman* Slaves. The *Silenciary*, according to ſome Authors, was a Slave placed over the reſt, to prevent any Noiſe and Din, and keep them ſilent. *Seneca*, in his Epiſtles, mentioning the great Care taken to keep the Slaves mute, has given Occaſion to *Lipſius*, *Popma*, and ſome others, to ſuppoſe, That the *Silenciary* was eſtabliſhed in his Time: But others, as *Pignorius*, think no ſuch Concluſion can be drawn from *Seneca*'s Words; nor any Thing, but that they were, even then, very ſevere in preventing any Noiſe among the Slaves. As to the Name and Office of the *Silenciary*, 'twas not eſtabliſhed till about the Time of *Salvian*; who is the firſt Author that mentions it. —— There were alſo *Silenciaries* eſtabliſhed in the Emperor's Court; called *Quietis Miniſtri*, and *Silenciarii Palatii*; and honoured with the Title of *Clariſſimi*, *Spectabiles*, *Devotiſſimi*, and in *Greek*, Θαυμασιώταʇοι, *q. d.* Moſt admirable. There was a great Number of them; but only Thirty ordinarily officiated; who were divided into Three Bands, each whereof had its *Decurio*. The Council of *Chalcedon*, call the Body of *Silenciaries*, *Schola devotiſſimorum Silenciariorum*.

SILENI, in Antiquity, Heathen Demi-Gods; the ſame with the *Satyrs*, which were called *Sileni* when they came to be advanced in Age. Yet was there one principal *Silenus*, elder than any of the reſt. *Diod. Siculus* ſays, He was the Maſter, or Tutor of *Bacchus*, whom he diſciplined nobly, and followed him to the Wars. He quotes an ancient Poet named *Thymætas*, who relates, That the *Sileni* aſſiſted *Bacchus* in the War he waged againſt the *Titans*; adding, That the firſt *Silenus* reigned in an Iſland made by the River *Triton* in *Lybia*. He is repreſented, as having a long Tail hanging behind; which is likewiſe an Attribute of all his Poſterity. The Poets always mount him on an Aſs. *Nonnus* makes *Silenus* a Son of *Tellus*; and gives him Three Children; *Aſtræus*, *Maron*, and *Lenæus*. *Servius*, on *Virgil*'s Eclogue, makes *Silenus* the Son of *Mercury*; others, the Son of *Pan*, and a Nymph: Others will have him born of the Drops of the Blood of *Cœlus*, Father of *Saturn*.

Bochart, in his *Canaan*, will have *Silenus* to take his Name from שלח, *Silo*, or שול, and רעיל, *Silan*, the Name of the *Meſſiah*. He adds, That whatever is attributed to this imaginary God, is all taken from what the Prophets have foretold of the *Jeſus Chriſt*: Thus, whereas 'tis ſaid, The *Meſſiah* ſhall be the Inſtructor of the People; *Silenus* is made Preceptor of *Bacchus*. Becauſe 'tis ſaid, That our Saviour ſhall bind his Aſs to the Vine, and his Colt to the young Vine; *Silenus* is made to ride an Aſs. Becauſe our Saviour waſhed his Garments in Blood, as thoſe who trod the Wine-preſs; *Silenus* was made to preſide over thoſe who preſs'd the Vintage. Becauſe, 'tis added, his Eyes were red by Reaſon of Wine: *Silenus* was made always fuddled. *Bochart* advances all this with a deal of Diſtruſt, as he has Reaſon; it having no Warrant: He adds, That the Devil invented the Fable of *Silenus*, to turn the Myſteries of our Religon into Ridicule. But it muſt be a very ignorant Devil, to take *Rubent illi oculi ex vino, & dentes ejus ex lacte albeſcent*, in the Senſe he has done; as if the Words ſignified any Thing more, in the Propriety of the *Hebrew* Tongue, than, His Eyes are redder than Wine; His Teeth whiter than Milk. We may add, That no Body, before *Bochart*, neither Chriſtian nor Idolater, ever ſaw any Thing of *Jeſus Chriſt* in the Fable of *Silenus*.

SILIQUA, in Botany, is the Seed-Veſſel, Husk, Pod, or Shell of Plants, of the leguminous Kind. Whence *Siliquous Seeds*, &c.

SILK, a very ſoft, fine, bright, delicate Thread; the Work of an Inſect, called the *Silk-Worm*. The Antients were but little acquainted with the Uſe and Manufacture of *Silk*. They took it for the Work of a Kind of Spider, or Beetle, who ſpun it out of its Entrails, and wound it with its Feet about the little Branches of Trees. This Inſect they called *Ser*, from *Seres*, a People in *Scythia*, who kept it; whence, the *Silk* it ſelf they called *Sericum*. But the *Ser* has very little Affinity with our *Silk-Worm*, *Bombyx*: The former living Five Years; but the latter dying annually, envelop'd in a yellowiſh Cover, or Ball; which, wound out into little Threads, makes what we call *Silk*. 'Twas in the Iſle of *Cos*, that the Art of manufacturing *Silk*, was firſt invented; and *Pamphila*, Daughter of *Platis*, the Inventor. The Diſcovery was not long unknown to the *Romans*. *Silk* was brought them from *Seres*, where the *Worm* was a Native. But ſo far were they from profiting by the Diſcovery, that they could not be induced to believe ſo fine a Thread ſhould be the Work of a Worm; and thereupon formed a Thouſand Chymerical Conjectures of their own.

This Temper rendered *Silk* a very ſcarce Commodity among them for many Ages: 'Twas even ſold Weight for Weight againſt Gold; inſomuch, that *Vopiſcus* tells us, The Emperor *Aurelian*, refuſed the Empreſs, his Spouſe, a Suit of *Silk*, which ſhe ſolicited of him with much Earneſtneſs; merely for its Dearneſs. At length, Two Monks, coming from the *Indies* to *Conſtantinople*, in 555; brought with them great Quantities of *Silk Worms*, with Inſtructions for the hatching of their Eggs, rearing and feeding the Worms, drawing out the *Silk*, ſpinning and working it. Upon this, Manufactures were ſet up at *Athens*, *Thebes*, and *Corinth*.

About the Year 1130, *Roger* King of *Sicily*, eſtabliſhed a *Silk* Manufactory at *Palermo*, and another in *Calabria*; managed by Workmen, who were Part of the Plunder brought from *Athens*, *Corinth*, &c. whereof that Prince made a Conqueſt in his Expedition to the Holy Land. By Degrees, *Mezeray* adds, the reſt of *Italy* and *Spain* learned from the *Sicilians*, and *Calabrians*, the Management of the *Silk-Worms*; and the working of the *Silk*: And at length the *French*, by Right of Neighbourhood, a little before the Reign of *Francis* I. began to imitate them. The great Advantage the New Manufacture turned to, made our King *James* I. very earneſt for its being introduced into *England*. Accordingly, it was recommended ſeveral Times from the Throne, and in the moſt earneſt Terms, to plant Mulberry-Trees, &c. for the Propagation of *Silk-Worms*; but, unhappily, without Effect: Tho' from the various Experiments we meet withal in the *Philoſophical Tranſactions*, and other Places, it appears, That the *Silk-Worm* thrives and works as well, in all Reſpects, in *England*, as in any Part of *Europe*.

The *Silk-worm* is an Inſect, not more remarkable for the precious Matter it furniſhes for divers Stuffs; than for the many Forms it aſſumes, before and after its being invelop'd in the rich Cod or Ball it weaves it ſelf. From a Grain, or Seed, which is its firſt State, it becomes a pretty big *Worm*, of a whitiſh Colour, bordering on a yellow. When a *Worm*, it ſhuts its ſelf up in its Cod, and aſſumes the Form of a kind of greeniſh Bean, without any Signs of Life or Motion. At length it awakes to become a Butter-Fly; after making it ſelf a Paſſage out of its *Silken* Sepulcher. And, at laſt, dying indeed, it prepares it ſelf, by a Grain, or Seed it caſts, for a New Life; which the Warmth of the Summer Weather aſſiſts it in reſuming.

Aſſoon as the *Silk-Worm* is arrived at the Size and Strength neceſſary for the beginning his Cod; he makes his Web: For 'tis thus they call that ſlight Tiſſue, which makes the Beginning, and Ground of this admirable Work. This is his firſt Day's Employment. On the Second, he forms his Cod, and covers himſelf almoſt over with *Silk*. The Third Day, he is quite hid; and the following Days, employs himſelf in thickening and ſtrengthening his Cod: Always working from one ſingle End, which he never breaks thro' his own Fault; and which is ſo fine, and ſo long, that thoſe who have examined it attentively, think they ſpeak within Compaſs, when they affirm, that each Cod contains *Silk* enough to reach the Length of Six *Engliſh* Miles In Ten Days time, the Cod is in its Perfection; and is now to be taken down from the Branches of the Mulberry Tree, where the *Worms* have hung it. But this Point requires a deal of Attention; for there are ſome *Worms* more lazy than others; and 'tis very dangerous waiting till they make themſelves a Paſſage, which uſually happens about the Fifteenth Day of the Month.

The firſt, fineſt and ſtrongeſt Cods or Balls, are kept for the Grain; the reſt are carefully wound: or, if 'tis deſired to keep them all, or if there be more than can be well wound at once; they lay them for ſome Time in an Oven moderately hot, or elſe expoſe them, for ſeveral Days ſucceſſively, to the greateſt Heats of the Sun, in order to kill the Bean or Maggot; which, without this Precaution, would not fail to open it ſelf a Way to go and uſe thoſe New Wings abroad, it has acquired within. Ordinarily, they only wind the more perfect Cods. Thoſe that are double, or too weak, or too coarſe, are laid aſide; not as altogether uſeleſs, but that, being improper for winding, they are reſerved to be drawn out into Skains. The Cods are of different Colours; the moſt common are Yellow, Orange-Colour, Iſabella, and Fleſh-Colour.

There are ſome alſo of a Sea-green; others of a Sulphur Colour, and others White: But there is no Neceſſity for ſeparating the Colours and Shades to wind them apart; as all the Colours are to be loſt in the future Scouring and Preparing of the *Silk*.

To wind the Silk from off the Cods, Two Machines are neceſſary; the one a Furnace, with its Copper; the other a Reel, or Frame, to draw the *Silk*. The Winder, then, ſeated near the Furnace, throws into the Copper of Water over the Furnace (firſt heated and boiled to a certain Degree which Cuſtom alone can teach) a Handful or Two of Cods, which have been firſt well purged of all their looſe furry Subſtance. He then ſtirs the whole very briskly about with Birchen Rods, bound and cut like Bruſhes; and when the Heat, and Agitation have detach'd the Ends of the *Silks* of the Pods, which are apt to catch on the Rods, he draws them forth; and joining Ten or Twelve, or even Fourteen of them together, he forms them into Threads, according to the Bigneſs required to the Works they are deſtined for: Eight Ends ſufficing for Ribbonds; and Velvets, &c. requiring no leſs than Fourteen. The Ends thus joyned into Two or Three Threads, are firſt paſſed into the Holes of Three Iron Rods, in the Fore-part of the Reel, then upon the Bobbins, or Pullies, and at laſt are drawn out to the Reel it ſelf, and there faſtened, each to an End of an Arm or Branch of the Reel. Thus diſpoſed, the Workman, giving Motion to the Reel, by turning the Handle; guides his Threads; ſubſtitutes new ones, when any of them break, or any of the Cods are wound out; ſtrengthens them where neceſſary, by adding others; and takes away the Cods wound out, or that, having been pierced, are full of Water. In this Manner, Two Workmen will ſpin and reel Three Pounds of *Silk* in a Day; which is an otherguiſe Diſpatch than is made by the Spinning Wheel, or Diſtaff. Indeed, all *Silks* cannot be ſpun, and reeled after this Manner: Either, by Reaſon the Cods have been perforated by the *Silk-Worms* themſelves, or becauſe they are double, or too weak to bear the Water; or becauſe they are coarſe, &c. Of all theſe together, they make a particular Kind of *Silk* called *Fleuret*: Which being carded, or even ſpun on the Diſtaff, or the Wheel in the Condition it comes from the Cod, makes a tolerable *Silk*.

As to the Cods, after opening them with Sciſſars, and taking out the Beans (which are of ſome Uſe for the feeding of Fowl) they are ſteeped Three or Four Days in Troughs, the Water whereof is changed every Day to prevent their ſtinking. When they are well ſoftened by this Scowring and cleared of that gummy Matter; the *Worm* had lined the Inſide withal, and which renders it impenetrable to the Water, and even to Air it ſelf; they boil them Half an Hour in a Lie of Aſhes, very clear and well ſtrained: and after waſhing them out in the River, and drying them in the Sun, they card and ſpin them on the Wheel, &c. and thus make another Kind of *Fleuret*, ſomewhat inferior to the former.

The ſeveral Preparations which *Silks* undergo, to fit them to be uſed in the Manufacture of *Silken Stuffs*, are the *Spinning*, *Reeling*, *Milling*, and *Dying*. The Two firſt we have already ſpoke of, as they are concerned in drawing the *Silk* from off the Cods. As to the Spinning and Reeling of *Raw Silks*, already off the Cods, ſuch as they are brought hither from *Italy*, the *Levant*, &c. the firſt is chiefly performed on the *Spinning-wheel*; and the latter, either on *Hand Reels*, or on Reels mounted on Machines, which ſerve to reel ſeveral Skains at the ſame Time. As to the *Milling*, they uſe a Mill compoſed of ſeveral Pieces, which may Mill Two or Three Hundred Bobbins at once, and make them into as many Skains. See SPINNING, REELING, MILLING, and DYING, each under its proper Article.

Raw Silk, is that taken from the Cod, without Fire, and wound without boiling; ſuch is moſt, if not all, that is brought into *England* from the *Levant*. In the *French Silk-works*, the greateſt Part of this *Silk* paſſes for little better than a Kind of very fine Fleuret; yet, when ſpun, it makes a bright Thread, and ſerves for the Manufacture of Stuffs of moderate Value, and Luſtre: But the *Raw Silks* of the *Levant*, whence moſt of ours come, are exceeding fine and beautiful. This Difference ariſes hence, That in *France* the beſt Cods are ſpun and wound in boiling Water, and only the Refuſe made into *Raw Silk*: Whereas, in the *Levant*, there is no ſuch thing as Spinning or Winding in the Fire; but the *Silks* are all ſent in Balls or Maſſes, as they are drawn from off the Cods: So that they are only diſtinguiſhed by their Quality of Fine, Middling, and Coarſe.

Boil'd Silk, is that boiled in Water, to facilitate the Spinning and Winding. This is the fineſt of all the *Silks* manufactured in *France*, and is ſeldom uſed, but in the richeſt Stuffs, as Velvets, Taffeta's, Damasks, Brocades, *&c.* There is alſo another Kind of *Boiled Silk*, which is prepared by boiling, to be milled; and which cannot receive that Preparation, without being firſt paſſed through boiling Water. By the Laws of *France*, 'tis prohibited to mix Raw with *Boil'd Silk*; both as ſuch a Practice ſpoils the Dying, and as the raw *Silk* corrupts and cuts the boiled.

Throwed or Twiſted Silks are ſuch, as, beſide their Spinning and Winding, have had their Milling or *Throwing* This they have in a different Degree, as they are paſſed oftener, or ſeldomer, over the Mill. Properly, however, *Throwed Silks*, are thoſe wherein the Threads are pretty thick *throwed*, and are twiſted ſeveral times.—*Slack Silks* are ſuch as are not twiſted, but are prepared, and died, for Tapeſtry, and other Works, with the Needle. See Throwster.

Eaſtern Silk: That particularly thus called, is not the Work of the *Silk-Worms*, but comes from a Plant that produces it, in Pods, much like thoſe of the Cotton-Tree. The Matter this Pod contains is extremely white, fine, and moderately bright: It ſpins eaſily, and is made into a Kind of *Silk*, that enters the Manufacture of ſeveral *Indian* and *Chineſe* Stuffs.

Spider-Silk. Within a few Years the Secret has been found in *France*, of procuring and preparing *Silk* of the Webs of *Spiders*; and uſing it in ſeveral Manufactures. This Diſcovery is owing to M. *Bon*, in 1710. who publiſhed a Diſſertation on the Subject; whence what follows is extracted. See Spider-Web.

Spiders are uſually diſtinguiſhed, either with regard to their Colour; as, into Black, Brown, Yellow, White, *&c.* or, with regard to the Number, or Arrangement, of their Eyes; ſome having 6, others 8, others 10. But with regard to the *Silk-Spider*, M. *Bon* reduces them all to two Kinds, thoſe with long Legs, and thoſe with ſhort; which laſt, are thoſe which furniſh the *Raw Silk*.

The *Silk-Spider* make a *Silk*, every whit as beauiful, ſtrong, and ſhining, as the *Silk-worm*: It ſpins it out of the *Anus*, around which are Five Papillæ, or ſmall Nipples, and behind theſe, two others; all muſculous, and furniſhed with Sphincters. Theſe Nipples ſerve, as ſo many wire-drawing-Irons, to form and mould a Liquor, which, when dried in the Air, after being drawn through them, is to be the *Silk*. Each of theſe Nipples, M. *Reaumur* obſerves, conſiſts of a Number of leſſer and inſenſible ones; which one may be convinced of, by preſſing a *Spider*'s Belly between the Fingers, to oblige the Liquor to flow into the Nipples; for by this Means, applying the Finger againſt the *Anus*, ſeveral diſtinct Threads will be drawn out through the ſeveral Perforations of the Nipples. The Threads are too fine to be told with any Certainty; but M. *Reaumur* reckons, each larger Nipple may ſend forth ſix or ſeven. Hence we ſee, how the *Spiders* make their Threads bigger, or ſmaller: For as, before they begin to Spin, they always apply more or fewer of theſe ſix Nipples, againſt the Body whence the Web is begun; or as they apply each more or leſs ſtrongly, ſo as more or fewer of the inſenſible Nipples come to take; the Thread thus ſpun, will be a Compound of more or fewer of the ſingle Threads. Indeed, as the Threads come from the *Anus*, all joined together, they appear to be ſingle; but M. *Bon* has diſtinguiſhed one of the ſingle ones to conſiſt of 15 or 20 diſtinct Threads.

The Threads are of two Kinds: The Firſt is weak, and only ſerves for that kind of Web wherewith they catch Flies. The Second is much ſtronger, and ſerves to wrap up their Eggs in; which, by this means, are ſheltered from the Cold, as well as from Inſects, which might otherways gnaw and ſpoil them. Theſe Threads they wind very looſely round the Eggs, reſembling the Cods or Bags of *Silk-Worms*, that have been prepared and looſened for the Diſtaff. The *Spider-Bags* are of a Grey Colour when new; but turn blackiſh when long expoſed to the Air: Indeed, one might find other *Spider-bags* of other Colours, and which would afford a better *Silk*, but their Scarcity would render the Experiment difficult; for which Reaſon we confine ourſelves to the Bags of the commoneſt *Spiders*, which are the ſhort-legg'd Kind. Theſe always find out ſome Place ſecure from the Wind and Rain, to make their Bags; as, hollow Trees, the Corners of Windows, or Vaults, or under the Eaves of Houſes. By collecting a Quantity of theſe Bags, a new *Silk* is made, inferior in nothing to the common *Silk*. It takes all Kinds of Dyes, and may be made into all Kinds of Stuffs. M. *Bon* had Stockings, and Gloves, made of it, which he preſented to the Academy; and others to the Royal Society.

For the Manner of preparing the Bags to get the *Silk*, 'tis thus: After having gather'd 12 or 13 Ounces of theſe Bags, M. *Bon* had them well beaten for ſome Time, with the Hand, and a Stick, to get out all the Duſt: He then waſhed them, in luke-warm Water, till they left the Water very clean: After this, he laid them to ſteep, in a large Veſſel, with Soap and Salt-petre, and Gum Arabic. The Whole was left to boil over a gentle Fire, for three Hours. The Bags were next waſh'd, in warm Water, to get out the Soap; and, after all, laid to dry ſome Days, to fit them for Carding; which was perform'd by the common *Silk-Carders*, but with Cards much finer than ordinary. By this Means, he had a *Silk*, of a very particular Aſh-colour, which was eaſily ſpun, and the Thread ſpun from it, both ſtronger and finer, than that of common *Silk*; which ſhews, that all ſorts of Work may be made of it: Nor is there any Reaſon to fear, but it will ſtand any Trials of the Loom, after having paſs'd that of the *Stocking-Weavers*.

The only Difficulty, now, is in procuring a ſufficient Quantity of Spider's Bags to make any conſiderable Work of it: Which M. *Bon* obſerves, would be no Difficulty at all, had we but the Art of Breeding them as they do *Silk-Worms*. For they multiply much more; every Spider laying 6 or 700 Eggs, whereas the *Silk-Worms* don't lay above 100; yet are theſe laſt, ſo tender, *&c.* that one Half die without making any Bags, or are hinder'd by ſome little Accident, from making their Bags: Whereas the Spiders hatch of themſelves, without any Care, in the Months of *Auguſt* and *September*, in Fifteen or Sixteen Days after they are laid; the Old Spiders that lay them, dying ſoon after. The young Ones thus bred, live Ten or Twelve Months without eating, and continue in their Bags without growing, till the hot Weather putting their viſcid Juices in Motion, forces them to come forth, ſpin, and run about to ſeek Food. Were a Way, therefore, found of breeding young Spiders in Rooms, they would, doubtleſs, furniſh a much greater quantity of Bags than *Silk-Worms* do. For of Seven or Eight hundred young Spiders, which M. *Bon* kept, ſcarce one died in a Year; whereas of One hundred *Silk-Worms*, not Forty lived to make their Bags. M. *Bon* having order'd all the ſhort-legg'd Spiders that could be found in the Months of *Auguſt* and *September*, to be brought to him, ſhut them up in Paper Coffins, and Pots; covering the Pots with Papers, which he pricked full of Pin-holes, as well as the Coffins, to give them Air. He fed them with Flies, and found ſometime afterwards the greateſt part of them had made their Bags. The ſame Excellent Perſon found that Spiders Bags, with regard to their Weight, afford much more *Silk* than thoſe of the *Silk-Worms*. As a Proof hereof, he obſerves, That Thirteen Ounces yield near Four Ounces of clear *Silk*, Two Ounces whereof, will make a Pair of Stockings; whereas Stockings of common *Silk* weigh Seven or Eight Ounces: Nor is there any Venom in the *Silk*, or even in the Spider, as many have imagined. M. *Bon* has been bit by them ſeveral times, without any manner of harm; and as for the *Silk*, 'tis uſed with very good Succeſs, to ſtop Bleeding and cure Wounds, the natural Gluten thereof acting as a kind of Balſom. It likewiſe yields, by Diſtillation, ſeveral Specific Medicines, particularly great Quantities of Spirit, and Volatile Salt, which being prepared after the ſame Manner as that drawn from the Bags of *Silk-Worms*, in making the *Engliſh Drops*, ſo famous over all *Europe*; may ſerve to make other Drops of greater Efficacy, which M. *Bon* calls *Drops of Montpellier*, to be uſed in all ſleepy Diſeaſes.

M. *Reaumur* being appointed by the *Royal Academy*, to make a further Enquiry into this New *Silk-work*, has rais'd ſeveral Objections and Difficulties againſt it; which are found in the Memoirs of the *Academy* for the Year 1710. The Sum of what he has urged, amounts to this: The Natural Fierceneſs of the Spiders, renders them unfit to be bred and kept together, Four or Five thouſand being diſtributed into Cells, 50 in ſome, 100 or 200 in others; the big Ones kill'd and eat the leſs, ſo that in ſhort time, there were ſcarce left one or two in each Cell: And to this Inclination of mutually eating one another, M. *Reaumur* aſcribes the Scarcity of Spiders, conſidering the vaſt Number of Eggs they lay. But this is not all: He even affirms, That the Spider's Bag is inferior to that of the *Silk-worm*, both in Luſtre and Strength; and that it produces leſs Matter to be manufactured. The Thread of the Spider's Web only bears a Weight of Two Grains without breaking; that of the Bag bears 36. The latter, therefore, in all Probability, is Eighteen Times thicker than the former; yet is it weaker than that of the *Silk-worm*, which bears a Weight of Two Drams and a Half. So that Five Threads of the Spider's Bag muſt be put together to equal one Thread of the *Silk-worm's* Bag. Now, 'tis impoſſible theſe ſhould be applied ſo juſtly over one another, as not to leave little vacant Spaces between them, whence the Light will not be reflected; And of Conſequence, a Thread thus compounded, muſt fall ſhort of the Luſtre of a ſolid Thread. Add to this, that the Spider's Thread cannot be wound off, as that of the *Silk-Worm* may; but muſt, of neceſſity, be Carded; by which means being torn in Pieces, its Evenneſs, which contributes much to its Luſtre, is deſtroy'd. In effect, this want of Luſtre was taken Notice of by M. *de la Hire*, when the Stockings were preſented to the *Academy*. Again, Spiders furniſh much leſs *Silk*, than the Worms. The largeſt Bags of theſe latter, weigh Four Grains; the ſmaller Three Grains; ſo that 2304 Worms, produce a Pound of *Silk*. The Spider's Bags don't weigh above one Grain: Yet, when clear'd of their Duſt and Filth, loſe Two thirds of their Weight. The Work of 12 Spiders, therefore, only equal that of one *Silk Worm*; and a Pound of *Silk* will require at leaſt 27648 Spiders. But, as the Bags are wholly the Work of the Females, who ſpin them to depoſit their Eggs in; there muſt be kept 55296 Spiders, to yield a Pound of *Silk*. Yet will this only hold of the beſt Spiders; thoſe large ones ordinarily ſeen in Gardens, *&c.* ſcarce yielding a Twelfth Part of the *Silk* of the others. 280 of theſe, he ſhews, would not do more than one *Silk-Worm*; and 663552 of them would ſcarce yield a Pound.

Commerce of Silks.

French Silks. 'Tis only in the moſt Southern Provinces of *France*, that *Silk* is cultivated, Mulberry Trees planted, and Worms bred. The principal, are thoſe of *Languedoc*, *Dauphine*, *Provence*, *Avignon*, *Savoy* and *Lyons*. This laſt Place, indeed, furniſhes very few *Silks* of its own Growth; but is the great Staple whence the Merchants of *Paris* and the other Cities are to fetch them: at leaſt, they are obliged to have them paſs through *Lyons*, if they bring them from elſewhere, either by Land or Sea. There are computed to enter *Lyons*, *Communibus Annis*, 6000 Bales; the Bale valued at 160 Pound Weight: Of which 6000 Bales, there are 1400 from the *Levant*, 1600 from *Sicily*, 1500 from *Italy*, 300 from *Spain*, and 1200 from *Languedoc*, *Provence* and *Dauphine*. At the Time when the Manufactures of *Lyons* were in their Proſperity, there were reckoned 18000 Looms employ'd in the *Silk* Manufacture; but they are ſo fallen, that even in 1698, there were not reckon'd 4000 The Decay is not leſs notable at *Tours*. They had formerly 700 Mills for winding and preparing the Silks; 8000 Looms to weave them, and 40000 Perſons employ'd in the Preparation and Manufacturing thereof; which are now reduced to 70 Mills, 1200 Looms, and 4000 Perſons.

Sicilian Silks. The Commerce of the *Silks* of *Sicily*, is very conſiderable; and the *Florentines*, *Genoeſe* and *Lucceſe*, are the People who chiefly make it. Great Quantities are Yearly brought thence, eſpecially from *Meſſina*; part whereof they uſe in their own Manufactures, and ſell the reſt to their Neighbours, the *French*, &c. with Profit. The *Italians* have this Advantage, eſpecially the *Genoeſe*, over other People, That having large Eſtabliſhments in the Iſland, they are reputed as Natives, and pay no Duty for the Export. Part of the *Sicilian Silks* are Raw; the reſt Spun and Mill'd; of which laſt Kind, thoſe of St. *Lucia* and *Meſſina*, are the moſt valued. The raw, unwrought *Silks* are always ſold for ready Money; the others, ſometimes, in Exchange for other Goods.

Italian Silks. The *Silks* brought from *Italy* are partly Wrought, and partly Raw, and Un-wrought. *Milan*, *Parma*, *Lucca* and *Modena*, furniſh none but the latter Kind; *Genoa* moſt of the former; *Boulogne* affords both Kinds.

Spaniſh Silks, are all Raw, and are Spun, Mill'd, *&c.* in *England*, according to the ſeveral Works they are to be uſed in.

Silks *of the Levant*, are all Raw. One Advantage we have in the Commerce of the *Levant*, in *Silks*, wanting in thoſe of *Sicily*, is, That the latter are confined to a particular Seaſon of the Year; whereas the former are bought at all Times. They are brought from *Aleppo*, *Tripoli*, *Seyda*, from the Iſle of *Cyprus*, *Candia*, &c. but the principal Place of Commerce, eſpecially for the *Silks* of *Perſia*, is *Smyrna*. The *Silks* are brought hither in Caravans, from the Month of *January* to *September*. The Caravans in *January*, are loaden with the fineſt *Silks*; thoſe of *February* and *March* bring indifferent ones; the reſt, the coarſeſt. They all come from the ſeveral Provinces of *Perſia*, chiefly thoſe of *Quilan* and *Schirwan*, and the City of *Schamachia*, ſituate near the Edge of the *Caſpian* Sea; from which three Places, a *Dutch* Author aſſures us, there don't come leſs than 30000 Bales of *Silk* in a Year. *Ardeuil* or *Ardebil*, another City of *Perſia*, not far diſtant from theſe *Silk* Countries, is the Place where the *Silks* are laid up, and whence the Caravans ſet out for *Smyrna*, *Aleppo*, and *Conſtantinople*; and 'tis this City, with *Schamachia*, that have always been eſteem'd the Centre of the *Silk* Trade; which has been ſeveral Times attempted to be removed from *Smyrna* and the *Mediterranean*, in favour of *Archangel* and the *White* Sea, by carrying them acroſs *Muſcovy*, by the *Volga* and *Dwina*, two Rivers that traverſe the principal Provinces of that vaſt Empire. This new Courſe of the *Perſian Silks* into *Europe*, was firſt propos'd by *Paolo Centurio*, a *Genoeſe*, to Czar *Baſil*, under the Pontificate of *Leo* X. The *French* had the ſame Deſign in 1626. The Duke of *Holſtein*, in 1633, ſent Embaſſadors to the Court of *Perſia* purely with the ſame View: And in 1668, the Czar *Alexis Michael* attempted the thing himſelf; but was diſappointed by the Rebellion of the Coſſacks, and the ſurprize of *Aſtracan*. In 1688, the Commerce of *Perſian Silks* had like to have been removed from *Smyrna* by an Earthquake, which almoſt overturn'd the whole City: And, doubtleſs, the Removal had been effected, but for the vigorous Means uſed by the *Turks* to prevent it. *Smyrna*, however, ſtill remains in her ancient Poſſeſſion; and the ſeveral Nations of *Europe* continue every Year to ſend their Fleets, to fetch away the *Silks*; and Matters are like to remain ſo, unleſs the Conqueſts made by the late Czar, along the *Caſpian Sea*, enable his Succeſſors, as 'tis certain he himſelf had ſuch a Thing in View, to put this great Deſign in Execution.

Chineſe, *Japaneſe* and *Indian* Silks. Several Provinces of *China* are ſo fertile in Mulberry-trees, and their Climate ſo agreeable to the Nature of *Silk-Worms*, that the Quantity of *Silk* here produced is incredible: The ſingle Province of *Tchekiam* might ſupply all *China*, and even a great Part of *Europe*, with this Commodity. The *Silks* of this Province are the moſt eſteem'd, though thoſe of *Nanquin* and *Canton* be excellent. The *Silk* Trade is the Principal in *China*, and that which employs the moſt Hands. But the *European* Merchants, who meddle in it, eſpecially in Work'd *Silks*, are to be careful of the Spinning, *&c.* the Waſte being uſually very great, as the *French Eaſt-India* Company lately found to their Coſt. —*Japan* would not afford fewer *Silks* than *China*; but that the *Japaneſe*, a barbarous and diſtruſtful People, have interdicted all Commerce with Strangers, eſpecially *Europeans*; excepting with the *Dutch*; who are ſaid to be admitted on certain Terms, related by *Tavernier*, but which we muſt own we can't credit, ſo much Horror they raiſe. Accordingly, the *Dutch* have endeavour'd to vindicate themſelves by the Pens of ſeveral famous Writers. — The *Silks* of the States of the Great Mogul, are brought almoſt wholly from *Kaſem-bazar*, a Mediterranean Place, whence they are convey'd by a Canal of Fifteen Leagues into the *Ganges*, by which, they are forwarded Fifteen Leagues further, to the Mouth of the famous River of *Indoſtan*. The *Silk* of *Kaſem-bazar* is Yellowiſh; as are alſo thoſe of *Perſia* and *Sicily*; there being none, that we know of, naturally White, but that of *Paleſtine*. The *Indians*, however, whiten it with a Lye made of the Aſhes of a Tree, call'd *Adam's Fig-tree*; but as the Tree is pretty ſcarce, the *Europeans* are forced to take the greateſt Part of their *Silks* in the native Yellow. *Kaſem-bazar* alone, is computed to furniſh every Year Twenty-two thouſand Bales of *Silk*, each Bale weighing 100 Pounds. The *Dutch* buy it almoſt all up; not to bring into *Europe*, no more than they do that of *Japan*; but to exchange it for other rich Merchandizes; particularly Bars of Silver, *&c.*

SILLON, in Fortification, is an Elevation of Earth made in the Middle of the Moat, to fortify it, when too broad: It is otherwiſe called *Envelope*, which is the more common Name. See Envelope.

SILVER, a white Metal, holding the ſecond Place among Metals; being of all others, after Gold, the fineſt, pureſt, moſt ductile, and moſt precious. See Metal.

There are *Silver* Mines in all the Four Quarters of the World. *Europe* has its Share; nor is our own Iſland quite deſtitute thereof, tho' it has none of much Value.

The Mines of *Peru*, and ſome other Parts of *America*, are much the richeſt, and moſt abundant. They appear almoſt inexhauſtible: Particularly thoſe of *Potoſi*, which continue to be dug with equal Advantage as when firſt diſcovered; with this only Difference, That the Veins which were then almoſt in the Surface of that famous Mountain, are now ſunk to prodigious Depths, the Workmen going into them by a painful Deſcent of Four or Five Hundred Steps. Many Millions of *Indians* have periſhed in them; and prodigious Numbers continue to be deſtroyed yearly.

The Ores, or Mineral Stones they dig, are not all of the ſame Quality, Conſiſtence, or Colour; ſome are white, or aſh-coloured, ſpotted with red, or blue; and called *Plata blanca*. Others are black, and called *Plomo-ronco*. Theſe laſt are the richeſt and the eaſieſt wrought: No *Mercury* being here needed; nor any Thing, but to put them in the Fire; Where the Lead evaporating, leaves the *Silver* pure. The *Indians*, who, till the Arrival of the *Spaniards*, knew nothing of the Uſe of *Mercury*, melted none but of this Kind of Mineral. The *Roſſicler*, is another black Mineral diſtinguiſhed by whetting and rubbing it againſt Iron, which turns it red. 'Tis very rich, and the Metal it yields, of the beſt Sort. The *Loroche* burns like Talc, and looks as if ſilvered; tho' it does not yield much. The *Paco* is a yellow red, very ſoft, and found almoſt broke in Pieces; 'tis not rich. The *Cobriſſo* is green, and half friable. Tho' the *Silver* be viſible, yet 'tis exceedingly difficultly drawn from it, by Reaſon of the Copper wherewith 'tis intermixed. Laſtly, the *Arannear*, which is only found in *Potoſi*, and that only in the Mine of *Cotamito*, conſiſts of Threads of pure *Silver*, interwove like a *Silver* Galoon, that has been burnt to get out the Silk.

The *Silver-Veins*, of what Quality ſoever, are uſually richer in the Middle than towards the Extremes. But the richeſt Places are thoſe where the Veins interſect. 'Tis reckoned a great Addition to the Richneſs of a Mine to be near a River, for the Advantage of Mills to grind Oar. At *Lipes* and *Potoſi*, for Inſtance, the *Caxon* of Oar muſt yield Ten Marks to defray Expences; whereas, at *Tanava*, there need not above Five.

The moſt uſual Way of ſeparating the *Silver* from the Oar, is by what they call *Pignes*. See PIGNES. Sometimes, however, they uſe nothing but Fire frequently repeated; or *Aqua Fortis*.

What renders the Working of the Mines exceedingly dangerous, is the Exhalations ariſing from them; which are even felt on the Out-ſide; and make an Impreſſion on Animals grazing in the Neighbourhood; but in the In-ſide, ſtupify the Miners, none of whom can bear ſo poiſonous an Air above a Day together. Sometimes 'tis ſo fatal, that it kills on the Spot; and obliges them to ſtop up the Veins again, whence it exhales. The Mines of *Potoſi*, are much the leaſt ſubject to them; and yet, without the Herb *Paraguay*, the Infuſion whereof is taken by the Miners, as we do that of Tea, thoſe Mines muſt be ſoon abandoned. Tho' the Mines of *Potoſi* and *Lipes*, ſtill keep up their Reputation, yet are there ſeveral diſcovered within theſe few Years, that exceed them much in Richneſs: Such are the Mines of *Oruro*, Eighty Leagues from *Arica*, and thoſe of *Ollachea*, near *Cuſco*, opened in 1712. 'Tis remarkakle, that moſt of the Mines in *America* are found in cold and barren Places.

The Method of ſeparating *Silver* from the Ore, in *Europe*, is the ſame as that of Gold: That is, by Means of *Quick-Silver*; with this Difference, that for *Silver*, to every Fifty Hundred Weight of Ore, is added One Hundred Weight of Rock-Salt, or ſome other natural Salt. That curious Operation may be ſeen at length under the Article GOLD.

To ſeparate the *Silver* from the *Mercury*, wherewith 'tis amalgamated; they have a Furnace open a-top; and the Aperture covered with a kind of Capital made of Earth, of a Cylindrical Form; that may be clapp'd on, or taken off at Pleaſure. The Maſs of *Silver*, and *Quick-ſilver*, being laid in the Furnace, the Capital applied, and the Fire lighted underneath; by this Means, the *Quick-ſilver* rais'd by the Action of the Fire, in Form of Vapour, is caught in the Capital, and taken thence, to be uſed in the Second Operation.

The Standard of fine *Silver* is 12 Penny-weights, each conſiſting of 24 Grains. When 'tis below this, it muſt be raiſed to it by Refining; which is uſually performed by means of Lead. In order to this, a Coppel is fill'd with a Mixture of Brick-aſhes, and Aſhes of a Bullock's and other Bones. 'Tis ſet on the Fire, and heated red hot; in which State the *Silver* and Lead are put in together, in the Proportion of a Pound of Lead to Eight Ounces of *Silver*, and even ſomewhat more Lead, if the *Silver* be very coarſe. As theſe Two Metals melt together, the Copper, before mixed with the *Silver*, diſſipates in Smoak, or goes away with the Scum; and ſo does the Lead it ſelf; leaving the *Silver* alone in the Coppel, in its proper Degree of Fineneſs. In this Method of Refining, wherein 6 or 7000 Pounds may be refined at once; the Metal is drawn out of the Coppel Two ways; the one by plunging in it, while ſtill liquid, a thick Bar of Iron, round which, the *Silver* ſticks in Form of a Shell, or Cruſt; repeating this again and again: The other, is by letting the Coppel ſtand till 'tis cold; in the Bottom whereof, the *Silver* fixes in Form of a Cake.

Beſides the Refining of *Silver* with Lead, there is another Manner of doing it with *Salt-Petre*; the Manner whereof, ſee deſcribed under the Article REFINING.

But both the one and the other are tedious and troubleſome; when performed on large Quantities. This occaſioned M. *Homberg* to endeavour to ſhorten the Operation; which he effected with good Succeſs. His Method is; To calcine the *Silver* with Half its Weight of common Sulphur; and after melting the whole together, to caſt a Quantity of Steel Filings upon it, at ſeveral Times: Upon this, the Sulphur quits the *Silver*, and joins it ſelf to the Iron, and both are converted into Scoria, which ſwim on the *Silver*; and the Metal it ſelf is found pure at the Bottom of the Crucible.

The Eſſay of *Silver* is alſo made by the Coppel, in the ſame Manner as the refining by Lead. If the *Silver*, after this Eſſay, preſerve its Weight, 'tis Standard; if it loſe, the Grains, or even Penny-weights of its Diminution, are accounted. See ESSAY: See alſo STANDARD.

SILVER-*Wire*, is *Silver* drawn thro' the Holes of a Wire-drawing-Iron, and by this Means reduced to the Fineneſs of a Thread or Hair. The Manner of drawing it, ſee under the Article GOLD-WIRE.

SILVER-*Leaf*, is that the Gold-beaters have reduced into fine, thin Leaves, to be uſed by Gilders, *&c.* See GOLD-LEAF.

Shell-SILVER, is made of the Shreads of *Silver* Leaves, or of the Leaves themſelves: Uſed in Painting and *Silvering* certain Works. *Shell-Silver* is prepared after the ſame Manner as *Shell-Gold*. See GOLD.

SILVER, in Chymiſtry, is called *Luna*, Moon; and ſeveral Preparations are made from it: Particularly, a *Tincture of Silver*, by diſſolving thin *Silver* Plates, or *Silver* Shot in Spirit of Nitre; and pouring the Diſſolution in another Veſſel full of Salt-water. By this Means, the *Silver* is immediately precipitated in a very white Powder, which they waſh ſeveral Times in Spring-Water. This Powder they put in a Matraſs; and pour rectified Spirit of Wine, and Volatile Salt of Urine upon it. The whole is left to digeſt in a moderate Heat for Fifteen Days; during which, the Spirit of Wine aſſumes a beautiful Sky-blue Colour, and becomes an Ingredient in ſeveral Medicines. This is alſo called *Potable Silver*, or *Argentum Potabile*. *Silver* is likewiſe converted into Cryſtals, by means of the ſame Spirit of Nitre; and 'tis this is called *Vitriol of Silver*. The *Lapis Infernalis* is nothing but *Silver* diſſolved in *Aqua Fortis*, and left to cryſtallize.

Quick-SILVER. See MERCURY.

SILVERING, the Covering of any Work with *Silver*-Leaf. 'Tis uſual to *Silver* Metals, Wood, Paper, *&c.* Which is performed either by Fire, by Oil, or by Glue. Metal-Gilders *ſilver* by the Fire: Painter-Gilders, all the other Ways. See GILDING.

SILVESTRIS, a red Grain uſed to Dye in Scarlet. The Tree that produces it, is peculiar to the Province of *Guatimala* in *New Spain*. 'Tis not unlike the Tree that produces the Cochineel, only in this, that the Fruit containing the Grain *Silveſtris*, is ſomewhat longer than that of the Cochineel-Tree: When the Fruit of the former is ripe, it opens of it ſelf, and caſts out its Seed upon a gentle ſhaking; and the *Indians* gather it in Earthen Plates ſet under the Tree for the Purpoſe. Eight or Ten of theſe Fruits do not yield above an Ounce of Seed; whereas Four of the Cochineel Fruits, yield an Ounce of Inſects. The two Drugs are much like one another, as to the Eye, but prove very different; the Tincture of Cochineel being infinitely more beautiful than that of *Silveſtris*: See COCHINEEL.

SIMA, in Architecture, a Term uſed by *Wolfius*, and ſome other Writers, for what we otherwiſe call *Cymatium* or *Simatium*. See CYMATIUM.

SIMATIUM or SIMAISE, in Architecture: See CYMATIUM. *Simatium* and *Cymatium*, are generally confounded together; yet, in effect, they ought to be diſtinguiſhed: the latter being the Genus, and the former the Species. *Simatium* of *Sima*, camous, according to *Felilien*, is the laſt and uppermoſt Member of grand Corniches, called particularly the great *Doucine* or *Gula recta*; and by the *Greeks*, *Epithides*. In the Antique Buildings, the *Simatium*, a-top of the Doric Corniche, is generally in Form of a Cavetto, or Semi-Scotia; as we ſee particularly in the Theatre of *Marcellus*: This, ſome modern Architects have imitated; but in the *Ionic* Order, the *Simatium* is always a *Doucine*. The *Simatium*, or *Doucine*, then, is diſtinguiſhed from the other Kinds of *Cymatia*, by its being camous.

SIMELIUM, a Term purely *Latin*, ſignifying a little Table, with Ranges of little Cavities therein, for the diſpoſing of Medals in Chronological Order. The Word is but ill wrote: It ſhould rather be *Cymelium*, as being formed of the *Greek* Κειμηλιον, Curioſities, or a Cabinet of precious Things. We more uſually ſay, A Cabinet of Medals, than a *Simelium*.

SIMILAR, in Arithmetic and Geometry. Thoſe Things are ſaid to be *Similar*, or *alike*, which cannot be diſtinguiſh'd but by their Com-preſence; that is, either by immediately applying the one to the other, or ſome other Third to them both. There is nothing, therefore, found in one of the *Similar* Things, but is equally found in the other; that is, if you note all the Things in A, which may be diſcerned and conceiv'd, without aſſuming any other; and, in like Manner, note all the Things in B, which may be thus conceived: and A be *Similar* to B; all Things in A will be the ſame with thoſe in B.

Since a Quantity cannot be underſtood, otherwiſe, than by aſſuming ſome other Quantity to refer it to; *Similar* Things, notwithſtanding their Similitude, may differ in Quantity: And ſince, in *Similar* Things, there is nothing wherein they differ, beſide the Quantity; Quantity itſelf is the Internal Difference of *Similar* Things. See SIMILITUDE.

SIMILAR *Parts*, as A a, have the *ſame* Ratio to their Wholes B b; and if the Wholes have the *ſame* Ratio to the Parts, the Parts are *Similar*. *Similar Parts* A a, are to each other as their Wholes B b. See PART.

SIMILAR *Rectangles*, are thoſe which have their Sides about the equal *Angles*, proportional. See RECTANGLE.

Hence 1°. All Squares muſt be *Similar Rectangles*. See SQUARE.— 2°. All *Similar Rectangles* are, to each other, as the Square of their homologous Sides.

SIMILAR *Triangles*, are ſuch as have all their three Angles reſpectively equal to each other. See TRIANGLE.

Hence 1°. All *Similar Triangles* have their Sides about the equal Angles, proportional.— 2°. All *Similar Triangles* are, to each other, as the Squares of their homologous Sides.

SIMILAR *Polygons* are thoſe, whoſe Angles are equal, and their Sides proportional.

And the like of other *ſimilar* rectilinear Figures. See POLYGON, and RECTILINEAL *Figure*.

Hence, all *Similar Polygons* are, to each other, as the Squares of the homologous Sides.

SIMILAR *Arches*, are ſuch as are *Similar*, or equal Parts of their reſpective Circumferences.

SIMILAR *Segments* of Circles, are ſuch as contain equal Angles. See SEGMENT.

SIMILAR *Conic-Sections*, are thoſe whoſe Diameters make Angles equal to thoſe of their Ordinates; *i. e.* thoſe which are equilateral and equiangular.

SIMILAR *Plain Numbers*, are thoſe which may be ranged into *Similar Rect-angles*; *i. e.* into Rectangles, whoſe Sides are proportional: As 6 multiplied by 2, and 12 by 4; the Product of one whereof is 12, and the other 48, are *Similar Numbers*.

SIMILAR *Solid Numbers*, are thoſe whoſe little Cubes may be ſo ranged as to make *Similar* and Rectangular Parallelipipeds.

In all SIMILAR *Figures*, the homologous Angles are equal; and the homologous Sides proportional. All regular Figures, and *Similar* irregular ones, are in a duplicate Ratio of their homologous Sides. Circles, and *Similar Figures*, inſcribed in them, are, to each other, as the Squares of the Diameter. See FIGURE.

SIMILAR *Angles*, are alſo equal *Angles*. In ſolid *Angles*, when the Planes, under which they are contained, are equal both in Number and Magnitude, and are diſpoſed in the ſame Order; they are *Similar*, and conſequently equal. See ANGLE.

In SIMILAR *Triangles*, and *Parallelograms*, the Altitudes are proportional to the homologous Sides; and the Baſes are cut proportionably by thoſe Sides. See TRIANGLE, *&c.*

SIMILAR *Diſeaſe*, a Diſeaſe of ſome ſimple, ſolid Part of the Body; as of a Fibre, with regard to its Tenſion or Flaccidity; of a Membrane; a nervous Canal, *&c.* See DISEASE.

SIMILAR *Parts*, in Anatomy, thoſe Parts of the Body which, at firſt Sight, appear to conſiſt of like Parts, or Parts of the ſame Nature: Of theſe we uſually reckon Ten, *viz.* The Bones, Cartilages, Ligaments, Membranes, Fibres, Nerves, Arteries, Veins, Fleſh, and Skin: Each of which ſee under its proper Article. Dr. *Grew*, in his Anatomy of Plants, obſerves, that theſe have, likewiſe, their *Similar*, and Organical Parts. See PARTS.

SIMILE, or SIMILITUDE, in Rhetoric, *&c.* a Compariſon of two Things, which, though different in other Reſpects, yet agree in ſome one: As, He ſhall be *like* a Tree planted by the Water-ſide, *&c.* The Difference between a *Simile*, and a *Compariſon*, conſiſts in this; That the *Simile* properly belongs to what we call the *Quality* of the Thing, and the *Compariſon* to the *Quantity*. See COMPARISON.

SIMILITUDE, in Arithmetic, Geometry, *&c.* the Relation of two Things *ſimilar* to each other; or which are only diſtinguiſhable by Com-preſence. See SIMILE. The Notion of *Similitude*, which now makes ſome Figure in Geometry, *&c.* is owing to M. *Leibnitz*: 'Twill be rendered eaſy by the following Inſtance. Suppoſe two Watches perfectly alike; the one belonging to *Caius*, the other to *Gracchus*. If, now, *Caius* pull out his Watch in Preſence of *Gracchus*; the latter will be ſurprized, and fancy it his own; but he will perceive it different from his own, upon pulling out his own: that is, *Gracchus* diſtinguiſhes *Caius*'s Watch from his own, by their Com-preſence; or, by applying the one immediately to the other. *Euclid*, and after him moſt other Authors, demonſtrated all Things from the ſole Principle of Congruity: *Wolfius*, in lieu hereof, ſubſtitutes that of *Similitude*; which, he tells us, was communicated to him by M. *Leibnitz*, and which he finds of very notable Uſe in Geometry, as ſerving to demonſtrate many Things directly, which are only demonſtrable from the Principle of Congruity, by an Ambages.

SIMONIACAL is applied to a Perſon guilty of *Simony*, or of purchaſing a Benefice, or other ſacred Matter, with Money. See SIMONY. A *Simoniacal* Perſon convict, is infamous, and incapable of holding any Benefice.

SIMONIANS, a Sect of ancient Hereticks, the firſt that ever diſturb'd Chriſtianity; if they might be ſaid to do ſo, who were little more than mere Philoſophers, and made Profeſſion of Magic. *Simon Magus*, ſo often mentioned in the *Acts*, was their Leader, and died under the Emperor *Nero*; St. *Peter* ſtill ſurviving: So that *Clemens Alexandrinus* is miſtaken, when he makes *Simon* poſterior to *Marcion*. St. *Epiphanius* ſays expreſly, That the firſt Hereſy was ſet on foot by *Simon* the *Magician*, born in a little City of *Samaria*, who pretended to be the great Virtue and Power of God, ſent from Heaven to Earth. Among the *Samaritans* he made himſelf paſs for God the Father, and among the *Jews*, for the Son. He patch'd up a Kind of medly Syſtem, out of the Philoſophy of *Plato*, the religious Fables of the Heathens, and Chriſtianity: Particularly, from the *Platoniſts* he borrow'd abundance of Things relating to the Worſhip of Angels, which he perverted to Uſes of Magic; pretending, there was no Salvation, but by the Invocation of Angels, who were, as it were, the Mediators between God and Man: To which ſuperſtitious Worſhip of Angels it is that St. *Paul* ſeems to refer in his Epiſtle to the *Coloſſians*. The *Gnoſticks*, whereof the ſame *Simon* was the Father, adopted the ſame Practice of worſhipping Angels, and even improved on it. See GNOSTICKS.

SIMONY, the Crime of trading with ſacred Things, particularly of purchaſing a Benefice with Money. By the *Engliſh* Canons, *Anno* 1229, *Simony* is not only committed by an Agreement for Money in Hand, or to be paid yearly; but for any other Profit or Emolument; any Reward, Gift, or Benefit, directly or indirectly; or by Reaſon of any Promiſe, Grant, Bond, *&c.* and this, either in Acceptance of a Living, or in an Exchange or Reſignation. The Penalty, by our Laws, is, That the corrupt Patron ſhall forfeit the next Preſentation to the King, and two Years Value of the Living; and the corrupt Incumbent, be for ever diſabled to hold the Living.

SIMONY is committed by the Buying or Selling the Sacrament, Baptiſm, Ordination, Abſolution, as well as of the Nomination and Collation to Benefices, a Place in a Monaſtery, or the like. Some have pretended it to be ſufficient, that the Ordination were gratuitous; and that for the reſt, the Revenues might be bought and ſold as a Temporal Thing: But the Canons of ſeveral Councils have condemned this ſubtle Diſtinction; ſince the Revenues are attach'd to an Eccleſiaſtical Office purely Spiritual. The Caſuiſts diſtinguiſh three Kinds of *Simony*. *Mental Simony*, is that which ſticks in the mere Will, and Inclination, without ever breaking forth into Act: As when a Preſent is made to a Collator, without taking any Notice that we expect a Benefice from him. This Kind of *Simony* is only puniſhable *in foro Conſcientiæ*. *Conventional Simony* is where there is an expreſs Act, and a formal Bargain, though it never come to an Execution. *Real Simony*, is where the Convention is executed on both Sides, which laſt is the moſt criminal of them all. The Penalty of *Simony* is Depoſition in a Clerk, and Excommunication in a Layman. 'Tis a Maxim among the Romiſh Canoniſts, That there is no *Simony* in the Court of *Rome*; in Regard, the Pope acts there as an abſolute Soveraign. They alſo ſay, That Reſignations, *in favorem*, are not to be admitted but by the Pope, as ſavouring a little of *Simony*. On theſe Occaſions, however, they ſwear, That there has been no Deceit, Colluſion, or *Simony*, or other illegal Covenant. *Peter Damianus* diſtinguiſhes three Kinds of *Simony*; that of Money, that of the Tongue, and that of Services. *Simony of Money*, or *per munus a manu*, is where Money is really paid down for a Benefice: He adds, That 'tis likewiſe committed, by expending Money to live at Court to obtain a Benefice. *Simony of the Tongue*, or *per munus a lingua*, conſiſts in flattering the Collator, or making one's ſelf agreeable by Complaiſance and Commendation. *Simony of Services*, or *per munus ab obſequio*, conſiſts in the doing them good Offices to obtain a Benefice. The Word is borrow'd from *Simon Magus*, who is mention'd in the *Acts* of the Apoſtles, as offering to buy the Power of working Miracles with Money.

It was agreed, by all the Juſtices, *Trin. Oct. Jac. Primi*, That if the Patron preſented any Perſon to a Benefice with

Cure, for Money, that ſuch Preſentation, *&c.* is void, though the Preſentee were not privy to it; and the Statute gives Preſentation to the King; but this is now repealed.

SIMPLARY, *Simplaris*, in Antiquity, a *Roman* Soldier, who had only ſingle Pay; thus call'd, in Oppoſition to the *Duplaries*, or ſuch as had double Pay.

SIMPLE, ſomething not mixed or compounded; in which Senſe it ſtands in Oppoſition to *Compound*. The Elements are *Simple* Bodies; from the Compoſition whereof all mix'd Bodies reſult. In Geometry we ſay, the moſt *Simple* Demonſtrations are the beſt: The *Simpleſt* Machines are the moſt eſteemed. In Pharmacy there are *Simple Remedies* and Compounds. In *Grammar* we have *Simple Verbs*, or Primitives; and Compounds, which have ſome Particle added to them. In Juriſ-prudence we have a *Simple* Donation, in oppoſition to a mutual or reciprocal one. A *Simple Sale*, in Oppoſition to that made with a Reſervation of the Faculty of Redemption. *Simple Homage*, in Oppoſition to Liege Homage.

SIMPLE, in Muſic, is chiefly uſed in Oppoſition to *Double*; ſometimes to a *Compound* of ſeveral Parts, or Figures of different Values, *&c.* *Simple Cadence*, is that where the Notes are all equal through all the Parts. *Simple Concords* are thoſe, wherein we hear at leaſt two Notes in Conſonance; as a Third, and a Fifth; and, of conſequence, at leaſt three Parts: Which is either done immediately, and called the *Harmonical Triad*; or in a more remote Manner; that is, when the Sounds, that are not in the Baſe, are one or two Octaves higher. This Diſtance has no ill Effect in the Third; but in the Fifth it has; and, generally ſpeaking, the nearer, or more immediate the Concords are, the better. We alſo ſay, C *Simple*, in Oppoſition to c Accented.—— *Simple Counter-point*, is a Harmonical Compoſition, wherein Note is ſet againſt Note; in Oppoſition to a figurative Counter-point. *Simple Fugue*, or *Simple Imitation*, is, when one Part imitates the Singing of another for ſome Meaſures. *Simple Interval*: See INTERVAL. *Simple Triple*: See TRIPLE.

SIMPLE Equation, in Algebra, is an Equation where the unknown Quantity is only of one Dimenſion. *E. gr.* if $x = (a+b):2$. See EQUATION.

SIMPLE, in Botany, is a general Name given to all Herbs, and Plants; as having each its particular Virtue, whereby it becomes a *Simple Remedy*. The *Simples* brought from the *Levant*, and the *Eaſt-Indies*, were not known among us till about the Year 1200.

SIMPLEFYING, in Eccleſiaſtical Matters, is the taking away of a Cure of Souls from a Benefice, and diſpenſing the Beneficiary from Reſidence. Several Benefices, which have been *Simplefied*, now require Reſidence; and, an Infinity of others, which required Reſidence, have been *Simplefied*. Some uſe the Word in a more extenſive Signification, *viz.* for the ſhortning a Relation, *&c.* or retrenching every Thing not preciſely neceſſary: When the Matter of Fact ſhall be *Simplefied*, and ſtripp'd of its vain Circumſtances, the Court will ſee, *&c.*

SIMPLE QUANTITIES, are ſuch as have but one Sign, as $2a$, and $-2b$; whereas $a+b$, and $+d-c+b$, are compound *Quantities*. Theſe are only uſed in Algebraical Calculations.

SIMPLUDIARIA, in Antiquity, a kind of funeral Honours paid to the Deceas'd. Some will have the *Simpludiaria* to be Funerals, at which Games were exhibited: Such is the Sentiment of *Paulus Diaconus*. *Feſtus* ſays, They were thoſe, in the Games whereof nothing were ſeen but Dancers and Leapers, called, according to *Scaliger*, *Corvitores*; but who, according to M. *Dacier*, were only a kind of Dancers, who run along the Maſts and Yards of Veſſels or Boats, call'd *Corbes*. In other reſpects, thoſe Two Authors agree as to the kind of Funeral, *viz.* That it was oppoſite to thoſe call'd *Indictivæ*; wherein, beſides the Dancers and Leapers, obſerv'd in the *Simpludiaria*, there were *Deſultores*, or People who vaulted on Horſes; or, perhaps, Horſe-races, wherein the Cavaliers leap'd from Horſe to Horſe at ſpeed. The Word is form'd from the *Latin*, *Simplex* and *Ludus*, *Simpludaria* or *Simpliludaria*, Simple Games.

SIN, a Breach, or Tranſgreſſion of ſome divine Law or Command. *Plato* defines *Sin* to be ſomething devoid, both of Number and Meaſure; by way of Contradiction to Virtue, which he makes to conſiſt in muſical Numbers, *&c.* Hence *Suarez* obſerves, That an Action becomes *Sinful*, by its wanting a due Commenſuration; for as every thing meaſured refers to ſome Rule, from which if it deviate, it becomes incommenſurate; and as the Rule of Man's Will is the Law of God: So, *&c.* *Suarez* adds, That all evil Actions are prohibited by ſome divine Law; and that this is required to the Perfection of the divine Providence. *Simplicius*, and, after him, the Schoolmen aſſert, That Evil is not any poſitive Thing, contrary to Good; but a mere Defect and Accident. See EVIL.

SINS are diſtinguiſh'd into *Original* and *Actual*. The *Romiſh* Caſuiſts again diſtinguiſh *Actual Sins* into *Mortal*, which are ſuch as make us loſe the Grace of God; and *Venial*, which alone are pardon'd, as being only *Sins* of Infirmity, not of Malice. The Divines are not yet agreed, what the *Sin* againſt the Holy Ghoſt is. See ORIGINAL SIN.

SINAPISM, in Pharmacy, *&c.* an external Medicine, in form of a Cataplaſm; compoſed chiefly of Muſtard-ſeed, pulveriz'd, and mix'd up with the Pulp or Fleſh of Figs, or with Briony, Garlic, Onion, Naſturtium, Euphorbium, Ranunculi or the like. The *Sinapiſm* excites a Redneſs, Heat, itching Tumour, and ſometimes a Bliſter on the Place 'tis applied to. 'Twas anciently in great Requeſt; and ſtill continues in Uſe for inveterate Diſeaſes of the Head; long, continued Defluxions, *&c.* The Word is form'd from the *Latin*, *Sinapis*, Muſtard-Seed.

SINCIPUT, is the Fore-part of the Head, reaching from the Fore-head to the Coronal Suture. See CRANIUM.

SINDON, in Chirurgery, a little round Piece of Linnen or Lint, uſed in dreſſing a Wound after trepanning. The firſt thing done after the Operation of Trepanning, is to pour a few Drops of white Balm on the Dura Mater: then a Spoonful of Mel-Roſatum, being warm'd with a little Balm, Two *Sindons* are dipt in it, the one of linnen Cloth, the other of Lint: The firſt of them is immediately applied upon the Dura-Mater; and, being greater than the Hole in the Skull, its Circumference is thruſt all round between the Cranium and the Membrane: Then the ſecond *Sindon* is applied, and the Hole quite ſtopp'd with Lint. The next Morning, when the Apparel is taken off, the Brain is never left bare; but aſſoon as the former *Sindons* are removed, new ones are clapp'd in their Room.

SINE, or right *Sine*, in Trigonometry, a right Line drawn from one Extremity of an Arch, perpendicularly upon the Radius drawn from the other Extremity: or, the *Sine* is half the Chord of twice the Arch; thus the Line A D (*Tab. Trigonom.* Fig. 6.) which is half the Chord A B, of double the Arch A E B, is the right *Sine*; or, ſimply, the *Sine* of the Arch A E.

The *Whole* SINE, *Sinus totus*, is the *Sine* of the Quadrant H E, that is, the whole *Sine* is the ſame with the Radius H C.

The *Verſed* SINE, is a Part E D of the *Whole Sine* or Radius, intercepted between the right *Sine* A D, and the Arch A E.

1° The right *Sine* A D, being perpendicular to the Radius E C; all *Sines* drawn to the ſame Radius, are parallel to each other. 2° Since the Arch A E is the Meaſure of the Angle A C E, and A I the Meaſure of the contiguous Angle A C I; and the Quadrant H E the Meaſure of the right Angle; A D is alſo the right *Sine*, and E D the verſed *Sine* of the Angles A C E and A C I; and the *Whole Sine* is the *Sine* of the right Angle. 3° Two Angles contiguous, as A C E and A C I, have the ſame *Sine*. 4° The *Sines* of obtuſe Angles are the ſame with thoſe of their Complements to Two right Angles. 5° All *Sines* of Similar Arches have the ſame *Ratio* to their Radii.

The SINE-*Complement* or *Co-Sine*, is the *Sine* of an Arch A E, which is the Complement of another Arch A E, to a Quadrant. Thus the *Sine* of the Arch A H, is call'd the *Sine-Complement* of the Arch A E.

In eſtimating the Quantity of *Sines*, *&c.* we aſſume Radius for Unity; and determine the Quantity of the *Sines*, Tangents and Secants in Fractions thereof. From *Ptolomy's* Almageſt, we learn, That the Ancients divided the Radius into 60 Parts, which they call'd Degrees, and thence determined the Chords in Minutes, Seconds and Thirds; that is, in Sexageſimal Fractions of the Radius, which they likewiſe uſed in the Reſolution of Triangles. The *Sines*, or Half-Chords, for ought appears, were firſt uſed by the *Saracens*. *Regiomontanus*, at firſt, with the Ancients, divided the Radius into 60 Degrees; and determined the *Sines* of the ſeveral Degrees in Decimal Fractions thereof. But he afterwards found 'twould be more commodious to aſſume Radius for 1; and thus introduced the preſent Method into Trigonometry. In the common Tables of *Sines* and Tangents, the Radius is conceiv'd, divided into 10000000 Parts; beyond which we never go in determining the Quantity of the *Sines* and Tangents. Hence, as the *Sine* of a Hexagon ſubtends the Sixth Part of a Circle, and is equal to the Radius; the *Sine* of 30° is 5000000.

1° *The* SINE A D *being given*; *to find the* Sine-Complement.

From the Square of the Radius A C ſubtract the Square of the *Sine* A D: The Remainder will be the Square of the *Sine-Complement* A G: Whence, the Square Root being extracted, gives the *Sine Complement*. *E. gr.* Suppoſing A C, 10000000, A G will be found 8660254, the *Sine* of 60°.

2° *The* SINE AD *of the Arch* AE *being given; to find the* Sine *of the Half-Arch, or Half of* AE.

Find the Chord of the Arch AE (See CHORD): for Half of this is its *Sine*. Thus, ſuppoſing DG and AD, as in the preceding Problem; we ſhall find the *Sine* of the Arch Half AE, or the *Sine* of 15°. = 2588190.

3° *The* SINE DG, *of the Arch* DF *being given; to find the* Sine DE, *of the double Arch* DB, *Fig.* 7.

Since the Angles at E and G are right Angles; and the Angle B is common to each Triangle BCG and DEB; we ſhall have BC : CG :: BD : DE : wherefore CG being found by the Second Problem, and BD being double of DG; DE is found by the Rule of Proportion.

4° *The* SINES FG *and* DE (*Fig.* 8.) *of the Arches* FA *and* DA, *whoſe Difference* DF *is greater than* 45 *Minutes, being given; to find any intermediate* Sine, *as* IL.

To the Difference FD of the Arches, whoſe *Sines* are given; the Difference of the Arch IF, whoſe *Sine* is required, and the Difference of the given *Sines* DH; find a fourth Proportional: This added to the leſs given *Sine* FG; the Aggregate will be the *Sine* required.

5° *To find the* SINE *of* 45 *Degrees.*

Let HI (Fig. 6.) be a Quadrant of the Circle; then will HCI be a right Angle: conſequently the Triangle, rectangular; therefore $HI^2 = HC^2 + CI^2 = 2\,HC^2$; wherefore, ſince HC the whole *Sine*, is 10000000; if from $2\,HC^2$ ſquared, 200000000000000, be extracted the ſquare Root 14142136; we ſhall have the Chord HI, whoſe Half 7071068 is the *Sine* of 45° required.

6° *The* SINE *of a Minute or* 60″ FG, (*Fig.* 8.) *being given; to find the* Sine *of one or more Seconds* MN.

Since the Arches AM and AF are very ſmall; AMF may be taken for a right Line, without any ſenſible Error in the Decimal Fractions of the Radius wherein the *Sine* is expreſs'd; that is, the Arches AM and AF may be taken proportional to their Chords. Wherefore, ſince MN is parallel to FG; we ſhall have AF : FG :: AM : MN: Therefore AF, FG and AM being given, MN is eaſily had.

To Conſtruct a Canon of SINES.

The *Sines* of 30° 15° 45° and 36° (which we have already ſhewn how to find,) being had; we can thence conſtruct a Canon of all the *Sines* to every Minute, or even Second. For from the *Sine* of 36° we find thoſe of 18° 9° 4° 30′ and 2° 15′, by the Second Problem: The *Sines* of 54° 72° 81° 85° 30′ and 87° 45′, &c. by the firſt Problem. Again, for the *Sine* of 45°, find the *Sine* of 22° 30′ 11° 15′, &c. From the *Sines* of 30° and the *Sines* of 54°, find the *Sine* of 12°. From the *Sine* of 12°, find the *Sines* of 6° 3° 1 30′ 35′ 78°, &c. From the *Sine* of 15°, find the *Sine* of 7° 30′, 30° 45′, &c. 'till you have 120 *Sines* ſucceeding each other orderly, at an Interval of 45 Minutes. Between theſe, find the intermediate *Sines* by the Fifth Problem: Thus will the Canon be compleat.

From the *Sine* of an Arch given; to find the Tangent and Secant. See TANGENT and SECANT.

To find the Logarithm of a given *Sine*; See LOGARITHM. *Note*, the Logarithm of a *Sine*, is call'd an *Artificial Sine*.

In every Triangle, the Sides are as the *Sines* of the oppoſite Angles. See TRIANGLE.

The Sine BC (*Fig.* 9.) *and the Verſed* Sine AB, *being given in common Meaſure, not in Parts of the Radius; to find the Arch* EFC *in Degrees.* Find the Semi-diameter AD, (See SEMI-DIAMETER.) Then in the Triangle DBC, beſides the Right Angle B, by the Sides AC and DC, we find the Angle ADC, which ſhews the Number of Degrees in the Arch, the Double whereof is the Arch FC; the uſe of which Problem is in finding the Segment of a Circle. See SEGMENT.

Line of SINES, a Line on the Sector, *Gunter*'s Scale, &c. ~~the~~ Deſcription and Uſe whereof ſee under the Articles SECTOR and GUNTER'S *Scale*.

SINE-CURES are Eccleſiaſtical Benefices without Cure of Souls. See BENEFICE, and CURE.

No Church, where there is but one Incumbent, can properly be a *Sine-Cure*: And though the Church being down, or the Pariſh being become deſtitute of Pariſhioners, the Incumbent may be thereby neceſſarily acquitted from the actual Performance of publick Duty, yet he is ſtill under an Obligation to do it, whenever a Church ſhall be built, and there are a competent Number of Inhabitants: And in the mean while, if the Church be Preſentative, as moſt ſuch Churches are, the Incumbent is inſtituted into the Cure of Souls; and ſuch Benefices are rather Depopulations than *Sine-Cures*, and it will be proper for the new Incumbent to read the 39 Articles, and the Liturgy in the Church-yard, &c. and to do what other Incumbents uſually do.

But a Rectory, or a Portion of it, may properly be a *Sine-Cure*, if there be a Vicar endowed, and then it doth not come within the Statute of Pluralities, 21 *H.* VIII. *c.* 13. which declareth, That no Parſonage that hath a Vicar endowed, ſhall be comprehended, &c. ſo that here no Diſpenſation is neceſſary to hold this *Sine-Cure* with a former Living: Nor need he read the Articles or Divine Service, as required by 13 *Eliz.* *c.* 12. which extends only to a Benefice with Cure. ---A *Sine-Cure* Donative wants no Inſtitution and Induction: but one Preſentative muſt have both; eſpecially if it conſiſt in Glebe and Tythes, and not in a Portion of Money: But the Inſtitution muſt not run in *Curam Animarum*, but in *Rectoriam, ſive portionem Rectoriæ de* AB, &c. ---By the above-mention'd Statute 21 *H.* VIII. not only Prebends and Rectories, with Vicarages endowed, but Deaneries and Archdeaconries, are declared to be Benefices without Cure.

SINE-DIE, in Law, when Judgment is given againſt the Plaintiff; he is then ſaid to be in *miſericordia pro falſo clamore ſuo*: But when for the Defendant, then it is ſaid, *Eat inde ſine die, i. e.* he is diſmiſſed the Court. ---The Phraſe is alſo uſed in Parliament, for the Adjournment of any Debate, without fixing the Day when it ſhall come on again, and is looked upon as a genteeler Diſmiſſion of the Thing required.

SINEW, in Anatomy, &c. is what we otherwiſe call a *Nerve*. See NERVE.

SINGING, the Action of making divers Inflexions of the Voice, agreeable to the Ear, and even anſwering to the Notes of a Song or Piece of Melody. See SONG.

The firſt thing done in learning to *ſing*, is to raiſe a Scale of Notes by Tones and Semi-tones, to an Octave, and deſcend again by the ſame Notes; and then to riſe and fall by greater Intervals, as a 3d, 4th, and 5th; and to do all this by Notes of different Pitch. Then theſe Notes are repreſented by Lines and Spaces, to which the Syllables *fa*, *ſol*, *la*, *mi*, are applied, and the Pupil taught to name each Line and Space thereby; whence this Practice is uſually call'd *Sol-fa-ing*. The Nature, Reaſon, Defects, &c. whereof, ſee under the Article SOL-FA-ING.

SINGULAR *Number*, in Grammar, the firſt manner of declining Nouns, and conjugating Verbs; uſed when we only ſpeak of a ſingle Perſon or Thing. See NUMBER.

The *Latins*, *French*, *Engliſh*, &c. have no Numbers but the *Singular* and *Plural*; the *Greeks* and *Hebrews* have likewiſe a *Dual*. See PLURAL, DUAL, &c.

SINGULTUS, in Medicine, a convulſive Motion of the Midriff, commonly call'd *Hiccoup*. See HICCOUP.

SINICAL *Quadrant*, a Kind of *Quadrant* furniſh'd with an Index, and two Sights, to take Altitudes, &c. by; and, beſides, its Side, or Face, covered over with *Sines*, drawn from each Side, interſecting each other; whereby the Seamen can ſolve, by Inſpection, any Problem in Plain Sailing. See SAILING.

Its Construction and Uſe; ſee under the Article QUADRANT.

SINISTER, ſomething on, or towards the left Hand. Hence *Siniſter* is ordinarily uſed among us for unlucky; tho' in the Holy Rites of Divining, the *Romans* uſed it in an oppoſite Senſe. Thus *Avis Siniſtra*, or a Bird on the left Hand, was eſteem'd a happy Omen: Whence in the Law of the Twelve Tables, *Ave Siniſtra populi magiſter eſt*. And hence the *Greeks*, according to *Lipſius*, call the left Hand, ἀριστερὸν, beſt.

Some derive the Word *Siniſter*, *a Sinendo*; becauſe the Gods, by ſuch Auguries, permit us to proceed in our Deſigns.

SINISTER, in Heraldry. The *Siniſter* Side of an Eſcutcheon is the left Side. *Siniſter chief Point*, is the next middle Chief, on the left Side. *Siniſter baſe Point*, is next the baſe Point, at the bottom of the Eſcutcheon. See POINT, ESCUTCHEON, &c.

SINISTER *Aſpect*, among Aſtrologers, is an Appearance of two Planets, happening according to the Succeſſion of the Signs; as *Saturn* in *Aries*, and *Mars* in the ſame Degree of *Gemini*. See ASPECT.

SINISTRI, a Sect of ancient Hereticks, thus call'd; becauſe they held the left Hand, *Siniſtram manum*, in Abhorrence, and made it a Point of Religion, not to receive any thing therewith. What in us, is a Piece of Civility; in them was a Superſtition. *Balſaman* obſerves, that they were likewiſe called *Sabbathians* and *Novatians*. See NOVATIANS, &c.

SI *non omnes*, a Writ of Aſſociation, whereby, if all in Commiſſion cannot meet at the Day aſſign'd, it is permitted, that two or more of them may finiſh the Buſineſs. See ASSOCIATION.

SINOPER, in Natural Hiſtory. See RUDDLE.

SINOPLE or SENOPLE, in Heraldry, the Green Colour in Armories; thus called by the ancient Heralds, tho' *Pliny* and *Iſidore*, by *Color Praſinus*, or *Sinople*, mean a brownifh Red, ſuch as that of our Ruddle. *Sinople* ſignifies Love, Youth, Beauty, Rejoicing and Liberty; whence it is, that Letters of Grace, Abolition, Legitimation, *&c.* are uſed to be ſeal'd with Green Wax. See Green. *F. Meneſtrier* derives it from the *Greek*, *Praſina hopla*, Green Armories; by corruptedly retrenching the firſt Syllable, *pra*; which is no new Thing among Oriental Words, witneſs *Salonica* for *Theſſalonica*.

SINUOSITY, a Series of Bends and Turns in Arches, or other irregular Figures; ſometimes jetting out, and ſometimes falling in. Such is the Motion of a Serpent, *&c.* 'Tis the *Sinuoſity* of the Sea Coaſts that forms Bays, Ports, Capes, *&c.* *Du Loir* obſerves, that the Courſe of the River *Meander*, creeping in a thouſand agreeable *Sinuoſities*, ſerved *Dedalus* as a Model to form his Labyrinth by. See Labyrinth.

SINUS, in Chirurgery, a little Bag or Sacculus, form'd by the Side of a Wound, or Ulcer; wherein *Pus* is collected. See Pus.

Sinus's that ſlope downwards, *Scultet* obſerves, are difficult to heal: Yet that Surgeon undertakes to cure any *Sinus* in a Week, by the Medicaments he deſcribes Page 338, and an agglutinative Bandage. He adds, that he never comes to make an Inciſion, till he finds that the Pharmaceutic Applications are ineffectual; and that for the Dilatation of *Sinus*'s, he does not uſe the deceitful Scalpel; as being more apt to deceive the Operator than the Patient.

Sinus, in Anatomy, a kind of Cavity in certain Bones, and other Parts, the Entrance whereof is very narrow, and the bottom wider and more ſpacious. See Bone. Of theſe *Sinus*'s, we find ſeveral in the ſeveral Parts of the Body; particularly in the Baſis of the Skull, on the *Oſſa petroſa*, where the Ancients imagined their Uſe was to render the Bones more light: In ſeveral of the Joints of the Body, they ſerve to receive the Apophyſes of the other Bones. In the Duplicatures of the *Dura Mater*, are ſeveral *Sinus*'s, which Doctor *Drake* obſerves to be venous Channels, form'd for the Reconveyance of the Blood. Of theſe, Four only are conſiderable, *viz.* the *Sinus Longitudinalis*, which running along the middle of the convex Part of the Brain, ſends out a Branch on each Side, between the Brain and Cerebellum, call'd the *Lateral Sinus*'s: And the *Torcular Herophili*, form'd out of a Concourſe of the *Lateral Sinus*'s, and Pineal Gland. They are all form'd of the ſeveral Venous Branches, which return the Blood from the Brain and Cerebellum, and deliver their Contents into the Jugular Veins; whereof they are, as it were, the Roots. The Coats of theſe *Sinus*'s, are furniſhed with ſtrong Fibres, by means whereof, they are dilated by the Influx of the Venal Blood, and again contracted with a reciprocal Motion, like the Pulſe of an Artery. See Dura Mater

SION COLLEGE. See College.

SIPHON or SYPHON, in Hydraulicks, a crooked Tube, one Leg or Branch whereof is longer than the other; uſed in the raiſing of Fluids, emptying of Veſſels, and in various Hydroſtatical Experiments. ---The Word in the original *Greek*, σίφων, ſignifies, ſimply, *Tube*, whence ſome apply the Term to common Tubes or Pipes: *Wolfius*, particularly deſcribes two Veſſels under the Name of *Siphons*; the one Cylindrical in the Middle, and Conical at the two Extremes; the other Globular in the Middle, with two narrow Tubes fitted to it, Axis-wiſe; both ſerving to take up a Quantity of Water, *&c.* and to retain it when up.

But the moſt uſeful and celebrated *Siphon* is as follows: A crooked Tube A B C, (Tab. Hydraulicks Fig. 2.) is provided, of ſuch a Length, and with ſuch an Angle, as that when the Orifice A, is placed on an horizontal Plane, the Height of A B, may not exceed 30 Foot. For common Uſes, a Foot, or half a Foot high, ſuffices. If, now, the leſs Arm A B, be immerg'd in Water, or any other Liquid, and the Air be ſuck'd out of it by the Aperture C, till the Liquor follow; the Liquor will continue to flow out of the Veſſel, through the Tube B C; as long as the Aperture A is under the Surface of the Liquor. Note, inſtead of ſucking out the Air; the Event will be the ſame, if the *Siphon* be at firſt filled with the Fluid, and the Aperture C ſtopp'd with the Finger, till the Aperture A be immerg'd.

The Truth of the Phænomenon is known by abundance of Experiments. Nor is the Reaſon of part of it far to ſeek. In ſucking, the Air in the Tube is rarified, and the Equilibrium deſtroyed, conſequently the Water muſt be raiſed into the leſſer Leg A B, by the preponderating Preſſure of the Atmoſphere.

The *Siphon* being thus filled, the Atmoſphere preſſes equally on each Extremity thereof; ſo as to ſuſtain an equal Quantity of Water in each Leg: But the Air not being able to ſuſtain all the Water in the longer Leg, unleſs it exceed 32 Feet in Height; it will be more than able to ſuſtain that in the ſhorter Leg; with the Exceſs of Force, therefore, will raiſe new Water into the ſhorter Leg; which new Water cannot make its way, but by protruding the firſt before it. By this means is the Water continually driven out at the longer End, as 'tis continually raiſed at the ſhorter.

But *Wolfius*, and ſome other Authors aſſert, that the Water continues to flow through the *Siphon*, even when removed under a Receiver, and the Air exhauſted from it. The Reaſon of this, if it be true, is very difficult to account for.

Some will have it, that there is ſtill Air enough left in the evacuated Receiver, to raiſe the Water to an Inch or two. But as both Mercury and Water are found to fall entirely out of the Torricellian Tube, *in Vacuo*; the Preſſure of the thin remaining Air, can never be the Cauſe of the Aſcent, both of Mercury and Water, in the leſs Leg of the *Siphon*.

Hence, as the Height of the *Siphon* is limited to 31 Foot; for this only Reaſon, that Air cannot raiſe Water higher; It does not appear, whether or no we are in the Right in rejecting *Hero*'s Method of carrying Water, by means of a *Siphon*, over the Tops of Mountains, into an oppoſite Valley. For *Hero* only orders the Apertures of the *Siphon* to be ſtopp'd, and Water to be pour'd through a Funnel into the Angle or Meeting of the Legs, till the *Siphon* were full; when, ſhutting the Aperture in the Angle, and opening the other two, the Water will continue to flow. Now, if there only need Air for the firſt Riſe of the Water into the leſs Leg, not for the Continuation of the Motion; it were poſſible to raiſe the Water much higher than the Height of the Atmoſphere would carry it. ---The real Cauſe, therefore, of this extraordinary, tho' well-known Phænomenon; needs ſome further Diſquiſition. This is certain, that a *Siphon* once ſet a running, will perſiſt in its Motion, tho' removed into the moſt perfect Vacuum our Air-Pumps will make: Or, if the lower Orifice of a full *Siphon* be ſhut, and the whole be thus placed in a Receiver, with a Contrivance for opening the Orifice when the Air is exhauſted; the Water will be all emptied out of the Veſſel, as if it had been in open Air.

This, too, is remarkable enough, that the Figure of the *Siphon* may be varied at pleaſure, (ſee Fig. 3. *&c.*) provided only the Orifice C be below the Level of the Surface of the Water to be drawn up; but, ſtill, the further 'tis diſtant from it, the faſter will the Fluid be carried off. And if, in the Courſe of the Flux, the Orifice A be drawn out of the Fluid; all the Liquor in the *Siphon* will go out at the lower Orifice C: That in the Leg C B, dragging, as it were, that in the ſhorter Leg A B after it. If a fill'd *Siphon* be ſo diſpoſed, as that both Orifices A and C be in the ſame horizontal Line; the Fluid will remain pendant in each Leg; how unequal ſoever the Length of the Legs may be. Fluids, therefore, in *Siphons*, ſeem, as it were, to form one continued Body; ſo that the heavier Part deſcending, like a Chain, pulls the lighter after it.

Laſtly, it muſt be obſerved, that the Water will flow out, even through a *Siphon* that is interrupted, by having the Legs A D and F C joyned (Fig. 4.) together by a much bigger Tube full of Air.

The Sipho *Wurtembergicus*, is a very exrraordinary Machine of this Kind, performing moſt of the Things the common *Siphon* will not reach, *E.gr.* In this, though the Legs be in the ſame Level, yet the Water riſes up the one, and deſcends through the other: The Water riſes, even tho' the Aperture of the leſs Leg be only half immerg'd in Water: the *Siphon* has its Effect after continuing dry a long time: either of the Apertures being opened, the other remaining ſhut for a whole Day, and then open'd, the Water flows out as uſually. Laſtly, The Water riſes and falls indifferently through either Leg. ---The Project of this *Siphon*, was laid by *Jordanus Pelletier*, and executed at the Expence of Prince *Frederic Charles* Adminiſtrator of *Wirtemberg*, by his Mathematician, *Schabackard*, who made each Branch 20 Feet long, and 18 Feet apart; the Deſcription thereof was publiſhed by *Reiſelius* his Phyſician, which gave Occaſion to M. *Papin* to invent another, that did the ſame Things, deſcribed in the *Philoſophical Tranſactions*; and which *Reiſelius*, in another Paper in the *Tranſactions*, ingenuouſly owns to be the very ſame with that of *Wirtemberg*. Its Structure will appear from its Figure; which is repreſented, Tab. *Hydraulicks*, Fig. 5.

SIRE, a Title of Honour in *France*; now given to the King only, as a Mark of Soveraignty. In all Placets and Requeſts, Epiſtles, Diſcourſes, *&c.* to the King, he is addreſs'd under the Title of *Sire*. Some derive the Word from the *Latin*, *Herus*, Maſter: Of which Opinion ſeems *Will. Budeus*, who, in ſpeaking to King *Francis* I. always calls him *Here*, *q. d.* Maſter, or *Sire*. Others derive the Word from the *Greek*, κυριος, *Lord*; of which Opinion is *Paſquier*, who adds, that the ancient *Franks* gave the Title to God, calling him *Beau ſire Diex*. Others derive the Word from the *Syrian*, and maintain, it was firſt given to the Merchants who traded to *Syria*. *Menage* will have it come from *Senior* Elder; whence *Seigneur*, then *Seignor*, and *Sire*.

Sire was likewiſe anciently uſed in the ſame Senſe with Sieur and Seigneur, and applied to Barons, Gentlemen and Citizens. The *Sire de Joinville* has wrote the Hiſtory of St. *Louis*.

SIRIUS, in Aſtronomy, the *Dog-Star*; a very bright Star of the firſt Magnitude in the Mouth of the Conſtellation *Canis Major*, or the *Great Dog*. See Canis. The *Arabs* call it *Aſchere*, *Eſchecre*, *Scera*; the *Greeks*, *Sirius*; and the *Latins*, *Canis candens*. Its Longitude, according to Mr. *Flamſtead*, is 9° 49′ 1″, its Latitude 39° 32′ 8″ *South*.

SISTRUM or CISTRUM, an ancient muſical Inſtrument, uſed by the Prieſts of *Iſis* and *Oſiris*. *Spon* deſcribes it as of an oval Form, in manner of a Racket, with three Sticks traverſing it breadth-wiſe, which playing freely, by the Agitation or Beating of the Inſtrument, made a kind of Sound, which to the Ancients ſeem'd melodious. Mr. *Malcolm* takes the *Siſtrum* to have been no better than a kind of a Rattle. *Jer. Boſius* has an expreſs Treatiſe on the *Siſtrum*, intitled, *Iſiacus de Siſtro*. *Oiſelius* obſerves, that the *Siſtrum* is found repreſented on ſeveral Medals; and alſo on *Taliſmans*. *Oſiris* on ſome Medals, is painted with a Dog's Head and a *Siſtrum* in his Hand.

SITE or SCITE, the Situation of a Houſe, *&c.* and ſometimes the Ground-Plot, or the Spot of Earth it ſtands on.

Site, in Logic, one of the Predicaments, declaring a Subject to be ſo and ſo placed. See Place.

SITOPHYLAX, in Antiquity, an *Athenian* Magiſtrate, who had the Intendance of the Corn, and was to take Care that no Body bought more than was neceſſary for the Proviſion of his Family, By the *Attic* Laws, particular Perſons were prohibited buying more than fifty Meaſures of Wheat a Man; of thoſe Meaſures, we mean, called φόρμαι: And the *Sitophylax* was to look to the Obſervation of this Law. 'Twas a Capital Crime to prevaricate in it. There were Fifteen of theſe *Sitophylax*'s, Ten for the City, and Five for the *Pireum*. The Word is form'd from the *Greek*, Σῖτος *Corn*, and φυλαξ, *Keeper*.

SITUS, in Geometry and Algebra, the Situation of Lines, Surfaces, *&c.* *Wolfius* gives us ſome Things in Geometry, which are not deduced from the common Analyſis; particularly things depending on the *Situs* of Lines and Figures. In effect, M. *Leibnitz* has invented a particular Kind of Analyſis, call'd *Analyſis Situs*, and built a peculiar kind of Calculus thereon, call'd *Calculus Situs*.

SIXAIN, SIXTH, SEXAGENA, in War, an Order of Battle wherein Six Batallions having been ranged in a Line, the Second and Fifth are made to advance, to form the Van-guard; the Firſt and Sixth to retire, to form the Rear-guard; the Third and the Fourth remaining on the Spot, to form the Corps, or Body of the Battle. The Word is *French*, where it ſignifies the ſame thing.

SIX *Clerks*, Officers in *Chancery* of great Account, next in Degree below the Twelve Maſters; whoſe Buſineſs is to enroll Commiſſions, Pardons, Patents, Warrants, *&c.* which paſs the Great Seal. They were anciently *Clerici*, and forfeited their Places if they married: They are alſo Attornies for Parties in Suits depending in the Court of *Chancery*. Under them were formerly 60 Clerks, who, with the Under-Clerks, did the Buſineſs of the Office; which Number was afterwards increaſed to 90. At preſent the Number is indefinite; an Order having been made, for the reducing them to their ancient Number of 60; by not filling up the Vacancies that may happen by Death, *&c.* till they are fallen to that Standard.

SIXTH, in Muſic, one of the Simple Original Concords, or Harmonical Intervals. See Concord. The *Sixth* is of two Kinds; *greater* and *leſſer*; and hence is eſteem'd one of the Imperfect Concords; though each of them ariſe from a Diviſion of the Octave. See Octave. The greater *Sixth* is the Concord reſulting from a Mixture of the Sounds of two Strings, that are to each other as 3 to 5. The leſſer *Sixth* reſults from two Strings, which are to each other as 5 to 8. See Scale. The leſſer *Sixth* is compoſed Diatonically of Six Degrees, whence its Name; and of Five Intervals; Three whereof are Tones, and Two Semi-tones; Chromatically of Eight Semi-tones; Five whereof are greater, and Three leſs. It has its Form or Origin from the *Ratio*, *Super-tri-partiens quintas*, as of 8 to 5. The greater is compoſed Diatonically like the leſs, of Six Degrees and Five Intervals; among which are Four Tones, and a Semitone: And Chromatically of Nine Semi-tones; Five whereof are greater, and Four leſs; of Conſequence it has a leſs Semitone more than the former. It has its Origin from the *Ratio Super-bi-partiens tertius*, as of 5 to 3. Anciently the *Sixth* had only one Reply, which was the 13th; but in the modern Syſtem, it has ſeveral, as the 20th, 27th, *&c.* all marked indifferently in the thorough Baſe, by the Figure 6. And even the *Sixth* itſelf, both greater and leſſer, when uſed naturally, is not expreſſed any otherwiſe than by a Simple *Sixth*. But when 'tis greater or leſs accidentally, to the 6 is added ſome other Mark, as may be ſeen in M. *Broſſet*.

Beſides the two kinds of *Sixth*'s here deſcribed, which are both good Concords; there are two others that are vitious and diſſonant. The firſt is the *Defective Sixth*, compoſed of two Tones and three Semi-tones, or of Seven Semi-tones, five whereof are greater, and two leſs. The ſecond is the *Redundant Sixth*, compoſed of Four Tones, a greater Semitone, and a leſs. Whence ſome call it *Pentatonon*, as comprehending Four Tones. Theſe two being both diſſonant, ſhould never be uſed in Melody, and very rarely in Harmony.

As to the two Conſonant *Sixth*'s, they were anciently to be uſed very ſparingly; but at preſent we make them as often as we pleaſe, as we do with Thirds; the *Sixths* being in reality, no other than inverted Thirds; but Care is uſually taken, that the firſt *Sixth* that occurrs be leſs, and the laſt greater; and that from the greater, we riſe to the Octave, and from the leſs, fall to the Fifth.

SIZE, an Inſtrument uſed to find the Weight of fine round Pearls withal. See Pearl. It conſiſts of five thin Pieces or Leaves, about two Inches long, and half an Inch broad; faſtned together at one End by a Rivet. In each of theſe, are ſeveral round Holes drill'd, of different Diameters. Thoſe in the firſt Leaf ſerve for weighing Pearls from ½ a Grain to Seven Grains. Thoſe of the Second, for Pearls from Eight Grains or two Caracts, to five Caracts, *&c.* and thoſe of the Fifth, for Pearls from 6 ½ to 8 ½.

SKELETON, in Anatomy, an Aſſemblage or Arrangement of all the Bones of a dead Animal, diſpoſed in their natural Situation, and kept in that Diſpoſition by means of Wiars, *&c.* *Skeletons* ſerve to good Purpoſe, in learning the Oſteology. See Osteology.

For the ſeveral Bones a *Skeleton* conſiſts of; See Bone.

The Word is form'd from the *Greek* σκέλλω, I dry.

SKIFF or SQUIFF, a Shaloop, or the leſs of two Ship-boats. See Boat.

SKIN, in Anatomy, a large thick Membrane, ſpread over the whole Body, ſerving as the external Organ of Feeling, and as a Cover and Ornament of the Parts underneath. The *Skin* conſiſts of Three Parts; the external one, called the *Cuticle*, *Epidermis*, or *Skarf-Skin*. See Cuticle. The middle-moſt is called the *Corpus Reticulare*, becauſe pierced through with a great Number of Holes, like a Net or Sieve. See Reticulare Corpus. The innermoſt, called the *Cutis*, is a Fibrous Subſtance, wove out of the Extremities of Arteries, Veins, Nerves, Tendons, *&c.* Whence ariſe abundance of little Eminences, call'd *Papillæ Pyramidales*. See Cutes and Papillæ.

It is likewiſe ſet with an Infinity of Glands, called *Milliary Glands*, each whereof has its excretory Duct, paſſing along with the Pyramidal *Papillæ*, through the Holes of the *Corpus Reticulare*, and terminating at the Cuticle. The *Papillæ* are held by the Moderns to be the Organ of Feeling, and the Excretory Veſſels ſerve to carry off the Matter of Perſpiration, which is ſeparated from the Blood in the Milliary Glands. See Milliary Glands, Perspiration and Feeling.

Nutrition, M. *Perrault* obſerves, is ſometimes taken in throughout the whole Body of Animals, at the Pores of the *Skin*. The ſubtile Subſtances of nutritious Matters applied externally to thoſe Bodies, are found to penetrate them, to mix with the Blood and Juices, and are there aſſimilated. On this Account, he adds, it is, that Butchers Dogs, Turnſpit-Dogs, *&c.* are generally very Fat, and even Butchers, Cooks, *&c.* themſelves. M. *Dodart* takes it, that Plants receive a great Part of their Food by the external Bark, not all by the Root. See Root.

Skin, in Commerce, is particularly uſed for this Membrane ſtripped off the Animal, to be prepared by the Tanner, Skinner, Currier, Parchment-Maker, *&c.* and converted into Leather, *&c.* See Leather.

The Uſe of *Skins* is very ancient; the firſt Garment in the World being made thereof. The *Danes* and other Northern Nations, have a long Time dreſs'd in *Skins*.

Morocco's are made of the *Skins* of a kind of Goats. See Morocco.

Parchment is uſually made of Sheeps *Skins*; ſometimes of Goat *Skins*. See Parchment.

Velom is a kind of Parchment made of the *Skin* of an abortive Calf, or at leaſt of a ſucking Calf. See Velom.

The True Chamois or Shammy, is made of the *Skin* of an Animal of the ſame Name; though frequently counterfeited with Goats and Sheeps *Skins*. See Chamois.

Shagreen is prepared at *Conſtantinople*, of the hind Part of the *Skin* of a Horſe, Mule or Aſs of the Country, prepared and tanned, and when ſoft and manageable, ſtretch'd on a Frame, and expoſed to the Sun. This done, they ſprinkle Muſtard-Seed on the *Skin*; taking Care to rub it ſeveral Times over with the Hand. By means hereof, and the Heat of the Sun, the Grain of the Leather is rais'd up, and there hardned. See Chagrin.

For the ſeveral Preparations of *Skins*; See Tanning, Currying, Chamoising, *&c.*

SKINKER, a Cup-bearer, or Butler. See Butler.

SKIRMISH, in War, a Combat, in Preſence of two Armies, between Perſons who advance from the Body for that Purpoſe, and introduce, or invite to a general, regular Fight. The Word ſeems form'd from the *French*, *Eſcarmouche*, which ſignifies the ſame thing, and which *Nicod* derives from the *Greek*, χαρμὴ.

χάρμη, which ſignifies at the ſame time, both *Light Combat* and *Joy*. *Menage* derives it from the *German*, *Schirmen* or *Skermen*, to Fence. *De Cange*, from *Scaramuccia*, a light Engagement, of *Scara* and *Muccia*, a Body of Soldiers hid in Ambuſh; in regard moſt *Skirmiſhes* are performed by Perſons in Ambuſcade.

SKULL, in Anatomy. See Cranium.

SKY, the blue Air or Atmoſphere. See Atmosphere.

The Azure Colour of the *Sky*, Sir *Iſaac Newton* attributes to Vapours beginning to condenſe therein, which have got Conſiſtence enough to reflect the moſt reflexible Rays, *viz.* the Violet ones; but not enough to reflect any of the leſs reflexible ones. See Reflexibility.

M. *de la Hire* attributes it to our viewing a black Object, *viz.* The dark Space beyond the Regions of the Atmoſphere, thro' a white or lucid one, *viz.* the Air illumined by the Sun: A Mixture of Black and White always appearing Blue. See Blue.

This Account is not his; 'tis as old as *Leonardo da Vinci*.

SLAB, the Outſide ſappy Plank or Board ſaw'd off from the Sides of a Timber Tree.

SLAUGHTER. See Man-slaughter.

SLATE, a blue foſſile Stone, very ſoft when dug out of the Quarry, and on that Account eaſily cut or ſaw'd into thin long Squares or Eſcallops, to ſerve in Lieu of Tiles for the Covering of Houſes. See Covering. 'Tis ſometimes alſo uſed to make Tables of; to Pave withal, *&c.* The Ancients were unacquainted with the Uſe of *Slate*, and inſtead thereof cover'd their Houſes with Shingle, as we read in *Pliny*. Beſides the *Blue Slate*, we have in *England* a *Greyiſh Slate*, call'd alſo *Horſham Stone*, from a Town in *Suſſex* of that Name, where the greateſt Quantities of it are found.

The *Blue Slate*, is a very light, laſting, and beautiful Covering but chargeable withal, in regard the Roof muſt be firſt Boarded over, the *Slates* hung on Tacks, and laid with finer Mortar than Tiles. The *Grey Slate* is chiefly uſed in the Covering of Churches, Chappels, Chancels, *&c.*

'Tis dearer than Tiles, but far more durable. The Timber of the Roof needs to be very ſtrong for theſe *Grey Slates*, it being almoſt double the Weight of Tiles. See Tile.

To judge of the Goodneſs of *Slate*, Mr. *Colepreſs*, in the *Philoſophical Tranſactions*, orders it to be knock'd againſt any hard Body, to make it yield a Sound: If the Sound be good and clear, the Stone is firm and good; otherwiſe, 'tis crazy.

Another Method of proving its Goodneſs, is, by weighing it exactly, then letting it lie 6 or 8 Hours under Water, and wiping it very clean, if it weighs more now than it did before, 'tis of that Kind that ſoaks in Water, and therefore will not long endure, without rotting the Lath or Timber. Another Method of Trial is, by placing a *Slate* half a Day perpendicularly in a Veſſel of Water, ſo as to reach a conſiderable Height above the Level thereof: If the *Slate* be firm and cloſe, then it will not draw Water, that is, the Water will not have aſcended above half an Inch above the Level of that in the Veſſel, nor that perhaps any where but at the Edges, the Texture whereof might be looſened by hewing; but a bad Stone will have drawn the Water to the very Top, be it as high as it will. There are *Slates* in ſeveral Places, which the moſt experienced *Slaters*, or Covereis, conjecture to have continued on Houſes ſeveral Hundreds of Years, and are yet as firm as when firſt put up.

M. *Leibnitz* informs us, in the Hiſtory of the *French* Academy, that in ſeveral Parts of the Dutchy of *Brunſwick*, particularly about *Oſteroda*, *&c.* there are Horizontal Veins of *Slate*, wherein are found very exact and finiſh'd Repreſentations of various Kinds of Fiſhes and Plants, appearing in their natural Breadth and Length, but without any Thickneſs The ſame Impreſſions are alſo frequently found even in a Mixture of Copper and Silver. M. *Leibnitz* accounts for this Appearance, by ſuppoſing the Lakes and Meadows of the Places to have been cover'd over with a Kind of Earth, which has buried the Fiſhes and Plants; or that ſome very muddy Water, much impregnated with Earth, has covered them up, or carried them away. This Earth he takes to have ſince hardned into *Slate*; and length of Time, or ſome other Cauſe, to have conſumed the delicate Matter of the Fiſh, *&c.* Much as the Bodies of Flies or Ants, which are found encloſed in Amber, are quite diſſipated, and nothing left but a mere Delineation. The Matter of the Fiſh, or Plant, thus conſumed, has left its Form impreſſed in the *Slate*, by means of the Cavity remaining therein; which Cavity has been at length filled up with a Metallic Matter. Whether that the Subterranean Fire, in baking the Earth into *Slate*, has ſeparated the Metal therefrom; or whether a Metallic Vapour penetrating the *Slate*, has become fix'd in theſe Cavities.

SLAVE, a Perſon in the abſolute Power of a Maſter, either by War or Conqueſt. See Servant.

We find no mention of *Slaves* before the Deluge; but immediately after, *viz.* in the Curſe of *Cain*, *Gen.* ix. 25. whence 'tis eaſily inferred, that Servitude commenced ſoon after that Time: For in *Abraham*'s Time we find it generally eſtabliſhed. Some will have it to have commenced under *Nimrod*, becauſe it was he who firſt began to make War, and of conſequence to make Captives; and to bring ſuch as he took either in his Battles, or Irruptions, into Slavery.

The *Romans* called their *Slaves Servi*, from *Servare* to *keep*, *ſave*; as being ſuch as were not killed, but ſaved, to yield Money either by Sale, or by their Work. Other Authors are of Opinion, that the *Roman* Name *Servi* might come from that of *Serbi*; as that of *Slaves* from *Sclavi*, a People. *Slavery* is abſolutely aboliſhed in *England*, and *France*, as to Perſonal Servitude: Our Servants are not *Slaves*, but only ſubject to certain determinate Services. The Moment a *Slave* ſteps on *Engliſh* Ground, he becomes Free.

Slaves make a very conſiderable Article of the Traffick in *America*. The *Engliſh South-Sea* Company have the ſole Privilege of furniſhing the *Spaniſh Weſt-Indies* with *Slaves*, by Treaty. See Negro. *Menage* and *Voſſius* derive the Word from *Sclavus*, which is the Name of a *Scythian* People, according to the latter, whom *Charlemagne* condemned to perpetual Impriſonment, whence the *Italians* have made their *Schiavo*, the *Germans* their *Slaef*, and we *Slave*: But the former will have it the Name of a People whom the *Italians*, and other Nations, uſed to buy to make Drudges of; whence the proper Name of a Nation, in Time, became the Name of a State or Condition.

Among the *Romans*, when a *Slave* was ſet at Liberty, he changed his Name into a Surname; took the *Nomen* or *Præ-nomen* of his Maſter; to which he added the *Cognomen* or Nick-name he had been called by when a *Slave* See Libertin. By the Civil Law, the Power of making *Slaves* is eſteem'd a Right of Nations, and follows as a natural Conſequence of War. The *Lacedæmonians*, ſay ſome, or as others ſay, the *Aſſyrians*, firſt introduced the Practice; which the *Romans* not only approved of, but even invented new Manners of making of *Slaves*: For Inſtance, a Man born Free, among them, might ſell his Freedom, and become a *Slave*. This voluntary *Slavery* was firſt introduced by a Decree of the Senate, in the Time of the Emperor *Claudius*, and at length abrogated by *Leo*. The *Romans* had Power of Life and Death over their *Slaves*, which no other Nations had; and even this Severity was moderated by the Laws of the Emperors; and by one of *Adrian*, it was made Capital to kill a *Slave* without a Cauſe. The *Slaves* were eſteemed the proper Goods of their Maſters, and all they got belong'd to them: But, if the Maſter were too cruel in his Domeſtic Corrections, he was obliged to ſell his *Slave* at a moderate Price. As *Slavery* was not aboliſhed by the Goſpel, the Cuſtom of having *Slaves* laſted a long Time in *Chriſtendom*. In the Time of *Lous the Groſs*, they were ſo numerous in *Egypt*, that 'twas found a difficult Matter to quell a Body of them who had made Head againſt their Maſters: Yet *Bartholus*, who lived in 1300, obſerves, there were none left in his Time.

SLEASY *Holland*, a Kind of *Holland* thus call'd, becauſe made in *Sileſia* in *Germany*; and which, from its Slightneſs, occaſions all thin, ſlight, ill-wrought *Hollands* to be called *Sleaſy*. See Holland.

SLEDGE, a Kind of Machine, or Carriage, without Wheels, for the Conveyance of very weighty Things, as huge Stones, Bells, *&c.* The *Dutch* have a Kind of *Sledge*, whereon they can carry a Veſſel of any Burthen by Land. It conſiſts of a Plank a Foot and a Half broad, and the Length of the Keel of a moderate Ship, raiſed a little behind, and hollow in the Middle; ſo that the Sides go a little aſlope, and are furniſh'd with Holes to receive Pins, *&c.* The reſt is quite even.

SLEEP, that State wherein the Body appearing perfectly at Reſt, external Objects move the Organs of Senſe as uſually, without exciting the uſual Senſations. See Waking.

Sleep, according to *Rohault*, conſiſts in a Scarcity of Spirits; which occaſions that the Orifices or Pores of the Nerves in the Brain, whereby the Spirits uſed to flow into the Nerves, being no longer kept open by the Frequency of the Spirits, ſhut of themſelves. For this being ſuppoſed, as ſoon as the Spirits, now in the Nerves, ſhall be diſſipated, the Capillaments of thoſe Nerves, having no Supplement of new Spirits, will become lax, and cohere as if cemented together; and ſo be unfit to convey any Impreſſion to the Brain; beſides, the Muſcles being now void of Spirits, will be unable to move, or even ſuſtain the Members: Thus will Senſation, and Motion, be both deſtroyed. See Sensation, Muscular Motion, Spirits, *&c.*

Sleep is broke off unnaturally, when any of the Organs of Senſe are ſo briſkly acted on, that the Action is propagated to the Brain: For upon this, the few Spirits remaining in the Brain, are all called together, and unite their Forces to unlock the Pores of the Nerves, *&c.* But if no Object ſhould thus affect the Organ, yet *Sleep* would in ſome Time be broke off naturally; for the Quantity of Spirits generated in *Sleep*, would at length be ſo great, that, ſtretching out the Entrances of the Nerves, they would open themſelves a Paſſage.

With regard to Medicine, *Sleep* is defined, by *Boerhaave*, to be that State of the *Medulla* of the Brain, wherein the Nerves do not receive ſo copious, nor ſo forcible an Influx of Spirits from the Brain as is required to enable the Organs of Senſe, and voluntary Motion, to perform their Offices.

The immediate Cauſe hereof appears to be the Scarcity of Animal Spirits, which being ſpent, and requiring ſome Time to be recruited, the minute Veſſels, before inflated, become flaccid and fall: Or elſe, 'tis owing to ſuch a Preſſure of the thicker Blood againſt the Cortex of the Brain, as that the Medulla, becoming likewiſe compreſſed by its Contiguity with the Cortex, the Paſſage of the Spirits is obſtructed. The natural Cauſe of *Sleep* is any Thing that may contribute to theſe two. —And hence its Effects are underſtood: For in *Sleep* ſeveral Functions are ſuſpended, their Organs and Muſcles are at Reſt; the Spirits ſcarce flow through them, therefore there is a leſs Conſumption of them; but the ſolid *Villi* and Fibres of the Nerves are but little chang'd, but an Equilibrium obtains throughout; there is no Difference of Preſſure on the Veſſels, nor of Velocity in the Humours. The Motion of the Heart, Lungs, Arteries, Viſcera, *&c.* is increaſed; nor is it chang'd or abated by the Action of the Senſes, or of voluntary Motions: The Effects of which are, that the Vital Humours circulate more ſtrongly and equably thro' the Canals, which are now freer, laxer, and opener, as not being compreſſed by the Muſcles. Hence the Blood is driven leſs forcibly, indeed, into the Lateral Veſſels, but more equably; thro' the greater Veſſels, both more ſtrongly, and more equably. Thus are the Lateral Fibres ſenſibly filled, as being leſs traverſed, and at length remain at reſt, with the Juices they have collected: Hence the lateral adipoſe Cells become filled and diſtended with an Oily Matter. By this means the Circulation, being almoſt wholly perform'd in the larger Blood Veſſels, becomes gradually ſlower, and at length ſcarce ſenſible, if the *Sleep* be too long continued: Thus, in moderate *Sleep*, is the Matter of the Chyle beſt converted into *Serum*; that, into thinner Humours; and thoſe, into Nouriſhment. The Attrition of the ſolid Parts is leſs conſiderable; the cutaneous Secretion is increaſed, and all the reſt diminiſh'd. The Parts wore off are now beſt ſupplied, as an equable, continual Repletion, reſtores the Humours, and repairs the Solids, the preventing and diſturbing Cauſes being then at reſt. In the mean Time, that the nutritious Matter is beſt prepared; there is an Aptitude in the Veſſels to receive, and in the Humours to enter, and the Means of Application, and Conſolidation, are at liberty: Hence, a new Production, and Accumulation, of Animal Spirits, in all the Humours, as to Matter, and in the minuteſt Veſſels as to Repletion: The Conſequence of which is, an Aptitude for *Waking*, and an In-aptitude for *Sleep*; ſo that upon the firſt Occaſion the Man awakes. See NUTRITION, *&c.*

Some of the more extraordinary Phænomena of *Sleep*, yet to be accounted for, are; That when the Head is hot, and the Feet cold, *Sleep* is impracticable: That ſpirituous Liquors firſt bring on Drunkenneſs, then *Sleep*: That Perſpiration, during the Time of *Sleep*, is twice as great as at other Times: That upon *Sleeping* too long, the Head grows heavy, the Senſes dull, the Memory weak, with Coldneſs, Pituitouſneſs, an Indiſpoſition of the Muſcles for Motion, and a want of Perſpiration. That much *Sleeping* will ſuſtain Life a long Time, without either Meat or Drink: That upon a laudable *Sleep*, there always follows an Expanſion of all the Muſcles, a repeated Yawning, and the Muſcles and Nerves acquire a new Agility: That *Fœtus*'s always *ſleep*; Children often, Youth more than grown Perſons, and they more than old Men; and that People, riſing from violent Diſtempers, *ſleep* much more than when perfectly at Health.

SLIDING, in Mechanicks, called, by ſome Authors, *Superinceſſus Radens*, is, when the ſame Point of a Body, moving along a Surface, deſcribes a Line on that Surface: Such is the Motion of a Parallelepiped, protruded along a Plane.

SLIDING RULE, a Mathematical Inſtrument, ſerving to work Queſtions in Gauging, Meaſuring, *&c.* without the Uſe of Compaſſes; merely by the *ſliding* of the Parts of the Inſtrument one by another, the Lines and Diviſions whereof give the Anſwer, by Inſpection. See RULE.

This Inſtrument is variouſly contrived, and applied by various Authors; particularly *Everard*, *Coggeſhal*, *Gunter*, *Hunt*, and *Partridge*; but the moſt uſual and uſeful ones, are thoſe of *Everard* and *Coggeſhal*; the Deſcription, and Uſes whereof, are as follow.

Everard's SLIDING-RULE is principally uſed in Gauging. See GAUGING.

'Tis ordinarily made of Box, a Foot long, an Inch broad, and $\frac{6}{10}$ thick. It conſiſts of three Parts: A Rule, on each Side whereof *a b* and *c d*, Tab. Surveying, Fig. 17. is a Groove; and two ſmall Scales, or *Sliding-Pieces*, *m*, *n*, to *ſlide* in the Grooves. When both theſe Pieces are drawn out to their full Extent, the Inſtrument is three Foot long.

On the *firſt broad Face* of the Inſtrument *a b*, are four Lines of Numbers; for the Properties, *&c.* whereof ſee LINE of NUMBERS. The firſt mark'd A, conſiſting of two Radius's number'd 1, 2, 3, 4, 5, 6, 7, 8, 9, 1; and then 2, 3, 4, 5, *&c.* to 10. On this Line are four Braſs Centre-Pins, two in each Radius; one in each whereof is mark'd M B, to ſignify that the Numbers 'tis ſet againſt, 2150.40 are the Cubic Inches in a Malt-Buſhel; the other two are marked with A, to ſignify that the Numbers they are ſet againſt, *viz.* 282, are the Cubic Inches in an Ale-Gallon. The ſecond and third Lines of Numbers, are on the *Sliding Pieces*, and are exactly the ſame with the firſt. Cloſe to the Figure 7, in the firſt Radius, is a Dot mark'd *S i*, ſet directly over 707, denoting 707 to be the Side of a Square inſcribed in a Circle, whoſe Diameter is Unity. Cloſe to 9 is another Dot, mark'd *S e*, ſet over 886, which is the Side of a Square, equal to the Area of a Circle, whoſe Diameter is Unity. Another Dot, nigh W, is ſet over 231, the Number of Cubic Inches in a Wine-Gallon; and another near C, is ſet over 3.14 the Circumference of a Circle, whoſe Diameter is Unity. The fourth Line of Numbers, mark'd M D, to ſignify Malt Depth, is a broken Line of two Radius's number'd 2, 10, 9, 8, 7, 6, 5, 4, 3, 2, 1, 9, 8, 7, *&c.* the Numbers being ſet directly againſt M B on the firſt Radius.

On the *ſecond broad Face*, mark'd *c d*, are 1°. A Line of Numbers of one Radius, number'd 1, 2, 3, and to 10, noted by the Letter D. On this are four Centre-Pins, the firſt, mark'd W G, is the Gauge-Point for a Wine-Gallon, *i. e.* the Diameter of a Cylinder, whoſe Height is an Inch, and Content 231 Cubic Inches, or a Wine-Gallon, which is 17.15 Inches: The ſecond Centre-pin A G ſtands at the Gauge-Point for an Ale-Gallon, which is 18.95 Inches. The third M S ſtands at 86.3 the Side of a Square, whoſe Content is equal to the Inches in a ſolid Buſhel. The fourth M R. is the Gauge-point for a Malt-buſhel, which is 52.32 Inches. 2°. Two Lines of Numbers on the *Sliding-Piece*, which are exactly the ſame as thoſe on the *Sliding-Piece* on the other Side. Cloſe to the Diviſion 8 is a Dot mark'd *c*, which is ſet to 795. the Area of a Circle, whoſe Diameter is Unity; and another mark'd *d*, ſtands at 785, the Area of a Circle, whoſe Diameter is Unity. 3°. Two Lines of Segments, each number'd 1, 2, 3, to 100; the firſt, for finding the Ulage of a Caſk taken, as the Middle Fruſtum of a Spheroid, lying with its Axis parallel to the Horizon; and the other, for finding the Ulage of a Caſk ſtanding.

Again, on one *of the narrow Sides*, noted *e*, are 1°. A Line of Inches, number'd 1, 2, 3, *&c.* to 12, each ſubdivided into 10 equal Parts. 2°. A Line, by which, with that of Inches, we find a mean Diameter for a Caſk, in the Figure of a Middle Fruſtum of a Spheroid: 'Tis number'd 1, 2, 3, *&c.* to 7, and mark'd *Spheroid*. 3°. A Line for finding the mean Diameter of a Caſk, in the Figure of the Middle Fruſtum of a Parabolic Spindle, which Gaugers call, the *Second Variety* of *Caſks*; 'Tis number'd 1, 2, 3, *&c.* and noted *Second Variety*. 4°. A Line, by which we find the mean Diameter of a Caſk of the *Third Variety*, *i. e.* of a Caſk in the Figure of two Parabolic Conoids, abutting on a common Baſe; 'tis number'd 1, 2, 3, *&c.* and noted *Third Variety*.

On the *other narrow Face*, mark'd *f*, are, 1°. A Foot divided into 100 equal Parts, mark'd F M. 2°. A Line of Inches, like that before-mention'd, noted I M. 3°. A Line for finding the mean Diameter for the fourth Variety of Caſks, which is the Middle Fruſtum of two Cones, abutting on a common Baſe. It is number'd 1, 2, 3, *&c.* and noted F C, ſignifying Fruſtum of a Cone.

Note, on the Backſide of the two *Sliding-Pieces* are a Line of Inches, from 13 to 36, when the two Pieces are put Endwiſe; and againſt that, the correſpondent Gallons, or Hundred Parts, that any ſmall Tub, or the like open Veſſel (from 13 to 36 Inches Diameter) will contain at one Inch deep.

Uſe of Everard's SLIDING-RULE.

1°. *To multiply one Number by another.* Suppoſe 4 required to be multiplied by 6: Set 1 on the Line of Number S B, to 4 on the Line A; then, againſt 6 upon B is 24, the Product ſought upon A. Again, to multiply 26 by 68, ſet 1 on B to 26 on A; then, againſt 68 on B is 1768 on A, the Product ſought.

2°. *To divide one Number by another.* Suppoſe 24 to be divided by 4: Set 4 on B to 1 on A; then againſt 24 on B is 6 on A, which is the Quotient. Again, to divide 952 by 14; ſet 14 on A to 1 on B, and againſt 952 on A you have on B, 68, which is the Quotient.

3°. *To work the Rule of Three.* If 8 give 20, what will 22 give? Set 8 on B to 20 on A, then againſt 22 on B ſtands 55 on A; the Number ſought.

4°. *To find a mean Proportional between two Numbers*; Suppoſe between 50 and 72: Set 50 on C to 72 on D; then againſt 72 on C you have 60 on D, which is the Mean required.

5°. *To extract the Square Root of a Number.* Apply the Lines C and D to one another, ſo as 10 at the End of D be even with 10 at the End of C; then are theſe two Lines a Table, ſhewing the Square Root of any Number leſs than 1000000 by Inſpection: For againſt any Number on C, the Number anſwering to it on D, is the Square Root thereof. *Note*, If the given Number conſiſt of 1, 3, 5, or 7 Places, ſeek it on the firſt Radius, on the Line C, and againſt it is the Root required at D.

6°. *Either the Diameter, or Circumference of a Circle, being given; to find the other:* Set 1 on the Line A againſt 3, 141 (to which is writ C) on the Line B; and againſt any Diameter on the Line A, you have the Circumference on B; and contrariwiſe: thus, The Diameter being 20 Inches, the Circumference will be 62.831 Inches; and the Circumference being 94, 237, the Diameter will be 30.

7°. *The Diameter of a Circle given, to find the Area in Inches, or in Ale or Wine-Gallons.* Suppoſe the Diameter 20 Inches, what is the Area? Set 1 upon D, to 785 (noted *d*) on C; then againſt 20 on D is 314.159 the Area required. Now to find that Circle's Area in Ale-Gallons, ſet 18.25 (mark'd A G) upon D, to 1 on C; then againſt the Diameter 20 upon D, is the Number of Ale-Gallons on C, *viz.* 1.11. The ſame may ſerve for Wine-Gallons, Regard only had to the proper Gauge-Point.

8°. *The two Diameters of an Ellipſis being given, to find the Area in Ale-Gallons:* Suppoſe the Tranſverſe Diameter 72 Inches, and the Conjugate 50: Set 359.05 the Square of the Gauge-point on B, to one of the Diameters (ſuppoſe 50) on A; then againſt the other Diameter 72 on B, you will have the Area on A, *viz.* 10.02 Gallons, the Content of this Ellipſis at one Inch deep. The like may be done for Wine-Gallons, if inſtead of 359.05 you uſe 249.11 the Square of the Gauge-Point for Wine-Gallons.

9°. *To find the Area of a Triangular Surface in Ale-Gallons:* Suppoſe the Baſe of the Triangle 260 Inches, and the Perpendicular let fall from the oppoſite Angle 110 Inches; Set 282 (mark'd A) upon B to 130, half the Baſe on A: Then againſt 110 on B is 50.7 Gallons on A.

10°. *To find the Content of an Oblong in Ale-Gallons:* Suppoſe one Side 130 Inches, and the other 180; ſet 282 on B to 180 on A; then againſt 130 upon B is 82.97 Ale-Gallons, the Area required.

11°. *To find the Content of a regular Polygon in Ale-Gallons, one of the Sides being given:* Find the Length of the Perpendicular let fall from the Centre to one of the Sides: This multiplied by half the Sum of the Sides, gives the Area. For an Inſtance: Suppoſe a Pentagon, whoſe Side is 1 Inch; here, the Perpendicular will be found 837, by ſaying, As the Sine of half the Angle at the Centre, which in this Polygon is 36°, is to half the given Side 5, ſo is the Sine of the Complement of 36°, *viz.* 54° to the Perpendicular aforeſaid. Whence the Area of a Pentagon, whoſe Side is Unity, will be found 1.72 Inches, which divided by 282, give 1.0061, the Ale-Gallons in that Polygon.

12°. *To find the Content of a Cylinder in Ale-Gallons:* Suppoſe the Diameter of the Baſe of the Cylinder 120 Inches, the Perpendicular Height will be 36 Inches: Set therefore the Gauge-Point (A G) to the Height, 36 on C; then againſt 120, the Diameter on D, is found 1443.6, the Content in Ale-Gallons.

13°. *The Bung, and Head-Diameters, of any Cask, together with its Length, being given; to find its Content in Ale, or Wine-Gallons.*

1°. Suppoſe the Length of a Cask taken, (as the Middle Fruſtum of a Spheroid which is the firſt Caſe or *Variety*) be 40 Inches, its Head-diameter 24 Inches, and Bung-diameter 32 Inches; ſubtract the Head-diameter from that of the Bung; the Difference is 8. Look, then, for 8 Inches on the Line of Inches, on the firſt narrow Face of the Rule; and againſt it, on the Line Spheroid ſtands 5.6 Inches, which added to the Head-Diameter 24, gives 29.6 Inches for that Cask's Mean-Diameter: Set therefore the Gauge-Point for Ale (mark'd A G) on D, to 40 on C; and againſt 29.6 on D, is 97.45, the Content of the Cask in Ale-Gallons. If the Gauge-Point for Wine (mark'd W G) be uſed inſtead of that for Ale; you will have the Veſſel's Content in Wine-Gallons.

2°. If a Cask, of the ſame Dimenſions as the former be taken (as the Middle Fruſtum of a parabolic Spindle, which is the *Second Variety*) ſee what Inches, and Parts, on the Line mark'd *Second Variety*, ſtand againſt the Difference of the Bung and Head-Diameters, which in this Example is 8; and you will find 5.1 Inches, which added to 24, the Head-Diameter makes 29.1 Inches, the Mean-Diameter of the Cask: Set therefore the Rule, as before, and againſt 29.1 Inches, you will have 94.12 Ale-Gallons, for the Content of the Cask.

3°. If the Cask taken be the Middle-Fruſtum of two parabolic Conoids, which is the *Third Variety*; againſt 8 Inches, the Difference of the Head and Bung-Diameters, on the Line of Inches, you will find 4.57 Inches on the Line called *Third Variety*; this added as before to 24, gives 28.57 for the Cask's Mean-Diameter: Proceeding as before, you will find the Content 90.8 Gallons.

4°. If the Cask taken be the Fruſtums of two Cones, which is the *Fourth Variety*, againſt 8 Inches on the Line of Inches, you will find on the Line mark'd F C, 4.1 Inches to be added to 24 Inches: The reſt, carried on as before, gives the Content of the Cask 87.93 Ale-Gallons.

14°. *A Cask partly empty, lying with its Axis parallel to the Horizon; to find the Quantity of Liquor therein:* Find its whole Content, as above; which ſuppoſe 97.455 Gallons; and ſuppoſe the Inches, left dry, 8, and the Bung-Diameter 32: Then, as the Bung-Diameter on C is to 100 on the Line of Segments L, ſo are the dry Inches on C to a fourth Number on the Line of Segments: And as 100 upon B is to the Cask's whole Content on A, ſo is that fourth Number to the Liquor wanting to fill up the Cask; which, ſubtracted from the whole Contents of the Cask, gives the Liquor remaining therein. *E. Gr.* Set 32, the Bung-Diameter on C, to 100 on the Segment Line L; then againſt 8, the dry Inches on C, ſtands 17.6 on the Segment Line: Set therefore 100 on B, to the Casks whole Content on A; and againſt 17.6 on B, you have 16.5 Gallons on A; ſubtracting therefore the ſaid Gallons from 97.45, the Veſſel's whole Content; the Liquor in the Cask will be 80.95 Gallons.

15°. *A Cask partly ſtanding upright, or with its Axis perpendicular to the Horizon, to find the Liquor therein.* Suppoſe the Length of the Cask 40 Inches, and 10 of them dry; ſet 40 Inches, on the Line C, to 100 on the Segment Line S; and againſt 10, the dry Inches on the Line C, ſtands 24.2 on H the Segment Line. Set, then, 140 on B, to 97.455, the Cask's whole Content on A; and againſt 24.2 on B, you will have 23.5 Gallons, which is what is wanting to fill up the Cask: This, therefore, ſubtracted from the whole Content 97.455, gives 73.955 Gallons, for the Quantity of Liquor remaining in the Cask.

16°. *To find the Content of any right-angled Parallelepiped* (E. gr. *a Ciſtern, Uting-Fat, or the like*) *in Malt-Buſhels.* Suppoſe the Length of the Baſe 80 Inches, the Breadth 50, and Depth 9 Inches: Set the Breadth 50 on B, to the Depth 9 on C; then againſt the Length 80 on A, ſtands 16.8 Buſhels on B, the Number required.

Coggeſhal's SLIDING-RULE, is principally uſed in meaſuring of the Superficies, the Solidity of Timber, &c. See MEASURING, &c.

It conſiſts of two Rulers, each a Foot long, which are framed, or put together, various ways; ſometimes they are made to ſlide by one another, like Glaziers *Rules:* Sometimes a Groove is made in the Side of a common two-foot *Joint-Rule*, and a thin *Sliding-Piece* put in, and *Coggeſhal's* Lines added on that Side: But the moſt uſual and commodious way, is to have one of the Rulers *ſlide* along a Groove made along the Middle of the other, as 'tis repreſented in Table Surveying, Fig. 18.

On the *Sliding*-Side of the Rule are four Lines of Numbers, three whereof are double, that is, are Lines to two Radius's, and one, a ſingle broken Line of Numbers: The three firſt, mark'd A, B, C, are figured 1, 2, 3, &c. to 9; then 1, 2, 3, &c. to 10. Their Conſtruction, Uſe, &c. are the ſame as thoſe on *Everard's Sliding-Rule.* The ſingle Line, called the *Girt-Line*, and noted D, whoſe Radius is equal to the two Radius's of any of the other Lines, is broke for the eaſier meaſuring of Timber, and figured 4, 5, 6, 7, 8, 9, 10, 20, 30, &c. 4 to 5. It is divided into 10 Parts, and each 10th ſubdivided into 4, and ſo on to 10, &c.

On the back-ſide of the *Rule*, are, 1°. A Line of Inch-Meaſure, from 1 to 12; each Inch being divided and ſubdivided. 2°. A Line of Foot-Meaſure; conſiſting of one Foot, divided into 100 equal Parts, and figured 10, 20, 30, &c. The Back-ſide of the *Sliding-Piece* is divided into Inches, Halfs, &c. and figured from 12 to 24; ſo that when ſlid out, there may be a Meaſure of two Foot.

Uſe of Coggeſhal's SLIDING-RULE, *in Meaſuring Plain Superficies.*

1. *To meaſure a Square.* Suppoſe, *E. gr.* the Sides be each 5 Feet: Set 1 on the Line B, to 5 on the Line A; then againſt 5 on the Line B, is 25 Feet; the Content of the Square on the Line A.

2. *To meaſure a long Square.* Suppoſe the longeſt Side 18 Foot, and the ſhorteſt 10: Set 1 on the Line B, to 10 on the Line A; then againſt 18 Foot, on the Line B, is 180 Feet, the Contents on the Line A.

3. *To meaſure a Rhombus.* Suppoſe the Side 12 Feet, and the Length of a Perpendicular let fall from one of the obtuſe Angles, to the oppoſite Side, 9 Feet: Set 1, on the Line B, to 12, the Length of the Side, on the Line A; then againſt 9, the Length of the Perpendicular on the Line B, is 108 Feet, the Content.

4. *To meaſure a Triangle.* Suppoſe the Baſe Seven Feet, and the Length of the Perpendicular let fall from the oppoſite Angle to the Baſe, 4 Feet: Set 1 on the Line B, to 7 on the Line A; then againſt half the Perpendicular, which is 2, on the Line B, is 14 on the Line A, for the Content of the Triangle.

5. *To find the Content of a Circle, its Diameter being given.* Suppoſe the Diameter 3.5 Feet: Set 11 on the Girt-Line D, to 95 on the Line C; then againſt 3.5 Feet on D is 9.6 on C, which is the Content of the Circle in Feet.

6. *To find the Content of an Oval or Ellipſis.* Suppoſe the longeſt Diameter 9 Feet, and the ſhorteſt 4. Find a mean Proportional between the two, by ſetting the greater 9 on the Girt-Line, to 9 on the Line C; then, againſt the leſs Number 4, on the Line C, is 6; the mean Proportional ſought. This done, find the Content of a Circle, whoſe Diameter is 6 Feet; this, when found, by the laſt Article, will be equal to the Content of the Ellipſis ſought.

Uſe of Coggeſhal's Sliding-Rule, *in the Meaſuring of Timber.*

1°. *To meaſure Timber the uſual Way.* Take the Length in Feet, Half-Feet, and, if required, Quarters; Then meaſure half way back again; there girt the Tree with a ſmall Cord or Line; double this Line twice, very evenly, and meaſure this fourth Part of the Girt or Perimeter, in Inches, Halves, and Quarters. The Dimenſions thus taken, the Timber is to be meaſured as if Square, and the Fourth of the Girt taken for the Side of the Square, thus; Set 12 on the Girt-Line D, to the Length in Feet on the Line C, then againſt the Side of the Square, on the Girt-Line D, taken in Inches, you have, on the Line C, the Content of the Tree in Feet.

For an Inſtance: Suppoſe the Girt of a Tree, in the Middle, be 60 Inches, and the Length 30 Feet, to find the Content, ſet 12 on the Girt Line D, and 30 Feet on the Line C; then againſt 15, one Fourth of 60, on the Girt-Line D, is 46.8 Feet; the Content on the Line C. If the Length ſhould be 9 Inches, and the Quarter of the Girt 35 Inches; here, as the Length is beneath a Foot, meaſure it on the Line of Foot-meaſure, and ſee what decimal Part of a Foot it makes, which you will find 75. Set 12, therefore, on the Girt Line to 75 on the firſt Radius of the Line C, and againſt 35 on the Girt Line is 64 Feet on C, for the Content.

2° *To meaſure round Timber the true Way.* The former Method, though that generally in Uſe, is not quite juſt. To meaſure Timber accurately, inſtead of the Point 12 on the Girt Line, uſe another, *viz.* 10.635; at which there ſhould be placed a Centre-pin. This 10.635 is the Side of a Square equal to a Circle, whoſe Diameter is 12 Inches. For an Inſtance: Suppoſe the Length 15 Feet, and ¼ of the Girt 42 Inches: Set the Point 10.635 to 15 the Length; then againſt 42 on the Girt Line is 233 Feet for the Content ſought; whereas by the common Way, there ariſes only 184 Feet. In effect, the common Meaſure is only to the true Meaſure, as 11 to 14. See Timber.

3° *To meaſure a Cube*: Suppoſe the Sides to be 6 Feet each; ſet 12 on the Girt Line D, to 6 on C; then againſt 72 Inches (the Inches in 6 Feet) on the Girt Line, is 216 Feet on C, which is the Content required.

4° *To meaſure unequally-ſquared Timber*; that is, where the Breadth and Depth are not equal. Meaſure the Length of the Piece, and the Breadth and Depth (at the End) in Inches: Then find a mean Proportional between the Breadth and Depth of the Piece. This mean Proportional is the Side of a Square, equal to the End of the Piece; which found, the Piece may be meaſur'd as Square Timber. For an Inſtance: Let the Length of the Piece of Timber be 13 Feet; the Breadth 23 Inches, and the Depth 13 Inches: Set 23 on the Girt Line D, to 23 on C; then againſt 13 on C is 17.35 on the Girt Line D, for the mean Proportional. Again, ſetting 12 on the Girt Line D, to 13 Feet, the Length on the Line C; againſt 17.35 on the Girt Line, is 27 Feet, the Content.

5° *To meaſure taper Timber*: The Length being meaſured in Feet, Note, one third of it; which is found thus: Set 3 on the Line A, to the Length on the Line B; then againſt 1 on A, is the third Part on B: Then if the Solid be round, meaſure the Diameter at each End in Inches, and ſubtract the leſs Diameter from the greater; add half the difference to the leſſer Diameter; the Sum is the Diameter in the middle of the Piece. Then ſet 13.54 on the Girt to the Length of the Line C, and againſt the Diameter in the middle, on the Girt Line, is a Fourth Number on the Line C. Again, ſet 13.54 on the Girt Line to the third Part of the Length on the Line C; then againſt half the Difference on the Girt Line, is another fourth Number on the Line C, theſe two fourth Numbers added together, give the Content. For an Inſtance; Let the Length be 27 Feet (one Third whereof is 9) the greater Diameter 22 Inches, and the leſſer 18; the Sum of the Two will be 40, their Difference 4, and half the Difference 2, which added to the leſs Diameter, gives 20 Inches for the Diameter in the middle of the Piece. Now ſet 13.54 on the Girt Line, to 27 on the Line C, and againſt 20 on D, is 58.9 Feet. Again, ſet 13.54 of the Girt Line to 9 on the Line C; and againſt 2 on the Girt Line (repreſented by 20) is 196 Parts; therefore, by adding 59.9 Feet to 126 Feet, the Sum is 59 096 Feet the Content.

If the Timber be Square, and have the ſame Dimenſions; that is, the Length 27 Feet, the Side of the greater End 22 Inches, and that of the leſſer 18 Inches, to find the Content: Set 12 on the Girt Line to 27 the Length on the Line C, and againſt 20 Inches, the Side of the mean Square on the Girt Line, is 75.4 Feet. Again, ſet 12 on the Girt Line to 9 Feet, one Third of the Length, on the Line C, and againſt 2 Inches, half the Difference of the Squares of the Ends on the Girt Line, is 25 Parts of a Foot, both together make 75.65 Feet, the Content of the Solid.

The Girt or Circumference of a Tree, or round Piece of Timber given; to find the Side of a Square within, or the Number of Inches of a Side, when the round Timber is Squar'd. Set 10 on A to 9 on B, then againſt the Girt on A, are the Inches for the Side of the Square on the Line B.

SLING, *Fundus*, a String-Inſtrument, ſerving for the caſting Stones with the greater Violence. ---*Pliny, L.* 7. *C.* 56. attributes the Invention of the *Sling* to the *Phœnicians. Vegetius* attributes it to the Inhabitants of the *Balearic* Iſlands; who were famous in Antiquity, for the dextrous Management thereof. *Florus* and *Strabo* ſay they had three Kinds of *Slings*; ſome longer, others ſhorter, which they uſed according as their Enemies were nearer or more remote. *Diodorus* adds, that the firſt ſerved them for a Head-band, the ſecond for a Girdle, and that the Third they conſtantly carried with them in the Hand.

SLINGING, is uſed variouſly at Sea; but chiefly for the hoiſting up Casks or other heavy Things, with *Slings* or Contrivances of Ropes, ſpliced into themſelves at either End, with an Eye big enough to hold the Thing to be Slung.

SLIPPING (among Gardeners) is the pulling off a Sprig from a Branch, or a Branch from an Arm of the Tree: and ſo a *Slip* may have its Rents double and treble *Slipped*, or its Stalk ragged.

SLOOP, is a floating Veſſel of the Shallop-kind. See Floating Vessel.

In our Navy, they are Attenders on the Men of War; and are uſually about 60 Ton, and carry about 30 Men. See Navy.

SLOUGH, a deep and muddy Place; alſo the caſt Skin of a Snake, the Damp of a Coal-pit, and the Scar of a Wound, are ſo called. The *Slough* of a Wild Boar is the Bed, Soil, or Mire, wherein he wallows, or in which he lies in the Day-time: *Slough* (in Hunting) is uſed for a Company of ſome Sorts of Wild-Beaſts.

SLUICE, a Frame of Timber, Stone, or other Matter, ſerving to retain and raiſe the Water of a River, &c. and, on Occaſion, to let it paſs: Such is the *Sluice* of a Mill, which ſtops and collects the Water of a Rivulet, &c. to let it fall, at length, in the greater Plenty upon the Mill-wheel: ſuch alſo are thoſe uſed as Vents or Drains to diſcharge Water off Land: And ſuch are the *Sluices* of *Flanders*, &c. which ſerve to prevent the Waters of the Sea overflowing the lower Lands, except when there is Occaſion to drown them.

Sometimes there is a kind of Canal incloſed between two Gates or *Sluices*, in artificial Navigations, to ſave the Water, and render the Paſſage of Boats equally eaſy, and ſafe, upwards and downwards; as in the *Sluices* of *Briare* in *France*, which are a kind of maſſive Walls, built Parallel to each other at the Diſtance of 20 or 24 Feet, cloſed with ſtrong Gates, at each End, between which is a kind of Canal or Chamber, conſiderably longer than broad, wherein a Veſſel being incloſed, the Water is let out at the firſt Gate, by which the Veſſel is raiſed 15 or 16 Foot, and paſs'd out of this Canal into another much higher. By ſuch means a Boat is convey'd out of the *Louvre* into the *Seyne*, though the Ground between them be raiſed above 150 Feet higher than either of thoſe Rivers. ---The Word is form'd of the *French*, *Eſcluſe*, which *Menage* derives from the *Latin*, *Excluſa*, found in the *Salic* Law in the ſame Senſe. But this is to be reſtrained to the *Sluices* of Mills, &c. for as to thoſe ſerving to raiſe Veſſels, they were unknown to the Ancients.

SMACK, is a ſmall Veſſel with but one Maſt. See Mast.

Sometimes, ſuch are employed as Tenders on a Man of War, and they are alſo uſed for Fiſhing upon the Coaſts.

SMALL-POX, *Variolæ.* See Pox and Variolæ.

SMALT, a kind of Mineral Matter, prepared and purified Abroad, and brought hither, ſometimes in Form of a blue Powder, and ſometimes in Cakes; chiefly uſed along with Starch, to give Linens the finer and clearer Caſt; and beſt known by the Name of *Stone-blue.* See Blue.

The Preparation of *Smalt*, as practiſed in *Hermanduria*, we have deſcribed in the *Philoſophical Tranſactions* by Dr. *Krieg*; Who tells us, that the Matter 'tis made of, is the Mineral Stone, called *Cobalt* or *Cadmia*, which being pulveriz'd, and the lighter Stuff waſh'd away, the Remainder is laid on a Furnace, and by a Fire, underneath and aſide it, the Flames whereof are reverberated over it, a Matter is ſeperated from it in Form of a Smoak, which ſticking to the Walls, makes what we call *Arſenic.* See Arsenic.

When the Cobalt has done ſmoaking, 'tis cool'd, mix'd with Pot-aſhes and Powder of white Flint-ſtones, the Mixture put in Pots, and melted for five or ſix Hours in a Furnace. By this means, the Matter is form'd into a blue Glaſs, which being put in cold Water, cracks and grows tender, and is at length powder'd by an Engine, the fineſt part ſeparated by a Sieve, put into a Mill, and ground in Water, into the fineſt Powder, which by waſhing is ſtill further ſeparated from the coarſer, then dried in warm Chambers, barrell'd up, and ſent away.

SMARAGD, a precious Stone of a green Colour, very Beautiful and Brilliant. See Precious Stone.

The Oriental *Smaragds* are the moſt in Eſteem, as being the hardeſt, and their Splendor the moſt vigorous; ſo as even to tinge the ambient Air with their Greenneſs. Great Virtues are aſcribed to the *Smaragd. Cardan* and others ſay, it reſiſts Plagues, Poiſons and Dyſſenteries; that it refreſhes the Spirits, *&c.*

The Word is form'd from the *Greek*, σμάραγδος.

SMECTYMNUUS, a Term that made ſome Figure in the Time of the Civil Wars, and during the *Inter-regnum.* It was form'd of the initial Letters of the Names of Five eminent Presbyterian Miniſters of that Time, *viz. Stephen Marſhal, Edmund Calamy, Thomas Young, Matthew Newcomen*, and *William Spurſto*, who, together, wrote a Book againſt Epiſcopacy, in the Year 1641, whence they and their Retainers, were called *Smectymnuans.*

SMELL, Odor, with regard to the Organ, is an Impreſſion made on the Noſe, by little Particles continually exhaling from odorous Bodies. See Nose, *&c.*

Smell, with regard to the Object, is the Figure and Diſpoſition of Odorous Effluvia, which ſticking on the Organ, excite the Senſe of *Smelling.* See Smelling.

With regard to the Soul, *Smell* is the Perception of the Impreſſion of the Object on the Organ, or the Affection in the Soul reſulting therefrom. See Sense.

The Chymiſts teach, that Sulphur is the Principle of all *Smells*, and that theſe are more or leſs ſtrong, as the Sulphur in the odorous Body, is more or leſs dried and exalted. Sulphur, they ſay, is the Foundation of Odors, as Salt is of Savors, and Mercury of Colours. See Smelling.

Smell, like Taſte, conſiſts altogether in the Arrangement, Compoſition and Figure of the Parts; as appears from the following Experiments of Mr. *Boyle*;

1° From a Mixture of Two Bodies, each whereof, is, of itſelf, void of all *Smell*; a very urinous *Smell* may be drawn: That is, by the Grinding of Quick-lime with Sal-Ammoniac. 2° By the Admixture of common Water, which of itſelf, is void of *Smell*, or inodorous; another inodorous Body may be made to emit a very rank *Smell.* Thus Camphor diſſolved in Oil of Vitriol, is inodorous; yet mix'd with Water, immediately exhales a very ſtrong *Smell.* 3° Compound Bodies may emit *Smells*, which have no Similitude to the *Smells* of the Simples they conſiſt of. Thus Oil of Turpentine, mixt with a double Quantity of Oil of Vitriol, and Diſtilled; after Diſtillation, there is no *Smell* but of Sulphur; and what is left behind in the Retort, being again urged by a more violent Fire, yields a *Smell* like Oil of Wax. 4° Several *Smells* are only to be drawn by Motion and Agitation. Thus Glaſs, Stones, *&c.* which even when heated, yield no *Smell*, yet when rubbed and agitated in a peculiar Manner, emit a ſtrong *Smell*; particularly Beech-wood in turning, yields a kind of Roſy *Smell.* 5° A Body that has a ſtrong *Smell*, by being mix'd with an Inodorous one, may ceaſe to have any *Smell* at all: Thus if Aqua-fortis, not well dephlegmated, be poured on Salt of Tartar, till it ceaſe to ferment; the Liquor, when evaporated, will yield inodorous Cryſtals, much reſembling Salt of Nitre. Yet when burnt, will yield a moſt noiſom *Smell.* 6° From a Mixture of Two Bodies, the one whereof ſmells extremely ill, and the other not well; a very pleaſant aromatic Odor may be gain'd, *viz.* by a Mixture of Aqua-fortis, or Spirit of Nitre, with an inflammable Spirit of Wine. 7° Spirits of Wine, by mixing with an almoſt inodorous Body, may gain a very pleaſant, aromatic *Smell.* Thus inflammable Spirits of Wine, and Oil of *Dantzic* Vitriol, mix'd in equal Portions, then digeſted, and at laſt diſtill'd, yield a Spirit of a very fragrant *Smell.* 8° A moſt fragrant Body may degenerate into a fœtid one, without the Admixture of any other Body. Thus if the Spirit, mentioned in the former Experiment, be kept in a well cloſed Receiver, it will ſoon turn to the Rankneſs of Garlic. 9° From two Bodies, one whereof is inodorous, and the other fœtid; a very pleaſant *Smell* may ariſe, much reſembling Musk, *viz.* by putting Pearls into Spirit of Vitriol: For when diſſolved, they yield a very agreeable *Smell.*

SMELLING, the Act whereby we perceive *Smells*; (See Smell) or the Act, whereby we become ſenſible of odorous Bodies, by means of certain Effluvia thereof, which ſticking on the Olfactory Organ, and briskly enough to have their Impulſe propagated to the Brain, excite a Senſation in the Soul. See Sensation.

The principal Organs of *Smelling*, are the Noſtrils, and the Olfactory Nerves; the minute Ramifications of which latter are diſtributed throughout the whole Concave of the former: Their Deſcription, ſee under their proper Heads.

Smelling is performed by the odorous Effluvia floating in the Air, being drawn into the Noſtrils, in Inſpiration, and ſtruck with ſuch Force againſt the Fibrillæ of the Olfactory Nerves which the Figure of the Noſe, and the Situation of the little Bones, render oppoſite thereto, as to ſhake them, and give them a vibratory Motion; which Action being communicated thence to the common Senſory, occaſion an Idea of a ſweet, or fœtid, or ſour, or an aromatic, or a putrified Object, *&c.*

The Matter in Animals, Vegetables, Foſſils, *&c.* which chiefly affects the Senſe of *Smelling*, *Boerhaave* obſerves, is that ſubtile Subſtance inherent in the oily Parts thereof, call'd *Spirit*: For that when this is taken away from the moſt fragrant Bodies; what remains, has ſcarce any *Smell* at all; but this pour'd on the moſt ſmell-leſs Bodies, gives them a Fragrancy. *Inſtit. cap. de Olfac.*

Willis obſerves, That Brutes have, generally, the Senſe of *Smelling* in much greater Perfection than Man; as by this, alone, they diſtinguiſh the Virtues and Qualities of Bodies unknown before; hunt out their Food at a great Diſtance, as Hounds, and Birds of Prey, or hid among other Matters, as Ducks, *&c.* Man having other means of judging of his Food, *&c.* did not need ſo much Sagacity in his Noſe: Yet have we Inſtances of a great deal, even in Man.

In the *Hiſtoire des Antilles*, we are aſſured, there are Negroes who, by the *Smelling*, alone, can diſtinguiſh between the Foot-ſteps of a *Frenchman* and a Negro. 'Tis found that the Laminæ, wherewith the Upper Part of the Noſtrils is fenc'd, and which ſerve to receive the Divarications of the olfactory Nerves, are always longer, and folded up together in greater Number, as the Animal has this Senſe more accurate. The various Windings and Turnings of theſe Laminæ, detain and fetter the more of the odoriferous Particles.

SMELTING, among Refiners, the melting of Metal in the Ore in a *Smelting* Furnace; in order to ſeparate the metallic from the earthy Parts. See Metal.

SMINTHEAN, SMINTHEUS, in Antiquity, an Epithet given to *Apollo*, from the *Greek* σμίνθος, a *Rat.* --There are two different Accounts of the Origin of this Appellation: The firſt, that in the City of *Chryſa* in *Miſia*, was a Prieſt of *Apollo*, call'd *Crines*, with whom that God being offended, ſent a Herd of Rats to ſpoil all his Lands. But *Crines* appeaſing the Deity, he came in Perſon to his Aſſiſtance, took his Lodgings with *Crines*'s Shepherd, told him who he was, and deſtroyed all the Rats with his Arrows: In Memory whereof, *Crines* built a Temple to his Deliverer, under the Name of *Apollo Smintheus.* ---*Clemens Alexandrinus*, in his Exhortation to the *Greeks*, gives us a different Story. The *Cretans*, ſays he, intending to ſend out a Colony, conſulted the Oracle of *Apollo* as to the Place; the Anſwer was, That they ſhould place their Colony where thoſe, born of the Earth, ſhould oppoſe them. Upon their Arrival in the *Helleſpont*, the Rats, in the Night-time, gnawed aſunder all the Strings of their Bows: This they deem'd an Accompliſhment of the Oracle, and built a City call'd *Sminthia.*

SMOAK, a humid Matter, exhaled in Form of Vapour, by the Action of Heat, either external or internal. See Fire.

Smoak, Sir *Iſaac Newton* obſerves, aſcends in the Chimney by the Impulſe of the Air it floats in: For that Air being rarified by the Fire underneath, has its ſpecific Gravity diminiſhed; thus, being determined to aſcend, itſelf, it carries up the *Smoak* along with it. The Tail of a Comet, that great Author takes to aſcend from the Sun after the ſame manner. See Comet.

Smoak of fat unctuous Woods, as Fir, Beech, *&c.* makes what we call *Lamp-black.* See Black.

There are various Inventions for preventing and curing *Smoaking* Chimneys; as the Oeolipiles of *Vitruvius*, the Ventiducts of *Cardan*, the Wind-mills of *Bernard*, the Capitals of *Serlio*, the little Drums of *Paduanus*, and ſeveral Artifices of *de Lorme*, *&c.* See Chimney.

In the *Philoſophical Tranſactions*, we have the Deſcription of an Engine invented by Monſieur *Daleſme*, which conſumes the *Smoak* of all Sorts of Wood, and that ſo totally as the moſt curious Eye cannot diſcover it in the Room, nor the niceſt Noſe ſmell it, though the Fire be made in the middle of the Room. It conſiſts of ſeveral Iron Hoops, four or five Inches Diameter, which ſhut into one another; and is placed on a Trevet. A Brand taken out of the Fire *ſmoaks* inſtantly; but ceaſes as ſoon as returned. The moſt fœtid Things, as a Coal ſteep'd in Cat's-piſs, which ſtinks abominably when taken out of the Fire, yet in it makes not the leaſt ill Scent; no more than Red Herrings broil'd, *&c.*

SMOKE *Farthings*, were the pentecoſtal or cuſtomary Oblations, offered by the Inhabitants within any Dioceſs, when they made their Proceſſions to the Cathedral Church; which came by degrees into an annual, ſtanding Rent, called *Smoke-Farthings.*

SMUGGLING, a Cant Term for the Running of Goods; or the ſtealing them aſhore without paying Cuſtom. See CUSTOM.

SMUT, a Diſeaſe in Corn, whereby the Pulp or Meal thereof is damaged, and its natural Taſte, Colour, *&c.* alter'd.

The *Smut* is uſually aſcribed by the Huſbandmen to the exceſſive Fatneſs and Rankneſs of the Soil; to the manuring the Land with rotten Vegetables, as Straw, Hawm and Fern; and to the ſowing *ſmutty* Seed.

Mr. *Bradley* makes no doubt to call the *Smut* a *Blight*, and to account for it on the ſame Principle as the Blights befalling other Plants, particularly Fruit Trees, *viz.* from innumerable little Inſects, brought, or at leaſt hatch'd by the eaſtern Winds, which prey on and devour the native Juices of the Corn, and poiſon them with a Mixture of their own. See BLIGHT.

An approved Method to prevent the *Smut*, the ſame Mr. *Bradley* gives us, as follows: The Wheat, for Seed, to be waſhed in three or four Waters, ſtirring it well round, and with great force, each time, and ſkimming off all the light Wheat ſwimming a-top. This done, 'tis to be ſteep'd in a Liquor thus prepared: Into a ſufficient Quantity of Water, put as much Salt, as, when ſtirred about, will make an Egg ſwim; and to this add as much more Salt; ſtir the whole well, and to the Brine, put two or three pound of Alum beaten fine. In this Mixture, lay the Wheat to ſteep, at leaſt, thirty or forty Hours. Take it out the Night before 'tis to be ſown, and ſift ſome ſlack'd Lime on it; this dries and fits it for ſowing.

Note, many ſteep their Wheat in Brine, yet have plenty of *ſmutty* Corn: The Reaſon is, that they don't either make their Brine ſtrong enough, or don't let the Wheat ſtay long enough therein. 'Tis a common Notion among them, that ſteeping it ſo long, rots the Grain; but Experience ſhews the contrary.

SNAKE *Root*. See SERPENTARIA *Radix*.

SNEEZING, a convulſive Motion of the Muſcles of the Breaſt uſed in Expiration; wherein, after ſuſpending the Inſpiration begun, the Air is repelled from the Mouth and Noſe with a momentary Violence. See RESPIRATION.

The Cauſe is an Irritation of the Upper Membrane of the Noſe, which communicates with the Intercoſtal Nerve by means of the Twigs that it detaches to it. This Irritation is performed either externally by ſtrong Smells; as Marjoram, Roſes, *&c.* or by Duſt floating in the Air, and taken in by Inſpiration; or by ſharp, pungent Medicines, as Creſſes and other Sternutatories, which vellicate the Membrane of the Noſe; or internally by the Acrimony of the Lympha or Mucus, which naturally moiſtens that Membrane.

The Matters caſt forth in *Sneezing*, come primarily from the Noſe and Throat, the pituitary Membrane continually exuding a Mucus thither; and, ſecondarily, from the Breaſt, the Trachea and the Bronchia of the Lungs.

F. Strada, in an expreſs Treatiſe on *Sneezing*, has diſcovered the Original of the Cuſtom of ſaluting thoſe who *Sneeze*. He ſhews it to be a Remain of Paganiſm; tho' he owns 'twas in uſe among the *Jews* as well as among the *Romans*. From an Epigram in the Anthology, it appears, that among the Ancients, a Perſon after *Sneezing*, made a ſhort Prayer to the Gods; as Σεῦ σῶζον, *Jupiter ſave me.*

SNOW, a Meteor form'd in the middle Region of the Air, of Vapour raiſed by the Action of the Sun or ſubterraneous Fire, there congeal'd, its Parts conſtipated, its ſpecifick Gravity increaſed, and thus returned to the Earth in form of little Villi or Flakes. See METEOR and VAPOUR.

The *Snow* we receive, may properly enough be aſcribed to the Coldneſs of the Atmoſphere through which it falls. When the Atmoſphere is warm enough to diſſolve the *Snow* before it arrives at us; we call it *Rain*: If it preſerve itſelf undiſſolved, it makes what we call *Snow*. See RAIN.

The Uſes of *Snow* muſt be very great, if all be true *Bartholin* has ſaid in its behalf, in an expreſs Treatiſe, *de Nivis uſu medico*: He there ſhews that it fructifies the Earth, (which, indeed, is a very old and general Opinion) preſerves from the Plague, cures Fevers, Colicks, Tooth-Aches, Sore-Eyes, and Pleuriſies (for which laſt Uſe, his Countrymen of *Denmark* uſe to keep *Snow*-Water gathered in *March*) He adds, that it contributes to the prolongation of Life; giving Inſtances of People in the *Alpine* Mountains that live to great Ages: And to the preſerving of dead Bodies: Inſtances whereof, he gives in Perſons buried under *Snow* in paſſing the *Alps*, which are found uncorrupted in the Summer when the *Snow* is melted.

He obſerves, that in *Norway*, *Snow*-water is not only their ſole Drink in the Winter; but *Snow* even ſerves for Food; People having been known to live ſeveral Days, without any other Suſtenance.

Indeed the Generality of theſe medicinal Effects of *Snow*, are not to be aſcribed to any ſpecific Virtue in *Snow*; but to other Cauſes. It fructifies the Ground, for Inſtance, by guarding the Corn, or other Vegetables, from the intenſer Cold of the Air, eſpecially the cold, piercing Winds. And it preſerves dead Bodies, by conſtipating and binding up the Parts, and thus preventing all ſuch Fermentations or internal Conflicts of their Particles, as would produce Corruption. See COLD.

'Tis a popular Error, that the firſt *Snow* that falls in the Year, has particular Virtues. In *Italy*, they cool their Wines all the Summer with *Snow*-water.

Dr. *Grew*, in a Diſcourſe of the Nature of *Snow*, obſerves, that many Parts thereof are of a regular Figure, for the moſt part ſo many little Rowels or Stars of Six Points, and are perfect and tranſparent Ice, as any we ſee on a Pond, *&c.* Upon each of theſe Points are other collateral Points, ſet at the ſame Angles, as the main Points themſelves: Among which there are divers others irregular, which are chiefly broken Points, and Fragments of the regular Ones. Others alſo by various Winds, ſeem to have been thaw'd, and froze again into irregular Cluſters; ſo that it ſeems as if the whole Body of *Snow* were an infinite Maſs of Icicles irregularly figured. That is, a Cloud of Vapours being gathered into Drops, the ſaid Drops forthwith deſcend; upon which Deſcent, meeting with a freezing Air as they paſs through a colder Region, each Drop is immediately froze into an Icicle, ſhooting itſelf forth into ſeveral Points; but theſe ſtill continuing their Deſcent, and meeting with ſome intermitting Gales of warmer Air, or in their continual Waftage to and fro, touching upon each other, ſome of 'em are a little thaw'd, blunted, and again froze into Cluſters, or intangled ſo as to fall down in what we call Flakes. The Lightneſs of *Snow*, although it is firm Ice, is owing to the Exceſs of its Surface, in Compariſon to the Matter contained under it; as Gold itſelf may be extended in Surface, till it will ride upon the leaſt Breath of Air. See ICE and FREEZING.

Signior *Sarotti*, in the *Philoſophical Tranſactions*, mentions a *red* or *bloody Snow*, which fell on the Mountains *le Langhe*, near *Genoa* on S. *Joſeph's* Day. This *Snow* when ſqueez'd, yielded a Liquor of the ſame Colour.

SNUFF, a Preparation of Tobacco, made by reducing it into a Powder, fit to be taken at the Noſe; in order to purge or clear the Head of Pituita. See TOBACCO.

Ordinarily, Tobacco is only the Baſis of *Snuff*; other Matters being added to give it a more agreeable Scent, *&c.*

The kinds of *Snuff*, and their ſeveral Names, are infinite; and new ones are daily invented; ſo that it would be as impertinent as 'tis impoſſible, to give a Detail of them. We ſhall only ſay, that there are Three grand Sorts; the Firſt granulated; the Second an impalpable Powder; and the Third the Bran or the coarſe Part remaining after ſifting the ſecond Sort.

SOAP, a kind of Paſt, ſometimes hard and dry, and ſometimes ſoft and liquid; much uſed in waſhing, and whitening Linens, and for various other Purpoſes, by the Dyers, Perfumers, Hatters, Fullers, *&c.* See DYING, HAT, FULLING, *&c.*

The principal *Soaps* of our Manufacture, are the *Soft*, the *Hard*, and the *Ball Soap*. The *Soft Soap*, again, is either White or Green: The Proceſs of making each kind, is as follows;

Method of making the ſeveral Kinds of SOAP.

1° *Green, Soft-Soap.* The chief Ingredients uſed in making of *Green Soap*, are Lyes drawn from Pot-aſh and Lime, boil'd up with Tallow and Oil. Firſt, the Lye and Tallow are put into the Copper together, and when melted, the Oil is put to it, and the Copper made to boil; then the Fire is dampt or ſtopt up, while the Ingredients lie in the Copper to knit or incorporate; which done, the Copper is ſet on boiling, being fed or filled with Lyes as it boils, 'till there be a ſufficient Quantity put therein: Then it is boil'd off with all convenient ſpeed, and put to Caſks.

2° *White Soft Soap.* One ſort of *White Soap* is made after the ſame manner as *Green Soft Soap* is, Oil excepted, which is not uſed in White. The other ſort of *White Soft Soap*, is made from Lyes of Aſhes of Lime boil'd up at twice with Tallow. Firſt, a quantity of Lyes and Tallow are put into the Copper together, and kept boiling; being ſed with Lyes as it boils, until it grains, or is boiled enough; then the Lyes are ſeparated or diſcharged from the tallowiſh Part, which Part is removed into a Tub, and the Lyes thrown away: This is called the Firſt *half Boil*. Then the Copper is charged again with freſh Tallow and Lyes, and the firſt half Boil put out of the Tub into the Copper a ſecond Time; where it is kept boiling with freſh Lyes and Tallow, till it comes to Perfection. It is then put out of the Copper into the ſame ſort of Caſks as are uſed in Green ſoft *Soap*.

3° *Hard Soap* is made with Lyes from Aſhes and Tallow, and moſt commonly boil'd at Twice: The Firſt, called a *Half-boiling*, hath the ſame Operation as the firſt Half-boil of ſoft White *Soap*. Then the Copper is charged with freſh Lyes again, and the firſt Half-boil put into it, where it is kept boiling, and fed with Lyes as it boils, till it grains, or is boiled enough; then the Lye is diſcharged from it, and the *Soap* put into a Frame to cool and harden.

Note, There is no certain Time for bringing off a Boiling of any of theſe Sorts of *Soap*. It frequently takes up part of two Days.

4° *Ball-Soap*, commonly uſed in the *North*, is made with Lyes from Aſhes and Tallow; the Lyes are put into the Copper, and boil'd 'till the watery Part is quite gone, and there remains nothing in the Copper but a ſort of Nitrous Matter (the very Strength or Eſſence of the Lye) to this the Tallow is put, and the Copper kept boiling and ſtirring for above half an Hour, in which time the *Soap* is made; and then it is put out of the Copper into Tubs or Baskets with Sheets in them, and immediately (whilſt ſoft) made into Balls.

Note, it requires near Twenty-four Hours to boil away the watery Part of the Lye.

SOAPS, both dry and liquid, are held of ſome Uſe in Medicine: The Liquid againſt Fevers; to be applied by rubbing the Soals of the Patient's Feet therewith: And the Dry, diſſolved with Spirit of Wine, in the Cure of cold Humours: Beſides its being uſed in Suppoſitories, and in the Compoſition of a kind of Plaſter, commonly called *Emplaſt de Sapone*.

SOAP *Earth*, a kind of Earth found in the *Levant*, and uſed as a *Soap*. See EARTH.

The *Soap-Earth*, Dr. *Smith* tells us, is only had in two Places near *Duraclea*, Six Leagues to the Eaſt of *Smyrna*. 'Tis, in effect, of itſelf, a fine *Soap*, boiling and ſhooting up out of the Earth.

'Tis gathered always before Sun-riſe, and in Mornings when there falls no Dew; ſo that a Stock muſt be laid up in the Summer Months, to ſerve all the Year.

In ſome Places, it comes up an Inch or two above the Surface of the Ground: But the Sun riſing on it, makes it fall again. Every Morning there returns a freſh Crop.

SOC, in Law, a Power, Authority, or Privilege to miniſter Juſtice, and execute Laws: Alſo the Shire, Circuit, or Territory wherein ſuch Power is exerciſed by him indued with ſuch Juriſdiction.

And hence the Law *Latin* Word *Soca* for a Seignory or Lordſhip, infranchiſed by the King, with Liberty of holding a Court of his *Sock-men* or *Sockagers*, that is, his Tenants, whoſe Tenure is hence called *Socage*. See SOCAGE.

This kind of Liberty ſtill ſubſiſts in ſeveral Parts of *England*, under the Name of *Soke* or *Soken*. *Skene* defines *Sok*, to be *Secta de hominibus ſuis in curia ſecundum conſuetudinem Regni*. *Brady* makes mention of theſe Liberties: *Soc*, *Sac*, *Sol*, *Team*, *Infangthef* and *Utfangthef*.

In the Laws of *Henry* I. *Soca* is uſed as ſynonymous with Franchiſe, or a privileged Place, Refuge, Aſylum, Sanctuary, &c. From the *Saxon*, Socn and Socne.

SOCAGE or SOCCAGE, a Tenure, by which Men held their Lands on condition of ploughing thoſe of their reſpective Lords, with their own Ploughs, and at their own Charges. See SERVICE, VASSAL, TENURE, &c.

This ſlaviſh Tenure was afterwards, by the mutual Agreement of Lord and Tenant, turned into the Payment of a certain Sum of Money, which is hence called *Liberum Socagium*, *free* or *common Socage*. Whereas the other was *Villanum Socagium*, or *baſe Socage*: Inaſmuch as thoſe who held Lands by this Tenure, were not only bound to plough their Lords Lands; but took the Oath of Fealty to them, *Sicut de Villanis*. See FEALTY.

Socage was a Tenure of that Extent, that *Littleton* tells us, all the Lands in *England*, which were not held by Knight's Service, were held in *Socage*: So that it ſeems the Land was divided between the two Tenures, which, as they were of different Natures, ſo the Deſcent of the Land was in a different Manner. For the Lands held in Knight's-Service, deſcended to the eldeſt Son; but thoſe held in *Villano Socagio*, equally among all the Sons. Yet if there was but one Meſſuage, the eldeſt Son was to have it; ſo, as the reſt had the Value of the Meſſuage equally divided between them.

Skene defines *Socage*, a Tenure of Lands, whereby a Man is Infeoffed freely, without Wardſhip and Marriage, paying to his Lord ſome ſmall Rents, &c. which is called *Free Socage*, &c. *Bracton* thus deſcribes it, *Dici poterit* Socagium *a* Socco *& inde tenentes* Sockmanni, *eo quod deputati ſunt ut videtur tantum modo ad Culturam, & quorum Cuſtodia & Maritagia ad propinquiores parentes jure ſanguinis pertinebunt*, &c.

Several Diviſions of *Socage* we meet withal in Law-writers, as *Socage in Capite*, &c. But by *Stat.* 12. *Car.* II. all Tenures from and after the 24th of *February*, 1645, ſhall be adjudg'd and taken for ever, to be turn'd into *free* and *common Socage*.

SOCCUS, SOCK, in Antiquity, a kind of high Shoe, reaching above the Ankle, wore by the Actors in the ancient Drama, in repreſenting of Comic Perſons. See COMEDY.

The *Soccus* was much lower than the Cothurnus; and was the diſtinguiſhing Wear of the Comedians; as the Cothurnus was of the Tragedians: Hence *Soccus* is frequently uſed for Comedy itſelf. Comedy, ſays M. *Fenelon*, muſt talk in an humbler Stile than Tragedy; the *Sock* is lower than the Buskin. See BUSKIN.

SOCIETY, an Aſſemblage, or Union of ſeveral Perſons in the ſame Place, for their mutual Aſſiſtance, Security and Intereſt.

Of *Societies* we have a great many Kinds, diſtinguiſhed by the different Ends propoſed by them: *Civil Societies*, *Trading Societies*, *Religious Societies*, &c.

Civil SOCIETY. See GOVERNMENT.

SOCIETY, in Trade, is a Contract or Agreement between two or more Perſons, whereby they bind 'emſelves together for a certain Time, and agree to ſhare equally in the Profits or Loſſes which ſhall accrue in the Affairs for which the *Society* or Co-partnerſhip is contracted. See CO-PARTNER.

We have ſeveral very conſiderable *Societies* of this Kind; as the *Merchant Adventurers*, the *Turkey*, *Eaſt India*, *Muſcovy*, *Eaſtland*, *Greenland*, *Spaniſh*, *African*, *South-Sea* and *Hudſon's Bay Companies*. The Inſtitutions, Policies, &c. whereof, ſee under the Article COMPANY.

By the *Roman* Law, the *Social* Contract needs no other Solemnity, but the ſole Conſent of Parties, without any Writing at all: But among us, Articles of Co-partnerſhip are required. There is no Contract wherein Probity is more required than in *Society*; inaſmuch as the Laws pronounce thoſe Null, that are made contrary to Equity, and with deſign to deceive.

The *French* diſtinguiſh three Kinds of Mercantile *Society*: *Ordinary Society*, called alſo *Collective* and *General*; *Society* in *Commendam* or *Commandity*; and *Anonymous Society*, called alſo *Momentary* and *Inconnue*. The firſt is, where ſeveral Merchants act alike in the Affairs of the *Society*, and do all under their collective Names, which are public and known to every Body. — *Society* in *Commendam*, &c. is that between two Perſons, one of whom only puts his Money into Stock, without doing any other Office of a Co-partner; the other, who is called the *Complimentary* of the *Society*, diſpatching all the Buſineſs under his own Name. This *Society* is very uſeful to the State; inaſmuch as all kinds of Perſons, even Nobles and Men of the Robe, may contract it; and thus make their Money of Service to the Publick: And thoſe who have no Fortune of their own to trade withal, hereby find means of eſtabliſhing themſelves in the World, and of making their Induſtry and Addreſs ſerviceable. *Anonymous Society*, is that, where all the Members are employ'd, each particularly, in the common Intereſt, and each accountable for Profits, &c. to the reſt; but without the Publick's being informed thereof; ſo that the Seller has only an Action againſt the particular Buyer, no other Name appearing. 'Tis alſo called *Momentary*, becauſe frequently made on particular Occaſions, and ceaſing with them; as in the making a Purchaſe, the ſelling any Commodity, &c. Of this they diſtinguiſh four Kinds: *Society* by Participation, which is uſually form'd by Letters from one City to another, where a Merchandiſe is to be bought or ſold. The Second is, when two or three Perſons go together to Fairs to buy Goods. The Third, when two or three Perſons agree to buy up the Whole of ſome Commodity, in any Country; to ſell it again at their own Price. And the Fourth is, when three or four Perſons make a Journey together, to buy and ſell the ſame Commodity. Beſide Merchants, People of Quality, &c. are admitted into theſe Anonymous *Societies*.

Religious SOCIETIES, are Parties of Perſons formed, either to live regularly together; or to promote the Intereſt of Religion; or to cultivate it in themſelves.

Of the *firſt* Kind, are all Congregations of Religious; particularly the *Jeſuits*, who are called the *Society of Jeſus*; though they more uſually call themſelves the *Company of Jeſus*. See JESUITES. —The *Society* of the *Sorbonne*. See SORBONNE. —The *Society* of S. *Thomas de Villenuve*, inſtituted in 1660, by *F. Ange le Prouſt*. —The *Society* of S. *Joſeph*, inſtituted in 1638. —The *Society* of *Bretagne*, a Reform of Benedictins in 1606. And the *Society* of *Jeſus*, a religious military Order, inſtituted by *Pius* II.

Of the *ſecond* Kind are; the SOCIETY for *Reformation of Manners*; and putting in Execution the Laws againſt Immorality and Prophaneneſs. It was ſet on foot about 30 Years ago, by five or ſix private Perſons in *London*; but is ſince exceedingly increaſed, by Numbers of Members of all Denominations.

tions. A particular Body of the moſt conſiderable hereof, bear the Expences of Proſecutions, &c. without any Contribution from the reſt: Theſe chiefly apply themſelves to the Proſecuting Perſons for Swearing, Drunkenneſs, and Prophaning the *Sabbath*. Another Body of about 50 Perſons, apply themſelves to the ſuppreſſing Lewdneſs; and by them above 500 lewd Houſes have been actually ſuppreſs'd. A third Body conſiſts of Conſtables. A fourth, of Informers. Beſides theſe, are Eight other regular, mix'd Bodies of Houſekeepers, and Officers, who inſpect the Behaviour of Conſtables and other Officers, aſſiſt in ſearching diſorderly Houſes, &c. ſeizing Offenders, giving Information, &c.

There are ſeveral other *Societies* of this kind at *Briſtol*, *Canterbury*, *Nottingham*, &c.

The Society *for propagating the Goſpel in foreign Parts*, was inſtituted by King *William*, in 1701, for ſecuring a Maintenance for an Orthodox Clergy, and making other Proviſions for the Propagation of the Goſpel in the Plantations, Colonies, Factories, &c. ----To that end, He Incorporated the Archbiſhops, ſeveral Biſhops, and other of the Nobility, Gentry and Clergy, to the number of 90, into a Body, with Privilege to purchaſe Two thouſand Pounds a Year, Inheritance and Eſtates for Lives or Years, with other Goods, to any Value. They meet yearly on the third *Friday* in *February*, to chuſe a Preſident, Vice-Preſident and other Officers; and the third *Friday* in every Month to tranſact Buſineſs, depute fit Perſons to take Subſcriptions for the ſaid Uſes; and of all Monies ſo received, to give account to the Lord Chancellor, &c. They have a ſtanding Committee at the *Chapter-houſe*, to prepare Matters for the monthly Meeting, which is held at St. *Martin*'s Library.

The Society *for Propagating Chriſtian Knowledge*, was begun in 1699 by ſome Perſons of Worth, &c. Its original Deſign was to propagate Religion in the Plantations, to ſecure the pious Education of the Poor at Home, and to reclaim thoſe that err in the Fundamentals of Chriſtianity.

In the Year 1701, they had procured conſiderable Charities, and had tranſmitted the ſame to the Plantations, in Libraries, Bibles, Catechiſms, &c. with a voluntary Maintenance for ſeveral Miniſters, to be employ'd in the Plantations. But the *Society* for Propagating the Goſpel in foreign Parts, being then inſtituted, they were Incorporated, by Charter, into the ſame; and thus diſcharged, as a particular *Society*, from the further Purſuit of that Branch of their original Deſign: Whereupon they wholly turned themſelves to the other; and are now very conſiderable, by great Acceſſions from among the Clergy and Laity.

They meet weekly, to concert Meaſures for raiſing Charity for Education of poor Children, and ſetting up Schools for that Purpoſe; as alſo for the more regular Diſpoſal of pious Books and Catechiſms; for Inſtruction of the Ignorant, Erroneous, &c. By the Aſſiſtance of Members of other religious *Societies*, they have procured Subſcriptions for the Education of above Three thouſand Children, who are placed out in Schools about *London*, and taught Reading, Writing, Pſalmody, &c. They have diſperſed great Numbers of good Books among the Poor, in the Fleet, Army, &c. and have procured ſeveral to be tranſlated into *Welſh* and other foreign Languages, and diſpers'd accordingly. See Charity *School*.

Of the *third* Kind, are divers religious *Societies*, properly thus called; firſt ſet on foot in *London* about the Year 1678, by a few young Men, who agreed to meet weekly, for Prayer, Pſalmody and ſpiritual Conference. They are now increaſed to Forty diſtinct Bodies, who have ſet up public Prayers in many Churches where it was not, procured frequent Adminiſtrations of the Sacrament; and maintain Lectures on that Subject, in one Church or another almoſt on every Sunday-evening.

Royal Society. See Royal *Society*.

SOCINIANS, a late Sect of Antitrinitarians, who, in theſe Ages, have revived ſome of the Errors of *Paulus Samoſatenus*, *Photinus* and *Arius*; whence they are alſo occaſionally call'd *Arians*, *Photinians*, &c. tho' in many reſpects different from any of them. See Arian, Photinian, &c.

Fauſtus Socinus, a Gentleman of *Sienna*, whence they take their Name, was not the firſt Author of the Sect; for he ſays himſelf, in his Letter to *Martin Vadau*, wrote in 1548, that he advances no Dogma but what had been publiſhed by others before him, even in *Poland*, e'er he came to ſettle there. The Truth is, he may be rather ſaid to have refined, by his Subtilties, on the Notions that already prevailed there in his Time, than to have invented a new Syſtem.

In his Life, wrote by a *Poliſh* Knight, we read, that he had not applied himſelf to the Study of Theology and Divinity, nor had ſtudied any thing but Logic; till 35 Years of Age; but had ſpent the greateſt part of his Life at the Court of the Great Duke of *Tuſcany*. Upon his retiring thence, he began to think of Religion; and, prepoſſeſſed as he was with the Writings of his Unkle *Lælius Socinus*, he form'd a Syſtem thereon. *Lælius* had explained the firſt Words in the Goſpel of S. *John*, *Inprincipio erat Sermo*; by theſe, *In principio Evangelii erat Sermo*; as if the *Beginning*, there ſpoke of, were only the *beginning of the Goſpel*.

This Interpretation, never heard of in all Antiquity, is followed by *Fauſtus*, in his Comment on the Fourteen firſt Verſes of that Goſpel. He adds, that he who is called *Word*, had not been from all Eternity, nor even before the Creation of the World; but that by *Word*, muſt be meant the Man *Jeſus Chriſt*, God born of the Virgin, under the Emperor *Auguſtus*. But this is a Paradox, which all his Followers do not equally come into. However, they all deny, not only the Divinity of *Jeſus Chriſt*, but the Exiſtence of the Holy Ghoſt, the Myſtery of the Incarnation, Original Sin, and Grace.

Their Sentiments are explain'd at length, in their Catechiſm printed ſeveral Times, under the Title of *Catecheſis Eccleſiarum Polonicarum unum Deum Patrem illiuſque filium Unigenitum, una cum Sancto Spiritu ex ſacra ſcriptura confitentum.* Still, they are divided on ſeveral Articles. Some of them leave *Socinus*, as to what regards the Worſhip offered to *Jeſus Chriſt*; not being able to conceive how divine Worſhip ſhould be given a mere Man.

The Hereſy of the *Socinians* ſpread exceedingly in *Poland*, *Lithuania*, *Tranſilvania*, and the neighbouring Places. *Racow* was their chief School; and there all their firſt Books were publiſhed. But they were exterminated out of *Poland* in 1655; ſince which time they have chiefly ſhelter'd in *Holland*; where, however, their public Meetings have been prohibited: But they find means to conceal themſelves under the Name of *Arminians* and *Anabaptiſts*. See Unitarian.

SOCLE or ZOCLE, in Architecture, a flat, ſquare Member under the Baſes of Pedeſtals, of Statues, Vaſes, &c. which it ſerves as a Foot, or Stand. See Pedestal, Statue, &c.

The Word is *French*, form'd from the *Italian Zoccola*, or the *Latin Soccus*, the Shoe of the ancient Actors. *Vitruvius* calls it *Quadra*.

A *continued* Socle, is a kind of continued Stand, or Pedeſtal, without either Baſe, or Cornice ranging round the whole Building; called by *Vitruvius*, *Stereobata*, and the *French*, *Soubaiſſement*. See Stereobata.

SOCOME, in our Law-Books, &c. a Cuſtom of grinding at the Lord's Mill. There is *Bond Socome*, where the Tenants are bound to it, and *Love Socome*, where they do it freely, out of Love to the Lord.

SOCRATIC-*Philoſophy*, the Doctrines and Opinions, with regard to Morality and Religion, maintained, and taught by *Socrates*. See Philosophy.

By the Character of *Socrates*, left us by the Ancients, particularly his Scholar *Plato*, *Laertius*, &c. He appears to have been one of the beſt, and the wiſeſt Perſons in all the Heathen World.

To him is aſcribed the firſt introducing of Moral Philoſophy; which is what is meant by that popular Saying, *Socrates firſt called Philoſophy down from Heaven to Earth*; that is, from the Contemplation of the Heavens and heavenly Bodies, he led Men to conſider themſelves, their own Paſſions, Opinions, Faculties, Duties, Actions, &c.

While young, he was exceedingly fond of natural Knowledge, as he witneſſes of himſelf in *Plato*: But in his older Age, he caſt aſide this part of Philoſophy as obſcure, uncertain, impracticable, and even uſeleſs and impertinent; and applied himſelf wholly to moral or active *Philoſophy*.

'Twas he, firſt, who when all the other *Philoſophers* boaſted they knew all Things, own'd, ingenuouſly, he knew nothing; but this, that he knew nothing. Which *Pyrrho*, the Father of the *Sceptic Philoſophy*, improved on, when he ſaid he knew nothing; not even this, that he knew nothing. Yet in an Anſwer of the Oracle, it was pronounced; Ανδρῶν ἁπάντων Σωκράτης σοφώτατος. That *Socrates* was the Wiſeſt of all Men. See Pyrrhonian.

He was accuſed by *Anytus*, *Melitus* and *Lycon*, three Perſons, whoſe Hatred he had incurred, by his ſevere Declamations againſt the Poets, of which Number two of the firſt were, and the Third an Actor. His Accuſation was, That he corrupted the *Athenian* Youth, and broached new Superſtitions. He was condemned to drink Cicuta, by 281 Votes, as we are told by *Quintilian*.

After his Death, his Fellow-citizens repented to that degree, that the *Gymnaſia*, Courts of Juſtice, &c. were all ſhut up; *Melitus* put to Death, *Anytus* baniſh'd, and a Statue erected to *Socrates*. He wrote nothing himſelf; yet almoſt all the Sects of Philoſophers refer their Origin to his Diſcipline; particularly the *Platoniſts*, *Peripateticks*, *Academicks*, *Cyrenaicks*, *Stoicks*, &c. But the greateſt Part of his *Philoſophy*, we have in the Works of *Plato*. See Platonic *Philoſophy*; ſee alſo Academic, Peripatetic, Stoic, &c.

SODOMY, an unnatural Crime, thus called from the City of *Sodom*, which was deſtroy'd by Fire for the ſame. See Buggery.

The *Levitical* Laws adjudged thoſe guilty of this execrable Evil to the Fire, *Lev. c.* 18 and 20. And the Civil Law aſſigns the ſame Puniſhment. Our Laws make it Felony.

SOFA, in the *Eaſt*, is a kind of Alcove, raiſed half a Foot above the Floor of a Chamber or other Apartment, and eſteem'd the Place of State, where Viſitors of Diſtinction are received.

Among the *Turks*, the whole Floor of their State-Rooms is cover'd with a kind of Tapiſtry, and on the Window-ſide is raiſed a *Sofa* or *Sopha*, laid with a kind of Matraſs, cover'd with a Tapiſtry much richer than the other. On this Tapiſtry the *Turks* are ſeated, both Men and Women, like the Taylors in *England*, croſs-legg'd, leaning againſt the Wall which is bolſter'd with Velvet, Sattin or other Stuff ſuitable to the Seaſon. Here they eat their Meals, only laying a Skin over the Tapiſtry, to ſerve as a Table-cloath, and a round wooden Board over all, cover'd with Plates, *&c.*

The Embaſſadors of *France* ſtood out a long while, and refuſed to viſit the Grand Vizier, unleſs he'd receive them on the *Sofa*: At length he granted them the *Sofa*.

SOFFITO or SOFIT, in Architecture, any Plafond or Ceiling, form'd of croſs Beams, or flying Cornices, the ſquare Compartiments or Pannels whereof are inrich'd with Sculptures, Painting, or Gilding. Such are thoſe we ſee in the Baſilics and Palaces of *Italy*, in the Apartments at *Luxembourg*, at *Paris*, *&c.* See CEILING.

The Word is *Italian*, and ſignifies the ſame with the *Latin*, *Lacunar* and *Laquear*; with this Difference, that *Lacunar* is uſed for any Ceiling, with ſquare, hollow Pannels, called *Lacus*; and *Laquear* for Compartiments interlaced with Plat-bands, after the manner of Knots or *Laquei*.

SOFFITO or *Sofit*, is particularly uſed for the under Side or Face of an Architrave; and for that of the Corona or Larmier, which the Ancients called *Lacunar*, and we uſually, *Plafond*. See PLAFOND.

It is enrich'd with Compartiments of Roſes; and in the *Doric* Order has 18 Drops, diſpoſed in three Ranks, Six in each, placed to the Right of the Guttæ, at the Bottom of the Triglyphs. See GUTTÆ, DORIC, ARCHITRAVE, *&c.*

SOFI, *&c.* See SOPHI.

SOFTENING, in Painting, the mixing and diluting of Colours with the Bruſh or Pencil.

They alſo ſay, *ſoften* Deſigns in Black and White, made with the Pen, *&c.* to weaken the Teint. To *ſoften* a Portrait, according to *Felibien*, is to change ſome of the Stroaks, and give a greater Degree of Sweetneſs and *Softneſs* to the Air thereof, which before had ſomething rough and harſh in it.

SOIL, in Agriculture, Gardening, *&c.* denotes Earth or Ground conſider'd, with regard to the Quality of its Mould, for the Production and Growth of Vegetables. See EARTH, MOULD, VEGETABLES, *&c.*

M. *Bradley* reduces all *Soils* to three Heads, *viz. Sand*, *Loam* or *Mother-Earth*, and *Clay*. See SAND, LOAM and CLAY.

Gravels and all the open *Soils*, till we come at Loam, are of the *ſandy* Race; and the binding Earths, from Loam down to the Stiffneſs of Chalk, may be ranged under the *Clay*-kind.

Loam or Mother-Earth, is the Medium between the Two, and includes all the intermediate Kinds.

Each of theſe *Soils* tends alike to Vegetation; and each has its Salts proper thereto; but in different Proportions: A Peck of Clay having twice as much Salts in it as the ſame Quantity of Loam; and four Times as much as Sand.

Now, 'tis found to be the Salts or Juices of the *Soil*, not the Earth itſelf, that Plants are fed and ſubſiſted by. (For in many Experiments of Vegetation, where Plants of Fifteen or Twenty pound Weight have been produced, there has been no ſenſible Diminution in the Weight of the Earth). See VEGETATION.

Hence, at firſt Sight, it might ſeem, that Clay were the moſt proper, and Sand the leaſt proper *Soil* to promote the Growth of Plants; which is contrary to Experience. The Reaſon is, that the Parts of Clay being cloſe wrought together, do not ſo eaſily give out their Salts; nor can the tender Fibres of many Plants make their Way through it, in ſearch of their Food. But if its Parts be well open'd, by digging and breaking it into very ſmall Pieces, and thoſe Parts be kept open by a Mixture of ſome ſharp Sand, or other like Matter, that Author adds, we ſhall ſee the Effects of its Vigour. Sand, on the other hand, giving its Salts readily, puts forth its Plants very early, and will make them germinate a full Month ſooner than Clay; but as it is haſty, 'tis ſoon ſpent. The Sun's Warmth calls up all its Salts early in the Spring, and there is but little left for them to ſubſiſt long on, if the Heat continue.

Each Kind has its peculiar Plants, which will not grow on the other; but the peculiar Plants of both the other two will grow in Loam, as partaking equally of the Qualities of both. Loam, then, muſt be allowed the beſt and moſt beneficial *Soil*, where it can be had: And where it cannot, if, by a Mixture of other Earths, we can make a Compoſt to reſemble it; we have more to expect from it, eſpecially in Plantations of durable Trees, than from a Compoſition of Dung or other forcing Ingredients, which, like Exceſs of high intemperate Foods and Liquors, though they give a haſty Growth, yet make the Thing ſhort-lived. The Compoſition or *Soil* here meant, is equal Quantities of Sand and Clay well mix'd. See TIMBER; ſee alſo HOT-BED.

Generally, a Mixture of two or three *Soils*, is better than any ſimple *Soil*; eſpecially where the Hot and Dry are mix'd with the Cold and Moiſt. Clay laid on Sand or Gravel, or Sand on Clay, is the beſt Manure. See MANURE.

But 'tis not the Nature of the *Soil* alone; but its Depth is alſo to be regarded, and what *Soil* is underneath. For the beſt *Soil*, if it be not above a Foot deep, and lie on a ſtiff Clay, or hard cold Stone, is not ſo fertile as a leaner *Soil* of greater Depth, or lying on a warm Lime-ſtone, Sand or Gravel, through which the ſuperfluous Moiſture may deſcend, and not ſtagnate on the Clay or Stone, to chill the Roots of Plants.

Indeed, Regard is to be had to the Climate; for even in *England*, cold, moiſt Clays are more fruitful in the South than the North.

Some general Rules with reſpect to *Soils*, are as follow. 1° All Land that moulders to Duſt with Froſt, with all ſorts of warm Lands, black Mould, yellow Clay, (if not too wet) and that turns Black after Rain, are good for Corn. 2° Lands bringing forth large Trees and Weeds, Black-Thorn, Thiſtles, rank Graſs, *&c.* generally prove fruitful. 3° Straw-berries, Betony, Thyme, *&c.* give Indication to Wood, and Camomile to a Mould diſpoſed for Corn. 4° All Land that binds after Froſt and Rain, that turns White and full of Worms, that is extremely moiſt, bears Holly, Yew, Box, Broom, Heath, Moſs, *&c.* is of a cold Temperature. 5° Black, Dun and Yellow Sand, and hot, ſtony Gravel, are generally unfruitful. See GARDEN, ORCHARD, BILL, PARLIAMENT, *&c.*

SOIT *fait comme il eſt deſire*, Be it done as 'tis deſired; a Form uſed when the King gives the Royal Aſſent to a private Bill preferr'd in Parliament.

SOKA, *Soke*, *Soc*, in ancient Cuſtoms, the Privilege of Tenants excuſed from cuſtomary Impoſitions. See SOC.

It alſo denotes the Territory wherein the chief Lord exerciſed his Liberty of keeping Courts within his own Domains.

Alſo a Quit-Rent, or Payment made to the Lord by his Tenant, for acting in Quality of a *Soc-man* or Freeholder. See SOCAGE.

The Rent-gatherer in the *Soka*, was called *Soke-Reeve*.

SOL, in Muſic, the Fifth Note of the Gamut: Ut, Re, Mi, Fa, Sol. See NOTE and GAMUT; ſee alſo MUSIC.

SOL or *Sou*, Shilling, a *French* Coin, of Billon, *i. e.* Copper with a little Silver mix'd; equal to Twelve Deniers or Pence; and the 20th Part of the Livre or Pound. See SHILLING; ſee alſo DENIER and LIVRE.

The *French Sol* is rated at one Tenth Part leſs than the *Engliſh* Penny. See COIN, PENNY, *&c.*

The Word is form'd from the *Latin Solidus*, Shilling. *Bodin* is miſtaken, when he derives it *à Sole*, by reaſon of the Sun ſtruck on it.

The *Sol* was firſt ſtruck on the Foot of 12 Deniers Tournois, whence it was alſo called *Douzain*, a Name it ſtill retains, tho' its ancient Value be changed; the *Sol* having been ſince augmented by Three Deniers, and ſtruck with a Punchion of a *Flower de Lys*, to make it Current for 15 Deniers. Soon after, the old *Sols* were coin'd over again, and both Old and New indifferently Current for 15 Deniers. In 1709, the Value of the ſame *Sols* was raiſed to 18 Deniers. Towards the latter End of the Reign of *Louis* the Fourteenth, the *Sols* of 18 Deniers were again lowered to 15, where they now ſtand.

The *Dutch* have alſo two Kinds of *Sols*: The one of Silver, called *Sols de gros*, and likewiſe *Schelling*. See SCHELLING. The other of Copper, called alſo *Stuyver*. See STUYVER.

In old Authors we read of Gold *Sols*, which were different at different Times. In the Time of the *Salic* Law, the *Sol* was Forty Deniers; and thus it continued till the Time of King *Pepin*, when it was reduced to Twelve. Some have imagined, that the *French* had anciently Silver *Sols*.

SOL, in Aſtrology, *&c.* ſignifies the Sun. *Sol* in Aries, *&c.* See SUN.

SOL, in the Hermetical Philoſophy ſignifies Sulphur. See SULPHUR.

SOL, *Sun*, in Chymiſtry, is Gold; thus called from an Opinion, that this Metal is, in a particular Manner, under the Influence of that Luminary. See GOLD.

What ſhould have been the principal Inducement of torturing this Metal, with ſo much Violence to obtain from it ſome medicinal Virtues, Dr. *Quincy* obſerves, is not eaſy to be gueſs'd; unleſs it was to keep up the Authority of an ill-deſerved Regard, and a Jealouſy, that they could not be well in the common Opinion for Phyſicians, who could not do extraordinary Things in their Profeſſion with a Metal, which had ſuch a prodigious Influence on other Accounts. Many, indeed, there have been, who have honeſtly oppoſed this Artifice; but the contrary Sides have a long Time prevailed, and to ſuch a Degree, that this Metal itſelf has not only been transformed into all the Shapes imaginable for medicinal Purpoſes; but even its Name has been transferr'd to do Honour to, and enhance the Price of many other worthleſs Preparations, that bore any Reſemblance to its ſenſible Qualities.

Hence many Tinctures of a yellow Colour, are preſently the *Golden Tincture* of ſomething or other.

Moſt, indeed, acknowledge, that Gold in Subſtance, or reduced into the ſmalleſt Particles by the Hammer, as in the Leaf-Gold, is not digeſtible in the Stomach, ſo as to be tranſmitted into the Blood, and be of any Efficacy there. But there are, nevertheleſs, many, who are confident of its doing extraordinary Matters, if reduced into a Powder, by Amalgamation with Mercury, and by evaporating the Mercury afterwards.

Zacutus Luſitanus, is one of the ſmarteſt Pleaders on this ſide the Controverſy, againſt *Muſa*, *Picus Mirandola* and *Platerus*; who, beſides many Inſtances of its Efficacy, urges the Authority of *Avicen*, *Serapion*, *Geber* and many of the *Arabian* Phyſicians, with thoſe of other Countries, and of later Date. *Quercetan*, *Schroder*, *Zwelfer* and *Etmuller*, with many other more modern, practical Phyſicians, fell into the ſame Opinion. But which ſide ſoever is in the right, the preſent Practice rejects all Pretenſions to Medicine from it.

SOL, in Heraldry, the Gold Colour in the Arms of Sovereign Princes. See METAL.

SOLAR, ſomething belonging to the Sun. See SUN.

Thus we ſay, SOLAR *Fire*, in contradiſtinction to *Culinary Fire*. See FIRE.

The SOLAR *Year*, which conſiſts of 365 Days, 5 Hours, 49 Minutes; in Oppoſition to the *Lunar Year*, which only conſiſts of 354 Days. See YEAR.

The *Solar Year*, is either *Tropical*, or *Siderial*.

Tropical Year, is that Space of Time, wherein the Sun returns again to the ſame equinoctial or ſolſtitial Point; which is always equal to 365 Days, 5 Hours, and about 49 Minutes. The *Siderial* Year, is the Space wherein the Sun comes back to any particular, fixed Star; which is about 365 Days, 8 Hours, and 9 Minutes. See SIDERIAL, &c.

SOLAR *Syſtem*, the Order and Diſpoſition of the ſeveral heavenly Bodies, which revolve round the Sun as the Centre of their Motion, *viz.* the *Planets*, Primary and Secundary, and the *Comets*. For a Scheme of the Solar Syſtem, ſee SYSTEM.

SOLAR *Eclipſe*, is a Privation of the Light of the Sun, by the Interpoſition of the opake Body of the Moon. See ECLIPSE.

SOLAR *Spots*,	See	SPOTS.
SOLAR *Cycle*,		CYCLE.
SOLAR *Month*,		MONTH.

SOLDER, popularly called *Sodder*, a metallic or mineral Compoſition, uſed in *Soldering* or joyning together other Metals.

Solders are made of Gold, Silver, Copper, Tin, Glaſs of Tin, and Lead; always obſerving, that in the Compoſition, there be ſome of the Metal to be *Solder'd*, mix'd with ſome higher and finer Metals.

Goldſmiths make four Kinds of *Solder*, *viz.* *Solder* of Eight; where, to ſeven Parts of Silver there is one of Braſs or Copper. *Solder* of Six, where only a ſixth Part is Copper. *Solder* of Four: and *Solder* of Three. 'Tis the Mixture of Copper in the *Solder* that makes raiſed Plate always come cheaper than flat.

The *Solder* uſed by Plumbers, is made of two Pounds of Lead to one of Tin. Its Goodneſs is tried by melting it, and pouring the bigneſs of a Crown-piece on a Table; for, if good, there will ariſe little, bright, ſhining Stars therein. See PLUMBERY.

The *Solder* for Copper is made like that of the Plumbers; only, with Copper and Tin: For very nice Works, inſtead of Tin, they ſometimes uſe a Quantity of Silver. See COPPER.

Solder for Tin, is made of two Thirds of Tin, and one of Lead; but where the Work is any thing delicate, as in Organ-pipes, where the Juncture is ſcarce deſcernible, 'tis made of one Part of Tin of Glaſs, and three Parts of Pewter. See TIN.

The Duke of *Florence*'s Nail, anciently ſo much admired, as being half Iron and half Gold, when as thoſe Two Metals were deem'd irreconcileable; was joyn'd by a kind of *Solder*, made by *Turneiſſer*, an ingenious Chymiſt of *Venice*: The Secret whereof, was never diſcover'd till publiſh'd by *Tachenius*. The *Solder* is nothing but a little Copper or Cyprus Vitriol put between the Gold and the Iron. For, naturally, the great Acidity of the Gold, reduces the Iron into a Scoria or Ruſt; when the Two are applied immediately over one another; but this Difficulty is removed, by the Interpoſition of a little Copper, be it in the ſmalleſt Quantity imaginable.

The Word is form'd from the *Latin*, *Solidare*, to ſtrengthen.

SOLDERING, or *Soddering*, among Mechanicks, the joyning and faſtening together of two Pieces of the ſame Metal, or of two different Metals, by the Fuſion and Application of ſome metallic Compoſition on the Extremities of the Metals to be joyn'd. See SOLDER.

Goldſmiths *Solder* with Gold, Silver and Copper mix'd together: Plumbers with Lead and Tin. See PLUMBERY, &c.

Copper is uſually *Solder'd* with Tin; ſometimes, according to the Work, with a Mixture of Copper and Silver. In the *Soldering* of all theſe Metals, they generally uſe Borax in Powder, and ſometimes Roſin. As to Iron, 'tis ſufficient that it be heated red-hot; and the two Extremities, in this State, hammer'd together. By this means they become incorporated together. See BRAZING.

SOLDIER, a military Man, ſerving a Prince in War, in Conſideration of a certain *Solde* or daily Pay. See MILITARY.

The *Soldier* is he who takes Pay; the Vaſſal he who ſerves at his own Expences. See VASSAL and SERVICE.

Du Cange obſerves, that the ancient *Soldiers* were not to be ſhort of Five Foot and a Half; and that this Meaſure was called *Incoma*.

The Word is form'd from the *Italian*, *Soldato* of the *Latin Solida* or *Solidus*, the Solde or Pay. *Paſquier* derives it from the old *Gauliſh* Soal doyer. And *Nicod* from *Soldurius*. See SOLDURII.

SOLDURII, in Antiquity, a kind of Clients or Retainers to the great Men in *Gaul*, particularly *Aquitania*; mentioned by *Cæſar*.

The *Soldurii* were People, who ſhared all the good and all the ill Fortune of their Patrons; To whom, if any Diſaſter happened, they either underwent the very ſame, or kill'd themſelves; and *Cæſar* aſſures us, that no one had ever been known to refuſe the Alternative, *Lib.* III. *de Bel. Gal.* *Vigenerius* takes them to have been more than common Soldiers, and even Gentlemen in Penſion, or Appointment. *Atheneus* calls them Συναποθνήσκοντες, *q. d.* who die with their Maſters.

SOLECISM, or *Solœciſm*, in Grammar, a groſs Impropriety in Speech, contrary to the Uſe of the Language, and the Rules of Grammar, either in reſpect of Declenſion, Conjugation or Syntax.

An Actor on the *Roman* Theatre having made a wrong Geſture; the Audience immediately cried out he had committed a *Soleciſm* with his Hand. Ablanc.

SOLECISMS, on ſome Occaſions, are pardonable. *Impetratum eſt a ratione ut peccare ſuavitatis cauſa liceret.* *Vaugelas* is frequently repeating that of *Quintillian*: *Aliud eſt Latinè, aliud Grammaticè loqui.* *Baltaſar Stolberg* has a *Latin* Treatiſe of the *Soleciſms* and Barbariſms falſely attributed to the *New Teſtament*. See BARBARISM.

The Word is *Greek*, σολοικισμὸς, derived from the *Soli*, a People of *Attica*, who being tranſplanted to *Cilicia*, loſt the Purity of their ancient Tongue, and became ridiculous to the *Athenians* for their Improprieties therein.

SOLEMN, ſomething perform'd with much Pomp, Ceremony and Expence.

Thus we ſay, *Solemn Feaſts*, *Solemn Funerals*, *Solemn Games*, &c. See FEAST, GAME, &c.

SOLEMN, in Law, ſignifies ſomething Authentic, or that is cloath'd in all its Formalities. A *Solemn Teſtament*, in the Civil Law, is to be atteſted by ſeven Perſons, and ſeal'd with their Seals.

A *Solemn Marriage*, is that perform'd in one's own Pariſh Church, after Publication of the Bans, and in Preſence of Witneſſes.

SOLET *and Debet*. See DEBET *and Solet*.

SOLE-*Tenant*, in Law, is he or ſhe, who holds only in his or her own Right, without any other Perſon joyn'd. See TENANT.

E. gr. If a Man and his Wife hold Land for their Lives, the Remainder to their Son; Here, the Man dying, the Lord ſhall not have Heriot, becauſe he dies not *Sole Tenant*.

SOLEUS, in Anatomy, a Muſcle called alſo *Gaſtrocnemius Internus*. See GASTROCNEMIUS.

SOL-FA-ING, in Muſic, the naming and pronouncing of the ſeveral Notes of a Song, by the Syllables *Sol*, *Fa*, *La*, &c, in learning to ſing it. See NOTE.

Of the Seven Notes in the Scale, *ut*, *re*, *mi*, *fa*, *ſol*, *la*, *ſi*; only Four are in Uſe among us, *viz.* *fa*, *ſol*, *la*, *mi*. Their Office is principally in Singing: that by applying them to every Note of the Scale, it may not only be pronounced more eaſily; but chiefly, that by them, the Tones and Semi-tones of the natural Scale, may be better mark'd out and diſtinguiſh'd.

This Deſign is obtained by the Four Syllables, *fa*, *ſol*, *la*, *mi*; thus, from *fa* to *ſol* is a Tone; alſo from *ſol* to *la*, and from *la* to *mi*, without diſtinguiſhing the greater or leſſer Tone; but from *la* to *fa*, alſo from *mi* to *fa*, is a Semi-tone.

If, then, theſe be applied in this Order, *fa*, *ſol*, *la*, *fa*, *ſol*, *la*, *mi*, *fa*, *&c.* They expreſs the Natural Series from *c*; and if that be to be repeated to a Second or Third Octave, we ſee by them how to expreſs all the different Orders of Tones and Semi-tones in the Diatonic Scale; and ſtill above *mi*, will ſtand *fa*, *ſol*, *la*; and below it, the ſame reverſed, *la*, *ſol*, *fa*; And one *mi* is always diſtant from another by an Octave; which cannot be ſaid of any of the reſt becauſe after *mi* aſcending, comes always *fa*, *ſol*, *la*, *fa*, which are repeated invertedly, deſcending.

To conceive the Uſe of this: it is to be remember'd, that the firſt Thing in teaching to ſing, is to make one raiſe a Scale of Notes by Tones and Semi-tones to an Octave, and deſcend again by the ſame Notes, and then to riſe and fall by greater Intervals, at a Leap, as a Third, Fourth and Fifth, *&c.* And to do all this, by beginning at Notes of different Pitch. Then, theſe Notes are repreſented by Lines and Spaces, to which thoſe Syllables are applied, and the Learner taught to name each Line and Space, by its reſpective Syllable; which makes what we call *Sol-fa-ing*: The Uſe whereof is, that while they are learning to tune the Degrees and Intervals of Sound, expreſs'd by Notes ſet on Lines and Spaces; or learning a Song, to which no Words are applied; they may do it the better, by means of an articulate Sound: but, chiefly, that by knowing the Degrees and Intervals expreſs'd by theſe Syllables, they may more readily know the true Diſtance of Notes. See Singing.

Mr. *Malcolm* obſerves, that the Practice of *Sol-fa-ing*, common as it is, is very uſeleſs and inſignificant, either as to the Underſtanding or Practiſing of Muſic; yet exceedingly perplexing: The various Application of the ſeveral Names, according to the various Signatures of the Clef, are enough to perplex any Learner; There being no leſs than 72 various Ways of applying the Names *ſol*, *fa*, *&c.* to the Lines and Spaces of a particular Syſtem. See Scale.

SOLID, in Phyſicks, a Body whoſe minute Parts are connected together, ſo, as not to give Way, or ſlip from each other upon the ſmalleſt Impreſſion. See Solidity.

The Word is uſed in this Senſe, in Contradiſtinction to Fluid. See Fluid and Firmness.

For the Laws of Gravitation of Solids *immerged in Fluids Specifically lighter than the Solids* - - - - - - - *The Laws of Gravitation of* Solids *immerg'd in Fluids Specifically heavier* - - -	See Gravity.
To find the Specific Gravity of Solids - - - - - - - *To find the Ratio of the Specific Gravity of* Solids *to Fluids.*	See Specific *Gravity.*
The Laws of the Reſiſtance of Solids *moving in Fluids* - Solid *of the leaſt Reſiſtance* - -	See Resistance.

Solid, in Geometry, is a Magnitude indued with Three Dimenſions; or extended in Length, Breadth and Depth. See Dimension.

Hence, as all Bodies have theſe Three Dimenſions, and nothing but Bodies; *Solid* and *Body* are frequently uſed indiſcriminately. See Body.

A *Solid* is terminated, or contained under one or more Planes or Surfaces; as a Surface is under one or more Lines. See Surface and Line.

From the Circumſtances of the terminating Lines, *Solids* become divided into Regular and Irregular.

Regular Solids, are thoſe terminated by regular and equal Planes. See Regular.

Under this Claſs come the *Tetraëdron*, *Hexaedron* or *Cube*, *Octaëdron*, *Dodecaëdron* and *Icoſiëdron*. See Tetraedron, Cube, *&c.* each under its proper Article.

Irregular Solids, are all ſuch as do not come under the Definition of *Regular Solids*; ſuch are the *Sphere*, *Cylinder*, *Cone*, *Parallelogram*, *Priſm*, *Pyramid*, *Parallelopipid*, *&c.* See Sphere, Cylinder, Cone, *&c.* each under its proper Article.

The Geneſes, Properties, Ratio's, Conſtructions, Dimenſions, *&c.* of the ſeveral *Solids*, Regular and Irregular, Spherical, Elliptical, Conical, *&c.* See under each reſpective Heads.

Cubature or *Cubing of a* Solid, is the meaſuring of the Space comprehended under a *Solid*, *i. e.* the *Solidity* or *Solid Content* thereof. See Solidity.

Solid *Angle*, is that form'd by three or more plain Angles meeting in a Point: Or, more ſtrictly, a *Solid Angle*, as B, (Tab. Geometry, Fig. 30.) is the Inclination of more than two Lines, A B, B C, B F, which concur in the ſame Point B, and are in the different Planes.

Hence, for *Solid* Angles to be equal, 'tis neceſſary they be contained under an equal Number, of equal Planes, diſpoſed in the ſame manner.

And as *Solid* Angles are only diſtinguiſhable by the Planes under which they are contained; and as Planes thus equal, are only diſtinguiſhable by Compræſence, they are Similar; and conſequently Similar *Solid* Angles, are equal, & *vice verſa.* See Similar.

The Sum of all the Plane Angles conſtituting a *Solid* Angle, is always leſs than 360°; otherwiſe they would conſtitute the Plane of a Circle, and not a *Solid.* See Angle.

For the Method of Cubing the ſeveral Kinds of Solids; See Cubature.

Solid *Baſtion* Solid *Place*	See Bastion. Locus.

Solid *Numbers*, are thoſe which ariſe from the Multiplication of a Plain Number, by any other whatſoever. Thus 18 is a *Solid* Number, made of 6 (which is Plain) multiplied by 3; or of 9 multiplied by 2. See Number.

Solid *Problem*, in Mathematicks, is one which cannot be Geometrically ſolved, but by the Interſection of a Circle, and a Conic Section; or by the Interſection of two other Conic Sections, beſides the Circle.

Thus, to deſcribe an Iſoſceles Triangle on a given Right Line, whoſe Angle at the Baſe, ſhall be triple to that at the Vertex, is a *Solid* Problem. See Problem.

SOLIDITY, in Phyſicks, a Property of Matter or Body, whereby it excludes every other Body from the Place itſelf poſſeſſes.

Solidity is a Property common to all Bodies, whether Solid or Fluid. See Body.

The Idea of *Solidity*, Mr. *Lock* obſerves, ariſes from the Reſiſtance we find one Body make to the Entrance of another into its own Place. 'Tis uſually called *Impenetrability*; but *Solidity* expreſſes it beſt; as carrying ſomewhat more of poſitive with it than the other, which is negative.

Solidity, he adds, ſeems the moſt extenſive Property of Body; as being that whereby we conceive it to fill Space: 'Tis diſtinguiſh'd from meer Space, by this latter not being capable of Reſiſtance or Motion. See Space.

'Tis diſtinguiſh'd from *Hardneſs*, which is only a firm Coheſion of the Solid Parts, ſo as they mayn't eaſily change their Situation. See Hardness.

The Difficulty of changing Situation, gives no more *Solidity* to the hardeſt Body than the ſofteſt; nor is a Diamond a Jot more *Solid* than Water. By this we diſtinguiſh the Idea of the Extenſion of Body, from that of the Extenſion of Space: That of Body, is the Continuity or Coheſion of ſolid, ſeparable, moveable Parts; that of Space, the Continuity of unſolid, inſeparable, immoveable Parts. See Extension.

The *Carteſians*, however, will, by all means, deduce *Solidity*, or, as they call it, *Impenetrability*, from the Nature of Extenſion; and contend, that the Idea of the former, is contain'd in that of the latter; and hence argue againſt a *Vacuum.* Thus, ſay they, one Cubic Foot of Extenſion cannot be added to another, without having two Cubic Feet of Extenſion; for each has in itſelf, all that is required to conſtitute that Magnitude. And hence they conclude, that every Part of Space is Solid, or Impenetrable; inaſmuch as of its own Nature it excludes all others. But the Concluſion is falſe, and the Inſtance they give follows from this, that the Parts of Space are immoveable; not that they are Impenetrable or Solid. See Impenetrability.

Solidity, in Geometry, the Quantity of Space contain'd in a Solid Body; call'd alſo the *Solid Content*, and the *Cube* thereof. See Cubature.

The *Solidity* of a Cube, Priſm, Cylinder, or Parallelopipid, is had by multiplying its Baſis into its Height. See Cube, Prism, Cylinder, *&c.*

The *Solidity* of a Pyramid or Cone, is had by multiplying either the whole Baſe into a Third Part of the Height; or the whole Height into a third Part of the Baſe. See Pyramid and Cone.

To find the Solidity *of any Irregular Body.*

Put the Body in a hollow Parallelopipid, and pour Water or Sand upon it, and Note the Height of the Water or Sand A B (Tab. Geometry, Fig. 32.) then, taking out the Body, obſerve at what Height the Water (or Sand when levell'd) ſtands, as A C. Subtract A C from A B; the Remainder will be B C. Thus is the irregular Body reduced to a Parallelopipid, whoſe Baſe is F C G F; and Altitude B C. To find the *Solidity* whereof, ſee Parallelopipid.

Suppoſe, *E. gr.* A B 8, A C 5; then will B C be 3: Suppoſe, again, D B 12, D E 4; then will the *Solidity* of the irregular Body be found 144.

If the Body be ſuch, as that it can't be well laid in ſuch a kind of Channel; *E. gr.* if it be required to meaſure the

Solidity of a Statue, as it ſtands; a quadrangular Priſm or Parallelopipid is to be framed over it: the reſt as before.

To find the SOLIDITY *of a hollow Body.*

If the Body be not comprized in the Number of regular Bodies; its *Solidity* is found as in the preceding Problem. If it be a Parallelopipid, Priſm, Cylinder, Sphere, Pyramid or Cone; the *Solidity*, firſt of the whole Body, including the Cavity, then that of the Cavity, which is ſuppoſed to have the ſame Figure with the Body itſelf, is to be found, according to the reſpective Methods delivered under PARALLELOPIPID, PRISM, *&c.* For the latter being ſubtracted out of the former, the Remainder is the *Solidity* of the hollow Body required.

SOLIDITY, in Architecture, is applied both to the Conſiſtence of the Ground whereon the Foundation of a Building is laid; and to a Maſſive of Maſonry, of extraordinary Thickneſs, without any Cavity within.

The *Solidity* of the *Egyptian* Pyramids is inconceivable. See PYRAMID.

SOLIDS, in Anatomy, *&c.* all the continuous and continent Parts of the Body are thus call'd, in Oppoſition to the Fluids or the Parts contained therein. See BODY.

Of the *Solid* kind, are the Bones, Cartilages, Ligaments, Membranes, Fibres, Muſcles, Tendons, Arteries, Veins, Nerves, Glands, Lymphæducts and Lacteals. See BONE, CARTILAGE, LIGAMENT, *&c.* under their reſpective Articles.

Notwithſtanding the great Number and Appearance of the *Solids* of the Body; we find from the Microſcope, Injections, Veſicatories, Atrophies, *&c.* that the *Solid* Parts are exceedingly ſmall and inconſiderable, in compariſon of the Fluids. Nay, 'tis almoſt demonſtrable, from a Conſideration of the Riſe and Generation of the Veſſels, and the Reſolution of the greateſt Veſſels into their ſmalleſt conſtituent ones, that the whole Maſs of *Solids* in the Body, conſiſts merely of Fibres, as their common Elements. See FIBRE.

In, effect, the whole Maſs of *Solids*, as well as Fluids, a minute Stamen or Animalcule, only excepted, aroſe from a very ſubtile fluid Colliquament, not unlike the Nervous Juice; as is ſhewn by *Malpighi*, in his Treatiſe *de Ovo Incubato.* See EGG.

The White of the Egg never nouriſhes, till, from its natural Thickneſs, it have been brought, by Incubation, through innumerable Degrees of Fluidity, to become ſubtile enough to enter the minute Veſicles of the Stamen or Seed. The firſt, ſoft, tender *Solids* ariſing from this ſubtile Humor paſs through infinite, intermediate Degrees, e'er they arrive at their utmoſt *Solidity*. See GENERATION.

All the *Solids* therefore in our Bodies (unleſs any one will be ſo nice as to except the firſt Stamen) only differ from the Fluids, out of which they ariſe, by their Reſt, Coheſion and Figure; and a fluid Particle will become fit to form a Part of a *Solid*, as ſoon as there is a Force ſufficient to effect its Coheſion with the other *Solid* Parts. See NUTRITION.

SOLILOQY, a Reaſoning or Diſcourſe, which a Man holds with himſelf. See MONOLOGUE.

Papias ſays, that *Soliloquy* is properly a Diſcourſe by Way of Anſwer, to a Queſtion that a Man has propoſed to himſelf.

Soliloquies are become mighty common Things on the modern Stage; yet can nothing be more inartificial or more unnatural, than an Actor's making long Speeches to himſelf, to convey his Intentions, *&c.* to the Audience.

Where ſuch Diſcoveries are to be made, the Poet ſhould rather take Care to give the Dramatic Perſons ſuch Confidants, as may neceſſarily ſhare their inmoſt Thoughts; By which means, they will be more naturally convey'd to the Audience. Yet is even this a Shift, an accurate Poet would not be found to have Occaſion for. The Uſe and Abuſe of *Soliloquies*, is well delivered by the Duke of *Buckingham*, in the following Lines:

> Soliloquies *had need be very few,*
> *Extremely ſhort, and ſpoke in Paſſion too.*
> *Our Lovers talking to themſelves, for want*
> *Of others, make the Pit their Confidant:*
> *Nor is the Matter mended yet, if thus*
> *They truſt a Friend, only to tell it us.*——

SOLITARY, ſomething retired, or in private; remote from the Company, or Commerce of others of the ſame Species.

A *Solitary* COLUMN, is a Column that ſtands alone in any public Place; as the *Trajan* Column. See COLUMN.

A *Solitary* WORM, is a Worm ſometimes found in the Inteſtines, and which is always the only one of the Kind; as being placed in the Pylorus, and extending thence, the whole Length of the Inteſtines; ſo that there is no Room for another. See WORM.

SOLITARIES, is alſo the Title of the Nuns of S. *Peter* of *Alcantara*, inſtituted in 1676, by Cardinal *Barberin*, when Abbot of *Notre Dame de Farſa*, in that City.

They propoſe to imitate the ſevere, penitent Life of St. *Peter* of *Alcantara*; keep a continual Silence, never open their Mouths to any Body but themſelves; employ their Time wholly in ſpiritual Exerciſes, and leave the Temporal Concerns to a Number of Maids, who have a particular Superior in a ſeparate Part of the Monaſtery. They always go Bare-footed, without Sandals, gird themſelves with a thick Cord, and wear no Linnen.

SOLITAURILIA, in Antiquity. See SUOVETAURILIA.

SOLLICITOR, a Perſon employ'd to follow, and take care of Suits depending in Courts of Law, or Equity; formerly allowed only to Nobility, whoſe menial Servants they were; but now frequently uſed to others, to the great Increaſe of Champarty and Maintenance. See ATTORNEY.

SOLLICITOR *General*, hath his Office by Patent, during the King's Pleaſure.

The Attorney General, and he, had anciently a Right to their Writs of Summons, to ſit in the Lords Houſe on ſpecial Occaſions, till the 13th *Car.* II. ſince which, they have almoſt conſtantly been choſen Members of the Houſe of Commons. He has the Care and Concern of managing the King's Affairs, and hath Fees for Pleading, beſides other Fees ariſing by Patents, *&c.* He hath his Attendance on the Privy Council; and the Attorney General, and he, were anciently reckoned among the Officers of the Exchequer: They have Audience, and come within the Bar in all other Courts.

SOLSTICE, in Aſtronomy, the Time when the Sun is in one of the *Solſtitial Points*, that is, when he is at his greateſt Diſtance from the Equator; which is 23 Degrees and a Half; thus called, becauſe he then appears to *ſtand* ſtill, and not to change his Place in the Degrees of the Zodiac, any Way: An Appearance owing to the Obliquity of our Sphere, and which thoſe who live under the Equator are Strangers to. See SOLSTITIAL POINTS.

The *Solſtices* are Two, in each Year; the *Eſtival* or *Summer Solſtice*, and the *Hyemal* or *Winter Solſtice.*

The *Summer Solſtice*, is when the Sun is in the Tropic of *Cancer*; which is on the 11th of *June*; when he makes the longeſt Day. See TROPIC and DAY.

The *Winter Solſtice*, is when he enters the firſt Degree of *Capricorn*; which is on the 11th of *December*; when he begins to return towards us, and makes the ſhorteſt Day.

This is to be underſtood, as in our Northern Hemiſphere; for in the Southern, the Sun's Entrance into *Capricorn*, makes the *Summer Solſtice*, and that into *Cancer*, the *Winter Solſtice*. See ECLIPTIC, SUMMER, WINTER, *&c.*

SOLSTITIAL *Points*, are thoſe Points of the Ecliptic, wherein the Sun's Aſcent above the Ecliptic, and his Deſcent below it, are terminated. See POINT.

The firſt Point, which is in the beginning of the firſt Degree of *Cancer*, is called the *Eſtival* or *Summer Point*; and the latter, which is in the beginning of the firſt Point of *Capricorn*, the *Winter Point.* See SOLSTICE.

The *Solſtitial Points* are Diametrically oppoſite to each other.

SOLSTITIAL *Colure*, is that paſſing through the *Solſtitial Points*. See COLURE.

SOLUBLE, in Medicine, *Looſe*, or apt to go to Stool. See LAXATIVE, STOOL, *&c.*

Soluble Tartar, is a kind of Salt, chymically prepared, by boiling Eight Ounces of Cream of Tartar, with Four of Fix'd Salt of Tartar. See TARTAR.

SOLVENT, the ſame with Diſſolvent. See DISSOLVENT.

SOLUTIO *Continui*, or *Solution of Continuity*, a Term uſed by Phyſicians, *&c.* to expreſs a Diſeaſe common to the ſolid Parts of the Body, wherein their natural Coheſion is ſeparated.

If this happen to a ſimple, ſimilar Part of the Body; 'tis called, ſimply, *Solutio Continui.*

If on a compound, or organical Part, it acquires a particular Denomination, from the Nature of the Part, the Difference of the Cauſe, or the Manner of the Application; as, a *Wound*, *Rupture*, *Fracture*, *Puncture*, *Fiſſure*, *Contuſion*, *Ulcer*, *Corroſion*, *Dilaceration*, *Exfoliation*, *Caries*, &c. See WOUND, RUPTURE, FRACTURE, *&c.*

SOLUTION, in Algebra and Geometry, is the anſwering of a Queſtion; or reſolving any Problem propoſed. See RESOLUTION.

The *Solution* of the Problem of the Quadrature of the Circle, and that of the Duplicature of the Cube, by Right Lines, are held impoſſible. See QUADRATURE and DUPLICATURE.

SOLUTION *of Continuity*, in Chirurgery; See SOLUTIO *Continui.*

SOLUTION, in Phyſicks, the Reduction of a Solid, or firm Body, into a fluid State, by means of ſome Menſtruum. See MENSTRUUM.

Solution, is frequently confounded with what we otherwiſe call *Diſſolution*; but there is a Difference. See DISSOLUTION.

SOLUTION, in Chymiſtry, is ſomeimes uſed for the Analyſis, or Reduction of a natural Body into its chymical Principles. See PRINCIPLE and ANALYSIS.

In this Senſe, *Solution* is the ſame with what we otherwiſe call *Reſolution.* See RESOLUTION.

SOLUTIVE. See LAXATIVE.

SOMNAMBULI, an Appellation given to People, who walk in their Sleep; more uſually called *Noctambuli.* See NOCTAMBULI.

The Word is form'd from the *Latin*, *Somnus*, Sleep, and *Ambulo*, I walk.

SOMNIFEROUS. See SOPORIFEROUS.

SON, a relative Term, applied to a Male Child, conſider'd in the Relation he bears to his Parents. See FATHER.

The Children of the King of *England*, are called *Sons* and *Daughters* of *England.* See KING. The Eldeſt *Son* is born Duke of *Cornwal*, and created Prince of *Wales.* See PRINCE.

The younger *Sons* are called *Cadets.* See CADET.

The King of *France*'s Children were anciently call'd *Fils*, and *Filles de France*, *Sons* and *Daughters* of *France*; and the Grand-children, *Petits Fils*, and *Petites Filles de France.* At preſent, the Daughters are called *Mes-dames*, and the Grand-daughters, *Mes-demoiſelles de France.*

Natural SON } See { BASTARD.
Adoptive SON } { ADOPTIVE.

SON *of God*, a Term uſed in various Senſes, in the Holy Scriptures; as, 1°. For the *Word*, or the Second Perſon in the Bleſſed Trinity: who is thus called, with reſpect to the Manner of his Generation; as being begotten of the Father.

Him, the Orthodox believe to be Co-eternal, and Co-equal with the Father; and to have been with him, the eternal Principle and Source of the Holy Spirit. See TRINITY.

The Term *Son*, is applied to him, both before and after his Incarnation. Thus we ſay, The *Son* of God Created the World; the *Son* of God was Incarnate, and lived 33 Years on Earth, *&c.*

2° Several Creatures are alſo called *Sons of God*; not as being ſo by Nature and Generation; but on divers other Accounts. Thus the Angels are called *Sons of God* by *Job*; in reſpect of their Creation, Adoption, *&c.* And great Men are called *Sons of God* in the *Pſalms*; as being his Lieutenants; or, the Depoſitaries of his Authority. Good Men, and particularly the Elect, are alſo called *Sons of God*, in various Places of the Sacred Writings.

SON *of Man*, is frequently uſed in Scripture, to ſignify *Man*; as expreſſing not only the Nature of Man; but his Frailneſs.

The Expreſſion is very uſual among the *Hebrews* and *Chaldeans.* *Daniel*, *Ezekiel*, and *Jeſus Chriſt*, are particularly thus called; the Firſt once, and the Two latter, frequently.

Sometimes, the Word is alſo uſed for the Wicked and Reprobate; in contradiſtinction to thoſe call'd *Sons of God.*

SONATA, in Muſic, a Term called by the *Italians*, *Suonata*, of *Suono*, Sound, as ſignifying a Piece or Compoſition of Muſic, wholly executed by Inſtruments; and which is, with regard to the ſeveral Kinds of Inſtruments, what the *Cantata* is, with regard to Voices. See CANTATA.

The *Sonata*, then, is properly a grand, free, humorous Compoſition, diverſified with a great Variety of Motions and Expreſſions, extraordinary and bold Strokes, Figures, *&c.* And all this purely according to the Fancy of the Compoſer; who, without confining himſelf to any general Rules of Counter-Point, or to any fix'd Number or Meaſure, gives a Looſe to his Genius, runs from one Mode, Meaſure, *&c.* to another, as he thinks fit.

We have Cantata's of 1, 2, 3, 4, 5, 6, 7, and even 8 Parts; but uſually they are performed by a ſingle Violin, or with two Violins and a thorough Baſs for the Harpſichord, and frequently a more figured Baſs for the Baſs-Viol, *&c.*

There are a Thouſand different Species of *Sonata's*; but the *Italians* uſually reduce them to three Kinds: *Suonate de Chieſa*; that is, *Sonata's* proper for Church-Muſic, which uſually begin with a grave, ſolemn Motion, ſuitable to the Dignity and Sanctity of the Place and the Service; after which they ſtrike into a brisker, gayer and richer Manner. Theſe are what they properly call *Sonata's.*

The ſecond Kind comprehends the *Suonate de Camera*, or *Sonata's* proper for the Chamber, *&c.* Theſe are properly Series's of ſeveral little Pieces, proper for Dancing; only compoſed to the ſame Tune. They uſually begin with a Prelude or little *Sonata*, ſerving as an Introduction to all the reſt: Afterwards come the *Alleman*, *Pavan*, *Courant*, and other ſerious Dances; then *Gigues*, *Gavots*, *Minuets*, *Chacons*, *Paſſecailles* and other gayer Airs: The whole compoſed in the ſame Tone or Mode.

SONG, in Poetry, a little Compoſition, conſiſting of ſimple, eaſy, natural Verſes, ſet to a Tune, in order to be ſung. See SINGING.

Each Stanza of a *Song*, is called a *Couplet.* See STANZA and COUPLET.

The *Song* bears a deal of Reſemblance to the *Madrigal*; and more to the *Ode*, which is nothing but a *Song* according to the ancient Rules. See MADRIGAL and ODE.

Its Object is uſually either Wine or Love; whence M. *le Brun* defines a modern *Song*, to be either a ſoft and amorous, or a brisk and bacchic Thought, expreſs'd in a few Words.

Indeed, this is to reſtrain it to too narrow Bounds; for we have devout *Songs*, ſatyrical *Songs*, and panegyrical *Songs.*

But, be the *Song* what it will, the Verſes are to be eaſy, natural, flowing, and to contain a certain Harmony, which neither ſhocks the Reaſon nor the Ear; and which unites Poetry and Muſic agreeably together.

Anciently, the only Way of preſerving the Memory of great and noble Actions, was, by recording them in *Songs*; and in *America* there are ſtill People, who keep their whole Hiſtory in *Songs.* See DRUID.

SONG, in Muſic, is applied in the General, to any ſingle Piece of Muſic, whether contrived for a Voice or Inſtrument. See MUSIC and COMPOSITION.

A *Song*, Mr. *Malcolm* obſerves, may be compared to an Oration: For, as in this latter, there is a Subject, *viz.* ſome Perſon or Thing the Diſcourſe is referr'd to, and which is always to be kept in View throughout the whole; ſo, in every truly regular and melodious *Song*, there is one Note which regulates all the reſt; wherein the *Song* begins, and at laſt ends, and which is, as it were, the principal Matter, or muſical Subject, to be regarded in the whole Courſe of the *Song.* And, as in the Oration, there may be ſeveral diſtinct Parts, which refer to particular Subjects, yet muſt they have an evident Connection with the principal Subject, which regulates the whole; ſo in Melody, there may be ſeveral ſubprincipal Subjects, to which the different Parts of the *Song* may belong: But theſe are, themſelves, under the Influence of the principal Subject, and muſt have a ſenſible Connection with it. This principal or fundamental Note, is called the *Key of the Song.* See KEY.

SONNA, a Book of Mahometan Traditions, wherein all the Orthodox Muſſulmans are required to believe. See MAHOMETISM.

The Word ſignifies, in *Arabic*, the ſame with *Miſna* in the *Hebrew*, that is, *Second Law*, or, as the *Jews* call it, *Oral Law.* See MISCHNA.

The Adherents to the *Sonna* are called *Sonnites*: and as among the *Jews*, there is a Sect of *Caraites*, who reject the Traditions as Fables, invented by the Rabbins; there are alſo Sectaries among the *Mahometans*, called *Sciaites*, who reject the Traditions of the *Sonnites*; as being only founded on the Authority of an apocryphal Book, and not derived to them from their Legiſlator.

There is the ſame Enmity between the *Sonnites* and *Sciaites*, as between the rabbiniſt *Jews* and the *Caraites.* The *Sciaites* reproach the *Sonnites* with obtruding the Dreams of their Doctors, for the Word of God: And the *Sonnites*, in their Turn, treat the *Sciaites* as Hereticks, who refuſe to admit the divine Precepts, have corrupted the *Alcoran*, *&c.*

SONNET or *Sonetto*, in Poetry, a kind of Compoſition, contained in Fourteen Verſes, *viz.* two Stanza's or Meaſures of four Verſes each, and two of Three: The Eight firſt Verſes to be all in two Rhimes.

The *Sonnet* is of *Italian* Origin, and *Petrarch* is allowed to be the Father. 'Tis held the moſt difficult and artful of all poetical Compoſitions; as requiring the laſt Accuracy and Exactneſs. 'Tis to end with ſome pretty, ingenious Thought: The Cloſe to be particularly Beautiful.

In *Malherb*, and ſome other Poets, we meet with *Sonnets*, where the two firſt Stanza's are not in the ſame Rhime; but they are held irregular; and, in effect, great Part of the Merit of theſe Pieces, conſiſts in a ſcrupulous Obſervation of the Rules.

Ronſard, *Malherb*, *Maynard* and *Gombaut*, have compoſed abundance of *Sonnets*; but among two or three Thouſand, there are ſcarce Two or Three to be much admired.

Paſquier obſerves, that *du Bellai* was the Firſt who introduced *Sonnets* into *France.* But *du Bellai* himſelf ſays, That *Melin de S. Gelais*, firſt converted the *Italian Sonnets* into *French.*

SOOT, an earthy, volatile Matter, ariſing from Wood, Coals and other Fuel, along with the Smoak, by the Action of Fire; or, rather, it is the Smoak itſelf, fixed and gathered on the Sides of the Chimney. See SMOAK and FIRE.

Soot, is found an excellent Manure for Corn Lands, eſpecially where the Soil is cold. See MANURE.

The Dyers make conſiderable Uſe of *Soot*, for a kind of Dun Colour; which, 'tis true, has no agreeable Smell; but in Return has the Property of ſaving Cloaths and other Stuffs, from Moths.

Soot of Frankinſence, is the ſmalleſt and fineſt Part of the Incenſe, called *Olibanum*, or *Male Incenſe*; burnt after the manner of Roſin to make Lamp-black.

Dioſcorides ſhews how to make a Soot of Butter, which has ſeveral Uſes in Medicine.

The *Soot* found in the Furnaces of Glaſs-houſes, is uſed by Painters.

SOPHI or SOFI, a Title or Quality given the Emperor of *Perſia*.

The *Sophi*'s value themſelves, and with ſome Reaſon, of their illuſtrious Extraction; The Race being Second to none in the *Eaſt*. They are deſcended in a right Line from *Houſſein*, ſecond Son of *Ali*, *Mahomet*'s Couſin, and *Fatima*, *Mahomet*'s Daughter. There is no Prince in the World, whoſe Authority is more abſolute than that of the *Sophi* of *Perſia*. His Power is not even limited by any Laws he himſelf can make; but he ſuſpends, changes, and annuls them at Pleaſure.

The Title is ſaid to have taken its Riſe from a young Shepherd thus named, who attained to the Crown of *Perſia* in 1370. Others derive *Sophi*, from the *Sophi*'s or Sages, anciently called *Magi*.

Voſſius gives us a different Account of the Word. *Sophi*, in *Arabic*, he obſerves, ſignifies *Wool*, and adds, That it was applied by the *Turks* out of Deriſion to the Kings of *Perſia*, ever ſince *Iſhmael*'s Time, becauſe, according to the Scheme of Religion, he is to wear no other Covering on his Head, but an ordinary, red, woollen Stuff; whence the *Perſians* are alſo called *Kiſſelbais*, *q. d. Red-heads*. But *Bochart* ſays, That *Sophi*, in the original *Perſian* Language, ſignifies One that is pure in his Religion, and who prefers the Service of God in all Things; and derives it from

Sofi's or Sofees, a kind of Order of Religious among the *Mahometans* in *Perſia*; thus called, from a kind of coarſe Camelot which they wear, called *Souf*, from the City *Souf* in *Syria*, where 'tis principally manufactured.

Scheik Sofi, who laid the firſt Foundation of the Grandeur of the Royal Houſe of *Perſia*, was the Founder, or rather the Reſtorer of this Order. *Iſhmael*, who conquered *Perſia*, was, himſelf, a *Sofi*, and valued himſelf on his being ſo. He choſe all the Guards of his Perſon from among the Religious of this Order; and would have all the great Lords of his Court *Sofi*'s. The King of *Perſia* is ſtill Grand Maſter of the Order; and the Lords continue to enter into it, tho' it be now fallen into great Contempt.

The vulgar *Sofi*'s are now chiefly employ'd as Uſhers, and Attendants of the Court; and even as Executioners of Juſtice; and the Emperor laſt reigning, would not allow them, according to Cuſtom, to gird the Sword on him. This Neglect, into which the *Sofi*'s are fallen, has occaſioned the late Emperors to diſuſe the Title of *Sofi* or *Sophi*: However, *M. de la Croix* is miſtaken, when he ſays, That they never bore it. The more eminent of thoſe *Sofi*'s are called *Scheick*, *q. d.* Reverend.

SOPHISM, in Logic, a captious, fallacious Reaſoning; or an Argument, which with ſome Subtilty, carries much Appearance of Truth; but little Solidity. See Fallacy.

A *Sophiſm* is, properly an Argument falſe at bottom, and only invented to amuſe and embarraſs the Perſon to whom it is uſed. See Sophist.

Sophism's, or *Sophiſtical Arguments*, among Logicians, are particularly ſuch as are not in Form, or are founded on Equivocals; as, *You have every Thing you have not loſt*; *but you have not loſt Horns*: *Therefore you have Horns*.

SOPHIST, a Perſon who frames *Sophiſms*; that is, uſes ſubtile Arguments, with deſign to deceive thoſe he would perſuade or convince. See Sophism.

The Term *Sophiſt*, which is now reproachful, was anciently honourable; and carried a very innocent Idea. St. *Auguſtin* obſerves, it ſignified, ſimply, a Rhetor or Profeſſor of Eloquence; ſuch as were *Lucian*, *Athenæus*, *Libanius*, &c.

Suidas, and after him, *Olareus Celſius* in an expreſs Diſſertation on the *Greek Sophiſts*, tell us, That the Word was applied indifferently to all, who excelled in any Art or Science; whether Divines, Lawyers, Phyſicians, Poets, Orators or Muſicians. But this ſeems to be ſtretching the Senſe of the Word without all Meaſure. 'Tis poſſible a Rhetor might have made Verſes, *&c.* but that it was on account of his poetical Talent, that he was denominated *Sophiſt*, is what we ſee no Reaſon to apprehend. However, *Solon* is the Firſt who appears to have ever bore the Appellation; which is given him by *Iſocrates*: Afterwards, it was ſcarce ever given, but to Philoſophers and Declaimers.

The Title was in great Credit among the *Latins* in the XIIth Century, and in the Time of St. *Bernard*; but it began to loſe Ground in *Greece*, as early as *Plato*'s Time; on account of *Protagoras* and *Gorgias*, who made a ſordid Traffic thereof, by ſelling Eloquence for Money. Hence *Seneca* calls the *Sophiſts Charletans* or *Emperics*.

Cicero ſays, That the Title *Sophiſta* was given to ſuch as profeſs'd Philoſophy with too much Oſtentation, to make a Trade of it, by running from Town to Town, to retail their deceitful Science. A *Sophiſt*, therefore, was then, as now, a Rhetor, or Logician, who makes it his Buſineſs to enſnare and perplex People, by frivolous Diſtinctions, vain Reaſonings and captious Diſcourſes. Nothing has conduced more to the Increaſing of the Number of *Sophiſts*, than the contentious School Philoſophy. People are there taught to puzzle and obſcure the Truth, by barbarous, unintelligible Terms, as *Antipredicaments*, great and little *Logicals*, *Quiddities*, &c.

The Title of *Sophiſt* was given to *Rabanus Maurus*, by way of Eminence. *John Hincton*, an *Engliſh* Scholaſtic Writer, endeavoured to get, and bear, as a Credit to him, the Title of *Sophiſt*.

The Word is form'd from the *Greek* σοφὸς, Wiſe; or rather from σοφιστὴς, Impoſtor, Deceiver.

SOPHISTICATION, in Chymiſtry, Alchymy, *&c.* a Term particularly applied to the Counterfeit Works of fraudulent Alchymiſts, who uſe indirect Means of whitening Copper, gilding Silver, and giving other ſuperficial Tinctures; as alſo of making Augmentations, by divers Mixtures, and other illegal Operations, to delude thoſe, at whoſe Expence they are employ'd.

Hence the Term is alſo applied to Merchandizes, and other Goods adulterated, mix'd or alter'd by the Deceit of the Seller.

Muſc, at preſent, is almoſt all *Sophiſticated*, as well as Bezoard, Balm of *Gilead*, Lapis Lazuli, and other valuable Drugs. *Canary* Wines are *Sophiſticated* on the Place, before ever they come near our Ports.

SOPORIFIC, *Soporiferous* or *Soporative*, a Medicine that has the Faculty of procuring Sleep. See Sleep.

Such are Opium, Laudanum, *&c.* See Opiate.

The Word is form'd from the *Latin*, *Sopor*, Sleep: The *Greeks*, in lieu hereof, uſe the Word *Hypnotic*; which ſee.

SOPOROUS or *ſleepy* Diſeaſes, are the *Coma* or *Catephora*, *Lethargy* and *Carus*, which rather appear to differ as to more or leſs, than as to Eſſence.

In this they all agree, That they induce a morbific Sweat. See Coma, *&c.*

SORBONNE, the Houſe or College of the Faculty of Theology, eſtabliſhed in the Univerſity of *Paris*. See College.

It was founded in 1252, by St. *Louis*, or rather by *Robert de Sorbon* his Confeſſor and Almoner; firſt, Canon of *Cambray*, and afterwards of the Church of *Paris*. He gave his new Houſe his own Name; which he himſelf took from the Village of *Sorbon*, or *Serbon*, near *Sens*, where he was born. The Foundation was laid in 1250: Queen *Blanche*, in the Abſence of her Husband, furniſhing him with a Houſe before the Palace of *Julian* the Apoſtate, whereof ſome of the Remains are ſtill ſeen. Afterwards, the King gave him all the Houſes he had in the ſame Place, in exchange for ſome others in another.

The College has been, ſince, magnificently rebuilt by the Cardinal *de Richelieu*. The Deſign of its Inſtitution, was for the Uſe of poor Students in Divinity.

There are Lodgings in it for 36 Doctors, who are ſaid to be of the *Society of the Sorbonne*. Thoſe admitted into it without being Doctors, are ſaid to be of the *Hoſpitality of the Sorbonne*. Six Regent Doctors hold Lectures every Day, for an Hour and Half each: Three in the Morning, and Three in the Afternoon. See Doctor.

Sorbonne is alſo uſed in the General, for the whole Faculty of Theology at *Paris*: In regard the Aſſemblies of the whole Body are held in the Houſe of the *Sorbonne*; and that the Bachelors of the other Houſes of the Faculty, as the Houſe of *Navarre*, *&c.* come here to hold their *Sorbonnique* or Act, for being admitted Doctor in Divinity. See Faculty.

SORCERY, the Crime of Witchcraft, or Divination by the Aſſiſtance of the Devil. See Magic, Witchcraft and Divination.

Some hold *Sorcery* to be properly what the Ancients call *Sortilegium*, or Divination by means of *Sortes* or *Lots*. See Sortes.

My Lord *Coke*, 3d *Inſt. Fol.* 44. deſcribes a *Sorcerer*, *Qui utitur Sortibus in cantationibus Dœmonum*. *Sorcery* is Felony, by *Stat.* 1° *Jac.* In the Mirror, *Sorcery* is ſaid to be a Branch of Hereſy; and by *Stat.* 12. *Car.* II. it is excepted out of the general Pardons.

Sorcery was a Thing formerly very common; at leaſt the Credulity of thoſe Ages made it paſs for ſuch; and People ſuffered frequently for it. In a more knowing and leſs believing Age, 'tis out of Doors.

In effect, the moſt probable Opinion is, That the ſeveral glaring Inſtances of *Sorcery* we meet withal, in our old Law-Books and Hiſtorians, if well enquired into, would be found, at Bottom, no other than artful Poiſonings.

SORITES, in Rhetoric, *&c.* a kind of Argument, wherein a Number of Propoſitions are gradually and minutely laid together; and ſomething inferred from the whole: Whence *Cicero* calls it *Syllogiſmus acervatus*, a Syllogiſm heaped up or accumulated.

Such was that merry Way *Themiſtocles* uſed of proving, That his little Son, under Ten Years old, commanded the whole World; thus: My Son commands his Mother; his Mother me; I the *Athenians*; the *Athenians* the *Greeks*;

Greece commands *Europe*: *Europe* the whole World: Therefore my Son commands the whole World.

This Method of Diſputing, prevailed much among the Stoicks; eſpecially with *Zeno* and *Chryſippus*. But 'tis very captious and ſophiſtical.

The Word is formed from the *Greek* σωρὸς, cumulus, Heap.

SORRANCES, among Farriers, is uſed to ſignify two Things, *viz.* either an ill State or Habit of a Horſe's Body, ariſing from ſome Part diſeaſed; or a Looſening and Solution of the Continuity of the Parts, which according to the various Circumſtances thereof, acquires various Names, as *Fracture*, *Wound*, *Ulcer*, *Rupture*, *Convulſion*, *Cramp*, *Excoriation*.

SORTES, in Antiquity, *Lots*, a Method of deciding dubious Caſes, where there appears no ground for a Preference, by referring the Thing to the Conduct of Chance; as in caſting of Dice, drawing of Tickets, &c. See CHANCE.

The ancient *Sortes* or *Lots*, were inſtituted by God himſelf; and in the Books of the *Old Teſtament*, we meet with divers ſtanding and perpetual Laws, and divers particular Commands, preſcribing and regulating the Uſe thereof. Thus the Scripture informs us, That the *Lot* fell on St. *Matthias*, when a Succeſſor to *Judas* in the Apoſtolate was to be choſen. And our Saviour's Garment itſelf, was caſt *Lots* for. *Sortiti ſunt Chriſti Veſtem.*

The SORTES *Præneſtinæ*, were famous among the *Greeks*. The Method of theſe, was to put an Infinity of Letters, or even whole Words into an Urn; to ſhake them together, and throw them out; and whatever ſhould chance to be made out in the Arrangement of the Letters, &c. compoſed the Anſwer of this Oracle.

In what Repute ſoever, this Method of Divination might, anciently, have been, M. *Dacier* obſerves, That in *Cicero*'s Time its Credit was low; inſomuch that none but the credulous Populace had recourſe to it.

In lieu of this, another kind of *Sortes* was introduced into *Greece* and *Italy*, which was to take ſome celebrated Poet, as *Homer*, or *Euripides*, or *Virgil*, to open the Book, and whatever firſt preſented itſelf to the Eye upon opening, was taken for the Ordinance of Heaven. This made what they call'd *Sortes Homericæ*, and *Sortes Virgilianæ*; which ſucceeded to the Uſe of the *Sortes Præneſtinæ*.

This Superſtition paſs'd hence into Chriſtianity; and the Chriſtians took their *Sortes* out of the Books of the *Old* and *New Teſtament*. The firſt Paſſage that it preſented, upon opening a Book of Scripture, was eſteem'd the Anſwer of God himſelf.

If the firſt Paſſage did not happen to be any Thing to the Purpoſe for which the *Sortes* were conſulted; another Book was opened, till a Paſſage were met withal, that might be taken for an Anſwer. This was called *Sortes Sanctorum*.

St. *Auguſtin* does not diſapprove of this Method of learning Futurity, provided it be not uſed for worldly Things; and owns he has practiſed it himſelf.

Gregory of *Tours* adds, That the Cuſtom was, to lay the Bible on the Altar, and to pray the Lord, that he'd diſcover what was to come to paſs.

Inſtances of the Uſe of the *Sortes Sanctorum* are very frequent in Hiſtory. *Heraclius*, Mr. *Fleury* tells us, in his War againſt *Cozroe*, to learn where he ſhould take up his Winter Quarters, purified his Army for three Days, and then opened the Goſpels, and found the Place appointed for his Winter Quarters, was in *Albania*.

Gilbert of *Nogent*, informs us, That in his Time, that is, about the beginning of the XIIth Century, the Cuſtom was at the Conſecration of Biſhops, to conſult the *Sortes Sanctorum*, to learn the Succeſs, Fate, &c. of their Epiſcopate.

The Practice is founded on a Suppoſition, that God preſides over the *Sortes*; and on the 33d Verſe of the 16th Chapter of *Proverbs*; *The Lot is caſt in the Boſom, and its Deciſion is from the Almighty.*

In effect, many Divines hold, that the *Lot* is conducted in a particular Manner by Providence; that 'tis an extraordinary Manner wherein God declares his Will by a kind of immediate Revelation. The *Sortes Sanctorum*, however, were condemn'd by the Council of *Agda* in 506, at the Time they were beginning to take footing in *France*, &c.

SORTILEGE, a kind of Divination by *Sortes* or *Lots*. See SORTES.

SOTERIA, in Antiquity, Sacrifices offered to the Gods, in Gratitude for their having delivered from Danger. See SACRIFICE.

The Term is alſo applied to poetical Compoſitions made for the ſame End. *Orpheus* is the firſt, who appears to have compoſed *Soteria*.

Our *Latin* Poets give the ſame Name to Poems in *Latin* Verſe, wrote to give Thanks to God or the Saints, for having preſerved them on any Occaſion: *F. Petavius* being delivered from a dangerous Diſeaſe, by the Interceſſion, as he ſuppoſed, of St. *Genevieve*, compoſed that fine Piece in Honour of that Saint, ſtill extant under the Title of *Soteria*.

The Word is form'd from the *Greek*, σωτὴρ, *Saviour*.

SOVERAIGN, the firſt Being; the Supreme, or the Almighty: A Term, in Strictneſs, only applicable to God.

Paſquier derives it from the *Latin*, *Superior*, the Firſt in any Thing, or he who is ſuperior to the reſt.

Whence, in the ancient *French* Cuſtoms, we meet with *Soveraign* Maſter of the Houſhold; *Soveraign* Maſter of the Foreſts; *Soveraign* Maſter of the Treaſury: and hence, under *Charles* VI. the Title *Soveraign* is given to Bailiffs and Seneſchals, with regard to their Superiority over *Prevots* and *Chatelains*.

SOVERAIGN, with regard to Men, is applied to Kings and Princes, who are Supreme and Independant, and hold of no Body but God and their Sword. See KING, PRINCE, &c.

The Authority of a *Soveraign* is only bounded by the Laws of God, of Nature, and the fundamental Laws of the State.

The Title is alſo given to ſuch as are inveſted with certain Rights, which only belong to *Soveraigns*: As the Right of Coining Money; ſending Agents to Diets, to treat of War and Peace: In which Senſe, the Feudatories of the Empire, and the Tributaries of the Grand Signor, are called *Soveraigns*.

Soveraign is alſo applied to Judges, who have a Power from a Prince, to decide the Proceſſes of his Subjects without Appeal or in the laſt Reſſort. At *Paris* there are five *Soveraign* Companies; the Parliament, the Chamber of Accompts, the Court of Aids, the Grand Council, and the Court of Monies. In *England*, we have but one *Soveraign* Court; the Houſe of Lords.

SOUL, a Spirit incloſed in an organiz'd Body. See SPIRIT and BODY.

Many of the ancient Philoſophers aſſerted an *Anima Mundi*, a *Soul* which moved and animated the Machine of the Univerſe, and gave Action to all natural Cauſes. This Doctrine, *Plato* handles very fully in his *Timæus*. See ANIMA MUNDI.

Others have given particular *Souls* to all the heavenly Bodies, the Sun, Stars, Earth, &c. to regulate their Motions.

The Philoſophers, many of them, allow of two, and others of three kinds of *Souls*.

A *Rational Soul*, which they hold to be Divine, and infuſed by the Breath of God.

An *Irrational* or *Senſitive Soul*, which Man has in common with Brutes, and which is form'd out of the Elements.

To which ſome add a *Vegetative Soul*; which we have in common with Plants; and which, as the Firſt is the Principle of Reaſon and Underſtanding, or that in us which thinks and underſtands; and the Second, the Principle of Life; ſo this Third is the Principle of Growth, Nutrition and Vegetation. See VEGETATIVE, &c.

The *Epicureans* took the Subſtance of the *Soul*, we mean of the rational *Soul*, to be a ſubtil Air, compoſed of their Atoms, or primitive Corpuſcles. See ATOM.

The Stoicks held it to be a Flame or Portion of heavenly Light.

Spinoſa and his Followers, allowing of only one kind of Subſtance, *viz.* Matter, maintain the *Soul* to be of the ſame Subſtance with the Body, *viz.* Material. See SUBSTANTIAL.

The *Carteſians* make Thought the Eſſence of the *Soul*, and from this Principle, deduce its Immateriality and Immortality. See THINKING.

But the Principle is Falſe; nor is there any need to define the *Soul* a Subſtance that thinks, to prove it Immortal. 'Tis enough, that the *Soul* be capable of Thinking; and that it produce its own Thoughts, without having Thought its Eſſence. 'Tis no more eſſential to the *Soul* to Think than to Will: For a Thing I can conceive the *Soul* without, cannot be its Eſſence.

Again, if Thought be the Eſſence of the *Soul*; as a Thing cannot produce itſelf, its own Being, or Eſſence; the *Soul* does not produce its own Thoughts, nor its own Will: And thus is it brought to the Condition of Brutes, or even of inanimate Bodies without any Action, any Liberty, &c.

If the *Carteſians* only mean this of the Faculty of Thinking; they do wrong even to call this the Eſſence of the *Soul*. 'Tis no more its Eſſence, than the Faculty of Willing is. And we conceive ſomething in the *Soul*, prior to both thoſe Faculties.

The *Soul* is a ſpiritual Subſtance, proper to inform, or animate a human Body, and by its Union with this Body, to conſtitute a reaſonable Animal or Man. This is its Eſſence; and this its Definition.

It muſt be owned, the *Carteſians* prove the Spirituality and Immortality of the *Soul*, from its Thinking, exceedingly well: But they are not to have the Honour of this Proof, as their own Invention. All the great Philoſophers uſed it before them, and uſe it ſtill. See IMMORTALITY.

The Philoſophers are not at all agreed, as to the Manner wherein the *Soul* reſides in the Body. Some hold it equally diffuſed throughout every Part thereof. Others ſay it influences

fluences, and acts on every Part of the Body, though it has its principal Reſidence in ſome particular Part, call'd the *Senſory*. See SENSORY.

This principal Part, *Des Cartes* maintains, is the Pineal Gland of the Brain, where all the Nerves terminate, *&c.* See PINEAL *Gland*.

Borry, a Northern Phyſician, in a Letter to *Bartholin*, aſſerts, That in the Brain is found a certain, very ſubtile, fragrant Juice, which is the principal Seat or Reſidence of the reaſonable Soul; and adds, That the Subtilty and Fineneſs of the *Soul*, depends on the Temperament of this Liquor, rather than on the Structure of the Brain, to which 'tis uſually aſcribed. This Liquor, we conceive, muſt be the ſame with what we uſually call the *Nervous Juice*, or *Animal Spirits*. The Conſtitution whereof, is, doubtleſs, of great Importance, with regard to the Faculties of the *Soul*. See SPIRIT.

Mr. *Lock* diſtinguiſhes Two principal Faculties for Powers of the *rational* or *human Soul*, *viz. Perception* and *Willing*. See POWER.

To theſe, other Philoſophers add others; as *Senſation*, *Liberty*, *Memory*, *Imagination* and *Habit*. See UNDERSTANDING, WILL, SENSATION, LIBERTY, *&c.*

The Myſtic Divines diſtinguiſh Two principal Parts in the *Soul*: The *Upper-part*, which comprehends the Underſtanding and the Will; and the *inferior Part*, which comprehends Imagination and Senſation. Thus, ſay they, *Jeſus Chriſt* was happy on the Croſs in his *upper Part*, and ſuffered in his *lower Part*. The lower Part did not communicate to the Upper, either its Troubles or its Failings; nor the Upper to the Lower, its Peace or Beatitude. From this Diſtinction, the Quietiſts take in hand to maintain, That whatever paſſes contrary to good Morals, in the lower Part of the *Soul*, is not contrary to the Purity of the upper Part, inaſmuch as the Will has no Share therein.

As to the *Soul* of Brutes, the *Carteſians*, and ſome others, deny its Exiſtence, in the common Senſe of the Word *Soul*; that is, they ſtrip off all the Properties or Faculties of the *Human Soul*: And the *Peripateticks*, on the contrary, inveſt it with the greateſt Part of them.

In Man, a particular Agitation of the Fibres of the Brain is accompanied with a Senſation of Heat; and a certain Flux of animal Spirits towards the Heart, and Viſcera, is followed by Love or Hatred.

Now the Peripateticks maintain, That the Brutes feel the ſame Heat and the ſame Paſſions, on the ſame Occaſions: That they have the ſame Averſion for what incommodes them, and, in the general, are capable of all the Paſſions, and all the Senſations we feel.

The *Carteſians* deny they have any Perceptions or Notices at all; that they feel any Pain or Pleaſure; or love or hate any thing. The Ground of their Opinion is, That they allow of nothing in Brutes, but what is material, and that they deny Senſations and Paſſions, to be any Properties of Matter. Some of the Peripateticks, on the other hand, maintain Matter, when ſubtilized, framed, ranged and moved in a certain Manner, to be capable of Senſation and Paſſion; that Beaſts may feel and perceive, by means of the animal Spirits, which are a Matter thus modified; and that the *human Soul* itſelf, only becomes capable of Senſation and Paſſion, by means thereof.

But we muſt own it very difficult, to reconcile the Idea we have of Matter, with that we have of Thought; to conceive that Matter figured in any manner, whether in a Square, a Sphere, or an Oval, ſhould be Pleaſure, Pain, Heat, Colour or Smell; to conceive that Matter, however, agitated, whether in a Circle, a Spiral, Parabola or Ellipſis, ſhould be Love, Hatred or Joy.

The Maintainers of the contrary Opinion, urge that Appearance of Senſe, of Fear, Caution, Love for their Young, infinite Sagacity, both for their own Preſervation and that of their Species, viſible through the whole Brute Creation. And 'tis true, all the Actions of Beaſts plainly expreſs an Underſtanding; for every thing that is regular, expreſſes it; even a Machine or Watch expreſſes it: and a Plant much more; the Radicle of the Seed turning downwards, and the Stem upwards, whatever Situation the Seed is ſown in: the young Plants knitting from Space to Space, to ſtrengthen it; its putting forth Prickles, *&c.* to defend it, *&c.* mark a great Underſtanding. All the Motions of Plants and Brutes plainly diſcover an Intelligence; but the Intelligence does not reſide in the Matter thereof: 'Tis as diſtinct from the Beaſt or Plant, as is that which ranged the Wheels of the Watch, is diſtinct from the Watch itſelf.

For, in effect, this Intelligence appears infinitely Great, infinitely Wiſe, infinitely Powerful; and the ſame which form'd us in our Mother's Womb, which gives our Growth, *&c.*

Thus, in Brutes, there is not either Underſtanding or *Soul*, in the Senſe we generally uſe the Word: They eat without Pleaſure, cry without Pain, grow without knowing it. They fear nothing; know nothing; and if they act in ſuch manner, as ſhews Underſtanding; 'tis becauſe God having made them, to preſerve them, has formed their Bodies, ſo as to avoid whatever might hurt them, mechanically.

Otherwiſe, it might be ſaid, That there is more Underſtanding in the vileſt Inſect, nay, in the ſmalleſt Grain, than in the moſt knowing of Men; for 'tis evident, either of them contains more Parts, and produces more regular Motions and Actions, than we are capable of underſtanding. Thus does the great F. *Mallebranch*, argue againſt the *Souls* of Brutes. *Recherche de la Verite, liv.* 6.

SOUL'S *Cheat*, a Legacy anciently bequeathed at their Deaths, by our ſcrupulouſly pious Anceſtors, to the Pariſh Prieſt, to compenſate for any Tythes that might have been forgot in their Lives. See TYTHE.

SOUND, a Perception of the *Soul*, communicated by means of the Ear; or, the Effect of a Colliſion of Bodies, and a tremulous Motion conſequent therein, communicated thence to the circumambient Fluid, and propagated through it to the Organs of Hearing. See EAR and HEARING.

To illuſtrate the Cauſe of *Sound*; we obſerve; firſt, That a Motion is neceſſary in the ſonorous Body, for the Production of *Sound*. Secondly, That this Motion exiſts, firſt, in the ſmall and inſenſible Parts of the ſonorous Bodies, and is excited in them by their mutual Colliſion, and Percuſſion againſt each other, which produces that tremulous Motion, ſo obſervable in Bodies, that have a clear *Sound*, as Bells, muſical Chords, *&c.* Thirdly, That this Motion is communicated to, or produces a like Motion in the Air, or ſuch Parts of it, as are apt to receive and propagate it; inaſmuch as no Motion of Bodies, at a Diſtance, can affect our Senſes without the Mediation of other Bodies, which receive thoſe Motions from the Body, and communicate them immediately to the Organ. Laſtly, That this Motion muſt be communicated to thoſe Parts, that are the proper and immediate Inſtruments of Hearing.

Further, That Motion of a ſonorous Body, which is the immediate Cauſe of *Sound*, may be owing to two different Cauſes; either the Percuſſion between it and other hard Bodies, as in Drums, Bells, Chords, *&c.* or the beating and daſhing of the ſonorous Body and the Air, immediately againſt each other, as in Wind Inſtruments, as Flutes, Trumpets, *&c.*

But in both Caſes, the Motion, which is the Conſequence of the mutual Action, and the Immediate of the ſonorous Motion which the Air conveys to the Ear; is an inviſible, tremulous or undulating Motion in the ſmall and inſenſible Parts of the Body.

To explain this; all ſenſible Bodies are ſuppoſed to conſiſt of a Number of ſmall and inſenſible Parts or Corpuſcles, which are of the ſame Nature in all Bodies, perfectly hard and incompreſſible. See CORPUSCLE.

Of theſe, are compoſed others, ſomewhat greater, but ſtill inſenſible; and theſe different, according to the different Figures and Union of their component Parts. Theſe, again, conſtitute other Maſſes bigger and more different than the former, and of the various Combinations of theſe laſt, are thoſe groſs Bodies compoſed, that are viſible, touchable, *&c.* The firſt and ſmalleſt Parts, we have obſerved, are abſolutely hard; the others are compreſſible, and united in ſuch manner, that being compreſs'd by an external Impulſe, they have an elaſtic or reſtitutive Power, whereby they reſtore themſelves to their natural State. See ELASTICITY.

A Shock, then, being made by one Body upon another, the ſmall Particles, by their elaſtic Principle, move to and again with a very great Velocity, in a tremulous, undulating Manner, ſomewhat like the viſible Motions of groſſer Springs; as we eaſily obſerve in the Chords of muſical Inſtruments. And this is what we may call the *Sonorous Motion*, which is propagated to the Ear: But obſerve, that 'tis the inſenſible Motion of thoſe Particles next the ſmalleſt, which is ſuppoſed to be the immediate Cauſe of *Sound*; and of theſe, only thoſe next the Surface, communicate with the Air: The Motion of the whole, or of the greater Parts, being no further concerned, than as they contribute to the other.

To apply this Theory; ſtrike a Bell with any hard Body, and you eaſily perceive a ſenſible Tremor in the Surface, ſpreading itſelf over the whole; and that more ſenſibly, as the Shock is greater. Upon touching it in any other Part, the Motion and the *Sound* too, are ſtopp'd. Now this is apparently a Motion of the ſmall and inſenſible Parts, changing their Situations, with reſpect to one another, which being ſo many, and ſo cloſely united, we cannot perceive their Motions ſeparately and diſtinctly; but only a Trembling, which we reckon to be the Effect of the Confuſion of an infinite Number of little Particles, cloſely joyn'd, and only moving in infinitely little Lines.

Mr. *Perrault* adds, That this viſible Motion of the Parts, contributes no otherwiſe to *Sound*, than as it cauſes the inviſible Motion of the ſmaller Parts, which he calls *Particles*, to diſtinguiſh them from the ſenſible ones, which he calls *Parts*, and from the ſmalleſt of all, which we call *Corpuſcles*.

This he ſupports from the Inſtance of a Chord, which being ſtruck, and the *Sound*, and ſenſible Undulations at Reſt again, if you approach the Chord ſoftly with the Finger, you'll find a ſmall tremulous Motion, which is the Remains of the Vibrations of the whole Chord, and the Parts. Now, the Parts vibrate without any *Sound*; but no ſooner is the Vibration felt by the Finger, than the *Sound* is heard again; which he aſcribes to this, That the Motion of the Parts being inſufficient to move the Particles, whoſe Motion is the firſt that ceaſes, requires ſome Aſſiſtance from daſhing againſt the Finger, whereby to become enabled to give the Particles the Motion neceſſary for the producing of *Sound*. He finiſhes his Proof, by the Inſtance of Flutes; which when made of different Matters, as Wood, Metal, *&c.* whoſe Parts are very different, but their Particles nearly the ſame, if their Lengths and Bores be the ſame; there is very little ſenſible Difference in their *Sounds*.

The ſonorous Body having made its Impreſſion on the contiguous Air, that Impreſſion is propagated, from one Particle to another, according to the Laws of Pneumaticks.

A few Particles, for inſtance, driven from the Surface of the Body, drive the neighbouring Particles into a leſs Space; and the Medium, as it is thus rarified in one Place, becomes condenſed in the other: But the Air thus compreſs'd in the ſecond Place, is, by its Elaſticity, returned back again, both to its former Place, and its former State; and the Air, contiguous to that, is compreſs'd: and the like obtains, when the Air leſs compreſs'd expanding itſelf, a new Compreſſion is generated. From each Agitation of the Air, therefore, there ariſes a Motion of the Air, analogous to the Motion of a Wave on the Surface of Water; which we call a *Wave* or *Undulation* of Air. See UNDULATION.

In each Wave, the Particles go and return back again, through very ſhort, but equal Spaces; the Motion of each Particle is analogous to the Motion of a vibrating Pendulum, while it performs two Oſcillations; and moſt of the Laws of the Pendulum, with very little Alteration, are applicable thereto. See PENDULUM.

Sounds are as various, as are the Means that concur to their Production.

The principal Varieties are reducible to the Figure, Conſtitution, Quantity, *&c.* of the ſonorous Body, the Manner of Percuſſion, with the Velocity, *&c.* of the Vibrations conſequent thereon; the State and Conſtitution of the Medium; the Diſpoſition, Diſtance, *&c.* of the Organ; the Obſtacles between the Organ and the ſonorous Object, and the adjacent Bodies: The moſt notable Diſtinctions of *Sounds*, ariſing from the various Degrees and Combinations of the Conditions mentioned, are into *loud* and *low* (or ſtrong or weak) into *grave* and *acute* (or ſharp and flat, or high and low) and into *long* and *ſhort*. The Management whereof, makes the Office of Muſic. See SOUND *in Muſic*.

The Velocity of *Sound* is the ſame, with that of the Waves; which does not differ much, whether it go with the Wind or againſt it. By the Wind, indeed, a certain Quantity of Air is carried from one Place to another; and the *Sound* is accelerated, while its Waves move through that Part of the Air, if their Direction be the ſame as that of the Wind. But as *Sound* moves vaſtly ſwifter than Wind, the Acceleration it will hereby receive, is inconſiderable. In effect, the moſt violent Winds we know of, have their Celerity to that of *Sound*, only as 1 to 33; and all the Effect we can perceive from the Wind, is, that it increaſes and diminiſhes the Space of the Waves; ſo that the *Sound* may be heard to a greater Diſtance than otherwiſe it would.

That the Air is the ordinary Medium of *Sound*, appears from various Experiments, in rarified and condenſed Air.

In an exhauſted Receiver, a ſmall Bell may be heard ſome Diſtance; but when exhauſted, it can ſcarce be heard at the ſmalleſt Diſtance. If the Air be condenſed, the *Sound* will be louder, proportionably to the Condenſation, or Quantity of Air crouded in: Of which we have many Inſtances in Mr. *Hauksbee*'s Experiments; and this does not only ſucceed in forced Rarefactions, *&c.* but in ſuch alſo, as are Natural; as is evident from *Fredlicius*'s Story of his Journey to the Top of Mount *Carpathus* in *Hungary*.

But 'tis not the Air alone, that is capable of the Impreſſions of *Sound*; but Water alſo: as is manifeſt, by ſtriking a Bell under Water, the *Sound* of which may plainly enough be heard, only not ſo loud, and alſo a Fourth deeper, by the Ear of ſome good Judges in muſical Notes. Indeed *Merſenne* ſays, a *Sound* made under Water, is of the ſame Tone or Note, as if made in Air, and heard under Water.

The *Velocity of Sound* is variouſly reported by various Authors.

Sir *Iſaac Newton* makes its Progreſs, in a Second of Time, to be 968 Feet; the Honourable Mr. *Francis Roberts* 1300 Feet; Mr. *Boyle* 1200 Feet; Dr. *Walker* 1338 Feet; *Merſenne* 1474 Feet; Mr. *Flamſtead* and Dr. *Halley* 1142 Feet; the *Florentine* Academy 1148 Feet; the *French* Obſervers, *Hiſt. Acad. Reg.* 1172. The Reaſon of which Variety, Mr. *Derham* aſcribes partly to thoſe Gentlemen uſing Strings and Plummets inſtead of regular Pendulums; partly to there not being Diſtance enough between the ſonorous Body and the Place of Obſervation; and partly, to there being no Regard had to the Winds.

Some of the moſt conſiderable Queries, relating to the Laws of *Sounds*, the ſame Author propoſes; and anſwers ſeveral of them accurately, from Experiments made for that Purpoſe by himſelf, as follows;

How far a *Sound* moves in a Second of Time? *Sound* moves 1142 Seconds in a Second, which is juſt an *Engliſh* Mile in $9\frac{1}{4}$ or 9.25 half Seconds; two Miles in $18\frac{1}{2}$; three Miles in $27\frac{3}{4}$, *&c.*

Does the Report of a Gun, diſcharged with its Mouth towards us, come ſooner than when the Muzzle is from the Obſerver? By repeated Experiments, it appears, there is no Difference in the *Sound*, from this different Direction.

Do *Sounds* move in the ſame Time, the ſame Spaces, in all States of the Atmoſphere, and Heights of the Barometer, by Day and by Night, in Summer and in Winter, in ſnowy and in clear Weather, in this or that Climate? By repeated Experiments, it does not appear there ariſes any Difference from any of theſe different Circumſtances.

Do the Winds affect the Motion of *Sounds*? By repeated Experiments, it appears, there is ſome, though a very ſmall Difference in the Velocity of *Sounds*, with or againſt the Wind; which is alſo augmented, or diminiſhed, by the Strength or Weakneſs of the Wind.

Do a great and intenſe *Sound*, and a ſmall or languid one, move with the ſame Velocity? It appears that they do.

Does the *Sound* of a Gun move equally ſwift at all Elevations of the Gun? They do.

Do different Quantities or Strengths of Gun-powder, occaſion any Difference, as to the Velocity of the *Sound*? None.

Does *Sound* move in a right Line, the neareſt Way; or does it ſweep along the Earth's Surface? And is there any Difference in the Time, if the Piece be diſcharged in an acclive and a declive Poſition? *Sound* moves the neareſt Way; and the Velocity appears to be the ſame in Acclivities and Declivities.

Have all kinds of *Sounds*, as thoſe of Guns, Bells, *&c.* the ſame Velocity? And are *Sounds* equally ſwift in the Beginning of their Motion, and in the End? There appears no Inequality in either of theſe reſpects.

For the Reflection of SOUND, } See { ECCHO.
For the Refraction of SOUND, } See { REFRACTION.

SOUND, in Muſic, the Quality and Diſtinction of the ſeveral Agitations of the Air, conſider'd as their Diſpoſition, Meaſure, *&c.* may make Muſic. See MUSIC.

Sound is the Object of Muſic, which is nothing but the Art of applying *Sounds*, under ſuch Circumſtances of Tone and Tune, as to raiſe agreeable Senſations.

The principal Affection of *Sound*, whereby it becomes fitted to have this End; is that, whereby it is diſtinguiſhed into *Acute* and *Grave*. See GRAVITY, *&c.*

This Difference depends on the Nature of the ſonorous Body, the particular Figure and Quantity thereof; and even, in ſome Caſes, on the Part of the Body where it is ſtruck; and is that which conſtitutes what we call different Tones. See TONE.

The Cauſe of this Difference appears to be no other than the different Velocities of the Vibrations of the *ſounding* Body. In effect, the Tone of a *Sound*, is found, by abundance of Experiments, to depend on the Nature of thoſe Vibrations, whoſe Differences we can conceive no otherwiſe, than as having different Velocities: And ſince 'tis proved, That the ſmall Vibrations of the ſame Chord, are all performed in equal Time; and that the Tone of a *Sound*, which continues for ſome Time after the Stroak, is the ſame from firſt to laſt: It follows, that the Tone is neceſſarily connected with a certain Quantity of Time in making each Vibration, or each Wave; or that a certain Number of Vibrations or Waves, accompliſhed in a given Time, conſtitute a certain and determinate Tone.

From this Principle, are all the Phænomena of Tune deduced. See TUNE.

From the ſame Principle, ariſe what we call *Concords*, *&c.* which are nothing but the Reſults of frequent Unions and Coincidences of the Vibrations of two ſonorous Bodies, and conſequently of the Waves and undulating Motions of the Air, occaſioned thereby. See CONCORD.

On the contrary, the Reſult of leſs frequent Coincidences of thoſe Vibrations, is what we call a *Diſcord*. See DISCORD.

Another conſiderable Diſtinction of *Sounds*, with regard to Muſic, is that, whereby they are denominated *long* and *ſhort*; not with regard to the ſonorous Body's retaining a Motion once received, a longer or a leſs Time, though gradually growing weaker; but to the Continuation of the Impulſe of the efficient Cauſe of the ſonorous Body, for a *longer* or a *ſhorter* Time, as in the Notes of a Violin, *&c.* which are made longer or ſhorter, by Strokes of different Length or Quickneſs.

This Continuity, is, properly, a Succeſſion of ſeveral *Sounds*, or the Effect of ſeveral diſtinct Strokes, or repeated Impulſes on the ſonorous Body, ſo quick, that we judge it one continued *Sound*; eſpecially if it be continued in the ſame degree of Strength: And hence ariſes the Doctrine of *Meaſure* and *Time*. See TIME.

Sounds, again, are diſtinguiſhed, with regard to Muſic, into *Simple* and *Compound*; and that two Ways:

In the Firſt, a *Sound* is ſaid to be *Compound*, when a Number of ſucceſſive Vibrations of the ſonorous Body and the Air, come ſo faſt upon the Ear, that we judge them the ſame continued *Sound*; as in the Phænomenon of the Circle of Fire, cauſed by putting the fir'd End of a Stick in a quick, circular Motion; where, ſuppoſing the End of the Stick in any Point of the Circle, the Idea we receive of it there, continues till the Impreſſion is renewed by a ſudden Return.

A *ſimple Sound*, then, with regard to this Compoſition, ſhould be the Effect of a ſingle Vibration, or of ſo many Vibrations as are neceſſary to raiſe in us the Idea of *Sound*. In the Second Senſe of Compoſition, a *ſimple Sound* is the Product of one Voice, or one Inſtrument, *&c.*

A *compound Sound*, conſiſts of the *Sounds* of ſeveral diſtinct Voices or Inſtruments all united in the ſame individual Time and Meaſure of Duration, that is, all ſtriking the Ear together, whatever their other Differences may be: But in this Senſe, again, there is a two-fold Compoſition; a *Natural* and *Artificial* one.

The natural Compoſition, is that proceeding from the manifold Reflexions of the firſt *Sound* from adjacent Bodies, where the Reflexions are not ſo ſudden, as to occaſion Eccho's; but are all in the ſame Tune with the firſt Note. See RESONANCE.

The artificial Compoſition, which alone comes under the Muſicians Province, is, that Mixture of ſeveral *Sounds*, which being made by Art, the Ingredient *Sounds* are ſeparable, and diſtinguiſhable from one another. In this Senſe, the diſtinct *Sounds* of ſeveral Voices or Inſtruments, or ſeveral Notes of the ſame Inſtrument, are called *Simple Sounds*; in contradiſtinction to the *Compound* ones, wherein, to anſwer the End of Muſic, the Simples muſt have ſuch an Agreement in all relations, chiefly as to Acuteneſs and Gravity, as that the Ear may receive the Mixture with Pleaſure. See COMPOSITION.

Another Diſtinction of *Sounds*, with regard to Muſic, is that, whereby they are ſaid to be *ſmooth* and *even*, or *rough* and *harſh*, alſo *clear* and *hoarſe*; the Cauſe of which Differences, depends on the Diſpoſition and State of the ſonorous Body, or the Circumſtances of the Place; but the Ideas of the Differences muſt be ſought from Obſervation.

Smooth and *rough Sounds* depend, principally, on the *ſounding* Body; Of theſe we have a notable Inſtance in Strings that are uneven, and not of the ſame Dimenſion or Conſtitution throughout.

M. *Perrault*, to account for *Roughneſs* and *Smoothneſs*, maintains, there is no ſuch thing as a ſimple *Sound*; but that the *Sound* of the ſame Chord or Bell, is a Compound of *Sounds* of the ſeveral Parts of it; ſo that where the Parts are homogeneous, and the Dimenſions, or Figure uniform, there is always ſuch a perfect Mixture and Union of all the *Sounds*, as makes one uniform and ſmooth *Sound*: Contrary Conditions, produce *Harſhneſs*. In effect, a Likeneſs of Parts and Figure, makes an Uniformity of Vibrations, whereby a great Number of ſimilar and coincident Motions conſpire to fortify and improve each other, and unite, for the more effectual producing of the ſame Effect.

This Account he confirms, from the Phænomena of a Bell, which differs in Tone, according to the Part 'tis ſtruck in; and yet ſtrike it any where, there is a Motion over all the Parts. Hence, he conſiders the Bell as compoſed of an infinite Number of Rings, which, according to their different Dimenſions, have different Tones; as Chords of different Lengths have; and when ſtruck, the Vibrations of the Parts immediately ſtruck, ſpecify the Tone, being ſupported by a ſufficient Number of Conſonant Tones in other Parts. This muſt be allowed, that every Note of a ſtring'd Inſtrument, is the Effect of ſeveral ſimple *Sounds*: For there is not only the *Sound* reſulting from the Motion of the String; but that from the Motion of the Parts of the Inſtrument, which has a conſiderable Effect in the total *Sound*, as is evident from hence, that the ſame String on different Violins, *ſounds* very differently.

But *Perrault* affirms the ſame of every String in itſelf, and without conſidering the Inſtrument. Every Part of the String, he ſays, has its particular Vibrations, different from the groſs and ſenſible Vibrations of the whole; and theſe are the Cauſes of different Motions and *Sounds* in the Particles, which uniting, compoſe the whole *Sound* of the String, and make an uniform Compoſition, wherein the Tone of the particular Part ſtruck, prevails; and all the others mix under a due Subordination with it, ſo as to make the Compoſition ſmooth and agreeable. If the Parts be unevenly, or irregularly conſtituted, the *Sound* is harſh; which is the Caſe in what we call *falſe Strings*, and various other Bodies; which, for this Reaſon, have no certain and diſtinct Tone; but a Compoſition of ſeveral Tones, which don't unite and mix, ſo as to have one predominant, to ſpecify the total Tone.

As to *clear* and *hoarſe Sounds*, they depend on Circumſtances that are accidental to the ſonorous Body: Thus a Voice or Inſtrument will be hollow and hoarſe, if raiſed within an empty Hogſhead, that yet is clear and bright out of it: The Effect is owing to the Mixture of other and different *Sounds*, raiſed by Reflexion, which corrupt and change the Species of the primitive *Sound*.

For *Sounds* to be fit to obtain the End of Muſic, they ought to be *ſmooth* and *clear*, eſpecially the firſt; ſince without this, they cannot have one certain and diſcernable Tone, capable of being compared to others, in a certain relation of Acuteneſs, of which the Ear may judge; and of Conſequence can be no Part of the Object of Muſic. Upon the whole, then, with Mr. *Malcolm*, we call that a *harmonic* or *muſical Sound*, which being *clear* and *even*, is agreeable to the Ear, and gives a certain and diſcernable Tune; (hence called *tunable Sound*) which is the Subject of the whole Theory of Harmony. See HARMONY.

SOUND, in Geography, a Streight, or Inlet of the Sea, between two Capes or Head-lands. See STREIGHT.

The Word is particularly uſed, by way of Eminence, for that famous Streight, which joins the *German* Sea to the *Baltic*.

It is ſituate between the Iſland of *Zeland* and the Coaſt of *Schonen*. 'Tis about ſixteen Leagues long, and generally five broad, excepting againſt the Caſtle of *Cronenbourg*, where 'tis but one: So that there is no Paſſage for Veſſels, but under the Cannon of the Fortreſs.

This has given occaſion to the *Danes* to ſettle a Toll on all Veſſels, which is one of the beſt Revenues of the Crown of *Denmark*; and to forbid all Pilots from paſſing through the great and little Belt, which are two other Inlets into the *Baltic*, though ſomewhat leſs commodious than the former. The *Swediſh* Veſſels are exempted from paying this Toll, by the Treaty of 1658, whereby the *Danes* yielded *South-Gothland* to the *Swedes*. See TOLL.

SOUND-*Board*, the principal Part of an Organ, and that which makes the whole Machine play. See ORGAN.

The *Sound-board* or *Summer*, is a Reſervoir, into which the Wind drawn in by the Bellows, is conducted by a Port-vent, and hence diſtributed into the Pipes placed over the Holes of its upper Part. This Wind enters them by Valves, which open by preſſing upon the Stops or Keys, after drawing the Regiſters, which prevent the Air from going into any of the other Pipes, but thoſe 'tis required in.

Organs, whoſe longeſt blind Pipes are four Foot, have their *Sound-Board* from five to ſix Feet. Organs of 16 Feet have two *Sound-Boards*, which communicate the Wind from one to the other, by a Pewter Port-vent.

SOUNDING, in Navigation, the trying of the Depth of the Water, and the Quality of the Bottom, by a Line and Plummet, or other Artifice.

There are two Kinds of Lines occaſionally uſed in *Sounding* the Sea; the *Sounding Line* and the *deep Sea Line*.

The firſt, is the thickeſt and ſhorteſt, as not exceeding 20 Fathom in Length; and marked at two, three and four Fathoms, with a Piece of black Leather between the Strands; and at Five, with a Piece of white Leather.

The *Sounding* Line may be uſed when the Ship is under Sail, which the deep Sea-Line cannot. The Plummet is uſually in form of a Nine-pin, and weighs 18 Pounds; the End is frequently greaſed, to try whether the Ground be Sandy or Rocky, *&c.* Near Banks, Shores, *&c.* they are *Sounding* continually.

Dr. *Hook* has invented a manner of *Sounding* the Depth of the deepeſt Sea, without any Line; only by a wooden Globe, lighter than Water, to which, at a little Diſtance is a piece of Lead or Stone fix'd, by means of a ſpringing Wire in the Firſt, fitted into a Staple in the Second. The whole being let gently down, with the Stone or Lead foremoſt, aſſoon as that arrives at the Botom, it will ſtop; but the Ball, by the Impetus it has acquired in deſcending, will be carried a little lower after the Weight is ſtopp'd; by which means the ſpringing Wire will be inabled to fly back, and diſingaging itſelf, will reaſcend.

By obſerving, then, the Time of the Ball's ſtay under Water by a Watch or Pendulum, and the Help of ſome Tables; the Depth of the Sea is found.

In ſome Experiments made in the *Thames* with a maple Globe, $5\frac{13}{15}$ Inches in Diameter, and weighing 4 Pound and a Half, lined with Pitch; and a conical Weight 11 Inches long, the ſharp End downwards; at the Depth of 19 Feet, there paſſed ſix Seconds; and at the Depth of 10 Feet $3\frac{1}{2}$ Seconds between the Immerſion and Emerſion of the Ball. From theſe Numbers given, the Depths, at any other ſtays, may be computed by the Rule of Three.

SOUP, a kind of Potage made of Bread, and Broth or the Juice of Fleſh, or other Matters; uſually ſerved at the beginning of a Meal.

Soup is eſteem'd eſſential to a *French* Meal. Occaſionally, they improve the Reliſh by the Addition of Onions or Leaks, or Cabbage or Turnips, *&c.* The Word is *French*, form'd from the *Italian*, *Zuppa* or *Suppa*, of the *Latin*, *Sapa*, Wine boil'd away to a Third Part. Others derive it from the *German*, *Soupp*, or the *Celtic*, *Souben*, which ſignify the ſame Thing.

SOURCE. See SPRING.

SOUTH *direct Dials*, } See { DIAL.
SOUTHERN *Signs*, } { SIGN.

SOWING. See SEMINATION and SEMBRADOR.

SOWNE, a Term uſed in the *Exchequer*; ſeeming to be a Corruption from the *French Souvenu*; that is, remembred. For the Statute, 4 *H.* 5. *c.* 7. in the Original *French*, hath *Des Eſtreats oriens Souvenu*. And ſuch Eſtreats and Caſualties, as are not to be remembred, run not in Demand, that is, are not Leviable. So now in the *Exchequer*, they ſay, ſuch Eſtreats, as the Sheriff by his Induſtry cannot get, are Eſtreats that *Sowne* not; and Eſtreats that *Sowne*, are ſuch as he may gather. See ESTREAT.

SPACE, a ſimple Idea. The Modes, whereof, are Diſtance, Capacity, Extenſion, Duration, *&c.* See MODE, EXTENSION, DURATION, *&c.*

SPACE, in Philoſophy, conſidered barely in Length between any two Bodies; is the ſame Idea which we have of Diſtance. See DISTANCE.

If it be conſidered in Length, Breadth and Thickneſs, it is properly called *Capacity*. See CAPACITY.

When conſidered between the Extremities of Matter, which fills the Capacity of *Space*, with ſomething Solid, Tangible and Moveable, it is then called EXTENSION. So that Extenſion is an Idea belonging to Body only; but *Space*, it is plain, may be conſidered without it. See BODY.

Space, therefore, in the general Signification, is the ſame thing with Diſtance, conſidered every Way, whether there be any ſolid Matter in it or not.

Accordingly, *Space*, is either *Abſolute* or *Relative*.

Abſolute Space, is that conſidered in its own Nature, without regard to any thing External; which always remains the ſame; and is infinite and immoveable.

Relative Space, is that moveable Dimenſion, or Meaſure of the former, which our Senſes define by its Poſitions to Bodies within it; and this the Vulgar uſe for immoveable *Space*.

Relative *Space*, in Magnitude and Figure, is always the ſame with Abſolute; but it is not neceſſary it ſhould be ſo numerically; as if you ſuppoſe a Ship to be, indeed, in abſolute Reſt, then the Places of all Things within her, will be the ſame Abſolutely and Relatively, and nothing will change its Place: But, ſuppoſe the Ship under Sail, or in Motion, and ſhe will continually paſs through new Parts of abſolute *Space*: But all Things on Board, conſidered relatively, in reſpect to the Ship, may be, notwithſtanding, in the ſame Places, or have the ſame Situation and Poſition, in regard to one another.

Proper and abſolute Motion, is defined to be the Application of a Body to different Parts of *Abſolute*, that is, of *infinite* and *immoveable Space*. See PLACE, MOTION and REST.

The *Carteſians*, who make Extenſion the Eſſence of Matter, aſſert, That the *Space* any Body takes up, is the ſame thing with the Body itſelf; and that there is no ſuch Thing as mere *Space*, void of all Matter, in the Univerſe: But this ſee diſproved under the Article VACUUM.

SPACE, in Geometry, is the Area of any Figure; or that which fills the Intervals or Diſtance between the Lines that terminate it. See AREA and FIGURE.

The *Parabolic Space*, is that included in the whole Parabola. See PARABOLA.

The *Conchoidal Space*, and the *Ciſſoidal Space*, are what are included within the Cavity of the Conchoid and Ciſſoid.

By the new Methods now introduced, of applying Algebra to Geometry, 'tis demonſtrated, That the *Conchoidal* and *Ciſſoidal Spaces*, though infinitely extended, are yet finite Magnitudes. See CONCHOID and CISSOID.

SPACE, in Mechanicks, the Line a moveable Body, conſider'd as a Point, is conceived to deſcribe by its Motion. See MOTION.

SPHÆNOPHARYNGÆUS, in Anatomy, a Pair of Muſcles, called alſo *Pterygopharyngæus*, *Cephalopharyngæus*, *&c.* See PTERYGOPHARYNGÆUS.

SPAGYRIC, an Epithet given to Chymiſtry; which is called the *Spagyric Art*, or *Medicina Spagyrica*; and to Chymical Phyſicians, who are alſo called *Spagyriſts*. See CHYMISTRY.

Voſſius derives the Word from the *Greek*, σπαεῖν, to *extract*, and ἀγείρειν, *congregare* to *collect*; which are the two principal Offices of Chymiſts. *Paracelſus* firſt introduced the Word.

SPAHI, a Horſe-man in the Ottoman Army, chiefly raiſed in *Aſia*.

The chief Strength of the Grand Signor's Army conſiſts in the Janiſaries, who are the Foot, and the *Spahi's*, who are the Horſe. See JANISARY, *&c.*

The Aga or Commander of the *Spahi's*, is alſo called *Spahi Agaſi*.

SPALT, or SPELT, a white, ſcaly, ſhining Stone, frequently uſed to promote the Fuſion of Metals. 'Tis found pretty frequently in *England* and *Germany*; and ſometimes brought from the *Levant*. The beſt is in long Scales, very ſoft, and eaſily pulveriz'd. The *Engliſh Spalt* is generally very hard.

SPAN, a Meaſure taken from the Space between the Thumb's End, and the Top of the little Finger, when both are ſtretch'd out. The *Span* is eſtimated at three Hands-breadth's, or nine Inches. See MEASURE.

SPANISH, or the SPANISH *Language*. See LANGUAGE.

SPANISH-*Flies*. See CANTHARIDES.

SPANISH-*Inquiſition*, *&c.* See INQUISITION.

SPAR, in Natural Hiſtory, a ſhining, ſtony Subſtance, frequently found in Caves and Grotto's, in the Clefts of Rocks, Lead-Mines, *&c.* See STONE, GROTTO, *&c.*

Mr. *Beaumont*, in the *Philoſophical Tranſactions*, endeavours to account for the Origin and Growth of *Spar*; which he makes to be a kind of *Rock Plant*.

Spar, he obſerves, may be form'd three Ways; either from Steams alone, or from Steams coagulating Dew, as it falls on the Ground, or Waters iſſuing from the Joints of Rocks: Or, it may grow from Earths and Clays. To ſay nothing of the Account we have from *Switzerland*, *viz.* That Snow, by long lying and continual Froſts, becomes hardened into *Spar*.

We have Inſtances of the firſt Kind in many Grotto's where *Spars* produced from Steams, hang like Icicles; Lead Ore being often found to grow in the ſame Manner. And as this *Spar* grows downwards; ſo in many Places, from the Sides of it, iſſue little Plants of *Spar*, ſhooting upwards, contrary to the Tendency of the others. An Inſtance of the Second, we have in a certain Place in *Italy*, where Cryſtals (which are a ſort of *Spars*) are produced in clear Evenings, from a Coagulation of Dew falling on Nitrous Stones. But hereof we have Inſtances enough nearer Home. See STALACTITES.

For the third Kind of Generation of *Spar*, never before taken Notice of by Naturaliſts; Mr. *Beaumont* gives us Inſtances of it in *Mendip* Hills, and other Mines, wherein are Subterraneous Vaults or Grotto's. In the Bottoms of ſome of theſe, is a Steam incumbent thereon. From this Earth, ſhoots up Spires of various Heights, *&c.* from the firſt Buddings out of it, till it is come as high as a Man's Finger; the biggeſt ordinarily an Inch in Diameter. Theſe Spires have all irregular Ridges and Furrows; and ſome ſooner, ſome later, begin on the Tops to be congealed into *Spar*; and ſo gathering a Cruſt downwards by degrees, are all at laſt, turned into an abſolute *white Spar* or Stone. See PETRIFACTION.

SPARADRAP, in Pharmacy, *&c.* an ancient Name for a Sear-cloth, or Cere-cloth; or a Cloth ſmear'd on each Side with a kind of Plaiſter. See CERE-CLOTH.

'Tis prepared by melting a ſufficient Quantity of ſome Plaiſter or Unguent, and dipping a linnen Cloth therein, till ſuch time as it have imbibed its fill. 'Tis then taken out, cool'd and poliſh'd on a Marble.

There are as many different Kinds of *Sparadrap*, as there are of Plaiſters for the Cloth to be dipp'd in. 'Tis ſometimes alſo called *Tela Gualteriana*.

SPARRING, among Cock-fighters, is the fighting a Cock with another to breathe him. In *ſparring*, they put Hotts on their Spurs, that they may not hurt one another. To *ſparr the Cock*, imports in general, to breathe him, to embolden him to Fight.

SPASMA or SPASMUS, in Medicine, a *Greek* Term, σπασμα, of equal Import with the *Latin*, *Convulſio*, and the *Engliſh*, *Convulſion*. See CONVULSION.

A *Spaſmus* happening after the taking of Hellebore, or any other violent Purgative, is mortal.

There are *Spaſma*'s peculiar to certain Members, and diſtinguiſhed by particular Names: That of the Mouth is called *Spaſmus Cynicus*; that of the Penis, *Satyriaſis*, *&c.* See SATYRIASIS, CYNICUS, *&c.*

Cardan diſtinguiſhes two Kinds of *Spaſma*'s: The firſt conſiſting in a conſtant Contraction of the Muſcles, which renders the Members rigid, and inflexible. The Second, in ſudden, unnatural Motions and Palpitations, frequently intermitting and beginning again.

Accidental *Spaſmi*, are of little Continuance: There are ſome ariſing from Flatulencies; from Bites of venomous Beaſts, from the Puncture of a Nerve, the Acrimony of the Humours vellicating the Stomach, Vapours of the Matrix, exceſſive Cold, *&c.*

SPASMODIC, ſomething belonging to a *Spaſma*, or Convulſion;

vulſion; as a *Spaſmodic Medicine*, *Spaſmodic Diſeaſe*, &c. See SPASMA.

Hunger, according to M. *Hecquet*, is a *Spaſmodic Affection* of the Fibres of the Stomach; unleſs it ariſes from the Fibres being too much moiſten'd by the Liquor thereof, ſo as to incapacitate them for their Office. See HUNGER.

SPATULA, an Inſtrument uſed by Surgeons and Apothecaries; made flat at one end, and round at the other. The Surgeons have little Silver or Steel *Spatulas*, to ſpread their Plaiſters and Unguents withal.

The Apothecaries have large ones of Wood, to ſtir their Drugs in diluting, tempering or boiling them. The Word is form'd from the *Latin*, *Spathus*, of the *Greek* σπάθιον.

SPAVIN, a Diſeaſe in a Horſe; being a Swelling or Stiffneſs in the Ham, that cauſes him to halt.

There are two Kinds of *Spavins*, *viz.* the *Ox-Spavin*, which is a callous Tumour, at the Bottom of the Ham, on the Inſide, hard as a Bone, and very painful. While 'tis yet young, ſome Horſes only halt with it, at the firſt coming out of the Stable.

The *dry Spavin* is more eaſily perceived, by the Horſe's raiſing one of his hind Legs, with a Twitch, higher than the other. Sometimes 'tis found on both Legs. This Kind frequently degenerates into the *Ox-Spavin*, for which there is no Remedy, but to apply the Fire; which, however, is not always ſucceſsful.

The Word is form'd from the *French*, *Eſparvin*, which ſignifies the ſame thing.

There are two other Kinds of *Spavin*, which have their Seat in the Hoof, *viz.* the *Blood Spavin*, and *Bone Spavin*; which ſee under their proper Articles.

SPAWS, are Springs of Water, ariſing out of Minerals in the Earth, or from Mines of Nitre, Sulphur, Allum, Bitumen, Copperas, &c. See MINERAL and WATER.

Spaws are phyſical Waters, ſome purging by Urine, others by Vomit, and Stool.

That in *Yorkſhire* is the moſt noted of this Kind in *England*. See BATH.

SPAYING, the Operation of Caſtrating the Females of ſeveral Kinds of Animals, as Sows, Bitches, &c. to prevent any further Conception, and promote their fattening. See CASTRATION.

'Tis perform'd, by cutting them in the mid Flank, on the left Side, with a ſharp Knife or Lancet, taking out the Birth-Bag and cutting it off, and ſo ſtitching up the Wound, anointing the Sore with Tar, and keeping the Animal warm for two or three Days.

The uſual Way, is to make the Inciſion a-ſlope, two Inches and a Half long, that the Fore-finger may be put in towards the Back, to feel for Two Kernels, as big as Acorns on both Sides the Birth, one of which is drawn to the Wound, the String thereof cut, and thus both taken out.

SPEAKER, a Member of the Houſe of Commons, elected by a Majority of the Votes thereof, to act as Chair-man, or Preſident, in putting Queſtions, reading Briefs or Bills, keeping Order, reprimanding the Refractory, adjourning the Houſe, &c.

The firſt Thing done upon the firſt Meeting of a Parliament, is to chuſe a *Speaker*; who is to be approved of by the King; and who upon his Admiſſion, begs his Majeſty, That the Commons, during their Sitting, may have *free Acceſs to his Majeſty*; *Freedom of Speech in their own Houſe*, and *Security from Arreſts*.

The *Speaker* is not allowed to perſuade or diſſuade, in paſſing of a Bill; but only to make a ſhort and plain Narrative; nor to Vote, unleſs the Houſe be equally divided. See PARLIAMENT.

The Lord Chancellor is uſually *Speaker of the Houſe of Lords*. See CHANCELLOR.

The *Speaker of the Convocation*, is called the *Prolocutor*. See PROLOCUTOR.

SPEAKING, the Art or Act of expreſſing one's Thoughts in articulate Sounds or Words. See WORD and VOICE; ſee alſo SPEECH and GRAMMAR.

Pliny, *Ælian*, *Plutarch* and other Authors, make mention of ſeveral Beaſts that have *Spoke*: And *Pliny* himſelf, ſpeaks with Aſſurance, in his Hiſtory, of an Ox that *Spoke*. *Philoſtrates*, in his Life of *Apollonius*, gives the like Privilege to an Elm, and even to Ships. *Homer* makes *Xanthos*, one of *Achilles*'s Horſes, ſpeak; wherein he has been followed by *Oppian*. But theſe are all fabulous: We have much better Authority for a Serpent, and an Aſs's ſpeaking. See LANGUAGE.

SPEAKING-*Trumpet*. See TRUMPET.

SPECIAL, ſomething that has a particular Deſignation; from the *Latin*, *Species*; in Oppoſition to *general*, of *Genus*. See SPECIES and GENUS.

The King in his Letters, frequently ſays, of our *Special Grace*, full Power and royal Authority.

SPECIAL *Matter*, in Evidence, in Law. See GENERAL *Iſſue*.

SPECIAL *Verdict*, &c. See VERDICT, &c.

SPECIALTY, in Law, is moſt commonly taken for a Bond, Bill, or ſuch like Inſtrument. Sometimes it is alſo uſed for *Special* or particular Acquaintance.

SPECIES, an Idea, which relates to ſome other more general one; or is compriz'd under a more univerſal Diviſion of a Genus. See GENUS.

Species is a mere Term of Relation: And the ſame Idea may be a *Species*, when compared to another more general one; and a *Genus*, with regard to a more particular one. Thus Body is a *Genus*, with regard to an animate and inanimate Body; and a *Species*, with regard to Subſtance.

The laſt *Species*, is that which can only be divided into Individuals. See INDIVIDUAL.

Animal is a *Species*, with regard to Body; and Man is a *Species* with regard to Animal. God deſtroy'd Mankind by the Deluge; but he preſerv'd the *Species*. See DELUGE.

SPECIES, in Logic, is one of the Five Words, call'd by *Porphyry*, *Univerſals*. See UNIVERSAL.

The Word is *Latin*, form'd from the ancient Verb, *Specio*, I ſee; as if a *Species* of Things were a Collection of all the Things ſeen at one View.

SPECIES, in Rhetoric, is a particular Thing, contained under a more univerſal one.

The Orators alſo call it *Hypotheſis*, *E. gr.* Virtue is to be loved, is the *Genus* or *Theſis*. Temperance is to be preſerved here, at this Time, is the *Species* or *Hypotheſis*. See THESIS.

SPECIES, in the ancient Muſic, a Sub-diviſion of one of the Genera.

The Genera of Muſic were Three, the *Enharmonic*, *Chromatic* and *Diatonic*; the two laſt of which were variouſly ſub-divided into *Species*; nor was the Firſt without *Species*, though thoſe had not particular Names as the *Species* of the other Two had.

Theſe *Species* were alſo called the *Chroai*, Colours of the Genera: The Conſtitution whereof, ſee under the Article GENERA.

SPECIES, in Opticks, the Image painted on the Retina by the Rays of Light reflected from the ſeveral Points of the Surface of Objects, received in at the Pupilla, and collected, in their Paſſage through the Cryſtallin, &c. See VISION.

The Philoſophers have been in great Doubt, whether the *Species* of Objects, which give the Soul an Occaſion of *Seeing*, are an Effuſion of the Subſtance of the Body; or a mere Impreſſion which they make on all ambient Bodies, and which they all reflect, when in a proper Diſtance and Diſpoſition; or, laſtly, whether they are not ſome other more ſubtile Body, as Light, which receives all theſe Impreſſions from Bodies, and is continually ſent and returned from one to other, with the different Figures and Impreſſions it had taken on all Sides: But the Moderns have decided this Point by their Invention of artificial Eyes, wherein the *Species* of Objects are received on a Paper or Linnen-cloth in the ſame manner as they are received in the natural Eye. See EYE.

The Ancients have diſtinguiſhed the *Species*, whereby Objects become viſible, into *Impreſſæ* and *Expreſſæ*.

Impreſs'd Species are ſuch, as come from without; or are ſent from the Object to the Organ; ſuch are thoſe we have already been ſpeaking of.

Expreſs'd Species, are thoſe, on the contrary, from within; or that are ſent from the Organ to the Object.

Le Clerc, in his Syſtem of Viſion, by one of thoſe Revolutions very frequent in philoſophical Opinions, has call'd upon the Stage again the *Species expreſſæ*, of the ancient Philoſophers. For, according to him, 'tis not by *Species* or Images impreſs'd on the Optic Nerve, that the Soul ſees Objects; but by Rays, which ſhe herſelf directs to them, and which ſhe uſes as a Blind Man does his Staff, to grope out Objects.

The Peripateticks account for Viſion, from a kind of *Intentional Species*, thus: Every Object, ſay they, expreſſes a perfect Image of itſelf on the Air next to it. This expreſſes another leſſer one on the Air next to that; and this a Third ſtill leſs. Thus are the Images continued from the Object to the Cryſtallin, which theſe Philoſophers hold the principal Organ of Seeing. Theſe they call *Species Intentionales*; and to account the better for their Generation, affirm, That Objects exhibit them in the ſame Manner, as Mirrors do a Man's Face.

SPECIES, in Theology, the Appearances of the Bread and Wine in the Sacrament, after Conſecration: Or, as the *Romaniſts* call them, the Accidents remaining in the Bread, &c. whereby they become ſenſible to us, after their Subſtance is deſtroy'd.

The *Species* of the Bread, &c. are its Whiteneſs, Quantity, Figure, Friableneſs, &c. Of Wine, its Flavour, Quickneſs, ſpecific Gravity, &c.

The Generality of the *Romiſh* Divines, hold, That the *Species* are abſolute Accidents: And the *Carteſians*, who are bound to deny any ſuch Things as abſolute Accidents, are greatly puzzled to explain the *Species*, without incurring the Cenſure of Hereſy. F. *Magnan* is forced to aſſert, That the *Species* are mere Deluſions and Appearances, which God impreſſes on our Senſes. See Absolute *Accident*.

Species, in Commerce, are the ſeveral *Pieces* of Gold, Silver, Copper, *&c.* which having paſs'd their full Preparation, and Coinage, are currant in Public. See Coin.

Species decried, or *cried down*, are ſuch as the Prince has forbidden to be received in Payment.

Light Species, are thoſe that fall ſhort of the Weight preſcribed by Law.

Falſe Species, are thoſe of different Metal from what they ſhould be, *&c.*

Species, in Algebra, are the Symbols, or Characters, whereby the Quantities are repreſented. See Character.

SPECIFIC, in Philoſophy, that which is proper, or peculiar to any thing; that characterizes it, and diſtinguiſhes it from every other Thing.

Thus the attracting of Iron is *Specific* to the Load-ſtone, or a *Specific* Property of the Load-ſtone.

A juſt Definition ſhould contain the *ſpecific Notion* of the Thing defined, or that which *ſpecifies* and diſtinguiſhes it from every thing elſe. See Definition.

Specific, in Medicine, a Remedy, whoſe Virtue and Effect is peculiarly adapted to ſome certain Diſeaſe; is adequate thereto; and exerts its whole Force immediately thereon.

Thus Quinquina, or the Jeſuits Bark, is held a *Specific* for intermitting Fevers or Agues; Mercury for the Venereal Diſeaſe, *&c.* See Quinquina.

Authors make mention of three Kinds of *Specific Medicines*.

1° Such as are eminently and particularly friendly to this or that Part, as the Heart, the Lungs, the Brain, the Stomach, *&c.*

2° Such as ſeem to attract, expell, or evacuate ſome determinate Humour, by a kind of *Specific* Power they are endowed withal; as Jalap is ſuppoſed to purge watery Humors, Rhubarb, Bile, *&c.*

And, 3°, Such as remove the Cauſe of a Diſeaſe, by ſome ſudden Property, without our knowing how or why; or the Manner of whoſe Operations we are entirely ignorant of, and have only learnt their Effects by Experience.

In the Uſe of theſe laſt, there is no Enquiry into the Nature of the Diſeaſe; no regard had to the Symptoms or Phænomena: Nor is the Medicine to be at all adapted to the particular Circumſtances thereof. All that we regard, is the Name of the Diſeaſe, and that of the Remedy: As, immediately, upon finding an intermitting Fever, we preſcribe the Bark; to aſſuage Pain, Opium; to expel Poiſon, ſome particular Antidote.

A *Specific* Medicine, therefore, ſtands in Oppoſition to a *Scientific* or *Methodic* Medicine. See Medicine.

Specific *Gravity*, in Hydroſtaticks, that Gravity, or Weight peculiar to each *Species*, or Kind of natural Body; and whereby it is diſtinguiſhed from all other Kinds. See Weight.

In this Senſe, a Body is ſaid to be *ſpecifically Heavier* than another, when under the ſame Bulk it contains a greater Weight than that other; and that other, is ſaid to be *ſpecifically Lighter* than the Firſt. Thus, if there be two equal Spheres, each a Foot in Diameter; only the one Wood, the other Lead: Since the Leaden one is found heavier than the Wooden one, it is ſaid to be *ſpecifically* or in *Specie*, *Heavier*, and the Wooden one *ſpecifically Lighter*.

This kind of Gravity, ſome call *relative Gravity*; in oppoſition to *abſolute Gravity*, which increaſes in Proportion to the Quantity or Maſs of the Body. See Gravity.

Laws of the Specific *Gravity and Levity of Bodies.*

1. If two Bodies be equal in Bulk, their *ſpecific Gravities* are, to each other, as their abſolute Gravities. Thus a Body is ſaid to be twice as heavy, *ſpecifically*, as another, if it have twice its Gravity under the ſame Bulk

Hence, the *ſpecific* Gravities of equal Bodies, are as their Denſities. See Density.

2. The *ſpecific* Gravities of Bodies of the ſame Weight, are in a reciprocal *Ratio* of their Bulks. Hence, the Maſſes of two Bodies of the ſame Weight, are in a reciprocal *Ratio* of their Bulks.

3. The *ſpecific* Gravities of two Bodies are, in a *Ratio*, compounded of the direct *Ratio* of the abſolute Gravities, and the reciprocal one of their Bulks.

Hence, again, the *ſpecific* Gravities are as the Denſities.

4. A Body *ſpecifically* heavier than a Fluid, loſes ſo much of its Weight therein, as is equal to a Quantity of the Fluid of the ſame Bulk.

For, ſuppoſe a Cubic Inch of Lead immerged in Water: a Cubic Inch of Water will, thereby, be expell'd from its Place: But the Weight of this Water was ſuſtained by the Reſiſtance of the ambient Water. Therefore, ſuch a Part of the Weight of the leaden Cube, muſt be ſuſtained by the Reſiſtance of the ambient Water, as is equal to the Weight of the Water expell'd. The Gravity of the Body immerg'd, therefore, muſt be diminiſhed by ſo much.

Hence, 1°, Since a Fluid *ſpecifically* heavier, has a greater Weight, in the ſame Bulk, than a lighter; the ſame Body will loſe a greater Part of its Weight in a Fluid, *ſpecifically* heavier than in a lighter; and therefore it weighs more in a lighter than a heavier.

2° Equal homogeneous Bodies weighing equally in Air, loſe their Equilibrium, if one of them be immerg'd in a heavier Fluid; the other in a lighter.

3° Since the *ſpecific* Gravities are as the abſolute Gravities under the ſame Bulk; the *ſpecific* Gravity of the Fluid, will be to the Gravity of the Body immerged; as the Part of the Weight loſt by the Solid, to the whole Weight.

4° Two Solids equal in Bulk, loſe the ſame Weight in the ſame Fluid; but the Weight of the *ſpecifically* heavier Body, is greater than that of the *ſpecifically* lighter; therefore, the *ſpecifically* lighter, loſes a greater Part of its Weight, than the *ſpecifically* heavier.

4. Since the Bulks of Bodies equal in Weight, are reciprocally as the *ſpecific* Gravities; the *ſpecifically* lighter, loſes more Weight in the ſame Fluid than the heavier; wherefore, if they be in *Equilibrio* in one Fluid; they will not be ſo in another; but the *ſpecifically* heavier, will preponderate, and that the more as the Fluid is denſer.

5. The *Specific* Gravities of Fluids, are as the Weights loſt by the ſame Solid immerged in the ſame.

To find the Specific *Gravity of any Fluids.*

On one Arm of a Balance ſuſpend a leaden Globe; and to the other, faſten a Weight, which is in *Equilibrium* therewith in the Air. Immerge the Globe ſucceſſively in the ſeveral Fluids, whoſe *ſpecific* Gravities are to be determined, and obſerve the Weight which balances it in each. Theſe ſeveral Weights, ſubtracted, ſeverally, from the firſt Weight, the Remainders are the Parts of the Weight loſt in each Fluid. Whence the *Ratio* of the *ſpecific* Gravity of the Fluids is ſeen. See Hydrostatical *Balance*.

Hence, as the Denſities are as the *ſpecific* Gravities; we find the *Ratio* of the Denſities of the Fluids at the ſame time.

This Problem is of the utmoſt Uſe; as by it, the Degree of Purity or Goodneſs of Fluids, is eaſily found; a Thing, not only of Service in Natural Philoſophy; but alſo in common Life, and in the Practice of Phyſic.

At different Seaſons of the Year, the *ſpecific* Gravities of the ſame Fluids, are found different. *Joan. Caſp. Eiſenchmidius*, in his *Diſquiſitio Nova de Ponderibus*, &c. gives us Variety of Experiments relating hereto: The principal whereof, to ſave the Trouble of too frequent Experiments, we ſhall here ſubjoin.

Table of Specific *Gravities of ſeveral Fluids.*

A Cubic Inch *Paris* Meaſure.	In Summer			In Winter		
	O.	*D.*	*G.*	*O.*	*D.*	*G.*
Of Mercury	7	1	66	7	2	14
Oil of Vitriol		7	59		7	71
Spirit of Vitriol		5	33		5	38
Spirit of Nitre		6	24		6	44
Spirit of Salt		5	49		5	55
Aquafortis		6	23		6	35
Vinegar		5	15		5	21
Diſtill'd Vinegar		5	11		5	15
Burgundy Wine		4	67		4	75
Spirit of Wine		4	32		4	42
Pale Ale		5	1		5	9
Brown Ale		5	2		5	7
Cows Milk		5	20		5	25
Goats Milk		5	24		5	28
Urine		5	14		5	19
Spirit of Urine		5	45		5	53
Oil of Tartar		7	27		7	43
Oil of Olives		4	53	Is froze in Winter		
Oil of Turpentine		4	39		4	46
Sea Water		6	12		6	18
River Water		5	10		5	13
Spring Water		5	11		5	14
Diſtill'd Water		5	8		5	11

That the *ſpecific* Gravity may be found the more accurately; the Weight of the Thread not immerged in the Fluid, is to be ſubtracted from the Weight of the Solid in Air; and the Force neceſſary to make the Thread ſubſide (if it be *ſpecifically* lighter) is be to added to the Weight loſt. But if the Thread that ſuſtains the Solid be heavier than the Fluid; the whole Weight of the Thread in the Air is to be ſubtracted from the Weight of the Solid in Air; and the Weight the Thread loſes from the Weight loſt in the Fluid. Indeed, this Precaution may be ſpared, if in examining the *ſpecific* Gravity of ſeveral Fluids, Care be taken that the ſame Thread be immerged to the ſame Depth in each.

6. To determine the *Ratio* which the *ſpecific* Gravity of a Fluid has to the *ſpecific* Gravity of a Solid, that is *ſpecifically* heavier than the Fluid.

Weigh any Maſs of the Solid in the Fluid, and note the juſt Weight therein: The *ſpecific* Gravity of the Fluid will be to that of the Solid, as the Part of the Weight loſt by the Solid, is to its whole Weight.

7. The *ſpecific* Gravities of equally heavy Bodies, are reciprocally as the Quantities of Weight loſt in the ſame Fluid. Hence we find the *Ratio* of the *ſpecific* Gravities of Solids, by weighing Maſſes thereof, that are equal in Air, in the ſame Fluid; and noting the Weights loſt by each.

The *ſpecific* Gravities of various Solids, have been determined by many Authors. *Marin Ghetaldus*, particularly tried the *ſpecific* Gravities various Bodies had, eſpecially metallic Ones; which were borrowed thence by *Oughtred*. In the *Philoſophical Tranſactions*, we have very prolix Tables of *ſpecific* Gravities, by various Authors.

'Twill be ſufficient for us to give thoſe of ſome of the more uſual Bodies, as determined with great Care and Accuracy by M. *Petit*; and publiſh'd by *F. Merſenne*; and from him by ſeveral others.

Table of the Specific *Gravities of ſeveral Solids.*

An Hundred pound Weight of Gold, is equal in bulk to

71 ½	of Mercury	38 ¼	of fine Tin
60 ½	of Lead	26	of Load-ſtone
54 ½	of Silver	21	of Marble
47 ⅓	of Copper	14	of Stone
45	of Braſs	12 ½	of Sulphur
42	of Iron	5	of Wax
39	of Tin	5 ⅓	of Water.

8. A Body *ſpecifically* heavier, deſcends in a Fluid *ſpecifically* lighter, with a Force equal to the Exceſs of its Weight, over that of an equal Quantity of the Fluid.

Hence, 1°, The Force which ſuſtains a *ſpecifically* heavier Body in a Fluid, is equal to the Exceſs of the abſolute Gravity of the Body above that of the Fluid, under the ſame Bulk; *E.gr.* 47 ⅓ Pound of Copper loſes 5 ⅓ Pounds of its Weight in Water; therefore a Power of 42 Pounds is able to ſuſtain it.

2° Since the Exceſs of the Weight of a Solid over the Weight of a Fluid *ſpecifically* heavier, is leſs than that over the Weight of a *ſpecifically* lighter Fluid under the ſame Bulk; it will deſcend with leſs Force in a *ſpecifically* heavier Fluid than in a lighter; and, conſequently, will deſcend more ſlowly in the former than in the latter.

9. A *ſpecifically* lighter Body, ſinks in a heavier Fluid, till the Weight of a Quantity of the Fluid, equal in Bulk, to the Part immerſed, is equal to the Weight of the whole Body.

Hence, 1°, Since the *Specific* Gravities of Bodies of the ſame Weight, are reciprocally as their Bulks; and the Bulks of Fluids equal in Weight, are as the Parts of the ſame Solid immerged therein; the *ſpecific* Gravities of Fluids are reciprocally as the Parts of the ſame Body immerged therein.

2° A Solid, therefore, immerges deeper in a lighter Fluid than a heavier; and deeper as the Proportion of the *ſpecific* Gravity of the Solid to that of the Fluid is greater.

3° If a Body be of the ſame *ſpecific* Gravity with a Fluid; the whole Body will be immerged; and it will remain in any given Place of the Fluid.

4° If a *ſpecifically* lighter Body be wholly immerged in a Fluid; it will be urged by the collateral Columns of the Fluid, to aſcend with a Force equal to the Exceſs of the Weight of the Fluid, Bulk for Bulk, over the Weight of the Solid.

5° A Body, therefore, *ſpecifically* lighter, lying on the Bottom of a Veſſel, will not be raiſed up, unleſs the heavier Fluid riſe above ſuch a Part, as is equal in Bulk to a Quantity of the Fluid of the ſame Weight with the whole Solid.

10. The *ſpecific* Gravity of a Solid, is to the *ſpecific* Gravity of a lighter Fluid, wherein 'tis immerged, as the Bulk of the Part immerged, is to the whole Bulk.

11. The *ſpecific* Gravities of equal Solids, are as their Parts immerged in the ſame Fluid.

12. The Weight and Bulk of a *ſpecifically* lighter Body, and the Weight of the *ſpecifically* heavier Fluid, being given, to find the Force required, to keep the Solid wholly immerged under the Fluid.

As this Force is equal to the Exceſs of the Weight of the Fluid, beyond that of an equal Bulk of the Fluid; from the given Bulk of the Solid, and the Weight of a Cubic Foot of Water, find, by the Rule of Three, the Weight of a Bulk of Water, equal to that of the Body. From this, ſubtract the Weight of the Solid; the Remainder is the Force required. *E. gr.* Suppoſe the Force neceſſary to detain a Solid Eight Feet in Bulk, and 100 Pounds in Weight, under Water, required: Since a Cubic Foot of Water is found to weigh 70 Pound, the Weight of Water under the Bulk of Eight Feet, is 560; whence, 100 Pound, the Weight of the Solid, being ſubtracted; the Remainder 460 Pound, is the Force neceſſary to detain the Solid under Water.

Hence, ſince a *ſpecifically* lighter Body aſcends in a heavier Fluid, with the ſame Force that would prevent its Aſcent: by the preſent Problem, we can likewiſe find the Force wherewith a *ſpecifically* lighter Body aſcends in a heavier.

13. The Weight of a Veſſel, to be made of a *ſpecifically* heavier Matter; and that of a *ſpecifically* lighter Fluid, being given: to determine the Cavity the Veſſel muſt have, to ſwim on the Fluid.

The Weight of a Cubic Foot of the Fluid being given; the Bulk of the Fluid equal to the Weight of the Veſſel, is found by the Rule of Three. If, then, the Cavity be made a little bigger than this, the Veſſel will have leſs Weight under the ſame Bulk, than the Fluid, and will therefore be *ſpecifically* lighter than the ſame, and conſequently, will ſwim. *E. gr.* Suppoſe it required to make an Iron Ball of 30 Pounds Weight, ſo as it ſhall ſwim upon Water. Since the Weight of a Cubic Foot of Water is 70 Pound, the Quantity of Water equal to 30 Pounds, will be found 728 571‴; and therefore the Cube of the Diameter of the Sphere 1392174‴, whence the Cube Root being extracted 1′ 1″ 1‴ is the Diameter of a Sphere of Water of 30 Pounds. If, therefore, the Diameter of the Cavity be made a little bigger, *e. gr.* 1 ½ or 2 Feet; ſo much leſs of the Ball will be immerged as the Diameter is increaſed.

14. The Force employ'd to retain a *ſpecifically* lighter Solid, under a heavier Fluid; and the Weight loſt by a heavier Solid in a lighter Fluid; are each added to the Weight of the Fluid, and weigh together with it.

The ſeveral Theorems here delivered, are not only all demonſtrable from the Principles of Mechanicks; but are conformable to Experiment. In effect, Experience is here found to anſwer exactly to Calculation, as is abundantly evident from the Courſes of philoſophical Experiments, now frequently exhibited; where the Laws of *ſpecific Gravitation* are well illuſtrated.

SPECILLUM, is an Inſtrument, wherewith Surgeons ſearch Wounds; in manner of a Probe.

SPECIOUS *Arithmetic*, is that converſant in Quantities, deſign'd by *Species*, that is by the Letters of the Alphabet; in contradiſtinction to that, where the Quantities are expreſs'd by Numbers, which is call'd *Numerous Arithmetic*. See Arithmetic; ſee alſo Species.

Specious Arithmetic, is what we more uſually call *Algebra*. See Algebra.

SPECTACLE, *Shew*; ſome extraordinary Object, which draws the View and Attention; and is not beheld without ſome Emotion.

The Term is chiefly uſed by the Ancients, for theatrical and amphitheatrical Performances: For Comedies, Combats of Gladiators, of Beaſts, and even for ſolemn Proceſſions, as thoſe of the *Circus*, *&c.*

The People of *Rome* were extremely fond of *Spectacles*; and the *Roman* Hiſtorians obſerve, There was no ſurer Way of gaining their Affections, and making Parties to introduce Tyranny and Oppreſſion, than by the Uſe of *Spectacles*.

SPECTACLES, an Optic Machine, conſiſting of two Lens's ſet in Horn, or other Matter; and applied on the Noſe; to aſſiſt in Defects of the Organ of Sight. See Lens.

Old People and all Presbytæ, uſe *Spectacles* of convex Lens's, to make Amends for the Flatneſs of the Eye, which does not make the Rays converge enough to have them meet in the Retina. See Presbytæ.

Short-ſighted People, or Myopes, uſe concave Lens's, to keep the Rays from converging ſo faſt, through the great Roundneſs of the Eye, as to make them meet e'er they reach the Retina. See Myopes.

In *Spain*, and at *Venice* eſpecially, *Spectacles* are uſed with a different View: All the People of Note and Faſhion there, have them continually on their Noſes; a Folly, that has its Source in the natural Pride of thoſe People, who value themſelves on a profound Wiſdom; and affect to ſtare very near at every Thing; as if their Eyes were weakned, and wore out with Exceſs of Attention. *Vign. de Marv.*

F. Cherubin, a Capuchin, deſcribes a kind of *Spectacle-Teleſcopes*, for the viewing of remote Objects with both Eyes; hence called *Binoculi*. Though *F. Rheita* had mentioned the ſame before him, in his *Oculus Enoch* and *Eliæ*. See Telescope.

The ſame Author invented a kind of *Spectacles*, with three or four Glaſſes, which perform'd extraordinarily.

Spectacles were certainly unknown to the Ancients; yet are they not of ſo late a Date as the Teleſcope. *Franciſco Redi*, in a very learned Treatiſe on *Spectacles*, will have them to have been invented in the 13th Century, between the Years 1280 and 1311; and adds, that *Alexander Deſpina*, a Monk of the Order of *Predicants* of St. *Catherine* at *Piſa*, firſt communicated the Secret, which was of his own Invention; upon learning, that another Perſon had it as well as himſelf. This Hiſtory is wrote in the Chronicles of that Convent.

The ſame Author tells us, That in an old Manuſcript ſtill preſerv'd in his Library, compoſed in 1299, *Spectacles* are mentioned as a Thing invented about that Time: And that a famous Jacobin, one *Jourdon de Rivalto*, in a Treatiſe compoſed in 1305, ſays, expreſly, That 'twas not yet 20 Years, ſince the Invention of *Spectacles*. He likewiſe quotes *Bernard Gordon* in his *Lilium Medicinæ*, wrote the ſame Year, where he ſpeaks of a Collyrium, good to enable an Old Man to read without *Spectacles*.

Du Cange, however, carries the Invention of *Spectacles* farther back; aſſuring us, That there is a *Greek* Poem in Manuſcript in the *French* King's Library, which ſhews, That *Spectacles* were in Uſe in the Year 1150: ſtill, the Dictionary of the Academy *Della Cruſca*, under the Word *Occhiale*, inclines to *Redi*'s Side; and quotes a Paſſage from *Jourdon*'s Sermons, which ſays, That *Spectacles* had not been 20 Years in Uſe: Now *Salviati* has obſerved, that thoſe Sermons were made between the Years 1330 and 1336.

SPECTATOR, a Perſon preſent at a *Spectacle*.

Among the *Romans*, *Spectators*, *Spectatores*, were a kind of Gladiators, who had had their Diſcharge; and were frequently hired to be preſent, as *Spectators*, at the Combats of Gladiators, *&c.* the People were entertained withal. See GLADIATOR.

SPECULARIA, the Art of preparing, and making *Specula* or Mirrors: Or, the Laws of Mirrors, their Phænomena, Cauſes, *&c.* call'd alſo *Catoptricks*. See CATOPTRICKS.

SPECULARIS *Lapis*, in natural Hiſtory, is a kind of Stone, clear as Glaſs, uſed in ſeveral Countries where 'tis found, for Window-lights, *&c.* 'Tis a kind of Talc, ſplits eaſily into thin Laminæ or Plates; and is ſometimes calcined to make a fine Plaiſter. See TALC.

SPECULUM, *Mirror*, in Opticks, any poliſh'd Body, impervious to the Rays of Light: Such as Water in Wells and deep Rivers, poliſh'd Metals, and Glaſſes lined with Mercury, or other opake Matter, popularly call'd *Looking-Glaſſes*. See LOOKING-*Glaſs*.

The ſeveral Kinds and Forms of *Specula*, *plain*, *concave* and *convex* The Theory and Phænomena of the ſeveral Kinds of *Specula* - - The Method of preparing, grinding, *&c.* Glaſs or Metal *Specula* of various Forms - - - -	See under MIRROR.

The Laws and Effect of the *Specula* of various Forms - The Theory of concave *Specula*	See particularly under	REFLECTION. BURNING-*Glaſs*.

SPECULUM *Ani*, an Inſtrument, wherewith Surgeons dilate the Fundament, examine Sores, extract Bones, or let out any peccant Matter that may be there lodged.

SPECULUM *Matricis*, is an Inſtrument uſed by Surgeons, to examine and dreſs corrupted Places in the natural Parts of Women. Its Form is the ſame with that of the *Speculum Ani*.

SPECULUM *Oris*, is an Inſtrument ſerving to examine Diſorders in the Mouth.

There are two Kinds: the one common; the other bigger and ſtronger, fit not only to keep down the Tongue; but alſo the lower Jaw; while the Mouth is ſurveyed, to the very Extremity of the Throat, and the neceſſary Remedies applied.

SPEECH, the Act, or Art of expreſſing a Man's Thoughts, by certain Signs invented for that Purpoſe.

Theſe Signs are principally *Sounds*, made by the *Voice* and *Letters*. See VOICE and LETTER.

SPEECH, in Grammar, an Aſſemblage of ſeveral Words ranged in Order. See LANGUAGE.

The Grammarians generally make *Eight Parts of Speech*; *i. e.* Eight kinds of Words uſed in Diſcourſe, *viz.* *Noun*, *Pronoun*, *Verb*, *Participle*, *Adverb*, *Conjunction*, *Prepoſition* and *Interjection*; each of which ſee under its proper Article ADVERB, NOUN, PRONOUN, *&c.*

F. Buffier, one of the laſt and beſt Writers of Grammar, only admits of three Parts of Speech, *viz.* *Noun*, *Verb* and *Modificative*; which laſt includes the *Adverb*, *Conjunction* and *Prepoſition*. See MODIFICATIVE.

SPELL, a kind of Charm, to drive away a Diſeaſe, by hanging a Word or Sentence on a Paper about the Neck. See CHARM and PHYLACTERY.

SPELL, in the Sea Language. *To Spell*, is to let go the Sheets and Bowlings of a Sail, and brace the Weather Brace, that the Sail may lie looſe in the Wind. *To do a Spell*, is to do any thing by Turns, for a ſhort Time, and then leave it. *To give a Spell*, is to be ready to work in ſuch a one's Room. *Freſh Spell*, is when freſh Men come to work; eſpecially when the Rowers are relieved, with another Gang.

SPELLING, that Part of Grammar properly called *Orthography*. See ORTHOGRAPHY.

Dr. *Jones* gives the following Rules or Maxims of *Spelling*. 1°. That all Words were originally writ as *ſpelt*. 2° That in all Words, whoſe Sounds have been ſince alter'd (the Origin of the Difficulty of *Spelling*) the Alteration was made for the ſake of Eaſe and Pleaſure: And hence, 3° All Words that can be written ſeveral Ways, muſt be *ſpelt* according to the hardeſt, harſheſt and moſt unuſual Sound.

SPELTER, or *Zinck*, a kind of imperfect Metal, which ſome confound with *Biſmuth*, and others with *Spalt*; others making it a female Antimony. See ZINK.

The *Spelter* is a kind of mineral Lead, very hard, white and brilliant; which though not perfectly malleable, yet ſtretches a little under the Hammer.

'Tis found in greateſt Quantity in the Mines of *Goſſelar* in *Saxony*; and is ordinarily ſold in large, ſquare, thick Cakes, whence one would judge it to have been melted as it came out of the Mines, and caſt into that Figure.

'Tis uſed to clear and whiten Tin, in making of Pewter, much as Lead is uſed to purify Gold and Silver.

Thoſe who imagine that the *Spelter* is put in to increaſe the Weight, are miſtaken; ſince in melting Five or Six hundred Weight of Tin, they ſcarce put in a Pound of *Spelter*, and that mix'd with Turmaric. 'Tis alſo uſed in the making of Solder, and with Curcuma, in the melting of Copper, to give that Metal a gold Colour; which, however, is not permanent. See SOLDER.

The Beſt is white, in fine Scales, difficult to break, *&c.*

SPERM or *Sperma*, the Seed whereof an Animal is form'd. See SEED.

The Word is *Greek*, σπέρμα.

SPERMA-*Ceti*, in Pharmacy, uſually call'd *Parmaſity*, is a Preparation made from the Brain, and Cerebel of a kind of Animal, call'd by ſome, the *Male Whale*, and by the *Latins*, *Orca*; only diſtinguiſh'd from the common Whale, by its having Teeth, in lieu whereof, the Whale has a kind of Tufts in the Throat. See WHALE.

The Ancients were great Strangers to the Nature of this Preparation; inſomuch, that *Schroder* ſeems in doubt, whether to reckon it an animal or mineral Subſtance.

It had its Name *Sperma Ceti*, Seed or Sperm of a Whale, given it, no doubt, to raiſe the Value, by a Notion of its Scarcity.

The Method of preparing it, is a Secret in the Hands of a very few: The Proceſs is thus;

The Brain being taken out of the Animal, is melted over a gentle Fire, and put into Moulds, like thoſe wherein Sugar-Loaves are form'd. When cold and drain'd of its Oil, 'tis taken out and melted over again; and this they continue to do till it be well purified, and become white. 'Tis then cut with a Knife for the Purpoſe, and reduced into Flakes, ſuch as we have it from the Druggiſts.

It muſt be choſen white, clear and tranſparent, of a rankiſh Smell, which ſome fancy to partake of that of the Violet: ſome ſophiſticate it with Wax; but the Deceit is diſcovered, either by the Smell of the Wax, or by the Dulneſs of the Colour.

Some alſo ſell a Preparation made from the Tail of the Whale, inſtead of that from the Brain; which laſt kind turns Yellow, aſſoon as opened to the Air. In the General, there is no Merchandiſe that ſhould be kept cloſer from the Air than *Sperma Ceti*.

'Tis of ſome Uſe in Medicine. Dr. *Quincy*, ſays, 'tis a noble Remedy in many Caſes, as the Aſthma, *&c.* though chiefly uſed in Bruiſes, inward Hurts, and after Delivery. But 'tis certain, its greateſt Property, and that which makes it ſo much in Vogue, is its ſoftning the Skin, and reſolving Tumours of the Breaſt. Whence it comes to be uſed by the Ladies in Paſtes, Waſhes, *&c.*

SPERMATIC, in Anatomy, ſomething belonging to the *Sperm* or *Seed*.

The Ancients made a general Diviſion of the Parts of the Animal Body into *Spermatic* and *Fleſhy*.

The *ſpermatic* Parts, were thoſe, which by their Colour, *&c.* bore ſome Reſemblance to Seed, and were ſuppoſed to be form'd thereof; ſuch are the Nerves, Membranes, Bones, *&c.*

The *Fleſhy*, were thoſe ſuppoſed to be form'd of the Blood, after Conception. But the Moderns, with much better Reaſon, hold all the Parts to be *Spermatic* in this Senſe, and either form'd of the Ovum of the Female, or of the Semen of the Male. See GENERATION.

M. *Andry* mentions *ſpermatic Worms* in the human Body. See WORMS.

SPERMATIC *Veſſels*, called alſo *Vaſa præparantia*, are certain Veſſels appointed for the bringing of the Blood to the Teſticles, *&c.* to be ſecreted and prepared into Seed; and for the carrying back again the Blood, remaining after the Secretion is effected. See SEED.

The *ſpermatic Veſſels* are two Arteries and two Veins.

Spermatic Arteries ariſe from the fore Part of the Trunk of the Aorta, below the Emulgents. Their Structure is very ſingular, in that, contrary to the Fabric of all other Arteries, which are largeſt at their Exit from the Trunk, theſe are ſmalleſt at their Origin, and grow bigger in their Progreſs towards

wards the Teſtes. By this means, the Blood receives a Check at its firſt going off for thoſe Parts, which diſpoſes it for the future Changes, *&c.* it is to paſs. The ſame End is anſwered in Quadrupeds, by having theſe Arteries curl'd and contorted in their Paſſage like a Screw.

The Reaſon why Nature has taken another Method in Man; Mr. *Cowper* obſerves, is, that in that Caſe, the Abdominal Muſcles muſt have been much larger than they are; by which means, the Inteſtines would have been frequently let down into the Scrotum; an Inconvenience Quadrupeds are ſecured from, by the horizontal Poſition of their Bodies.

The *ſpermatic Arteries*, in their Progreſs, meeting with the *ſpermatic Veins*, enter together with them the inner Lamella of the Peritonæum, where, inſinuating into the Duplicature of the Proceſs, and being cloathed therewith, they paſs on to within three or four Fingers Breadth of the Teſticles, where they divide into Two unequal Branches; the biggeſt of which, goes to the Teſticle, and is diſtributed therein (See TESTICLE.) And the leſs in the *Paraſtata* or *Epididymis.* See PARASTATA.

The *ſpermatic Veins* take the ſame Courſe with the Arteries; only a little above the Teſticles, they ſplit into ſeveral Branches, which uniting, form a Plexus, called *Corpus Varicoſum Pampiniforme* or *Pyramidale.* The Blood returned by the *ſpermatic Veins*, is delivered on the right Side to the Cava, and on the Left, into the emulgent Vein.

SPERMATOCELE, in Medicine, a Rupture occaſioned by a Contraction of the ſeminal Veſſels, whereby they are let fall into the Scrotum. *Harris.*

SPHACELUS, in Medicine, a total Mortification of any Part, occaſioned by an Interception of the Blood and Spirits. See MORTIFICATION.

The Word is *Greek*, σφάκελος, form'd, perhaps, of σφάττω, *I kill.*

The *Sphacelus* is diſtinguiſhed from the Gangrene; which is only a Mortification begun, and, as it were, the Road to a *Sphacelus*, which is the State and Perfection thereof. See GANGRENE.

The *Sphacelus* is diſtinguiſhed by the Lividneſs or Blackneſs of the Part affected; its Softneſs, Inſenſibility and cadaverous Smell.

The other Cauſes of the *Sphacelus*, are cloſe Ligatures, exceſſive Colds, great Inflammations, Bites of Mad Dogs. 'Tis ſometimes, alſo, called *Necroſis*, and ſometimes *Sideratio.* See NECROSIS and SIDERATIO.

A *Sphacelous* Foot, according to *Aquapendente*, ought to be cut off in the mortified Part, near the live Part. When the Foot is off, the dead Fleſh left behind, is to be conſumed by the Application of an actual Cautery, repeated ſeveral Times, till the Patient feel the Heat of the Fire. *Scultet.*

SPHÆRISTERIUM, in Antiquity, the ſeventh Part of the ancient Gymnaſium; being that wherein the Youth practiſed Tennis-Playing. See GYMNASIUM.

The *Sphæriſterium* or Tennis-Court, was between the Place, named *Palæſtra*, and that where they run Races, which was between the Portico's and the outer Wall: Though *Vitruvius* does not make mention of it in the Deſcription he gives of the ancient Gymnaſium.

The Exerciſe here perform'd was called *Sphæriſtica* and *Sphæromachia*, which ſome will have to have differ'd from the modern Tennis; but 'tis not known wherein the Difference conſiſted.

The *Mileſians* were particularly averſe to this Exerciſe; and the *Athenians* as remarkably fond of it.

They frequently gave the Right of Citizens to the *Sphæriſtes*, or Maſters in this Art, by way of Reſpect.

SPHENOIDAL *Suture*, in Anatomy, a *Suture* thus call'd, from its encompaſſing the *Os Sphenoides*, which it ſeparates from the *Os frontis*, the *Os petroſum* and *Os occipitis.* See SUTURE.

SPHENOIDES, in Anatomy, a Bone of the Head, common to the Cranium and upper Jaw. See CRANIUM, *&c.*

It is ſituate in the lower Part of the Skull, whereof it is, as it were, the Baſis, and is connected to all the other Members thereof, by the *Sphenoidal Suture.* Its Form, is irregular, and not eaſy to be deſcribed; whence ſome have call'd it *Multiforme.* It has its Name *Sphenoides* from the *Greek*, σφὴν, *Cuneus*, Wedge, from the Form of its Inſertion into the other Bones of the Skull.

In Adults, 'tis one continued Bone; but in young Children, ſometimes conſiſts of Three, and ſometimes of Four diſtinct Pieces.

SPHENOSTAPHYLINUS, in Anatomy, a Muſcle of the Larynx. It deſcends from a round, fleſhy Origination, near the Root of a Proceſs of the *Os Sphenoides*, and is implanted into the poſterior Part of the Uvula, where it joins its Partner. It ſerves to draw the Uvula upwards and backwards; and hinders the maſticated Aliment from paſſing into the Foramina Narium in Deglutition.

SPHERE, in Geometry, a Solid Body contained under one ſingle Surface, and having a Point in the middle, call'd the *Centre*, whence all the Lines drawn to the Surface, are equal. See SOLID, *&c.*

The *Sphere* is ſuppoſed to be generated by the Revolution of a Semi-circle, as K, (Tab. Geometry Fig. 34.) about its Diameter A B, which is alſo called the *Axis of the Sphere*, and the extreme Points of the Axis, A and C the *Poles of the Sphere.* See CENTRE, CIRCUMFERENCE, AXIS, POLE, *&c.*

Properties of the SPHERE.

1° A *Sphere* is equal to a Pyramid, whoſe Baſe is equal to the Surface, and its Height to the Radius of the *Sphere.*

Hence a *Sphere* being eſteem'd ſuch a Pyramid, its Cube or Solid Content, is found like that of a Pyramid. See PYRAMID.

2° A *Sphere* is to a Cylinder, ſtanding on an equal Baſis, and of the ſame Height, as 2 to 3. Hence, alſo, may the Cube or Content of the *Sphere* be found. See CYLINDER.

3° The Cube of the Diameter of a *Sphere*, is to the Solid Content of the *Sphere*, nearly as 300 to 157: And thus, alſo, may the Content of the *Sphere* be meaſured.

4° The Surface of a *Sphere* is quadruple that of a Circle deſcribed with the Radius of the *Sphere.* For ſince a *Sphere* is equal to a Pyramid, whoſe Baſe is the Surface, and its Altitude, the Radius of the *Sphere*: The Surface of the *Sphere* is had, by dividing its Solidity by a third Part of its Semidiameter.

If, now, the Diameter of the Circle be 100, the Area will be 7850; conſequently, the Solidity 1570000, which divided by a Third of the Semi-diameter, 100; the Quotient is the Surface of the *Sphere* 31400; which is manifeſtly quadruple the Area of the Circle.

The Diameter of a SPHERE *being given, to find its Surface and Solidity.*

Find the Periphery of the Circle deſcribed by the Radius of the *Sphere.* See PERIPHERY.

Multiply this, found, into the Diameter; the Product is the Surface of the *Sphere.* Multiply the Surface by a ſixth Part of the Diameter, the Product is the Solidity of the *Sphere.*

Thus, ſuppoſing the Diameter of the *Sphere* 56, the Periphery will be found 175; which multiplied by the Diameter, the Product 9800 is the Surface of the *Sphere*; which multiplied by one ſixth Part of the Diameter, gives the Solidity 919057. Or, thus;

Find the Cube of the Diameter 175616; then to 300157, and the Cube found, find a Fourth proportional, 919057. See PROPORTIONAL. This is the Solidity of the *Sphere* required.

For Segments and Sectors of Spheres; ſee SEGMENT and SECTOR.

Doctrine of the SPHERE } See { SPHERICKS.
Projection of the SPHERE } See { PROJECTION.

SPHERE *of Activity* of any Body; is that determinate Space or Extent, all round about it, to which, and no farther, the Effluvia continually emitted from that Body, do reach, and where they operate according to their Nature. See EFFLUVIA.

Thus we ſee the magnetical Effluvia have certain Bounds and Limits, beyond which they will have no Influence to turn, or attract the Needle: But where-ever a Needle is placed, ſo as it may be moved by a Load-ſtone, it may be ſaid to be within the *Sphere* of Activity of the Stone. See MAGNET.

SPHERE, in Aſtronomy, that concave Orb or Expanſe, which inveſts our Globe, and in which the heavenly Bodies, Sun, Stars, Planets and Comets, appear to be fix'd, at equal Diſtances from the Eye. See HEAVENS.

This is alſo call'd the *Sphere of the World*; and is the Subject of the *Spherical* Aſtronomy. See SPHERICAL *Aſtronomy.*

This *Sphere*, as it includes the fix'd Stars, whence we alſo occaſionally call it, the *Sphere of the fix'd Stars*, is vaſtly great. The Diameter of the Earth's Orbit is ſo ſmall, in reſpect of the Diameter hereof, that the Centre of the *Sphere* is not ſenſibly changed by any Alteration of the Spectator's Place in the ſeveral Parts of the Orbit: But ſtill, in all the Points of the Earth's Surface, and at all Times, the Inhabitants have the ſame Appearance of the *Sphere*; that is, the fix'd Stars ſeem to poſſeſs the ſame Points in the Surface of the *Sphere.* For our Way of judging of the Places, *&c.* of the Stars, is to conceive right Lines drawn from the Eye or the Centre of the Earth, through the Centres of the Stars, and continued thence, till they cut the foreſaid *Sphere*; the Points where theſe Lines terminate therein, are the apparent Places of thoſe Stars. See PLACE and PARALLAX.

The better to determine the Places of the heavenly Bodies in the *Sphere*; ſeveral Circles are imagined to be deſcribed in the Surface thereof; hence called *Circles of the Sphere.* See CIRCLE *of the Sphere.*

Of theſe, ſome are ſaid to be *greater*, as the Ecliptic, Meridian, Equator, *&c.* others *leſs*, as the Tropicks, Parallels, *&c.* See Greater and Lesser.

Of theſe, again, ſome are *moveable*, or owe their Origin to the Motion of the Earth, *&c.* ſuch is the Ecliptic, Secondaries of the Ecliptic, *&c.* See each Circle under its proper Head; as Equator, Ecliptic, Horizon, *&c.*

Sphere, in Geography, *&c.* a certain Diſpoſition of the Circles on the Surface of the Earth, with regard to one another; which varies in various Parts thereof. See Earth.

The Circles originally conceived on the Surface of the *Sphere* of the World, are almoſt all transferred, by Analogy, to the Surface of the Earth; where they are conceived to be drawn directly underneath thoſe in the *Sphere*, or in the ſame Planes therewith; ſo that were the Planes of thoſe of the Earth continued to the *Sphere*, they would coincide with the reſpective Circles thereon.

Thus we have a Horizon, Meridian, Equator, *&c.* on the Earth.

As the Equator in the Heavens divides the *Sphere* into two equal Parts; the one *North* and the other *South*; ſo does the Equator on the Surface of the Earth, divide the Globe in the ſame Manner. See Equator.

And as the Meridians in the Heavens, paſs through the Poles of the Horizon; ſo thoſe on the Earth, *&c.* See Meridian.

With regard, then, to the Poſition of ſome of theſe Circles in reſpect of others, we have a *Right*, a *Parallel*, and an *oblique Sphere*.

A *right* Sphere, is that where the Equator cuts the Horizon of the Place at right Angles: For the particular Phænomena, *&c.* whereof; ſee Right *Sphere*.

A *parallel* Sphere, is where the Equator is parallel to the ſenſible Horizon, and in the Plane of the Rational. See Parallel *Sphere*.

An *oblique* Sphere, is where the Equator cuts the Horizon obliqually. See Oblique *Sphere*.

Armillary, or *artificial* Sphere, is an aſtronomical Inſtrument, repreſenting the ſeveral Circles of the *Sphere*, in their natural Order; ſerving to give an Idea of the Office and Poſition of each thereof, and to ſolve various Problems relating thereto.

'Tis thus called, as conſiſting of a Number of Faſciæ or Rims of Braſs, or other Matter, called by the *Latins*, *Armillæ*, from their reſembling of Bracelets, or Rings for the Arm.

By this, 'tis diſtinguiſhed from the *Globe*, which, though it have all the Circles of the *Sphere* on its Surface; yet is not cut into *Armillæ* or *Rings*, to repreſent the Circles, ſimply and alone; but exhibits alſo the intermediate Spaces, between the Circles. See Globe.

Armillary Spheres, are of different Kinds, with regard to the Poſition of the Earth therein; whence they become diſtinguiſhed into *Ptolomaic* and *Copernican Spheres*. In the Firſt whereof, the Earth is in the Centre; and in the latter near the Circumference, according to the Poſition that Planet has in thoſe Syſtems. See System.

The *Ptolomaic* Sphere, is that commonly in Uſe, and is repreſented (Tab. Aſtronomy, Fig. 21.) with the Names of the ſeveral Circles, Lines, *&c.* of the *Sphere*, inſcribed thereon. See Ptolomaic.

In the Middle, upon the Axis of the *Sphere*, is a Ball, repreſenting the Earth; on whoſe Surface are the Circles, *&c.* of the Earth. The *Sphere* is made to revolve about the ſaid Axis, which remains at reſt: By which Means, the Sun's Diurnal and Annual Courſe about the Earth, are repreſented according to the *Ptolomaic* Hypotheſis: And even by Means hereof, all Problems relating to the Phænomena of the Sun and Earth, are ſolved, as upon the Cœleſtial Globe; and after the ſame Manner; which ſee deſcribed under the Article Globe.

The *Copernican* Sphere, repreſented (Fig. 22.) is very different from the *Ptolemaic*, both in its Conſtitution and Uſe; and more intricate in both. Indeed the Inſtrument is in the Hands of ſo few People, and its Uſe ſo inconſiderable, except what we have in the other more common Inſtruments, particularly the Globe and *Ptolomaic Sphere*, that we ſhall be eaſily excuſed the not filling up Room, with any Deſcription thereof.

SPHERICAL *Angle*, is the mutual Inclination of Two Planes, whereby a Sphere is cut: Thus the Inclination of the two Planes, C A F and C E F (Tab. Trigon. Fig. 9.) forms the *Spherical Angle* A C E. See Sphere and Angle.

The Meaſure of a *Spherical Angle*, A C E, is an Arch of a great Circle A E, deſcribed from the Vertex C, as from a Pole, and intercepted between the Legs C A and C E.

Hence, 1°, Since the Inclination of the Plane C E F, to the Plane C A F, is every where the ſame; the Angles in the oppoſite Interſections G and F, are equal.

2° Hence the Meaſure of a *Spherical Angle* A C E, is deſcribed with the Interval of a Quadrant A C or E C, from the Vertex C between the Legs C A, C E.

If a Circle of the *Sphere*, A E B F (Fig. 8.) cut another C E D F, the adjacent Angles, A E C and A E D are equal to two Right ones; and the vertical Angles A E C and D E B equal to one another. The former likewiſe, holds of ſeveral Angles form'd on the ſame Arch C E D, at the ſame Point E.

Hence, any Number of *Spherical Angles*, as A E C, A E D, D E B, B E C, *&c.* made on the ſame Point E, are equal to four right Angles. See Spherical *Triangle*.

Spherical *Triangle*, a Triangle comprehended between three Arches of *great Circles of a Sphere*, interſecting each other in the Surface thereof. See Triangle.

Properties of the Spherical *Triangles.*

1. If in two *Spherical* Triangles, (Tab. Trigon. Fig. 10.) A B C and a b c $A=a$, $BA=ba$ and $CA=ca$: Then will B and the Sides, including the Angles, be reſpectively equal, the whole Triangles are equal: That is, $BC=bc$, $B=b$ and $C=c$.

Again, if in two *Spherical Triangles* $A=a$, $C=c$ and $AC=ac$; then will $B=b$, $AB=ab$ and $bc=BC$. Laſtly, if in two *Spherical* Triangles $AB=ab$, $AC=ac$, and $BC=bc$, then will $A=a$; $B=b$ and $C=c$; the Demonſtrations whereof, coincide with thoſe of the like Properties in plain Triangles. The Theorems of the Congruency of rectilinear Triangles, extending to all other curvilinear, circular, parabolical, *&c.* provided their Sides be Similar. See Triangle.

2. In an equilateral Triangle A B C (Fig. 11.) the Angles at the Baſe, B and C, are equal; and if in any Triangle, the Angles B and C, at the Baſe B C, are equal; the Triangle is equilateral.

3. In every *Spherical Triangle*, each Side is leſs than a Semi-circle: Any two Sides taken together are greater than the Third; and all the three Sides together are leſs than the Periphery of a great Circle: And a greater Side is always oppoſed to a greater Angle, and a leſs Side to a leſs Angle.

4. If in a *Spherical Triangle* B A C (Fig. 12.) two Legs A B and B C taken together, be equal to a Semi-circle; the Baſe A C being continued to D; the external Angle B C D will be equal to the internal oppoſite one B A C.

If the two Legs together, be leſs than a Semi-circle, the external Angle B C D, will be greater than the internal oppoſite one A: And if the Legs be greater than a Semi-circle, the external Angle B C D, will be leſs than the internal oppoſite one A; and the Converſe of all theſe holds, *viz.* If the Angle B C D be equal to, greater, or leſſer than A; the Sides AB and BC are equal to, greater, or leſſer than a Semicircle.

5. If in a *Spherical Triangle* A B C, two Sides A B and B C, be equal to a Semi-circle; the Angles at the Baſe A and C, are equal to two Right ones: If the Sides be greater than a Semi-circle, the Angles are greater than two Right ones; and if leſs, leſs. And, converſely.

6. In every *Spherical Triangle*, each Angle is leſs than two Right ones; and the Three together, leſs than Six right Angles, and greater than two.

7. If in a *Spherical Triangle* B A C (Fig. 13.) the Sides A B and A C be Quadrants; the Angles at the Baſe, B and C, will be right Angles. And, converſely, If the interſected Angle A be a right Angle, B C will be a Quadrant: If A be obtuſe, B C will be greater than a Quadrant; and if acute, leſs. And, converſely.

8. If a *Spherical* rectangular Triangle, the Side BC (Fig. 14.) adjacent to the right Angle B, be a Quadrant; the Angle A will be a right Angle; if B E be greater than a Quadrant, the Angle A will be obtuſe; and if B D be leſs than a Quadrant, the Angle A will be acute. And, converſely.

9. If in a *Spherical* rectangular Triangle, each Leg be either greater or leſſer than a Quadrant; the Hypothenuſe will be leſs than a Quadrant. And, converſely.

10. If in a *Spherical Triangle* A B C (Fig. 15.) rectangular only at B, one Side C B be greater than a Quadrant, and the other Side A B leſs; the Hypothenuſe A C will be greater than a Quadrant. And, converſely.

11. If in a *Spherical* obliquangular Triangle A C B (Fig. 16.) both Angles at the Baſe, A and B, be either obtuſe or acute; the Perpendicular C D let fall from the Third Angle C to the oppoſite Side A B, falls within the Triangle: if one of them, A, be obtuſe; and the other, B, acute; the Perpendicular falls without the Triangle.

12. If in a *Spherical Triangle* A C B, all the Angles A, B and C be acute; the Sides are each leſs than a Quadrant. Hence, if in an obliquangular *Spherical Triangle*, one Side be greater than a Quadrant, one Angle is obtuſe, *viz.* that oppoſite to this Side.

13. If in a *Spherical Triangle* A C B, two Angles A and B, be obtuſe, and the third C acute; the Sides A C and C B oppoſite to the obtuſe Sides, are greater than a Quadrant; and that oppoſite to the acute Side A B, leſs than a

Quadrant. Hence, if the two Sides be leſs than a Quadrant, the two Angles are acute.

14. If in a *Spherical Triangle*, the ſeveral Sides be each greater than a Quadrant; or only two of them greater, and the Third equal to a Quadrant; the ſeveral Angles are obtuſe.

15. If in an obliquangular *Spherical Triangle*, two Sides be leſs than a Quadrant, and the Third greater; the Angle oppoſite to the greateſt will be obtuſe, and the reſt acute.

Reſolution of SPHERICAL *Triangles*. See TRIANGLE.

SPHERICAL *Geometry*, the Doctrine of the Sphere; particularly of the Circles deſcribed on the Surface thereof, with the Method of projecting the ſame on a Plane. See SPHERICKS.

SPHERICAL *Trigonometry*, the Art of reſolving *Spherical Triangles*; *i. e.* from three Parts of a *Spherical* Triangle given, to find the reſt. *E. gr.* From two Sides of one Angle; to find the other two Angles, and the third Side. See SPHERICAL *Triangle* and TRIGONOMETRY.

SPHERICAL *Aſtronomy*, that Part of Aſtronomy which conſiders the Univerſe, ſuch as it appears to the Eye. See ASTRONOMY.

Under *Spherical Aſtronomy*, then, come all the Phænomena and Appearances of the Heavens and heavenly Bodies, ſuch as we perceive them; without any Inquiry into the Reaſon, the Theory, or the Truth thereof: by which it is diſtinguiſhed from *Theorical Aſtronomy*, which conſiders the real Structure of the Univerſe, and the Cauſe of thoſe Phænomena.

In the *Spherical Aſtronomy*, the World is conceived to be a concave, *ſpherical* Surface, in whoſe Centre is the Earth, or rather the Eye, about which the viſible Frame revolves, with Stars and Planets fix'd in the Circumference thereof. And on this Suppoſition all the other Phænomena are determined.

The *Theorical Aſtronomy* teaches us, from the Laws of Opticks, &c. to correct this Scheme, and reduce the whole to a juſter Syſtem. See SYSTEM.

SPHERICITY, the Quality of a *Sphere*; or that whereby a thing becoms *Spherical*, or round. See SPHERE.

The *Sphericity* of Pebbles, Fruits, Berries, &c. of Drops of Water, Quick-ſilver, &c. of Bubbles of Air under Water, &c. Dr. *Hook* takes to ariſe from the Incongruity of their Particles with thoſe of the ambient Fluid, which prevents their Coaleſcing; and by preſſing on them, and encompaſſing them all around equally, turns them into a round Form. See DROP.

This, he thinks, appears evidently, from the Manner of making ſmall round Shot of ſeveral Sizes, without caſting the Lead into any Moulds; from Drops of Rain being form'd, in their fall, into round Hail-ſtones; and from Drops of Water falling on ſmall Duſt, Sand, &c. which ſtrait produce an artificial round Stone; and from the ſmall, round, red-hot Balls, form'd by the Colliſion or Fuſion of Flint and Steel, in ſtriking Fire.

But all theſe Caſes of *Sphericity* ſeem better accounted for, from the great Principle of Attraction; whereby the Parts of the ſame Fluid drop, &c. are all naturally ranged as near the Centre as poſſible, which neceſſarily induces a *ſpherical* Figure: and, perhaps, a repelling Force between the Particles of the Drop, and of the Medium, contribute not a little thereto. See ATTRACTION.

SPHERICKS, the *Doctrine of the Sphere*, particularly of the ſeveral Circles deſcribed on the Surface thereof; with the Method of projecting the ſame in Plano. See SPHERE.

The principal Matters ſhewn herein, are as follow:

1. If a Sphere be cut in any Manner, the Plane of the Section will be a Circle, whoſe Centre is in the Diameter of the Sphere.

Hence, 1°, The Diameter H I (Tab. Trigon. Fig. 17.) of a Circle, paſſing through the Centre C, is equal to the Diameter A B of the generating Circle; and the Diameter of a Circle, as F E, that does not paſs through the Centre, is equal to ſome Chord of the generating Circle.

Hence, 2°, As the Diameter is the greateſt of all Chords; a Circle paſſing through the Centre, is the *greateſt Circle of the Sphere*; and all the reſt are *leſſer* than the ſame.

3° Hence, alſo, all *great Circles of the Sphere* are equal to one another.

4° Hence, alſo, if a *great Circle of the Sphere* paſs through any given Point of the Sphere, as A; it muſt alſo paſs through the Point diametrically oppoſite thereto, as B.

5° If Two great Circles mutually interſect each other, the Line of the Section is the Diameter of the Sphere, and therefore two great Circles interſect each other in Points diametrically oppoſite.

6° A *great Circle of the Sphere*, divides it into two equal Parts or Hemiſpheres.

2. All great Circles of the Sphere, cut each other into two Parts; and, converſely, all Circles that thus cut each other, are *great Circles of the Sphere*,

3. An Arch of a great Circle of the Sphere, intercepted between another Arch HIL (Fig. 18.) and its Poles A and B, is a Quadrant.

That intercepted between a *leſs Circle* DEF, and one of its Poles A, is greater than a Quadrant; and that between the ſame and the other Pole B, leſs than a Quadrant; and, converſely.

4. If a *great Circle of the Sphere* paſs through the Poles of another, that other paſſes through the Poles of this. And if a great Circle paſs through the Poles of another, the Two cut each other at right Angles, and converſely.

5. If a great Circle, as AFBD, paſs through the Poles A and B of a leſſer Circle DEF, it cuts it into equal Parts; and at right Angles.

6. If two great Circles AEBF and CEDF (Fig. 19.) interſect each other in the Poles E and F of another great Circle ACBD; that other will paſs through the Poles H and h, I and i of the Circles AEBF and CEDF.

7. If two great Circles AEBF and CEDF, cut each other mutually; the Angle of Obliquity AEC, will be equal to the Diſtance of the Poles H I.

8. All *Circles of the Sphere*, as GF and LK (Fig. 20.) equally diſtant from its Centre C, are equal; and the further they are removed from the Centre, the leſs they are. Hence, ſince of all parallel Chords, only two, DE and EK are equally diſtant from the Centre; of all the Circles parallel to the ſame great Circle, only two are equal.

9. If the Arches FH and KH, and GI and IL, intercepted between a great Circle IMH and the leſſer Circles GNF and LOK; be equal, the Circles are equal.

10. If the Arches FH and GI of the ſame great Circle AIBH, intercepted between two Circles GNF and IMH, be equal, the Circles are parallel.

11. An Arch of a parallel Circle IG (Fig. 21.) is ſimilar to an Arch of a great Circle AE; if each be intercepted between the ſame great Circles CAF and CEF.

Hence the Arches AE and IG, have the ſame *Ratio* to their Peripheries; and, conſequently, contain the ſame Number of Degrees. And hence the Arch IG is leſs than the Arch AE.

12. The Arch of a great Circle, is the ſhorteſt Line which can be drawn from one Point of the Surface of the Sphere to another: And the Lines between any two Points on the ſame Surface, are the greater, as the Circles whereof they are Arches, are the leſs.

Hence, the proper Meaſure, or Diſtance of two Places on the Surface of the Sphere, is an Arch of a great Circle intercepted between the ſame.

SPHEROID, in Geometry, a Solid approaching to the Figure of a Sphere, but not exactly round, but oblong; as having one of its Diameters bigger than the other; and generated by the Revolution of a Semi-ellipſis about its Axis.

When 'tis generated by the relation of the Semi-ellipſis about its greater Axis, 'tis call'd an *Oblong Spheroid*; and when generated by the Revolution of an Ellipſis about its leſs Axis, an *oblate Spheroid*. See OBLATE.

The Contour of a Dome, *Daviler* obſerves, ſhould be Half a *Spheroid*. Half a Sphere, he ſays, is too low to have a good Effect below. See DOME.

For the Solid Dimenſions of a *Spheroid*, 'tis $\frac{2}{3}$ of its Circumſcribing Cylinder: Or it is equal to a Cone, whoſe Altitude is equal to the greatet Axis, and the Diameter of the Baſe to four Times the leſs Axis of the generating Ellipſis.

Or a *Spheroid* is to a Sphere deſcribed on its greater Axis, as the Square of the leſs Axis to the Square of the greater: Or 'tis to a Sphere deſcribed on the leſſer Axis, as the greater Axis to the Leſs. The Word is form'd from *Sphæra*, and εἶδος, *Shape*.

SPHINCTER, in Anatomy, a Term applied to a kind of circular Muſcles, or Muſcles in Form of Rings, which ſerve to cloſe and draw up ſeveral Orifices in the Body, and prevent the Excretion of the Contents. See MUSCLE.

The Word is form'd from the *Greek* σφιγκτὴς, *Strictor*, *i. e.* ſomething that binds and conſtringes a Thing very cloſely; theſe Muſcles having an Effect much like that of a Purſe-ſtring.

SPHINCTER *Ani*, is a circular Muſcle, ſerving to ſhut the *Anus*, and keep the Excrements from coming away involuntarily. See ANUS and EXCREMENTS.

'Tis near two Inches broad, and hangs down below the *Rectum*, near an Inch. It is faſten'd on the Sides to the Bones of the *Coxendix*, and behind to the *Os ſacrum*: Before, in Men, to the *Accelerator Urinæ*, and in Women, to the *Vagina Uteri*. See RECTUM.

Some would have it Two Muſcles, and ſome Three; but without much Reaſon.

SPHINCTER *Veſſicæ*, is a Muſcle conſiſting of circular Fibres, placed at the Exit of the Bladder. to prevent the perpetual dripping of the Urine. See URINE and BLADDER.

It keeps the Bladder conſtantly ſhut; and is only opened, when by the Contraction of the Abdominal Muſcles, the Bladder is compreſs'd, and the Urine forced out.

Sphincter *Vaginæ*, a conſtrictory Muſcle, ſerving to hinder the Reflux of the Blood from the *Clitoris*, *&c.* in Coition. See Vagina.

Sphincter *Gulæ* } See { Oesophagæus.
Sphincter *Labiorum* } See { Constrictor.

SPHINX, in Sculpture, *&c.* a Figure or Repreſentation of a Monſter of that Name, famed among the Ancients; now moſtly uſed as an Ornament in Gardens, Terraſſes, *&c.*

'Tis repreſented with the Head and Breaſts of a Woman, the Wings of a Bird, the Claws of a Lion, and the reſt of the Body like a Dog.

It is ſuppoſed to have been engender'd by *Typhon*, and ſent by *Juno*, to be revenged on the *Thebans*. Its Office was to propoſe dark, enigmatical Queſtions to all Paſſers-by, and if they did not give the Explication thereof, to devour them.

It made horrible Ravages on Mount *Sphingion*, and could not by any means be deſtroyed, till after *Oedipus* had ſolved the following Riddle; What Animal is it, that in the Morning walks on four Legs; at Noon on Two, and at Night on Three?

Among the *Egyptians*, the *Sphinx* was the Symbol of Religion, by reaſon of the Obſcurity of its Myſteries. And on the ſame account, the *Romans* placed a *Sphinx* in the *Pronaos* or Porch of their Temples.

SPICA-*Nardi*, Spike-nard, a kind of Ear growing even with the Ground, and ſometimes in the Ground; uſed in the Compoſition of Treacle. See Treacle.

It likewiſe ſhould be uſed in the Compound-Syrop of Chicory, in lieu of Cinnamon, which the Apothecaries generally put for it, becauſe cheaper.

The Ear or *Spica*, is about the Length and Thickneſs of a Finger; very light, covered with long, reddiſh Hairs, of a ſtrong Smell, and a bitteriſh, ſharp Taſte. There riſe ſeveral of theſe Ears from the ſame Root. The Stem is ſmall, and the Root the Thickneſs of a Quill.

The *Spica-Nardi*, is uſually reckon'd in the Number of Roots. 'Tis alſo call'd *Nardus Indicus*; becauſe brought from the *Eaſt-Indies*.

'Tis accounted a *Stomachic* and *Nephritic*, proper to ſtrengthen the Stomach, and promote the Diſcharge of Urine.

There is alſo another Kind, call'd *Spica-Celtica*, growing in the *Pyreneans*, and the Mountains of *Tirol*.

SPICA *Virginis*, a Star of the firſt Magnitude in the Conſtellation *Virgo*. See Virgo.

Its Place is in the more ſoutherly Hand. Its Longitude, according to Mr. *Flamſtead*, is 19° 31′ 22″; its Latitude 2° 1′ 59″ South.

SPICE, any kind of aromatic Drug, that has hot and pungent Qualities; ſuch are *Pepper*, *Nutmeg*, *Ginger*, *Cinnamon* and *Cloves*. See Pepper, Nutmeg, *&c.*

Some alſo apply the Word to medicinal Drugs brought from the *Eaſt*, as *Senna*, *Caſſia*, *Frankincenſe*, *&c.* See each under its proper Article, Senna, Cassia, *&c.*

SPIDERS-*Silk*. See Silk.

SPIKING *up the Ordnance*; a Sea Phraſe, for the faſtening a Quoin with *Spikes* to the Deck, cloſe to the Breech of the Carriages of great Guns; that they may keep cloſe and firm to the Ship's Sides, and not get looſe when the Ship rolls, and by that means endanger the breaking out of the Butt-head of a Plank.

SPINA *Ventoſa*, in Medicine, *&c.* an Ulceration, wherein the Bones are eaten by a malignant Tumour, without any Pain of the *Perioſteum*, or Membrane that covers the Bone. After which, an indolent Swelling being riſen, the Part affected is quite eat out with the Ulcer; whence frequently follows a neceſſity of Amputation.

SPINAL *Marrow* } See { Medulla *Spinalis*.
Spinal *Nerves* } See { Nerve.

In the Hiſtory of the *French* Academy of Sciences, for the Year 1714, we have an Inſtance of a Fœtus born without either Brain, Cerebel, or *Spinal Marrow*, though perfectly well form'd in other reſpects. It had gone its natural Time; lived two Hours; and even gave Signs of Life, upon ſprinkling the Baptiſmal Water on its Head.

Inſtances of this Kind, as this is not the only one we meet withal, furniſh a terrible Objection againſt the Exiſtence of the animal Spirits, which ſhould be generated in the Brain, or at leaſt in the Cerebel or *Spinal Marrow*; and which are generally allowed of ſuch abſolute Neceſſity in the Animal Oeconomy. See Spirit.

SPINALIS, in Anatomy, a Muſcle on the Side of the Neck, ariſing from the Five ſuperior Proceſſes of the Vertebræ of the Thorax, and inferior of the Neck; and in its Aſcent, becomes more fleſhy, and is laſtly inſerted into the inferior Part of the Vertebræ of the Neck, laterally. It ſerves to draw the Neck backwards.

SPINDLE, in the Sea Language, is the ſmalleſt Part of a Ship's Capſtan, which is betwixt the two Decks: The *Spindle* of the Jeer Capſtan hath Whelps to heave the Viol. Alſo the Axis of the Wheel of a Watch or Clock, is called the *Spindle*, and its Ends the Pevets. See Clock, *&c.*

SPINE, or **SPINA** *Dorſi*, in Anatomy, the Series or Aſſemblage of Vertebræ, or Bones of the Back, which ſuſtain the reſt of the Body, and to which are connected the Ribs. See Vertebræ.

The *Spine* is uſually divided into four Parts; the Neck, which contains Seven Vertebræ; the Back, Twelve; the Loins Five; and the *Os ſacrum*, Four. The *Spine* includes a kind of Medulla, much reſembling that of the Brain, hence call'd *Medulla Spinalis*, or *Spinal Marrow*; which ſee.

It has its Name *Spine*, by reaſon the hind Part thereof is Edg'd, or *Spiny*. Some call it the *Canalis Sacer*.

SPINET, a Muſical Inſtrument, rank'd in the Second or Third Place among harmonious Inſtruments. See Music.

It conſiſts of a Cheſt or Belly, made of the moſt porous and reſinous Wood to be found; and a Table of Firr faſten'd on Rods, call'd *Sound-boards*, which bear on the Sides. On the Table is raiſed a little Prominence, wherein are placed as many Pins as there are Chords to the Inſtrument.

The Inſtrument is played by two Ranges of continued Keys, the foremoſt Range being in the Order of the Diatonick Scale; and the other Range ſet backwards in the Order of the Artificial Notes or Semi-tones. See Scale.

The Keys are ſo many long, flat Pieces of Wood, which when touched and preſs'd down at one End, make the other raiſe a Jack, which ſounds the Strings by means of the End of a Crow's Quill, wherewith 'tis armed. The 30 firſt Strings are of Braſs, the other more delicate ones of Steel or Iron Wiar. They are all ſtretch'd over Two Bridges glued to the Table.

The Figure of the *Spinet* is a long Square, or Parallelogram a Foot and Half broad; ſome call it a *Harp Couch'd*, and the Harp, an *Inverted Spinet*.

The *Spinet* is generally tuned by the Ear; which Method of the practical Muſicians, is founded on this Suppoſition, That the Ear is a perfect Judge of an Octave and Fifth. The general Rule, is to begin at a certain Note, as *c*, taken towards the middle of the Inſtrument, and tuning all the Octaves up and down, and alſo the Fifth's, reckoning Seven Semi-tones to each Fifth, by which means the whole is tuned.

Sometimes to the common or fundamental Play of the *Spinet*, is added another ſimilar one in Uniſon, and a Third in Octave to the firſt; to make the Harmony the fuller. They are played either ſeparately or together, which is call'd the *double* or *triple Spinet*. Sometimes a Play of Violins is added, by means of a Bow, or a few Wheels parallel to the Keys, which preſs the Strings, and make the Sounds laſt as long as the Muſician pleaſes; and heighten and ſoften them, as they are more or leſs preſs'd. The Harpſichord is a kind of *Spinet*, only with another Diſpoſition of the Keys. See Harpsichord.

The Inſtrument takes its Name from the little Quills Ends, wherewith the Strings are drawn, which are ſuppoſed to reſemble *Spinæ*, Thorns.

SPINNING, in Commerce, the reducing of Silk, Line, Hemp, Wooll, Hair or other Matters into Thread. See Thread.

Spinning, is either perform'd on the Wheel, or with a Diſtaff or Spindle, or with other Machines proper for the ſeveral kinds of Working. Hemp, Line, Nettles and other like Plants are to be wet in *Spinning*: Silks, Woolls, Cottons, *&c.* are *ſpun* dry, and don't need Water; yet there is a Way of *Spinning* Silk as it comes off the Caſes or Balls, where hot, and even boiling Water is to be uſed. See Silk; ſee alſo Wheel, Distaff, *&c.*

SPINOSISM, the Doctrine of *Spinoſa*; or, Atheiſm propoſed after the Manner of *Spinoſa*. The Retainers whereto, are called *Spinoſiſts*.

The great Principle of *Spinoſiſm* is, That there is nothing properly and abſolutely exiſting, but Matter, and the Modifications of Matter; among which are even comprehended, Thought, abſtract and general Ideas, Compariſons, Relations, Combinations of Relations, Properties, *&c.* See Matter, Substance, *&c.*

Spinoſa or *Eſpinoſa*, was a Man well known in *Holland*. He was born a *Jew*; but did not make Profeſſion of any Religion, either the Jewiſh or Chriſtian. He compoſed ſeveral Books in *Latin*, the moſt celebrated whereof, is his *Tractatus Theologico Politicus*, wherein he overturns the Foundation of all Religion: The Book, accordingly, was condemn'd by a publick Decree of the States; though it has ſince been ſold publickly, and even reprinted, both in *Latin* and *French*, in that Country.

Spinoſa, here, maintains, That all Religions are only political Engines, calculated for the publick Good; to render the People obedient to Magiſtrates, and to make them practiſe Virtue and Morality.

He does not here lay down his Notion of the Deity openly; but contents himſelf with inſinuating it.

In his Converſations, he uſed to be more expreſs; and maintained, That God is not, as we imagine him, an infinite, intelligent, happy and perfect Being; nor any thing, but that natural Virtue, or Faculty, which is diffuſed throughout all Creatures. See NATURE.

There have been abundance of Anſwers made to this Work of *Spinoſa*; but all exceedingly weak, except what we have in *Clark's* Sermons at *Boyle's* Lecture.

Spinoſa, in the ſaid Treatiſe, is very full on the Subject of the Authors of the Scriptures; and endeavours to ſhew, That the Pentateuch is not the Work of *Moſes*; contrary to the common Opinion, both of the *Jews* and Chriſtians. He has alſo his particular Sentiments, as to the Authors of the other Books. This Part of the Treatiſe has been anſwered by M. *Huet*, in his *Demonſtration Evangelique*; and by M. *Simon*, in his *Hiſt. Crit. du vieux Teſt.* See PENTATEUCH.

SPINSTER, in Law, an Addition uſually given to all unmarried Women, from the Viſcount's Daughter downwards.

Yet Sir *Edward Coke* ſays, *Generoſa* is a good Addition for a Gentlewoman; and that if ſhe be named *Spinſter* in any Original Writ, Appeal or Indictment, ſhe may abate and quaſh the ſame.

Spelman ſays, That anciently, even the Queens uſed the Diſtaff and Spindle; whence *Spinſter* became a common Appellation for all Women.

SPIRAL, in Geometry, a curve Line, of the circular Kind, which in its Progreſs, recedes from its Centre; as in winding from the Vertex down to the Baſe of a Cone. See SPIRE.

'Tis called from its Inventor, *Archimedes's Spire*, or *Helix*; and is thus deſcribed:

Divide the Periphery of a Circle A P p A (Tab. Geometry Fig. 39.) into any Number of equal Parts, by a continual Biſſection in the Points p. Into the ſame Number of Parts divide the Radius C A, and make C M equal to one Part, C*m* to two Parts, *&c.* Then will the Points M *m*, *m*, *&c.* be Points in the *Spiral*, which connected, will give the *Spiral* itſelf. This now, is called the *firſt Spiral*, and the Space included between its Centre, and the Point A, the *Spiral Space*.

This firſt *Spiral* may be continued to a *ſecond Spiral*, by deſcribing another Circle with double the Radius of the Firſt; and the Second may be continued a Third, by a third Circle, *&c.*

Hence, 1°, A P is to the Periphery, as C*m* to the Radius. Wherefore, if the Periphery be called p, the Radius $AC=r$, $AP=x$, $PM=y$; then will $CM=r-y$: Conſequently as $p:mr::x:r-y$, we ſhall have $pr-py=rx$.

2° If $CM=y$; then will $rx=py$. Which Equation the *Spiral* has in common with the Quadratrix of *Dinoſtrates*, and that of *Tſchirnhauſen*; and therefore $r^n x^m=p^n y^m$ will ſerve for infinite *Spirals* and Quadratrices. See QUADRATRIX.

3° The Lines M *m*, M *m*, *&c.* are to one another as the Arches of the Circle, intercepted between M A and thoſe Lines: And, when continued, making equal Angles with the firſt and ſecond *Spiral*, are in arithmetical Proportion.

4° Lines drawn from M to the ſecond *Spiral*, are to each other as the ſaid Arches, together with the whole Periphery added on both Sides.

Quadrature of SPIRALS } See { QUADRATURE.
Logiſtic SPIRAL } See { LOGISTIC.

SPIRAL, in Architecture, Sculpture, *&c.* is a Curve that aſcends, winding about a Cone or *Spire*; ſo as all the Points thereof continually approach the Axis: By this it is diſtinguiſhed from the *Helix*, which winds after the ſame Manner, around a Cylinder. See HELIX.

Ignorant Architects confound the Two: But the more knowing diſtinguiſh them carefully.

The *Spiral* Line is conceived to be thus generated.

If a Right Line as A B, (Tab. Geometry Fig. 40.) having one End fix'd at B, be equally moved round, ſo as with the other End B, to deſcribe the Periphery of a Circle; and at the ſame Time, a Point be conceived to move forward, equally from B towards A in the Right Line A B, ſo as that the Point deſcribes that Line, while the Line generates the Circle: Then will the Point, with its two Motions, deſcribe the curve B, 1, 2, 3, 4, 5, *&c.* which is called a *Spiral Line*, and the plain Space contained between the *Spiral Line*, and the Right Line B A, is called the *Spiral Space*.

Again, if the Point B be conceived to move twice as ſlow as the Line A B; ſo that it ſhall get but Half way along B A, when that Line ſhall have formed the Circle; and if then, you imagine a new Revolution to be made of the Line carrying the Point, ſo that they ſhall end their Motion, at leaſt, together; there ſhall be formed a double *Spiral Line*; as in the Figure: From the Manner of which, may be eaſily drawn theſe Corollaries.

1. That the Lines B 12, B 11, B 10, *&c.* making equal Angles with the firſt and ſecond *Spiral* (as alſo B 12, B 10, B 8, *&c.*) are in an arithmetical Proportion.

2. The Lines B 7, B 10, *&c.* drawn any how to the firſt *Spiral*, are to one another as the Arches of the Circle intercepted betwixt B A, and thoſe Lines: Becauſe whatever Parts of the Circumference the Point A deſcribes, as ſuppoſe 7, the Point B will alſo have run over 7 Parts of the Line A B.

3. Any Line drawn from B to the ſecond *Spiral*, as B 18, B 22, *&c.* are to each other, as the aforeſaid Arches, together with the whole Periphery added on both Sides: For at the ſame time that the Point A runs over 12, or the whole Periphery, or perhaps 7 Parts more, ſhall the Point B have run over 12, and 7 Parts of the Line A B, which is now ſuppoſed to be divided into 24 equal Parts.

Proportional SPIRALS, are ſuch *Spiral* Lines, as the Rumb Lines on the Terreſtrial Globe, which, becauſe they make equal Angles with every Meridian, muſt alſo make equal Angles with the Meridians in the Stereographick Projection on the Plane of the Equator; and therefore will be, (as Dr. *Halley* obſerves) proportional *Spirals* about the Polar Point. From whence he demonſtrates, that the Meridian Line, is a Scale of Log-Tangents of the Half Meridian-Complements of the Latitudes.

SPIRAL *Stairs*, in Building. See STAIRS.

SPIRE, SPIRA, in the ancient Architecture, is ſometimes uſed for the Baſe of a Column; and ſometimes for the *Aſtragal* or *Tore*. See BASE.

From the *Latin*, *Spiræ*, the Folds of a Serpent, which when laid, bears ſome Reſemblance thereto; or from the *Greek*, σπεῖρα, the Coils of a Rope.

SPIRIT, in Theology, is uſed by way of Eminence, for the Third Perſon in the Holy Trinity; called *The Spirit*, or *The Holy Spirit*. See TRINITY and PERSON.

The *Macedonians*, *&c.* deny the Divinity of the *Spirit*. See MACEDONIANS.

The *Arians*, *&c.* deny his Co-equality with the Father. See ARIANS.

Divines expreſs the Manner wherein the *Spirit* was produced by the active *Spiration* or Breathing of the Father and the Son; whence the Name *Spiritus*, Breath.

Order of the Holy SPIRIT. See *Holy* GHOST.

SPIRIT, is alſo uſed among Divines, for the divine Power and Virtue; and the Communication thereof to Men.

In this Senſe, the *Spirit* is ſaid to have gone out on the Face of the Deep, *Geneſis*, *c.* i. *v.* 2. And the Prophets to have been poſſeſs'd of the *Spirit* of God.

Providence, in this Senſe, is that univerſal *Spirit*, whereby God makes all Nature to act. Thus the Holy Virgin is ſaid to have conceived of the *Spirit*, 1. *Cor.* vii. 40.

SPIRIT, is alſo uſed for any Incorporal Being, or Intelligence.

In this Senſe, God is ſaid to be a *Spirit*: Angels, *Spirits*; and the Devil an *Evil Spirit*. See GOD, ANGEL, DEVIL, *&c.*

In this Senſe, the Human Soul is alſo call'd *Spirit*, from its thinking and reflecting Powers, which cannot be conceived to reſide in any thing Material. See SOUL.

F. *Mallebranch* obſerves, 'tis extremely difficult to conceive what it is, ſhould make the Communication between the Body and the *Spirit*; for if the *Spirit* have no material Parts, it can't move the Body: But the Argument muſt be falſe ſome how or other; for we believe that God can move Bodies, and yet don't attribute any material Parts to him.

Private SPIRIT, is a Term that made a great Figure in the Controverſies of the two laſt Centuries. It ſignifies the particular View or Notion each Perſon has of the Dogmata of Faith, and the Truths of Religion, as ſuggeſted by his own Thought, and the Perſuaſion he is under with regard thereto.

The firſt Reformers denying ſtrenuouſly any infallible Interpreter of the Scripture, or any ſettled Judge of Controverſies; maintained, that every Perſon was to interpret and judge of revealed Truths, by his own Light, aſſiſted by the Grace of God; and this was what they call'd *private Spirit* or *Judgment*.

Againſt this, the Arguments uſed by the Romaniſts are, That revealed Truths being one and the ſame for all Believers; the Rule God has given us for the judging of them, ought to repreſent them to us uniformly and the ſame; but the *private Spirit* informs *Luther* one way, and *Zuinglius* another. It divides *Oecolompadius*, *Bucer*, *Oſiander*, *&c.* And the Doctrine it diſcovers to the *Confeſſionites*, is quite different from that it ſhews the *Anabaptiſts* and *Mennonites*, in the very ſame Paſſage of Scripture.

SPIRIT, in Chymiſtry, is one of the Principles of natural Bodies, called alſo *Mercury*. See PRINCIPLE and MERCURY.

The chymical Principle *Spirit*, is a fine, ſubtile, volatile, penetrating, pungent Liquor, which ariſes ordinarily before the Phlegm or Water, and ſometimes after it.

The great Properties of this Liquor are, that it penetrates and opens ſolid Bodies, corrodes, breaks, diſſolves, and even diſſolves certain mix'd Bodies; coagulates others, and produces an Infinity of Effects; and thoſe even contrary to one another.

In the general, the Chymiſts call *Spirits*, all the fine ſubtile, and not aqueous Particles, raiſed from Bodies by Heat, and reduced into Liquors by Diſtillation; ſuch are *Spirit* of *Vitriol*, of *Salt-petre*, of *Salt*, *&c.*

They alſo call *Spirits*, thoſe aqueous Liquors drawn by Liquidation, when they are impregnated with Salts, or other active Principles, raiſed, together with them, by the Violence of the Fire.

Theſe, when they excite any Senſation of Heat on the Tongue, are particularly called *Acid*, or *Sharp Spirits*.

When they make any Eroſion on the Tongue, they are call'd *Corroſive Spirits*. See CORROSIVE.

Such as Taſte ſomewhat like common Salt, are call'd *Saline Spirits*. See SALT.

Such as partake of the Taſte of common Sulphur, *Sulphurous Spirits*. See SULPHUR.

And when this Taſte is very ſtrong, *Urinous Spirits*. See URINOUS.

Such as take Fire readily, *Inflamable* or *Ardent Spirits*. See INFLAMABLE.

Such where the Acid predominates, though qualified with a little Sulphur, *&c.* are called *Mix'd Spirits*.

In this Senſe, the Chymiſts are ſaid to draw a *Spirit* from Sulphur, Salt and other Bodies, when they extract the Eſſence, or the ſubtileſt Part thereof, by Diſtillation or otherwiſe. See DISTILLATION, *&c.*

SPIRITS is alſo a general Name among Diſtillers, for all diſtill'd Liquors that are neither Oil nor Phlegm.

SPIRIT *of Wine*, is only Brandy rectified once or more Times, by repeated Diſtillations. See BRANDY.

One may likewiſe make a perfect Rectification of *Brandy* into *Spirit of Wine*, at one ſingle Diſtillation, by uſing a chymical Inſtrument, conſiſting of ſeveral Cucurbites, deſcribed by *Glaſer*. See RECTIFICATION.

Spirit of Wine is uſed in Dying, as a non-colouring Drug, and giving no Colour itſelf, but ſerving to prepare the Stuffs to receive the Colours. See DYING.

The Conſumption of *Spirit of Wine* is very conſiderable in ſeveral other Works and Manufactures, particularly the making of Varniſh. See VARNISH.

SPIRIT *of Sulphur*, is a *Spirit* drawn from *Sulphur* melted and inflamed; the moſt ſubtile Part whereof, is converted into a Liquor, by ſticking to a Glaſs Bell ſuſpended over it, whence it falls Drop by Drop, into a Trough, in the Middle whereof, is placed the Stone Pot wherein the Sulphur is burnt. See SULPHUR.

This *Spirit* is held Specific for the ſame Diſeaſes as *Spirit of Vitriol*. See SPIRIT *of Vitriol*.

SPIRIT *of Salt*, a yellow Liquor drawn, by Chymiſtry, from Sea Salt. See SALT.

The beſt, is that prepared in *England*. 'Tis much uſed in Medicine; but has not, perhaps, all the Virtues aſcribed to it. The common *Spirit of Salt*, being very corroſive, may be dulcified, by letting it digeſt three Days on a gentle Sand heat, with an equal Quantity of *Spirit of Wine* mix'd therewith. See DULCIFYING, FRESH-*water*, *&c.*

SPIRIT *of Vitriol*, is *Vitriol* dried in the Sun, or in Defect thereof, by the Fire, and then diſtill'd by chymical Operations ſeveral Times repeated; firſt by a reverberatory Fire, and then in *Balneo Mariæ*. See VITRIOL.

'Tis held excellent againſt the Epilepſy, as well as againſt burning and malignant Fevers.

The laſt *Spirit* drawn from Vitriol, and which is improperly called *Oil of Vitriol*, is uſed in the Diſſolution of Metals and Minerals.

SPIRIT *of Tartar*	See	TARTAR.
SPIRIT *of Sugar*		SUGAR.
SPIRIT *of Turpentine*		TURPENTINE.
SPIRIT *of Venus*		VENUS.

SPIRIT, in Phyſicks. Sir *Iſaac Newton* cloſes his immortal *Principia*, with obſerving, That he might "there have added ſome Things, concerning a moſt ſubtile *Spirit* which pervades all, even the denſeſt Bodies, and lies hid therein; by the Force and Action whereof, the Particles attract each other, at very ſmall Diſtances, and when contiguous, cohere: And electric Bodies act at greater Diſtances, both attracting and repelling the neighbouring Corpuſcles; and Light is emitted, reflected, and inflected and warms Bodies; and all Senſation is excited; and the Members of Animals moved at the Inſtance of the Will, *viz.* by Vibrations of this *Spirit*, propagated through the ſolid Capillaments of the Nerves, from the external Organs of Senſe to the Brain, and from the Brain to the Muſcles."

But he chuſes to poſt-pone them; "as not having a ſufficient Number of Experiments, whereby the Laws of the Action of this *Spirit* might be preciſely determined." See NEWTONIAN *Philoſophy*; ſee alſo MEDIUM, VACUUM, *&c.*

SPIRITS, in Medicine, are the moſt ſubtile and volatile Parts, or Juices of the Body; by means whereof, all the Functions and Operations thereof are performed.

The *Spirits* are uſually diſtinguiſhed into *Vital* and *Animal*.

The Ancients, indeed, made a four-fold Diſtinction of *Spirits*; into *Vital*, *Animal*, *Natural* and *Genital*: Whereof, the Firſt they placed in the Heart; the Second in the Brain; the Third in the Stomach and Liver; and the laſt in the Teſticles: But as this Diviſion is founded on a falſe Hypotheſis; 'tis now deſervedly ſet aſide.

Vital SPIRITS, are only the fineſt, and moſt agitated Part of the Blood; whereon its Motion, and Heat depend. See BLOOD.

Animal SPIRITS, are an exceedingly thin, ſubtile, moveable Fluid, Juice or Humour ſeparated from the Blood in the Cortex of the Brain, hence received into the minute Fibres of the Medulla, and by them diſcharged into the Nerves, by which it is convey'd through every Part of the Body, to be the Inſtruments of Senſation, muſcular Motion, *&c.* See SENSATION, MUSCULAR *Motion*, *&c.*

The *Animal Spirits*, call'd alſo *Nervous Spirits* and *Nervous Juice*, only differ from the *Vital Spirits*, in that theſe laſt are ſtill mix'd and blended with the groſſer Parts of the Blood, and circulate along with it: Whereas, the *Animal Spirits* are ſecreted thence by the Glands whereof the cortical Subſtance is compoſed; and have a Motion, Circulation, *&c.* peculiar to themſelves. See CIRCULATION.

Dr. *Willis* conceives, that the *Animal Spirits* are prepared by a proper Diſtillation of the ſubtileſt Part of the arterial Blood, brought by the Carotides into the Cortex of the Brain; and ſhews, that the Blood contained in the Sinus's of the Dura Mater, acts in this Diſtillation in the ſame Manner as Fire does in the chymical Diſtillations perform'd by Defluxion, where being placed over the Matter to be diſtill'd, it makes the ſubtileſt Parts thereof deſcend.

The Exiſtence of the *Animal Spirits* is controverted: But the infinite Uſe they are of in the Animal Oeconomy, and the exceedingly lame Account we ſhould have of any of the Animal Functions without them, will ſtill keep the greateſt Part of the World on their Side. And, in effect, the learned *Boerhave* had gone a good way towards a Demonſtration of their Reality.

The Blood brought to the Brain by the Carotides, and Vertebral Arteries, he ſhews, is infinitely prepared, ſecreted elaborated and changed from its natural State, e'er it arrives there, inſomuch as, contrary to the Nature of the reſt, inſtead of cohering by the Fire, it immediately reſolves wholly into a thin Vapour, without any Fæces behind. And is thus exceedingly well fitted for the Formation of ſo extraordinary a Fluid.

He ſhews, further, That the *Animal Spirits* are not form'd from the Cruor, but the Serum of the Blood, which *Malpighi*'s Hiſtory of the Growth of the Fætus in an incubated Egg, ſhews to be diviſible into Parts or Corpuſcles, inconceivably ſmaller than the Cruor.

He adds, That the Nature of the Juice is ſuch, as that no Salts or Oils in the Body can contribute any thing to it; and that in all appearance, 'tis only a moſt ſubtile, pure Water; which Liquor is found to reſemble theſe *Spirits* in its extraordinary Miſcibility, Mobility, Solidity, Softneſs, Simplicity and want of Elaſticity.

The ſame Author ſhews, further, from the Magnitude of the Carotids and Vertebrals, their ſtraight uninterrupted Courſe, the great Quantity of Blood they bring, the Bulk of the Cortex, *&c.* that there muſt be a very great Quantity of this Liquor; that there is freſh prepared every Moment of Life; and that it is driven, every Moment, by the Action of Heat, *&c.* from the Brain and Cerebel, to all the Parts of the Body furniſhed with Nerves; which Motion, he ſhews from the exceeding Fineneſs, Crookedneſs, *&c.* of the Ramifications muſt be very gentle, equable and conſtant, one Part continually driving before it another. Upon the whole, 'tis no Wonder it eſcapes the Notice of our Senſes; and that no Ligatures, Wounds, Punctures, Injections or the like, make either it or the Apertures of the Nerves through which it flows, viſible: Nor does it avail, what ſome, who allow the Exiſtence of the *Animal Spirits*, urge againſt their being any coherent Juice or Liquor, *viz.* That we ſhould find it ooze out and wet the adjacent Parts, upon cutting a Nerve, as we do in cutting a Lymphatic, *&c.* that upon binding a Nerve, the upper Part would ſwell; that the Agitations which Objects make on the Filaments, would deaden, *&c.* that 'tis impoſſible a Liquor ſhould have two oppoſite Motions at the ſame Time; and that the Velocity of Senſations, and the Rapidity of the Motions of Man, prove, that the *Animal Spirits* are rather Light than a Liquor. *Mem. de Trev.*

For the Secretion of the Animal Spirits *from the Blood, and the Apparatus in order thereto* - - - - -	See Brain and Secretion.
For the Courſe of the Animal Spirits, *and the Veſſels thro' which they are carried* - - -	See Nerve and Secretion.
For the Office of the Animal Spirits *in muſcular Motion and Senſation* - - - - - -	See Muscle and Sensation.

SPIRITUALITIES of a Biſhop, are ſuch Profits, as ariſe to him from the Benefit of his Juriſdiction in his Dioceſs, and not as a Baron of the Parliament. See Bishop.

Such are thoſe of his Viſitations, Inſtitutions, Ordinations, Preſentation-Money, *&c.* See Visitation, *&c.*

SPIRITUALIZATION, in Chymiſtry, the Action of extracting *Spirits* from natural Bodies. See Spirit.

Spiritualization, is an Operation that belongs principally to fermented Salts; then to fermented Juices and Liquors; the Fermentation rendring the *Spirits* Volatile and Inflammable. See Fermentation.

Spirit of Wine, is ſometimes *Spiritualiz'd* to that degree, that upon throwing a Quantity into the Air, not a Drop ſhall fall down; but the whole evaporate and be loſt.

SPITTLE. See Saliva and Sputum.

SPITTLE-*Houſe*, a Corruption of the Word *Hoſpital.* See Hospital.

SPLANCHNOLOGY, in Anatomy, a Diſcourſe, or Explication of the Viſcera. See Viscera.

Sarcology is divided into three Parts, *viz. Splanchnology, Myology* and *Angeology*. See Sarcology.

Splanchnology, is that which treats of the Internal Parts, and particularly the Viſcera. The Word is form'd from the Greek σπλάγχνον *Viſcus, Inteſtin*, and λόγος, *Diſcourſe.*

SPLEEN, *Lien*, in Anatomy, a ſoft, ſpungy Viſcus, of a darkiſh Red, or rather Livid, Colour, ordinarily reſembling the Figure of a Tongue, though ſometimes triangular, and ſometimes roundiſh.

The *Spleen* is uſually ſingle, though ſometimes there are Two, and ſometimes Three found. 'Tis ſituate in the Left Hypochondrium, between the ſpurious Ribs and the Stomach; is ſomewhat convex on the Side, towards the former, and concave towards the latter. Its ordinary Length is Six Inches; Breadth Three, and Thickneſs One. It is connected to the Omentum, and by Means of that and the Blood Veſſels, to the Stomach and Left Kidney, and ſometimes to the Diaphragm.

It is covered with two Tunics; the External derived from the Peritonæum, and connected to the Internal only, by the Intervention of the Blood Veſſels. The inner conſiſts of Fibres very curiouſly interwoven. From this, probably, are derived thoſe innumerable Cells or little Bladders, which make up the main Bulk of the *Spleen*: Though *Malipighi* rather takes them to ariſe from the Venous Duct. The Cells communicate with each other, and diſcharge themſelves into the Trunk of the Vein. Their Inſide, according to *Malpighi*, is furniſhed with various minute Glands adhering together; Six, Seven or Eight whereof, form a kind of ſmall conglomerate Glands, wherein the Arteries and Veins ſeem to terminate.

Its Blood-Veſſels are the *Splenic* Artery, which furniſhes it with Blood, from the Cœliac; and the *Splenic Vein*, which carries it thence, by the Porta, to the Liver. See Splenic.

Its Nerves come from the *Plexus Lienaris*, near the Bottom of the Stomach. The Veſſels are all, as ſoon as they enter the *Spleen*, wrapt up in one common Capſula or Membrane, and plentifully diſtributed together throughout the Subſtance of the *Spleen*. Beſides theſe, are Lymphaticks in great Abundance.

The Anaſtomoſes between the Arteries and Veins of the *Spleen*, are more apparent than in any other Part of the Body. And this Viſcus is obſerved to be furniſhed with a greater Proportion of Blood than any other Parts. See Anastomosis.

The Uſe of the *Spleen* has been diſputed in all Ages; both, as no immediate Uſe thereof appears from Diſſection, and as we find, that Animals from whom it has been cut, live very well without it. All the Effects, *e. gr.* following the cutting it from a Dog, are, that the Animal grows more Salacious than uſual; that it urines more frequently; is more hungry than ordinary; and for the firſt Days is troubled with a Vomiting and Nauſea. 'Tis added, That 'tis neceſſary the Part be taken away to make a good Runner.

Hence ſome have imagined that the *Spleen* only ſerved to make a Balance in the Weight of the Body; others, that it was only intended for the ſake of Symmetry; others, an uſeleſs Load, and one of Natures Redundances; others, a Pit or Common-Shore to diſcharge the Fœces of the Blood into; others a Fire, by the Heat whereof, the Action of the Ventricles is animated.

Many of the Ancients took it to be the Receptacle of the Atra Bilis or Melancholic Humour; for which Reaſon, ſome of them call it the *Organ of Laughter.*

Mr. *Cowper*, from the great Quantity of Blood, and the apparent Inoſculations of the *Spleen*, draws a very natural Conjecture of the Uſe thereof; at leaſt of the peculiar Mechaniſm. He takes, then, the *Spleen* to be only a ſubordinate Organ, miniſtring to the Circulation; and thinks, that by this Congreſs of the Arterial and Venal Blood, an Impetus is communicated to the latter, by which its Progreſs through the Ramifications of the Porta to the Cava, is promoted, which would otherwiſe be ſo broke by the double Ramifications of the Porta, as to want Strength ſufficient to carry it to the Heart. See Circulation.

The Action or Effect of the *Spleen*, according to Dr. *Boerhaave*, is to receive the freſh arterial Blood, prepare it in its Glands, and pour it into its Cells; to return what Blood is left from this Action, to the little Veins, and thence to the *Splenic* Vein; to mix the Humour thus prepared, with the nervous Juice, and to prepare, attenuate, and more intimately unite them together into one Humour.

Malpighi, and afterwards Dr. *Keil*, and ſome others, take the *Spleen* to be a viſcous Aſſiſtant to the Liver, in the Secretion, *&c.* of the Bile. We have obſerved, that by reaſon of the Nearneſs of the Liver and Heart, and the ſwift Motion of the Blood in the Aorta, a Humour conſiſting of Particles that combine ſo ſlowly as thoſe of the Bile do, could not be prepared but by bringing the Blood round about through the Stomach, Inteſtines and Omentum, *&c.* to the Liver, to abate its Velocity.

Now Dr. *Keil* conjectures, that thoſe Part were not ſufficient to receive all the Blood neceſſary to be ſent to the Liver; therefore Nature framed the *Spleen*, into whoſe Cavities the Blood being poured from a ſmall Artery, moves at leaſt as ſlowly as any that paſſes otherwiſe to the Liver; by which Means the Particles that compoſe the Bile in the Blood, which paſſes through the *Ramus Splenicus*, by ſo long and ſlow a Circulation, have more Chances for uniting than otherwiſe they would, had they been carried by the Branches of the Cœliac directly to the Liver; conſequently without the *Spleen*, ſuch a Quantity of Bile as is now ſecerned, that is, as Nature requires, could not have been ſecerned by the Liver. See Bile; ſee alſo Liver.

Spleen, is alſo uſed for a Diſeaſe; by Phyſicians more uſually called the *Hypochondriac Diſeaſe.* See Hypochondriac and Vapours.

SPLENETIC, a Perſon affected with Oppilations and Obſtructions of the *Spleen.*

In *Splenetic* People, the *Spleen* is ſwell'd beyond the natural Bulk, or harden'd, ſo as to ſhew a Schirrous Tumour thereon. *Splenetic* People are diſtinguiſhed by a Livid, Lead-coloured Complexion; their Character is to be very prone to Laughter; which is an Expedient Nature is ſuppoſed to make uſe of, to evacuate the too redundant Humour the *Spleen* is charged withal, whence it is that the Ancients made the *Spleen* the Organ of Laughter; and hence that popular Saying of a Perſon laughing heartily, *That he vents his Spleen.*

SPLENIC *Veſſels*, a large Artery, and a Vein of the *Spleen.* See Spleen.

The *Splenic Artery*, is a Trunk of the left Cœliac, ſerving to bring the Blood from that Artery to the *Spleen*, to be there ſecreted, prepared, *&c.* its Progreſs is very much contorted; and after its Arrival at the Surface of the *Spleen*, it is diffuſed through the Subſtance thereof in ſmall Branches, which ſeem to terminate in the Cells.

The *Splenic Vein* is form'd out of the ſeveral minute Veins of the *Spleen*, uniting as they quit the Surface thereof. It carries the Blood ſecreted, *&c.* in the *Spleen*, to the Left Branch of the *Vena Porta*, to be thence convey'd to the Liver, there to be further prepared and converted into Bile.

The *Splenic* Vein and Artery manifeſtly communicate with each other: For Water being poured into one of them, preſently diſcharges itſelf by the other. See Spleen.

SPLENII, in Anatomy, a Pair of Muſcles, called alſo from their Form *Triangulares.*

They ariſe from the four upper Spines of the Vertebræ of the Back, and from the two lower of the Neck, and aſcending obliquely, adhere to the upper tranſverſe Proceſſes of the Vertebræ of the Neck, and are inſerted into the upper Part of the Occiput. They pull the Head backwards to one Side. They are call'd *Splenii*, from a ſuppoſed Reſemblance to an Ox's *Spleen.*

SPLENT, or SPLINT, among Farriers, a callous, inſenſible Excreſcence; or kind of hard Griſtle, that ſometimes ſticks to an Horſe's Shank-Bone, and generally comes upon the Inſide: If there be one oppoſite thereto on the Outſide, it is called a *Pegg'd* or *Pinn'd Splent*, becauſe it doth, as it were, pierce the Bone, and is extremely dangerous.

SPLENTS, in Surgery, Pieces of Wood uſed in binding up broken Limbs. See Ferula.

The Word is alſo uſed for the Pieces of a fractured Bone.

SPLICE; at Sea they ſay, a Cable or Rope is *Spliced*, when the Ends of two Pieces being untwiſted, the ſeveral Strands are wrought into one another by a Fidd. Alſo when an Eye is to be made at the End of a Rope, the Ends of the Strands, are, by a Fidd, drawn into the Ends of the other Ropes Strands; and this is call'd a *Splice*.

To *Splice* among Gardeners, is to graft the Top of one Tree into the Stock of another, by cutting them ſloping, and faſtening them together. See ENGRAFTING.

SPODIUM, in Pharmacy, a kind of Calx or Aſhes, eſteem'd an excellent Cardiac, and held to have the ſame Virtues with Coral.

The *Spodium* of the ancient *Greeks*, was a kind of Aſhes found on the Hearths of Furnaces wherein Braſs was made; call'd by them *σπόδιον*, *q. d. Cinis.*

That of the *Arabian* Phyſicians, as *Avicenna* and others, was made of the burnt Roots of Ruſhes and Reeds.

The Moderns make their *Spodium* of Ivory burnt and calcined to a Whiteneſs. 'Tis ſometimes counterfeited, by burning Bullocks or Dogs-bones; but theſe are of no Value.

The *Anti-Spodium*, which the Ancients ſubſtituted for their *Spodium*, was made of Myrtle-Leaves, Galls and ſome other Ingredients, calcined.

SPOILS, whatever is taken from an Enemy in War.

Among the *Greeks*, the *Spoils* were divided in common among the whole Army; only the Generals Quota was the biggeſt.

By the Military Diſcipline of the *Romans*, the *Spoils* belong'd to the Republick; particular Perſons had no Title to them; and each of the Generals, as valuing themſelves on their Probity, always carried them to the Publick Treaſury. Sometimes, indeed, the Pillage was diſtributed by the General among the Soldiery, to encourage them, or to reward them: But this was not done without a world of Prudence and Reſervedneſs, otherwiſe it came under the Crime of *Peculatus.*

The Conſuls *Romulus* and *Veturius*, were condemn'd for having ſold the *Spoils* taken from the *Æqui*. *Livy, lib.* 8.

SPONDAULES, in Antiquity, a Player of the Flute, or other Wind Inſtrument of that Kind, who, during the Offering of Sacrifice, performed ſome ſuitable Air in the Prieſt's Ear to prevent the hearing of any Thing that might diſtract him, or leſſen his Attention. See SACRIFICE.

The Word is form'd from the *Greek* *σπονδὴ*, *Libation*, and *αὐλὴ*, *Flute.*

SPONDEE, SPONDÆUS, in the *Greek* and *Latin* Proſody, a Foot of a Verſe conſiſting of two long Syllables; as *Vertunt*. See FOOT and QUANTITY.

The *Spondee* is a grave Meaſure: All *Greek* and *Latin* Hexameters end with a *Spondee*. See VERSE and MEASURE.

There are alſo *Spondee* or *Spondaic Verſes*; that is, Verſes compoſed wholly of *Spondees*, or at leaſt that end with Two *Spondees*, as,

Conſtitit atque oculis Phrygia agmina circumſpexit.

SPONDYLUS, a Term anciently uſed for a Vertebra of the *Spina Dorſi*. See VERTEBRA, *&c.*

SPONGE. See SPUNGE.

SPONGIOSA, in Anatomy, an Epithet given to ſeveral Parts of the Body, from their Texture, which is Porous and Cavernous, like that of the *Spunge*; as

Corpora Spongioſa Penis, call'd alſo *Corpora Cavernoſa* and *Nervoſa*. See CAVERNOSA CORPORA.

Oſſa Spongioſa of the Noſe, called alſo *Oſſa Turbinata*, and *Cribriformia Oſſa*. See TURBINATA *Oſſa* and CRIBRIFORME.

SPONTANEOUS, in the Schools, a Term applied to ſuch Motions of the Body and Mind as we perform of our ſelves, without any Conſtraint.

Thus, in Morality, thoſe Actions preform'd from an inward and natural Principle, conformable to the Inclination of Nature, excluding all Conſtraint, but not excluding Neceſſity, are called *Spontaneous Actions*. See NECESSITY.

In Medicine, an Evacuation effected without any Application for that purpoſe, is call'd a *Spontaneous Evacuation.* And a Laſſitude or Wearineſs, not occaſioned by any preceding Fatigue, is call'd a *Spontaneous Wearineſs.*

The Word is form'd from the *Latin* Adverb, *Sponte*, of one's own accord.

'Tis held a grievous and dangerous Error, with regard both to Religion and Morality, to hold that human Liberty only conſiſts in a *Spontaneity*: *M. le Clerc* has been very harſhly treated, for making St. *Auguſtin* of this Opinion. See LIBERTY.

SPONTANEOUS *Generation.* See EQUIVOCAL *Generation.*

SPOONING: In the Sea Language, when a Ship being under Sail, in a Storm at Sea, cannot bear it; but is forced to put right before the Wind; then the Seamen ſay, ſhe *Spoons*; and when in ſuch a Caſe, there is Danger leſt ſhe ſhould bring her Maſts by the Board, with her rolling about, or ſeel under Water, and ſo founder, they uſually ſet up the Fore-ſail to make her go the ſteadier, eſpecially if there be Sea-room enough; and this they call *Spooning with the Fore-ſail.*

SPORADES, in Aſtronomy, a Name the Ancients gave to ſuch Stars as were not included in any Conſtellation. See STAR.

Theſe, the Moderns more uſually call *Informes*. See INFORMES.

Many of the *Sporades* of the Ancients have been ſince form'd into new Conſtellations, *E. gr.* Of thoſe between *Leo* and *Urſa Major*, *Hevelius* has form'd a Conſtellation, call'd *Leo Minor*; of thoſe between *Urſa Minor* and *Auriga*, another Conſtellation called *Lynx*; of thoſe under the Tail of *Urſa Major*, another call'd *Canis venatics*, *&c.* See CONSTELLATION.

SPORADIC, in Medicine, an Epithet given to ſuch Diſeaſes as have ſome ſpecial or particular Cauſe, and are diſperſed here and there, regarding particular Conſtitutions, Ages, or other Circumſtances. See DISEASE.

Sporadic ſtand in Oppoſition to *Epidemic* Diſeaſes, which are thoſe ariſing from a general Cauſe, and that are common to all Kinds of Perſons, of what Complexion and Quality ſoever. See EPIDEMIC.

The Word is form'd from the *Greek* *σποραs*, diſperſed, ſpread, *&c.*

SPORTULA, in Antiquity, a Dole, or Largeſs, either of Meat or Money, given by Princes or great Men, to the People, or the Poor.

The *Sportula* was properly the Panier, or Basket wherein the Meat was brought, or wherewith the Poor went to beg it; thence the Word was transferred to the Meat itſelf; and thence to Money ſometimes given in lieu of it.

Sportula was frequently uſed in Oppoſition to *Recta cœna*, a plentiful Meal; as in *Martial*,

Promiſſa eſt nobis Sportula *recta data.*

St. *Cyprian* calls *Sportulantes Fratres*, ſuch Clergymen as then received Gifts for their Maintenance, like our Prebends.

SPOTS, in Aſtronomy, dark Places, obſerved on the Disks or Faces of the Sun and Moon. See SUN and MOON.

The *Spots* in the Sun are only viſible through a Teleſcope: Some diſtinguiſh them into *Maculæ* or dark *Spots*, and *Faculæ* or bright *Spots*; but there ſeems little Foundation for any ſuch Diviſion. See MACULÆ and FACULÆ.

The *Solar* SPOTS have not been long obſerved. They are very changeable, as to Number, Form, *&c.* are ſometimes in a Multitude, and ſometimes none at all.

Some imagine they may become ſo numerous, as to hide the whole Face of the Sun; at leaſt the greateſt part of it; And to this, aſcribe what *Plutarch* tells us, *viz.* That in the Firſt Year of the Reign of *Auguſtus*, the Sun's Light was ſo faint and obſcure, that one might look ſteadily at it with the naked Eye. See ECLIPSE.

To which *Kepler* adds, That in 1547, the Sun appeared reddiſh, as when viewed through a thick Miſt; and hence conjectures, That the *Spots* in the Sun are a kind of dark Smoaks or Clouds floating on the Surface thereof. Others will have them Stars or Planets tranſiting the Body of the Sun. But 'tis much more probable they are opake Bodies, in manner of Cruſts, form'd like the Scums on the Surface of Liquors. See SUN.

The *Lunar* SPOTS are fix'd. Some will have them the Shadows of the Mountains, or uneven Places of the Moon's Body; but their Conſtancy diſcredits this Opinion. The more general and probable Opinion is, That the *Spots* in the Moon, are Seas, Lakes, Moraſſes, *&c.* which abſorbing Part of the Sun's Rays reflect the fewer to us; ſo as to appear in form of dark *Spots*: Whereas the earthy Parts, by reaſon of their Solidity, reflect all their Light, and thus appear perfectly bright. M. *Hartſoeker* has another Opinion, and takes the *Spots* in the Moon, many of them at leaſt, for Foreſts, Groves, *&c.* the Leaves and Branches whereof, intercept the Rays reflected from the Ground, and ſend them elſewhere.

The Aſtronomers reckon about 48 *Spots* on the Moon's Face; to each whereof, they have given Names. The 21ſt is one of the moſt conſiderable, and is called *Tycho.*

Planetary SPOTS: Aſtronomers find that the Planets are not without their *Spots*. *Jupiter*, *Mars* and *Venus*, when viewed through a Teleſcope, ſhew ſeveral very remarkable ones; and it is by the Motion of theſe *Spots*, that we conclude the Rotation of the Planets round their Axes, in the ſame Manner as that of the Sun is deduced from the Motion of his *Maculæ*. See PLANET, SUN, *&c.*

SPOUT, or *Water*-SPOUT, in Natural Hiſtory, an extraordinary Meteor, or Appearance, at Sea, and ſometimes at Land, very dangerous to Ships, *&c.* ofteneſt obſerved in hot, dry Weather; call'd by the *Latins*, *Typho*, and *Sipho*, by the *French*, *Trompe*, *&c.* See METEOR.

Its firſt Appearance is in form of a deep Cloud, the upper Part whereof is White, and the lower Black. From the lower Part of this Cloud hangs, or rather falls down, what we properly call the *Spout*, in manner of a Conical Tube, biggeſt a-top. Under this Tube is always a great boiling, and flying up of the Water of the Sea, as in a *Jet d'Eau*. For ſome Yards above the Surface of the Sea, the Water ſtands as a Column or Pillar; from the Extremity whereof, it ſpreads and goes off, as in a kind of Smoak. Frequently, the Cone deſcends ſo low, as to touch the Middle of this Column, and continue for ſome time contiguous to it; though ſometimes it only points to it, at ſome Diſtance, either in a perpendicular or oblique Line.

Frequently 'tis ſcarce diſtinguiſhable, whether the Cone or the Column appear the firſt, both appearing all of a ſudden againſt each other. But ſometimes the Water boils up from the Sea to a great Height, without any Appearance of a *Spout* pointing to it, either perpendicularly or obliquely. Indeed, generally, the boiling or flying up of the Water, has the Priority, this always preceding its being form'd into a Column.

Generally, the Cone does not appear hollow, till towards the End; when the Sea-water is violently thrown up along its Middle, as Smoak up a Chimney. Soon after this, the *Spout* or Canal breaks and diſappears; the boiling up of the Water, and even the Pillar, continuing to the laſt, and for ſome time afterwards; ſometimes till the *Spout* form itſelf again and appear anew; which it ſometimes does, ſeveral times in a Quarter of an Hour.

M. *de la Pyme*, from a near Obſervation of two or three *Spouts* in *Yorkſhire*, deſcribed in the *Philoſophical Tranſactions*, gathers, that the *Water-Spout*, is nothing but a Gyration of Clouds by contrary Winds, meeting in a Point or Centre; and there, where the greateſt Condenſation and Gravitation is, falling down into a Pipe or great Tube, ſomewhat like *Archimedes*'s Spiral Screw; and in its working and whirling Motion, abſorbing and raiſing the Water in the ſame Manner as the Spiral Screw does; and thus deſtroys Ships, *&c.*

Thus, *June* the 21ſt, he obſerved the Clouds mightily agitated above, and driven together; upon which they became very black, and were hurried round, whence proceeded a moſt audible whirling Noiſe, like that ordinarily heard in a Mill. Soon after, iſſued a long Tube or *Spout*, from the Centre of the congregated Clouds, wherein he obſerved a ſpiral Motion, like that of a Screw; by which the Water was raiſed up. Again, *Auguſt* 15, 1687, the Wind blowing at the ſame Time out of ſeveral Quarters, created a great Vortex and Whirling among the Clouds; the Centre whereof, every now and then, dropt down, in Shape of a long, thin, black Pipe, wherein he could diſtinctly behold a Motion like that of a Screw, continually drawing upwards and ſcrewing up, as it were, where-ever it touch'd. In its Progreſs it moved ſlowly over a Grove of Trees, which bent under it like Wands in a circular Motion. Proceeding, it tore off the Thatch from a Barn, bent a huge Oak Tree, broke one of its greateſt Branches, and threw it to a great Diſtance. He adds, That whereas 'tis commonly ſaid, the Water works and riſes in a Column, e'er the Tube comes to touch it; this is certainly a Miſtake, owing to the Fineneſs and Tranſparency of the Tubes, which do moſt certainly touch the Surface of the Sea, e'er any conſiderable Motion can be raiſed therein; but which do not become opake and viſible, till after they have imbibed a conſiderable Quantity of Water.

The Diſſolution of *Spouts*, he aſcribes to the great Quantity of Water they have glutted; which by its Weight impeding their Motion, whereon their Force, and even Exiſtence, depends, they break and let go their Contents; which uſed to prove fatal to whatever is found underneath.

A notable Inſtance hereof, we have in the *Philoſophical Tranſactions*, related by Dr. *Richardſon*. A *Spout* in 1718, breaking on *Emott-moor* nigh *Coln* in *Lancaſhire*, the Champaign was immediately overflow'd, a Brook, in a few Minutes, roſe Six Feet perpendicularly high; and the Ground whereon the *Spout* fell, which was Sixty-ſix Feet over, was tore up to the very Rock, which was no leſs than Seven Feet deep; and a deep Gulf made for above half a Mile; the Earth being raiſed on either ſide in vaſt Heaps.

In *Pliny*'s Time, the Seamen uſed to pour Vinegar into the Sea, to aſſuage and lay the *Spout*, when it approached them: Our Modern Seamen think to keep it off, by making a Noiſe with filing and ſcratching violently on the Deck; or, by diſcharging great Guns to diſperſe it.

SPRING, in Natural Hiſtory, a *Fountain* or Source of Living Water ariſing out of the Ground. See WATER.

The Origin of *Springs* or Fountains, is a Thing much controverted among our lateſt Naturaliſts.

Meſſieurs *Mariotte* and *Perrault* aſcribe it to Rains. Their Doctrine is, That the Rain-water penetrates the Earth till ſuch time as it meets a Clayey Soil or Stratum; which proving a ſufficient ſolid Bottom, to ſuſtain and ſtop their Deſcent, they glide along it that way to which the Earth declines, till they meet with a Place or Aperture in the Surface of the Earth, through which they may eſcape, and make the Head of a River. See STRATUM.

Now, that the Rain is ſufficient for this Effect, appears hence; that upon calculating the Quantity of Rain and Snow that falls yearly on the Tract of Ground, that is to furniſh, for Inſtance, the Water of the *Seine*; 'tis found, that River does not take up above one ſixth Part of it. *Springs* ordinarily ariſe at the Feet of Mountains: The Reaſon, ſay they, is, That Mountains collect the moſt Waters, and give them the greateſt Deſcent towards the ſame Side: and that if we ſometimes ſee Springs on high Grounds, and even on the Tops of Mountains; they muſt be brought from other remoter Places, conſiderably higher, along on Beds of Clay or clammy Ground, as in their natural Channels. If then, there happen to be a Valley between a Mountain, on whoſe Top is a *Spring*, and the Mountain that is to furniſh it with Water, the *Spring* muſt be look'd on as a Water conducted from a Reſervoir of a certain Height through a ſubterraneous Channel, to make a Jet of an equal or ſomewhat leſs Height. See RAIN.

This Theory M. *de la Hire* has taken under Examination, in its moſt eſſential Article, and that where the Authors ſeem to have been the leaſt diſtruſtful.

He has endeavour'd to find, by Experiment, whether Rain or Snow-water could penetrate the Earth as low as the clayey Stratum: The Reſult of his Inquiry, is, That they don't penetrate even 16 Inches deep, in a Quantity ſufficient to form the ſmalleſt Collection of Water on a Solid Bottom. Nay, this he found when the Earth he made his Experiment on, was quite naked of all Herbs and Plants; but aſſoon as ever any of theſe came up, and were grown to any Bulk, ſo far was the Rain that fell, from being able to gather itſelf at the Depth of 16 Inches, that it was not ſufficient even to feed the Plants, but there was a Neceſſity for watering them. For the Quantity of Water expended in the ordinary Support of Plants, ſee VEGETATION.

Dr. *Halley* refers the Origin of *Springs* meerly to Vapours, rais'd by the Heat of the Sun, or of Subterraneous Fires from the Sea, Lakes, Rivers, *&c.* Theſe Vapours, thus rais'd, he ſuppoſes, are by the Winds, carried over the Low-lands, to the ſeveral Mountains and Ridges of Mountains, and are there compell'd, by the Stream of Air, to mount with it to the Tops, where the Atmoſphere being very rare and cold, retains but a ſmall Part of them; the reſt is condenſed into Dew, which preſently precipitates, gleeting down by the Crannies of the Stones, and part of it entering the Caverns of the Hills, is gather'd therein, as in an Alembic, which being once full, the Overplus muſt run down at the loweſt Part of the Reſervoir, and breaking out by the Side of the Hills, forms *ſingle Springs*, many of which running down by the Vallies or Guts between the Ridges of the Hills, and at length uniting, form *Rivulets*, and many of theſe meeting in a common Channel, form Rivers. See RIVER.

Now, to ſhew that Vapour is a ſufficient Fund, to ſupply all our *Springs*, Rivers, *&c.* The ſame excellent Author makes an Eſtimate of the Quantity of Vapour raiſed from the Sun, by the Action of the Sun: The Reſult of an Experiment he made to that Purpoſe was, That the Thickneſs of Water evaporated from the Surface of the Sea, in the Space of Two Hours, in Summer-time, is one Fifty-third Part of an Inch; which for the Eaſe of Calculation, being only ſuppoſed to be $\frac{1}{60}$; the Quantity of $\frac{1}{10}$ of an Inch will be found exhaled in 12 Hours. On this Principle, every Mile ſquare will be found to evaporate, in 12 Hours, 6914 Tuns of Water, and every ſquare Degree, Thirty-three Millions of Tuns. The Area of the *Mediterranean* then being eſtimated at 160 Square Degrees, it will loſe in Vapour, in a Summer's Day 5280 Millions of Tuns.

Yet the Quantity of Vapour thus raiſed, great as it is, is only the Remains of what is rais'd another Way, *viz.* by the Winds, which ſometimes ſweep the Water off, faſter than the Sun takes it up.

To find now, the Quantity of Water the *Mediterranean* receives, allow the moſt conſiderable Rivers it receives, *viz.* the *Iberus*, *Rhone*, *Tyber*, *Po*, *Danube*, *Neiſter*, *Boriſthenes*, *Tanais* and the *Nile*, each to furniſh Ten Times as much Water as the *Thames*; not that any of them are, in reality, ſo great, but ſo to allow for the leſſer Rivulets: But the *Thames* is found, by Calculation, to evacuate 20300000 Tuns of Water daily. All the Nine Rivers abovementioned, therefore, will only evacuate 1827 Millions of Tuns in a Day, which is little more than a Third of what is rais'd in that Time in Vapour. See VAPOUR.

After all that can be ſaid in Favour, both of Rain and Vapour, it muſt be owned, they are both ſtill preſs'd with great Difficulties; and there is ſtill Room to look out for a better Theory.

The Perennity of divers *Springs*, always yielding the ſame Quantity of Water, when the leaſt Rain or Vapour is afforded, as well as when the greateſt, is a ſtrong Objection to both. Mr. *Derham* mentions one in his own Pariſh of *Upminſter*, which he could never perceive by his Eye to be diminiſh'd in the greateſt Droughts, even when all the Ponds in the Country, as well as an adjoining Brook, have been dry for ſeveral Months together; nor ever to be increaſed in the moſt rainy Seaſons, excepting perhaps, for a few Hours, or at moſt for a Day, from ſudden and violent Rains. Had this *Spring* its Origin from Rain or Vapour, there would be found an Increaſe and Decreaſe of its Water, correſponding to thoſe of its Cauſes; as we actually find in ſuch temporary *Springs*, as have undoubtedly their Riſe from Rain and Vapour: Add to this, another conſiderable Thing in this *Upminſter Spring*, and Thouſands of others, *viz.* That it breaks out of ſo inconſiderable a Hillock or Eminence, as can have no more Influence in the Condenſation of the Vapours or ſtopping the Clouds, than the lower Lands about it have. The very higheſt Ground in the County, he finds is not above 133 Yards above the Level of the Sea; and what is ſuch an inconſiderable Riſe of Land, to a Perennial Condenſation of Vapours, fit to maintain ſo inconſiderable a *Spring*? Or the high Lands of the whole County, to the maintaining all its Fountains and Rivulets?

Other Naturaliſts, therefore, have Recourſe to the Sea, and derive the Origin of *Springs* immediately thence; but how the Sea-water ſhould be rais'd up to the Surface of our Earth, and even to the Tops of the Mountains, is a Difficulty they can't agree upon.

Some fancy a kind of hollow, ſubterranean Rocks to receive the watery Vapours from the Bottom of the Earth, and to act the Part of Alembics, in condenſing and converting them into Waters. Others, as M. *de la Hire*, &c. ſet aſide the Neceſſity of Alembicks, and think it enough that there be large ſubterranean Reſervoirs of Water at the Height of the Sea, whence the Warmth of the Bottom of the Earth, or even the central Fire (if there be ſuch a Thing) may raiſe Vapours, which pervading not only the Intervals and Fiſſures of the Strata, but the Bodies of the Strata themſelves, at length arrive near the Surface; where, being condenſed by the Cold, they glide along on the firſt Bed of Clay they meet withal, 'till an Aperture in the Ground lets them out. M. *de la Hire* adds, That the Salts of Stones and Minerals may contribute to the detaining and fixing the Vapours, and the converting them into Water.

But we have a ſtill more natural and eaſy Way of exhibiting the Riſe of the Sea-water up into Mountains, &c. by putting a little Heap of Sand, Aſhes, a Loaf of Bread, or the like, in a Baſon of Water: In which Caſe, the Sand, &c. will repreſent the dry Land, or an Iſland; and the Baſon of Water the Sea about it. Here, the Water in the Baſon will riſe to, or near, the Top of the Heap, in the ſame Manner, and from the ſame Principle, as the Water of the Sea, Lakes, &c. riſe in the Hills. The Principle of Aſcent in both, is, doubtleſs, the ſame with that of the Aſcent of Liquids in Capillary Tubes, or between contiguous Planes, or in a Tube fill'd with Aſhes; all which are now generally accounted for from the Doctrine of *Attraction*; ſee ASCENT, CAPILLARY, ATTRACTION, &c.

SPRING, in Coſmography, one of the Seaſons of the Year; commencing, in the Northern Parts of the World, on the Day the Sun enters the Firſt Degree of *Aries*, which is about the 10th Day of *March*, and ending when the Sun leaves *Gemini*. See SEASON.

Or, more ſtrictly, and generally, the *Spring* begins on the Day, when the Diſtance of the Sun's Meridian Altitude from the Zenith, being on the Increaſing Hand, is at a Medium between the greateſt and leaſt. The End of the *Spring* coincides with the Beginning of *Summer*. See SUMMER.

SPRING, in Phyſicks, a natural Faculty, or Endeavour, Bodies have of returning to their firſt State, after having been violently put out of the ſame, by compreſſing, bending them, or the like: This Faculty the Philoſophers uſually call the *Elaſtic Force*, or *Elaſticity*. See ELASTIC.

Fleas only jump to thoſe exceſſive Heights, by means of a *Springy* Membrane, eaſily viſible by a Microſcope, and whereof we have a curious Figure in Dr. *Hook*'s Micrography. By the elaſtic Force of this *Spring*, they are enabled to leap 200 times the Height of their own Body. See FLEA.

Nature has provided for the regular ſowing of the Seeds of ſeveral Kinds of Plants, by furniſhing them with a *Spring*, which is wound ſometimes round the Outſide, and ſometimes round the Inſide of the Caſe wherein the Seeds are contained. This *Spring*, when ſtretch'd to a certain Pitch, by the full Growth and Maturity of the Seed, ſuddenly, either breaks in two, as when on the Outſide, and tears the Caſe along with it; or elſe, by its vehement Effort to unbend itſelf, as when in the Inſide, it burſts the Caſe into Two Parts like Cups, and diſperſes the Seed. See SEMINATION.

SPRING, is particularly uſed for a Piece of temper'd Steel put in ſeveral Machines to give them Motion, by the Endeavour it makes to unbend itſelf.

In Watches, 'tis a fine Piece of well-beaten Steel, coil'd up in a cylindrical Caſe or Frame, which by ſtretching itſelf forth, puts the Wheels and the whole Movement in Motion. See WATCH.

The *Spring* of a Lock, Piſtol or the like, is a Piece of Steel violently bent, which beats back the Bolt, or ſtrikes down the Cock, when ſet at Liberty. See LOCK.

SPRING *of the Air*, or its Elaſtick Force. See AIR and ELASTICITY.

SPRING *a Maſt*; ſo the Sea-men call it, when a Maſt is crack'd, but not quite broken in any Part.

SPRING-*Tide*, is the increaſing of a *Tide* after a dead Neip. See TIDE.

The *Spring-Tides* happen about Three Days before the Full or Change of the Moon; but the Top or Higheſt of the *Spring-Tides*, is three Days after the Full or Change: then the Water runs higheſt with the Flood, and loweſt with the Ebb, and the *Tides* run more ſtrong and ſwift, than in the Neips. See NEIP, FLUX, EBB, &c.

SPRINGE, a Snare or Device made of twiſted Wire, to catch Birds or ſmall Beaſts.

SPRINGY, or *elaſtic* Bodies, are ſuch, as having had their Figure changed by the Stroke or Percuſſion of another Body, can recover again their former Figure; which Bodies, that are not Elaſtic, will not do. Thus if a Piece of Steel be bent any way, it will recover again its former Straitneſs; but a Piece of Lead will ſtand bent in any Form. See ELASTIC *Bodies*.

SPUNGE or SPONGE, a kind of Sea-Fungus or Muſhroom found adhering to Rocks, Shells, &c. on the Sea-ſhore. See MUSHROOM.

The Ancients diſtinguiſh'd two Kinds, *Male* and *Female*: But the Moderns make only one Kind; which, however, they diſtinguiſh with regard to to its Texture, into *Coarſe* and *Fine*.

The Naturaliſts have been embaraſs'd in all Ages, whether to range *Spunges* in the Animal, Mineral or Vegetable Family. Some wou'd have it a Concretion form'd of the Sea-mud; and others an Animal, from its Motion of Contraction and Dilatation.

The greateſt Part of our *Spunges* are brought from the *Mediterranean*; though there are conſiderable Quantities from *Vicaria*, an Iſland on the Coaſt of *Aſia*.

The Diving or Fiſhing for *Spunges* is there reckoned the top Qualification in the Youth, who all get the better Wives as they excel more herein. To this Proof, the Maids refer the Preference among ſeveral Suitors; placing themſelves on the Brink of the Sea, to be Witneſſes of the Addreſs of each; and giving themſelves as a Prize to the Conqueror. See DIVING.

The fine or ſmall *Spunges* are the moſt eſteem'd; and uſually come to us from *Conſtantinople*. Their Goodneſs conſiſts in their being very white, light, and the Holes ſmall and cloſe; the larger and coarſer come from the Coaſts of *Barbary*, particularly *Tunis* and *Algier*.

The *Spunge* is a very uſeful Matter in the Arts. In Phyſic it ſerves to foment Parts inflamed. By Analyſis, it yields a deal of volatile, ſharp Salts, like other Sea-Plants. Taken inwardly it choaks; and is for that Reaſon cut ſmall, and fried or dipt in Honey, and given to Quadrupeds to kill them, which it ſeldom fails to do, by ſwelling and preventing the Paſſage of the Food into the Inteſtines.

In *Spunges* are found a kind of Stones call'd *Cyſthoelithres*, held good for the Worms in young Children, and taken in Powder.

Pyrotechnical SPUNGES, are made of the large Muſhrooms or fungous Excreſcences growing on old Oaks, Aſhes, Firs, &c. which being boil'd in common Water, then dried and well beaten, are put in a ſtrong Lye, prepared with Salt-peter, and again dried in an Oven.

Theſe make the black Match or Tinder brought from *Germany*, uſed to receive and ſuſtain the Fire ſtruck from a Flint and Steel, &c.

SPUNGE, in Gunnery, a Rammer or Staff, with a Piece of Sheep or Lamb-skin about its End; to ſerve for ſcouring of great Guns when diſcharged, e'er they be charged with freſh Powder. See CHARGE.

SPUNGING, in Gunnery, the clearing a Gun's Inſide with a *Spunge*, in order to prevent any Parts of Fire from remaining in her; which would endanger the Life of him, who ſhould load her again. See GUN.

SPUN-*Yarn*, among Sailors, the *Yarn* of untwiſted Ropes, whoſe Ends are ſcraped and beaten thin, in order to be let into the Ends of other Ropes, and ſo made long as Occaſion ſhall require.

SPUR, was anciently a Piece of the Armour of a Cavalier, faſten'd to the Talary, that is, the hind of that Part of the compleat Armour which cover'd the Legs and Feet.

At preſent, the *Spur* is a Piece of Iron or other Metal, conſiſting of two Branches incompaſſing the Cavalier's Heel, and a Rowel in form of a Star, advancing out behind to prick the Horſe.

Louis le Debonnaire forbad Eccleſiaſticks the profane Faſhion of wearing *Spurs*.

Anciently the Difference between the Knight and Eſquire was, that the Knight wore gilt *Spurs*, whence the Appellation of *Eques Auratus*, and the 'Squire ſilver'd ones. See KNIGHT and ESQUIRE.

The Word is derived from the *German*, *Sporen* or *Sporn*.

SPURIOUS *Diſeaſes*, are ſuch as in ſome Symptoms cannot be brought under any diſtinct Head, and therefore are call'd by the Name of ſome, with which they moſt agree; and hence, alſo, they are often denominated Baſtards, *Nothi*; as a *ſpurious* or *baſtard Pleuriſy*, a *baſtard Quinſy*, and the like. See PLEURISY, &c.

SPURIOUS *Fleſh*, among Anatomiſts, that which is of a Conſtitution quite different from all the reſt; as the *Fleſh* of the Lips, Gums, Glans, &c. See FLESH, GUMS, GLANS, &c.

SPUR-*Way*, a Horſe-way through a Man's Grounds, through which one may ride, by Right of Cuſtom.

SPUTUM, in Medicine, &c. the Spittle, or Excrement voided at the Mouth. See SALIVA.

An Examen of the *Sputum*, is of great Conſequence in Phthiſical Caſes; and *Bennet*, in his *Theatrum Tabidorum*, applies himſelf in a particular Manner thereto. See PHTHISIS.

The *Sputum Sanguinis*, is a very dangerous Symptom in that Diſeaſe.

SPY, a Perſon paid to watch the Actions, Motions, &c. of another; particularly as to what paſſes in an Army.

When a *Spy* is found in a Camp, he is immediately hanged.

Wicquefort ſays, an Embaſſador is an Honourable *Spy*, under Protection of the Law of Nations. See EMBASSADOR.

SQUADRON *of Ships*, a Diviſion, or Part, of a Fleet, commanded by a Vice or Rear Admiral, or ſome other Commander or Commadore. See FLEET, ADMIRAL, &c.

The Number of Ships in the *Squadron* is not fix'd: A ſmall Number of Veſſels, if they be in a Body, and have the ſame Commander, may make a *Squadron*.

If there be a great Number, they are uſually divided into Three *Squadrons*. And if the *Squadrons* be numerous, each *Squadron* is divided into Three Diviſions.

The Word is form'd from the *Italian Squadrone* of the *Latin*, *Squadro*, uſed by Corruption for *Quadro*: In regard, at firſt, the *Squadrons* were always Square, and called alſo by the *Latins*, *Agmina Quadrata*.

SQUADRON is alſo a Body of Horſe, whoſe Number is not fixed; but is uſually from One hundred to Two hundred Men, according to the General's Pleaſure, the Strength of the Army, or as Occaſion ſerves.

It uſually conſiſts of Three Troops, each of Fifty Men, and it never exceeds Two hundred; becauſe a greater Number can't be advantageouſly poſted, nor have Room to act in narrow Grounds, Woods, Marſhes, Defiles, &c. See TROOP.

The Eldeſt Troop takes the Right of the *Squadron*, and the Second the Left, the Youngeſt being in the Centre.

A *Squadron* is always drawn up Three deep, or in Three Ranks, with the Length of an Horſe between each Rank.

The Standard is always in the Centre of the firſt Rank.

SQUAMMOUS, in Anatomy, an Epithet given to the Spurious or falſe Sutures of the Skull; becauſe compoſed of *Squammæ* or Scales like thoſe of Fiſhes, or like Tyles laid ſo as to reach over one another. See SUTURE.

The *Suturæ Squammoſæ*, are alſo call'd *Temporales*, from their terminating the Temples, or *Oſſa Temporis*

SQUARE, in Geometry, a quadrilateral Figure, both Equilateral and Equiangular. See FIGURE, QUADRILATERAL, EQUIANGULAR, &c.

To find the Area of a Square: Seek the Length of one Side; multiply this by itſelf; the Product is the Area of the *Square*.

Thus, if the Length of a Side be 345, the Area will be 119025: And if the Side of a *Square* be 10; the Area will be 100.

Since, then, a Decempeda contains 10 Feet, a Foot 10 Digits, &c. a *ſquare* Decempeda contains 100 *ſquare* Feet, a *ſquare* Foot 100 *ſquare* Digits, &c.

The Properties of a Square, are, that its Angles are all Right, and, conſequently, its Sides Perpendicular; that it is divided into two equal Parts, by a Diagonal; that the Diagonal of a *Square*, is incommenſurable to the Side. See DIAGONAL, &c.

For the Ratio of Squares; they are to each other in a duplicate *Ratio* of their Sides. *E. gr.* a *Square* whoſe Side is double another, is quadruple the *Square* of the ſingle Side.

SQUARE *of the Cube* } See POWER.
SQUARE *of the Surdeſolid* }

SQUARE *Number*, the Product of a Number multiplied by itſelf: Thus 4, the Product of 2 multiplied by 2; or 16 the Product of 4 multiplied by 4, are *Square* Numbers. See NUMBER.

Such Number is called a *Square Number*, becauſe it may be ranged into the Form of a *Square*, by making the Root, or Factor the Side of the *Square*. See ROOT.

The Difference of Two *Square* Numbers, whoſe Roots are not Unity, is an uneven Number, equal to double the Root of the leſs, increas'd by Unity.

Hence we have an eaſy Method of conſtructing *Square* Numbers for a Number of Roots proceeding in the natural Series; the double of the Root of the Antecedent increas'd by Unity, being continually to be added to the preceding *Square*.

Thus, if $n=1$; $2n+1=3$: If $n=2$; then will $2n+1=5$: If $n=3$; then will $2n+1=7$: If $n=4$; then will $2n+1=9$, &c. Thus by a continual Addition of the uneven Numbers, ariſe the *Square* Numbers.

SQUARE *Root*, a Number conſider'd as the Root of a Second Power or *Square* Number; or a Number by whoſe Multiplication into itſelf, a *Square* Number is generated. See ROOT.

Thus the Number 2, being that by whoſe Multiplication into itſelf, the *Square* Number 4 is produced; is, in reſpect hereof, call'd a *Square Root*, or the *Square Root of* 4.

Since, as Unity is to the *Square* Root, ſo is the Root to the *Square* Number; the Root is a mean Proportional between Unity and the *Square* Number.

A *Square* Root conſiſting of 2 Parts, is call'd a *Binomial*; as $20+4$. See BINOMIAL.

If it conſiſts of Three, a *Trinomial*, as $6+2-1$. See TRINOMIAL.

Now, every *Square* Number of a Binomial Root, is demonſtrated to be compounded of the *Square* of the firſt Part, the Product of double the firſt into the ſecond, and of the *Square* of the other Part.

To extract the SQUARE *Root out of any given Number*; ſee EXTRACTION *of Roots*.

SQUARE, is alſo an Inſtrument made of Wood or Metal, ſerving to deſcribe and meaſure Right Angles withal; ſuch is AEF, (Tab. Geometry Fig. 42.).

It conſiſts of two Rules or Branches faſten'd perpendicularly at one of their Extremes. When the two Branches are moveable on a Joint, it is call'd a *Bevel*. See BEVEL.

To examine whether or no a *Square* be exact, deſcribe a Semi-circle AEF, of any Length, at Pleaſure; and therein, from each Extreme of the Diameter A and F, draw Right Lines to a Point taken at Pleaſure in the Periphery, as E: To the Sides of the Angle AEF, apply the *Square*, ſo as its Vertex may fall on F. If this be poſſible, that *Square* is juſt.

Geometrical SQUARE, a Compartiment frequently added on the Face of the Quadrant, called alſo *Line of Shadows* and *Quadrat*. See QUADRAT.

Magic SQUARES. See MAGIC *Square*.

SQUARE *Battle*, or *Battalion* of Men, is one that hath an equal Number of Men in Rank and File. See BATTALION.

To form any Number of Men into a *Square Battle*, as ſuppoſe 500, extract the neareſt *Square* Root of 500, which is in Integers 22, and that will give the Number of Men for Rank and File. There will be a Remainder of 16 Men, who may be diſpoſed of, as the Commander thinks beſt.

SQUARE *Hollow*, or *hollow* SQUARE, in the Military Art; is a Body of Foot drawn up with an empty Space in the Middle, for the Colours, Drums and Baggage; faced and covered by the Pikes every way, to keep off Horſe.

SQUARING. See QUADRATURE.

SQUILLITIC. See SCILLITIC.

SQUILLÆ. See SCILLÆ.

SQUINANCY or *Eſquinancy*, by the *Latins*, &c. call'd *Angina*, and by us, popularly *Quinzy*, a Diſeaſe which ſtops the Freedom of Reſpiration and Deglutition. See RESPIRATION.

The *Squinancy* conſiſts in an Inflammation of the Throat; and particularly of the Muſcles of the Larynx or Pharynx, which exactly cloſing the Chinks thereof, prevent the Air from paſſing in and out of the Trachea, and the Food from being ſwallowed and convey'd into the Stomach.

The *Squinancy* is divided into *true* and *ſpurious*; the *true Squinancy* is always accompanied with a Fever; the *baſtard* or *ſpurious Squinancy* is free from it.

They are cauſed by a Defluxion of Blood, either pure or bilious, from the Branches of the Carotid Arteries; and there cauſing a Phlegmon, either a Simple or an Ereſypetalous one. See ANGINA.

The Word is form'd from the *Greek* *συνάγχειν*, to *Suffocate*.

The *Squinancy* is of all others the moſt dangerous, when the Tumour is neither perceivable on the inſide nor the out. That appearing on the outſide is the moſt curable. In violent *Squinancies*, recourſe ſhould be had to Laryngotomy or Bronchotomy, which though rarely practiſed, may yet be uſed with Safety. See LARYNGOTOMY, &c.

SQUINTING. See STRABISMUS.

ST, an indeclinable Term, chiefly uſed to command Silence. See SILENCE.

The *Romans* had theſe two Characters wrote over the Doors of their Eating Rooms, as who ſhould ſay *Sed tace*, or *Silentium tene*.

Porphyry obſerves, the Ancients made a Point of Religion of it, not to ſpeak a ſingle Word in paſſing in or out of the Doors.

STABLE-*Stand*, in the Foreſt Law, is when a Perſon is found at his *Stand* in the Foreſt, with a Croſs-Bow, or Long-Bow, ready to ſhoot at a Deer, or elſe ſtanding cloſe by a Tree with Grey-hounds ready to ſlip: It is one of the Four

Evidences or Preſumptions, by which a Man is convicted of intending to ſteal the King's Deer; the other Three being Back-berond, Bloody-hand, and Dog-draw. See FOREST.

STACK *of Wood*, among Huſbandmen, is a Pile of Wood three Foot long, as many broad, and twelve Foot high.

STACTE, in Pharmacy, a fatty Matter drawn from freſh Myrrh, pounded or preſs'd with a little Water. See MYRRH.

This Liquor is very Odoriferous, and held mighty precious; making, alone, the Perfume, called by *Dioſcorides*, *Stacte*, and which ſmells finely, though very bitter to the Taſte.

We have none of it now, but what is ſophiſticated; and what the Apothecaries call *Stacte*, is no more than liquid Storax. See STORAX.

STADHOUDER, STADTHOLDER, STADHOLDER, or STATHOLDER, a Governor or Lieutenant of a Province, in the *United Netherlands*; particularly that of *Holland*; where the Word is moſt uſed, by reaſon of the ſuperior Importance of the Government of that Province.

The *Stadtholder*, *i. e.* the *Stadtholder* of *Holland*, is the firſt Member of the Republick: He is chief of all the Courts of Juſtice; and may preſide therein when he pleaſes. All Sentences, Judgments, *&c.* are diſpatch'd in his Name. When an Office becomes vacant in any of the Courts, the States propoſe three Perſons to the *Stadtholder*, who is to chuſe one of them. He can even pardon Criminals, which is a Right of Soveraignty; and has the Choice of Sheriffs, or chief Magiſtrates in each City; to which end the Council of the City preſent him two Perſons, one of which he appoints.

In ſeveral Cities, he has the ſame Right, with regard to the Bourgher-maiſters and Counſellors; as at *Rotterdam*, *Dort*, *&c.* He has alſo a Right to Caſheer the Magiſtrates, and put others in their Room, when he finds it neceſſary for the public Good; upon giving a Reaſon for the ſame.

By Article VI. of the Union of *Utrecht*, the States conſtitute him Arbiter of all the Differences that may ariſe between the States of the ſeveral Provinces; or between the Cities and the Members of the States of the Province. To the Dignity of *Stadtholder*, is inſeparably annex'd, that of Captain and Admiral General of the Province; in which Quality, he names all the Officers, and diſpoſes of all the Military Charges. 'Tis he, takes care of the Execution of the Ordinances of the States; and his Authority gives him a Right to receive and hear Embaſſadors from foreign Princes, and even to ſend Embaſſadors on his own private Affairs.

The Office of *Stadtholder* is very Ancient: The Counts not being able to reſide in *Holland*, appointed *Stadtholders* to command in their Abſence, in the ſeveral Provinces; beſides a Governor General of all the Seventeen Provinces of the *Netherlands*.

William I. Prince of *Orange*, was *Stadtholder* of *Holland* and *Zeeland*, at the Time when the *Dutch* ſhook off the *Spaniſh* Yoak; which enabled him to contribute greatly to that happen Event.

In 1567, the States thought fit to ſuppreſs the Office of *Stadtholder*, by Edict; and reſolved it ſhould never be confer'd on any Perſon for the future; but in 1672, *William* III. Prince of *Orange*, afterwards King of *England*, being elected Captain and Admiral General by the States; ſome Months afterwards, they revoked the Edict of Suppreſſion in favour of that Prince, who was declared *Hereditary Stadtholder*; an Honour never confer'd before.

Menage derives the Word from *Stat*, State, and *houder*, holding, *q d.* Lieutenant of the States; but he is miſtaken in the Etymology: The Word being compounded of *Stad* or *Stede*, Place, and *houder*, holding, in regard the Governor held the Place of the Counts, and repreſented them in their Abſence.

STADIUM, an ancient *Greek* long Meaſure, containing 125 Geometrical Paces, or 625 Feet; correſponding to our Furlong. See FURLONG.

Eight of them make a Geometrical or *Italian* Mile; and 20, according to M. *Dacier*, a *French* League; according to others 24 make the League.

Guilletiere computes that the *Stadium* was only 600 *Athenian* Feet, which amount to 566 *French* Royal Feet, or 604 *Engliſh* Feet; ſo that the *Stadium* ſhould only have been 113 Geometrical Paces.

It muſt be obſerved however, That the *Stadium* was different in different Times and Places. See MEASURE.

The Word is form'd from the *Greek*, ϛάσις, *Station*; and, 'tis ſaid, on this Occaſion, that *Hercules*, after running ſo far at one Breath, ſtood ſtill.

The *Greeks* meaſured all their Diſtances by *Stadia*, which they call'd ϛαδιαζειν.

STADIUM was alſo the Courſe or Career, wherein the *Greeks* run their Races. See GYMNASIUM.

Vitruvius deſcribes it as an open Space 125 Paces long, terminated at the two Extremes with two Poſts, called *Carcer* and *Meta*.

Along it was an Amphitheatre, where the Spectators were placed to ſee the *Athletæ* Exerciſe, Running, Wreſtling, *&c.*

There were *Stada* likewiſe, covered over, and encompaſſed with Colonnades and Porticoes, ſerving for the ſame Exerciſes in ill Weather. Captive Children uſed to run the *Stadium*. Ablanc.

A more natural Derivation of the Word *Stadium*, from ϛάσις, or *Statio*, than that popular one mentioned in the laſt Article, is drawn from the *Athletæ* ſtopping and reſting, when at the End of this Courſe: Whence the Name might be applied to the ſame Diſtance, meaſured in any other Place.

STAFF, an Inſtrument ordinarily uſed to reſt on, in walking.

Cardinal *Bona* obſerves, in his Treatiſe of *Liturgies*, that anciently, thoſe who uſed a *Staff* in the Church to lean on, were obliged to lay it by, and to ſtand alone, firm and upright, while the Goſpel was a reading; to teſtify their reſpect, by their Poſture, and to ſhew they were ready to obey *Jeſus Chriſt*, and to go whereſoever he ſhould command them.

The *Staff* is alſo frequently uſed, as a kind of natural Weapon, both of Offence and Defence. The *Lacedemonians* never wore any Swords in Time of Peace; but contented themſelves with a thick, crooked *Staff*, which was peculiar to them. Among the *Romans*, Mr. *St. Evremond* obſerves, Blows with a *Staff* were the gentleſt Correction they gave their Slaves; inaſmuch as they received them over their Cloaths.

Among the Maſters of Honour and Arms, 'tis held a greater Affront to be beaten with a *Staff* than with a Sword; becauſe the Sword is the Inſtrument of War, the *Staff* the Inſtrument of Outrage.

Blows with a *Staff* are very ſeverely puniſhed by the *French* Laws: By a Regulation of the Marſhals of *France*, in 1653, for Reparations and Satisfactions of Honour, 'tis adjudged, That a Perſon who ſhall ſtrike another with a *Staff*, ſhall be Impriſon'd a whole Year; unleſs Six Months be moderated, upon paying 3000 Livres, applicable to the neareſt Hoſpital: Beſide which, the Offender is to ask Pardon of the Offended on his Knees, *&c.* ready to receive a like Number of Blows with a *Staff*; which on ſome Occaſions one may oblige him to give; if he have too much Generoſity, not to do it of himſelf. By another Regulation of the Marſhals in 1679, he who ſtrikes with a *Staff*, after receiving Blows with the Fiſt, in the Heat of a Fray, is condemn'd to Four Years Impriſonment; and to Four, if he even ſtruck firſt with the Fiſt.

Paſtoral STAFF	See	CROSIER.
Augural STAFF		LITUUS.
Jacob's STAFF		RADIUS *Aſtronomicus*.

STAFF, in Muſic, five Lines, on which, with the intermediate Spaces, the Notes of any Song or Piece of Muſic are mark'd. See MUSIC.

Guido Aretin, the great Author of the Modern Muſic, is ſaid to be the firſt who introduced the *Staff*; marking his Notes, by ſetting Points (.) up and down them, to denote the Riſe and Fall of the Voice; and each Line and Space he mark'd at the beginning of the *Staff* with *Gregory*'s Seven Letters, *a*, *b*, *c*, *d*, *e*, *f*, *g*. See NOTE.

But others will have the Artifice of an older Date; and *Kircher* particularly affirms, That in the *Jeſuites* Library at *Meſſina*, he found an old *Greek* MS. Book of Hymns, above 700 Years old; wherein ſome Hymns were written on a *Staff* of eight Lines, mark'd at the beginning with Eight *Greek* Letters. The Notes or Points were on the Lines, but no uſe made of the Spaces. See SCALE, GAMUT, SOLFAING, *&c.*

STAFF, in Heraldry. See BATTOON.

STAFF, in Surveying, a kind of Stand, whereon to mount a Theodolite, Circumferentor, plain Table, or the like, for Uſe. It conſiſts of Three Legs of Wood, joyned together at one End, whereon the Inſtrument is placed; and made peeked at the other, to enter the Ground. Its upper End is uſually filled with a Ball and Socket. See BALL and SOCKET.

STAGE, in the Modern Drama, the Place of Action and Repreſentation; included between the Pit and the Scenes.

The *Stage* anſwers to the *Proſcenium* or *Pulpitum* of the ancient Theatre. See THEATRE, PULPITUM, PROSCENIUM.

Laws of the STAGE, are the Rules and Decorums to be obſerved, with regard to the Oeconomy and Conduct of a Dramatic Performance to be exhibited on the *Stage*. Theſe relate, principally, to the Unities, the Diſpoſition of the Acts and Scenes, the Unravelling, *&c.* See UNITY, ACT, SCENE, CATASTROPHE, *&c.*

STAGGERS, or *Stavers*, in the Manage. See STAVERS.

STAIRS, in Building, the Steps whereby we aſcend and deſcend, from one Story of a Houſe to another. See STORY.

The Dimenſions of *Stairs* are differently aſſigned by different Authors: In this however they agree, that they muſt not be more than Six, nor leſs than Four Inches high; not more than 18, nor leſs than 12 Inches broad; not more than 16, nor leſs than 6 Foot long, each Stair. But theſe Meaſures have only regard to fine Buildings; ordinary Houſes are excepted: Yet even in theſe, the *Stairs* are not to exceed Eight Inches in Height; nor leſs than Nine Inches in Breadth; nor Three in Length.

To reduce the Dimenſions of *Stairs* to ſome natural, or at leaſt geometrical Standard, *Vitruvius* borrows the Proportions of the Sides of a rectangle Triangle, which the ancient School expreſs'd by the Numbers 3, 4 and 5. The firſt for the perpendicular Height; the ſecond for the horizontal Breadth; and the third for the whole Slope or Inclination, from the Edge of one *Stair* to that of another.

But this Rule is ſet aſide, and with good Reaſon, by the modern Builders. For, on this Principle, the lower the *Stairs*, the narrower they muſt be; and *Stairs*, for Inſtance, Four Inches high (ſuch as we find mentioned in ancient Architects) muſt be but 5 $\frac{1}{3}$ Inches broad.

One Rule to be regarded in the making of *Stairs*, is, That they be laid according to the *Italian* Phraſe, *Con un tantino da Scarpa*, i. e. *ſomewhat ſloping*, or a little higheſt behind, that the Foot may, as it were, both aſcend and deſcend at once; which, though obſerved by few, is found a ſecret and delicate Deception of the Pains in mounting.

Stair-*Caſe*, an Aſcent incloſed between Walls, or a Balluſtrade, conſiſting of *Stairs* or Steps, with Landing-places and Rails; ſerving to make a Communication between the ſeveral Stories of a Houſe. See Stair.

The Conſtruction of a compleat *Stair-Caſe*, is one of the moſt curious Works in Architecture. The common Rules to be obſerved therein, are as follow;

1° That it have a full, free Light, to prevent Accidents of ſlipping, falling, *&c.* 2° That the Space over Head be large and airy, which the *Italians* call *un bel Sfogolo*, good Ventilation, in regard a Man ſpends much Breath in mounting. 3° That the Half-paces, or Landing-places, be conveniently diſtributed for repoſing in the Way. 4° That to prevent Rencounters, *&c.* the *Stair-Caſe* ben't too narrow; but this laſt is to be regulated by the Quality of the Building. 5° That Care be taken in placing the *Stair-Caſe*, ſo as the *Stairs* may be diſtributed, without Prejudice to the reſt of the Building.

The Kinds of *Stair-Caſes* are various: In ſome, the *Stairs* are ſtraight, others winding; in others both Ways.

Again, of *ſtraight Stairs*, called alſo *Flyers*, ſome fly directly forwards, others are Square, others Triangular, others call'd *French Flights*. Of *winding Stairs*, call'd alſo *ſpiral* or *cockle Stairs*, ſome are Square, ſome Circular, or ſome Elliptical.

And theſe again, are various; ſome winding round a ſolid and others an open Newel.

Laſtly, of *mix'd Stairs*, ſome are call'd *Dog-leg'd*: Others both wind about a ſolid Newel, and fly about a ſquare, open Newel.

Stair-Caſes are of that Importance in Building, that we can't excuſe the not giving a more particular Account of each kind.

Straight Stairs, then, are ſuch as always *fly*, that is, proceed in a Right Line, and never wind, whence their Denomination. See Flyers.

Of theſe there are ſeveral Kinds; as —— *Direct Flyers* or *Plain Flyers*, which proceed directly from one Floor to another, without turning either to the Right or Left; ſeldom uſed, except for Garret or Cellar *Stairs*. —— *Square Flyers*, which fly round the Sides of a Square Newel, either ſolid or open; having at every Corner of the Newel, a ſquare, half Step, taking up $\frac{1}{4}$ of a Circle. So that they fly from one half Step to another, and the Length of the *Stairs* is perpendicular to the Side of the Newel. —— *Triangular Flyers*, which fly round by the Sides of a triangular Newel, either ſolid or open, having at each Corner of the Newel a Trapezial Half-ſtep, taking up $\frac{2}{3}$ of a Circle: So they fly from one Half-ſtep to another; and their Length is Perpendicular to the Side of the Newel. —— *French Flyers*, which fly, firſt directly forwards, till they come within the Length of a *Stair* of the Wall; and then have a ſquare half Pace, from which you immediately aſcend to another half Pace, from which the *Stairs* fly directly back again, parallel to their firſt Flight.

Winding Stairs, are ſuch as always *wind*, and never fly: Of theſe there is great Variety; as, —— *Circular winding Stairs*, whereof there are four Kinds, *viz.* ſuch as wind about a ſolid Newel, the fore Edge of each being in a Right Line, pointing to the Centre of the Newel; commonly uſed in Church Steeples and great old Houſes. Such as wind round an open Newel, the Fore-ſide of each being in a right Line, pointing to the Centre of the Newel, as thoſe in the *Monument*, *London*. Such as wind round a ſolid Newel, only the Fore-ſide of each, an Arch of a Circle, either concave or convex, pointing near to the Circumference of the Newel. And ſuch as reſemble the laſt, in all other reſpects, ſave that they have an open Newel. Any of theſe *winding Stairs* take up leſs Room than any other Kind. In *Stairs* that wind round a ſolid Newel, Architects make the Diameter of the Newel either $\frac{1}{8}$ or $\frac{1}{4}$, $\frac{1}{3}$ or $\frac{3}{7}$ of that of the *Stair-caſe*, according as that is in Bigneſs. If very ſmall, the Newel is but $\frac{1}{8}$, and if large $\frac{3}{7}$, *&c.*

In *Stairs* that wind round an open Newel, *Palladio* orders the Newel to be $\frac{1}{2}$ the Diameter of the *Stair-caſe*; though there does not appear any Reaſon why the Newel here ſhould not be proportion'd to the *Stair-caſe*, as in the former. As to the Number of *Stairs* in each Revolution; *Palladio* orders, that in a *Stair-caſe* of 6 or 7 Foot Diameter, the *Stairs* in each Revolution be 12; if the Diameter be 8, the *Stairs* to be 16; if 9 or 10, the *Stairs* to be 20; and if 18, to be 24. —— *Elliptical winding Stairs*, whereof there are two Kinds; the one winding round a Solid, the other round an open Newel. They are much of the ſame Nature as *circular Stairs*, excepting that in the one, the Newel is a Circle, and in the other an Ellipſis. —— *Square winding Stairs*, are ſuch as wind round a ſquare Newel, either Solid or open; the Fore-ſide of each *Stair* being a right Line, pointing to the Centre of the Newel. —— *Triangular winding Stairs*, are ſuch as wind round a triangular Newel; the Fore-ſide of each being a right Line, pointing to the Centre of the Newel. —— *Columnated window Stairs*: *Palladio* mentions a *Stair-caſe* in *Pompey*'s Portico at *Rome*, ſet on Columns, ſo, as that the Light they received from above, might diſtribute itſelf to all Parts alike. —— *Double winding Stairs*, *Scamozzi* mentions a *Stair-caſe* of this Form, made by *Piedro del Bergo*, and *Jean Coſſin*, at *Sciamberg* in *France*, in the King's Palace. They are ſo contrived, as that two Perſons, the one aſcending and the other deſcending, ſhall never meet. Dr *Grew* deſcribes a Model of this kind of *Stair-caſe*, kept in the *Muſæum* of the *Royal Society*. The Foot of one of the *Stair-caſes*, he ſays, is oppoſite to that of the other, and both make a parallel Aſcent, and within the ſame Cylinder. The Newel in the Middle is hollow, and built with long Apertures, to convey Light from Candles placed at the Bottom and on the Sides of the Newel, into both Caſes. —— *Quadruple winding Stairs*, *Palladio* mentions a *Stair-caſe* of this Form, in the Caſtle of *Chambor* near *Bloys*. It conſiſts of four *Stair-caſes*, carried up together, having each its ſeveral Entrance, and going up one over another, in ſuch Manner, as that being in the middle of the Building, the Four ſerve for four Apartments; ſo that the People of the one need not go up and down the *Stairs* of the other; yet being open in the Middle, they all ſee each other paſs.

Mixt Stairs, are ſuch as partly fly, and partly wind; whence ſome call them *Flyers* and *Winders*. Of theſe there are ſeveral Kinds, as, —— *Dog-leg'd Stairs*, which firſt fly directly forwards, then wind a Semi-circle, and then fly directly backwards, parallel to that. —— *Square Flyers and Winders*, have a ſquare Newel, either Solid or open, and fly by the Sides of the Newel, winding a Quadrant of a Circle at each Corner. —— *Solid and open Newel'd Flyers and Winders*, are of two Kinds; the one winds a Quadrant of a Circle about a Solid Newel, then flies by the Side of a ſquare open Newel; then winds again, by the Side of a ſolid Newel, then flies again, and ſo alternately. The other flies firſt, then winds, and then flies again, alternately.

STALACTITÆ, or STAGONITÆ, in natural Hiſtory, a ſort of ſtony, ſparry Iſicles, which hang down from the Tops or Arches of Grotto's, Caves or ſubterranean Caverns; and from the Roof of the Buildings, and Capitals of the Pillars of ſuch Places, as are built over Thermæ or Hot Springs, *&c.* See Stone and Spar.

Of this Kind, are the *Sal Alumen*, and *Vitriolum Stalacticum*; the *Minera Ferri-ſtalactica*, the *Vitriolum Capillare*, the *Alumen Capillare*, *&c.*

The *Stalactitæ*, which incruſtate or line the Tops and Sides of Caves, *&c.* are manifeſtly form'd of Exſudations or Extillations of petrifying Juices out of the neighbouring rocky Grounds. Thoſe in the Cave on the Top of *Breedon* Hill, Mr. *Derham* fancies, might be form'd by the Rains ſoaking through, and carrying with it Impregnations from the Stones; the Hill, there, being all rocky.

STALE, the Urine of Cattle. — A *Stale* is alſo a living Fowl, put in any Place to allure other Fowl, where they may be taken: For want of theſe, a Lark or any other Bird ſhot, his Entrails taken out, and dried in an Oven, in his Feathers, with a Stick thruſt through to keep him in a convenient Poſture, may ſerve as well as a live one.

STALK, in Botany. See Stem.

The *Stalk* is diſtinguiſh'd into ſeveral Kinds, *viz.* the *Naked Stalk*; which has no Leaves on: *Creſted Stalk*, that has Furrows or Ridges: *Winged Stalk*, which has Leaves on both Sides. *Striped Stalk*, which is of two or more Colours, *&c.*

STALKING, a Term of conſiderable Import in Fowling; applied to a kind of Screen or Device to hide the Fowler, and amuſe the Game, while he gets within Shot.

Of ſuch Devices there are ſeveral Kinds, *viz.* —— A *Stalking Hedge*, which is an artificial Hedge, two or three Yards long, and a Yard and half high, made with ſmall Wands, to be light and portable, yet buſh'd out like a real Hedge, with Stakes to ſupport it, while the Fowler takes his Aim.

Stalking Horſe, is an old Jade train'd up for the Purpoſe, which will gently walk up and down as you would have him, in Water, *&c.* beneath whoſe Fore-ſhoulder, the Sportſman ſhelters himſelf and Gun. When thus got within Shot, he takes Aim from before the Fore-part of the Horſe; which is much better than ſhooting under his Belly.

To ſupply the Defect of a real *Stalking Horſe*, an Artificial one is frequently made, of old Canvas, ſhaped in form of a Horſe, with his Head bent down, as if grazing; ſtuff'd with any light Matter, and painted. In the Middle it is fix'd to a Staff ſhod at the Foot, to ſtick into the Ground while Aim is taken.

For Change, when the Fowls begin to be uſed to the *Stalking Horſe*, and to know it, ſome *Stalk* with an Ox, Cow, Deer or the like. Others uſe a *Stalking Tree*, and others a *Stalking Buſh*.

STAMINA, in the Animal Body, are thoſe ſimple, original Parts, which exiſted firſt in the Embryo, or even in the Seed; and by whoſe Diſtinction, Augmentation and Accretion, by additional Juices, the human Body, at its utmoſt Bulk is ſuppoſed to be form'd. See EMBRYO, BODY, *&c.*

All that is eſſential to the Animal, are the *Stamina*, which exiſt, *in ovo*; the reſt being foreign, additional and even accidental.

The *Stamina* ſeem to coincide with the *Solids*, which are ſurprizingly ſmall in Quantity. See SOLID.

The Word is *Latin*, and ſignifies *Threads*.

STAMINA, in Botany, thoſe fine Threads or Capillaments growing up within the Flowers of Tulips, Lillies and moſt other Flowers, around the Style or Piſtil. See FLOWER and PISTIL.

On the Tops of the *Stamina*, grow thoſe little Capſulæ or Knots, call'd *Apices*, which M. *Tournefort* makes eſſential to the *Stamina*; whence M. *Reaumur*, who aſſures us in the Memoirs of the *French* Academy, that he could never diſcover any Apices on the Threads of the *Fucus Marinus*, refuſes to call them *Stamina*; though he adds, one may ſuppoſe that the Apices fall aſſoon as the Threads or *Stamina* begin to be unfolded. See APICES.

In ſome tubular Flowers, as the *Narciſſus*, *Digitalis*, *&c.* M. *Geoffroy* obſerves the *Stamina* are exceedingly ſhort; and in ſome Flowers there are no *Stamina* at all, as in the long *Ariſtolochia*, wherein the Apices are immediately faſten'd on the Capſula, which incloſes the Fruit. In ſome other Flowers, as thoſe of Thiſtles, Lettice, Chicory, *&c.* the Apices are incloſed in the *Stamina*; ſeveral of which uniting, form a little Tube in Manner of a Scabbard, in the Inſide whereof are the Apices, furniſhed with their Farina: The reſt of the Cavity being taken up by the Piſtil, which is a little Thread placed on the Embryo of the Seed.

M. *Tournefort* takes the Uſe of the *Stamina* to be, as it were, ſo many excretory Canals, for diſcharging the growing Embryo of its redundant Juices; and of theſe Excrements of the Fruit, he takes that *Farina* or Duſt, found in the Apices, to be form'd. See FARINA.

But M. *Geoffroy*, Mr. *Bradley*, and other late Writers on Plants, as well as ſome former, aſſign the *Stamina* a nobler Uſe.

Theſe Authors, explaining the Generation of Plants, in a Manner, analogous to that of Animals, maintain the Uſe of the *Stamina* to be to ſecrete, in their fine capillary Canals, a Juice, which being collected, harden'd and form'd into a Farina or Duſt, in the Tips or Apices, is thence, when the Plant arrives at Maturity, diſcharged, by the burſting of the Apices, upon the Top of the Piſtil; whence is a Paſſage for it to deſcend into the *Uterus*, where being received, it impregnates and fecundifies the Plant.

On this Principle, it may be ſaid, that the ſame Flower contains both Sexes, which contribute each their Part to the Generation: That the *Stamina* are the Male-part; and the *Farina*, which is always found of an oily, glutinous Nature, the ſeminal Liquor; and that the Piſtil is the Female Part, which conducts the Semen to the *Ova* or Embryo's. See GENERATION *of Plants*.

STAMINEOUS *Flowers*, among Botaniſts, are ſuch as are ſo far imperfect, as to want thoſe colour'd Leaves, we call *Petalæ*; and which only conſiſt of the *Stylus* and the *Stamina*. See FLOWER.

Such Plants as bear theſe *Stamineous Flowers*, Mr. *Ray* makes to conſtitute a large Genus of Plants, which he calls *Herbæ flore imperfecto, ſive apetalo, Stamineove.* And theſe he divides into ſuch as,

1. Have their Fruit or Seed totally divided from the Flower; which are ſuch Plants as are ſaid to be of different Sexes: The Reaſon of which is, that from the ſame Seed, ſome Plants ſhall ariſe with Flowers, and no Fruit; and others, with Fruit, and no Flowers: As Hops, Hemp, Stinging-nettles, Spinach, Mercurialis and Phyllon.

2. Such as have their Fruit only a little disjoined from their Flowers; as the Ambroſia Bardana Minor, Ricinus, and the Heliotropium Tricoccon.

3. Such as have their Fruit immediately contiguous, or adhering to their Flower: And the Seed of theſe is either, 1. Triangular; and of this Sort, ſome are lucid and ſhining, as the Lapathum, Rhabarbarum, and Biſtorta, to which alſo may be added the Perſicaria: Others are rough and not ſhining, as the Helleborus Albus, Fegopyrum, Convolvulus Niger, and the Polygonum. 2. Such as have a roundiſh Seed, a little flatted or compreſſed, or of any other Figure but the former Triquetrous or Triangular one; and theſe have their Flower, or the Calyx of the Flower, adhering to the Bottom or Baſis of the Seed or Fruit; as the Potamogiton, Blitum Sylveſtre, Parietaria, Atriplex, Blitum Sativum, Amuranthes, Hoclocerieus, and the Saxifraga Aurea. 3. Such whoſe Flowers adhere to the Top of the Seed; as the Beta, Aſarum, Archimilla. And to theſe kind of Plants, Mr. *Ray* reduces alſo the Kaligeniculatum, Sedum Fruticoſum, the Scoparia or Belvidere of the *Italians*.

STAMP. See PRINT.

STAMPING-*Mill*, or *Knocking-Mill*, an Engine uſed in the Tin-works, to bruiſe the Ore ſmall. See TIN.

STANCHEONS, in Building. See PUNCHINS.

STANDARD, in War, a Banner or Flag, bore as a Signal for the joyning together of the ſeveral Troops belonging to the ſame Body. See BANNER.

The *Standard* is uſed for any Enſign of Horſe; but more uſually for that of the General. See FLAG and ENSIGN.

The ancient Kings of *France* bore St. *Martin*'s Hood for their *Standard*. The *Turks* preſerve a *Green Standard* bore by *Mahomet*, with a world of Devotion; as believing it to have been brought down by the Angel *Gabriel*. Every time 'tis diſplay'd, all who profeſs the Mahometan Faith, are obliged to take Arms; thoſe who refuſe, are to be deem'd as Infidels. *Du Cange* derives the Word from *Standarum* or *Stantarum*, *Standardum* or *Standale*, Words uſed in the corrupt *Latin*, to ſignify the principal *Standard* of an Army. *Menage* derives it from the *German*, *Stander*, or the *Engliſh*, *Stand*.

STANDARD, in Commerce, the Original of a Weight, Meaſure or Coin, committed to the keeping of the Magiſtrate, or depoſited in ſome publick Place, to regulate, adjuſt, and try the Weights uſed by particular Perſons in Traffick. See MEASURE, WEIGHT, *&c.*

The Juſtneſs of Weights and Meaſures, is of that Conſequence to the Security and good Order of Trade, that there is no civiliz'd Nation but makes it a Part of their Policy to preſerve the Equality thereof by means of *Standards*. The *Romans* and *Jews* even ſeem to have affix'd a kind of religious Worſhip to theſe *Standards*, by laying them up in their Temples, as it were under the Eye of their Deities.

The *Standards* of Weights and Meaſures in *England*, are appointed by *Magna Charta*, to be kept in the *Exchequer*, by a ſpecial Officer, called the *Clerk* or *Comptroller of the Market*.

For Coins; the *Standard* of Gold Coin is 22 Carrats of fine Gold and 2 Carrats of Alloy in the Pound weight Troy; and the *French*, *Spaniſh* and *Flemiſh* Gold, are nearly of the ſame Fineneſs. The Pound Weight is cut into Forty-four Parts and a Half, each current for 21 Shillings. See GUINEA.

The *Standard* of Silver is 11 Ounces and two Penny-weight of Silver, and 18 Penny-weight of Alloy of Copper. Whether Gold or Silver be above or below *Standard*, is found by aſſaying. See ASSAY.

STANDARDS, or *Standils*, in Husbandry, are Trees, reſerved at the felling of Woods, for Growth for Timber.

STANNARIES; are the Mines and Works, were Tin is dug and purified; as in *Cornwall*, and elſewhere. See TIN.

There are four Courts of the *Stannaries* in *Devonſhire*, and as many in *Cornwall*; and there are ſeveral Laws about, and Liberties granted to theſe Courts in ſeveral Acts of Parliament, as in the Time of *Edward* I. and as abridged by *Edward* III. and in 17 *Car.* I. *c.* 15.

STANZA, in Poetry, a certain regulated Number of grave Verſes, containing ſome perfect Senſe, terminated with a Reſt.

The Word is *Italian*, and literally ſignifies a *Stand* or *Station*, becauſe of the Pauſe to be made at the end of each *Stanza* or compleat Senſe.

What the *Couplet* is in Songs, and the *Strophe* in Odes, the *Stanza* is in the greater and graver Pieces, as Epic Poems, *&c.* See COUPLET and STROPHE.

Indeed the *Italians* ſcarce write any Poems, but they divide them into *Stanzas*. There are *Stanza*'s of 4, 6, 8, 10, 12 Verſes, and ſometimes of an uneven Number of Verſes, as 5, 7, &c. but theſe laſt are ſomewhat more difficult to execute, by reaſon of the three Verſes to one Rhime.

The *French* lay it down as a Rule, That if the firſt *Stanza* begin with a Maſculine or a Feminine Verſe, the Second is to begin and end with the ſame. Every *Stanza* ought not only to contain a perfect Senſe, but to be terminated with ſome lively and ingenious Thought, or ſome juſt and pertinent Reflexion.

Stanzas were firſt introduced from the *Italian* into the *French* Poetry, about the Year 1580, and thence transfer'd into the *Engliſh*.

The Uſe of *Stanza*'s in Tragedy or Comedy, is condemn'd by all the beſt Criticks: For though we ſpeak Verſe on the Stage, 'tis ſtill preſumed we are ſpeaking Proſe. *Stanza*'s ſhew a kind of Ingenuity, on the Part of the Poet, which has nothing of Nature in it on the Part of the Actor. Add to this, That *Stanza*'s are not fit to expreſs every thing. Wrath, Threatening, &c. fit very ill on a regular *Stanza*: Though Irreſolution, Reveries, and every Thing that leads the Actor to think on what he is to reſolve, agrees well enough with the unequal Cadence of the *Stanza*.

STAPES, in Anatomy, a little Bone ſituate in a Cavity of the *Feneſtra ovalis*; thus call'd from its reſembling a *Stirrop*. See EAR.

The *Stapes*, is one of the Four little Bones faſtened to the Tympanum of the Ear; firſt diſcovered and publiſhed, as *Fallopius* tells us, by *John Philab Ingraſſia*, a Phyſician of *Sicily*. Its Uſe is in ſtretching or relaxing the *Membrana Tympani*. See TYMPANUM; ſee alſo HEARING and EAR.

STAPLE, primarily, ſignifies a publick Place or Market, whither Merchants, &c. are obliged to bring their Commodities to be bought by the People; ſuch as the *Greve*, or rather the *Places* along the *Seine*, for the Wines and Corns at *Paris*; whither the Merchants of other Parts are obliged to bring thoſe Commodities.

Menage derives the Word from *Staplus*, which is found in the Ripuary Laws, to ſignify a Place where Juſtice is adminiſtred. Others derive it from the *German*, *Stapel*, or rather *Stapula*, which *Boxhornius* derives further, from the *German*, *Stapelen*, to put in a Heap.

STAPLE alſo ſignifies a City or Town, where Merchants jointly agree to carry certain Commodities, as Wooll, Cloth, Lead, Tin, &c. in order to their being commodiouſly ſold by the Great.

In *England*, *Staples* were ſettled and appointed, to be conſtantly kept at *York*, *Lincoln*, *Newcaſtle upon Tine*, *Norwich*, *Weſtminſter*, *Canterbury*, *Chicheſter*, *Wincheſter*, *Exeter* and *Briſtol*; to which Places Merchants and Traders were to carry Goods to ſell in thoſe Parts.

The *Staple Commodities* of *England*, were chiefly Wooll, Leather, Cloth, Tin, Lead, &c. though by *Staple Goods*, is now generally meant, any proper ſaleable Commodities, not eaſily ſubject to periſh. See WOOLL, &c.

The Principal *Staples* now exiſting, are *Amſterdam* for all Goods from the *Eaſt-Indies*, *Spain*, the *Mediterranean*, and the *Baltick*: *Fluſhing* for thoſe of the *Weſt-Indies*; *Middlebourg* for *French* Wines; *Dort* for *Rheniſh* Wines and *Engliſh* Cloth; *Verre* in *Zeland* for *Scotch* Merchandizes, &c.

The *Staples* in the *Levant*, call'd by the *French*, *Eſchelles Scales*, are ſuch Cities where the *Engliſh*, *French*, *Dutch*, *Italians*, &c. have Conſuls, Factors and Magazines; and whither they ſend Veſſels regularly each Year. The principal of theſe are *Smyrna*, *Alexandretta*, *Aleppo*, *Seyda*, *Cyprus*, *Sallee*, *Alexandria*, *Cairo*, *Tunis*, *Algiers*, *Tripoli*, the *Morea*, *Candia* and the Iſlands of the *Archipelago*. See FACTORY.

STAR, in Aſtronomy, a general Name for all the heavenly Bodies. See HEAVENLY *Body*.

The *Stars* are diſtinguiſh'd, from the Phænomena of their Motion, &c. into *Fix'd* and *Erratic*.

Erratic or *wandering* STARS, are thoſe whoſe Diſtances and Places, with regard to each other, are continually changing. Theſe are what we properly call *Planets*. See PLANET.

Though, to the ſame Claſs, may likewiſe be refer'd, what we popularly call *Blazing Stars* or *Comets*. See COMET.

Fix'd STARS, call'd alſo, by way of Eminence, ſimply, *Stars*, are thoſe which continually keep the ſame Diſtance, with regard to each other.

Concerning the fix'd STARS.

The principal Points that have come under the Conſideration of Aſtronomers, are their *Diſtance*, *Magnitude*, *Number*, *Nature* and *Motion*.

Diſtance of the fix'd STARS.

The *Fix'd Stars*, are Bodies exceedingly remote from us; ſo remote, that we have no Diſtances in the Planetary Syſtem to compare to them. See DISTANCE.

Their immenſe Diſtance is argued hence, That they have no ſenſible Parallax: that is, that the Diameter of the Earth's Orbit bears no ſenſible Proportion thereto; but they are ſeen the very ſame, in all the Points thereof. Mr. *Flamſtead*, indeed, ſeems to have diſcovered a ſmall Parallax: *Sirius*, *e. gr.* he finds to have a Parallax of 20 Seconds. Admitting this, we have Data enough to determine their Diſtance, a thing hitherto deſpair'd of.

For thus, the Sun's Parallax being had, and his mean Diſtance being 34377 Semi-diameters of the Earth, the Diſtance of *Sirius* from the Earth will be found to be 35477064 Semidiameters of the Earth. See PARALLAX.

Mr. *Huygens* attempts the Diſtance of the *Stars* by another Method, *viz.* by making the Aperture of a Teleſcope ſo ſmall, as that the Sun through it appears no bigger than *Sirius*. In this State he found the Sun's Diameter only $\frac{1}{27664}$ of his Diameter when ſeen with the naked Eye. Were the Sun's Diſtance, then, 27664 times as great as it is, it would be ſeen of the ſame Diameter with *Sirius*; ſo that allowing *Sirius* to be equal in Magnitude with the Sun (which is a very reaſonable Suppoſition) the Diſtance of *Sirius* from the Earth, will be found to be to that of the Sun from the Earth, as 27664 to 1. On which Principle, *Sirius* will be 951005328 Semidiameters diſtant from the Earth.

If it be urged, that theſe Methods are too precarious, to conclude any thing from them, yet this we can demonſtrate, that the *Stars* are remoter than *Saturn*; nay, that they are vaſtly more remote than *Saturn*, as *Saturn* has a great Parallax, and the *Stars* ſcarce any at all.

Magnitude of the fix'd STARS.

The Magnitudes of the *fix'd Stars*, appear to be very different; which Difference ariſes, not from any diverſity in their real Magnitudes, but from their Diſtances, which are different. From this Difference, the *Stars* become diſtributed into Seven ſeveral Claſſes, call'd *Magnitudes*. See MAGNITUDE.

The firſt Claſs, or thoſe of the firſt Magnitude, are thoſe neareſt us, and whoſe Diameters are, therefore, biggeſt. Next theſe, are thoſe of the ſecond Magnitude, and ſo on to the Sixth, which comprehends the ſmalleſt *Stars* viſible to the naked Eye. All beyond, are called *Teleſcopic Stars*: Not that all the *Stars* of each Claſs appear juſtly of the ſame Magnitude; there is a great Latitude in this reſpect; and thoſe of the firſt Magnitude, appear almoſt all different in Luſtre and Size. Other *Stars* there are, of intermediate Magnitudes, which Aſtronomers cannot refer to this, rather than the next Claſs, and therefore place them between the Two.

Procyon, for Inſtance, which *Ptolomy* makes of the firſt Magnitude, and *Tycho* of the Second, Mr. *Flamſtead* lays down as between the Firſt and Second.

Thus, inſtead of Six ſeveral Magnitudes, we have really Six times Six.

Some Authors lay it down, that the *Stars* of the firſt Magnitude, are ſeen under an Angle of at leaſt a Minute; but the Earth's Orbit ſeen from the *fix'd Stars*, we have obſerved only ſubtends an Angle of 20 Seconds; and hence they conclude, That the Diameter of the *Stars* is vaſtly greater than that of the Earth's whole Orbit.

Now a Sphere, whoſe Semi-diameter only equals the Diſtance between the Sun and Earth, is Ten Millions of times greater than the Sun; conſequently, the *fix'd Stars* muſt be much more than Ten Millions of times greater than the Sun.

But here is a Miſtake; for the Diameters, even of the largeſt *Stars* viewed through a Teleſcope, which magnify, *e. gr.* 100 Times, ſubtend no ſenſible Angle at all, but are mere lucid Points.

The *Stars* are likewiſe diſtinguiſhed, with regard to their Situation, into *Aſteriſms* or *Conſtellations*, which are nothing but Aſſemblages of ſeveral neighbouring *Stars*, conſider'd as conſtituting ſome determinate Figure, as of an Animal, &c. and denominated therefrom: A Diviſion as ancient as the Book of *Job*; wherein we find mention of *Orion* and the *Pleiades*, &c. See CONSTELLATION.

Beſide the *Stars* thus diſtinguiſhed into *Magnitudes* and *Conſtellations*, there are others not reduced to either. Thoſe not reduced into Conſtellations, are called *Informes*, or *unform'd Stars*; of which Kind, ſeveral ſo reputed by the Ancients, have been ſince form'd into New Conſtellations by the Modern Aſtronomers; as *Cor Caroli* by Dr. *Halley*, *Scutum Sobieſci*, by *Hevelius*, &c. See INFORMES.

Thoſe not reduced to Claſſes or Magnitudes, are call'd *Nebulous Stars*, being ſuch as only appear faintly, in Form of little lucid Nebulæ or Clouds. See *Nebulous*.

Number of the STARS.

The Number of *Stars* is vaſtly great, almoſt infinite; yet have Aſtronomers long ago, aſcertain'd the Number of thoſe viſible to the Eye; which are found vaſtly fewer than one would imagine. *Hipparchus*, 125 Years before the Incarnation, on occaſion of a new *Star* then appearing, made a Catalogue of the *Stars*, *i. e.* an Enumeration thereof, with an exact Deſcription of their Magnitudes, Situations, Longitude, Latitude, &c. that it might be known, if any the like Change ſhould be made for the future in the Heavens. *Hipparchus*, made the Number of viſible *Stars* 1022. Theſe were reduced into 48 Conſtellations, and he laid it down, that if there ſometimes appeared more in Winter Nights, 'twas owing to a Deception of the Senſe.

Ptolomy added Four *Stars* to *Hipparchus*'s Catalogue, and made the Number 1026.

In the Year 1437, *Uleig Beigh*, Grandſon of *Tamerlane*, in a New Catalogue he made, only gives 1017.

But in the 17th Century, when Aſtronomy began to be retrieved, their Number was found to be much greater.

To the 48 Conſtellations of the Ancients, were added 12 New ones, diſcovered towards the South Pole, and two towards the North: Beſides ſeveral others not univerſally admitted, as the *Flower de Lys*, the *Royal Oak*, *&c.*

Tycho Brahe publiſhed a Catalogue of 777 *Stars*, from his own Obſervations; which *Kepler*, from *Ptolomy* and others, increaſed to 1163, *Ricciolus* to 1468, and *Bayer* to 1725: Dr. *Halley* added 373 obſerv'd by him, within the Antarctic Circle. *Hevelius*, from his own Obſervations, and thoſe of Dr. *Halley*, made a Catalogue of 1888 *Stars*: And Mr. *Flamſtead* has ſince made a Catalogue of no leſs than 3000 *Stars*, all from his own moſt accurate Obſervations. See CATALOGUE.

Of theſe 3000, 'tis true, there are many only viſible through a Teleſcope; nor does a good Eye ſcarce ever ſee more than an Hundred together in the cleareſt Heaven: The Appearance of innumerable more, frequent in clear winter Nights, ariſes from our Sight's being deceived by their Twinkling, and from our viewing them confuſedly, and not reducing them to any Order.

Yet for all this, the *Stars* are really almoſt infinite. *Riccioli*, makes no Scruple to affirm, in his new *Almageſt*, That a Man who ſhould ſay there are above Twenty thouſand times Twenty thouſand, would ſay nothing improbable.

For a good Teleſcope directed almoſt to any Point of the Heavens, diſcovers Numbers that are loſt to the naked Sight; particularly in the Milky Way, which is nothing but an Aſſemblage of *Stars*, too remote to be ſingly ſeen, but ſo cloſely diſpoſed, as to give a luminous Appearance to that Part of the Heavens where they are. See GALAXY.

In the ſingle Conſtellation of the *Pleiades*, inſtead of 6 or 7 *Stars* ſeen by the beſt Eye, Dr. *Hook*, with a Teleſcope 12 Foot long, told 78; and with larger Glaſſes, many more of different Magnitudes. F. *de Rheita*, a Capuchin, affirms, That he has obſerved above 2000 *Stars* in the ſingle Conſtellation of *Orion*.

The ſame Author found above 188 in the *Pleiades*. And *Huygens* looking at the *Star* in the Middle of *Orion*'s Sword; inſtead of one, found it to be 12. *Gallilæi* found 80 in *Orion*'s Sword; 21 in the *Nebulous Star* of his Head; and 36 in the *Nebulous Star*, *Præſepe*.

Changes in the STARS.

The Changes that have happened in the *Stars*, are very conſiderable; contrary to the Opinion of the Ancients, who held, that the Heavens and heavenly Bodies, were incapable of any Change, the Matter thereof being Permanent and Eternal, infinitely exceeding the Hardneſs of Diamonds, and not ſuſceptible of any different Form. And, in Effect, till the Time of *Ariſtotle*, and even 200 Years afterwards, there had no Change been obſerved.

The firſt, was in the Year 125, before the Incarnation; when *Hipparchus* diſcovering a new *Star* to appear, was firſt induced to make a Catalogue of the *Stars*, that Poſterity, as we have obſerved, might perceive any future Changes of the like Kind.

In the Year 1572, *Tycho Brahe*, obſerved another new *Star* in the Conſtellation *Caſſiopœia*, which was, likewiſe, the Occaſion of his making a new Catalogue. Its Magnitude, at firſt, exceeded that of the biggeſt of our *Stars*, *Sirius* and *Lyra*; it even equalled that of *Venus*, when neareſt the Earth; and was ſeen in fair Day-light. It continued Sixteen Months; towards the latter Part whereof, it began to dwindle, and at laſt totally diſappeared, without any Change of Place in all that Time.

Leovicius tells us of another *Star* appearing in the ſame Conſtellation, about the Year 905, which reſembled that of 1572; and quotes another ancient Obſervation, whereby it appears, that a new *Star* was ſeen about the ſame Place in 1264.

Dr. *Keill* takes thoſe to have been all the ſame *Star*; and does not know but it may make its Appearance a-new 150 Years hence.

Fabricius diſcovered another new *Star* in the Neck of the *Whale*, which appeared and diſappeared ſeveral times in the Years 1648 and 1662. Its Courſe and Motion, are deſcribed by M. *Bouilland*.

Simon Marius diſcovered another in *Andromedas*'s Girdle; in 1612 and 1613, though M. *Bouilland* ſays, it had been ſeen before, in the XVth Century. Another was obſerved by *Kepler* in *Serpentarius*. Another of the Third Magnitude in the Conſtellation *Cygnus*, near the Bill, in the Year 1601, which diſappeared in 1626, and was obſerved again by *Hevelius* in 1659, till the Year 1561, and again in 1666 and 1671, as a *Star* of the Sixth Magnitude.

'Tis certain, from the ancient Catalogues, that many of the ancient *Stars* are now inviſible. This is particularly notorious in the *Pleiades*, or Seven *Stars*, whereof only Six are now viſible to the Eye; a Thing long ago obſerved by *Ovid*: Witneſs the Verſe, *Quæ Septem dici, ſex tamen eſſe ſolent.*

M. *Montanere*, in his Letter to the *Royal Society* in 1670, obſerves, that there are now wanting in the Heavens, two *Stars* of the ſecond Magnitude, in the Stern of the Ship *Argo* and its Yard; which had been ſeen till the Year 1664. When they firſt diſappeared 'tis not known; but he aſſures us, there was not the leaſt Glimpſe of them in 1668. He adds, he has obſerved many more Changes in the *fix'd Stars*, even to the Number of an Hundred.

Nature of the fix'd STARS.

For the Nature of the *fix'd Stars*, their immenſe Diſtance leaves us greatly at a loſs about it. What we can gather for certain from their Phænomena, is as follows;

1° *That the fix'd Stars are greater than our Earth.* This is demonſtrable thus: Suppoſe two *Stars* C and D (Tab. Aſtronomy Fig. 31.) the one in the Eaſtern Horizon, and the other in the Weſtern. As ſoon as D arrives in C; C will appear in D. But ſince both move with the ſame Velocity, while C deſcribes the Arch CHD; the *Star* C deſcribing an equal Arch CDH, will appear in F: Wherefore, if the *Stars* C and D be leſs than the Earth, the *Star* C will not be ſeen in the Eaſtern Horizon, when the other, C, is arrived at the Weſtern: But as this is contrary to Experience, it follows, that the *Stars* being in L and S, and there ſeen at the ſame time by Spectators in A and B, are greater than the Earth AB.

2° The *fix'd Stars are farther diſtant from the Earth*, than the *fartheſt of the Planets*. For we frequently find the *fix'd Stars*, hid behind *Saturn*'s Body; the higheſt of the Planets. See OCCULTATION.

3° *The fix'd Stars ſhine with their own Light*: For they are much further from the Sun than *Saturn*, and appear much leſs than *Saturn*; but ſince, notwithſtanding this, they are found to ſhine much brighter than *Saturn*, 'tis evident they cannot borrow their Light from the ſame Source as *Saturn* does, *viz.* the Sun: But ſince we know of no other luminous Body beſide the Sun, whence they might derive their Light; it follows, that they ſhine with their own native Light.

Hence 1°, we deduce, that the *fix'd Stars* are ſo many Suns; for they have all the Characters of Suns. See SUN.

2° That in all probability, the *Stars* are not leſs than our Sun.

3° That 'tis highly probable, each *Star* is the Centre of a Syſtem, and has Planets or Earths revolving round it, in the ſame Manner as round our Sun; *i. e.* has opake Bodies illuminated, warm'd and cheriſh'd by its Light. See SYSTEM.

How immenſe, then, does the Univerſe appear! Indeed, it muſt either be Infinite, or infinitely near it. See UNIVERSE.

Kepler, 'tis true, denies that each *Star* can have its Syſtem of Planets as ours has; and takes them all to be fix'd in the ſame Surface or Sphere; urging, that were there one twice or thrice as remote as the other, it would appear twice or thrice as ſmall, ſuppoſing their real Magnitudes equal; whereas there is no Difference in their apparent Magnitudes, juſtly obſerved, at all. But to this we oppoſe, that *Huygens* has not only ſhewn, that Fires and Flames are ſeen at ſuch Diſtances, where other Bodies, comprehended under equal Angles, diſappear; but it ſhould likewiſe ſeem, that the Optic Theorem about the apparent Diameters of Objects being reciprocally proportional to their Diſtances from the Eye, does only hold while the Diameter of the Object has ſome ſenſible *Ratio* to its Diſtance.

4° *The Stars which appear and diſappear by turns*, being always found to increaſe in Magnitude at their firſt Appearance, and to decreaſe as they begin to diſappear, and being likewiſe ſtill viſible through Teleſcopes, for ſome Time after they are loſt to the naked Eye (of which we have various Inſtances in the *Philoſophical Tranſactions*) *ſeem to be no other than Planets performing their Periods about* the *fix'd Stars*, as *their reſpective Suns*; unleſs any Perſon ſhould rather incline to Dr. *Keill*'s Opinion, *viz.* That the *Stars* loſe their Brightneſs, and diſappear, by their becoming cover'd with *Maculæ* or Spots, ſuch as are frequently found to over-ſpread the Sun. See SPOTS.

5° Thoſe temporary *Stars*, which, upon their diſappearing, have never been found to return again; are probably conjectured to be of the Number of Comets, which make long Excurſions from their Suns, or the Centers of the upper planetary Syſtems, *i. e.* from the *fix'd Stars*; returning too ſeldom to have their Returns perceived. See COMET.

Motions of the STARS.

The *fix'd Stars* have two kinds of Motions; one called the *Firſt*, *common* or *diurnal Motion*, or the Motion of the *Primum*

mum Mobile: By this they are carried along with the Sphere or Firmament wherein they appear fix'd, round the Earth, from Eaſt to Weſt, in the Space of 24 Hours.

The other, call'd the *Second* or *proper Motion*, is that whereby they go backwards from Weſt to Eaſt round the Poles of the Ecliptic, with an exceeding Slowneſs, as not deſcribing above a Degree of their Circle in the Space of 71 or 72 Years, or 551 Seconds in a Year.

Some have imagin'd, I don't know on what Grounds, that when they are got round to the Points, whence they firſt departed, Nature will have finiſh'd her Courſe, and the *Stars* having perform'd their Career, the Heavens will remain at reſt, unleſs the Being, who firſt gave them Motion, appoint them to begin another Circuit.

On the footing of this Calculation, the World ſhould laſt about Thirty thouſand Years, according to *Ptolomy*; 25816 according to *Tycho*; 25930 according to *Riccioli*, and 24800 according to *Caſſini*. See Præcession *of the Equinox*.

In effect, the Latitudes of the *fix'd Stars*, we find, by comparing the Obſervations of the ancient Aſtronomers with thoſe of the Moderns, continues ſtill the ſame; but their Longitude is by this Second Motion always increaſing.

Thus, *e. gr.* the Longitude of *Cor Leonis*, was found by *Ptolomy*, *A. D.* 138, to be 2° 30′; in 1115 'twas obſerv'd by the *Perſians* to be 17° 30′; in 1364, by *Alphonſus*, 20° 40′; in 1586 by the Prince of *Heſſe* 24° 11′; in 1601 by *Tycho* 24° 17′; and in 1690 by Mr. *Flamſtead* 25° 31′ 20″; whence the proper Motion of the *Stars*, according to the Order of the Signs in the Circles, parallel to the Ecliptic, is eaſily inferred.

'Twas *Hipparchus* firſt ſuſpected this Motion, upon comparing the Obſervations of *Tymocharus* and *Ariſtillus* with his own. *Ptolomy*, who lived Three Centuries after *Hipparchus*, demonſtrated the ſame by undeniable Arguments. See Longitude.

Some, 'tis true, have imagined a Change in the Latitudes of the *Stars*; but ſuch an Opinion has little Countenance from Obſervation. See Latitude.

Tycho Brahe makes the Increaſe of Longitude in a Century 1° 23′ 40″ 12‴; *Flamſtead* and *Ricciolus* 1° 23′ 20″; *Bullialdus* 1° 24′ 54″; *Hevelius* 1° 24′ 46″ 50‴; whence, with *Flamſtead*, the Annual Increaſe of the Longitudes of the *fix'd Stars* may be well fix'd at 50″.

From theſe Data, the Increaſe of the Longitude of a *Star* for any given Time, is eaſily had; and hence the Longitude of a *Star* for any given Year, being given, its Longitude for any other Year, is readily found: *E. gr.* the Longitude of *Sirius* in Mr. *Flamſtead*'s Tables for the Year 1690 being 9° 49′ 1″; its Longitude for the Year 1724 is found, by multiplying the Interval of Time, *viz.* 34 Years by 50″, the Product 1700″ or 28′ 2″ added to the given Longitude, will give the Longitude required, 10° 17′ 3″.

The principal Phænomena of the fix'd Stars, *ariſing from their common and proper Motion, beſides their Longitude, are their* Altitudes, Right Aſcentions, Declinations, Occultations, Culminations, Riſings *and* Settings; *which ſee under their proper Articles*, Altitude, Ascention, Declination, Occultation, *&c.*

The ſeveral Stars *in each Conſtellation*, e. gr. *in* Taurus, Bootes, Hercules, *&c. their Longitudes, Latitudes, Magnitudes, Names, Places, &c. as fix'd by Mr.* Flamſtead *in the* Britannic Catalogue; *ſee under the proper Article of each Conſtellation*, Taurus, Bootes, Hercules, *&c.*

To learn to know the ſeveral fix'd Stars *by the Globe*; *ſee* Globe.

The Parallax and Diſtance of the fix'd Stars; *ſee under* Parallax and Distance.

Star, in Fortification, a little Hexagonal Fort, with Six Points, or Salliant and Re-entring Angles flanking one another, and their Faces 90 or 100 Foot long. See Fort.

They are frequently made in Lines of Circumvallation, after two or three Redoubts. See Redoubt.

Star, in Pyrotechny, a Compoſition of combuſtible Matters, which being borne or thrown aloft into the Air, exhibits the Appearance of a real *Star*.

Stars are chiefly uſed as Appendages to Rockets, a Number of them being uſually incloſed in a Conical Cap or Cover at the Head of the Rocket, and carried up with it to its utmoſt Altitude, where the *Stars* taking Fire, are ſpread around, and exhibit an agreeable Spectacle. See Rocket.

To make Stars; Mix 3 Pounds of Salt-petre, 11 Ounces of Sulphur, one of Antimony and three of Gunpowder Duſt: Or 11 Ounces of Sulphur, 6 of Salt-petre, $5\frac{1}{2}$ of Gunpowder Duſt, 4 Ounces of Olibanum, one of Maſtic, Camphir, Sublimate of Mercury, and Half a one of Antimony and Orpiment.

Moiſten the Maſs with Gum-water, and make it into little Balls, of the Size of a Cheſnut, which dry either in the Sun or the Oven. Theſe ſet on fire in the Air, will repreſent *Stars*.

Star, in Heraldry, a Term frequently uſed, as ſignifying a Moveable or Charge, frequently borne on the Shield, and the honourable Ordinaries.

It differs from the *Mullet*, or Spur-rowel, in that it is not pierced as this laſt is. See Mullet.

It uſually conſiſts of five Rays or Spokes. When it has Six or Eight, as among the *Germans* and *Italians*, particular Mention muſt be made thereof in Blazoning.

On Medals, *Stars* are Marks of Conſecration and Deification, being intended as Symbols of Eternity. *F. Joubert* ſays, they ſometimes expreſs the Children of Princes reigning; and ſometimes the Children dead, and placed in the Rank of Deities. See Deification.

Star, a Badge of the Honourable Order of the Garter. See Garter.

Order of the Star, or our *Lady of the* Star, an Order of Knighthood inſtituted by King *John* of *France* in the Year 1352, denominated from a *Star* they wore on the Stomach.

At firſt there were but 30 Knights; but the Order in time became depreciated, by the Multitude of Perſons admitted, without any Diſtinction. For which Reaſon, *Charles* VII. when Grand-maſter thereof, quitted it, and gave it the Chevalier *du Guet*, Knight of the Watch at *Paris*, and his Archers, who ſtill wear a *Star* on their Caſſock. But this Account is contradicted by others; who will have the Order inſtituted by King *Robert* in 1022 in Honour of the Holy Virgin, and to have fallen into Diſregard during the Wars of *Philip de Valois*.

Juſtiniani mentions another Order of the *Star*, at *Meſſina* in *Sicily*, call'd alſo the *Order of the Creſcent*. It was Inſtituted in the Year 1268, by *Charles* of *Anjou*, Brother of St. *Louis*, King of the Two *Sicilies*.

Others will have it Inſtituted in 1464, by *Renatus* Duke of *Anjou*, who took the Title of King of *Sicily*. At leaſt, it appears from the Arms of this Prince, that he made ſome Alteration in the Collar of the Order; for inſtead of *Flower-de-Luces* and *Stars*, he only bore Two Chains, whence hung a Creſcent, with the old *French* Word *Loz*, which in the Language of *Rebus*, ſignified *Loz in a Creſcent*.

The Order being dropt into Obſcurity, was raiſed again by the People of *Meſſina*, under the Name of the *Noble Academy of the Knights of the Star*, reducing the ancient Collar to a ſingle *Star* placed on a forked Croſs, and the Number of Knights to Sixty-two. Their Device was, *Monſtrant Regibus Aſtra Viam*, which they expreſs'd by the Four Initial Letters $\genfrac{}{}{0pt}{}{M}{A}*\genfrac{}{}{0pt}{}{R}{V}$ with the *Star* in the Middle.

Star, in the Manage. White *Stars in the Forehead*, are eſteem'd good Marks in all Horſes, except White and Grey ones: where Nature fails to produce this good Criterion, our Jockies have frequent Recourſe to Art.

The Method of making *Stars*, practiſed among the *Dutch*, is to roaſt a large Onion in hot Aſhes, and when near thoroughly done, to divide it in two, and dip it in ſcalding hot Wallnut Oil. This done, they immediately apply the flat Side thereof to the Place the *Star* is to be on, and keep it there Half an Hour. After taking it off, they anoint the Scalded Place with Ointment of Roſes: In a ſhort Time, the Scarf Skin falls off, and White Hair grows up in their Room; but the Middle always continues bare of Hair, which is the certain Characteriſtic of an *Artificial Star*.

The Method moſt uſed among us, is to ſhave the Hair from the Place 'tis to be made on; then to apply a little Oil of Vitriol with a Feather, or the like, paſſing it lightly over the bald Place. This eats away the Roots of the former Hair, which will be ſucceeded by White. The Sore is heal'd up with Copperas and green Ointment.

To make a *black Star*, on a White or other colour'd Horſe; Waſh the Place to be changed, frequently, with Fern Roots and Sage boil'd in Lye; and it will breed black Hairs. The ſame may be done, by beating ſour Milk, Galls and Ruſt together, and anointing the Part therewith.

A *Red Star* is made with an Ounce of Aqua-fortis, a pennyworth of Aqua-vitæ, and Silver to the Value of Eighteenpence, all heated together in a Glaſs, and the Place anointed therewith. This immediately turns the Hair to a perfect Red; but it laſts no longer than till the Horſe caſt his Coat; when it is to be renewed.

STAR-BOARD, is the Right-hand Side of a Ship, as Larboard is the Left:

Thus they ſay, *Starboard the Helm*, or *Helm a Starboard*, when the Man at the Helm ſhould put the Helm to the Right Side of the Ship.

STARCH, a Fecula or Sediment found at the Bottom of Veſſels, wherein the waſte or refuſe Wheat has been ſteep'd in Water: Of which Fecula, after ſeparating the Bran from it, they form a kind of Loaves, which being dried in the Sun, or on a Furnace, is reduced into little Pieces, and ſo ſold for *Starch*.

The beſt is white, ſoft and friable, eaſily broke into Powder. Such as require very fine *Starch*, don't content themſelves, like the *Starch-men*, with the Refuſe of Wheat, but uſe the fineſt Grain. The Proceſs is as follows;

Method of making STARCH *of Wheat.*

The Grain being well cleaned, is put to ferment in Veſſels full of Water, which they expoſe to the Sun, when in its greateſt Heat; changing the Water twice a Day, for the Space of 8 or 12 Days, according to the Seaſon. When the Grain burſts eaſily under the Finger, they judge it ſufficiently fermented. The Fermentation perfected, and the Grain thus ſoften'd; 'tis put, handful by handful, in a canvas Bag, to ſeparate the Flower from the Husks, which is done by rubbing and beating it on a Plank, laid acroſs the Mouth of the empty Veſſel that is to receive the Flower.

As the Veſſels are filled with this liquid Flower, there is ſeen ſwimming a-top, a reddiſh Water, which is to be carefully ſcum'd off from time to time, and clean Water put in its Place; which, after ſtirring the whole together, is all to be ſtrained through a Cloth or Sieve, and what is left behind, put into the Veſſel with new Water, and expoſed to the Sun for ſome time; and as the Sediment thickens at the Bottom, they drain off the Water four or five Times, by inclining the Veſſel, but without paſſing it through the Sieve. What remains at bottom, is the *Starch*, which they cut in Pieces to get out, and leave it to dry in the Sun. When dry, 'tis laid up for Uſe.

To uſe *Starch*, they take as much as is needed, and ſteep in Water over Night, changing the Water four or five Times.

The *Starch-men* uſing the Refuſe of Wheat, only obſerve a Part of all theſe Things in their Proceſs; but their *Starch* falls far ſhort of this.

Starch is uſed along with Smalt or Stone-blue, to ſtiffen and clear Linnen. The Powder thereof is alſo uſed to whiten and powder the Hair. 'Tis alſo uſed by the Dyers to diſpoſe their Stuffs to take Colours the better.

STAR-*Chamber*; was a Chamber at *Weſtminſter*, formerly ſo called, from its Roof being painted with *Stars.* See CHAMBER.

Henry the VIIth and VIIIth, ordered, by ſeveral Statutes, that the Chancellor, aſſiſted by others there named, ſhould have Power to puniſh Routs, Riots, Forgeries, Embraceries, Perjuries, and ſuch other Miſdemeanors, as were not ſufficiently provided for by the common Law, and for which the inferior Judges were not ſo proper to give Correction. But this Court, by 17 *Car* I. *c.* 10. was intirely diſſolv'd, and ſo continues to this Day.

STAR-*Fort*, in Fortification, is a Work with ſeveral Faces, generally compoſed of from 5 to 8 Points, with Saliant and Re-entring Angles flanking one another; every one of its Sides containing from 12 to 25 Fathoms.

STARTING, among Brewers, is the putting of new Beer or Ale to that which is decayed, to revive it again.

STATERA *Romana*, or Steelyard, a Name given to the *Roman* Balance. See STEELYARD.

STATERA was alſo an ancient Silver Coin, weighing four *Attic* Drachms, or Half a *Roman* Ounce. It was worth about two Shillings or two Shillings and Two-pence *Sterling.* See COIN.

STATE, or *Eſtate*, an Empire, Kingdom, Province or Extent of Country under the ſame Government. See EMPIRE, KINGDOM, &c.

The *State*, or *States* of the King of *England*, include the *Britiſh* Iſlands and the *Weſt India* Plantations, as *Virginia, Carolina, Mary-land, &c.* to which may be added, the Dutchies of *Brunſwic-Lunenbourg, Bremen, &c.*

STATE is alſo uſed for the Policy or Form of Government of a Nation. Hence, *Miniſters of State*; *Reaſons of State, &c.* See RATIO *Status, &c.*

Politicians make ſeveral *Forms of State, viz.* the *Monarchic*, as that of *England*; ſee MONARCHY: The *Democratic*, as that of *Rome* and *Athens*; ſee DEMOCRACY: The *Oligarchic*, as that of *Venice*; ſee OLIGARCHY: And the *Ariſtocratic*, as that of *Sparta*; ſee ARISTOCRACY, &c.

STATE *of a Diſeaſe.* See ACME.

STATES, a Term applied to the ſeveral Orders, or Claſſes of a People, aſſembled to conſult of Matters for the publick Good. See ESTATES.

STATES-*General*, the Name of an Aſſembly, conſiſting of the Deputies of the Seven United Provinces.

In this Aſſembly, the Deputies of each Province, what Number ſoever they be, have only one Voice, and are eſteem'd as but one Perſon; the Votes being given by Provinces. Each Province preſides at the Aſſembly in its Turn, according to the Order ſettled among them; *Guelderland* preſides firſt, then *Holland, &c.* This Aſſembly is the Repreſentative of the Soveraignty of the Union, which reſides principally in the General Aſſembly of the *States* themſelves of all the Provinces: But as the Aſſembly ordinarily conſiſts of 7 or 800 Perſons, it was reſolved, after the Departure of the Earl of *Leiceſter*, in order to avoid Expence, and the Confuſion of ſo numerous a Body, that the Provincial Eſtates ſhould, for the future, be ordinarily repreſented by their Deputies, under the Name of the *States-General*, who were always to reſide at the *Hague*, and who alone are now called *States General.*

Since that new Regulation, there have been two General Aſſemblies of the *States* of the Provinces; the former held in 1600 at *Berg-op-Zoom*, to confirm the Truce agreed on with the Arch-duke *Albert*, with the greater Solemnity; and the latter in 1651.

STATES *of Holland*, an Aſſembly conſiſting of the Deputies of the Councils of each City; wherein reſides the Soveraignty of that Province.

Originally, none but the Nobility and the Six principal Cities had Seats or Voices in the *States.* At preſent there are the Deputies of 18 Cities.

The Nobility have the firſt Voice. The other Provinces of the Union have likewiſe their *States*, repreſenting their Soveraignty.

STATICAL *Baroſcope.* See BAROSCOPE.

STATICKS, STATICE, a Branch of Mathematicks, which conſiders *Weight* or *Gravity*, and the Motion of Bodies ariſing therefrom.

Thoſe who define Mechanicks, the Science of Motion, make *Staticks* a Member thereof, *viz.* that Part which conſiders the Motion of Bodies ariſing from Gravity. See GRAVITY.

Others make them two diſtinct Doctrines; reſtraining Mechanicks to the Doctrine of Motion, and Weight, in reference to the Structure and Power of Machines; and *Staticks* to the Doctrine of Motion, conſider'd merely as ariſing from the Weight of Bodies, without any immediate reſpect to Machines: On which footing, *Staticks* ſhould be the Doctrine or Theory of Motion; and Mechanicks the Application thereof to Machines. See MECHANICKS.

For the Laws of STATICKS } See { GRAVITY, DESCENT, &c.
STATICAL *Barometer* } See { BAROMETER.

STATICKS, *Statici*, in Medicine, a kind of Epilepticks, or Perſons ſeiz'd with Epilepſies. See EPILEPSY.

The *Staticks* differ from the Catalepticks, in that, theſe laſt have no Senſe of external Objects, nor remember any thing that paſſes at the Time of the Paroxyſm: Whereas the *Statici* are all the while taken up with ſome very ſtrong lively Idea, which they remember well enough, out of the Fit. See EPILEPSY.

STATION, in Geometry, &c. a Place pitch'd upon to make an Obſervation, take an Angle, &c.

An inacceſſible Height or Diſtance is only to be taken, by making two *Stations*, from two Places, whoſe Diſtances are known. In making Maps of Provinces, &c. *Stations* are fix'd on all the Eminences, &c. of the Country, and Angles taken thence to the ſeveral Towns, Villages, &c.

In Surveying, the Inſtrument is to be adjuſted by the Needle, to anſwer the Points of the Horizon; at every *Station*, the Diſtance from the laſt *Station* to be meaſured, and an Angle to be taken to the next *Station*; which includes the whole Buſineſs of Surveying. See SURVEYING.

In Levelling, the Inſtrument is *rectified*, that is placed level, at each *Station*, and Obſervations made forwards and backwards. See LEVELLING.

STATION, in Aſtronomy, the Poſition or Appearance of a Planet in the ſame Point of the Zodiac for ſeveral Days. See PLANET.

As the Earth, whence we view the Motions of the Planets, is out of the Centre of their Orbits, the Planets appear to proceed irregularly; being ſometimes ſeen to go forwards, that is from Weſt to Eaſt, which is called their *Direction*; ſometimes to go backwards, or from Eaſt to Weſt, which is call'd their *Retrogradation.* See DIRECTION and RETROGRADATION.

Now between theſe two States, there muſt be an intermediate one, wherein the Planet neither appears to go backwards nor forwards, but to ſtand ſtill and keep the ſame Place in her Orbit, which is call'd her *Station.* See STATIONARY.

STATION, in Church Hiſtory, is uſed for the Faſts of the 4th and 6th Day of the Week; that is, thoſe of *Wedneſday* and *Friday*, which many among the Ancients obſerved with much Devotion.

Theſe Faſts only held to 3 o'Clock in the Afternoon. See FAST.

S. *Peter* of *Alexandria*, in his *Canonical Epiſtle, Can.* 15. obſerves, that it was appointed in conformity with the ancient Tradition, to faſt weekly on thoſe Days: On *Wedneſday*, in Memory of the Counſel the *Jews* took to put our Saviour to Death; and on *Friday*, on account of his Paſſion; ſome regard to which is ſtill had by many in the Church of *England.*

STATION is alſo uſed in the Church of *Rome*, for certain Churches where Indulgences are to be had on certain Days. See INDULGENCE.

'Twas St. *Gregory* that fix'd the *Stations* at *Rome*, *i. e.* the Churches where the Office was to be perform'd each Day of *Lent*, and on Solemn Feaſt Days. Theſe *Stations* he mark'd down in his *Sacramentary*, as they now ſtand in the *Roman* Miſſal; attaching them chiefly to the Patriarchal and Titular Churches: But though the *Stations* were fix'd, the Archdeacon did not fail, at each *Station*, to publiſh to the People the following *Station*.

STATION is alſo a Ceremony in the *Romiſh* Church, wherein the Prieſts or Canons go out of the Choir to ſing an Anthem before the Crucifix, or the Image of our Lady. This Ceremony is aſcribed to S. *Cyril*.

STATIONARY, in Aſtronomy, the State of a Planet when it ſeems to remain immoveable in the ſame Point of the Zodiac. See STATION.

The Planets having ſometimes a progreſſive and ſometimes a retrograde Motion; there will be ſome Point wherein they appear *Stationary*. Now a Planet will be ſeen *Stationary*, when the Line that joins the Earth's and Planet's Centre, is conſtantly directed to the ſame Point in the Heavens; that is, when it keeps parallel to itſelf. For all right Lines drawn from any Point of the Earth's Orbit, parallel to one another, do all point to the ſame Star; the Diſtance of thoſe Lines being inſenſible, in compariſon of that of the fix'd Stars.

Saturn is ſeen *Stationary*, at the Diſtance of ſomewhat more than a Quadrant from the Sun; *Jupiter* at the Diſtance of 52°, and *Mars* at a much greater Diſtance. *Saturn* is *Stationary* 8 Days, *Jupiter* 4, *Mars* 2, *Venus* 1½ and *Mercury* ½; though the ſeveral *Stations* are not always equal. See SATURN, &c.

STATOCELE, in Medicine, a Rupture, or Tumour in the Scrotum, conſiſting of a fatty Subſtance reſembling Suet. See HERNIA.

STATUARY, a Branch of Sculpture, employ'd in the making of *Statues*. See STATUE.

Statuary is one of thoſe Arts wherein the Ancients ſurpaſs'd the Moderns: Indeed 'twas much more popular, and more cultivated among the former than the latter. See SCULPTURE.

'Tis diſputed between *Statuary* and *Painting*, which of the two is the moſt difficult and the moſt artful. See PAINTING.

The Invention of *Statuary* was at firſt very coarſe. *Leon Battiſt Alberti*, who has an expreſs Treatiſe on *Statues*, imagines that it took its Riſe from ſomething caſually obſerved in the Productions of Nature, that, with a little Help, might ſeem diſpoſed to repreſent the Figure of ſome Animal. The common Story is, That a Maid, full of the Idea of her Lover, made the firſt Eſſay, by the Aſſiſtance of her Father's Implements, who was a Potter. This at leaſt, is pretty certain, that Earth is the firſt Matter *Statuary* was practiſed upon.

STATUARY is alſo uſed for the Artificer, who makes *Statues*. In this Senſe we ſay, *Phidias* was the greateſt *Statuary* among the Ancients, and *Michael Angelo* among the Moderns.

STATUE, a Piece of Sculpture in full Relievo, repreſenting a human Figure. See FIGURE.

Daviler, more Scientifically defines *Statue* a Repreſentation in high Relievo and Inſulate, of ſome Perſon diſtinguiſh'd by his Birth, Merit or great Actions; placed as an Ornament in a fine Building, or expoſed in a publick Place to preſerve the Memory thereof.

Statues are form'd with the Chiſſel, of ſeveral Matters, as Stone, Marble, Plaiſter, &c. See STONE, MARBLE, CHISSEL, &c.

They are alſo caſt of various Kinds of Metals, particularly Gold, Silver, Braſs and Lead.

For the Method of caſting STATUES; *ſee* FOUNDERY *of Statues*.

Dedalus, the Son of *Eupalamus*, who lived not only before the Siege of *Troy*, but even before the Expedition of the *Argonauts*, among many other notable Contrivances aſcribed to him, is ſaid to have been the Inventor of *Statues*. And yet 'tis certain, there were *Statuaries* before him; only he 'twas firſt found how to give them Action and Motion, and to make them appear as if alive. Before him, they made them with the Feet joined together, never intending to expreſs any Action. He firſt looſened the Feet of his, and gave them the Attitudes of People walking and acting.

The *Phœnicians* are ſaid to have been the firſt who erected *Statues* to the Gods.

The *Greeks* ſucceeded in their *Statues* beyond the *Romans*; both the Workmanſhip and the Fancy of the *Roman Statues*, were inferior to the *Grecian*. Indeed we have very few remaining, that have eſcaped the Injuries of Time.

In Strictneſs, the Term *Statue* is only applied to Figures on Foot; the Word being form'd from the *Latin*, *Statura*, the Size of the Body; or from *Stare*, to ſtand.

Statues are uſually diſtinguiſh'd into four Kinds; the Firſt, are thoſe leſs than the Life; of which Kind we have ſeveral *Statues* of Men, of Kings, and Gods themſelves.

The Second, of thoſe equal with the Life; in which Manner it was, that the Ancients, at the publick Expence, uſed to make *Statues* of Perſons eminent for Virtue, Learning, or the Services they had done.

The Third, of thoſe that exceed the Life; among which, thoſe which ſurpaſs'd the Life once and a half, were for Kings and Emperors; and thoſe double the Life, for Heroes.

The Fourth Kind, were of thoſe that exceeded the Life twice or thrice, or even more, and were called *Coloſſus's*. See COLOSSUS.

Every *Statue* reſembling the Perſon it repreſents, is called *Statua Iconica*.

Greek STATUE, is uſed for a Figure that is Naked and Antique; it being in this Manner the *Greeks* repreſented their Deities, *Athletæ* of the Olympic Games, and Heroes. The Reaſon of this Nudity, whereby the *Greek Statues* are diſtinguiſhed, is, that thoſe who exerciſed Wreſtling, wherein the *Greek* Youth placed their chief Glory, always perform'd naked.

The *Statues* of Heroes were particularly called *Achillean Statues*, by reaſon of the great Number of Figures of that Prince, in moſt of the Cities of *Greece*.

Roman STATUES. This Appellation was given to ſuch as were cloath'd, and which receive various Names from their various Dreſſes. Thoſe of Emperors with long Gowns over their Armour, were called *Statuæ Paludatæ*; thoſe of Captains and Cavaliers, with Coats of Arms, *Thoracatæ*: Thoſe of Soldiers, with Cuiraſſes, *Loricatæ*; thoſe of Senators and Augurs, *Trabeatæ*; thoſe of Magiſtrates with long Robes, *Togatæ*; thoſe of the People with a plain Tunica, *Tunicatæ*; and laſtly, thoſe of Women with long Trains, *Stolatæ*.

The *Romans* had another Diviſion of *Statues*, into *Divine*, which were thoſe conſecrated to the Gods, as *Jupiter*, *Mars*, *Apollo*, &c. *Heroes*, which were thoſe of the Demi-Gods, as *Hercules*, &c. and *Auguſt*, which were thoſe of the Emperors; as thoſe two of *Cæſar* and *Auguſtus*, under the Portico of the Capitol.

Pedeſtrian STATUE, a *Statue* ſtanding on foot; as that of King *Charles* II. in the *Royal Exchange*, and that of King *James* II. in the *Privy Gardens*.

Equeſtrian STATUE, that repreſenting ſome illuſtrious Perſon on Horſeback; as that famous one of *Marcus Aurelius* at *Rome*, and thoſe of King *Charles* I. and II. at *Charing-Croſs* and in *Stocks-Market*, *London*.

Curule STATUE. Thoſe are thus called, which are repreſented in Chariots drawn by *Bigæ* or *Quadrigæ*, that is, by two or four Horſes; of which Kind there were ſeveral in the *Circus's Hippodromes*, &c. or in Cars, as we ſee on triumphal Arches in antique Medals. See CURULE.

Allegorical STATUE, that which, under a human Figure, or other Symbol, repreſents ſomething of another Kind, as a Part of the Earth, a Seaſon, Age, Element, Temperament, Hour, &c.

Hydraulick STATUE, any Figure placed as an Ornament to a Fountain or Grotto; or that does the Office of a *Jet d'Eau*, a Cock, Pipe or the like, by any of its Parts, or by an Attribute it holds. The ſame is to be underſtood of any Animal ſerving for the ſame Uſe.

Coloſſal STATUE } See { COLOSSUS.
Perſian STATUE } See { PERSIAN *Order*.
Caryatic STATUE } See { CARYATIDES.

STATURE, the Size or Height of a Man; from the *Latin*, *Statura*, of *Stare*, to ſtand.

The *Stature*, or Pitch of Man, is found admirably well adapted to the Circumſtances of his Exiſtence. Had Man, obſerves Dr. *Grew*, been a Dwarf, he could ſcarce have been a reaſonable Creature: For, to that End, he muſt have had a Jolt-head; and then he would not have had Body and Blood to ſupply his Brain with Spirits; or if he had had a ſmall proportional Head, there would not have been Brain enough for his Buſineſs. Again, had Man been a Gyant, he could not have been ſo commodiouſly ſupplied with Food: For there would not have been Fleſh enough of the beſt edible Beaſts to ſupply his Turn; or if the Beaſts had been made proportionably bigger, there would not have been Graſs enough, &c. See DWARF, GIANT, &c.

'Tis a common Opinion, however, and has been ſo, ever ſince *Homer*'s Time, that People in the earlieſt Ages of the World, much ſurpaſs'd the Moderns in *Stature*; and 'tis true, we read of Men, both in ſacred and profane Hiſtory, whoſe Pitch appears ſurprizing; but then 'tis true, they were eſteemed Giants.

The ordinary *Stature* of Men, Mr. *Derham* obſerves, is in all probability the ſame now, as at the beginning; as may be gathered from the Monuments, Mummies, &c. ſtill remaining. The oldeſt Monument in the World, is that of *Cheops*, in the firſt Pyramid of *Egypt*, which Mr. *Greaves* obſerves, ſcarce exceeds the Meaſure of our ordinary Coffins. The Cavity, he ſays, is only 6,488 Feet long, 2,218 Feet wide, and 2,160 deep: From which Dimenſions, and thoſe of ſeveral Embalmed Bodies, taken by him in *Egypt*, that accurate Writer concludes, there is no Decay in Nature; but that the Men of this Age are of the ſame *Stature* as thoſe 3000 Years ago.

To theſe we have other and later Inſtances to add from *Hakewill*: The Tombs at *Piſa*, which are ſome Thouſands of Years old, are no longer than ours: So is *Athelſtan*'s in *Malmsbury* Church; *Sheba*'s in *Paul*'s, of the Year 693, *&c.*

The like Evidence, we have from the ancient Armour, Shields, Veſſels, *&c.* dug up at this Day, *E. gr.* the Braſs Helmet dug up at *Metaurum*, fits one of our Men; yet 'tis allowed to have been left there at the Overthrow of *Aſdrubal*. Add, that *Auguſtus* was Five Foot Nine Inches, which was the Meaſure of our Queen *Elizabeth*; only the Queen exceeded the Emperor by Two Inches, Allowance being made for the Difference between the *Roman* and our Foot.

STATUS *de Manerio*, in ancient Records, all the Tenants and legal Men within the Lands of a Manor, aſſembled in their Lord's Court, to do their cuſtomary Suit, and enjoy their Rights and Privileges.

STATUTE, in its general Senſe, ſignifies a Law, Ordinance, Decree, *&c.* See LAW, DECREE, *&c.*

In our Laws and Cuſtoms, *Statute* more immediately ſignifies an Act of Parliament, made by the Three Eſtates of the Realm; in which Senſe, *Statute* is either general or ſpecial, public or private, *&c.* See PARLIAMENT.

STATUTES, or *Statute Seſſions*, called alſo *Petit Seſſions*, are Meetings in every Hundred, to which Conſtables repair, and others, both Maſters and Servants, for deciding Differences between Maſters and Servants, rating of Wages, beſtowing People in Service who being fit to ſerve, either refuſe to ſeek or cannot get Maſters. See SESSIONS.

STATUTE *Merchant*, is a Bond acknowledged before one of the Clerks of the *Statutes* Merchant and Mayor or chief Warden of the City of *London*, or Two Merchants of the ſaid City for that Purpoſe aſſigned, or before the Mayor, chief Warden, or Maſter of other Cities or Towns, or other ſufficient Men for that Purpoſe appointed; ſealed with the Seal of the Debtor and of the King, which is of two Pieces, the greater to be kept by the Mayor, chief Warden, *&c.* and the leſſer by the ſaid Clerks. See BONDS.

STATUTE *Staple*, is ſo called, either properly or improperly: Properly, it is a Bond of Record, acknowledged before the Mayor of the Staple, in the Preſence of the Two Conſtables of the ſame Staple; for which Seal, the Fee of every Pound, if the Sum exceed not 100 *l.* is an Half-penny, and if it exceed 100 *l.* a Farthing; by Virtue of which *Statute Staple*, the Creditor may forthwith have Execution of the Body, Lands and Goods of the Debtor.

Improperly, it is a Bond of Record, founded upon the *Statute* 23 *H.* VIII. *c.* 6. of the Nature of a proper *Statute Staple* as to the Force and Execution of it, and acknowledged before one of the chief Juſtices, and in their Abſence, before the Mayor of the *Staple*, and Recorder of *London*.

STAVERS, or STAGGERS, among Farriers, a Giddineſs in a Horſe's Head, which ends in Madneſs. 'Tis frequently occaſion'd, by turning out a Horſe to Graſs too ſoon, e'er well cold; where, by hanging down his Head to feed, ill Vapours and Humours are generated, which oppreſſing the Brain, are the next Cauſe of this Diſeaſe. Sometimes it comes by over Exerciſe in hot Weather, which inflames the Blood, *&c.* and ſometimes by noiſome Smells in the Stable, exceſſive Eating, *&c.* The Signs of it, are Dimneſs of Sight, Reeling and *Staggering*, watery Eyes, *&c.* At length, for very Pain, he beats his Head againſt the Wall, thruſts it into the Litter, riſes and lies down with Fury, *&c.* The Methods of Cure are various; but they all begin with Bleeding.

STAY, in the Sea Language, a big, ſtrong Rope, faſten'd to the Top of one Maſt, and the Foot of that next before it, towards the Prow, ſerving to keep it firm, and prevent its falling backwards.

All Maſts, Top-maſts and Flag-ſtaves, have their *Stays*; except the Sprit-ſail and Top-maſt. That of the Main-maſt, is called the *Main-ſtay*. The Main-maſt, Fore-maſt, and thoſe belonging to them, have alſo *Back-ſtays*, to prevent their pitching forwards or over-board; as going on either ſide her. See BACK-*Stays*.

Hence, to *Stay a Ship*, or *bring her on the Stay*, is to manage her Tackle and Sails, ſo as that ſhe cannot make any Way forwards, which is done in order to her Tacking about.

STEADY, is a Word of Command at Sea, for the Man at the Helm to keep the Ship *Steady* in her Courſe, and not to make Angles (or *Yaws* as they call them) in and out. See HELM.

STEATOMA; from ϛέαρ, Sevum, Suet; is a Swelling, conſiſting of a Matter much like Suet, ſoft, without Pain, and without diſcolouring the Skin; contained in a Cyſtis; and eaſily turned out upon Inciſion.

STEEL, a kind of Iron refined and purified by the Fire, with other Ingredients; which renders it whiter, and its Grain cloſer and finer. See IRON.

Steel, of all other Metals, is that ſuſceptible of the greateſt degree of Hardneſs, when well temper'd; whence its great Uſe in the making of Tools and Inſtruments of all Kinds.

The true Method of making *Steel* has been greatly conceal'd, and the Publick long abuſed by counterfeit ones.

The following Method we have from *Agricola*; and is affirmed by *Kircher* to be that practiſed in the Iſland of *Ilva*; a Place famous in all Ages for the Manufacture of good *Steel*, from the Time of the *Romans*, to Ours.

Heat a Quantity of Iron red-hot, cut it into ſmall Pieces, mix it with a ſort of Stone that eaſily melts. This Mixture put by little and little into a Crucible, firſt fill'd with Charcoal-duſt, and heated red-hot; when melted off, three, four or more Pieces of Iron are to be put into the middle of it; there boil them five or ſix Hours with a ſtrong Fire. The Workman is to ſtir the melted Matter often, that the Pieces of Iron may ſoak in the ſmaller Particles of the melted Iron; which Particles conſume, and thin the groſſer ones of the Iron Pieces, and are, as it were, a Ferment to them, and make them tender. One of the Pieces is now taken out of the Fire, and put under the great Hammer, to be drawn out into Bars and wrought; and hot as it is, plunged into cold Water. Thus temper'd, 'tis again worked upon the Anvil; then breaking it, 'tis conſider'd, whether in any Part it looks like Iron; or whether it be wholly condenſed and turned into *Steel*.

STEEL, in Medicine. See CHALYBEAT.

STEELYARD, in Mechanicks, a kind of Balance, call'd *Statera Romana*, or the *Roman Balance*; by means whereof, the Gravity of different Bodies are found by the Uſe of one ſingle Weight. See BALANCE.

Conſtruction of the STEELYARD.

It conſiſts of an Iron Beam A B (Tab. Mechanicks, Fig. 35.) wherein a Point is aſſumed at Pleaſure, as C, and on this a Perpendicular raiſed CD. On the leſs Arm AC, is hung a Scale or Baſon to receive the Bodies weighed: The Weight I is ſhifted this and that Way on the Beam, till it be a Counter-balance to one, two, three, four, *&c.* Pounds placed in the Scale; and the Points are noted wherein I weighs as one, two, three, four, *&c.* Pounds.

From this Conſtruction of the *Steelyard*, the Manner of uſing it is apparent. But the Inſtrument being very liable to Deceit, is therefore not to be countenanced in Commerce.

Spring STEELYARD, a kind of portable Balance, ſerving to weigh any Matter, from about one to forty Pounds.

It is compoſed of a Braſs Tube, into which goes a Rod, and about that is wound a Spring of temper'd Steel in a ſpiral Form. On this Rod are the Diviſions of Pounds and Parts of Pounds, which are made by ſucceſſively hanging on to a Hook faſten'd to the other End, 1, 2, 3, 4, *&c.* Pounds. Now the *Spring* being faſten'd by a Screw, to the bottom of the Rod, the greater Weight is hung on the Hook, the more will the *Spring* be contracted, and, conſequently, a greater Part of the Rod will come out of the Tube; the Proportions of which greater Weights are indicated by the Figures appearing againſt the Extremity of the Tube.

STEEPLE, an Appendage, raiſed on the weſtern End of a Church, to hold the Bells. See CHURCH and BELL.

Steeples are denominated from their Form, either *Spires* or *Towers*.

The firſt, are ſuch as aſcend continually diminiſhing either Conically or Pyramidically. The latter are mere Parallelipipeds, and are cover'd atop, Plat-form like. In each Kind, there is uſually a ſort of Windows or Apertures to let out the Sounds, and ſo contrived, at the ſame time, to drive it down.

Maſius, in his Treatiſe of Bells, treats likewiſe of *Steeples*. The moſt remarkable in the World, is that at *Piſa*, which leans all on one Side, and appears every Moment ready to fall; yet without any Danger. This odd Diſpoſition, he obſerves, is not owing to a Shock of an Earthquake, as is generally imagined; but it was contrived ſo at firſt by the Architect; as is evident from the Ceilings, Windows, Doors, *&c.* which are all in the Level.

STEERAGE, the Act of Steering. See STEERING.

The Word is alſo uſed for a Place in a Ship before the Bulk-head of the great Cabin, where the Steers-man ſtands and lodges.

STEERING, in Navigation, the directing of a Veſſel from one Place to another, by means of the Helm and Rudder. See HELM and RUDDER.

He is held the beſt *Steers-man*, who uſes the leaſt Motion in putting the Helm over to and again, and that keeps the Ship beſt from making Yaws; that is, from running in and out.

There are three Methods of *Steering*. 1° By any Mark on the Land, ſo as to keep the Ship even by it. 2° By the Compaſs, which is by keeping the Ship's Head on ſuch a Rhumb or Point of the Compaſs, as beſt leads to Port. 3° To *Steer* as one is bidden or conn'd; which in a great Ship, is the Duty of him that is taking his Turn at the Helm. See CONDER.

For the Theory and Effect of Steering; *ſee* SAILING.

STEGANOGRAPHY; the Art of *ſecret Writing*; or of writing in Cyphers, known only to the Perſons correſponding. See CYPHER.

One *Æneas Tacticus*, Two thouſand Years ago, as we are told by *Polybius*, had invented 20 different Manners of writing ſo as no Body but thoſe let into the Secret, could underſtand any thing of the Matter.

But now-a-days, hardly any thing can be written by this Art, but what may be Decyphered, and the Meaning diſcovered. And to this Art of Decyphering, that excellent Mathematician, Dr. *Wallis*, hath contributed much.

STEGNOSIS, from ϛέγω, *conſtipo*, I fix, or harden; is an Obſtruction of the Pores; whence *Stegnoticks* are the ſame as *Aſtringents*. See ASTRINGENT.

STEGNOTICKS, in Medicine, Remedies proper to cloſe and ſtop the Orifices of the Veſſels, when ſtretch'd, lacerated, &c. See STYPTICK.

Such are Pomgranate Leaves, red Roſes, Plantain Leaves, Tormentil Root, &c.

Stegnoticks are proper in the Hæmorrhoids, and other Fluxes of Blood.

The Word is form'd from the *Greek* ϛέγω, *impedro*, *conſtipio*, I hinder, cloſe.

STELLATE *Plants*, ſuch as have their Leaves growing on the Stalks, at certain Diſtances, in the Form of a Star with Beams; or ſuch Flowers as are Star-like or full of Eyes, reſembling Stars, in the Thrum or Pendants. See PLANT.

Mr. *Ray* makes this the Tenth Genus of *Engliſh Plants*; of this Kind is Croſs-Wort, Mollugo, wild Madder, Aſperula, or Woodruff, Gallium or Ladies Bed-ſtraw, Aparine or Cleavers, Rubia Tinctorum or Dyers Madder.

To which he adds, as akin to this Genus, the Naſturtium Indicum, *Indian* Creſſe, or yellow Lark-Spur.

STELLIONATE, STELLIONATUS, in the Civil Law, a kind of Crime committed by a fraudulent Bargain, where one of the Parties ſells a thing for what it is not.

As if I ſell an Eſtate for my own, which belongs to another; or convey a thing as free and pure, which is already engaged to another; or put off Copper for Gold, &c.

Cujas ſays, the Word comes from *Stellio*, a very ſubtile kind of Lizzard. We find mention hereof in the *Code*, *lib.* 9. *Tit.* 34.

The *Romans* frequently uſed *Stellionatus* to expreſs all Kinds of Crimes that had no proper Names.

STEM, in Botany, that Part of a Plant ariſing out of the Root, and which ſuſtains the Leaves, Flowers and Fruits. See PLANT.

In Trees, the *Stem* is called the *Trunk* or *Stock*; in *Latin*, *Caudex* and *Truncus*. See STOCK, &c.

In Herbs, 'tis ordinarily call'd the *Stalk*; by the *Latins*, *Caulis* and *Scapus*, when ſtreight like a Column.

When ſlender, and creeping on the Ground, as that of Nummulary, ſome Authors call it *Viticulus*.

In the ſeveral Kinds of Corn and Plants of that Kind, 'tis call'd *Culmus*.

The *Stem* of the Plant, according to Dr. *Grew*, is no more than the *Cutis* or Skin which at firſt covers the two Lobes, and the Plume of the Seed, and which is further dilated as the Plant grows. See PLUME, SEED, &c.

STEM *of a Ship*, is that main Piece of Timber which comes bending from the Keel below where it is Scarfed as they call it; that is pieced in, right before the Fore-caſtle. This *Stem* it is, that guides the Rake of the Ship, and all the Butt-ends of the Planks forwards, are fixed into it. This in the Section of a Firſt Rate Ship, is called the *Main Stem*.

STENTOROPHONIC *Tube*, a *ſpeaking Trumpet*; thus call'd from *Stentor*, (a Perſon mentioned in the Fifth Book of the *Iliad*, who could call louder than Fifty Men) and φώνη, *Voice*.

The *Stentorophonic Horn* of *Alexander the Great* is famous; with this he could give Orders to his Army at the Diſtance of 100 *Stadia*; which is above 12 *Engliſh* Miles. See SPEAKING *Trumpet*.

STEP. See PACE and STAIR.

STEP and *Leap*, in the Manage, one of the Seven Airs or artificial Motions of a Horſe; conſiſting, as it were, of three Airs; *viz.* the Pace or *Step* which is *terra a terra*; the raiſing a Curvet; and the whole finiſhed with a *Salt* or *Leap*.

The *Step*, properly, puts a Horſe on the Hand, and gives him a Riſe to Leap; like one that runs e'er he leaps, that he may go the higher.

For Leaps of all kinds, the Rider is not to give any Aids or Helps with his Legs; only to hold him well up with the Bridle-hand when he riſes before, that he may riſe the higher behind: when he begins to riſe behind, he is to put the Bridle-hand a little forwards to hold him before, and ſtay him there on the Hand, as if he hung in the Air; timing the Motion of the Bridle-hand ſo, as to take him like a Ball on the bound; which is the great Secret in Leaping.

STERCORARIANS, or STERCORANISTS, a Name thoſe of the *Romiſh* Church have anciently given to ſuch as held that the Euchariſt was liable to Digeſtion, and all its Conſequences, like other Foods. See SACRAMENT.

The Word is form'd from the *Latin*, *Stercus*, Dung. Card. *Humber* in his Anſwer to *Nicet Pectorat*, treats him as a *Stercoraniſt*, merely for holding, that the Euchariſt breaks the Faſt; which Opinion he imagined led directly into *Stercoraniſm*.

STEREOBATA, in the ancient Architecture, the Baſis or Foundation whereon a Wall or other Building is raiſ'd. See BASE.

This anſwers pretty well to the *continued Socle* or Baſement of the Moderns: Some confound it with the ancient *Stylobata*, or Pedeſtal; but in effect, the *Stereobata* is that to the *Stylobata*, which the *Stylobata* is to the *Spira* or Baſe. See STYLOBATA.

The Word is form'd from the *Greek*, ϛερεοϐάτης, ſolid Prop.

STEREOGRAPHIC *Projection of the Sphere*, is that wherein the Eye is ſuppoſed to be placed, in the Surface of the Sphere. See PROJECTION *of the Sphere*.

The Method and Practice of this Projection, in all the principal Caſes, *viz.* on the Planes of the Meridian, Equinoctial and Horizon, is as follows;

1° *Stereographic Projection on the Plane of the Meridian.*

Let ZQNE (Fig. 23.) be the Meridian, Z and N the Poles, as alſo the Zenith and Nadir; E Q the Equinoctial and Horizon; Z N the equinoctial Colure, and prime vertical Circle: Z 15 N, Z 30 N, Z 45 N, &c. are Hour-circles or Meridians, and alſo Azimuths, becauſe the Pole is in the Zenith; and to deſcribe theſe Circles, find the Points, 15, 30, 45, 60, &c. in the Equinoctial, by ſetting the Half-tangent of their Diſtance from ♈; and then their Centres are found by ſetting their Co-ſecants, both ways, from their Points of Interſection with the Equator; ♋, ♋, and ♑, ♑, are the Northern and Southern Tropics, which are deſcribed by ſetting the Half-tangent of 23 Degrees 30 Minutes from ♈ each Way; then the Tangent of its Complement, *viz.* 66 Degrees 30 Minutes, each way from thence on the Colure produced, gives their Centres; by this Method, all Parallels of Declinations may be drawn. Or you might have ſet the Co-ſecant of the Parallel from the Centre of the Primitive, which would alſo have found the ſame Point for the Centre of the Parallel, whoſe Radius is equal to the Tangent of its Diſtance from its Pole. Theſe Parallels in this Projection, are alſo Almicanters, or Parallels of Altitude; ♋, ♑ is the Ecliptick, which muſt be divided from the Diviſion on the Scale of Half-tangents; but denominated according to the Signs of the Zodiac, reckoning 30 Degrees to each Sign.

2° *Stereographic Projection on the Plane of the Equinoctial.*

Let S C (Fig. 24.) be the Meridian, and ſolſtitial Colure; E N the equinoctial Colure, and Hour-circle of 6; P the North Pole; ♋ ♋, the Northern Tropick; E ♋ N the Northern Half of the Ecliptick (whoſe Centre is found, by ſetting off the Secant of 23 Degrees 30 Minutes from ♋) and its Pole is at *a* the Interſection of the Polar Circle and Meridian, being the Place through which all Circles of Longitude muſt paſs; and E Z N the Horizon of *London*, which is deſcribed thus: Set the Half-tangent of the Co-latitude, from P to Z; then the Tangent of the ſame, ſet from P to O, or its Secant from Z to O, gives its Centre; and its Pole will be at *h* 38 Degrees 30 Minutes, (in the Half-tangents) diſtant from F, where *h* is at the Zenith. To draw any other Circles in this Projection; 1. For Circles of Longitude, which muſt all paſs through *a*, and the ſeveral Degrees of the Ecliptick; ſet the Tangent of 66 Degrees, 30 Minutes, from *a* downwards, on the Meridian produced; which will find a Point, through which a Perpendicular, drawn to the Meridian, ſhall contain in it the Centres of all the Circles of Longitude, whoſe Diſtances ſet off to the Radius P *x*, ſhall be the Tangents of the Degrees of their Diſtances from the Meridian, S P C (which is that belonging to 180 Degrees. 2. All Parallels of Declination are drawn by ſetting the Half-tangents of their Diſtances from P. 3. All Azimuths, or Vertical Circles muſt paſs through *h d*, the Zenith: Since, therefore, the Zenith is 38 Degrees 30 Minutes diſtant from P, ſet the Co-ſecant of that (or the Secant of 51 Degrees 30 Minutes) from *h* on the Meridian extended below, and that ſhall find the Point *x*, the Centre of the Azimuth of Eaſt and Weſt, *viz.* E *h* N; and the Centres of all the reſt are in a Line that is perpendicular to the Meridian, and drawn through *x*. 4. Circles of Altitude or Almicanters, are leſſer Circles, whoſe Poles are not in the Plane of the Projection; thus the Circle O *e*, is a Parallel of Altitude 50 Degrees above the Horizon. 5. All Hour-circles are ſtrait Lines from the Centre to the Limb.

3° *Stereographick Projection on the Plane of the Horizon.*

Firſt draw a Circle repreſenting the Horizon, and quarter it with two Diameters; then will *z* be the Zenith of the Place, 12 z 12 the Meridian; 6 z 6 the prime Vertical, or Azimuth of Eaſt and Weſt; (Fig. 25.) make zP = Half-tangent of 38° 30′ (or Tangent of 19° 15′) P ſhall be the Pole of the World. Make Z E = Half-tangent of 51° 30′ (or Tangent of 25° 45′)

$$\left.\begin{array}{l}\text{and } E\,o = \text{Secant}\\ \quad z\,o = \text{Tangent}\end{array}\right\}\text{of 38 Degrees 30 Minutes; then}$$

ſhall o be the Centre of the Equinoctial 6 E 6. In this Projection Almicanters, are all parallel to the primitive Circle: And Azimuths are all right Lines paſſing through z the Centre of the Primitive, to the equal Diviſions in the Limb. Parallels of Declination are all leſſer Circles, and parallel to the Equinoctial, and their Interſections with the Meridian are found, by ſetting the Half-tangent of their Diſtance from the Zenith, Southward or Northward, or both Ways from z. Their Centres are found, by biſſecting the Diſtance between thoſe two Points; for the Middle ſhall be the Centre of the Parallel. Thus z ♋ = Half-tangent of 20° 00′ =

$$\left.\begin{array}{l}\text{Diſtance of the Tropick of ♋ from the}\\ \quad\text{Zenith - - - - - - - - -}\\ \text{And ♑ = Half-tangent of 75° = Di-}\\ \quad\text{ſtance of the Tropick of ♑ from}\\ \quad\text{the Zenith - - - - - - - -}\end{array}\right\}\begin{array}{l}\text{to the Southward,}\\ \text{or downward from}\\ z,\end{array}$$

and the Interſection again with the North of the Meridian, is at

$$\left.\begin{array}{l}105^\circ\ 30'\\ 152^\circ\ 30'\end{array}\right\}\text{ for }\left\{\begin{array}{l}\text{♑}\\ \text{♑}\end{array}\right\}\text{ to the Northwards or upward from } z.$$

For the Hour-circles make zc = Tangent of 51° 30′, or P C equal Secant of 51° 30′, draw GCT perpendicular to the produced Meridian: Then, if from c with the Radius zc, you ſet off the Tangents of 15° 30° 45°, *&c.* both ways, you will have the Centres of the ſeveral Hour-circles, 7 and 5, 8 and 4, *&c.* *Note*, In all *Stereographick Projections*, all Diameters are meaſured on the Scale of Half-tangents; and this is the Ground of all Dialling, or the true Projection of the Hour-Circles of the Sphere on any given Plane. See Spherick *Geometry*, Dialling, *&c.*

STEREOGRAPHY, the Art of drawing the Forms of Solids upon a Plane. See Solid.

The Word is form'd from the *Greek*, στέρεος, Solid, and γράφω, I deſcribe.

STEREOMETRY, that Part of Geometry, which teaches how to meaſure Solid Bodies, *i. e.* to find the Solidity or ſolid Content of Bodies; as Globes, Cylinders, Cubes, Veſſels, Ships, *&c.* See Solid and Solidity.

The Methods hereof, ſee under the reſpective Bodies, as Globe, Sphere, Cylinder, *&c.*

The Word is form'd from the *Greek*, στερεὸς, *Solid*, and μέτρον, *Meaſure*. See Cubature.

STEREOTOMY, the Art or Science of cutting Solids, or making Sections thereof; as in Profiles of Architecture, in Walls and other Solids to be cut. See Section.

The Word is form'd from στερεὸς, and τομὴ, Section.

STERILITY, the Quality of ſomething *Barren*; in oppoſition to *Fecundity* See Barrenness and Fecundity.

Sterility was held a grievous Affliction by the Wives of the ancient Patriarchs. Nature has annex'd *Sterility* to all monſtrous Productions, that the Creation might not degenerate. Hence the *Sterility* of Mules, *&c.* See Monster, Mule, *&c.*

The *Sterility* of Mercury, ſays the Alchymiſts, reſembles that of Women who are too cold and moiſt; and who, by being purged and heated, wou'd be raiſed from their *Sterility*, as Mercury is when purged according to the Rules of Art.

The Word is form'd from the *Latin Sterilitas*, of *Sterilis*, Barren.

STERLING, a Term frequent in the *Engliſh* Commerce. A Pound, Shilling, or Penny *Sterling*, ſignifies as much as a Pound, Shilling or Penny of lawful Money of *England*, as ſettled by public Authority. See Pound, Shilling, *&c.*

Our Antiquaries and Criticks are greatly divided, as to the Origin of the Word *Sterling*. *Buchanan* fetches it from the Caſtle of *Striveling* or *Sterling* in *Scotland*, where a ſmall Coin was anciently ſtruck, that in time came to give Name to all the reſt.

Cambden and *Spelman* derive the Word from *Eaſterling*; obſerving, That in the Reign of King *Richard* I. Money coin'd in the Eaſt Parts of *Germany*, began to be of eſpecial Requeſt in *England*, by reaſon of the Purity thereof, and was called *Eaſterling Money*; as all the Inhabitants of thoſe Parts were called *Eaſterlings*; ſome of whom, skill'd in Coinage, were ſoon after ſent for over to perfect the *Engliſh* Money, which was thenceforwards denominated from them, *Sterling* for *Eaſterling*; not, ſays *Cambden* from *Striveling* in *Scotland*, nor from a Star which ſome dream to have been coined thereon; for in old Deeds, the *Engliſh Species* are always call'd *Nummi Eaſterlingi*, which implied as much as good and lawful Money, *&c.*

Somner, again, derives the Word from the *Saxon*, *Steore*, a Rule or Standard; intimating, that this, as to Weight and Fineneſs, was to be the common Standard of all current Money.

In *Stow*, and ſome other of our ancient Writers, *Eaſterling* is uſed for a certain Coin, amounting nearly to our Silver-penny; and on ſome Occaſions we find the ſame Word *Sterling* uſed in the general for any Piece of Money; it being obſervable, that, for a good while together, there was no other Coin but *Pennies*, with which *Sterlings* or *Eſterlings* were become ſynonymous: Much as among the Ancients, the Words *Denarius* and *Nummus* were uſed. See Penny, Denarius, Nummus, *&c.*

STERN *of a Ship*, is all the hindermoſt Part of her, generally ſpeaking; but properly, it is only the outmoſt Part of her, abaft. See Ship, Abaft, *&c.*

Stern, among Hunters, is the Tail of a Grey-hound or a Wolf.

STERNOHYOIDEUS, in Anatomy, a Pair of Muſcles ariſing from the upper and internal Part of the Bone of the Sternum, and part of the Clavicle, and adjoining Part of the firſt Rib, with a broad Origin; and which running from the Aſpera Arteria, Glandulæ Thyroideæ, and Cartilago Scutiformis, terminates in the Baſe of the Os Hyoides. It draws the Bone ſtraight upwards.

STERNOTHYROIDES, in Anatomy, a Pair of Muſcles of the Larynx; ariſing in the Sternum, or Breaſt Bone, and terminating in the Cartilago Thyroides. They ſerve to draw down that Cartilage.

STERNUM, *Breaſt-bone*, in Anatomy, a Bone that makes the Fore-part of the Breaſt, and is ſituated in the middle of the Ribs. See Bone.

In Adults, it conſiſts of one ſingle Piece; but in Infants, of ſeveral, according to the Diverſity of Age. *Kerkringius* tells us, he has never ſeen more than Six. They continue Cartilaginous 'till Seven Years of Age; and are not very Solid afterwards, but Spongeous.

At the lower Extremity of the *Sternum*, is a Cartilage, called *Xiphoides* or *Enſiformis*, becauſe reſembling the Point of a Sword. See Xiphoides, *&c.*

The Uſe of the *Sternum* is to defend the Heart, and to receive the Extremities of the true Ribs. See Rib.

The Word is form'd from the *Latin*, *Sterno*; the Breaſt being, as it were, couch'd upon it.

STERNUTATIVE, or STERNUTATORY, a Medicine proper to occaſion *Sternutation*, or Sneezing.

Sternutatories are of two Kinds, gentle and violent: Of the firſt Kind, are Betony, Sage, Marjoram, Tobacco, *&c.*

Of the latter, are Euphorbium, white Hellibore, Pellitory, *&c.*

Sternutatories have their Effect by their ſharp, pungent Parts vellicating the inner Membrane of the Noſe, which is exceedingly ſenſible, and occaſioning the Serous Matter contained in the Glands of the Noſe, and in ſeveral Sinus's ſituate in the Baſe of the Cranium, and the Os Frontis, to be expell'd. See Nose.

STEW, a kind of ſmall Fiſh-pond, the peculiar Service whereof is, to maintain Fiſh, and keep them in Readineſs, for the daily Uſes of a Family, *&c.* See Fish.

The Fiſh bred in the large Ponds, are drawn and put in here. For two large Ponds of three or four Acres apiece, 'tis adviſeable to have four *Stews*, each two Rods wide, and three long. The *Stews* are uſually in Gardens, or at leaſt near the Houſe, to be more handy, and the better look'd to.

The Method of making them, is to carry the Bottom in a continual Decline from one End, with a Mouth to favour the drawing with a Net. See Pond.

Stews or *Stues*, are Places anciently permitted in *England*, to Women of profeſs'd Incontinency, for the Proffer of their Bodies to all Comers.

Theſe were under particular Rules, and Laws of Diſcipline appointed by the Lord of the Manor.

The Word is probably borrowed from the *French*, *Eſtuves*, hot Baths, in regard Wantons are wont to prepare themſelves for venereal Acts, by Bathing; and that this is not new, *Homer* ſhews in the Eighth Book of his *Odyſſey*.

STEWARD, or *Seneſchal*, an Officer, whereof there are various Kinds; thus call'd from the *Steda*, Stead, Place or Room, and *Weard*, Ward, or Keeper, *q. d.* a Lieutenant; or Perſon appointed in Place of another.

Lord High Steward *of England*, is the firſt and higheſt Officer of the Crown; as having the Power of what We call a *Vice Roy*, the *Danes*, *&c.* *Stadtholder*, and the *Swedes*, *Reichs droſſet*, *q. d.* *Vice Rex*.

The common Lawyers call him *Magnus Angliæ Seneſchallus*. His Office, as expreſs'd in an ancient Record, was to ſuperviſe and regulate the whole Kingdom, both in Time of Peace and War, immediately under the King and after him; an Authority ſo very great, that it was not judged ſafe, to truſt it any longer in the Hands of any Subject.

The Office was Hereditary and Permanent, till the Time of *Henry* IV. ſince whom it has only been made *Pro hac vice*, occaſionally; as to officiate at a Coronation; at the Arraignment and Trial of ſome Nobleman for Treaſon, or other great Crime. During his *Stewardſhip*, he bears a white Staff in his Hand; and the Trial, &c. ended, he breaks his Staff, and with it, his Commiſſion expires.

Lord STEWARD *of the Houſhold*, is an Officer to whom the State of the King's Houſe is committed; to be ruled and guided at his Diſcretion. He has Authority over all Officers and Servants of the King's Houſe, except thoſe of the Chapel, Chamber and Stable; which are under the Lord Chamberlain, Maſter of the Horſe, and Dean of the Chapel. See CHAMBERLAIN, &c.

The *Lord Steward*, by Virtue of his Office, judges of all Enormities, as Treaſons, Murders, Felons, Bloodſheds, &c. committed in the Court, or within the Verge thereof; which is Ten Miles all around the chief Tunnel of the Court (*London*, only, by Charter, exempted).

The ſame Officer miniſters the Oath to the Members of the Houſe of Commons, at the beginning of each Parliament; and at the end of the Parliament, adjuſts the parliamentary Expences.

The Badge of his Commiſſion is a white Staff, which he bears in the King's Preſence; but which at other Times is carried by a Footman bare-headed.

STEWARD *of a Ship*, is he who receives all the Victuals from the Purſer; and is to ſee it well ſtowed in the Hold: all Things of that Nature belonging to the Ship's Uſe, are in his Cuſtody: He looks after the Bread, and diſtributes out the ſeveral Meſſes of Victuals in the Ship. He hath an Appartment for himſelf in the Hold, which is called the *Steward's Room*.

STIGMATA, in Antiquity, certain Marks impreſs'd on the Left Shoulder of the Soldiers, when liſted.

STIGMATA were alſo a kind of Notes or Abbreviations, conſiſting only of Points diſpoſed various Ways, as in Triangles, Squares, Croſſes, &c.

STIGMATA, is alſo a Term introduced by the *Franciſcans*, to expreſs the Marks or Prints of our Saviour's Wounds, impreſs'd by him on the Body of their Seraphic Father, St. *Francis*. See FRANCISCAN.

'Twas one Morning, about the Feaſt of the Exaltation, in the Year 1224, that St. *Francis*, being at Prayers on Mount *Alvernus*, whither he had retired to paſs the *Michaelmas Lent*; ſaw a Seraph with Six burning Wings, in other reſpects like a Man; with his Hands and his Feet ſtretch'd upon a Croſs. With two of the Wings he covered his Body, two were raiſed over his Head, and with two he flew ſwiftly down. Five Rays proceeded from the Five Wounds of the Perſon crucified, and were directed to the ſame Five Parts of the Body of the Saint.

Upon the Viſion's diſappearing, he ſaw the Marks of the Nails, &c. on his Hands and Feet; the ſame as he had ſeen them in the Image of the Crucifix. His Hands and Feet were found pierced with Nails in the Middle; the Heads of the Nails were plainly ſeen within the Fleſh on one Side, and the Points clench'd on the other. On his right Side, appeared a red Scar, as from a Wound of a Spear, which frequently run with Blood, that ſtain'd his Gown, &c.

The good Man, we are told, took a World of Pains to hide the *Stigmata*; but thoſe of his Hands and Feet were ſeen in his Life-time, maugre all his Endeavours, by ſeveral of the Brotherhood, who affirmed it upon Oath, and by ſome Cardinals, ſays St. *Bonaventure*, who atteſted the Miracle both by Word and Writing, and expreſs'd it in the Hymns, Anthems, &c. compoſed in Honour of St. *Francis*.

After his Death, they were ſeen by Fifty of his Religious, as well as by St. *Clara* and her Nuns, and an infinite Number of Seculars; many of whom felt them with their Hands, to be the more certain.

A ſolemn Feaſt was hereupon appointed to be annually celebrated, in Memory of the Miracle, called *The Feaſt of the* Stigmata *of St.* Francis; and a peculiar Maſs or Office compoſed for the ſame.

An Archiconfraternity was erected on the ſame Occaſion, by *Frid. Pizzi*, a *Roman* Chirurgeon in the Year 1594.

STIGMATA, in Natural Hiſtory, are Points, or Specks uſually ſeen on the Sides of the Bellies of Inſects; particularly the Sphondilium, where they are very apparent.

They are nothing but the Extremities of certain Veſſels faſten'd to the Sides in each Knot, and ſerving them for Lungs.

STIBIUM, an ancient Name for Antimony, now ſeldom uſed. See ANTIMONY.

STILE and *Stilus*. See STYLE.

STILES, in Carpentry, &c. are the upright Pieces, which go from the bottom to the top in any Wainſcot.

STILLATITIOUS *Oils*; are ſuch as are procured by Diſtillation, in oppoſition to thoſe got by Infuſion, Expreſſion, &c. See OIL and DISTILLATION.

STILLYARD, in Commerce. The *Company of the* STILLYARD was a Community, or Corporation of foreign Merchants, eſtabliſh'd at *London*; thus call'd, from the Place where they had their Reſidence, called the *Still-yard*, near the Bridge, which was aſſigned them by Act of Parliament; and which, in ſome Records, is called *Guilhalda Teutonicorum*; being, as ſome write, a broad Place or *Yard* where much *Steel* had uſed to have been ſold.

This Company was created in the Year 1215, under *Henry* III. in favour of the free Cities of *Germany*, who had been aſſiſtant to him in his Wars againſt *France*. See COMMERCE.

It had render'd itſelf Miſtreſs of all the *Engliſh* Manufactures, particularly thoſe of Cloth; which it was allowed not only to ſell throughout the Kingdom, but alſo to tranſport Abroad. The Prejudice theſe Privileges did, by which they frequently abuſed the Nation, occaſioned the Company's being broke, by Sentence of the Judges, under *Edward* IV. But it redeem'd its Rights, and laſted to the Year 1552, when it was ſuppreſs'd by *Edward* VI. See HANSE.

STIMULATING, a Property in angular or ſharp Bodies, whereby they cauſe Vibrations and Inflections of the Fibres of the Nerves, and a greater Derivation of nervous Fluid into the Part affected.

Stimulants produce Pain, Heat, Redneſs, &c. They may be reduced to violent penetrating *Depilatories*; gentle *Sinapiſms*, *Veſicatories* and *Cauſticks*. See SINAPISM, VESICATORY, &c.

STING, an Apparatus in the Body of certain Inſects, in manner of a little Spear; ſerving them as a Weapon of Offence.

The *Sting* of a Bee or Waſp, is a curious Piece of Mechaniſm: It conſiſts of an hollow Tube, at the Root whereof, is a Bag full of ſharp, penetrating Juice, which in *Stinging*, is injected into the Fleſh through the Tube.

Within the Tube, Mr. *Derham* has obſerved, there lie two ſmall ſharp-bearded Spears: In the *Sting* of a Waſp, he told Eight Beards on the Side of each Spear, ſomewhat like the Beards of Fiſh-hooks.

One of theſe Spears in the *Sting* or Sheath, lies with its Point a little before the other; to be ready, as ſhou'd ſeem, to be firſt darted into the Fleſh: which once fix'd, by means of its foremoſt Beard, the other then ſtrikes in too; and ſo they alternately pierce deeper and deeper, their Beards taking more and more hold in the Fleſh; after which, the Sheath or *Sting* follows, to convey the Poiſon into the Wound; which, that it may pierce the better, is drawn into a Point, with a ſmall Slit below that Point, for the two Spears to come out at.

By means of theſe Beards it is, that the Animal is forced to leave its *Sting* behind it, when diſturb'd, e'er it can have Time to withdraw the Spears into their Scabbard.

STINK or STENCH, a diſagreeable Smell exhaling from a corrupted or other Body; and which is prejudicial to the Noſe and Brain. See SMELL.

A *ſtinking* Breath, is uſually the Reſult either of diſeaſed Lungs, or of ſcorbutick Gums, &c.

A *ſtinking* Noſe, *fœtor Naris*, is the Reſult of a deep Ulcer within the Noſe, whence ariſe fetid Scabs, &c. Its Cauſe, according to *Galen*, is a ſharp, putrid Humour falling from the Brain, or the *Proceſſus Mamillares*.

A *ſtinking* Noſe is reckoned by the Civilians, one of the legal Cauſes of annulling Marriage.

STIPEND, *Stipendium*, among the *Romans*, ſignified the ſame with *Tribute*; and hence *Stipendiarii* were the ſame with *Tributarii*. See TRIBUTE.

STIPULATION, in the Civil Law, the Act of *Stipulating*; that is, of treating and concluding of Clauſes and Conditions to be inſerted in a Contract. See TREATY and CONTRACT.

Stipulations were anciently performed at *Rome*, with abundance of Ceremonies; the firſt whereof was, that one Party ſhould interrogate, and the other anſwer, to give his Conſent and oblige himſelf.

By the ancient *Roman* Law, no Body could *Stipulate*, but for himſelf; but as the *Tabelliones* were publick Servants, they were allowed to *Stipulate* for their Maſters; and the Notaries ſucceeding the *Tabelliones*, have inherited the ſame Privilege.

The Word is form'd from the *Latin*, *Stipula*, a Straw; becauſe in making a Sale, a Straw was given the Purchaſer, in ſign of a real Delivery.

Which Cuſtom is ſtill retain'd in ſome Parts of *France*, particularly at *Verdun*: The Cuſtom always has been on this Occaſion, for the two Parties to break a Straw between them, and each take his Moiety; which they afterwards join'd again, to recognize their Promiſe.

The *Stipulation* had its Origin in the *Lex Aquilia*, and another Law of the Emperor *Arcadius*.

STIRROP, a Reſt or Support for the Horſe-man's Foot; ſerving to keep him firm in his Seat, and enable him to mount. See SADDLE.

The great Art of a Cavalier in a Tournament, was to make his Antagoniſt loſe his *Stirrop*.

For Combating, 'tis a Rule to have the Right Foot *Stirrop* ſomewhat ſhorter than the other.

Matthiolus obſerves, that the *Turks* have a knack of poiſoning their *Stirrops*, with ſo ſubtile and penetrating a Poiſon, that it makes its Way through the Boots, and kills the Rider. F. *le Compte* tells us, that the *Tartars* ride croſs-leg'd, and with their *Stirrops* exceedingly ſhort.

Stirrops are allowed a modern Invention. *Menage* obſerves, that St. *Jerom* is the firſt Author who mentions them.

STOCK, in Gardening, *&c.* the Stem or Trunk of a Tree. See Stem.

For *Stocks of Fruit-trees*; the beſt to *Graft* on; are thoſe rais'd of Kernels of Wildings and Crabs of the moſt thriving Trees.

Though the Fruit always take after the Graft; yet the *Stock* has ſome Influence. A wild *Stock* is always found to enliven a dull Apple. See Engrafting.

To have a Quantity of *Stocks* to graft on; old Trees are to be cut down within two Inches of the Ground, which will cauſe a multitude of Suckers to riſe from the Roots. When theſe are riſen Half a Yard, they are to be covered up with good Earth a Foot thick, and aſſoon as they have put forth Roots, in Winter are to be conveyed into the Nurſery, where, in a Year or two, they will be ready to Graft. *Cherry Stocks*, *Plumb Stocks* and *Pear Stocks* may be thus raiſed from Suckers, as well as Stones or Seeds; but thoſe raiſed this latter way are prefer'd. See Fruit-*Tree*, *&c.*

STOCK-FISH or STOCKFISCH, in Commerce, a kind of dried, ſalted Fiſh; of a greyiſh Aſh-colour, only the Belly ſomewhat whiter. See Fish.

The Commerce of *Stock-fiſh* is very conſiderable in *Holland*, both from the great Conſumption thereof in the Country, and from their Victualling their Veſſels therewith. 'Tis ſaid to take its Name, from being as hard as a *Stock*, or from its needing to be beaten with a Stick, to fit it for Eating. See Fishery.

STOCKING, that Part of the Cloathing of the Leg and Foot, which immediately covers their Nudity, and ſkreens them from the Rigor of the Cold. Anciently, the only *Stockings* in Uſe, were made of Cloth or mill'd Stuffs ſew'd together; but ſince the Invention of knitting and weaving *Stockings* of Silk, Wooll, Cotton, Thread, *&c.* the Uſe of *cloth Stockings*, is quite out of Doors.

The modern *Stockings*, whether wove or knit, are a kind of Tiſſues form'd of an infinite Number of little Knots, call'd *Stitches*, *Loops* or *Maſhes*, intermingled in one another.

Knit Stockings are wrought with Needles made of poliſh'd Iron or Braſs Wire, which interweave the Threads, and form the Maſhes the *Stocking* conſiſts of. This Operation is call'd *Knitting*; the Invention whereof it were difficult to fix preciſely; though its commonly attributed to the *Scotch*, on this ground, that the firſt Works of this Kind came from thence. 'Tis added, that it was on this Account, that the Company of *Stocking-knitters* eſtabliſh'd at *Paris* in *1527*, took for their Patron St. *Fiacre*; who is ſaid to have been the Son of a King of *Scotland*.

Wove Stockings, are ordinarily very fine: They are manufactured on a Frame Machine made of poliſh'd Iron; the Structure whereof is exceedingly ingenious, but withal exceedingly complex, ſo that 'twere very difficult to deſcribe it well, by reaſon of the Diverſity and Number of its Parts; nor is it even conceived, without a deal of Difficulty, when working before the Face.

The *Engliſh* and *French* have greatly conteſted the Honour of the Invention of the *Stocking-loom*; but the Matter of Fact, waving all national Prejudices, ſeems to be this; That 'twas a *Frenchman* firſt invented this uſeful and ſurprizing Machine; who, finding ſome Difficulties in procuring an excluſive Privilege, which he required, to ſettle himſelf at *Paris*, went over into *England*, where his Machine was admired, and the Workman rewarded according to his Merit.

The Invention thus imparted to the *Engliſh*; they became ſo jealous hereof, that for a long Time it was forbid, under Pain of Death, to carry any of the Machines out of the Iſland, or communicate a Model thereof to Foreigners. But as 'twas a *Frenchman* firſt inrich'd our Nation with it, ſo a *Frenchman* firſt carried it Abroad; and by an extraordinary Effort of Memory and Imagination, made a Loom at *Paris*, on the Idea he had form'd thereof, in a Voyage he made to *England*. This Loom firſt ſet up in the Year *1656*, has ſerved for the Model of all thoſe ſince made in *France*, *Holland*, *&c.*

STOCKS, in Ship-Carpentry, a Frame of Timber, and great Poſts, made aſhore, to build Pinnaces, Ketches, Boats and ſuch ſmall Craft, and ſometimes ſmall Frigates upon. See Ship and Vessel.

Hence we ſay, a Ship is on the *Stocks*, when ſhe is a building.

STOICISM, the Doctrines and Opinions of *Zeno*'s Followers, call'd *Stoicks*. See Stoicks.

STOICKS, a Sect of ancient Philoſophers, the Followers of *Zeno*; thus call'd from the *Greek*, ϛοὰ, *Portico*, in regard *Zeno* uſed to teach under a Portico or Piazza. See Philosophy.

The Author of this Sect, *Zeno*, was of *Citium*, a Town in *Cyprus*, inhabited by a Colony of *Phœnicians*; whence he is ſuppoſed to have borrowed many of his Dogmata from the *Phœnician* Philoſophy, which many learned Men have ſhewn was, itſelf, borrowed from the *Jewiſh* or *Moſaic* Philoſophy; though it muſt be allowed, there appear as many Things in the *Stoick* Philoſophy, borrowed from *Plato*'s and *Socrates*'s School, as from that of *Moſes*.

Zeno making a trading Voyage from *Cittium* to *Athens*, richly loaden with *Tyrian* Purple, was Shipwreck'd not far from Port; upon which, we are told, conſulting the Oracle how he ſhou'd beſt ſpend the reſt of his Life, he was anſwer'd, εἰ ζυγχρωτιζοιτο τοῖς νεκροις, By becoming of like Colour with the Dead; upon which he applied himſelf to the Study of the ancient Philoſophers; became a Hearer of *Crates* the *Cynic*; but *Laertius* tells us, he had too much natural Modeſty to give in to the *Cynic* Impudence.

From *Crates*, he had recourſe to *Xenccrates*, then to *Polemon*; and at length began to think of inſtituting a new Sect.

To this Purpoſe, a ϛοὰ, *Portico*, call'd from the Pictures of *Polignotus* therein, the *painted Portico*, was pitch'd on. Here uſing to walk and philoſophize; he was ſoon attended by a great Number of Diſciples, hence call'd Στωϊκοὶ, *Stoici*.

He became exceedingly reverenc'd at *Athens*, for the Probity and Severity of his Life and Manners, and the Conſiſtency thereof with his Doctrine; inſomuch that the *Athenians* decreed him, when living, a golden Crown, and uſed in dubious Times to depoſite the Keys of the City with him; and after his Death, conſecrated an Altar to him.

One of his chief Followers was *Cleanthes*, who was ſucceeded by *Chryſippus*, and he by *Diogenes Babylonius*, *Antipater*, *Panætius* and *Poſſidonius*, among the *Greeks*; and by *Cato*, *Varro*, *Cicero*, *Seneca*, the Emperor *Antoninus*, *&c.* among the *Romans*; and by *Pantænus*, and *Clemens Alexandrinus*, among the Chriſtians.

The *Stoicks* cultivated Logicks, Phyſicks, Metaphyſicks, *&c.* but principally Ethicks. The principal of their Dogmata of the former Kinds, are as follows.

That there are certain καταλήψεις, Comprehenſions; which others call κοινὰς ἐννοίας, common Notices or innate Ideas or Principles; and *Cicero*, *Inchoatæ Intelligentiæ*, Beginnings of Underſtanding; naturally found in the Mind: That God is the ſeminal Cauſe of the Univerſe: That the World is an Animal; which Opinion the *Stoicks* maintain'd in common with the *Platoniſts*, by reaſon of God's inhabiting and informing every Part thereof, in quality of an *Animi Mundi*. See Anima. That Nature is an artificial Fire, tending to Generation: And, that the World is to be deſtroy'd at laſt by a Conflagration.

For the Morality of the *Stoicks*; 'twas couch'd much in Paradoxes: as, That a wiſe Man is void of all Paſſion or Perturbation of Mind: That Pain is no real Evil; but that a wiſe Man is happy in the midſt of the ſevereſt Torture: That a wiſe Man is always the ſame, and always joyful; That none but a wiſe Man is free; all others are Servants; That none but a wiſe Man is Rich; That none but a wiſe Man ought to be eſteem'd a King, Magiſtrate, Poet or Philoſopher; That all wiſe Men are great; That all Things are a wiſe Man's, who is contented with himſelf; That wiſe Men are the only Friends, and the only Lovers; That nothing ever happens to a wiſe Man beyond Expectation; That all Virtues are inſenſibly connected together; That all good Things are equal, and equally to be deſired; and that Goodneſs admits of no Increaſe or Diminution. Whether Virtue might be loſt or no, was hotly diſputed among them; *Chryſippus* held it might, by Drunkenneſs and Atrabilis; *Cleanthes*, that it could not, by reaſon of the firm καταλήψας, Comprehenſions.

They own'd but one God; whom, however, they call'd by various Names, as *Mind*, *Fate*, *Jupiter*, *&c.* by which they did not mean various Things; but various Powers and Relations of the ſame Things. Providence, they expreſs'd under the Name of *Fate*, which *Chryſippus* defines to be a natural Series or Compoſition of Things mutually following each other by an immutable Nexus or Tie fix'd from all Eternity. Laſtly, they held, That the human Soul ſurvived after Death. See Fate, *&c.*

STOLE, STOLA, a ſacerdotal Ornament, wore by the *Romiſh* Pariſh Prieſts over the Surplice, as a Mark of Superiority in their reſpective Churches; and by other Prieſts over the Alb, at celebrating of Maſs; in which Caſe, it goes acroſs the Stomach; and by Deacons over the Left Shoulder, Scarf-wiſe. When the Prieſt reads the Goſpel for any one, he lays the Bottom of his *Stole* on his Head.

The *Stola* is a broad Swath or Slip of Stuff, hanging from the Neck to the Feet, with Three Croſſes thereon.

The Biſhops anciently pretended, that the Pariſh Prieſts were never to appear before them, but in their *Stoles*. In

Flanders and *Italy*, they always preach in *Stoles*. 'Tis ſuppoſed to be a Repreſentation of the Extremities of the long Robe wore by the ancient High Prieſts. The Word is *Greek*, ϛολη, ſignifying a long Robe or Veſtment.

The *Stola* of the ancient *Romans*, *&c.* was very different from that now in Uſe; that being a kind of Robe fitter for Women than Men; tho' 'twas held a Robe of Honour among all Nations. Kings themſelves ſometimes uſed it, and ſometimes beſtowed it as a Reward of Virtue.

Groom of the Stole, the eldeſt Gentleman of his Majeſty's Bed-chamber; whoſe Office and Honour it is, to preſent and put on his Majeſty's firſt Garment or Shirt every Morning; and to order the Things in the Chamber. See Bed-*Chamber*.

Order of the Stole, an Order of Knights inſtituted by the Kings of *Arragon*; though as to the particular Author, or Time of the Inſtitution, we are in the Dark. The firſt Time we hear of it, is under *Alphonſus* V. who mounted the Throne in 1416. *Juſtiniani* takes it to have been inſtituted about the Year 1332.

Order of the Golden Stole, a military Order at *Venice*; thus called from a golden *Stole* which the Knights wear over the Left Shoulder, reaching to the Knee, both before and behind, a Palm and a Half broad. None are raiſed to this Order but the *Patricians* or noble *Venetians*. *Juſtiniani* obſerves, That the Time of the Inſtitution of this Order is unknown.

STOMACH, *Ventricle*, in Anatomy, *&c.* a hollow, membranous Organ, deſtined to receive the Food, and convert it into Chyle. See Food, Digestion, Chyle, *&c.*

Its Form is longiſh, compared by ſome to a Gourd; by others to a Bag-pipe. 'Tis ſituate in the Epigaſtrium, declining a little further to the Left than the Right. Its upper Part is connected to the Diaphragm, the bottom to the Cawl; the right Side to the Duodenum, and the Left to the Spleen.

It has two Orifices, one at each end. The Left Orifice is called ϛομαχ☉, from ϛομα, Mouth; and alſo καρδια: This is join'd to the OEſophagus, of which it ſeems to be only a Continuation: By this Orifice, the Aliments enter the Stomach; where being digeſted, they aſcend obliquely to the *Pylorus*, or right Orifice, which is united to the firſt of the Inteſtines. See Pylorus.

The *Stomach* conſiſts of four Membranes or Coats; the firſt and inmoſt is form'd of ſhort Fibres, which ſtand perpendicularly upon the Fibres of the next Coat; they are to be ſeen plainly towards the Pylorus: when the *Stomach* is diſtended with Meat, theſe Fibres become thick and ſhort. Whilſt they endeavour to reſtore themſelves by their natural Elaſticity, they contract the Cavity of the *Stomach* for the Attrition and Expulſion of the Aliments. This Coat is much larger than the reſt, being full of Plaits and Wrinkles, and chiefly about the Pylorus: Theſe Plaits retard the Chyle, that it run not out of the *Stomach* before it be ſufficiently digeſted. In this Coat, there are alſo a great Number of ſmall Glands which ſeparate a Liquor, which beſmears all the Cavity of the *Stomach*, and helps the Concoction of the Aliments; for which Reaſon this Coat is called the *Tunica Glanduloſa*.

The Second is much finer and thinner; it is altogether Nervous; is of an exquiſite Senſe, and is called *Nervoſa*.

The Third is Muſcular, being made of ſtreight and circular Fibres; the ſtreight run upon the upper Part of the *Stomach*, between its ſuperior and inferior Orifices, and the circular run obliquely from the upper Part of the *Stomach* to the Bottom. Of theſe, the innermoſt deſcends towards the right Side, and the outermoſt towards the Left; ſo that by their Action, both Ends of the *Stomach* are drawn towards its Middle, and the whole is equally contracted; by their Contraction and continual Motion, the Attrition and Digeſtion of the Aliments, is in great meaſure performed.

The fourth Tunic is common; it comes from the Peritonæum. The *Stomach* ſends Veins to the Portæ, and Branches to the Gaſtroepiplois, accompanied with others of the Cœliac; all lying immediately under the fourth Coat.

The Eighth Pair of Nerves gives two conſiderable Branches to the *Stomach*, which are ſpread much about the upper Orifice; by which it is render'd very ſenſible; whence alſo, proceeds the great Sympathy betwixt the *Stomach*, Head and Heart; on account whereof, *Van Helmont* thought, that the Soul had its Seat in the upper Orifice of the *Stomach*.

For the Motion of the Stomach; Dr. *Pitt* in the *Philoſophical Tranſactions*, acquaints us, that in diſſecting a Dog, he found the periſtaltic Motion of the Guts continued through the *Stomach*; the Pylorus, which is uſually found as high as the Diaphragma, being, in every Undulation, brought below the very bottom of the *Stomach*; ſo that he could manifeſtly obſerve a Conſtriction in the middle of the *Stomach*, at every Motion downwards, paſſing it in, ſo as to be able to compreſs whatever was contained in its Cavity. Theſe Motions, he obſerves, were as regular as any he ever obſerved in the Guts; and adds, That he has ſince obſerved the ſame in three others; whence one may ſafely enough conclude it holds of all. See Peristaltic.

Hence, we eaſily ſee the Reaſon of the quick Diſtribution of the Nouriſhment; the Food being no ſooner opened by the Drink and Spittle, *&c.* than it has a free Motion through the Pylorus into the Inteſtines, from this Compreſſion in the middle of the *Stomach*. See Intestines.

Ruminating Animals have four *Stomachs*; yet 'tis obſerved that ſome of theſe, which have four in *Europe*, have only two in *Africa*, probably by reaſon the Herbs in *Africa* are more nouriſhing. See Ruminant.

Birds that live ordinarily of Seeds, cover'd with a tough Rind, have a kind of *Stomach* call'd the *Crop* or *Gizzern*, conſiſting of four large Muſcles without-ſide, and a hard callous Membrane within. See Gizzern.

Such as live on Fleſh, as Eagles, Vulturs, *&c.* have only one. See Carnivorous, Granivorous, *&c.*

STOMACHIC, a Medicine that ſtrengthens the *Stomach*; and promotes the Office of Digeſtion. See Stomach.

Of this Kind are Wormwood, Rhubarb, Mint, Maſtic, Aloes, Pepper, Cinnamon, Aromatick Bitters, *&c.* good Wine is alſo a *Stomachic*.

Stomachic, in Anatomy, is applied to the Arteries, Veins, *&c.* of the *Stomach*; call'd alſo *Gaſtric*. See Gastric.

The *Stomachic Veins* terminate in the Trunk of the Vena Porta, and the Splenic Vein.

The *Stomachic Arteries* ariſe from the Cœliac.

The *Stomachic Nerves* come from the Eighth Pair.

STONE, in Natural Hiſtory, a hard, ſolid, mineral Body, neither fuſible nor malleable, form'd, in Succeſſion of Time, in the Body of the Earth. See Fossil.

Origin and Formation of Stones.

For the Origin and Formation of *Stones*, M. *Tournefort*, on his Return from the *Eaſt*, in the Year 1702, propoſed to the *Royal Academy*, a new Theory.

On a curious Survey of the famous Labyrinth of *Crete*, he obſerved, that ſeveral People had Engraven their Names in the living Rock, whereof its Walls are form'd; and, what was very extraordinary, the Letters whereof they conſiſted, inſtead of being hollow, as they muſt have been at firſt (being all cut with Knife-points) were prominent, and ſtood out from the Surface of the Rock, like ſo many Baſſo-Relievo's. See Labyrinth.

This is a Phænomenon no otherwiſe accountable for, than by ſuppoſing the Cavities of the Letters fill'd inſenſibly, with a Matter iſſuing from out of the Subſtance of the Rock; and which even iſſued in greater Abundance than was neceſſary for filling the Cavity. Thus is the Wound made by the Knife healed up, much as the Fracture of a broken Bone is conſolidated by a Callus, form'd of the extravaſated nutritious Juice, which riſes above the Surface of the Bone: And this Reſemblance is the more juſt; as the Matter of the Letters was found whitiſh, and the Rock itſelf greyiſh.

Something very like it, is obſerved in the Barks of Trees, wherein Letters have been cut with the Knife; ſo that the Poet had Reaſon to ſay, That the Characters grew as the Trees themſelves grew: *Creſcent illæ, creſcetis amores.*

M. *Tournefort* ſupports his Opinion by ſimilar Calus's apparently form'd in ſeveral other *Stones*, which re-unite them, after, by Accident, they have been broken.

From theſe Obſervations, it follows, that there are *Stones* which grow in the Quarries, and of Conſequence that are fed; that the ſame Juice which nouriſhes them, ſerves to rejoyn their Parts when broken; juſt as in the Bones of Animals, and the Branches of Trees, when kept up by Bandages; and in a Word, that they vegetate.

There is, then, no room to doubt but that they are organized; or that they draw their nutritious Juice from the Earth. This Juice muſt be firſt filtrated and prepared in their Surface; which may be here eſteem'd as a kind of Bark, and hence it muſt be convey'd to all the other Parts.

'Tis highly probable, the Juice which fill'd the Cavities of the Letters, was brought thither from the bottom of its Roots; nor is there any more Difficulty in conceiving this, than in comprehending how the Sap ſhould paſs from the Roots of our largeſt Oaks, to the very Extremities of their higheſt Branches.

It muſt be owned, the Heart of theſe Trees is exceedingly hard; and yet thoſe of *Braſil*, call'd *Iron Wood*, Guiacum and Ebony, are much harder. Coral is as hard in the Sea as out of it; and Sea Muſhrooms, which every Body allows to grow, are true *Stones*, and ſo, like the common *Stones*, are uſed in *America* to make Lime of.

None, we believe, ever doubted that Shells grow by means of a nutritious Juice; and yet this Juice is convey'd along the narrow Canals of theſe exceſſively hard Bodies, as well as through thoſe of Plants, which are much leſs hard. See SHELL.

Some *Stones*, then, muſt be allow'd to vegetate and grow like Plants: But this is not all; probably they are generated in the ſame Manner; at leaſt there are abundance of *Stones*, whoſe Generation is inconceivable, without ſuppoſing they come from a kind of Seed, wherein the organical Parts of the *Stones* are wrapped up in little; as thoſe of the largeſt Plants are in their Grains.

The *Stones*, call'd *Cornu Ammonis*, *Lapis Judaicus*, *Aſtroites*, thoſe of *Bologne* and *Florence*, the ſeveral kinds of Pyrites, Sea Muſhrooms, Cryſtals of the Rock, and an Infinity of other *Stones*, ſuppoſe their ſeveral Seeds; as much as Muſhrooms, Truffles, and various Kinds of Moſſes, whoſe Seeds were never yet diſcovered. See MUSHROOM, CRYSTAL, CORAL, &c.

How ſhould the *Cornu Ammonis*, which is conſtantly in Figure of a Volute, be form'd without a Seed, containing that ſame Structure in little? Who moulded it ſo artfully? And where are the Moulds? Far from this, theſe Kinds of *Stones* are found in the Earth, like common Flints. Nor were either Moulds or any thing like them, ever diſcover'd. See CORNU *Ammonis*.

M. *Tournefort* examines the ſeveral Kinds of *Stones* above-mentioned, and finds them under the ſame Neceſſity of Seed. Again, that immenſe Quantity of Flints, wherewith the *Crau of Arles* is cover'd, is a ſtrong Argument in behalf of this Theory.

The Country there, for 20 Miles round, is full of roundiſh Flints; which are ſtill found in equal abundance, to whatever Depth you dig. M. *Pereiſc*, who firſt propoſed the Generation of *Stones* by means of Seeds (though he took the Word *Seed* in a very different Senſe from M. *Tournefort*) firſt brought this extraordinary Campagne as a Proof thereof. In effect, how could ſo many ſimilar Flints be form'd? There is no ſaying they are coeval with the World, without aſſerting at the ſame time, That all the *Stones* in the Earth were produced at once; which were to go directly contrary to the Obſervations above-mentioned.

Among the Seeds of *Stones*, M. *Tournefort* obſerves, there are ſome, which don't only grow ſoft by the Juices of the Earth, but even become liquid. Theſe, then, if they penetrate the Pores of certain Bodies, grow hard, petrify and aſſume the Figure or Impreſſion of the Body: Thus what we call *Pectinites*, *Conchites*, *Mytulites*, *Oſtracites*, *Nautilites*, *Echinites*, &c. are real *Stones*, the liquid Seeds whereof have inſinuated into the Cavities of the Shells, call'd *Pecten*, *Concha*, *Mytulus*, *Oſtrea*, *Nautilus*, *Echinus*.

On the contrary, if thoſe liquid Seeds fall on Flints, on Shells, Sand, &c. they incloſe thoſe ſeveral Bodies, and fixing between them, form a kind of Cement, which yet grows like other *Stones*. 'Tis highly probable that ſuch Rocks as are only an Aſſemblage of maſticated Flints have been form'd by a Number of theſe liquid Seeds; in like Manner as the Quarries full of Shells; unleſs the Rocks have envellop'd theſe Bodies in their Growth.

He adds, that there are Seeds of real *Stones* incloſed in the Spawn of certain Shell-fiſh; as well as that hard ſolid Matter deſtin'd to the forming their Shells.

There is a particular Kind of Shell-fiſh, call'd *Pholas*, which is never found any where but in Cavities of Flints, which are always found exactly fitted to receive them. Now, 'tis highly improbable the Fiſh ſhould come and dig ſuch a Nitch to ſpawn in; 'tis much more likely, the *Stones* they are found incloſed in, were at firſt ſoft; and that the Matter they are form'd of, was originally found in the Spawn, in like Manner as the Matter which forms the Egg-ſhell, is really found in the Seed thereof.

From the whole, he concludes, that the Seed of *Stones*, and even of Metals, is a kind of Duſt, which probably falls from them while they are alive, *i. e.* while they continue to vegetate as above. This Duſt may be compared to the Seeds of ſeveral Plants, as thoſe of Ferns, Capillaries, Moſſes, Truffles, &c. which no Microſcope e'er yet diſcover'd; though their Exiſtence is not at all doubted.

Probably Flints and Pebbles are among *Stones*, what Truffles are among Plants: Nor is this Opinion new; *Pliny* aſſures us, That *Theophraſtus* and *Mutianus* believed, that *Stones* produced *Stones*: And *Gregory Nazianzen* adds, that there were Authors who even believed that *Stones* made Love, Ἔϛι καὶ ἀψύχοισι γάμος καὶ ϑεσμὸς ἔρωτος, *Poem. de Virgin.*

M. *Geoffroy* accounts for the Origin and Formation of *Stones*, in a different Manner.

He lays it down as a Principle, that all *Stones*, without Exception, have been Fluid; or at leaſt a ſoft Paſte, now dried and harden'd; witneſs the *Stones* wherein are found foreign Bodies; witneſs, alſo, figured *Stones*, &c.

On this Principle, he examines the Formation of the different Kinds of *Stones*; and ſhews, that the Earth alone ſuffices for the ſame, independent of all Salts, Sulphurs, &c. The metallic Particles contain'd in Flints, give them their Colour; but theſe are only Accidents; for Proof of which, he inſtances the Saphirs and Emeralds of *Auvergne*, which loſe all their Colour by a moderate Fire conſuming their metallic Parts; but without any Damage to their Tranſparence; they being hereby render'd mere Cryſtals.

To view Rock Cryſtal, indeed, one would not take it for Earth; and yet Earth it muſt be, not Water congeal'd, as the Ancients imagin'd. See CRYSTAL.

Mr. *Geoffroy* conceives two Kinds of little primitive Parts in the Earth: Thoſe of the firſt Kind, are exceedingly fine, thin Lamellæ, equal to each other, or nearly ſo. Now, when theſe meet together, from any Cauſe whatever, in a ſufficient Quantity; the Regularity and Equality of their Figures determines them to range themſelves equally and regularly; and thus to form a homogeneous Compound, which is very hard, from the immediate Contact of the Parts, and very tranſparent, by reaſon of their regular Diſpoſition which leaves a free Paſſage to the Rays of Light every Way; and this is Cryſtal. See CRYSTAL.

The Parts of the ſecond Kind have all kinds of irregular Figures; and muſt accordingly form Aſſemblages that are much opaker and leſs hard. Now Cryſtal is form'd wholly of Parts of the firſt Kind; and all other *Stones* of a Mixture of the two kinds of Parts together: This Mixture is abſolutely neceſſary, in order to unite and bind together the Parts of the ſecond Kind, and give them a Hardneſs and Conſiſtence, without which they would only make a Sand or Duſt. Water, now appears the fitteſt Vehicle, to carry the Parts of the firſt Kind. This is ſeen from ſeveral petrifying Springs, which incruſtate the Pipes through which their Waters are convey'd, or even ſolid Bodies laid in them for ſome time. The Water does not diſſolve thoſe earthy Parts; it only keeps them in Fuſion, as it does the Juices wherewith Plants are fed.

This Water, thus charged with earthy Particles of the firſt Kind, M. *Geoffroy* calls the *Stony* or *Cryſtalline Juice*, whereof thoſe Bodies are primarily form'd.

STONES are of various Kinds, with regard to the Places they are produced in: the moſt ordinary are under Ground; others in the Bodies of Men and other Animals; others ſeem to be generated by the Sea, as Pumice, &c. and others, the Effect of a petrifying Virtue in certain Waters.

Of theſe, ſome ſerve ſimply for Magnificence and Ornament; as all thoſe called

Precious STONES; which make the Commerce of Lapidaries and Jewellers. See PRECIOUS *Stone*.

Others, much uſefuller, if one might credit all the Virtues attributed to them, are uſed in Medicine, ſuch as *Bezoards*, *Jews Stone*, *Eagles Stone*, &c. See BEZOARD, &c.

Others, again, are uſed in Painting; either to prepare Colours from, by calcining and grinding them, or to be uſed as Crayons or Pencils for Deſigning; of which Number are the *Armenian Stone*, *Black Lead*, *Ruddle*, &c.

Laſtly, much the greateſt Quantity, and thoſe too of the moſt immediate and common Uſe, are thoſe employ'd in Building; ſuch as *Free-ſtone*, *Marble*, *Lime-ſtone*, *Fire-ſtone*, &c. each of which ſee under their proper Articles.

A Scheme of the ſeveral Kinds of STONES *from Biſhop* Wilkins.

Stones are either *Vulgar*, *Middle-priced*, or *Precious*.

1. *Vulgar* STONES, or ſuch as are of little Price, are diſtinguiſhable by their different Magnitudes, Uſes, and Conſiſtence, into the

Greater Magnitudes of *Stone*, uſed either about
- Buildings, whether of
  - Walls; chiefly being of a
    - ſofter Conſiſtence, whether Natural or Factitious.
      - 1 *Free Stone* / Brick
    - Harder Conſiſtence; not eaſily yielding to the Tool of the Workman, growing either in
      - 2 Great Maſſes. Ragg / Leſſer Maſſes; whether ſuch as are for their Figure,
        - More knobbed, and unequal; uſed for the ſtriking of Fire, either the more common, which is leſs heavy; or the leſs common, which is more heavy, as having ſomething in it of a metalline Mixture.
          - 3 Flint. / Marchaſite, *Fire-ſtone.*
        - More round and even.
          - 4 Pebble.
  - Roof, or Pavement, being of a laminated Figure, either Natural or Factitious.
    - 5 Slate / Tile
- Metals, either for the

Sharpening, or trying of them
6 { *Whet-ſtone.*
{ *Touch-ſtone.*
Poliſhing, or cutting of them; being either of a more ſpongy and ſoft, or of a more hard Conſiſtence.
7 { Pumice.
{ Emery.
Leſſer Magnitudes, either more, leſs or minute.
8 { Sand.
{ Gravel.

2. *Middle priced* STONES, are either of a

Shining Politure, or capable of it; whether of a
Simple white Colour, and more ſoft Conſiſtence,
1. Alabaſter.
Sometimes White, ſometimes Black or Green, and ſometimes variegated with Veins, growing in greater or leſſer Maſſes.
2 { Marble, Porphyry,
{ Agat.
Spotted with Red, upon a greeniſh Colour, or with Spots of Gold-colour upon Blue.
3 { Jaſpis, Heliotrope.
{ Lazul, Azure *Stone*.
Tranſparency, either
Brittle; whether Natural or Factitious
4 { Cryſtaline
{ Glaſs,
Fiſſil into Flakes, either greater or leſſer.
5 { Selenite, *Muſcovia* Glaſs, Iſing Glaſs, Spar.
{ Talk.
Relation to Metals, attracting Iron, or making of Braſs.
6 { Load-*ſtone*
{ Cadmia, Calaminaris.
Incombuſtible Nature.
7 Amiantus.
Strange Original; not being properly Minerals, though uſually reckoned amongſt them; but either a ſubmarine Plant, or ſuppoſed to proceed from a liquid Bitumen.
8 { Coraline.
{ Amber.

3° *Precious* STONES; which ſee under the Article PRECIOUS *Stone*.

STONE is alſo a certain Quantity or Weight of ſome Commodities:

A *Stone* of Beef at *London*, is the Quantity of Eight Pounds: In *Herefordſhire*, Twelve Pounds; in the *North*, Sixteen Pounds. A *Stone* of Glaſs is Five Pounds; of Wax, Eight Pounds.

A *Stone* of Wooll (according to the Statute 11. *H.* 7.) ought to weigh Fourteen Pounds, yet in ſome Places it is more, in others leſs; as in *Glouceſterſhire*, Fifteen Pounds; in *Herefordſhire* Twelve Pounds.

Among Horſe-Courſers, a *Stone* is the Weight of Fourteen Pounds.

Building STONE: Of this there are ſeveral Kinds; the principal among us, are *Marble*, *Fire-ſtone*, *Purbec-ſtone*, *Rag-ſtone*, *Alabaſter*, *Free-ſtone* and *common Stone*; of all which, except the two laſt, we have ſpoke under their proper Article; which ſee.

For *Free-ſtone*, that dug in the Peninſula of *Portland*, and thence call'd *Portland-ſtone*, is much uſed; being ſofter and whiter than *Purbec-ſtone*, and is commonly raiſed out of the Quarries in bigger Blocks than that. Some alſo call *Rigate* or *Fire-ſtone*, *Free-ſtone*.

Mr. *Boyle* obſerves, That a competent Knowledge of the Manner of the Sap or Juice found in *Stones* uſed in Building, is of the laſt Importance; the ſame *Stone* dug out of the ſame Quarry at one Seaſon, being found to moulder away in a few Winters, which dug at another Seaſon, will brave the Weather for many Ages; and that there are others, which though dug at the proper Seaſon, yet make but ruinous Buildings, if uſed at an improper Seaſon.

The ſame Author adds, That as there are ſome ſort of *Stones* which will decay in a few Years, there are others will not have attain'd their full Hardneſs in 30 or 40 Years, or even much more. See PORPHYRY.

For the drawing of STONE *out of the Quarry.* See QUARRY.

Precious STONE	See	PRECIOUS.
Bolonian STONE		BOLONIAN.
Eagles STONE		ÆTITES.
Jewiſh STONE		JUDAICUS.
Pumice STONE		PUMICE.
Touch STONE		TOUCH.
Emery STONE		EMERY.
Infernal STONE		LAPIS.
Calamine STONE		CALAMINARIS.
Philoſophers STONE		PHILOSOPHERS.

STONE, in Medicine, a Diſeaſe call'd alſo *Calculus*, and *Lithiaſis*; and, occaſionally, the *Gravel*. See CALCULUS, LITHIASIS and GRAVEL.

It conſiſts of a *ſtony* Concretion, form'd either in the Bladder or Kidneys; which prevents the Diſcharge of Urine, and occaſions violent Pains. See BLADDER and KIDNEYS.

The *Stone* is generated, according to ſome Authors, of the earthy viſcid Parts of the Blood, harden'd, in courſe of Time, by the Heat of the Kidneys; much after the manner as Brick is baked in a Furnace.

Dr. *Quincy* ſuppoſes the *Stone* generated of the harder Parts of the Urine, pent up by the Straightneſs of the Ducts, and brought into Contact and Coheſion.

Etmuller aſcribes the *Stone*, ſometimes to the *ſtony* and metallic Particles of our Foods and Drinks, which the Reins, through Weakneſs and Relaxation thereof, cannot eject; but more uſually to the unequal Strength of the Kidneys: Whence it is that we ſee one Kidney breed *Stones*, and the other ſound.

The *Stone* in the Bladder, is firſt form'd in the Pelvis of the Kidneys, whence falling into the Bladder, it becomes augmented by new Lamellæ or Coats. See PELVIS.

The Diagnoſtic Signs of the *Stone in the Kidneys*, are, 1° A fix'd, obtuſe Pain in the Region of the Loins, appearing like a Weight loading the Reins. As the *Stone* falls out of the Pelvis into the Ureter, the Pain is exceedingly acute and racking, which holds till either the *Stone* be got into the Bladder, or returned again to the Pelvis. 2° An Inflexibility of the Spina Dorſi, from the Extenſion and Compreſſion of the Nerves. 3° A Stupor of the Thigh and Leg of that Side, from the Conſent of Parts. 4° A Retraction of the Teſticle. 5° A very ſmall Quantity of Urine, either thin and limpid, or bloody. But aſſoon as the *Stone* is got into the Bladder, the Urine becomes thick, turbid, blackiſh and in great Quantity.

The Diagnoſtics of the *Stone in the Bladder*, are a Senſe of Heavineſs in the Perinæum and inguinal Region, a perpetual and troubleſome Deſire of making Water, which is followed with a ſharp Pain, principally in the Glans of the Penis, whence a Prolapſus of the Anus. But the ſureſt Way of finding it, is by the Touch, *viz.* by thruſting the Finger or a Catheter up the Anus.

The Cure of the *Stone*, is either by a Liquor that will diſſolve or break the concrete *Stone*; ſo as it may be evacuated Piece-meal; which is call'd a *Lithontriptic*; or by enlarging the Capacities of the Veſſels; or by the Operation of Cutting, call'd *Lithotomy*.

We have yet no aſſured Lithontriptic known, how many ſoever may pretend to it; the moſt noted, are *Daffey*'s Elixir, *Tipping*'s Liquor, and *Rogers*'s Powder. See LITHONTRIPTIC.

The moſt uſual Cure is by Cutting; the various Manners whereof, ſee under LITHOTOMY.

In ſome deſperate Caſes, the *Stone* has been known to make itſelf a Way through the Spinal Muſcles.

Dr. *Liſter* obſerves, that *Stones* are found, not only in the Bladder and Kidneys, but alſo in the pituitary Ducts, the Brain, Liver, Lungs, Ventricle, Inteſtines and Joints of the Hands and Feet; to which may be added, that in the *Philoſophical Tranſactions*, we have likewiſe Accounts of *Stones* in the Pineal Gland, the Heart, Gall, Bladder, *&c.*

The *Stone*, *Etmuller* ſays, is not a Diſeaſe, but the Product of a Diſeaſe: The Diſeaſe, properly, is the *Lithiaſis*, or the Diſpoſition of the Kidneys and Bladder to generate *Stones*.

Stones are diſtinguiſh'd into three Kinds, White, Red and Yellow; which laſt are the moſt uſual. *Deckers* recommends calcin'd Egg-ſhells as excellent in all Suppreſſions of Urine: *Hamilton*, Linſeed Oil, and Mr. *Boyle*, the Herb Arſemart.

STONE-*Blue*, a mineral Preparation, properly call'd *Smalt*. See SMALT.

STONE-*Henge*, in Antiquity, a fam'd Pile or Monument, on *Salisbury* Plain, ſix Miles diſtant from that City.

It conſiſts of three Ranks of huge rough *Stones*, ranged one within another, ſome of them Twenty-eight Feet high, and Seven broad; ſuſtaining others, laid acroſs their Heads, and faſten'd by Mortaiſes; ſo that the whole muſt have anciently hung together.

Antiquaries are ſtrangely at a loſs, as to the Origin, Uſe, Structure, *&c.* of this wonderful Fabrick. Moſt of them allow the *Stones* to be artificial, and to have been made on the Spot; which is the more probable, as we are pretty well aſſured the Ancients had the Art of making *Stones* with Sand and a ſtrong Lime or Cement; and as the *Stones* are too big for any Land Carriage; and yet are in a Plain, which for ſome Miles round, ſcarce affords any *Stones* at all.

The Legends give us various other Accounts; ſome will have them brought miraculouſly by St. *Patrick* from *Ireland*, others, *&c.*

As to its Uſe, ſome Antiquaries take it to have been an ancient Temple of the *Druids*, others of the *Romans*, dedicated to *Cœlus*; in which they are confirm'd by its having been open atop. Others, reading it *Stone Hengiſt*, maintain it to have been a Monument erected in Memory of *Hengiſt*, the firſt General of the *Saxons* in *England*: And others, to name no more, will have it a Funeral Monument, raiſed to that brave *Romano-Briton*, *Aurelius Ambroſius*; to which Opinion, ſome Circumſtances of his Actions, and ſtill remaining *Latin* Name of the Place (*Mons Ambroſii*) and that very ancient *Welſh* Proverb, *Mal givaiſh Emrys*, Like the Work of *Ambroſius*, give ſome Countenance.

STOOL, in Medicine. A Thing is ſaid to be *voided by Stool*, when it is diſcharged by the Anus or Fundament. See Anus.

In the *Philoſophical Tranſactions*, we have Inſtances of ſick Perſons voiding factitious Stones, Balls, *&c.* by *Stool*. See Excrement.

STOOMING *of Wine*; is a putting Bags of Herbs, or other Ingredients into it. See Wine.

STOOPING, in Falconry, is when an Hawk being upon her Wings, at the Height of her Pitch, bends down violently to take the Fowl.

STOPS
STOPPING } in Grammar. See { Points. Punctuation.

STORAX or **STYRAX**, a reſinous odoriferous Gum, brought from *Syria*; whereof there are three Kinds, *viz.* the *red Storax*, *Storax Calamita*, and *liquid Storax*.

The *red Storax*, call'd alſo *Jews Incenſe*, is a Gum or Reſin oozing out at an Inciſion made in the Trunk and biggeſt Branches of a Tree, call'd *Storax*, not unlike our Quince Tree. Its Fruit is of the Size of a Filberd, and contains a white, oily Kernel, of a Smell perfectly like *Storax*.

It muſt be choſen in a Maſs, of a reddiſh Colour, ſoft and fat, and of an agreeable Smell, bearing no Reſemblance to *liquid Storax*.

That in Cakes, in Balls, *&c.* is all ſophiſticated; and only a wretched Compoſition of *liquid Storax*, and the Impurities of the true *red Storax* and other Drugs. That in Powder is ſtill worſe.

Red Storax is of ſome Uſe in Medicine; and is alſo uſed by the Perfumers, and often ſubſtituted for Incenſe.

The *Storax Calamita*, thus call'd from the Ruſhes or Quills, in *Latin*, *Calami*, it was anciently brought in, is, in reality, only a Compoſition of ſeveral excellent Drugs, and among the reſt, of *red Storax*, whence its Name; though Authors have hitherto taken it for a natural Gum, different from the *red Storax*.

It muſt be choſen in fine white Tears, very dry, and not bitter; ſometimes 'tis in reddiſh Maſſes, full of theſe whitiſh Tears, only mix'd with a ruddy Subſtance. Theſe two Kinds are eſteem'd excellent Pectorals, Stomachicks and Cephalicks.

Liquid Storax, is a kind of factitious Roſin, of a greyiſh Colour, compoſed of true *Storax*, common Roſin of the Pine, Oil and Wine, beaten with Water, into the Conſiſtence of an Unguent. The Druggiſts alſo call it *Stacte*, to diſtinguiſh it, and ſell it for the better Price. See Stacte.

The beſt is that of *Holland*. 'Tis eaſily kept in a Cellar, by pouring Water on it from Time to Time. 'Tis an Ingredient in an Unguent which Experience has ſhewn to be excellent againſt the Scorbutus and Gangrene.

STORGE, a *Greek* Term, Στοργὴ, frequently uſed by Naturaliſts, to ſignify that Parental Inſtinct, or natural Affection, which all, or moſt Animals bear their Young. See Instinct.

This *Storge* is an admirable Principle implanted by the All-wiſe Creator throughout the Animal World, for the Preſervation thereof; and is govern'd by ſuch Rules as make it beſt contribute thereto. By means of this, with what Care and Alacrity do they nurſe their Young? and what Dangers will they avoid for their Security? Even the moſt timorous Animals, which at other times fly the Face of Men, Dogs, *&c.* will, for the ſake of their Young, expoſe themſelves.

Thus Hens inſtead of flying from, will aſſault ſuch as meddle with their Brood; and Partridges, e'er their Young can fly, will frequently drop down before the Dogs, firſt at leſs, then at greater Diſtances, to dodge and draw them off, from purſuing their Young. With what Concern do others lead about their Young in Places of Safety? and ſome even admit them for Shelter into their Bowels.

Thus the Opoſſum, Dr. *Tyſon* obſerves, has a curious Bag on purpoſe for the ſecuring and carrying about her Young; and ſome ſay, the Teats lie in it. The ſame Author adds, from *Oppian*, that the Dog-fiſh upon any Storm or Danger, receives her Young into her Belly, which come out again when the Fright is over. The Squatina and Glaucus do the like.

With what Tenderneſs do others ſeek and prepare the Food for their Young, teach them to ſuck, cheriſh or lull them to Reſt, *&c.* like ſo many Nurſes, deputed by the Creator to take Care of his Creatures? And ſtill in Proportion, as they grow up and become fit to look to themſelves, this *Storge* abates; and at length, when no longer needed, becomes extinct. Mr. *Ray* obſerves, that young Doves are fed with Meat firſt eat by the Dam, and ſodden a-while in her Prolobe. And *Cluſius* obſerves, that the old Female *Ethiopian* takes no Food but from the Male, after this Manner.

The Returns made by the Young to the Parent Animal, when grown old, are not leſs conſiderable. *Pliny* ſays of Rats, that they nouriſh their aged Parents with eminent Piety.

St. *Ambroſe*, and after him *Olaus Magnus*, obſerve of the Crane, that when their Parents, through old Age, are bereft of their Feathers, and left half naked, their Offspring ſtand around them, and cheriſh them with their own Feathers; that they ſeek Food for them; and when Nature, as it often happens, repairs their Decays, and reſtores them to Strength again, they take them up by Turns, on their Wings, and habituate their unpractiſed Limbs to their ancient Art of Flying.

STOVE, in Building, a Hot-houſe or Room. See Fire, Chimney, *&c.*

Palladio obſerves, that the Ancients uſed to warm their Rooms with certain ſecret Pipes, which came through the Walls, conveying Heat to ſeveral Parts of the Houſe, from one common Furnace. Whether this were a common Cuſtom, ſays Sir *Henry Wotton*, or a Curioſity, we cannot determine; but it was certainly, both for Profit and Uſe, far beyond the *German Stoves*.

Stove, among Confectioners, a little Cloſet well cloſed on all Sides, wherein are ſeveral Stories or Rows of Shelves made of Wiars one above another, for the drying of Sweetmeats.

STOWAGE, is a Place where Goods are ſtow'd or laid up; or the Money paid for ſuch a Place.

STRABISMUS, an ill Diſpoſition of the Eye, which makes it look a-ſquint.

This Indiſpoſition conſiſts in a Retraction of the Ball of the Eye, towards one Side; occaſion'd by a Convulſion, or a Palſie of one of its Muſcles.

Children are apt to acquire it through the Careleſneſs of their Nurſes, in placing them always on the ſame Side the Light, or of any other remarkable Object that occaſions them to turn their Eyes that Way.

To remedy it, Care is to be taken, that the Light, or other notable Body, be placed on the other ſide of them; or elſe a Mask put on them, the Holes whereof are ſo diſpoſed, as that to ſee through them, the Child be obliged to turn his Eyes the oppoſite Way. The Word is form'd from the *Greek* ϛραβισμὸς, which ſignifies the ſame.

STRAIGHT, or, as ſome chuſe to write it, *Streight*, or, as others, *Strait*, in Hydrography, a narrow Sea, or Gut ſhut up between Lands on either Side, and affording a Paſſage out of one great Sea into another.

The moſt celebrated *Streight* in the World, is that of *Gibraltar*, which is about 130 Miles long and 12 broad, joining the *Mediterranean* Sea, with the *Atlantic* Ocean.

The *Streight of Magellan*, diſcover'd in 1520 by *F. Magellan*. It was uſed ſome time, as a Paſſage out of the *North* into the *South* Sea; but ſince the Year 1616, that the *Streight of le Maire* has been diſcovered, the former has been diſuſed; both becauſe of its Length, which is full 300 Miles, and becauſe the Navigation thereof is very dangerous, from the Waves of the *North* and *South* Seas meeting herein, and claſhing.

The *Streight* at the Entrance of the *Baltic*, is call'd the *Sound*. See Sound.

That between *England* and *France*, *Le Pas de Calais*, or the *Channel*. The *Streights* of *Babalmanda*, of *Weigats*, of *Jeſſo*, of *Anian*, of *Davis* and *Hudſon*, *&c.*

Straight is alſo uſed in Geography, for an Iſthmus or Neck of Land between two Seas; preventing the Communication thereof. See Isthmus.

STRAIN or *Sprain*, a violent Extenſion of the Sinews or Tendons of ſome Muſcle. See Tendon.

STRAND and *Stream*, in ancient Cuſtoms, a Freedom from all Impoſitions upon Goods or Veſſels by Land or Water.

STRANDED, (from the *Saxon Strand*, *i. e.* a Shore or Bank of the Sea or a great River) is when a Ship is by Tempeſt or ill Steerage, run on Ground, and ſo periſhes.

STRANGER, in Law, has a ſpecial Signification, for a Perſon who is not Privy or Party to an Act: As, a *Stranger* to a Judgment, is he to whom a Judgment does not belong; in which Senſe it ſtands directly contrary to *Party* or *Privy*.

STRANGURY, in Medicine, a Diſeaſe occaſioning a very frequent and involuntary Emiſſion of Urine, in very ſmall Quantities, and, as it were, Drop by Drop; with an intenſe Pain. See Urine.

It ariſes from the too great Acrimony of the Urine, which vellicating the Nervous Parts of the Bladder, occaſions a continual Inclination to urine.

New Beer, and other Liquors not well fermented, are uſed to occaſion the *Strangury*.

The extreme Sharpneſs of the Urine, ſometimes produces an Ulcer in the Bladder.

The Word is form'd from the *Greek* στράγξ, Gutta, Drop, and οὖρον, Urine.

Some Authors confound the *Strangury*, which the *Latins* call *Urinæ Stillicidium*, with the *Urinæ Incontinentia*.

The Difference between them, conſiſts in this, that in the former, the Urine comes away with Pain, in the latter, without. The former proceeds from the Acrimony of the Urine; and the latter from a Relaxation or Palſy of the Sphincter of the Bladder, which cannot keep the Neck thereof cloſe ſhut. See URINE.

STRAP, among Surgeons, a Sort of Band to ſtretch out Members in the ſetting of broken, or disjointed Bones. See BANDAGE.

STRAPADO, a kind of Military Puniſhment, wherein the Criminal's Hands being tied behind him, he is hoiſted up with a Rope, to the Top of a long Piece of Wood, and let fall again almoſt to the Ground; ſo that by the Weight of his Body in the Shock, his Arms are diſlocated.

Sometimes he is to undergo three *Strapado*'s, or more.

The Word is form'd from the *French*, *Eſtrapade*, which ſignifies the ſame Thing, and which is ſuppoſed to come from the old Verb *Eſtreper*, to break, extirpate.

STRATA, in Natural Hiſtory, the ſeveral Beds or Layers of different Matter, whereof the Body of the Earth is compoſed. See EARTH.

The *Strata*, include all the Layers of Earths, Minerals, Metals, Stones, *&c.* lying under that upper Tegument or *Stratum*, the Turf or Mould. See FOSSIL.

The Time when thoſe ſeveral *Strata* were laid, was, doubtleſs, at the Creation; unleſs, with ſome great Naturaliſts, as *Steno*, Dr. *Woodward*, *&c.* we ſuppoſe the Globe of Earth to have been diſſolved by the Flood. See DELUGE.

At that Time, ſays Mr. *Derham*, whenever it was that the Terraqueous Globe was in a Chaotic State, and the earthy Particles ſubſided, then theſe ſeveral Beds were repoſited in that commodious Order, wherein they are now found; and that, as is aſſerted, according to the Laws of Gravity; the lower ſtill heavier than the upper.

But Dr. *Leigh*, in his Natural Hiſtory of *Lancaſhire*, ſpeaking of the Coal-pits, denies the *Strata* to lie according to the Laws of Gravitation; obſerving that the *Strata* there, are firſt a Bed of Marle, then Free-ſtone, next Iron-ſtone, then Coal or Channel Mire, then ſome other *Strata*, then Coal again, *&c.*

This determined Mr. *Derham* to make a nicer Enquiry into the Matter; accordingly, in 1712, he cauſed divers Places to be bored, laying the ſeveral *Strata* by themſelves; and afterwards determined very carefully their ſpecific Gravity. The Reſult was, that in his Yard, the *Strata* were gradually ſpecifically heavier and heavier, the lower and lower they went; but in another Place in his Fields, he could not perceive any Difference in the ſpecific Gravities.

Acquainting the *Royal Society* therewith, their Operator Mr. *Hauksbee*, was order'd to try the *Strata* of a Coal-pit, which he did to the Depth of 30 *Strata*: The Thickneſs and ſpecific Gravity of each whereof, he gives us in a Table in the *Philoſophical Tranſactions*; and from the whole make this Inference, that it evidently appears, the Gravities of the ſeveral *Strata* are in no manner of Order; but purely Caſual, as if mix'd by Chance. See VEIN and COAL-*Pit*.

STRATAGEM, a Military Wile; or a Device in War, for the ſurprizing or deceiving an Enemy.

The Ancients dealt mightily in *Stratagems*; the Moderns wage War more openly, and on the Square.

Frontinus has made a Collection of the ancient *Stratagems* of War.

The Word is form'd from the *Greek* στρατηγέω, I lead an Army.

STRATARITHMETRY, in War, *&c.* the Art of drawing up an Army or any Part of it, in any given Geometrical Figure; and of expreſſing the Number of Men contain'd in ſuch a Figure, as they ſtand in Array, either near at Hand, or at any Diſtance aſſign'd. *Harris.*

The Word is form'd from the *Greek*, στράτος, Army, ἀριθμὸς, Number, and μέτρον, Meaſure.

STRATEGUS, in Antiquity, an Office among the *Athenians*, whereof there were two choſen yearly, to command the Troops of the State.

Plutarch ſays, there was one choſe from out of each Tribe; but *Pollux* ſeems to ſay, they were choſe indifferently out of the People. 'Twas the People themſelves made the Choice; and that on the laſt Day of the Year, in a Place call'd *Pnyce*.

The two *Strategi* did not command together; but took their Turns, Day by Day; as we find from *Herodotus* and *Cornelius Nepos*. Some times, indeed, as when a Perſon was found of Merit vaſtly ſuperior, and exceedingly fam'd in War, the Command was given to him alone: But it was ever a Rule, never to put any Perſon in the Office, but who had his Lands in *Attica*, and who had Children, that there might be ſome Hoſtages, and Securities for his Conduct and Fidelity.

STRATIFICATION, in Chymiſtry, an Arrangement of different Matters, in ſeveral *Strata* or Layers, alternately; call'd by the *Latins*, *Stratum ſuper Stratum*; and mark'd in Books of Chymiſtry with S S S.

This Operation is uſed in calcining of Minerals or Metals with Salts or other Matters. See CALCINATION.

To purify Gold by Cementation, they *Stratify* Laminæ, or Plates of Gold in a Crucible, with a dry Paſte call'd *Cement*. See GOLD and PURIFICATION.

STRAY. See ESTRAY.

STREAM-*Anchor*, is a ſmall one, made faſt to a *Stream* Cable; for a Ship to ride by in gentle *Streams*, and in fair Weather. See ANCHOR.

STREAM-*Works*, are certain Works in the Tin-Mines, when the Miners follow the Veins of Metal, by cutting Trenches, *&c.*

STRENÆ, in Antiquity, Preſents made, out of Reſpect, on New-year's Day; and as a happy Augury for the enſuing Year.

The ancient Lawyers derive the Origin of the Word hence, That theſe Preſents were only given *viris ſtrenuis*, as *Symmachus* obſerv'd; who adds further, That the Uſe hereof was firſt introduced by King *Tatius*, *Romulus*'s Collegue, upon his giving, firſt together the happy Branches, which were the Preſages of a New Year, in the ſacred Grove of the Goddeſs *Strenia*.

Anciently, a Pound of Gold was given to the Emperors every New-year's Day, by way of *Strena*. *Du Cange* obſerves, that *Strina* or *Strinna* was uſed for a kind of Tribute the People of *Dalmatia* and *Croatia* pay'd to the *Venetians*, or to the Kings of *Hungary*, whom they obey'd voluntarily.

STRENGTH, as it concerns the Animal Oeconomy. The *Strengths* of different Animals of the ſame Species, or of the ſame Animal at different Times, are demonſtrated to be in a triplicate Proportion of the Quantities of the Maſs of their Blood: The whole *Strength* of an Animal, is the Force of all the Muſcles taken together; therefore, whatſoever increaſeth *Strength*, increaſes the Force of all the Muſcles, and of thoſe ſerving Digeſtion, as well as others. See MUSCLE.

Yet notwithſtanding the Truth of this, the Quantity of Blood may be increaſed in ſuch Circumſtances, as to abate the *Strength*. The Equilibrium between the Blood and Veſſels being deſtroy'd, wonderfully leſſens the *Strength*. The ſudden Suppreſſion of Perſpiration, though it increaſes the Quantity of the Blood, as it muſt conſiderably do, by *Sanctorius*'s Calculation, yet it leſſens the *Strength*; becauſe the retained Matter, being what ought to be evacuated, ſo alters the Texture of the Blood, as to make it unfit for muſcular Motion. Suppoſe the increaſed Quantity to be joined by an extraordinary Viſcidity, the Quantity of ſmall ſeparable Parts decreaſing, as the Viſcidity increaſes, the Quantity of animal Spirits ſeparated in the Brain, will be leſs; and the Tenſity of the Fibres being in Proportion to the animal Spirits forced into them, they will not be able to counterpoiſe the great Weight of the Blood, and ſo the *Strength* will be diminiſhed.

Bellini proves, that if the Blood be ſo vitiated, as to increaſe or diminiſh *Strength*; it amounts to the ſame as if the Blood were in a natural State, but its Quantity increaſed or diminiſhed in the ſame Proportion: So that the Blood, when vitiated, may ſo impair the *Strength* of the Muſcles, as even to ſpoil Digeſtion; and yet in ſome Caſes, it may be ſo vitiated, as to help Digeſtion, and increaſe *Strength*.

M. *de la Hire*, in a Calculation of the *Strength* of a Man in drawing and bearing, ſhews, that an ordinary Man walking in a horizontal Direction, and with his Body inclining forwards, is only equal to Twenty-ſeven Pounds; which is much leſs than one would have imagined.

He adds, That this Force would be much greater, if the Man were to walk backwards; and that 'tis for this Reaſon, the Watermen fetch their Oars from before, backwards: And though he obſerves, the Gondoliers of *Venice* fetch them the contrary Way, yet this is, becauſe they chuſe to loſe the Advantage of *Strength*, to have that of ſeeing the Place they are going to, in the numerous Turns and Canals they there meet withal.

'Tis known by Experience, that a Horſe draws, horizontally, as much as Seven Men; conſequently, his *Strength* will be 189 Pounds. A Horſe, as to puſhing forwards, has a great advantage over a Man, both in the *Strength* of its Muſcles, and the Diſpoſition of the whole Body; but the Man has the Advantage over the Horſe in aſcending. M. *de la Hire* ſhews, that three Men loaden with 100 Pounds apiece, will aſcend a pretty ſteep Hill with more Eaſe and Expedition, than a Horſe loaden with 300 Pounds.

Hakewill furniſhes us with abundance of Inſtances of extraordinary *Strength*: *Klunker*, Provoſt of the great Church of *Meſnia* in 1529, carried a Pipe of Wine out of the Cellar, and laid it in the Cart. —— *Mayolus* ſaw one hold a marble Pillar in his Hand three Foot long, and one in Diameter,

ameter, which he toſs'd in the Air, and catch'd again like a Ball. —— A little Man of *Mantua*, call'd *Rodamas*, could break a Cable. —— *Ernando Burgh* fetch'd up Stairs, an Aſs loaden with Wood, and threw both into the Fire. At *Conſtantinople*, in 1581, one lifted a Piece of Wood which Twelve Men could ſcarce raiſe; then lying all along, bore a Stone which Ten Men could but juſt roll on him. —— *G.* of *Fronsbergh*, Baron of *Mindlehaim*, cou'd raiſe a Man off his Seat with his middle Finger, and ſhove a Cannon out of its Place.— *Cardan* ſaw a Man dance with two Men in his Arms, two on his Shoulders and one on his Neck. *Patacona*, Captain of the Coſſacks, could tear an Horſe-ſhoe; and the ſame is reported of the preſent *Auguſtus* King of *Poland*. —— On *Putney* Common, is a Stone with an Inſcription, mentioning a Man, who in that Place out-drew Five Horſes in his own Team. —— A gigantic Woman of the *Netherlands*, could lift a Barrel of *Hamburgh* Beer. Mr. *Carew* had a Tenant that could carry Six Buſhels of Wheat in Meal (of Fifteen Gallons Meaſure) with the Lubber a-top of it. And *J. Roman* of the ſame County, could carry the Carcaſs of an Ox. See *Hakewill's Apology*, *p.* 238.

STRENGTHENERS, ſuch Medicines as add to the Bulk and Firmneſs of the Solids. See SOLIDS and STRENGTH.

Strengtheners differ from Cordials, as a Bandage doth from a Fleſh-bruſh: The latter are ſuch as facilitate and drive on the vital Actions; but the former, ſuch as confirm the Stamina, and maintain the Solids in ſuch a Condition, as to exert themſelves into Action on all proper Occaſions, with the greateſt Force and Vigour.

The continual Waſte, which conſtant Motion makes in the Conſtitution, were it not for frequent and proper Supplies, would ſoon wear the Body quite out. The Attritions and Abraſions of the circulating Fluids, would quickly carry away the Canals in which they circulate, were not ſomewhat furniſhed in their Compoſition, which is ſuited to fall into, adhere with, and recruit that which is waſhed off. And thoſe Particles muſt be much more diſpoſed ſo to do, whoſe Adheſions are greateſt, when once they come into Contact; ſuch are thoſe of Bodies we call Glutinous, and which eaſily form themſelves into Jellies, and ſuch-like Conſiſtences; for the Parts of ſuch Bodies are very light, by the over-proportion of their Surfaces to their Solidities, whereby their Motions are both more languid, when in Circulation; and when they ſtop, their Coheſions will be much the ſtronger, with whatſoever they happen to fall into Contact.

Medicines of this Tribe, are therefore of great Service in Hecticks; where the ſwift Motion of a thin, ſharp Blood, wears away the Subſtance of the Body, inſtead of nouriſhing it; for they not only retard the inordinate Motion; but give ſuch a Weight and Conſiſtence to the Juices, as fits them alſo for Nouriſhment. There are likewiſe other Cauſes, which may weaken the Solids, by admitting, or occaſioning them to relax too much. Whatſoever therefore acts as a Stimulus, and criſps and corrugates the Fibres into a more compacted Tone, which moſt auſtere and pointed Bodies do, will remove ſuch Weakneſs, and increaſe Strength: And as alſo, too much Moiſture may contribute to ſuch a Relaxation, what has no other Quality but abſorbing, and drying up ſuch ſuperfluous Humidities, may deſerve, though accidentally, to come under this Denomination.

STRETCH: When at Sea, they are going to hoiſt the Yard, or hale the Sheet; they ſay, *Stretch forward the Sheets*, meaning, that the Part which the Men are to hale by, ſhould be put into their Hands, in order to their Haling.

STRIÆ, in the ancient Architecture, the Liſts, Fillets or Rays which ſeparate the Striges or Flutings of Columns. See LIST and FLUTING.

STRIÆ, among Naturaliſts, the ſmall Hollows or Channels in the Shells of Cockles, Scollops, *&c.*

STRICTOR, in Anatomy, the ſame as *Sphincter*. See SPHINCTER.

STRIGES, in the ancient Architecture, are what in the Modern we call *Flutings*. See FLUTING.

They are thus call'd, as ſuppoſed to have been originally intended to imitate the Folds or Plaits in Womens Robes; which the *Latins* call *Striges*.

The Fillets or Spaces between them, were call *Striæ*.

STRIKE, is a Meaſure, containing four Buſhels; two of which make a Quarter. A *Strike* of Flax, is as much as can be heckled at one Handful.

STRIKE, is a Sea Word variouſly uſed. When a Ship in a Fight, or upon meeting with a Man of War, lets down, or lowers her Top-ſails, at leaſt half-Maſt high; they ſay, *She Strikes*, meaning, ſhe yields or ſubmits, or pays her Devoir to that Man of War, as ſhe paſſes by. When a Ship touches Ground in a Shoal-water, they ſay, *She Strikes.*

When any Top-maſt is to be taken down, they ſay, *Strike the Top-maſt*. And when any Thing is let down or lowered into the Hold, they call it *Striking down into the Hold*.

STRIKING. The Puniſhment appointed by our Laws, for *Striking within the King's Court*, whereby Blood is drawn, is, that the Criminal ſhall have his Right Hand ſtruck off, in a moſt ſad and ſolemn Manner.

For *Striking in Weſtminſter-Hall*, while the Courts of Juſtice are ſitting, the Puniſhment is Impriſonment for Life, and Forfeiture of one's Eſtate.

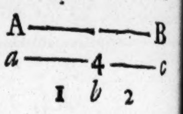
STRING, in Muſic. See CHORD.

If two *Strings* or Chords of a muſical Inſtrument only differ in Length; their Tones, that is, the Number of Vibrations they make in the ſame Time, are in an inverted *Ratio* of their Lengths.

If they only differ in Thickneſs, their Tones are in an inverted *Ratio* of their Diameters. As to the Tenſion of *Strings*, to meaſure it regularly, they muſt be conceived ſtretch'd or drawn by Weights; and then, *cæteris paribus*, the Tones of two *Strings* are in a direct *Ratio* of the Square Roots of the Weights which ſtretch them, that is, *e. gr.* the Tone of a *String* ſtretch'd by a Weight 4, is an Octave above the Tone of a *String* ſtretch'd by the Weight 1.

'Tis an Obſervation of an old ſtanding, that if a Viol or Lute-*ſtring* be touch'd with the Bow, or Hand, another *String*, on the ſame, or another Inſtrument, not far from it, if in Uniſon to it, or in Octave, or the like, will at the ſame Time tremble of its own accord. See UNISON.

But it is now found, that not the whole of that other *String* doth thus tremble; but the ſeveral Parts, ſeverally, according as they are Uniſons to the whole, or the Parts of the *String* ſo ſtruck. Thus ſuppoſing AB to be an upper Octave to *ac*, and therefore an Uniſon to each half of it ſtop'd at *b*.



If while *ab* is open, AB be ſtruck, the two Halves of this other, that is *ab* and *bc* will both tremble; but the middle Point will be at reſt; as will be eaſily perceived, by wrapping a bit of Paper lightly about the *String ac*, and removing it ſucceſſively from one End of the *String* to the other. In like manner, if AB were an upper Twelfth to *ac*, and, conſequently, an Uniſon to its three Parts *a* 1, 1 2 and 2 *c*; if *ac* being open, AB be ſtruck, its three Parts *a* 1, 1 2 and 2 *c* will ſeverally tremble; but the Points 1 and 2 remain at Reſt.

This, Dr. *Wallis* tells us, was firſt diſcover'd by Mr. *William Noble* of *Merton* College; and after him by Mr. *T. Pigot* of *Wadham* College, without knowing that Mr. *Noble* had obſerved it before. To which we may add, that M. *Sauveur*, long afterwards, propoſed it in the *Royal Academy* at *Paris*, as his own Diſcovery, as 'tis like enough it might: But upon his being inform'd, by ſome of the Members then preſent, that Dr. *Wallis* had publiſh'd it before, he immediately reſign'd all the Honour thereof.

STRING-*Halt*, is a ſudden twitching or ſnatching up of an Horſe's hinder Leg, much higher than the other, as if he trod on Needles; generally befalling the beſt mettled Horſes.

It frequently happens upon taking Cold, after hard Riding, or ſore Labour; eſpecially by waſhing them when too hot, which chills the Blood, and ſo benumbs the Sinews, as to take away the Senſe and Feeling of the Member.

To Cure it, the middle Vein is taken up above and underneath the Thigh; under which is found a *String*, which is to be cut away, and the Part anointed with Butter and Salt.

STROAKING, a Method of Cure ſome People have given into, in certain Diſeaſes; conſiſting in a mere Application of the Hand to the Part affected, in the way of Friction or Rubbing.

That Friction has very conſiderable Uſes in many Diſeaſes, is allow'd. See FRICTION.

But, as to the particular Efficacy of the *Stroak* of particular Perſons; we ſee little Foundation for it in Nature. Experience, indeed, affords ſome; to which we don't know what to object.

Mr. *Thoreſby*, in the *Philoſophical Tranſactions*, gives ſeveral remarkable Inſtances of Cures perform'd by that famous *Stroaker*, Mr. *Greatrix*. Mr. *Thoreſby*'s own Brother being ſeiz'd with a violent Pain in his Head and Neck; Mr. *Greatrix* coming accidentally thither, gave immediate Eaſe to his Head, by only *Stroaking* it with his Hand: He then fell to *ſtroak* his Back; whence the Pain immediately fled to his Right Thigh: Then he purſued it with his Hand to the Knee, from thence to the Leg, Ancle, Foot, and at laſt to the great Toe, where it grew more violent; but upon rubbing there, it vaniſh'd.

Another Relation of the ſame Author having a great Pain and Weakneſs in her Knees, which occaſion'd a white Swelling, that had hung to her ſeveral Years, in ſpight of all Means; the ſame *Stroaker* rubbing both her Knees, gave her preſent Eaſe, the Pain flying downwards from his Hand, till he drove it out of the Toes, after which the Swelling ſoon went abſolutely away.

Mr. *Thoresby* gives various other like Inſtances, all among his Acquaintance; and adds, That when Mr. *Greatrix ſtroaks only* for Pains, he uſes nothing but his Hand; but that for Ulcers, or running Sores, he uſes Spittle on his Hand or Fingers. See TOUCHING.

STROPHE, in the *Greek* and *Latin* Poetry, a Stanza, or certain Number of Verſes including a perfect Senſe; ſucceeded by another, conſiſting of the ſame Number and Meaſure of Verſes, in the ſame Diſpoſition and Rythmus, call'd the *Antiſtrophe*.

What the *Couplet* is in Songs, and the *Stanza* in Epic Poetry; *Strophe* is in Odes. See COUPLET.

The Word is *Greek*, στροφὴ of στρέφω, I turn; becauſe at the End of the *Strophe*, the ſame Meaſures returned again; or rather, as the Term related, principally, to the Muſic or Dancing, becauſe at firſt coming in, the Chorus or the Dancers turn'd to the Left, and that Meaſure ended, they turn'd back again to the Right.

STRUCTURE, in Architecture. See BUILDING.

STRUMÆ, in Medicine, Tumours ariſing moſt uſually on the Neck; call'd alſo *Scrophulæ*, and, popularly the *Evil*, or *King's Evil*. See EVIL.

The Word is *Latin*, form'd, as ſome will have it, *a ſtruendo*; becauſe they grow inſenſibly, *Structim aſſurgunt*.

The *Greeks* call them χοιράδες, Sores.

STUC, in Maſonry, from the *Italian Stucco*, &c. a Compoſition of Lime and the Duſt of white Marble, pounded together and ſifted; whereof Figures and other Ornaments of Sculpture are made.

This is what *Pliny* means by *Marmoratum Opus*; and *Albarium Opus*. See PLAISTER and MOSAIC.

STUFF, in Commerce, a general Name for all Kinds of Works made of Gold, Silver, Silk, Wooll, Hair, Cotton or Thread, manufactured on the Loom; of which Number are *Velvets*, *Brocades*, *Mohairs*, *Sattins*, *Taffeta's*, *Cloths*, *Serges*, *Rateens*, and various other Kinds; explain'd under their reſpective Articles of this *Dictionary*.

STUFF is particularly uſed, for certain Kinds of ſlight woollen *Stuffs*, uſed principally for Linings and Womens wear, as *Linſeys*, *Rateens*, &c.

STUM, is the Flower of Wine, ſet a working. See WINE, MUST, &c.

Hence to *Stum*, is to put certain Ingredients into ſick and decay'd Wine, in order to revive it, and make it briſk.

STUMBLING, in the Manage, &c. a Vice in a Horſe, either natural or accidental.

The *Natural* ariſes from the Sinews of the fore Legs being ſomewhat too ſtraight, which cramps the Horſe, and prevents his uſing his Legs with the neceſſary Freedom and Nimbleneſs.

The Way to cure him, is to cut him of the Cords, *i. e.* to make a Slit on the Top of his Noſe, and with a Corner, to raiſe up the great Sinews, to cut them aſunder, and heal them up again with a proper Salve. The *Accidental* ariſes from a Splint, Wind-gall, being founder'd, prick'd, ſtubbed, gravel'd, &c.

STUPIFIERS, in Medicine, the ſame as Narcoticks and Opiates. See OPIATES.

STUPHA, or STUPE, the ſame as Fomentation. See FOMENTATION.

STUPOR, a Numbneſs, occaſioned by any accidental Bandage that ſtops the Motion of the Blood and nervous Fluids, or by a Decay in the Nerves, as in a Palſy, &c.

STYGIAN *Liquors*, a Term ſome Chymiſts apply to acid Spirits, from their Efficacy in deſtroying or diſſolving mixt Bodies. See SPIRIT.

STYLE, a kind of Point, or Bodkin, wherewith the Ancients wrote on Plates of Lead, or on Wax, &c. and which is ſtill uſed to write on Ivory Leaves, and Paper prepared for that Purpoſe, &c. See WRITING.

This is the Origin of all the other Significations of the ſame Word in *Engliſh*.

STYLE, in Chirurgery, is a long Steel Inſtrument, that goes diminiſhing towards one End, ſo as to be of a conical Form.

'Tis uſed to be thruſt in red-hot, in *Canulæ*, and to be pull'd out again, immediately: 'Tis put in and drawn out ſucceſſively, as often as is neceſſary. In order to do this, 'tis good to have two *Styles*, to be put in alternately. See CANULA.

STYLE, in Dialling, the Gnomon or Cock of a Dial, rais'd on the Plane thereof, to project a Shadow. See GNOMON.

STYLE, in Botany, the Part riſing up the middle of a Flower, and bearing, by its lower Part, on the Seed.

This we more uſually call the *Piſtil*. See PISTIL.

STYLE, in Matters of Language, is a particular manner of delivering a Man's Thoughts in Writing, agreeably to the Rules of *Syntax*; or, as *F. Buffier* more accurately defines it, the Manner where the Words conſtructed according to the Laws of *Syntax*, are arranged among themſelves, ſuitably to the Genius of the Language. See LANGUAGE.

This Definition fixes the Notion of *Style* to ſomething determinate, which before was very vague and arbitrary, whence many Authors, even of Note, confounded it with *Syntax* itſelf. See SYNTAX.

From the Definition, it appears, that *Style* ſuppoſes or includes the *Syntax*; and that *Syntax* does not extend ſo far as *Style*: For the *Syntax* may be very juſt, where the *Style* is wretched, were it only in this Example; *God always rewards with great Fidelity, and greater Liberality, the Juſt*: Or this, *There is no Body, who more than I honour you.*

The Regimens and Terminations of each Word, are perfectly juſt in each of theſe Phraſes: There is no Fault then, in the *Syntax*; but there is ſomething wanting in the Arrangement of the Words, to make them in the Genius of the Language; there is a Fault then, in the *Style*.

Indeed, againſt what particular Rule of Grammar the Fault is committed, 'tis ſcarce poſſible to determine preciſely; the Taſte and Uſe of a Language being ſo exceedingly delicate and precarious. 'Tis true, a Fault in *Style*, is not leſs a Fault againſt Grammar, than is a Fault in *Syntax*; Only the former is leſs preciſe and palpable than the latter.

A very common Error in Grammarians, *F. Buffier* adds, is to confound two Kinds of *Styles* in one: The *Grammatical Style*; or that directed by the Rules of Grammar; and the *Perſonal Style*, which depends leſs on the Grammar, than on the Perſon that writes; whether with regard to his particular Taſte and Genius, or with regard to his Matter, or the Kind or Character of his Work.

There are a great many Differences between the Two; the moſt eſſential is, that the one may be diverſified an infinite Number of Ways, and the other cannot.

In effect, the *Perſonal Style* is naturally variable, according to the different Genius's, Humours, and Complexions.

'Tis the Imagination that acts, that conceives, that propoſes, and that expreſſes Things, according to its Character, which is different in all Men, and which is to be varied, according to the particular Kind of the Work.

Hence ariſes the *Gay*, the *Grave*, the *Florid*, the *Jejune*, the *Copious*, the *Conciſe*, the *Poetical*, the *Epiſtolary*, the *Burleſque Styles*.

Theſe *Perſonal Styles* are all Independant on the *Grammatical*; and we have Authors, who excel in the one, yet are miſerably defective in the other. The *Perſonal Style* is not under the Direction of Grammar; but of the Imagination, or rather of Rhetoric, that Art having to do directly with our Thoughts, as Grammar with our Words.

This, however, may be ſaid, That Grammar is far from being able to vary the ſame Words of a Phraſe with equal Perfection; and that generally there is but one Way of delivering them in the Taſte and Genius of the Language. Thus, the *Grammatical Style*, is invariable in the following Phraſe, and proportionably in others. *Death is a Law, which all Men are to undergo*: For you cannot well range the Words otherwiſe than they here are, without going out of the Bounds of Grammar. Would you ſay, *a Law is Death, which all Men*, &c. or, *a Law is Death, which*, &c.

But in the *Perſonal Style*, where the Imagination comes to be concern'd, this Sentence might be varied infinite Ways, according to the Kind of the Writing, whether Oratorial, Poetical, &c. As, *Death neither ſpares the Prince nor the Peaſant. Death knocks equally at the Monarch's Palace and the Beggar's Hut*, &c.

STYLE, in Oratory and Poetry, is reſtrain'd wholly to what *F. Buffier* calls the *Perſonal Style*.

Language refers principally to the Matter of the Diſcourſe, *viz.* the *Words*; *Elocution* to the particular Members or Parts thereof; and *Style*, to the whole Compoſition.

The Maſters of the Art, reduce the Kinds of *Style* to Three, the *Sublime*, the *Low*, and the *Intermediate* or *equable Style*.

The *Sublime*, is that conſiſting in magnificent Words and Sentences; which, by its noble Boldneſs, raviſhes the Hearers, and extorts Admiration even from the Unwilling. See SUBLIME.

The *low* or *ſimple Style*, is that ordinarily uſed in ſmaller and humbler Works, as Epiſtles, Dialogues and common Diſcourſe. The chief Virtues hereof are Perſpicuity, Smoothneſs, Eaſineſs and Cleanneſs; it muſt be very ſparing in the Uſe of Tropes and Figures, eſpecially the more violent ones, as the *Proſopoœia*, *Apoſtrophe*, &c.

The *intermediate*, *equable Style*, partakes of the Magnificence of the *Sublime*, and the Simplicity of the *Low*. It neither riſes to the Majeſty of the one in Words or Sentences; nor yet is ſmartly pointed like the other: But, as *Tully* excellently expreſſes it, *Eſt Stylus quidam interjectus, intermedius, & quaſi temperatus; nec acumine inferioris, nec fulmine utens ſuperioris, vicinus amborum, in neutro excellens utriuſque particeps.*

The ſame Author calls it the *Florid* and *Poliſh'd Style*; it being in this that all the Graces and Beauties of Language are principally to be uſed.

For the Choice of *Style*, in the General, 'tis the Matter is to determine it. Such *Style*, ſays *Cicero*, is to be choſen, as expreſſes great Things magnificently, middle Things moderately, and low Things ſubtly: But more particularly as there are three Branches of the Duty of an Orator, to teach, to delight, and to move; the *ſimple Style* is uſed to teach, the Middle to delight, and the Sublime to move.

Again, the *ſimple* or *low Style* is fit for Comedy, the Sublime for Tragedy, and the Middle for Hiſtory.

Cæſar, 'tis true, rather uſed the *Simple* than the *Intermediate Style*; but then he wrote Commentaries, not a Hiſtory, as is obſerved by *Tully*.

Again, the *ſimple Style* is fit for Bucolicks and Eclogues, the *intermediate Style* for Georgicks, and the *Sublime* for Epicks; which triple Difference we eaſily deſcry in *Virgil*, though he ſometimes mixes them all in the *Æneid* itſelf, uſing the *ſimple Style* in the Fifth Book, where he deſcribes Games, and the *Intermediate* in the Beginning of the Poem. Care is ſtill to be taken, that the *Style* be not *flat* and *dull*, on pretence of being *ſimple*.

M. *Boileau* obſerves, that in all Languages a mean Thought expreſs'd in Noble Terms, is better liked than the nobleſt Thought expreſs'd in mean Terms: The Reaſon he gives, is, that every Body can't judge of the Force and Juſtneſs of a Thought; but ſcarce any Body but perceives the Meanneſs of the Words. The latter we find by our Senſes, the former by our Reaſon.

He adds, That the Words in different Languages don't always anſwer juſtly to one another; and that a noble *Greek* Term can't frequently be expreſs'd in another Language, but by a very mean one.

This we ſee in the Words *Aſinus* in *Latin*, *Ane* in *French*, and *Aſs* in *Engliſh*, which are the meaneſt imaginable, in thoſe three Languages; yet the Word expreſſing that Animal, has nothing mean in it, either in *Greek* or *Hebrew*, but is uſed in the fineſt and nobleſt Paſſages.

Add to this, that Languages are exceedingly capricious on this Head: A Bull, a Heifer, a Goat, a Boar, &c. may be uſed in the ſublimeſt Paſſages, without debaſing the *Style*; but a Cow, a Sheep, a Hog, a Sow, &c. would be intolerable. Shepherd and Herſdman, are fine Words; Hog-keeper and Cow-ward, which carry the ſame Ideas, vitious to the laſt Degree.

The chief Faults in *Style*, are, its being *tumid* and *ſwollen*; or *cold* and *puerile*; or *ſtiff* or *looſe*; or *dry* and *jejune*. A *ſwollen Style*, is that immediately ſtuff'd with big Words and Sentences; ſuch are thoſe Verſes of the Emperor *Nero*, ridiculed by *Perſius*.

Torva mimalloneis implerunt Cornua Bombis
Et raptum Vitulo caput ablatura ſuperbo
Baſſaris, & lyncem mœnas flexura Corymbis, &c.

A *cold* or *puerile Style*, is that which affects certain trifling Ornaments, cold Jeſts, remote and ſtrain'd Alluſions, redundant Deſcriptions, &c. Such, *e. gr.* as, *A Centaur's riding himſelf: More golden than Gold*, &c. Of this Vice, that Paſſage of *Virgil* ſeems guilty.

Num Capti potueri capi? Num incenſa cremavit
Troja Viros?

And that in *Plutarch*, and *Dion Caſſius*; *'Twas no wonder* Diana's *Temple ſhould be burnt the Night* Alexander *was born; as that Goddeſs, attending at ſo great a Birth, could not be in the Way to extinguiſh the Flames.* And that in *Plautus*, where a Perſon is repreſented ſo exceedingly covetous, that he would invoke *Heaven and Earth, if he ſaw but a Grain of Smoak eſcape out of his Cottage.*

A *looſe Style*, is that which wanting Articles, Numbers, &c. fluctuates here and there, not connected or hung together. This is a Fault ſo frequent, eſpecially in young Writers, that we ſhall ſpare giving Inſtances of it.

A *dry jejune Style*, is that deſtitute of Ornament, Spirit, &c.

The Ancients made a notable Diſtinction of *Styles*, into *Laconic* and *Aſiatic*.

Aſiatic Style, is that which is very diffuſive and prolix; or where abundance of Words are uſed to expreſs a little Matter: Thus call'd, by the *Greeks*, from the People of *Aſia*, who affected ſuch Redundancies, in Oppoſition to the

Laconic Style, which is diſtinguiſh'd by its exceeding Conciſeneſs; and by comprehending a deal of Matter under a few Words. See LACONIC.

Such, *e. gr.* is that Anſwer returned by the *Lacedæmonians*, to a long Epiſtle of an Enemy, threatning to deſtroy them with Fire and Sword; *εἰ*, *ſi*, *if*; that is, Do *if* you can: Or, that return'd by the ſame to King *Philip*, demanding ſome extravagant Thing of them, οὐ, *non*, *no*. Or that of *Cleomenes* the *Spartan* General to the Ambaſſador of *Samos*; *As to what you have ſaid, the firſt Part I don't remember, the middle I don't underſtand; the laſt I don't approve.* Or that Epiſtle of *Archidamus* to the *Elei*, who were preparing War againſt him; *Archidamus to the Elei: 'Tis good to be quiet.* Or that of *Cæſar* to the *Roman* Senate, after his conquering *Pharnaces*, King of *Pontus*: *Veni, vidi, vici*; I came, I ſaw, I conquer'd.

STYLE, in *Juriſprudence*, the particular Form, or Manner of Proceeding in each Court or Juriſdiction, agreeably to the Rules and Orders eſtabliſh'd herein. Thus we ſay, the *Style* of the Court of *Rome*, of the Court of *Chancery*, of Parliament, of the Privy Council. See CHANCERY, &c.

STYLE, in Muſic, the manner of Singing and Compoſing.

The *Style* is, properly, the manner each Perſon has, either of Compoſing, of Performing or Teaching; which is very different, both in reſpect of the different Genius's of Countries and Nations, and of the different Matters, Places, Times, Subjects, Expreſſions, &c.

Thus we ſay, the *Style* of the *Chariſſimi*, of *Lully*, of *Lambert*; the *Style* of the *Italians*, the *French*, the *Spaniards*, &c. The *Style* of gay Pieces of Muſic, is very different from that of ſerious Pieces: The *Style* of Church Muſic, very different from Theatrical Muſic. The *Style* of the *Italian* Compoſitions, is poignant, florid, expreſſive; that of the *French* Compoſitions, natural, flowing, tender, &c.

Hence, the various Epithets, given to diſtinguiſh theſe various Characters; as, the ancient and modern *Style*, the *Italian* and *German Style*, the Eccleſiaſtical and Dramatic *Style*, the gay, grave, majeſtic, natural, ſoft, familiar, gallant, low, ſublime *Styles*, &c.

The *Stylo Recitativo* or *Dramatico*, in the *Italian* Muſic, is a *Style* fit to expreſs the Paſſions. The *Stylo Eccleſiaſtico* is full of Majeſty, very grave, and fit to inſpire Devotion.

Stylo Motectico, is a various, rich, florid *Style*, capable of all Kinds of Ornaments, and, of conſequence, fit to expreſs various Paſſions, particularly Admiration, Grief, &c.

Stylo Madrigaleſco, is a *Style* proper for Love, and the other ſofter Paſſions.

Stylo Hyperchematico, is a *Style* proper to excite Mirth, Joy, Dancing, &c. and, of conſequence, full of briſk, gay Motions.

Stylo Symphoniaco, is a *Style* fit for Inſtrumental Muſic: But as each Inſtrument has its particular Effect, there are as many different *ſymphonical Styles*. The *Style* of Violins, for Inſtance, is uſually Gay; that of Flutes, Melancholy and Languiſhing, and that of Trumpets, Sprightly and Animated.

Stylo Meliſmatico, is a natural, artleſs *Style*, which any Body, almoſt, may ſing.

Stylo Phantaſtico, is a free, eaſy, humorous Manner of Compoſition, far from all Conſtraint, &c.

Stylo Choraico, is the *Style* proper for Dancing; and is divided into as many different Kinds, as there are Dances; as the *Style* of Sarabands, of Minuets, of Gavots, of Rigadoons, &c.

STYLE, in Chronology, a particular Manner of accounting Time, with regard to the Retrenchment of Ten Days from the Calendar, in the Reformation made thereof under Pope *Gregory* XIII.

Style is either *Old* or *New*.

The *old Style*, is the *Julian* Manner of Computing, which obtains in *England* and ſome other Proteſtant States, who refuſed to admit of the Reformation. See JULIAN.

The *new Style* is the *Gregorian* Manner, followed by the Catholicks, in conſequence of that Reformation. See GREGORIAN.

Hence, there aroſe a Difference of Ten Days, between the *Old Style* and the *New*, the latter being ſo much before-hand with the former: So that when the Catholicks, *e. gr.* reckon'd the 21ſt of *May*, we only reckon'd the 11th.

This Difference of Ten Days, was increaſed in the Year 1707, to 11 Days, by reaſon that Year was not the *Biſſextile* in the *Old Style*, but was, in the *New*: So that the 10th Day of the one, correſponded to the 21ſt of the other.

There are ſeveral Places, however, where the *new Style* has begun to obtain, even among Proteſtants; and 'tis not unlikely, that the *old Style* may, in Time, dwindle quite away. At the Diet of *Ratiſbon* in 1700, it was decreed, by the Body of Proteſtants of the Empire, that Eleven Days ſhould be retrenched from the *old Style*, to accommodate it for the future to the *New*. And the ſame Regulation has ſince paſs'd in *Sweden* and *Denmark*. *England* holds out, almoſt alone, for the *old Style*. See CALENDAR.

STYLET, STILETTO, a little, dangerous Poniard, which is hid in the Hand, and chiefly uſed in treacherous Aſſaſſinations.

The Blade is uſually Triangular, and ſo ſlender, that the Wound it makes, is almoſt imperceptible.

The *Stylet* is ſtrictly prohibited in all well Policy'd States.

STYLITES, an Appellation given to a kind of Solitaries, who ſpend their Life, ſeated on the Tops of Columns, to be the better diſpoſed for Meditation, &c. See SOLITARY.

Of theſe, we find ſeveral mention'd in ancient Writers, and even as low as the IXth Century. The Founder of the

Order was St. *Simon Stylites*, a famous Anchorite in the Vth Century; who firſt took up his Abode on a Column Six Cubits high; then on a Second of 12 Cubits; a third of 22; and at laſt on another of 36, where he lived ſeveral Years.

The Extremities of theſe Columns were only three Foot in Diameter, with a kind of Rail or Ledge about, that reach'd almoſt to the Girdle, ſomewhat reſembling a Pulpit. There was no lying down in it.

The Faquiers or devout People of the *Eaſt*, imitate this extraordinary kind of Life to this Day. See FAQUIER.

STYLOIDES, in Anatomy, an Apophyſis of the *Os petroſum*, thus call'd from its reſembling a *Style* or *Stylet*. See PETROSUM *Os*.

STYLOGLOSSUS, in Anatomy, a pair of Muſcles, running off ſharp and fleſhy, from the *Proceſſus Styloides*; whence deſcending obliquely forwards, it is inſerted into the Root of the Tongue. It ſerves to pull the Tongue up in the Action of Deglutition.

STYLOHYOIDEUS, in Anatomy, a pair of Muſcles ſpringing from the *Proceſſus Styloides*, and inſerted into the Baſis and Horns of the *Os Hyoides*; which it draws, laterally, upwards.

STYLOPHARYNGÆUS, in Anatomy, a pair of Muſcles, ariſing round and fleſhy, from the *Proceſſus Styloides*; and which in its oblique Deſcent, becomes thicker, and is afterwards expanded on the back Parts of the Fauces. It ſerves to draw up and dilate the Pharynx.

STYPTIC, in Medicine, a Remedy that has the Virtue of ſtopping Blood, or of binding up the Aperture of a wounded Veſſel. See BLOOD.

The Service, Nettle, *Solomon*'s Seal, *&c.* are *Stypticks*.

There are various *Styptic* Waters and Powders of ſurprizing Efficacy, in moſt of which, Vitriol is the principal Ingredient.

The uſual *Styptic Water* is made of Colcothar calcined, or Vitriol diſſolved with burnt Allum, Sugar-candy, the Urine of a young Man, *&c.*

Dr. *Colbatch*'s *Styptic Powder* has been famed; though Mr. *Cowper*, in the *Philoſophical Tranſactions*, gives us a Number of Inſtances, wherein it was applied with very little, or ill Succeſs in human Subjects; though he gives us others made in Dogs, where it anſwer'd well.

M. *Tournefort* obſerves, from the Analyſis he has made of *Styptic* and Aſtringent Plants, that Acids and Earths prevail therein; though ſome of them yield an urinous Spirit. On this Principle, he aſſerts, That their Salt is analogous to Allum, and that there is ſomewhat of Sal Ammoniac in their Texture. *Chomel* obſerves, that this does not hold univerſally.

STYRAX, in Medicine. See STORAX.

SUB, a *Latin* Prepoſition, ſignifying *under*; frequently uſed, in Compoſition, in our Language.

Sub-Brigadier, is an Officer in the Cavalry, who commands under the Brigadier; aſſiſting him in the Diſcharge of his Functions. See BRIGADIER.

Sub-Chantor, an Officer in the Choir, who officiates in the Abſence of the Chantor, *&c.* See CHANTOR.

Sub-Dean, a Dignity in certain Chapters beneath the Dean. See DEAN.

Sub-Prior, a Clauſtral Officer, who aſſiſts the Prior, *&c.*

Sub-Deacon, an inferior Miniſter, who anciently attended at the Altar, prepared the Sacred Veſſels, *&c.* and was inveſted with the firſt of the Holy Orders.

According to the Canons, a Perſon muſt be 22 Years of Age, to be promoted to the Order of *Sub-Deacon*.

'Tis diſputed among the *Romaniſts*, whether the *Subdeaconhood* be a Sacrament or not; in regard *Sub-Deacons* are ordain'd without Impoſition of Hands, and that there is no mention made of them in Scripture. Yet *Bellarmin* holds the affirmative Side of the Queſtion. By the Papal Canons, a married Man may be ordain'd *Sub-Deacon*; upon Condition his Wife conſent to it, make a Vow of Continence, and ſhut herſelf up in a Monaſtery. See DEACON.

SUBALTERN, a *ſubordinate* Officer, or one who diſcharges his Poſt under the Command and Direction of another.

Such are Lieutenants, Sub-lieutenants, Cornets and Enſigns, who ſerve under the Captain.

We alſo ſay *Subaltern* Courts, Juriſdictions, *&c.* Such are thoſe of inferior Lords, with regard to the Lord Paramount, Hundred Courts, to County Courts, *&c.*

For the *Subaltern* Perſons in an Epic Poem, *F. Boſſu* obſerves, there is no Neceſſity to be very ſtrict in preſerving every one's Character. See CHARACTER.

The Patriarchs, M. *St. Evremond* tells us, had ſeveral Wives, who did not all hold the ſame Rank; but there were ſeveral *ſubaltern* to the principal Wife. Grammar we alſo ſay is *ſubaltern* to Rhetoric. The Word is form'd from the *Latin*, *ſub*, and *alter*, another.

SUBCLAVIAN, is applied to any thing under the Arm-pit or Shoulder; whether Artery, Nerve, Vein or Muſcle.

SUBCLAVIUS, in Anatomy, is a Muſcle that ariſeth from the lower Side of the Clavicula, near the Acromium; and deſcends obliquely to be inſerted into the upper Part of the firſt Rib, near the Sternum.

SUBCONTRARY *Poſition*, in Geometry, is when two ſimilar Triangles are ſo placed, as to have one common Angle, V, (Tab. Geometry Fig. 44.) at the Vertex, and yet their Baſe not parallel.

Thus, if the ſcalenous Cone BVD be ſo cut by the Plane CA, as that the Angle at C=D; the Cone is then ſaid to be cut *Subcontrarily* to its Baſe BA.

SUBCUTANEUS, in Anatomy, a thin membranous Muſcle, running under the Skin, call'd alſo *Quadratus*. It ariſes with a pretty broad Origin, from the hind Part of the Neck, and from the Pectoral Muſcle below the Clavicle. It adheres firmly to the Panniculus Carnoſus; from which it is not ſeparated without Difficulty, and therefore was not anciently diſtinguiſh'd from it; and is inſerted, obliquely, on each Side, into the lower Jaw-bone near the Skin, Lips, and ſometimes the bottom of the Noſe; all which Parts it draws downwards and a-wry.

A Convulſion herein is call'd a *Spaſmus Cynicus*. In ſome Perſons, it reaches to the Ears; and in others not; which is the Reaſon ſome Folks have a Faculty of moving the Ears, which others want.

SUBDUCTION, in Arithmetick, the ſame as Subſtraction. See SUBSTRACTION.

SUBDUPLE *Ratio*, is when any Number or Quantity is contained in another, Twice; thus Three is ſaid to be *Subduple* of 6, as 6 is duple of 3. See RATIO.

SUBJECT, a Perſon under the Rule and Dominion of a Soveraign Prince or State.

Of *Subjects*, ſome are ſo by Birth, others by Acts of Naturalization. Anciently, the Lords call'd, abuſively, thoſe who held Lands or Fees of them, or ow'd them any Homage, *Subjects*.

SUBJECT is alſo uſed for the Matter of an Art or Science; or that which it conſiders, or whereon it is employ'd: Thus the human Body is the *Subject* of Medicine; and in this Senſe, Anatomiſts call the Body they are Diſſecting, and whereon they read Lectures, their *Subject*. See OBJECT.

The *Subject* of Logic, is Thinking or Reaſoning; but more particularly, in a Syllogiſm, one of the Terms of a Propoſition is call'd the *Subject*, and the other the *Attribute*. See PROPOSITION.

In Poetry, the *Subject* is the Matter treated of; the Event related, or ſet in a fine View, and inrich'd with Ornaments.

SUBJECT is alſo the Subſtance or Matter to which an Accident is added. See ACCIDENT.

'Tis a Maxim, That two Contraries can never ſubſiſt in the ſame *Subject*.

SUBJUNCTIVE, in Grammar, the fourth Mood, or Manner of conjugating Verbs; thus call'd, becauſe uſually ſubjoin'd to ſome other Verb, or at leaſt to ſome other Particle, as, *I ſee what you aim at. Though this be true, &c.* See MOOD.

The *Greek* is almoſt the only Language that properly has any *Subjunctive* Mood, though the *French*, *Spaniſh* and *Italian* have ſome Shew thereof. In all other Languages, the ſame Inflexions ſerve for the Optative and the *Subjunctive* Moods: For which Reaſon, the *Subjunctive* Mood might be retrench'd from the *Latin* and thoſe other Grammars; it not being the different Ways of ſignifying, which may be very much multiplied, but the different Inflections, that conſtitute the different Moods. See OPTATIVE, *&c.*

SUBLAPSARY, in Theology; or *Infralapſary*; a Term applied to ſuch as hold, that God having foreſeen the Fall of *Adam*, and in conſequence thereof, the Loſs of Mankind; reſolved to give a Grace ſufficient to Salvation to ſome, and to refuſe it to others. See GRACE.

Sublapſary is uſed in Oppoſition to *Infralapſary*. See INFRALAPSARY.

SUBLIMATE, a chymical Preparation, the Baſis whereof is Mercury, or Quick-ſilver. See MERCURY.

There are two Kinds of *Sublimate*, *Corroſive* and *Sweet*.

Corroſive Sublimate, is prepared of Mercury, either crude or revived from Cinnabar, together with Spirit of Nitre, Vitriol lixiviated to a Whiteneſs, and Sea Salt decripitated; the whole reduced into a white brilliant Maſs by *Sublimation*.

Sweet Sublimate, is the ſame with Corroſive, only temper'd and ſweeten'd by the Addition of *Mercurius Dulcis*, and thus reduced into a white Maſs full of hard glittering Pieces, like little Needles, by being paſs'd ſeveral times over the Fire, and through ſeveral Mattraſſes.

To take away all its Malignity, it ſhould be dulcified at leaſt Thrice.

Corroſive *Sublimate* is White, and full of ſhining, cryſtallin Veins. It cannot act, unleſs it find ſome Humidity to act on; and is then a violent Poiſon, which corrodes and deſtroys the Parts of the Body with much Violence. Oil of Tartar *per Deliquium*, is held the beſt Antidote againſt it.

Sweet *Sublimate*, is thus call'd, in Oppoſition to the Corroſive. 'Tis given internally, in the Cure of ſeveral Diſeaſes, particularly Venereal ones. See VENEREAL.

SUBLIMATION, in Chymiſtry, an Operation which differs very little from Diſtillation, excepting, that in Diſtillation,

tion, only the Fluid Parts of Bodies are raiſed; but in this, the Solid and Dry; and that the Matter to be diſtilled may be either Solid or Fluid; but *Sublimation* is concerned only about ſolid Subſtances. See DISTILLATION.

There is alſo another Difference, namely, that Rarefaction, which is of very great Uſe in Diſtillation, has hardly any Room in *Sublimation*; for the Subſtances which are to be *Sublimed*, being Solid, are incapable of Rarefaction; and ſo it is only Impulſe can raiſe them.

However, it may not be improper to inquire a little more nicely into the Reaſon of ſuch a Diverſity in the Elevation of Bodies; why ſome do aſcend with a gentle Heat, and others are not to be raiſed by the moſt vehement Fire: And ſuch an Enquiry will more properly come in here, becauſe this Head contains all the Buſineſs of Volatility and Fixation. See VOLATILITY and FIXITY.

The Cauſe of this Elevation, and Aſcent in the Particles of Bodies, is to be aſcribed to the Fire; not only on the account of Impulſe, but of another Property the Fire has; namely, to inſinuate itſelf into all the Interſtices of theſe Bodies, and thereby break the Coheſion of their Parts, ſo that at laſt they become divided into very ſmall Parts, if not into the ſmalleſt that Art can reduce them into.

Particles thus ſeparated and divided, loſe much of their Gravity. For the Gravity of the ſame Particle decreaſes in the ſame Proportion as the Cube of the Diameter is leſſened. Suppoſe, therefore, a Body, whoſe Diameter is 12: If, then, its Diameter be made leſs by 1, *viz.* 11, the Gravity of that Body will be only 9 $\frac{1}{4}$, or thereabouts: A Body, therefore, by being divided into very minute Corpuſcles, is very eaſily *ſublimed*.

Add, that the Surface of a Body decreaſes in a very different Manner from Gravity only as the Square of the Diameter is leſſened. Where the Gravity decreaſes, in ſuch a Series, as is expreſs'd by the Numbers 1728, 1331, 1000, the Diminution of the Surface will obſerve this Proportion, *viz.* 144, 121, 100; and when, upon reducing the Diameter to 6, the Gravity becomes leſs than 2, the Surface will ſtill amount to 36.

How much this contributes to a quick Aſcent, will appear from the *Sublimation* of Camphire, Benzoin and Arſenick; whoſe Particles, as they cohere but looſely, are, for that Reaſon, diffuſed into a larger Surface; upon which account they are the eaſieſt to be *ſublimed* of any; nay, theſe ſolid Particles, upon account of their Surface, will ſooner aſcend than ſome Fluids.

So Flower of Sulphur riſes ſooner than Oil, not only than that of Vitriol, but any other, though ever ſo light.

By this Contrivance of Nature, *viz.* that the Gravity of Bodies decreaſes in a triplicate, but their Surface in a duplicate Proportion of their Diameters; it comes to paſs, that Bodies, which have a very different Gravity, may be raiſed with the ſame Force. Thus the Salts of Animals, as of Harts-horn, human Blood, of Vipers, *&c.* being compoſed of very minute Corpuſcles, as is found by Experience, in diſtilling them, do eaſily aſcend; becauſe the Surface in them, is not leſſened ſo much as the Gravity is; and the Salts of Vegetables, as of Tartar, Balſam, *&c.* which are of a more cloſe Texture, by reaſon of their larger Surfaces, are without much difficulty raiſed.

The Corpuſcles alſo of Minerals and Metals, though very compact and heavy, do, in ſome meaſure, give way to the Fire, and are capable of being *Sublimed*. In all theſe Inſtances, the Breadth of the Surface, which expoſeth the Particles more to the Impetus of the Fire, is the Reaſon why they are raiſed with as much Eaſe, as if their Gravity had been leſſened, by diminiſhing their Surface: So that Particles though ever ſo different in Weight, may be equally raiſed by the ſame Degree of Heat, if the Propoſition of their Gravity be reciprocal to that of their Surfaces.

SUBLIME, in Diſcourſe, ſomething extraordinary and ſurprizing, which ſtrikes the Soul, and makes a Work raviſh and tranſport.

This is what *Longinus*, who has wrote expreſsly on the Subject, means by *Sublime*. The Definition, indeed, is not his, but M. *Boileau*'s; for the Author writing his Book after another of *Cecilius*, on the ſame Subject, employ'd almoſt wholly in ſhewing what the *Sublime* is, declined defining it, as ſuppoſing it well known.

By the Definition, it may appear, that the *Sublime* is a very different Thing from what the Orators call the *ſublime Style*. See STYLE.

The *ſublime* Style neceſſarily requires big and magnificent Words; but the *Sublime* may be found in a ſingle Thought, a ſingle Figure, a ſingle Turn of Words. A thing may be in the *ſublime* Style, and yet not be *Sublime*, *i. e.* have nothing extraordinary and ſurprizing.

For Inſtance: *The Almighty Author of the Univerſe, with a ſingle Word, created Light.* This, now, is in the *ſublime* Style, yet it is not *Sublime*, there being nothing extraordinary in it, which another Perſon might not eaſily hit on. But as *God ſaid, Let there be Light, and there was Light*; ſo extraordinary a Turn of Expreſſion, which ſhews the Obedience of the Creature to the Orders of his Creator, is truly *Sublime*, and has ſomething more than Human.

Longinus makes five Sources of the *Sublime*: The Firſt, a certain Elevation of Mind, which makes us think happily. The Second, in the Pathetic, or that natural Vehemence and Enthuſiaſm, which ſtrikes and moves us: Theſe Two are owing almoſt wholly to Nature, and muſt be born with us; whereas the reſt depend, partly, on Art. The Third is, the turning of Figures in a certain Manner, both thoſe of Thought and of Speech. The Fourth, Nobleneſs of Expreſſion, which conſiſts of two Parts, the Choice of the Words, and the elegant, figurative Diction. The Fifth, which includes all the reſt, is the Compoſition and Arrangement of the Words in all their Magnificence and Dignity. See PATHETIC, *&c.*

SUBLIMING *Pots.* See ALUDELS.

SUBLINGUAL *Glands*, in Anatomy, two Glands under the Tongue, placed on each Side thereof. See TONGUE.

Theſe with the Sipoglottides filtrate a ſerous Humour, of the Nature of Saliva, which they diſcharge by little Ducts nea rthe Gums, into the Mouth.

SUBMULTIPLE, in Geometry, *&c.* a *Submultiple Quantity*, is that which is contained in a certain Number of times in another, and which therefore repeated a certain Number of times, becomes equal thereto. Thus 3 is a *Submultiple* of 21.

In which Senſe, a *Submultiple* coincides with a *Quota Part*. See QUOTA *Part*.

Submultiple Ratio, is that between the Quantity contain'd, and that containing: Thus the *Ratio* of 3 to 21 is *Submultiple*. See RATIO.

In both Caſes, *Submultiple* is the Reverſe of *Multiple*: 21, *e. gr.* being a *Multiple* of 3, and the *Ratio* of 21 to 3 a *multiple Ratio*. See MULTIPLE.

SUBMULTIPLE - - - - - -
SUBMULTIPLE *Subſuperparticular* } See RATIO.
SUBMULTIPLE *Subſuperbipartiens*

SUBNORMAL, in Geometry, a Line which determines the Point in the Axis of a Curve, where a Normal or Perpendicular, raiſ'd from the Point of Contact of a Tangent to the Curve, cuts the Axis. See CURVE.

Or, the *Subnormal* is a Line, which determines the Point wherein the Axis is cut by a Line falling perpendicularly on the Tangent in the Point of the Contact.

Thus TM (Plate Conicks, Fig. 19.) being a Tangent to a Curve in M; And MR a Normal or Perpendicular to the Tangent; the Line PR intercepted between the Semiordinate PM and the Normal MR, is call'd the *Subnormal*.

Hence, 1°, In a Parabola, as AM, *&c.* the *Subnormal* PR is to the Semiordinate PM, as PM is to PT, and MR to TM.

2°. In the Parabola, the *Subnormal* PR is Subduple the Parameter; and, conſequently, an invariable Quantity.

SUBORDINATION, a relative Term, expreſſing the Degree of Superiority or Inferiority, between one thing and another.

There is a Series of *Subordinations* running throughout all Nature. In the Church, there are ſeveral Degrees of *Subordination*, as of Deacons to Prieſts; Prieſts to Prelates, *&c.*

The like are obſervable in the ſecular State; In Offices of War, Juſtice, *&c.* and even

In the Sciences, Trigonometry is *ſubordinate* to Geometry; and in the Virtues, Abſtinence and Chaſtity are *ſubordinate* to Temperance. In Muſic, ſome call the plagal Tones, *ſubordinate Tones*. See TONE.

SUBORNATION, is a ſecret or under-hand preparing, inſtructing or bringing in, a falſe Witneſs, or corrupting or alluring a Perſon to do ſuch a falſe Act.

Hence the *Subornation* of Perjury, mention'd in the Act of General Pardon, 12 *Car.* II. *c.* 8. is the alluring to Perjury. See PERJURY.

SUBPOENA, is a Writ, whereby all Perſons under the Degree of Peerage, are call'd into *Chancery*, in ſuch Caſes, where the Common Law hath made no Proviſion, ſo that the Party can have no Remedy by the ordinary Courſe of Common Law.

The Peers, in ſuch Caſes, are called by the Lord Chancellor's Letter, giving Notice of the Suit intended againſt them, and requiring them to appear.

There is alſo a *Subpœna ad teſtificandum*, for ſummoning of Witneſſes, as well in *Chancery*, as in other Courts.

There is alſo a *Subpœna* in the *Exchequer*, as well in the Court of Equity there, as in the Office of Pleas.

The Name is taken from the Words in the Writ, which charge the Party ſummoned to appear at the Day and Place aſſigned; *Sub pœna centum librarum*.

SUBPOPLITÆUS, in Anatomy. See POPLITÆUS.

SUBREPTION, the Action of obtaining a Favour from a Superior by Surprize, or by a falſe Repreſentation.

Subreption differs from *Obreption*, in that *Obreption* is a falſe Expreſſion of the Quality of a Thing or Fact, *&c.* And *Subreption*, a want of Expreſſion; or a fraudulent Reticency or Concealment of a Thing, which would have render'd the obtaining of the Favour more difficult.

The Word is form'd from the *Latin*, *ſub*, under, and *repo*, I creep.

SUBREPTITIOUS or SURREPTITIOUS, a Term applied to a Letter, Licence, Patent or other Act, fraudulently obtain'd of a Superior, by concealing ſome Truth, which had it been known, would have prevented the Conceſſion or Grant.

The Benefit of Letters, Licences, *&c.* is forfeited, when they are found contrary to the Informations given; they being then reputed *Subreptitious*.

Papal Bulls and Signatures are Null and *Subreptitious*, when the true State of the Benefice, the Manner of the Vacancy, and other neceſſary Matters, are not juſtly ſignified to the Pope.

Subreptitious differs from *Obreptitious*. See SUBREPTION.

SUBROGATION, in the Civil Law, the Action of ſubſtituting a Perſon in the Place, and intitling him to the Right, of another.

In its general Senſe, *Subrogation* implies a Succeſſion of any Kind; whether of a Perſon to a Perſon, or of a Perſon to a Thing.

There are two Kinds of *Subrogations*, the one *Conventional*, the other *Legal*.

The *Conventional*, is a Contract, whereby a Creditor transfers his Debt, with all Appurtenances thereof, to the Profit of a third Perſon.

Legal Subrogation, is that which the Law makes in favour of a Perſon, who diſcharges an antecedent Creditor; in which Caſe there is a legal Tranſlation of all Rights of the ancient Creditor to the Perſon of the new one.

This the Civilians more uſually call *Succeſſion*, as being wholly the Work of the Law, and to diſtinguiſh it from the *conventional Subrogation*, which they alſo call *Ceſſion*. See CESSION.

The Word is form'd from the *Latin*, *Subrogatio*, of the Verb *Rogare*, which, among the ancient *Romans*, ſignified to ask, to interrogate; whence it was, that they call'd the Laws themſelves *Rogationes*, in regard the People made them, upon being *ask'd* by the Magiſtrates. And as Laws made by the People could not be changed without their Conſent, and without being ask'd a-new, if they thought good to have the Law wholly aboliſh'd, *Lex abrogabatur*; if only a Part of it were to be aboliſh'd, *Lex derogabatur*; and if any Clauſe or Amendment were added to it, *Lex ſubrogabatur*.

The new Magiſtrates were alſo *Subrogated* in the Place of the old ones; for during the Time of the Republic, no Magiſtrate could be, but by Conſent of the People, nor, of conſequence, but by Law; ſince whatever the People thought good, was Law. This is what occaſion'd *Salmaſius* to ſay, That *Subrogare* and *Subſtituere per Legem*, were Reciprocals.

SUBSCAPULARIS, in Anatomy, a Muſcle ariſing from the Baſis and Side of the Scapula; and, ſpreading itſelf under the whole Convex, or Under-ſide of it, is inſerted by a Semicircular Tendon, into the Neck of the *Os Humeri*, and draws it down to the Side of the Trunk.

SUBSCRIPTION, the Signature put at the bottom of a Letter, Writing, or Inſtrument. See SIGNATURE.

In Church Hiſtory, we meet with Inſtances of *Subſcriptions*, wrote in the Blood of *Jeſus Chriſt*. *Nicetas*, in the Life of *Ignatius*, ſpeaking of the *Subſcriptions* made at the Council, wherein that Father was depoſed, ſays, They *Subſcribed*, not with common Ink, but, what ſtrikes a Man with Horror, with a Pen dipp'd in the Blood of *Chriſt*. The Hiſtorian *Theophanes*, tells us, That Pope *Theodore* mix'd the Blood of *Chriſt* with the Ink, wherein he wrote the Depoſition of *Pyrrhus*.

SUBSCRIPTION, in the *Engliſh* Commerce, is uſed for the Share or Intereſt, particular Perſons take in a publick Stock, or a Trading Company, by writing their Names, and the Shares they require, in the Regiſter thereof. Half the Commerce in *England* is carried on in *Subſcription*. See COMPANY, BUBBLE, FUND, *&c.*

The *French* have likewiſe adopted the Word *Subſcription*, uſing it in ſpeaking of the Actions of the *India* Company.

A *Subſcription* differs from an Action; in that the firſt is properly only an Action begun, or an Engagement, by making the firſt Payment, to acquit the reſt in the Time limited; and that the other is the whole Action, preform'd in all its Parts. See ACTION.

SUBSCRIPTION, in the Commerce of Books, particularly ſignifies an Engagement a Perſon enters, to take a certain Number of Copies of a Book going to be printed; and the reciprocal Obligation of the Bookſeller or Publiſher, to deliver the ſaid Copies on certain Terms.

The uſual Conditions of theſe *Subſcriptions*, are, on the Part of the Bookſeller, to afford the Books cheaper to a Subſcriber than to another, by one Third or one Fourth of the Price; and on the Part of this latter, to advance half the Money in Hand, and to pay the reſt on the Delivery of the Copies: An Agreement equally advantageous to the one and the other; as the Bookſeller is hereby furniſhed with Money to carry on Works, which would otherwiſe be above his Stock; and the Subſcriber, as it were, receives Intereſt for his Money, by the moderate Price the Book ſtands him in.

Subſcriptions had their Riſe in *England*, and 'tis but very lately that they are got into other Countries. They were firſt ſet on Foot, in the middle of the laſt Century, for the printing of *Walton*'s Polyglot Bible, which is the firſt Book ever printed *by Way of Subſcription*.

From *England*, they paſs'd a few Years ago into *Holland*, and are juſt now introduced into *France*. F. *Montfaucon*'s Collection of Antiquities, is the firſt Book there publiſh'd by *Subſcriptions*, which were ſo very numerous, that great Numbers were refuſed. The ſame Method has been ſince propoſed, for the Publication of S. *Chryſoſtom* by the Benedictins; but not with equal Succeſs.

All the other Books ſince printed by *Subſcription*, are M. *Dacier*'s Tranſlation of *Plutarch*'s Lives; the Deſcription of *Verſailles*, and F. *Daniel*'s Hiſtory of the *French* Militia.

In *England*, they are become exceedingly frequent; and their Frequency has render'd them liable to ſome Abuſes, which begin to diſcredit them.

SUBSEQUENT, ſomething that comes after another, particularly with regard to the Order of Time. When two Feſtivals happen on the ſame Day, the principal One is celebrated; and the other transferr'd to the *Subſequent* Day, *i. e.* to the Morrow.

SUBSESQUIALTERATE }
SUBSUPERPARTICULAR } See RATIO.
SUBSUPERPARTIENS }

SUBSIDY, in Law, any Aid, Tax or Tribute granted by Authority of Parliament to the King; on preſſing Occaſions of the State; levied either on Perſons, Lands or Goods. See DUTY.

Such are the Land Tax, as 'tis call'd; which is uſually at the Rate of three or four Shillings in the Pound, for Lands, and of two Shillings and eight Pence for Goods, *&c.* See TAX.

In the Liſt of *Engliſh* Duties, or Impoſitions, are divers Kinds of *Subſidies*: Old *Subſidy*, Additional Impoſition to the old *Subſidy*. New *Subſidy*, third *Subſidy*; Two-thirds *Subſidy*. See DUTY, CUSTOM, *&c.*

The ancient *Saxon* Kings had no *Subſidies* collected after the Manner of ours; but in lieu thereof, had ſeveral *Cuſtoms*, whereby they levied Money or perſonal Service on the People, for the Repairing of Cities, Caſtles, Bridges, military Expeditions, *&c.* which they call'd *Burgbote*, *Brigbote*, *Herefare*, *Heregeld*, *&c.*

But upon the Lands becoming oppreſs'd by the *Danes*, King *Egelredus* in the Year 1007, agreed to pay them yearly 10000 Pounds for Redemption of Peace, which Sum was afterwards increaſed to 36000 Pounds, and at length to 48000 Pounds, which was call'd *Danegeld*, and was levied on Land; each Hide, or Plough-land, that of the Church only excepted, being ceſs'd 12 Pence. See DANEGELD.

Hence the Tribute came to be call'd *Hydagium*, a Name that afterwards became common to all Taxes and *Subſidies* impoſed on Lands; as thoſe on Cattle, being call'd *Hornegeld*. See HIDAGE.

Both theſe the *Normans* ſometimes call'd from the *Greek*, *Taxes*, and ſometimes from their own Language, *Taillage*, and ſometimes, according to the Cuſtom beyond-Sea, *Subſidia* and *Auxilia*.

After the Conqueſt, theſe *Subſidies* ſeem to have been granted differently from what they now are; as every Ninth Lamb, every Ninth Fleece, every Ninth Sheep, *&c.* Sometimes the Rate was every Tenth, and ſometimes every Fifteenth, *&c.* See TENTH, FIFTEENTH, *&c.* See alſo BENEVOLENCE.

In *France*, the King alone, by his own Authority, impoſes *Subſidies* on his People, at his own Diſcretion. What *Grotius* ſays, that thoſe who pay *Subſidies* to other Soveraigns, to engage them in their Defence againſt powerful Enemies, by ſo doing, acknowledge their own Weakneſs, and that ſuch an Acknowledgment diminiſhes ſomewhat of their Dignity; muſt be underſtood of ſuch States as are too weak to defend themſelves, and who, in reſpect hereof, render themſelves, in ſome meaſure, Tributary; not of ſuch as ſubſiſting by their own Strength, give *Subſidies* to their weaker Neighbours, to prevent their being over-run by others.

Such, *e. gr.* as the King of *France* is, with regard to *Sweden*, and ſeveral other Princes; to whom he generally grants *Subſidies* in the Treaties he concludes with them.

SUBSTANCE, in Phyſicks, ſomething that we conceive to ſubſiſt of itſelf, independantly of any created Being, or any particular Mode or Accident.

Thus a Piece of Wax is a *Subſtance*; becauſe we can conceive it as ſubſiſting of itſelf, and of its own Nature, without any Dependance on any other created Nature, or without any particular Mode, Form, Colour, *&c.* See Mode.

Spinoſa maintains, that there is but one only *Subſtance* in Nature, whereof all the Creatures are ſo many different Modifications; and thus he makes the Soul of the ſame *Subſtance* with the Body. The whole Univerſe, according to him, is but one *Subſtance*; which *Subſtance*, he holds endow'd with an Infinity of Attributes, in the Number of which are *Thought* and *Extenſion*. All Bodies are Modifications of this *Subſtance*, conſider'd as extended; and all Spirits Modifications of the ſame *Subſtance*, conſider'd as Thought. See Body and Thinking.

But Mr. *Lock*'s Philoſophy of *Subſtances*, is much more Orthodox: Our Ideas of *Subſtances*, that great Author obſerves, are only ſuch Combinations of ſimple Ideas, as are taken to repreſent diſtinct Things, ſubſiſting by themſelves; in which the confuſed Idea of *Subſtance*, is always the Chief. Thus the Combination of the Ideas of a certain Figure, with the Powers of Motion, Thought and Reaſoning, joined to *Subſtance*, make the ordinary Idea of Man; and thus the Mind obſerving ſeveral ſimple Ideas to go conſtantly together, which being preſumed to belong to one Thing, are call'd, and united in one Subject, by one Name; which we are apt, afterward, to talk of and conſider as one ſimple Idea. See Idea.

We imagine not theſe ſimple Ideas to ſubſiſt by themſelves; but ſuppoſe ſome *Subſtratum*, wherein they ſubſiſt, which we call *Subſtance*. See Substratum.

The Idea of pure *Subſtance*, is nothing but the ſuppoſed, yet unknown Support of theſe Qualities, which are capable of producing ſimple Ideas in us. See Quality.

The Ideas of particular *Subſtances* are compoſed out of this obſcure and general Idea of Subſtance, together with ſuch Combinations of ſimple Ideas, as are obſerved to exiſt together, and ſuppoſed to flow from the internal Conſtitution, and unknown Eſſence of that *Subſtance*.

Thus we come by the Ideas of Man, Horſe, Gold, *&c.* Thus the ſenſible Qualities of Iron, or a Diamond, make the complex Idea of thoſe *Subſtances*, which a Smith, or a Jeweller commonly knows better than a Philoſopher. See Definition.

The ſame happens concerning the Operations of the Mind, *viz.* Thinking, Reaſoning, *&c.* which we concluding not to ſubſiſt by themſelves, nor apprehending how they can belong to Body, or be produc'd by it; we think them the Actions of ſome other *Subſtance*, which we call Spirit; of whoſe *Subſtance* or Nature we have as clear a Notion, as of that of Body; the one being but the ſuppos'd *Subſtratum* of the ſimple Ideas we have from without; as the other of thoſe Operations, which we experiment in ourſelves within: So that the Idea of *Corporeal Subſtance* in Matter, is as remote from our Conceptions, as that of *Spiritual Subſtance*.

Hence we may conclude, that he has the perfect Idea of any particular *Subſtance*, who has collected moſt of thoſe ſimple Ideas which do exiſt in it; among which, we are to reckon its active Powers and paſſive Capacities, though not ſtrictly ſimple Ideas.

Subſtances are generally diſtinguiſh'd by ſecondary Qualities; for our Senſes fail us in the Diſcovery of primary ones, as the Bulk, Figure, Texture, *&c.* of the minute Parts of Bodies, on which their real Conſtitutions and Differences depend. See Particle.

But ſecondary Qualities are nothing but Powers, with relation to our Senſes.

The Ideas that make our Complex ones of Corporeal *Subſtances*, are of three Sorts: Firſt, the Ideas of primary Qualities of Things, which are diſcovered by our Senſes; ſuch as Bulk, Figure, Motion, *&c.* Secondly, the Senſible ſecondary Qualities, which are nothing but Powers to produce ſeveral Ideas in us, by our Senſes. Thirdly, the Aptneſs we conſider in any *Subſtance*, to cauſe or receive ſuch Alterations of primary Qualities, as that the *Subſtance* ſo alter'd, ſhould produce in us different Ideas from what it did before.

Beſides the complex Ideas we have of material *Subſtances*, by the ſimple Ideas taken from the Operations of our own Minds which we experiment in ourſelves as Thinking, Underſtanding, Willing, Knowing, *&c.* co-exiſting in the ſame *Subſtance*, we are able to frame the complex Idea of a Spirit: And this Idea of an immaterial *Subſtance*, is as clear, as that we have of a Material.

By joining theſe with *Subſtance*, of which we have no diſtinct Idea, we have the Idea of Spirit: And by putting together the Ideas of coherent, ſolid Parts, and Power of being mov'd joined with *Subſtance*, of which likewiſe we have no poſitive Idea; we have the Idea of Matter.

Further, there are other Ideas of *Subſtances*, which may be called *Collective*, which are made up of any particular *Subſtances*; conſidered as united into one Idea, as a Troop, Army, *&c.* which the Mind does by its Power of Compoſition. Theſe collective Ideas, are but the artificial Draughts of the Mind, bringing Things remote, and independant, into one View, the better to contemplate and diſcourſe of them united into one Conception, and ſignified by one Name. For there are no Things ſo remote, which the Mind cannot, by this Art of Compoſition, bring into one Idea; as is viſible, in that ſignified by the Name Univerſe. See Composition.

SUBSTANTIAL, or SUBSTANCIAL, in the Schools, ſomething belonging to the Nature of *Subſtance*.

'Tis generally diſputed, whether or no, there be ſuch Things as *ſubſtantial Forms*; *i. e.* Forms independant of all Matter; or Forms that are *Subſtances* themſelves. See Form.

Subſtantial, is alſo uſed in the ſame Senſe with *Eſſential*; in oppoſition to *Accidental*; in which relation, it gives room for abundance of Diſtinguo's. See Essential.

SUBSTANTIVE, in Grammar, a Quality aſcribed to a Noun or Name, when the Object it deſigns, is conſider'd, ſimply, in itſelf, and without any regard to its Qualities. See Noun.

When the Object is conſider'd, as cloath'd with certain Qualities, the Noun is ſaid to be *Adjective*.

For a more palpable Criterion; All Nouns, to which one cannot add the Word *Thing*, are *Subſtantives*; and all thoſe to which *Thing* may be added, are Adjectives. See Adjective.

F. Buffier obſerves, 'tis a common Miſtake in Grammarians, to define a Noun *Subſtantive*, to be that which denotes or expreſſes a *Subſtance*.

The Miſtake ariſes hence, that finding all Subſtances expreſs'd by *Subſtantives*, they have call'd all Kinds of Nouns, *Subſtantives*. But it does not follow, that all Nouns deſign Subſtances; witneſs the Nouns *Accident*, *Lightneſs*, *&c.* which are far from expreſſing Subſtances, and yet are true Nouns *Subſtantives*. Perhaps Grammarians mean nothing here by *Subſtance*, but the Subject ſpoke of: If ſo, the Definition is laudable.

Nouns *Subſtantives* ſometimes, become Adjectives; and Nouns Adjectives become *Subſtantives*. In effect, the Nature of the Adjective being to expreſs the Quality of an Object; if that Quality be the Object itſelf ſpoke of, then, on the Foot of our Definition, it becomes a *Subſtantive*. If, I ſay, a *good Prince*, the Word *good* is apparently an Adjective, becauſe it repreſents the Prince, as cloath'd with the Quality of Goodneſs. But if I ſay, *The Good ought to be prefer'd to the Bad*; 'tis evident, *Good* is the Subject ſpoke of, and, conſequently, a *Subſtantive*.

Indeed, Cuſtom does not allow us to uſe all Adjectives indifferently, as *Subſtantives*; nor all *Subſtantives*, as Adjectives. The Laws regarded herein are as follow;

All Nouns either ſignify an Individual, as *Socrates*, *Alexander*, *&c.* or a Species, as Man, Horſe, *&c.* or an eſſential Quality, as Rational, Material; or an accidental one, as Black, White, Good, Fair, *&c.* or a Dignity, Office, Art, *&c.* as King, Preſident, Philoſopher, *&c.*

Thus have we four Kinds of Nouns; whereof the 1° is very rarely taken adjectively; for as they ſignify Individuals or particular Beings, they can ſcarce be applied to any thing but the Thing they properly ſignify: yet we have ſometimes known the Name of *Cato* taken Adjectively; as, *This is to be Cato, indeed.* Nor does *Malherbe* ſcruple to ſay in *French*, *Plus Mars que le Mars de la Thrace.*

2° Proper Names are ſometimes converted into the Name of Dignities, *&c.* as *Cæſar*, *Auguſtus*, *&c.* In which Caſe, they may be conſider'd, in the ſame Light, as Nouns of the fourth Kind.

3° Thoſe of the ſecond Kind, are alſo ſometimes taken Adjectively, as, He is much a Man, *&c.* The third Kind are Adjectives themſelves: For the fourth Kind, all Grammarians rank them among *Subſtantives*; excepting F. *Buffier*, who will have them to be Adjectives; or, to uſe his own Term, *Modificatives*. Be this as it will, they are frequently uſed adjectively; He is more a King, and more a Philoſopher than any of his Predeceſſors.

Now for Adjectives taken *ſubſtantively*, 1° Participles Paſſive, are very rarely thus taken; though we ſometimes ſay, *The Loved are leſs happy than the Lovers: The Taught have the Advantage of the Untaught: The Beſieged made a Salley*, *&c.* And, 2° Participles Active are taken ſtill more rarely for *Subſtantives*. We ſcarce ever, *e. gr.* ſay the Loving, the Reading; but the Lover, the Reader; yet we ſay Student, the Proteſtant, the Tenant, the Appellant, the Opponent, *&c.*

3° For Nouns Adjectives, thoſe applied to Men, are not only uſed *Subſtantively*, but are even become *Subſtantives* by Uſe; whether they be ſuch as regard Religion; as Chriſtian, Pagan, Mahometan, *&c.* Or Opinion; as Stoic, Peripatetic, Carteſian, *&c.* Or Country; as the *Engliſh*, *French*, *Italians*: Or the Temperament; as the Melancholic, Phlegmatic, Choleric, *&c.* Under the ſame Rule, are likewiſe comprehended abundance of Adjectives, ſignifying a Number of People agreeing in ſome common Attribute; as, the Learned, the Great, the Devout, the Brave, the Diſſolute, &c. But Uſe is here to be regarded; for we don't ſay the Eloquent, as we ſay the Learned; but Elegant Writers, &c. 'Tis Cuſtom, and the Ear alone, that are to decide about theſe Differences.

Again, Adjectives taken *ſubſtantively*, for other Things beſide Men, are either ſo uſed, to ſignify a Number or Set of Things that have ſome common Quality; or to expreſs an abſtract Quality. In both which, as in thoſe of Men, there are ſome authorized by Cuſtom, and others form'd every Day on their Model.

With regard to which laſt, Uſe, again, and the Ear, are to decide. Here All the Adjectives of Colours, are uſed *ſubſtantively*; as the White, Black, Green, &c. Some of thoſe of Qualities; as the Cold, &c. Thoſe of Time; as the Paſt, Preſent, Future: And many of other Matters; as the Agreeable, the Sublime, the Principal, &c. Nor is it only in the Poſitive, but alſo in the Comparative and Superlative Degrees, that Adjectives are uſed *ſubſtantively*; as, The *better of the two*: *The beſt of it*, &c.

SUBSTITUTE, a Perſon appointed to officiate for another, in caſe of Abſence, or other legal Impediment.

In the *French* Law, the *Procureurs*, or Proctors, are obliged to name two of their Brethren for *Subſtitutes*, whoſe Names are wrote after theirs in the Liſt; to receive Significations and Summons's made in their Abſence.

The Word is form'd from the *Latin*, *ſub*, under, and *ſtatuo*, I appoint, eſtabliſh.

Substitute, in Medicine, a Drug, or Remedy that may be uſed in lieu of another; or that ſupplies the Place of another of like Virtue, which is not to be had; call'd alſo a *Succedaneum*. See Succedaneum.

The Root of the great Centaureum, and ſometimes Monk's Rhubarb, are uſed as *Subſtitutes* to Rhapontic.

SUBSTITUTION, in Grammar, the uſing of one Word for another; or a Mode, State, Manner, Perſon or Number of a Word for that of another. This the Grammarians otherwiſe call *Syllepſis*. See Syllepsis.

Substitution, in the Civil Law, a Diſpoſition of a Teſtator, whereby he *Subſtitutes* one Heir to another, who has only the Uſu-fruit, and not the Property of the Thing left him.

Subſtitution is a kind of Inheritance, call'd *Fiduciary*, or *Fidei-commiſſio*, in regard the immediate Inheritor has only the Uſe or Fruit of the Thing; the Body thereof being ſubſtituted and affected to certain Perſons, who are likewiſe to have the Uſu-fruit in their Times, but never the Property. In ſome Countries, the *Subſtitution* is perpetual; in *France*, it only holds to the fourth Generation.

Subſtitution anſwers to *Remainder*, in our common Law. See Remainder.

Among the *Romans*, there were abundance of theſe Fiduciary Heirs; who enjoy'd Inheritances, till they returned them into the Hands of the right Heir; and the Reaſon why they did not likewiſe reſtore the Fruits, or that the Fruits were not deem'd to make a Part of the Inheritance, but only of the Thing, was, that the Fiduciary was obliged to run the Riſks, and to ſtand the Charge of the Culture of the Land.

Substitution, in Algebra, Fractions, &c. is the putting in the Room of any Quantity in an Equation, ſome other Quantity, which is equal, but expreſs'd after another Manner. See Quantity.

SUBSTRACTION, in Arithmetic, the ſecond Rule, or rather Operation, in Arithmetic; whereby we deduct a leſs Number from a greater, to learn the preciſe Difference:

Or, more juſtly, *Subtraction* is the finding of a certain Number from two Homogeneous ones given; which, with one of the given Numbers, is equal to the other. See Arithmetic.

The Doctrine of *Subſtraction* is as follows;

To ſubſtract a leſs Number from a greater.

1° Write the leſs Number under the greater, in ſuch Manner, as that homogeneous anſwer to homogeneous Figures, *i.e.* Unites to Unites, Tens to Ten, &c. as we have directed under Addition. 2° Under the two Numbers, draw a Line. 3° *Subſtract*, ſeverally, Unites from Unites, Tens from Tens, Hundreds from Hundreds; beginning at the right Hand, and proceeding to the Left; and write the ſeveral Remainders in their correſpondent Places, under the Line. 4° If a greater Figure come to be *ſubtracted* from a leſs; borrow an Unite from the next Left-hand Place; this is equivalent to 10, and added to the leſs Number, the *Subſtraction* is to be made from the Sum: Or if a Cypher chance to be in the next Left-hand Place, borrow the Unite from the next further Place. By theſe Rules, any Number may be *ſubtracted* out of another greater. For Example;

If it be required, from 9800403459
To *Subtract* 4743865263

The Remainder will be found 5056538196

For, beginning with the right Hand Figure, and taking 3 from 9, there remains 6 Unites, to be wrote underneath the Line: Going then to the next Place, 6 I find, can't be taken from 5; wherefore, from the Place of Hundreds 4, I borrow one, which is equivalent to Ten, in the Place of Tens; and from the Sum of this 10 and 5, *viz.* 15, *ſubtracting* 6, I find 9 Tens remaining, to be put down under the Line. Proceeding to the Place of Hundreds, 2 with the 1 borrowed at the laſt Place, make 3, which *ſubtracted* from 4, leave 1. Again, 5 in the Place of Thouſands, cannot be *ſubtracted* from 3; for which Reaſon, taking one from 4, in the Place of Hundreds of Thouſands, into the empty Place of Tens of Thouſands, the Cypher is converted into Ten Tens of Thouſands, whence one Ten being borrowed, and added to the 3, and from the Sum 13 Thouſand, 8 Thouſand being *ſubtracted*, we ſhall have 8 Thouſand to enter under the Line: Then *ſubtracting* 6 Tens of Thouſands from 9, there remain 3. Coming now to take 8 from 4; from the 8 further on the Left, I borrow one, by means whereof, the two Cyphers will be turned each into 9. And after the like Manner, is the reſt of the *Subſtraction* eaſily perform'd.

If heterogeneous Numbers be to be *ſubſtracted* from each other; the Unites borrow'd, are not to be equal to Ten; but to ſo many as there go of Unites of the leſs Kind, to conſtitute an Unite of the Greater. For Example;

l.	*s.*	*d.*
45	16	6
27	19	9
17	16	9

For ſince 9 Pence cannot be *ſubſtracted* from 6 Pence; of the 16 Shillings, one is converted into 12 Pence; by which means, for 6 we have 18 Pence; whence 9 being *ſubtracted*, there remains 9. In like Manner, as 19 Shillings cannot be *ſubtracted* from the remaining 15; one of the 45 Pounds is converted into 20 Shillings, from which, added to the 15, 19 being *ſubtracted*; the Remainder is 16 Shillings. Laſtly, 27 Pounds *ſubtracted* from 44 Pounds, there remains 17.

If a greater Number be required to be *ſubtracted* from a leſs, 'tis evident the Thing is impoſſible. The leſs Number, therefore, in that Caſe, is to be *ſubſtracted* from the greater; and the Defect to be noted by the negative Character. *E. gr.* If I am requir'd to pay 8 Pounds, and am only Maſter of 3; when the Three are paid, there will ſtill remain 5 behind; which are to be noted, 5.

Subſtraction is prov'd, by adding the Remainder to the *Subtrahend*, or Number to be *ſubſtracted*: For if the Sum be equal to the Number whence the other is to be *ſubtracted*, the *Subſtraction* is juſtly perform'd: For Example;

		l.	*s.*	*d.* *q.*	
9800403459		156	11	3 ¼	
4743865263	Subtrahend	21	17	2 ½	Subtrahend
5056538196	Remainder	134	14	0 ¾	
9800403459		156	11	3 ¼	

Substraction, in Algebra, is perform'd by connecting the Quantities with all the Signs of the Subtrahend changed; and at the ſame time uniting ſuch as may be united; as is done in Addition. Thus $+7a$ *ſubſtracted* from $+9a$, makes $+9a-7a$ or $2a$.

In the *Subſtraction* of Compound algebraic Quantities; the Characters of the Subtrahend, are to be changed into the contrary ones, *viz.* + into −; and − into +. See Quantity.

To Subſtract ſpecious Numbers, or Quantities from one another; both thoſe affected with the ſame, and thoſe with contrary Characters.

1° If the Quantities deſign'd by the ſame Letter, have the ſame Signs; and the leſs be to be *ſubſtracted* from the greater; the *Subſtraction* is perform'd as in common Arithmetic, *e.gr.*

$$\begin{array}{ll} 5b+4d-f & =5\,\text{ſh.}+4p.-\frac{1}{4} \\ 2b+d\;-f & =2\,\text{ſh.}+1p.-\frac{1}{4} \\ \hline 3b\quad 3d-0 & 3-+3p.\quad 0 \end{array}$$

2° If a greater Quantity be to be *ſubſtracted* out of a leſs; the leſs muſt be *ſubſtracted* out of the greater, and to the Remainder, muſt be prefix'd the Sign −, if the Quantities be affected with the Sign +; or the Sign +, if they be affected with −.

$$\begin{array}{l} 16a+bb-9d = 16\,lib.+2\,\text{ſh.}-9d. \\ \underline{19a+3b-11d \quad 19 \;\; +3 \;\; -11} \\ -3a-1b+2 \quad -3 - 1 \;\; +2 \end{array}$$

3° If the Quantities have different Signs; the *Subſtraction* is converted into Addition, and to the Aggregate is prefix'd the Sign of the Quantity, whence the *Subſtraction* is to be made: For Example;

$$\begin{array}{l} 8a-5c+9d = 8\,lib.-5+9d \\ \underline{6a-8c-7d = 6 \;\; -8-7} \\ 2a+3c+16d = 2\,lib.+3+16 \end{array}$$

4° If the Quantities be expreſs'd in different Letters; they muſt be connected; only the Characters of the *Subtrahend* muſt be changed into the contrary ones: For Example;

$$\begin{array}{r} a+b-c \\ \underline{d-e+f} \\ a+b-c-d+e-f \end{array} \qquad \begin{array}{l} a+d \\ \underline{c-e-g} \\ a+d-c+e+g \end{array}$$

Substraction *of Logarithms*	See	Logarithm.
Substraction *of Vulgar Fractions*		Fractions.
Substraction *of Decimals*		Decimals.

SUBSTRUCTION, in Building. See Foundation.

SUBSTYLAR *Line*, in Dialling, a right Line, whereon the Style or Gnomon of a Dial is erected. See Gnomon.

In Polar, Horizontal, Meridional and Northern Dials, the *Subſtylar* Line is the Meridian Line, or Line of 12 a Clock; or the Interſection of the Plane, whereon the Dial is delineated, with that of the Meridian. See Meridian.

In Eaſterly and Weſterly Dials, the *Subſtylar* Line, is the Line of Six a Clock; or the Interſection of the Plane, whereon the Dial is delineated, with the prime Vertical. See Dial.

SUB-TANGENT, of a Curve, is the Line that determines the Interſection of the Tangent with the Axis; or, that determines the Point wherein the Tangent cuts the Axis, prolonged. See Curve.

Thus, in the Curve A M, *&c.* (Tab. Analyticks, Fig. 10.) the Line T P intercepted between the Semiordinate P M, and the Tangent T M, is the *Sub-tangent*. And PR is to P M, as P M to P T; and P M to P T, as M R to T M.

'Tis a Rule in all Equations, that if the Value of the *Sub-tangent* come out poſitive, the Point of Interſection of the Tangent and Axis, falls on that Side of the Ordinate, where the Vertex of the Curve lies; as in the Parabola and Paraboloides.

If it come out Negative, the Point of Interſection will fall on the contrary Side of the Ordinate, in reſpect of the Vertex or beginning of the Abſciſſe; as in the Hyperbola, and Hyperboliform Figures.

And, univerſally, in all Paraboliform, and Hyperboliform Figures, the *Sub-tangent* is equal to the Exponent of the Power of the Ordinate, multiplied into the Abſciſs. Thus in the common Parabola, whoſe Property is $px=yy$. The *Subtangent* is in Length, equal to x, the Abſciſs multiplied by 2, the Exponent of the Power of yy, the Square of the Ordinate; that is, it is equal to twice the Abſciſs; and by the former Rule for Paraboliform Figures, it muſt be taken above the Ordinate, in the Axis produced.

Thus, alſo, in one of the cubical Paraboloids, where $pxx=yyy$. The Length of the *Sub-tangent* will be $\frac{3}{2}$ of the Abſciſs. Thus in the Figure, you will ſee that the *Sub-tangent* in any Curve is a Line, which determines the Interſection of the Tangent in the Axis.

SUBTENSE, in Geometry, a right Line, oppoſite to an Angle, and preſumed to be drawn between the two Extremities of the Arch, which meaſures that Angle. See Arch.

The *Subtenſe* of the Angle coincides with the Chord of the Arch. See Chord.

In every rectangle Triangle, the Square of the *Subtenſe* of the right Angle, is equal to the Squares of the *Subtenſes* of both the other Angles; by the 47th *Prop.* of *Euclid.* This wonderful Property of that Triangle, was firſt diſcover'd by *Pythagoras*, who in the Tranſport of Joy, hereby occaſion'd, ſacrificed a Hecatomb. See Triangle.

The Word is form'd from the *Latin*, *ſub*, under, and *tendo*, I ſtretch.

SUBTERRANEOUS, ſomething under Ground. See Fossil.

Naturaliſts talk much of *Subterranean Fires*, as the Cauſe of Volcano's. See Fire and Volcano.

Subterranean Winds, as the Cauſe of Earthquakes. See Earthquake.

Mr. *Boyle* gives us an Inſtance, from the Diſſertation *de Admirand. Hungar. Aquis*, of a huge *Subterraneous* Oak dug out of a Salt Mine in *Tranſylvania*, ſo hard, that it could not eaſily be wrought on by Iron Tools; which yet, being expoſed to the Air out of the Mine, became ſo rotten, that in four Days, it was eaſy to be broken and crumbled between one's Fingers.

Mr. *Derham* adds, That the Trees turned out of the Earth, by the Breaches at *Weſt Thurrock* and *Dagenham*, though probably no other than Alder, and interred many Ages ago, in a rotten, oozy Mould, were ſo exceedingly tough, hard and ſound at firſt, that he could make but little Impreſſions on them with the Strokes of an Ax; yet being expoſed to the Air and Water, ſoon became ſo rotten, as to be crumbled between the Fingers.

SUBTILE, in Phyſicks, intimates a Thing exceedingly ſmall, fine, and delicate; ſuch as the Animal Spirits, *&c.* the Effluvia of odorous Bodies, *&c.* are ſuppoſed to be. See Effluvia.

One kind of Matter is only more *ſubtile* than another, in that being divided into ſmaller Parts, and thoſe, too, more agitated; on the one hand, it makes leſs Reſiſtance to other Bodies; and on the other, inſinuates itſelf more eaſily into their Pores.

The *Carteſians* ſuppoſe a *ſubtile Matter* for their firſt Element. See Cartesianism and Element.

This they lay down as ſo exceedingly Fine, that it penetrates the minute Pores of Glaſs and other ſolid Bodies; and from this they account for moſt of the Phænomena of Nature. See Vacuum, Plenum, Suction, *&c.*

Yet they don't pretend to prove the Exiſtence of this Matter, otherwiſe than by Conſequence. See Materia *Subtilis.*

Subtile *Matter.* See Matter.

SUBTILIZATION, the Act of *ſubtilizing*, or rendering any thing ſmaller and *ſubtiler*; particularly, the diſſolving or changing a mixt Body into a pure Liquor, or a fine Powder.

SUBTRIPLE *Ratio*, is when one Number or Quantity is contain'd in another three times; thus 2 is ſaid to be *Subtriple* of 6, as 6 is Triple of 2. See Ratio.

SUBURBICARY, an Epithet given to thoſe Provinces of *Italy*, *&c.* which compoſed the ancient Dioceſe or Patriarchate of *Rome.* See Province.

The Term is form'd from the *Latin*, *ſub*, under, and *urbs*, City. They were alſo ſometimes call'd *Urbicary* Provinces.

Authors uſually reckon Ten of theſe *Suburbicary* Provinces; whereof *Italy*, from the *Po* to the *Heel* made Seven, and the Iſles of *Sicily*, *Sardinia*, and *Corſica*, the other Three.

Yet *Salmaſius* will have the *Suburbicary* Provinces confined to thoſe Four in the Neighbourhood of *Rome*, to which the Authority of the Præfect of *Rome* extended; and theſe he makes the Limits of the Dioceſe of ancient *Rome.* See Diocese.

F. *Sirmond* takes the other Extreme, and comprehends all the *Weſt* under the Name of *Suburbicary* Provinces. *Rufinus*, who lived in the Age of the Council of *Nice*, explains the Power aſcribed to the Pope, in the Sixth Canon of that Council, by ſaying, That he had the Care and Intendance of the *Suburbicary* Provinces. Hence, the different Sentiments of Authors, with regard to the *Suburbicary* Provinces; ſome only conſidering the Pope as Biſhop of *Rome*; others, as Patriarch of the *Weſt*, *&c.*

SUCCEDANEUM, in Pharmacy, a Remedy ſubſtituted in the Place of another firſt preſcribed, when the Ingredients are wanting, neceſſary for the Compoſition of that other. See Substitute.

Subſtitute and *Succedaneum*, are of equal Import, unleſs, with ſome Authors, we chuſe to uſe *Subſtitute*, where a Simple of like Virtue is put for another; and *Succedaneum*, where a Compound is uſed with the ſame Intention.

The Word is form'd from the *Latin*, *Succedo*, to ſucceed, to come after.

SUCCENTURIATÆ, in Anatomy. See Renes *Succenturiatæ.*

SUCCENTURIATION, the Act of Subſtituting. See Substitution.

SUCCENTURIATUS, in Anatomy, a Muſcle, call'd alſo *Pyramidalis.* See Pyramidalis.

SUCCESSION, in Philoſophy, an Idea we get, by reflecting on that Train of Ideas conſtantly following one another in our Minds when awake. See Idea and Mode.

The Diſtance between any Parts of this *Succeſſion*, is what we call *Duration.* When this *Succeſſion* of Ideas ceaſes, we have no Perception of Time or Duration thereof; but the Moment we fall aſleep, and that wherein we awake, ſeem connected. See Duration.

They, who think we get the Idea of *Succeſſion* from our Obſervation of Motion by our Senſes, will come into Mr. *Lock*'s Sentiment, above, when they conſider that Motion produces an Idea of *Succeſſion* no otherwiſe, than by producing a continued Train of diſtinguiſhable Ideas.

A Man that looks on a Body moving, perceives no Motion, unleſs that Motion produce a conſtant Train of *ſucceſſive* Ideas. But where-ever a Man is, though all Things be at reſt about him, if he Thinks, he will be conſcious of *Succeſſion*.

SUCCESSION, in Aſtronomy. The *Succeſſion of the Signs*, is the Order wherein they follow each other, and according to which, the Sun enters, ſucceſſively, into one, then into another, call'd, alſo, *Conſequence*. This Order is expreſs'd in the two following Technical Verſes;

Sunt Aries, Taurus, Gemini, Cancer, Leo, Virgo
Libraque, Scorpius, Arcitenens, Caper, Amphora, Piſces.

When a Planet is direct, it is ſaid to go according to the Order and *Succeſſion of the Signs*, that is, from *Aries* to *Taurus*, &c. when Retrograde, it is ſaid to go contrary to the *Succeſſion of the Signs*, *viz.* from *Gemini* to *Taurus*, then to *Aries*, &c. See SIGN.

SUCCESSION, in Law, implies a Right to the Univerſality of the Effects left by a Defunct.

Of this, there are ſeveral Kinds, *ab-inteſtate*, *inteſtate*, &c.

A *Succeſſion, ab-inteſtate*, is that, a Perſon has a Right to by being next of Kin, which is, what we call, being next Heir at Law. See AB-INTESTATE.

A *teſtamentary Succeſſion*, is that, a Perſon comes to by Virtue of a Will.

Succeſſion in the direct Line, is that, coming from Aſcendants or Deſcendants. *Collateral Succeſſion*, is that, coming by Unkles, Aunts, or other Collaterals.

A *jacent* or *abandon'd Succeſſion*, is a burthenſome or vexatious One, which no Body will accept of. There is no real *Succeſſion* in Benefices; for here, no Body Inherits. *Succeſſions* were anciently divided into Noble and Baſe.

In Effects, that cannot be divided, as Kingdoms, &c. the *Succeſſion* falls on a ſingle Head, which is uſually the eldeſt Son of the Deceaſed, as being ſuppoſed an indiviſible Repreſentative of his Father. In Effects, that are divided, all the Children repreſent their Father. 'Twas on this Principle, M. *Courtin* obſerves, that each of the Sons of *Jacob* had his Share aſſign'd him in the Land of *Promiſe*. 'Tis true, *Manaſſah* and *Ephraim*, the two Sons of *Joſeph*, had likewiſe their Shares; but this was becauſe a double Portion had been allotted their Father, wherein he was treated as elder Brother, in conſideration of the great Services he had done his Father and Brethren.

SUCCESSOR, a Perſon who has a Right to hold the Place another held before him; whether he arrive at it by Election, Collation, Inheritance, or otherwiſe.

Our Hiſtorians tell us, that Queen *Elizabeth* could never bear to hear of a *Succeſſor*. The King of the *Romans* is Preſumptive *Succeſſor* to the Empire. The Canoniſts ſay, a Coadjutor is a neceſſary *Succeſſor* to a Prelature; a Reſignatary to the Reſignant.

The Civilians ſay, a Titular Uſu-fructuary, can do nothing to the Prejudice of his *Succeſſor*.

SUCCINUM, in Pharmacy, *Karabe* or *Amber*; a bituminous Juice or Reſin, which from a Fluor grows hard and brittle. See AMBER.

The Whiteſt, and moſt Tranſparent, is accounted beſt; it is of no great Uſe in Medicine, *per ſe*, as its Texture ſeems too compact to open and yield to the natural Elaborations; though ſome have a great Opinion of it, as a Balſamick, and gave it in Gonorrhœa's particularly.

But it is certain, that what Pharmacy extorts from it, is of wonderfull Efficacy, eſpecially in nervous Caſes.

SUCCISA, a medicinal Herb, call'd alſo *Morſus Diaboli*, or the *Devil's Bit*.

'Tis a powerful Sudorific, inſomuch that Sir *Theodore Mayerne* obſerves, in the *Philoſophical Tranſactions*, laying a Perſon ſick of a Plague, or other malignant Fever, on a Bed thereof, moderately hot; he ſhall ſweat 'till they take him off; and much more, if he drink of the Decoction or Juice of the Herb. The *Succiſa* is now little uſed.

SUCCOTRINE *Aloes*. See ALOES.

SUCCUBUS or SUCCUBA, a Term uſed to ſignify a *Dœmon*, who aſſumes the Shape of a Woman, and, as ſuch, lies with a Man.

Some Authors uſe *Incubus* and *Succubus*, indiſcriminately; but they ought to be diſtinguiſh'd; *Incubus* being only properly uſed, where the Dœmon is ſuppoſed to be in Form of a Man, and, as ſuch, lies with a Woman. See INCUBUS.

SUCCULA, in Mechanicks, a bare Axis, or Cylinder, with Staves in it to move it round, without any Tympanum. See AXIS.

SUCCUS *Pancreaticus* } See { PANCREATIC *Juice*.
SUCCUS *Nervoſus* } See { NERVOUS *Juice*.

SUCKERS or Off-ſets, in Agriculture, Gardening, &c. are young Shoots, that proceed from the Root of a Tree, and are of the ſame Kind and Nature with the Tree from which they ſpring; for ſuch as grow from Trees raiſed by Grafting or Inoculation, follow the Nature of the *Stock*. See ENGRAFTING.

They ſometimes put forth near the Body of the Mother Plant; but other *Suckers* at more Diſtance are beſt; yet the former removed when there is leaſt Sap in the Top, and preſerving what Fibrous Roots are upon them, often proſper well. When they are taken up, the Ground is to be well opened, and if they grow from the Body of the Tree, or great Roots, they muſt be cut off cloſe to the Stem, and ſet preſently. See STOCK.

It forwards much the ſpringing out of *Suckers*, to bear the Roots of Trees, and ſlit them in ſome Places.

SUCKING-*Pump*. See PUMP.

SUCTION, the Act of *Sucking*, or of drawing up a Fluid, as Air, Water, &c. by the Mouth and Lungs.

Air is *ſuck'd* in by the Muſcles of the Thorax, and Abdomen, diſtending the Cavity of the Lungs and Abdomen, by which means the Air included therein, is rarified, and ceaſes to be a Counterbalance to the external Air, which, of conſequence, is driven in by the Preſſure of the Atmoſphere through the Mouth and Noſtrils. See RESPIRATION.

Air is ſuck'd through a Pipe, in the ſame Manner as with the naked Mouth: It being here all one as if the Mouth were extended the Length of the Pipe.

The *Suction* of heavier Liquors is perform'd after the ſame Manner, *e.gr.* in lying prone to drink out of a Spring, &c. the Lips are applied cloſe to the Surface of the Water, ſo as to prevent any Paſſage of the Air between them; then the Cavity of the Abdomen, &c. being diſtended as before, the Preſſure of Air incumbent on the Surface of the Water without the Circumference of the Mouth, prevailing over that upon the Water within the ſame, the Fluid is raiſed, from the ſame Principle as Water in a Pump. See PUMP.

In ſucking a heavy Liquor, as Water, through a Pipe, the longer the Pipe is, the greater Difficulty is found in the *Suction*; but the Bigneſs or Diameter of the Pipe, makes no Alteration therein. The Reaſon of this, ariſes from the great Principle in Hydroſtaticks, that Fluids preſs according to their perpendicular Altitudes. See FLUID.

For, as the external Air raiſes Columns of the Fluid with greater or leſs Difficulty, as their Altitudes are leſs, not as their Thickneſſes are ſo; if two ſuch Columns be conceived, the one twice as high as the other, and that other twice as thick as this firſt; though the very ſame Quantity of Water is to be ſuck'd through the Pipe, and the Force of the Air to raiſe it be exactly the ſame, in both Caſes; yet there will be required a greater Diſtenſion of the Breaſt, and a greater Niſus of the Muſcles, to raiſe and ſuck the former than the latter.

From what we have ſaid, it evidently enough appears, that what we call *Suction*, is not perform'd by any active Faculty in the Mouth, Lungs, &c. but is perform'd by the mere Impulſe and Preſſure of the Atmoſphere. See AIR.

SUCULA or SUCCULA, is a Term in Mechanicks, for a bare Axis or Cylinder, with Staves in it, to move it round; but without any Tympanum or Peritrochium.

SUDAMINA, little Pimples in the Skin, like Millet Grains, frequent in Youth, eſpecially thoſe of a hot Temperament, and that uſe much Exerciſe.

SUDATORY, a Name given by the ancient *Romans*, to their Sweating-houſes; ſometimes alſo call'd *Laconica*.

The *Sudatory* was a Species of their *Hypocauſta*. See HYPOCAUSTUM.

SUDOR, in Medicine. See SWEAT.

SUDOR *Anglicanus*, or the *Engliſh Sweat*, is an Epidemic Diſeaſe, firſt perceived in *England*, in 1485.

'Twas, properly, a ſort of Plague; thus call'd, becauſe attended with an extraordinary kind of Sweat.

It made its Return four Times in the Space of 66 Years, *viz.* in 1506, 1517, 1528 and 1551.

It began with a Sweat, which never ended, but either with the Death of the Patient, or his Recovery. If he ſurvived 24 Hours, he was ſafe. Few People eſcaped of it at firſt; too much Care, and too little, were found equally deſtructive.

The Patient was to wait, without ſtirring, either in his Bed, or in his Cloaths, according to the Condition Nature was ſurprized in; without burthening him either with Remedies or with Foods; without cloathing either too much or too little; and, if poſſible, without either eating or drinking. The Sweat to be kept up, without either promoting it, by any extraordinary Heat, or checking it by the leaſt Cold.

This was what was found by Experience; and which was at length practiſed, with happy Succeſs. The Diſeaſe was firſt felt on the 21ſt of *September*, and in the ſame Day, ſpread itſelf all over *England*; where, after a great Mortality, it ſtopp'd all at once, towards the End of *October*.

Its Ravages were ſo great, that in ſome Parts, it took off a Third Part of the People, in a very little Time.

At its Return under *Henry* VIII. in 1516, it was as general, and as dangerous as before, and again diſappeared all at once.

At the third Attack, in 1528, 'twas leſs fatal; inſomuch that *Bellay*, Biſhop of *Bayonne*, then Ambaſſador in

England, who Sweat like the reſt, tells us, that of Forty thouſand Souls, ſeiz'd with it in *London*, only Two thouſand died. In 1534, it paſs'd over into *Ireland*, where it kill'd great Numbers.

SUDORIFIC, in Medicine, a Remedy that cauſes, or promotes Sweat. See SWEAT.

Sudorificks only differ from *Diaphoreticks*, in the Degree of their Action; the one promoting ſenſible Perſpiration, the other inſenſible. See DIAPHORETICKS.

To the Claſs of *Sudorificks*, belong, 1°, all Things that moving violently through the Body, attenuate the Humours, and accelerate their Motion.

2° Such Things, as at the ſame Time diminiſh the Reſiſtance in the Sudatory Veſſels about the Cutis.

To which ſome add a third Kind, *viz.* ſuch as abſorb the Acidities of the Blood, and thus ſet at liberty the Matter of the Sweat.

The firſt Intention is chiefly effected, by a copious drinking of very hot Waters; by Acids drawn from Vegetables by Fermentation and Diſtillation; or thoſe of Foſſils, attenuated by repeated Diſtillations; eſpecially if theſe be drunk mix'd with hot Water; by *Alcali*'s, both volatile and fix'd, diluted with hot Water; by all compound *Salts*, diſſolved in Water; by Sapa's, metallic Cryſtals, or the attenuated Parts of Metals themſelves, as *Stibium Diaphoreticum*, *fix'd Sulphur* of Tachenius; *Bezoardic Mineral*, *Diaphoretic Mercury*, *Diaphoretic Gold*, *&c.* by ſharp, ſubtile, acrimonious Aromaticks, as *Abſynthium*, *Abrotonum*, *Opium*, *Aſparagus*, *Anis*, *Aſclepias*, *Ariſtolochia*, *Gum Ammoniac*, *Carduus Benedictus*, *Caraways*, *Cinnamon*, *Camomile*, *Saffron*, *Capillus Veneris*, *China*, *Dittany*, *Eupatorium*, *Gentian*, *Hyſſop*, *Laurel*, *Mint*, *Leek*, *Roſemary*, *Sage*, *Savin*, *Saſſafras*, *Scordium*, *Thyme*, *Veronica*, *Nettle*, and other Medicines compounded hereof, as *Treacle*, *Mithridate*, *Diaſcordium*, *Orvietan*, *&c.*

The Second is chiefly effected, by cleanſing the Skin, by *vaporous Lotions*, *Baths*, and *Frictions*; by relaxing the Cutaneous and Subcutaneous Veſſels, which is beſt done by hot Water ſprinkled all over the Body, the Head excepted; by increaſing the external Heat about the naked Body, as by the Warmth of a Bed, a Vapour-bath, *&c.*

The Third is effected by Abſorbents, as *Corals*, *Crabs-Eyes*, *Diaphoretic Antimony*, *Bezoard*, *&c.* See each under its proper Article.

SUET, a kind of Fat, found in Sheep, Oxen, Hogs, *&c.* which melted down and clarified, makes what we call *Tallow*, uſed in the making of Candles. See FAT and TALLOW.

Anatomiſts, *&c.* diſtinguiſh four Kinds of Fat in the Body of an Animal. The firſt, which fixes itſelf, and after melting, cools into a very firm Conſiſtence, they call *Suet*.

'Tis found in greateſt Abundance in the lower Belly, and about the Kidneys. The Word is form'd from the *Latin*, *Suedum*, *a Sue*.

F. *le Compte* mentions a Tree in *China*, that bears *Suet* or Tallow. 'Tis much about the Height of our Cherry Tree: Its Fruit is cover'd with a Rind, which divides into 3 Segments of a Sphere, which when ripe, open in the middle like a Cheſnut, and ſhew Three white Grains, of the Size of our Small-nuts. The Fleſh, or Pulp of theſe Grains, which include a little Stone, has all the Qualities of our *Suet*, the Colour, Smell, Conſiſtence, *&c.* and accordingly they make Candles of it; after firſt melting it down with a little Oil of Olives, to make the Paſte the ſofter and more manageable.

SUFFICIENT, in the School Theology. *Sufficient Grace*, is a Help or Aſſiſtance God gives to Man, to enable him to act and perform his Duty. See GRACE.

'Tis allowed an Article of Faith, that Grace is neceſſary, and that without Grace, nothing that is Good, or that can any way intitle to Heaven, can be done: Tis allow'd too, that God does not refuſe the neceſſary Aſſiſtances; and 'tis allow'd, that Man, frequently, either does not act, when he ſhould, or acts what he ſhould not.

From theſe Principles, which are generally admitted by all Sects, however different in other reſpects, it follows, that there is ſome Aſſiſtance of God which Man reſiſts; ſome, wherewith Man does not act, wherewith yet he might act; or ſome, whereby he does Evil, by which he might do well. 'Tis this Aſſiſtance that is call'd *Sufficient Grace*; becauſe *ſufficing* to make us act, though we don't act with it.

SUFFITUS, or SUFFIMENTUM, in Medicine, a thickiſh Powder, *&c.* prepared of odoriferous Plants, Gums, *&c.* which being thrown on Coals, the Vapours or Steam thereof, are received by Smelling. See FUMIGATION.

SUFFOCATION, in Medicine, *&c.* a Loſs or Obſtruction of Reſpiration.

Suffocations ſometimes ariſe from a too great Abundance of Blood thrown on the Lungs, or the Muſcles of the Larynx, and preventing the Ingreſs of the Air; as is the Caſe in Squinancies, *ſuffocating* Catarrhs, Peripneumonies, *&c.* See SQUINANCY, *&c.*

The Fumes of Wines, or ſtrong Beers, when boiling, cauſe *Suffocation*, by interrupting the Circulation of the Blood. And the ſame may be obſerved of the Fumes of Lime, wherewith Walls are whitened; and thoſe of Charcoal, Antimony, Sulphur, Vitriol and Spirit of Nitre.

The *Suffocation* under Water, is owing partly to the Paſſage of the Air being ſtopp'd up, and partly to the Irruption of the Water into the Breaſt. See DROWNING.

The *Suffocation of the Womb or Matrix*, is a Diſeaſe pretty frequent in Women, call'd alſo, *Fits of the Mother*.

In this, the Patient imagines a malignant Vapour riſing from the Matrix, and ſo preſſing againſt the Lungs and the Diaphragm, as to prevent the free Motion neceſſary to Reſpiration.

Its true Cauſe, is a Convulſion of the Muſcles of the Larynx, which ſtraighten the Wind-pipe, and prevent the Air's paſſing into the Lungs. Hence it is, that Hyſteric Women feel Conſtrictions in the Throat, as if one were ſtrangling them with a Cord. See HYSTERIC.

In *France*, they diſpatch their People that are raving Mad, by *ſuffocating* them between two Pillows.

SUFFRAGAN, in the Eccleſiaſtical Polity, a Term applied to a Biſhop, with reſpect to his Arch-Biſhop, on whom he depends, and to whom Appeals are made from the Biſhop's Official. See BISHOP.

In this Senſe, the Archbiſhop of *Canterbury* has Twenty-one *Suffragans*; and the Archbiſhop of *York* Four.

The Term was never heard of before the VIIIth Century.

Some diſtinguiſh between *Biſhop* and *Suffragan* thus: *Dicuntur Epiſcopi qui Archiepiſcopo* Suffragari *&* *aſſiſtere tenentur*: *Et* Suffraganei *dicuntur quia eorum* Suffragiis *cauſæ Eccleſiaſticæ judicantur. Spelman.* Others ſay, they are call'd *Suffragans*, becauſe when call'd by the Metropolitan to a Synod, they have a Right of *Suffrage* or of Voting; or becauſe they could not be conſecrated without his *Suffrage* and Conſent.

SUFFRAGAN is alſo uſed for a *Chorepiſcopus*, or an Aſſiſtant-Biſhop, or a Coadjutor, who has a Title, *in partibus infidelium*, and aſſiſts another in the Diſcharge of his Function, or diſcharges it himſelf in the Abſence of that other. Theſe ſome call *Subſidiary Biſhops*.

By Statute 36 *Henry* VIII. every Biſhop and Archbiſhop is allowed to appoint, ſome one, ſome two, and ſome three *Biſhops-Suffragans*; the Seats or Reſidences whereof, are fix'd by the ſame Statute.

The *Suffragan-Biſhop* for the Dioceſe of *Canterbury*, to be at *Dover* only; for *York*, at *Nottingham* and *Hull*; for *London*, at *Colcheſter*; for *Wincheſter*, at *Guilford*, *Southampton*, and in the Iſle of *Wight*, *&c.*

Du Cange obſerves, that the Title *Suffragan* has alſo been given to ſuch Prieſts as are ſubject to the Viſitation of the Arch-deacon: And *Suffragans of the Pope*, to the Biſhops of ſuch Dioceſes, as are immediately ſubject to the Pope.

SUFFRAGE, a Voice or Vote, given in an Aſſembly, where ſomething is deliberated on, or where a Perſon is elected to an Office or Benefice. See VOTE.

Suffrages are ſometimes given by Word of Mouth; and ſometimes in Writing, as at Elections lyable to a Scrutiny. See SCRUTINY.

The Preſident of the Aſſembly uſually collects the *Suffrages*.

The Word is form'd from the *Latin*, *Suffragium*, which anciently ſignified *Silver*, as appears in the VIIIth Novel of *Juſtinian*: *Ut Judices ſine* Suffragio *fiant*; and the VIth Novel: *Qui emerit præſulatum per* Suffragium, *Epiſcopatu & Ordine Eccleſiaſtico excidat.*

Suffrages of the Saints, in the *Romiſh* Church, are the Prayers and Interceſſions they are ſuppoſed to make to God, in behalf of the Faithful.

SUFFERANCE, in ancient Cuſtoms, was a Delay, or Reſpite of Time the Lord granted his Vaſſal, for the Performance of Fealty and Homage; ſo as to ſecure him from any feodal Seizure. See SERVICE, VASSAL, FEE, *&c.*

Sufferance, ſay the Cuſtoms, is equivalent to Fealty and Homage, while it holds.

The Word is alſo uſed for a Delay which the Lord grants his Vaſſals, to free their Hands of Fees or Inheritances they have acquired, till they have pay'd the Due of Indemnity, *&c.*

SUFFRUTEX, among Botaniſts, a Name given to a low, woody, perennial Species of Plants, ſending out no Leaves from its Root, and beginning to be branched from the very bottom of the Stalk; ſuch as Lavender, Rue, Sage, *&c.* See PLANT, TREE, *&c.*

SUFFUMIGATION, in Medicine, a Term applied to all Remedies that are received into the Body in form of Fumes, *i. e.* of Smoak or Perfumes. See SMOAK.

Theſe are compoſed of different Matters, according to the Nature of the Diſeaſe.

Suffumigations are intended to ſoften ſharp, ſerous Humours, to provoke or check the Courſe of the Menſes, to raiſe a Salivation in venereal Evils, *&c.*

The Word is form'd from the *Latin*, *ſub*, under, and *fumus*, Smoak.

SUFFUSION, in Medicine, an overflowing of ſome Humour, ſhewing itſelf in the Skin; particularly that of the Blood or Bile. See BLUSHING.

That Redneſs ordinarily ariſing from Shame, is only a *Suffuſion* of Blood appearing in the Cheeks.

The Jaundice is a *Suffuſion* of Bile over the whole Body. See JAUNDICE,

SUFFUSION is alſo uſed for a little Film or Pellicle, form'd in the aqueous Humour of the Eye, before the Pupil; call'd, alſo, *Cataract*. See CATARACT.

SUGAR, *Saccharum*, a very ſweet, agreeable Juice, expreſs'd from a kind of Canes, growing in great Plenty in the *Eaſt* and *Weſt Indies*; particularly in *Madera*, *Braſil* and the *Caribbee* Iſlands.

'Tis a Queſtion not yet decided among the Botaniſts, &c. whether the Ancients were acquainted with this Cane, and whether they knew how to expreſs the Juice from the ſame? What we can gather from the Opinions and Arguments of the one Party and the other; is, That if they knew the Cane and the Juice, they did not know the Art of Condenſing, Hardening and Whitening it, and, of conſequence, knew nothing of our *Sugar*.

Some ancient Authors ſeem to mention *Sugar*, under the Name of *Indian Salt*; but they add, that it ooz'd out of the Cane of itſelf; and there harden'd like a Gum; and was even friable between the Teeth, like our common Salt; whereas, ours is expreſs'd by a Machine on purpoſe, and coagulated by the Fire.

Theirs, *Salmaſius* tells us, was refreſhning and looſening, whereas, ours is hot, and excites Thirſt. Hence, ſome have imagined, that the ancient and modern *Sugar*-Plant were different: But *Matthiolus*, on *Dioſcorides*, *C.* 75. makes no doubt they were the ſame; and others are even of Opinion, that ours has a laxative Virtue, as well as that of the Ancients, and that it purges Pituita.

The Generality of Authors, however, agree, that the ancient *Sugar* was much better than the Modern; as conſiſting of only the fineſt and matureſt Parts, which made themſelves a Paſſage, and were condenſed in the Air.

The Interpreters of *Avicenna* and *Serapion*, call *Sugar*, *Spodium*; the *Perſians*, *Tabatis*, and the *Indians*, *Mambuc*.

Salmaſius aſſures us, that the *Arabs* have had the Art of making *Sugar*, ſuch as we now have it, above 800 Years. Others produce the following Verſes of *P. Terentius Varro Atacinus*, to prove that it was known before *Jeſus Chriſt*.

Indica non magna nimis Arbore creſcit arundo,
Illius extentis premitur radicibus humor,
Dulcia cui nequeunt ſucco contendere mella.

Another Queſtion among Naturaliſts is, Whether the *Sugar* Canes be originally of the *Weſt Indies*; or whether they have been tranſlated thither from the *Eaſt*?

The Learned of theſe laſt Ages, have been much divided on the Point: But ſince the Diſſertation of F. *Labat*, a Dominican Miſſionary, publiſh'd in 1722, there is no longer room to doubt, but that the *Sugar*-Cane is as natural to *America* as *India*; all that can be ſaid in favour of the latter, is, That the *Spaniards* and *Portugueſe* learnt from the Orientals, the Art of expreſſing its Juice, boiling it, and reducing it into *Sugar*.

Culture of the SUGAR-*Cane.*

The Reed or Ruſh, whence this uſeful Juice is drawn, reſembles thoſe others we ſee in Moraſſes, and on the Edges of Lakes; excepting that the Skin of theſe latter is hard and dry, and their Pulp void of Juice; whereas the Skin of the *Sugar*-Reed is ſoft, and the ſpongeous Matter or Pith it contains, very juicy, though that in a greater or leſs Degree, according to the Goodneſs of the Soil, its Expoſure to the Sun, the Seaſon 'tis cut in, and its Age; which four Circumſtances contribute equally to its Goodneſs and its Bulk.

The *Sugar*-Cane uſually grows five or ſix Foot high, and about half an Inch in Diameter; though F. *Labat* mentions ſome extraordinary ones in the Iſle of *Tobago*, Twenty-four Foot high. The Stem or Stalk is divided by Knots, a Foot and Half apart. At the Top it puts forth a Number of long, green, tufted Leaves, from the Middle whereof, ariſe the Flower and the Seed. There are likewiſe Leaves ſpringing out from each Knot; but theſe uſually fall as the Cane riſes; and 'tis a Sign, either that the Cane is naught, or that 'tis far from its Maturity, when the Knots are ſeen beſet with Leaves.

The Ground fit for *Sugar*-Canes, is that which is light, ſoft and ſpongy; lying on a Deſcent, proper to carry off the Water, and well turn'd to the Sun. They uſually plant them in Pieces, cut a Foot and Half below from the Top of the Flower. Theſe are ordinarily ripe in Ten Months, though ſometimes not till Fifteen; at which Time, they are found quite full of a white, ſucculent Marrow, whence is expreſs'd the Liquor whereof *Sugar* is made. When ripe, they are cut, their Leaves cleared off, and they are carried in Bundles to the Mills. The Mills conſiſt of Three wooden Rollers, cover'd with Steel Plates; and have their Motion either from the Water, the Wind, Cattle, or even the Hands of Slaves. See SUGAR-*Mill*.

Two Rules belonging hereto are, That no Canes above four Foot, or under two Foot and a Half long, be ſent to the Mills; and, That no more Canes be cut than can be conveniently preſs'd in 24 Hours; in regard they will heat, ferment and grow ſour.

The Juice coming out of the Canes, when preſs'd and broke between the Rollers, runs through a little Canal into the *Sugar*-Houſe; which is near the Mill; where it falls into a Veſſel, whence it is convey'd into the firſt Copper or Cauldron, to receive its firſt Preparation, only heated by a ſlow Fire to make it ſimmer. With the Liquor, is here mix'd a Quantity of Aſhes or beaten Lime; the Effect of which Mixture, aſſiſted by the Action of the Fire, is, that the unctuous Parts are ſeparated from the reſt, and raiſed to the Top, in form of a thick Scum, which is kept conſtantly ſcumming off; and ſerves to feed the Poultry, &c. withal.

Preparation of SUGAR.

The Juice, in the next Place, is purified in a ſecond Copper; where a brisker Fire makes it boil; and all the Time the caſting up of its Scum is promoted by means of a ſtrong Lye, compoſed of Lime-water and other Ingredients.

This done, 'tis purified and ſcum'd in a third Boiler, wherein is caſt a kind of Lye, that aſſiſts in purging it; collects together its Impurities, and makes them riſe to the Surface; whence they are taken with a Skimmer.

From the Third, 'tis removed to a Fourth Boiler, where the Juice is further purified by a more violent Fire: and hence to a Fifth; where it takes the Conſiſtence of a Syrop.

In a Sixth Boiler, the Syrop receives its full Coction; and here all the Impurities left from the former Lyes, are taken away by a new Lye, and a Water of Lime and Allom caſt into it. In this laſt Cauldron, there is ſcarce found one Third of what was in the Firſt; the reſt being waſted in Scum.

By thus paſſing, ſucceſſively, a Number of Coppers, the *Sugar* Juice is purified, thicken'd, and rendred fit to be converted into any of the Kinds of *Sugar* hereafter mention'd. The Size of the ſeveral Coppers always diminiſhes, from the firſt to the laſt; each being furniſhed with a Furnace, to give a Heat proportionable to the Degree of Coction the Juice has received. In ſome large *Sugar*-Works, there are alſo particular Coppers, for the boiling and preparing the Scums.

The ſeveral Kinds of SUGAR *made in the* Caribbee *Iſlands.*

F. *Labat* mentions Seven different kinds of *Sugars* prepared in the *Caribbees*, *viz.*

Crude SUGAR, or *Muſcouade*
Strain'd or *Brown* SUGAR
Earth'd or *White* SUGAR in Powder
Refined SUGAR, either in Powder or Loaves.
Royal SUGAR
Candied SUGAR
SUGAR *of fine Syrop*
SUGAR *of coarſe Syrop*
SUGAR *of the Scum.*

Crude SUGAR, or *Moſcouade*, is that firſt drawn from the Juice of the Cane, and whereof all the reſt are compoſed.

The Method of making it, is that already deſcribed as for *Sugar* in the General.

We need only add, That when taken out of the ſixth Copper, 'tis put in a Cooler, where ſtirring it briskly together, 'tis let ſtand to ſettle, till a Cruſt, of the Thickneſs of a Crown-piece, be form'd thereon. The Cruſt form'd, they ſtir it up again, then put it into Veſſels, where it ſtands to ſettle, till it be fit to Barrel.

Strain'd or *Brown* SUGAR, though whiter and harder, does not differ much from the *crude Sugar*. Though 'tis held a Medium between this laſt and the *Earth'd Sugar*; which is the white *Powder Sugar*. The Preparation of this *Sugar*, is the ſame as that of the raw *Sugar*, with this Difference, that to Whiten it, they ſtrain the Liquor through Blankets, as it comes out of the firſt Copper.

The Invention of *Strain'd Sugar* is owing to the *Engliſh*, who are more careful than their Neighbours, in the Preparation hereof; for they not only ſtrain it, but when boil'd, put it in ſquare wooden Forms, of a pyramidal Figure; and when it has purified itſelf well, they cut it in Pieces, dry it in the Sun, and barrel it up.

Earth'd SUGAR, is that which is whiten'd by means of Earth laid on the Top of the Forms 'tis put in, to purge itſelf.

The making of this *Sugar*, is begun after the ſame manner as that of raw *Sugar*; except that they only uſe the beſt Canes in it;

that they work with more Care and Nicety; that when the Liquor is in the firſt Copper, the Aſhes they put in, are little or nothing mix'd with Lime, for fear of reddening it; and that they ſtrain it through a Blanket, from the firſt to the ſecond Copper.

When it has paſs'd all the Six Coppers, 'tis laden out into a Cooler; whence 'tis put into conical Moulds or Forms, the Tips whereof are perforated, but now ſtopp'd with Linnen or other Stuff; and theſe ranged evenly before the Furnace. When it has been a Quarter of an Hour in the Forms, 'tis cut with a *Sugar*-Knife, that is, 'tis ſtirred briſkly this way and that, for Half an Hour.

This ſerves, not only to promote the forming of the Grain, and the diffuſing it equally throughout; but alſo to determine the unctuous Parts of the *Sugar* to mount to the Top that they may be ſcum'd off.

The Forms being left to ſtand 15 Hours in this State, the Holes at the bottom are then unſtopp'd, to give a Paſſage to the Syrop, and to determine it to take that Way. When enough of theſe Forms are fill'd, to fill a Stove, which uſually contains Five or Six hundred Forms; they viſit the *Sugar* in all the Forms, to examin the Quality thereof, and to ſee if it quit the Form eaſily; that it may either have the Earth given it, as the Refiner, who viſits it, judges proper; or be melted over again, if it don't prove well.

This done, the Forms are planted, each on its Pot, with the Tip of the Cone downwards; the Top is taken off, and in lieu thereof, they put in ſome *Sugar* in Grain, to within an Inch of the Edge; which Space is left for the Earth prepared for it.

The Earths here uſed, are of various Kinds; the good Qualities of each whereof, are, that they don't tinge the Water, that they let it filtrate eaſily through, and that they don't imbibe the fatty Part of the *Sugar*. E'er put in the Forms, 'tis ſteep'd in Water 24 Hours; and at length applied, in the Conſiſtence of a Pulp.

Aſſoon as the Earth is on the *Sugar*, all the Windows of the Refining Room are ſhut, that the Air and Heat may not dry the Earth. When 'tis quite dry, which uſually happens in nine or ten Days Time, 'tis taken off; and after cleaning the Surface of the *Sugar* with Bruſhes, and raking it up an Inch deep, and again laying it Level as before; they give it a ſecond Earth.

The Whiteneſs of the *Sugar* of each Form, is ſeen from the firſt Earth; Experience ſhewing, that a Second or Third Earth don't make the *Sugar* any thing whiter, but only whitens the Head of the Loaf. When the ſecond Earth is taken off, they clean the Surface of the *Sugar* with a Bruſh, and with a Knife looſen the Edge of the *Sugar*, where it ſticks to the Form, that neither the Form nor the *Sugar*-Loaf be damaged in taking out the latter. The Windows are now open'd, and the Forms left to ſtand Eight or Ten Days to dry. While the *Sugar* is draining in its Forms, a Stove is prepared to receive them.

The Stove being ſufficiently heated, by Means of the Furnace therein, Loaves are taken out of the Forms one after another; and ſuch as are white from one End to t'other, are carry'd to the Stove, as are, alſo, the reſt, after cutting off what is not white, to be farther refin'd.

When the Loaves are all rang'd in the Stove, a moderate Fire is made for about two Days, during which Time, they viſit every Part of the Stove very carefully, to ſee that every Thing is in good Order, and to repair any Thing that may go amiſs.

After theſe two Days, they ſhut the Trap-Door a-top of the Building, and increaſe the Fire. Eight or ten Days and Nights continu'd violent Fire uſually ſuffice to dry a Stove of *Sugar*.

When they judge it ſufficiently done, they open the Trap-Door, and chuſe a hot dry Day to pound the *Sugar*, which is perform'd with huge, hard, heavy Wooden Peſtles; when pounded, 'tis put up in Barrels, and well trodden down as 'tis put in, that the Barrels may hold the more.

SUGAR *of the Scum*. This is all made of the Scums of the two laſt Coppers; thoſe of the former being reſerv'd for the making of Rum.

The Scum deſtin'd to make *Sugar*, is kept in a Veſſel for that Purpoſe, and boil'd every Morning in a Copper ſet apart for that Uſe. With the Scum, is put into the Copper a fourth Part of Water, to retard the boiling, and give Time for its purging: When it begins to boil, the uſual Lye is put in, and 'tis carefully ſcum'd: When almoſt enough boil'd, Lime and Allom-Water are thrown in; and when 'tis ready to be taken out, they ſprinkle it with a little powder'd Allom.

SUGAR of *Syrop*. There are three Kinds of Syrops that run from Sugar. The firſt from the Barrels of raw Sugar, which is the coarſeſt of all: The ſecond, from the Forms or Moulds after they are perforated, and e'er they receive their Earth: The third, that coming from the Forms after they have had their Earth; which laſt is the beſt.

The coarſe Syrops ſhould only be uſed for Rum; but Sugar being grown dear, Endeavours have been uſed to make ſome hereof, and that with tolerable Succeſs. They are firſt clarify'd with Lime-Water, and, when boil'd, are put up in Barrels, with a *Sugar*-Cane in the Middle, to make them purify themſelves. After twenty Days, a Quantity of coarſe Earth is thrown in, to make 'em caſt the Remainder of their Syrop, and fit 'em to be return'd into raw Sugar. The *Dutch* and *German* Refiners, firſt taught the Iſlanders how to turn their Syrop into crude *Sugar*.

The ſecond Syrop is wrought ſomewhat differently: After the Copper 'tis to be boil'd in is half full, eight or ten Quarts of Lime-Water are caſt in: 'Tis then boil'd with a briſk Fire, and carefully ſcum'd: Some add a Lye, and others none. F. *Labat* takes the former Method to be the better, tho' it requires more Trouble and Attention. This *Sugar* may be Earth'd alone, or, at leaſt, with the Heads of Loaves, the dry'd Tops, and ſuch other Kinds of *Sugars* as may not be mix'd with the proper earth'd *Sugar*, nor yet with the raw *Sugar*.

For the third Syrop, after boiling and ſcumming it as the former, they put it inſtantly into Coolers, the Bottoms whereof are cover'd half an Inch thick with white *Sugar*, very dry, and well pounded; and the whole is well ſtir'd, to incorporate the two together. This done, they ſtrew the Surface over with the ſame pounded *Sugar*, to the Thickneſs of one Fifth of an Inch; this aſſiſting the *Sugar* in forming its Grain. When ſettled, and the Cruſt gather'd at the Top, a Hole is made in the Cruſt five or ſix Inches Diameter.

By this Aperture, they fill the Cooler with a new Syrop, pour'd gently in, which inſenſibly raiſes up the former Cruſt. When all the Syrops are boil'd, and the Cooler is full, they break all the Cruſts; and after mixing them well, put it up in Forms or Moulds.

The reſt is perform'd in the ſame manner as in the earth'd *Sugar*, from which it only differs in that it falls ſhort of its Luſtre and Brilliant; being, in reality, ſometimes whiter and finer, tho' of a flatter and duller white.

Refined SUGAR. *Crude Sugar*, ſtrain'd *Sugar*, and the Heads or Tops of Loaves that have not whiten'd well, are the Matter of this *Sugar*.

In a Refinery are uſually two Coppers, the one ſerving to clarify, the other to boil the clarify'd Liquor; tho' they ſometimes clarify in both, and boil afterwards. For the Operation of Refining, the ſame Weight of Lime-Water and of *Sugar* are put in the Copper; and as the Scum is rais'd by the Heat, 'tis taken off, and when it ceaſes to riſe any more, the Syrop is ſtrain'd through a Cloth.

After this, 'tis clarify'd; that is, a Dozen of Eggs is thrown, White, Yolk, Shell and all; after having firſt broke and beaten them well in Lime-Water. When the fat, and other Impurities of the *Sugar*, which this Compoſition gathers together on the Surface of the Syrop, have been ſcum'd off; a few more Eggs are thrown in, and 'tis ſcum'd afreſh. This they repeat 'till the Sugar is ſufficiently clarify'd; which done, 'tis again ſtrain'd through the Cloth.

When taken out of this Copper, 'tis boil'd in the ſecond; which done, 'tis put out into Coolers, the Bottoms whereof are firſt cover'd half an Inch thick with fine white powder'd *Sugar*. As ſoon as 'tis there, 'tis briſkly ſtirred about, and the Surface ſtrew'd over with pounded *Sugar*. The reſt is perform'd as in *Sugars* of fine Syrops, or in earth'd *Sugar*; only more Care and Exactneſs is uſed.

Royal SUGAR. The Matter of this *Sugar* ought to be the fineſt refined *Sugar* to be found. This they melt with a weak Chalk-Water; and ſometimes, to make it the whiter, and prevent the Lime from reddening it, they uſe Allom-Water.

This they clarify three Times, and paſs as often thro' a cloſe Cloth, uſing the very beſt Earth. When prepared with theſe Precautions, 'tis whiter than Snow, and ſo tranſparent, that we ſee a Finger touching it, even thro' the thickeſt Part of the Loaf.

SUGAR-*Candy*. This is better made of earth'd *Sugar*, than refin'd *Sugar*, in regard the former is ſweeter.

The *Sugar* to be uſed herein, is firſt diſſolved in a weak Lime-Water, then clarify'd, ſcum'd, ſtrain'd through a Cloth, and boil'd, and put in Forms or Moulds that are travers'd with little Rods, to retain the *Sugar* as it Cryſtallizes. Theſe Forms are ſuſpended in a hot Stove, with a Pot underneath, to receive the Syrop that drops out at the Hole in the Bottom, which is half ſtopped, that the Filtration may be the gentler. When the Forms are full, the Stove is ſhut up, and the Fire made very vehement.

Upon this the *Sugar* faſtens to the Sticks that croſs the Forms, and there hangs in little Splinters of Cryſtal. When the *Sugar* is quite dry, the Forms are broke, and the *Sugar* taken out, *candied*. *Red Sugar-Candy* they make, by caſting into the Veſſel, where the *Sugar* is boiling, a little Juice of the Indian Fig; and if 'tis deſir'd to have it perfumed, they caſt a Drop of ſome Eſſence in, when the *Sugar* is putting into the Forms.

This Method of making *Sugar-Candy* is that of F. *Labat*, practis'd in the *Caribbees*: The Method in *Europe*, deſcrib'd by *Pomet*, is ſomewhat different.

White Sugar-Candy they make of white refin'd *Sugar*, boil'd with Water into a thick Syrop, in a large Peel. Tis candied in a Stove, whither 'tis carry'd, inclos'd in braſs Peels, croſs'd with little Rods, about which the Cryſtals faſten as they are form'd.

The Fire of the Stove is kept equable for fifteen Days; after which, the *Sugar* is taken out of the Peels to be dry'd. *Red* or *brown Sugar Candy* is made like the white, except that they only uſe brown *Sugars* and earthen Pots.

Barley SUGAR, is a *Sugar* boil'd till it be brittle, and then caſt on a Stone anointed with Oil of ſweet Almonds, and form'd into twiſted Sticks, about the Length of the Hand, and the Thickneſs of a Finger.

It ſhould be boil'd up with a Decoction of Barley, whence it takes its Name; but in Lieu thereof, they now generally uſe common Water, to make the *Sugar* the finer. To give it the brighter Amber Colour, they ſometimes caſt Saffron into it. Tis found very good for the Cure of Colds and Rheums.

SUGAR *of Roſes*, is white *Sugar* clarify'd, and boil'd into a Conſiſtence, in Roſe-Water; when boil'd, they form it into Lozenges, ſometimes into little Hail, of the Size of Peas; by keeping it ſtirring till it be cold and dry. Tis reputed good to ſoften and allay Acrimonies, *&c.* of the Breaſt.

SUGAR *of Saturn* }
SUGAR *of Lead* } See SATURN.

SUGGESTION, the Act of furniſhing one with a Thought, or Deſign, or of inſinuating it artfully into his Mind.

In the Civil Law a Teſtament is ſaid to be made *by Suggeſtion*, when 'tis made by Surprize, and contrary to the Intention of the Teſtator. See TESTAMENT.

If *Suggeſtion* be prov'd, the Teſtament becomes null. Articles and Legacies of *Suggeſtion* are not admittable againſt a Teſtament wrote with the Teſtator's own Hand, which is never ſuſpected.

SUIT, or SUTE, *Secta*, in Law, (from the *French Suite*, a following one another) is uſed in divers Senſes.

As, 1°, *Suit in Law*; which is of two Kinds, *Real* and *Perſonal*: The ſame with what we call *Real* and *Perſonal Actions*. See ACTION.

2°. *Suit of Court*, or *Suit of Service*; an Attendance which the Tenant owes the Court of his Lord. See SERVICE.

3°. *Suit Covenant*; is when your Anceſtor hath covenanted with mine to *ſue* to his Court.

4°. *Suit Cuſtom*; when I and my Anceſtors owe Suit time out of Mind.

5°. *Suit Real*, or *Regal*; when Men come to the Sheriff's Turn or Leet.

6°. *Suit* ſignifies the following one in *Chaſe*, as *Freſh Suit*.

Laſtly, *Suit* ſignifies a Petition made to the King, or any Great Perſon.

SULPHUR, in Natural Hiſtory, a fat unctuous Mineral Subſtance, fuſible and inflammable by Fire, and not diſſoluble or miſcible in Water. See FOSSIL.

It is particularly call'd *Foſſil*, or *Mineral Sulphur*, to diſtinguiſh it from the *Sulphur of Metals*, or *of the Philoſophers*. See METAL.

Sulphurs make a particular Claſs of Foſſils, divided into *Solid* and *Fluid*.

The *Solid Sulphurs* are, *common Sulphur*, or *Sulphur* properly ſo call'd, *Arſenic* and *Ambar*. See ARSENIC and AMBAR.

The *Liquid Sulphurs* are, *Aſphaltum*, or *Piſaſphaltum*, *Bitumen*, *Petroleum*, *Naptha*, and *Oleum Terræ*, &c. See BITUMEN, PISASPHALTUM, PETROLEUM, NAPTHA, *&c.*

SULPHUR, properly ſo call'd, or *Brimſtone*, is of three Kinds, *viz.* *Vivum*, *Mineral*, and *Common Sulphur*.

Sulphur Vivum is thus called, as being ſuch as it is taken out of the Mine: It is a kind of greyiſh argillous Clay, which eaſily takes Fire, and, in burning, caſts a ſtrong ſulphurous Smell. Its Colour occaſions its being ſometimes call'd *Grey Sulphur*.

'Tis chiefly brought from *Sicily*; and is but little uſed, except in ſome Galenical Compoſitions, and to *ſulphur* Wine, to make it keep in Carriage.

The beſt is ſoft, ſmooth, friable, and ſhining, of a Mouſe-Colour, and not too full of Smell.

Mineral Sulphur, call'd alſo *Yellow Sulphur*; is a Kind of hard, earthy Bitumen, of a ſhining yellow Colour, a ſtrong ſtinking Smell, eaſily taking Fire, and diſſolving.

'Tis found in great Quantities in the Neighbourhood of Vulcanos or burning Mountains, as *Veſuvius*, *Ætna*, *&c.* yet is it likewiſe found in its particular Mines; and we have very good from ſeveral Parts of *Italy* and *Switzerland*, tho' the beſt is that of *Quitto* and *Nicaragua* in *America*.

'Tis from this *Sulphur*, that the *Common Sulphur* uſed in Gunpowder, and on divers other Occaſions, is drawn, by Means of Fire and Whale Oil, which diſſolving it, 'tis pour'd into Moulds; and thus form'd into thoſe Cylinders we find it in.

This *Common Sulphur* is either better or worſe, according to the Refinery it comes from. That of *Holland* has a long Time had the Vogue; the ſecond Place has been given to that of *Venice*, and the third to that of *Marſeilles*; but the Order ſeems to have been ſince chang'd, and that from *Marſeilles* is now in the firſt Place.

It is choſen in large thick Cylinders, of a golden yellow Colour, very brittle, and when broke, appearing all brilliant, as if Cryſtallized.

Beſide the Uſe of *Sulphur* in the Compoſition of Gunpowder, whereof it is one of the three Ingredients, and that which makes it take Fire ſo readily, (See GUNPOWDER) 'tis of ſome Uſe in Medicine, and more in Chymiſtry. 'Tis alſo uſed in whitening Silken and Woollen Stuffs; to which End, the Vapour thereof is contriv'd to be receiv'd by them. See BLEACHING.

Its Vapour alſo whitens red Roſes, and even young Rooks, taken out of the Neſt, and expos'd thereto, become perfectly white. It has the ſame Effect on Gold; which is to be reſtored to its Colour by boiling it in Water with Tartar.

The Chymical Analyſis of *Sulphur* is very difficult; its Principles being ſo volatile, and withal ſo faſt bound together, that they either riſe all together, or are diſſipated and loſt in being ſeparated.

M. *Homberg*, however, has at length found the Secret of ſeparating the Principles, and of ſaving them at the ſame Time. He finds it conſiſts of an Acid Salt, an Earth, an oily, bituminous, and inflammable Matter, and uſually a little Metal.

The three firſt he finds, by a long Series of Operations, are in pretty equal Quantities; but the laſt, which he finds to be Copper, inconſiderable. The Acid, he adds, is exactly the ſame with that of Vitriol; the Oil thick and red as Blood, appears to be the inflammable Part, and that which conſtitutes the Chymical Principle *Sulphur*, but that it retains ſome heterogeneous Matter in the Operation. The Earth is extremely fix'd, and unalterable by the ſtrongeſt Fire.

M. *Geoffroy* tried the Recompoſition of *Sulphur* on M. *Homberg*'s Principles, and with Succeſs. The pure Acid Salt of *Sulphur*, being mix'd with an equal Quantity of the oily Matter, and earthy Alcali, and a little Oil of Tartar, and the Operation conducted according to the Rules of Art, the Mixture was converted into a pure burning Sulphur.

This done, he attempted the Compoſition of *Sulphur*, not by recompounding it out of the ſame Matters it had been reſolv'd into, but by uſing Matters judged of the ſame Nature. Thus, by ſubſtituting Oil of Vitriol for the Acid Salt, and Oil of Turpentine for the inflammable Part, he ſucceeded as before.

Again, he found that fixed Salts, as they are Acids abſorb'd in Earth, ſerve for two Principles at once, and need nothing but an inflammable Oil to make *Sulphur*: And even in Lieu of this Oil, M. *Geoffroy* imploy'd, with equal Succeſs, Charcoal, Pit-coal, and other Solids.

Indeed, Mr. *Boyle* and *Glauber* had before made common *Sulphur*, and that by Mixtures, ſuch as M. *Geoffroy* deſcribes; but they were both miſtaken as to the Reaſon thereof; the one concluding, that the *Sulphur* he thus got, had been contain'd in the fix'd Salts, and the other in the Coal; neither of them dreamed, that 'twas the Mixture of the three Principles that produced the Mixt.

Flowers of SULPHUR, are the pureſt and fineſt Part of *Sulphur*, gain'd by evaporating *Sulphur*, by Sublimation, or burning it in Pots made for that Purpoſe; and gathered in the Capital of the Cucurbit, where the Vapour ſticks. See FLOWER.

This Preparation, as, indeed, *Sulphur* in moſt of its Forms, is found excellent for the Lungs. The beſt Flower of *Sulphur* is that of *Holland*, which is in Cakes, or Pieces, light, ſoft, friable, and rather white than yellow. If it be in Powder, it muſt be very fine, of a yellow Colour, that is both whitiſh and gilt at the ſame Time.

Inſtead of this, we have frequently put upon us a vile Mixture of *Sulphur*, exalted by Fire, and mix'd with Starch, or Wheat Flower; and ſometimes only *Sulphur*-Duſt well ſifted.

By adding fix'd Nitre, or Sal Polychreſt, to the Flowers of *Sulphur*, we have the white Flowers of *Sulphur*.

Magiſtery, or *Balm*, or *Milk* of SULPHUR, is *Sulphur* diſſolved in a ſufficient Quantity of Water, with Salt of Tartar; and precipitated by Means of a Spirit of Vinegar, or ſome other Acid. See MAGISTERY.

'Tis called *Milk of Sulphur* from its Whiteneſs; and *Balm of Sulphur*, or *of the Lungs*, from its excellent Uſe in Diſeaſes of the Lungs and Breaſt. See BALSOM, *&c.*

Salt of SULPHUR, is a Chymical Preparation, very improperly thus called, as being no other than the Sal Polychreſton, impregnated with Spirit of *Sulphur*, and reduced to an Acid Salt, by evaporating the Humidity thereof. Some hold it a powerful Febrifuge. See SALT.

SULPHUR *of Antimony*, is a ſulphurous Matter drawn from Antimony by divers Operations. See ANTIMONY.

That drawn from the Fæces of the Crocus Metallorum, is by ſome called, *Golden Sulphur*.

SULPHUR *Metallorum*, or *Sulphur of Metals*, called alſo, *Sulphur Figens*, is uſed among the Chymiſts and Alchymiſts for a peculiar Matter, which enters the Compoſition of all Metals. See METAL.

Metals are ſuppos'd to conſiſt of two eſſential Parts, or Principles; Mercury as the Baſis, or Metallic Matter; and *Sulphur* as the Binder or Cement, which fixes the fluid Mercury into a coherent malleable Maſs. See METAL and MERCURY.

Some of the lateſt and beſt Chymiſts, particularly Monſ. *Homberg*, will have this *Sulphur* to be no other than Fire. See FIRE, GOLD, BURNING-GLASS.

SULTAN, or SOLDAN, a Title, or Appellation given the *Turkiſh* Emperor.

It had its Riſe under *Mahmoud*, Son of *Sebečteghin*, the firſt Emperor of the Dynaſty of the *Gaznerides*, towards the Cloſe of the IVth Century of the Æra of the *Hegira*: When that Prince going to *Segeſtan* to reduce *Kalaf*, the Governor of that Province, who affected the Sovereignty; *Kalaf* was no ſooner advertis'd of his coming, than he went out before him, delivered the Keys of his Fortreſs, and own'd him his *Sultan*, that is, his *Lord* or *Commander*.

The Title pleaſed *Mahmoud* ſo well, that he aſſumed it ever afterwards; and from him it paſs'd to his Deſcendants, and to other Mahometan Princes.

Vatier will have the Word *Turkiſh*, and to ſignify *King of Kings*; adding, that it was firſt given the Princes *Angrolipex* and *Maſgud*, about the Year 1055; others will have it originally *Perſian*, alledging, in Proof hereof, an ancient Medal of *Coſroe's*; others derive it from *Soldan quaſi ſolus dominus*; others from the *Hebrew* שלט, Schalat, to rule, reign: From the *Hebrew* it paſs'd into the *Arabic*, and thence to the *Turks*.

In the *Roman* Ceremonial, we find mention made of a *Soldan*, or Marſhal, who is to attend the Pope when he marches in State.

SULTANA, the Wife of a Sultan. The Favourite *Sultana* is called *Hhaſeki-Sultan*, *i. e.* private *Sultana*.

The *Sultana* Queen is the Emperor's chief Wife. The old *Sultana*, Mother of the Emperor reigning, is called the *Sultana Valide*. *Sultana* is alſo a *Turkiſh* Veſſel.

SUM, in Mathematicks, ſignifies the Quantity that ariſes from the Addition of two or more Magnitudes, Numbers, or Quantities together. See ADDITION.

This is ſometimes called the *Aggregate*; and, in Algebra, it is uſually denoted by the Letter Z, which ſtands for *Zuma*, or *Suma*; and ſometimes by the Letter S.

SUM of an Equation, is when the abſolute Number being brought over to the other Side, with a contrary Sign, the whole becomes equal to O: This *Des Cartes* calls the *Sum* of the Equation propos'd. See EQUATION.

SUMAC, a Drug uſed to die in Green; as alſo in the Preparation of Black Morocco, and other Leather. See MOROCCO.

It conſiſts of the Leaves and young Branches of a Shrub, not unlike the little Service-Tree: The Leaves are longiſh, pointed, and hairy: The Flowers grow in Cluſters, and are red, like our Roſes. Its Fruit is a Kind of Grape, of a very aſtringent Quality; and its Seed almoſt oval, and incloſed in Capſulæ of the like Figure.

The Antients uſed them, inſtead of Salts, to ſeaſon their Meats withal; whence the *Latins* call the Tree *Rhus Obſoniorum*, from its Uſe in the Dreſſing of Leather: 'Tis alſo called *Rhus Coriaria*. 'Tis the *Arabs* call it *Sumac*.

SUMMARY, an Abridgment, containing the Sum and Subſtance of a Thing in a few Words.

The *Summary* placed at the Head of a Book, a Chapter, a Law, or the like, is very uſeful to the Reader, to facilitate the Underſtanding thereof.

A Recapitulation, is to contain a *Summary* of the whole preceding Diſcourſe. See RECAPITULATION.

SUMMATORIUS *Calculus*, the Method of ſumming differential Quantities; that is, from any Differential given, to find the Quantity from whoſe Differencing the given Differential reſults.

This Method we more uſually call, *The inverſe Method of Fluxions*; and Foreigners, *Integralis Calculis*. See CALCULUS *Integralis*, and FLUXIONS.

SUMMER, one of the Seaſons of the Year, commencing, in theſe Northern Regions, on the Day the Sun enters *Cancer*; and ending when he quits *Virgo*. See SEASON.

Or, more ſtrictly, and univerſally, the *Summer* begins on the Day when the Sun's Meridian Diſtance from the Zenith is the leaſt. It ends on the Day when its Diſtance is a Mean betwixt the greateſt and ſmalleſt.

The End of *Summer* coincides with the Beginning of Winter. See WINTER.

SUMMER, in Architecture, is a large Stone, the firſt that is laid over Columns and Pilaſters, in beginning to make a croſs Vault; or 'tis the Stone which being laid over a Piedroit or Column, is hollowed, to receive the firſt Haunce of a Plat-band.

The Word is form'd from the *French*, *Sommier*, which ſignifies the ſame Thing.

SUMMER, in Carpentry, is a large Piece of Timber, which being ſupported on two Stone Peers, or Poſts, ſerves as a Lintel to a Door, Window, *&c.*

There are alſo *Summers* uſed in various Engines, *&c.* ſerving to ſuſtain the Weight, *&c.*

SUMMERS, in Building. See BRESS-SUMMERS and GIRDERS.

SUMMET, the Vertex, or Point of any Body; as of a Triangle, a Pyramid, a Pediment, *&c.* See VERTEX.

The Word is formed from the *French*, *Summet*, which ſignifies the ſame Thing.

SUMMONER, or SUMMONITOR, an Apparitor, who is to cite Offenders to appear at a certain Time and Place, to anſwer to the Charge exhibited againſt them.

SUMMONS, in Law, a citing or calling a Perſon to any Court, to anſwer any Complaint, or even to give in his Evidence, *&c.*

This is the ſame with the *Vocatio in Jus*, or the *Citatio* of the Civilians: Hence our old Word *Sumner*, or *Summoner*.

Summons in Terra Petita, is that made on the Land which the Party, at whoſe Suit the *Summons* is ſent out, ſeeks to have.

Summons ad Warrantizandum, is a Proceſs, whereby a Vouchee is called. See VOUCHEE.

SUMMONS, in War. To *ſummons* a Place, is to ſend a Drum, or Trumpet, to command the Governor to ſurrender; or, in Defect thereof, to proteſt to make an Aſſault, and to lay all in Fire and Blood.

SUMMUM *Bonum*, in Ethicks, the chief Good of Human Nature; or that, which, by its Enjoyment, renders truly and compleatly happy.

The Schools diſtinguiſh this chief Good of Man, into that which is ſimply and adequately ſo, and beyond which there can be no other; and into a leſſer and ſubordinate one, which is in ſome meaſure attainable in this imperfect State.

This laſt they call *Fœlicitas Viatorum*; and the former, *Fœlicitas Comprehenſorum*.

SUMPTER-*Horſe*, is an Horſe that carries Proviſions and Neceſſaries for a Journey.

SUMPTUARY Laws, are Laws made to reſtrain Exceſs in Apparel, Furniture, Eating, *&c.*

Moſt Ages and Nations have had their *Sumptuary* Laws; and ſome retain them ſtill, as the *Venetians*, *French*, *&c.* 'Tis obſerved, that no Laws are ever worſe executed than *Sumptuary* Laws.

The *Sumptuary* Laws of that ancient *Locrian* Legiſlator *Zaleucus*, are famous: By theſe it was ordained, That no Woman ſhould go attended with more than one Maid in the Street, except ſhe were drunk: That ſhe ſhould not go out of the City in the Night, unleſs ſhe went to commit Fornication: That ſhe ſhould not wear any Gold or Embroider'd Apparel, unleſs ſhe purpoſed to be a common Strumpet. That Men ſhould not wear Rings or Tiſſues, except when they went a Whoring, *&c.*

The *Engliſh* have had their Share of *Sumptuary* Laws, tho' all repealed by a Statute 1° *Jac.* I. or obſolete.

Under King *Henry* IV. *Cambden* tells us, Pride was got ſo much into the Foot, that it was proclaim'd, *That no Man ſhould wear Shoes above ſix Inches broad at the Toes.* And their other Garments were ſo ſhort, that it was enacted, 25 *Ed.* IV. That no Perſon under the Condition of a Lord, ſhould, from that Time, wear any Mantle or Gown, *unleſs of ſuch Length, that, ſtanding upright, it ſhould cover his Privy Members and Buttocks.*

Among the *Romans*, the *Sumptuary* and *Cibary* Laws were very numerous: By the *Lex Orchia*, the Number of Gueſts at Feaſts was limited, tho' without Limitation of the Charges thereof. By the *Fannian* Law, made Twenty-two Years afterwards, it was enacted, That more than ten As's ſhould not be ſpent at any ordinary Feaſt: For the ſolemn Feaſts, as the *Saturnalia*, *&c.* an hundred As's were allowed; Ten of which, *Gellius* informs us, was the Price of a Sheep, and an hundred of an Ox.

By the *Didian* Law, which was preferr'd eighteen Years after, it was decreed, That the former *Sumptuary* Laws ſhould be of Force, not only in *Rome*, but alſo in *Italy*: And that for every Tranſgreſſion, not only the Maſter of the

Feaſt, but all the Gueſts too, ſhould be liable to the Penalty.

SUN, *Sol*, in Aſtronomy, the great Luminary which enlightens the World, and by his Preſence, conſtitutes Day. See DAY.

The *Sun* is uſually reckon'd among the Number of *Planets*; but that he ought rather to be numbred among the *fix'd Stars*, will be ſhewn in its Place. See STAR and PLANET.

According to the Copernican Hypotheſis, which is now generally received, and which has even Demonſtration on its Side, the *Sun* is the Centre of the planetary and cometary Syſtem; round which all the Planets and Comets, and our Earth among the reſt, revolve, in different Periods, according to their different Diſtances from the *Sun*. *See this Motion Illuſtrated and Demonſtrated under the Article* PLANET.

But the *Sun*, though thus eas'd of that prodigious Motion, whereby the Ancients imagined him to revolve daily round our Earth; yet is he not a perfectly quieſcent Body.

From the Phænomena of his Maculæ or Spots, it evidently appears, that he has a Rotation round his Axis; like that of the Earth whereby the natural Day is meaſured; only ſlower. Some of theſe Spots have made their firſt Appearance near the Edge or Margin of the *Sun*, and have been ſeen ſome time after on the oppoſite Edge; whence, after a Stay of about 14 Days, they have re-appeared in their firſt Place, and taken the ſame Courſe over again; finiſhing their entire Circuit in 27 Days time; which is hence deduced to be the Period of the *Sun*'s Rotation round his Axis. This Motion of the Spots, is from *Eaſt* to *Weſt*, whence we conclude that of the *Sun*, to which the other is owing, to be from *Eaſt* to *Weſt*.

For the various Appearances of the Solar Spots, their Cauſe, &c. ſee MACULÆ and SPOTS.

For the annual Motion of the Sun *round the Earth*; 'Tis eaſily ſhewn by Aſtronomers, That the annual Motion of the Earth will occaſion ſuch an Appearance, though it be demonſtrated that there is no ſuch Thing.

A Spectator in the *Sun*, would ſee the Earth move from *Weſt* to *Eaſt*, for the ſame Reaſon as we ſee the *Sun* move from *Eaſt* to *Weſt*. And all the Phænomena reſulting from this annual Motion, in whichſoever of the Bodies it be, will appear the ſame from either. Let S, for Inſtance (Tab. Aſtronomy, Fig. 39.) repreſent the *Sun*, ABCD the Earth's Orbit, which it paſſes through from *Weſt* to *Eaſt*, in the Space of a Year.

Now, a Spectator in S, viewing the Earth at A, will refer it to the Point of the Sphere of the Stars, ♈: When arrived in B, the Spectator will ſee it, as in the Point ♋; when in C, as in the Point ♎, &c. till after its whole Circuit, it will be again ſeen in ♈. Thus will the Earth appear to deſcribe the whole Ecliptic, and to paſs, ſucceſſively, from Sign to Sign.

Suppoſe, now, the Spectator removed from the *Sun* to the Earth, which imagine in C; the Diſtance of the fix'd Stars, we have ſhewn, is ſo vaſt, that that of the *Sun* is but a Point to it. The Spectator, therefore, now ſituate on the Earth, will ſee the ſame Face of the Heavens, the ſame Stars, &c. as before; the only Difference will be, that as before he imagined the Earth in the Heavens, and the *Sun* in the Centre; he will now ſuppoſe the Sun in the Heavens, and the Earth in the Centre.

The Earth, therefore, being in C, the Spectator will ſee the *Sun* in ♈; and the Spectator being carried along with the Earth, and partaking of his annual Motion, will not perceive either his own Motion, or that of the Earth; but obſerving the *Sun*, when the Earth is arrived at D, the *Sun* will be ſeen at ♋. Again, while the Earth proceeds to A, the *Sun* will ſeem to have moved through the Signs ♋, ♌, and ♍: And while the Earth deſcribes the Semi-circle ABC, the *Sun* will appear to have moved in the concave Surface of the Heavens, through the Six Signs, ♎, ♏, ♐, ♑, ♒, ♓. So that an Inhabitant of the Earth will ſee the *Sun* go through the ſame Orbit or Circle in the Heavens, and in the ſame Space of Time, as a *Spectator* in the *Sun* would ſee the Earth deſcribe the ſame.

Hence ariſes that apparent Motion of the *Sun*, whereby he is ſeen to advance, inſenſibly, toward the eaſtern Stars: Inſomuch, that if any Star near the Ecliptic, riſe any Time with the *Sun*; after a few Days, the *Sun* will be got more to the *Eaſt* of the Star, and the Star will riſe and ſet before him.

For the ſeveral Phænomena reſulting from the Sun's *apparent Motion, or the Earth's real Motion, as the Diverſity of Day and Night, of Seaſons, &c.*; See EARTH.

Nature, Properties, Figure, &c. of the SUN.

1° As the Solar Spots are ſometimes found to ſtay Three Days longer behind the *Sun*, than they ſpend in paſſing over the Hemiſphere viſible to us; we eaſily deduce, that they don't adhere to the Surface of the *Sun*, but are at ſome Diſtance therefrom.

2° As the Spots frequently riſe and vaniſh, even in the midſt of the *Sun*'s Diſk; and undergo ſeveral Changes, both with regard to Bulk, and Figure, and Denſity; it follows, that they frequently riſe, *de novo*, about the *Sun*, and are again diſſipated.

3° Hence it ſhould follow, that they are form'd out of the Exhalations of the *Sun*; and are no other than Solar Clouds. See VAPOUR, CLOUD, &c.

4° Since, then, Exhalations proceeding from the *Sun*, riſe above him, and ſtop at a certain Altitude; 'tis evident there is ſome Fluid incompaſſing the *Sun*, to urge the Exhalations to riſe; and this Fluid muſt be denſer at bottom, and rarer a top, like our Atmoſphere. See ATMOSPHERE.

5° Since the Spots frequently diſſolve and diſappear in the middle of the *Sun*'s Diſk; the Matter of the Spots, that is, the Solar Exhalations, fall back again to the *Sun*: Whence it follows, that there muſt ariſe various Alterations in the *Sun*'s Atmoſphere, and the *Sun* himſelf. See RAIN, HAIL, METEOR, &c.

6° Since the Revolution of the Spots round the *Sun* is found very regular, and the Spots very near the *Sun*; it follows, That the Spots do not revolve round the *Sun*; but that the *Sun*, together with his Atmoſphere, wherein the Maculæ are, move round their common Axis, in an Interval of about 27 Days; and hence it is, that the Spots near the Limb, being viewed obliquely, appear narrow and oblong.

7° Since the *Sun*, in every Situation, appears like a circular Diſk; its Figure, as to Senſe, muſt be Spherical; though we ſhall hereafter ſhew, That it is really Spheroidical.

Beſides the Maculæ or dark Spots, ſeveral Authors make mention of Faculæ or Spots brighter than the reſt of the *Sun*'s Diſk; and thoſe generally larger, and very different from the Maculæ, both in Figure, Duration, &c.

Theſe Faculæ, *Kircher*, *Scheiner*, &c. take to be Eruptions of Flames; and hence take Occaſion to repreſent the Face of the *Sun* as full of Volcano's, &c. But *Huygens*, uſing the beſt Teleſcopes, could never find any ſuch Things, though he has ſometimes ſpied certain Places in the Maculæ themſelves, more lucid than the reſt. But theſe do not ſeem owing to any kindled Matter, which were ſcarce conſiſtent with their Duration, and their frequent Change into Maculæ; but to the Refraction of the *Sun*'s Rays through the thinner Exhalations, when as the Groſſer, in their Neighbourhood, intercept the ſame. See FACULÆ.

8° That the Subſtance of the *Sun*, is Fire, we thus prove: The *Sun* ſhines, and his Rays, collected by concave Mirrors, or convex Lens's, burn, conſume, and melt the moſt ſolid Bodies, or elſe convert them into Aſhes, or Glaſs. Wherefore, as the Force of the ſolar Rays is diminiſhed by their Divergency, in a duplicate *Ratio* of the Diſtances reciprocally taken; 'tis evident, their Force and Effect is the ſame, when collected by a burning Lens or Mirror, as if we were at ſuch Diſtance from the *Sun*, where they were equally denſe. The *Sun*'s Rays, therefore, in the Neighbourhood of the *Sun*, produce the ſame Effects, as might be expected from the moſt vehement Fire; conſequently, the *Sun* is of a fiery Subſtance. See FIRE.

Hence it follows, That its Surface is every where Fluid; that being the Condition of Flame. See FLAME.

Indeed, whether the whole Body of the *Sun* be Fluid, as ſome think, or Solid, as others; we don't determine: But as there are no other Marks, whereby to diſtinguiſh Fire from other Bodies, but Light, Heat, a Power of Burning, Conſuming, Melting, Calcining and Vitrifying; we don't ſee what ſhould hinder, but that the *Sun* may be a Globe of Fire like ours, inveſted with Flame.

9° Since the Maculæ are form'd out of the ſolar Exhalations; it appears, that the *Sun* is not pure Fire, but that there are Heterogeneous Particles mix'd along with it.

10° The Figure of the *Sun* is a Spheroid, higher under the Equator than about the Poles. This we prove thus: The *Sun* has a Motion about his own Axis, and therefore the ſolar Matter will have an Endeavour to recede from the Centres of the Circles wherein it moves; and that, with the greater Force, as the Peripheries of the Circles are greater. But the Equator is the greateſt Circle, and the reſt, towards the Poles, continually decreaſe; therefore the ſolar Matter, though at firſt in a ſpherical Form, will endeavour to recede from the Centre of the Equator, further than from the Centres of the Parallels.

Conſequently, ſince the Gravity whereby it is retain'd in its Space, is ſuppoſed to be uniform throughout the whole *Sun*; it will really recede from the Centre, more under the Equator than under any of the Parallels. And hence the *Sun*'s Diameter, drawn through the Equator, will be greater than that paſſing through the Pole, *i. e.* the *Sun*'s Figure is not perfectly Spherical, but Spheroidical. See SPHEROID.

For the Parallax of the Sun; ſee PARALLAX.

For the Sun's *Diſtance*: As the Determination thereof depends on that of the Parallax; and as the *Sun*'s Parallax is not found without a long, operoſe Calculus; So, Aſtronomers don't agree much about either of them.

The mean Diſtance of the *Sun* from the Earth, ſome make 7490 Diameters of the Earth, others 10000, others 12000;

others 15000; but allowing M. *de la Hire*'s Parallax of 6″, the *Sun*'s mean Diſtance will be 17188 Diameters of the Earth; and allowing that of *Caſſini*, only 14182. See DISTANCE.

The apparent Diameter of the *Sun*, is not found always the ſame. *Ptolomy* makes it, when greateſt, 33′ 20″, *Tycho* 32′, *Kepler* 31′ 4″, *Ricciolus* 32′ 8″, *Caſſini* 32′ 20″, *De la Hire* 32′ 43″. Its mean, apparent Diameter, according to *Ptolomy*, is 32′ 18″; according to *Tycho* 31′; according to *Kepler* 30′ 30″; according to *Ricciolus* 31′ 40″; according to *Caſſini* 31′ 40″; according to *De la Hire* 32′ 10″. Its leaſt Diameter, *Ptolomy* makes 31′ 20″; *Tycho* 30′; *Kepler* 30′; *Ricciolus* 31′; *Caſſini* 31′ 8″; *De la Hire* 31′ 38″.

The true Diameter of the *Sun* to that of the Earth, is computed to be, as 10000 to 208. See DIAMETER.

For the Eclipſes of the SUN; ſee ECLIPSE.

Cycle of the SUN. See CYCLE.

Meridian Altitude of the SUN, &c. See MERIDIAN *Altitude*.

SUNDAY, the Firſt Day of the Week; thus call'd by our Idolatrous Anceſtors, becauſe ſet apart for the Worſhip of the *Sun*.

'Tis now alſo call'd the *Lord's Day*, becauſe kept a Feaſt in Memory of our Lord's Reſurrection on this Day; and *Sabbath Day*, becauſe ſubſtituted, under the new Law, in the Place of the *Sabbath*, in the old Law. See SABBATH.

In the Breviary, and other Offices, we meet with *Sundays* of the firſt and ſecond Claſs: Thoſe of the firſt Claſs, are *Palm*, *Eaſter*, *Advent* and *Whit-Sunday*, thoſe of *Quaſimodo* and *Quadrigeſimo*; each whereof, ſee under its proper Article.

Thoſe of the ſecond Claſs, are the common *Sundays*. Anciently, each *Sunday* in the Year had its particular Name, which was taken from the Introit of the Day; which Cuſtom has only been continued to ſome few in *Lent*; as *Reminiſcere*, *Oculi*, *Lætare*, *Judica*.

It was *Conſtantine the Great*, that firſt made a Law for the Obſervation of *Sunday*; and that, according to *Euſebius*, appointed it ſhould be regularly celebrated throughout the *Roman* Empire.

Before him, and even in his Time, they obſerved both the *Jewiſh Sabbath* and *Sunday*, at the ſame Time; both to ſatisfy the Law of *Moſes*, and to imitate the Apoſtles, who uſed to meet together on the firſt Day.

Indeed, ſome are of Opinion, that the *Lord's Day*, mention'd in the *Apocalypſe*, is our *Sunday*; which they will have to have been ſo early inſtituted by the Apoſtles. Be this as it will, 'tis certain, a Regard was had to this Day, even in the earlieſt Ages of the Church; as appears from the firſt Apology of *Juſtin Martyr*, where he deſcribes the Exerciſe of the Day, not much unlike to ours.

By *Conſtantine*'s Laws, made in 321; it was decreed, That for the future, the *Sunday* ſhould be kept a Day of Reſt in all Cities and Towns; but he allowed the Country People to follow their Work. In 538, the Council of *Orleans* prohibited this Country-labour; but in regard there were ſtill abundance of *Jews* in the *Gauls*, and that the People gave into a good many Superſtitious Uſages, in the Celebration of the New *Sabbath*, like thoſe of the *Jews* in that of the Old; the Council declares, That to believe it unlawful to travel with Horſes, Cattle and Carriages, to prepare Foods, or to do any thing relating to the Cleanneſs and Decency of Houſes or Perſons, ſavours more of Judaiſm than Chriſtianity.

SUNDAY *Letter*. See DOMINICAL *Letter*.

SUN-*Flower*. See TOURNSOLE.

SUOVETAURILIA, or SOLITAURILIA, a Sacrifice among the ancient *Romans*; wherein they offer'd Three Victims, of Three different Kinds, *viz.* a Bull, a Ram and a Boar.

Livy deſcribing it, calls it *Suovetaurilia*, as compoſed of *Sus*, *Ovis* and *Taurus*, the Names of the Three Victims ſacrificed. *Dion. Halicarnaſſæus* deſcribing the ſame, calls it *Solitaurilia*, in regard 'twas required, that the Victims were intire, and without any Defect; *Sollus*, or *ſolus*, in the Language of the *Oſci*, ſignifying *Integer*.

SUPERBIPARTIENS
SUPERPARTICULARIS
SUPERPARTIENS
SUPERQUADRIPARTIENS
SUPERTRIPARTIENS
See RATIO.

SUPERCARGO, a Perſon imploy'd by the Owners of Ships, to go a Voyage, to overſee the Cargo or Lading, and to diſpoſe of it to their beſt Advantage, for which Service he is allowed good Proviſion, becauſe the Truſt repoſed in him, is very conſiderable.

SUPERCILIUM, in Anatomy, the Eye-brow. See EYE.

SUPERCILIUM, in the ancient Architecture, the uppermoſt Member of the Cornice, call'd by the Moderns, *Corona*, *Crown*, or *Larmier*.

Mr. *Evelyn* conceives, it ſhould rather have been call'd *Stillicidium*, *Drip*, to denote its Office of Sheltering the Order from Rain, &c. See CORONA and LARMIER.

SUPERCILIUM, is alſo uſed for a ſquare Member under the upper Tore in ſome Pedeſtals. Some Authors confound it with the Tore itſelf.

SUPEREROGATION, in Theology, what a Man does beyond his Duty, or beyond what he is commanded to do.

The *Romaniſts* ſtands up ſtrenuouſly for Works of *Supererogation*; and maintain, that Evangelical Councils are ſuch. By means hereof, a Stock of Merit is laid up; which the Church has the Diſpoſal of, and which ſhe diſtributes in Indulgences to ſuch as need. See INDULGENCE.

The Reformed Church don't allow of any Work of *Supererogation*; but held, with the Apoſtle, *That when we have done our beſt, we are but unprofitable Servants*. See MERIT.

SUPERFETATION, in Medicine, an After-Conception; or a ſecond Generation, happening when the Mother, already pregnant, conceives, of a later Coition; ſo that ſhe bears at once Two Fætus's of unequal Age and Bulk, and is delivered of them at different Times. See BIRTH, CONCEPTION, FÆTUS, &c.

We meet with Inſtances of *Superfetations* of Women, in *Hippocrates*, *Ariſtotle*, *Pliny*, *du Laurens*, &c. But they are much more frequent in Hares and Sows.

An Inſtance of an extraordinary Kind of *Superfetation*; we have in *Bartholin*; who tells us, That a *Daniſh* Girl was born big with Child.

Menzelius, a *German* Phyſician, adds, That in 1672, the Wife of a Phyſician, in *Thuringia*, was delivered of a Girl big with another; whereof ſhe was delivered in Eight Days Time; and which was Baptized, and died a Day after her Mother.

The Naturaliſts hold, That Female Rats are frequently born with young Rats in their Wombs.

In the King of *Denmark*'s Cabinet, is ſeen an Egg, in the middle whereof is another Egg perfectly form'd. See EGG.

We meet with ſomething like a *Superfetation* in Plants too; there being a kind of Lemon found to grow incloſed in the Body of another.

In the Hiſtory of the Royal Academy of Sciences, for the Year 1709, mention is made of a Letter from a very conſiderable Magiſtrate, to the Academy, containing a very remarkable Inſtance of a *Superfetation*; a Butcher's Wife of *Aix* being delivered in that Year of Nine Children, each about Two Days after other, all well form'd and alive.

The Word is form'd from the *Latin*, *Super*, over, and *fætus*, Embryo.

SUPERFICIAL *Content*. See SUPERFICIES, AREA and MEASURING.

SUPERFICIES, or SURFACE, in Geometry, a Magnitude, conſidered as having Two Dimenſions; or extended in Length and Breadth; but without Thickneſs or Depth. See DIMENSION.

In Bodies, the *Superficies* is all that preſents itſelf to the Eye. See BODY.

A *Superficies* is chiefly conſider'd, as the external Part of a Solid; when we ſpeak of a *Surface* ſimply, and without any regard to Body, we uſually call it *Figure*. See FIGURE.

A *Rectilinear* SUPERFICIES, is that comprehended between Right Lines.

A *Curvilinear* SUPERFICIES, that comprehended between Curve Lines. See CURVE.

A *Plane* SUPERFICIES, is that which has no Inequality, but lies evenly between its boundary Lines. See PLANE.

A *Convex* SUPERFICIES, is the exterior Part of a ſpherical Body. See CONVEX.

A *Concave Surface*, is the internal Part of an orbicular Body. See CONCAVE.

The Meaſure or Quantity of a Surface, is call'd the *Area* thereof. See AREA.

The finding of this Meaſure or Area, is call'd the *Quadrature* thereof. See QUADRATURE.

To Meaſure the Surfaces of the ſeveral Kinds of Bodies, as *Spheres*, *Cubes*, *Parallelepipids*, *Pyramids*, *Priſms*, *Cones*, &c. See SPHERE, CUBE, PARALLELEPIPID, &c.

Line of SUPERFICIES, a Line uſually found on the Sector, and *Gunter*'s Scale. See SCALE.

The Deſcription and Uſe hereof, ſee under the Articles SECTOR and GUNTER'*s Scale*.

SUPERFINE, in the Manufactures, a Term uſed to expreſs the ſuperlative Fineneſs of a Stuff.

Thus a Cloth, a Camlet, &c. are ſaid to be *Superfine*, when made of the fineſt Wool, Silk, &c. or when they are the fineſt that can be made.

The Term is particularly uſed among Gold Wiar-drawers, for the Gold or Silver-wiar, which after being drawn through an infinite Number of Holes, each leſs and leſs, is, at length, brought not to be bigger than a Hair. See GOLD-*Wiar*.

SUPERINCESSUS *radens* See SLIDING.
SUPERINCESSUS *volvens* See ROLLING.

SUPER-*Inſtitution*; is one Inſtitution upon another; as if A be admitted and inſtituted to a Benefice upon one Title, and B admitted, inſtituted, *&c.* by the Preſentation of another.

SUPERINTENDANT, in the *French* Cuſtoms, an Officer who has the prime Management and Direction of the Finances or Revenues of the *French* King.

The Term is alſo uſed for the firſt Officer in the Queen's Family, who has the chief Adminiſtration of the Houſhold.

They have alſo a *Superintendant* of the Buildings, anſwering to the Surveyor of the Works among us.

The Cardinal *de Richelieu* made himſelf *Superintendant* of Commerce.

Superintendant, is alſo an Eccleſiaſtical Superior in ſeveral Reform'd Churches where Epiſcopacy is not admitted; particularly among the *Lutherans* in *Germany*, and the *Calviniſts* in ſome other Places.

The *Superintendant* is, in Effect, little elſe but a Biſhop; only his Power is ſomewhat more reſtrain'd than that of our Biſhops.

He is the chief Paſtor, and has the Direction of all the inferior Paſtors within his Diſtrict or Dioceſe.

In *Germany* they had formerly *Superintendants General*, who were ſuperior to the ordinary *Superintendants*. Theſe, in reality, were Archbiſhops; but the Dignity is ſunk into Diſuſe; and, at preſent, none but the *Superintendant* of *Wittemberg* aſſumes the Quality of *Superintendant General*.

SUPERIOR, ſomething rais'd above another, or that has a Right to command another.

Thus an Abbot is call'd the *Superior* of an Abbey; and a Prior the *Superior* of a Convent. See Abbot, *&c.*

The Canoniſts hold, that a perpetual *Superiority* forms a Title: But a *Superior* may be continued by thoſe who conſtituted him ſuch, yet without the *Superiority*'s being render'd, by that Means, perpetual. The Church of *France* allow the *Superiority* of the Pope; not his *Infallibility*, as all the other *Romiſh* Churches do.

SUPERJURARE: Antiently, when a Criminal endeavour'd, *&c.* to excuſe himſelf by his own Oath, or by that of one or more Witneſſes; and yet the Crime ſo notorious, that he was convicted by the Oaths of many more Witneſſes; this was call'd *Superjurare*.

SUPERLATIVE, in Grammar, an Inflexion of Nouns Adjectives, ſerving to augment and heighten their Signification, and to ſhew the Quality of the Thing to be in the higheſt Degree. See Degree.

In *Engliſh*, the *Superlative* is uſually form'd by the Addition of *eſt*; as Richeſt, Holieſt, *&c.* Rarely by the Addition of *iſſimo*, as Generaliſſimo; more frequently by the prefixing of *moſt*, as Moſt Honourable, Moſt Amiable, *&c.*

The *French* are generally forc'd to form their *Superlatives*, by prefixing of *le plus*, ſometimes of *tres*, and ſometimes of *fort*.

The *Italians* and *Spaniards* have great Advantages over them in this Reſpect; their Language abounding with magnificent Words to exaggerate Things withal: yet the *Hebrews* are more poor than the *French* in this Reſpect, as having neither *Comparatives* nor *Superlatives*.

They uſe to expreſs theſe Degrees by the Particles *joter* and *meod*, ſometimes by the Prepoſition *min*, and ſometimes by re-doubling the Words; which is what we frequently find in the Vulgate.

SUPERNUMERARY, ſomething over and above a fix'd Number.

In ſeveral of the Offices are *Supernumerary* Clerks, *&c.* to be ready on extraordinary Occaſions, *&c.*

There are alſo *Supernumerary* Surveyors of the Exciſe, to be ready to ſupply Vacancies when they fall. They have but half Pay.

In Muſic, the *Supernumerary*, call'd by the *Greeks Proſlambanomenos*, is the loweſt of the Chords of their Syſtem; anſwering to *a*, *mi*, *la*, of the loweſt Octave of the Moderns. See Proslambanomenos and Diagram.

SUPER-*purgation*, in Medicine, an exceſſive, over-violent Purging. See Purgation.

A Man who had taken Powder of Diacarthamus inwardly, was ſent by it to Stool an hundred times; and was cured of the *Super-purgation* by a Pound of Capon-Broth, an Ounce of Saccharum Roſatum, five Grains of Laudanum, and the Yolk of an Egg.

In lieu of Laudanum, they ſometimes uſe a Drachm and a half of new Treacle. *Burnet*.

SUPERSCAPULARIS *inferior*; call'd alſo *Iufraſpinatus*; a Muſcle that helps to draw the Arm backwards. It covers all the Space that is between the Spine, and the Teres minor; and is inſerted into the Neck of the Humerus.

SUPERSCAPULARIS *ſuperior*, in Anatomy, a Muſcle call'd alſo *Supraſpinatus*. See Supraspinatus.

SUPERSEDEAS, is a Writ iſſued in divers Caſes, importing, in general, a Command to ſtay or forbear the doing of that which ought not to be done, but which, in Appearance of Law, ought to be done; were it not for that Cauſe, whereon the Writ is granted. Thus, a Man, regularly, is to have Surety of Peace, againſt him of whom he will ſwear he is afraid; and the Juſtice requir'd hereunto can't deny it him: yet, if the Party be formerly bound to the Peace, either in Chancery, or elſewhere, this Writ lies, to ſtay the Juſtice from doing that, which otherwiſe he ought not to deny.

SUPERSTITION, an extravagant Devotion, or a Religion ill directed, and ill conducted. See Religion.

'Twas a Piece of *Superſtition* in the ancient *Romans*, to obſerve the Flight of Birds, the Entrails of Victims, *&c.*

The *Romiſh* Prieſts make a fine Penny of the *Superſtition* of the People: Monſ. *Thiers* has an expreſs Treatiſe *des Superſtitions Populaires*. Women, he obſerves, are naturally more inclin'd to *Superſtition* than Impiety. *Plutarch* has endeavour'd to ſhew, that *Superſtition* is worſe than Atheiſm. The Puniſhment allotted by ſeveral Councils for the *Superſtitious*, was to faſt a Month in Priſon.

SUPERVISOR, ſignifies a *Surveyor*, or *Overſeer*.

It was formerly, and is ſtill amongſt ſome, a Cuſtom, eſpecially of the better Sort, to make a *Superviſor* of a Will, but it is to little Purpoſe; as being now ſo careleſly executed. However, the firſt Intendment might be good, that he ſhould ſuperviſe the Executors, and ſee the Will truly perform'd.

SUPINATION, in Anatomy, the Action of a *Supinator* Muſcle; or the Motion whereby it turns the Hand, ſo, as that the Palm is lifted upwards towards Heaven. See Supinator.

SUPINATORES, in Anatomy, two Muſcles of the Arm; the one call'd *Supinator longus*, the other *Supinator brevis*.

The firſt ariſes by a fleſhy Beginning, three or four Fingers Breadth above the external Extuberance of the Humerus. It lies along all the Radius, to whoſe inferior and external Part it is inſerted by a pretty broad Tendon.

The laſt comes from the external and upper Part of the Ulna, and paſſing round the Radius, is inſerted into its upper and fore Part, below the Tendon of the Biceps. Theſe turn the Palm of the Hand upwards.

SUPINE, in the *Latin* Grammar, a Part of the Conjugation of a Verb, of like Effect with the Infinitive Mood. See Verb, Mood, *&c.*

There are two Kinds of *Supines*, the one in *um*, whoſe Signification is active, and marks a Motion, as *dare nuptum*; the other in *u*, having a paſſive Signification, as *horrendum Auditu*, *&c.* The *Supines* have neither Number nor Perſon.

They have their Name, ſays *Probus*, and after him *Voſſius*, *quod ad inſtar* Supinorum *& otioſorum hominum omnia habent confuſa*. Or, according to *Priſcian*, *quod naſcantur a participiis paſſivis quæ* ſupina *appellata ſunt, quia in infimo loco ſita totam conjugationis molem ſuſcipiant*.

SUPPLANTALIA, among Phyſicians, Plaiſters apply'd to the Soles of the Feet, generally made of Leaven, Muſtard, wild Radiſh, Salt, Soap, Gunpowder, *&c.*

SUPPLEMENT of an Ark in Geometry, or Trigonometry, is the Number of Degrees that it wants of being an intire Semicircle; as Complement ſignifies what an Ark wants of being a Quadrant. See Quadrant, Complement, *&c.*

Supplement, in Matters of Literature, an Appendage to a Book, to ſupply what is wanting therein. See Parergon.

Frenſhemius has wrote divers *Supplements*, to reſtore the Books of ſeveral ancient Authors, Part whereof had been loſt.

The *French* alſo uſe the Word *Supplement* for a Kind of Tax, or After-payment charg'd on Lands, Offices, *&c.* that are pretended to have been ſold beneath their Value.

SUPPLICAVIT, a Writ iſſuing out of Chancery, for taking the Surety of Peace againſt a Man. It is directed to the Juſtices of the Peace, and Sheriff of the County; and is grounded on the Statute 1 *Ed.* 3. which appoints, that certain Perſons ſhall be aſſign'd by the Lord Chancellor to take Care of the Peace.

SUPPORTED, in Heraldry, a Term apply'd to the uppermoſt Quarters of a Shield, when divided into ſeveral Quarters; theſe ſeeming, as it were, *ſupported* or ſuſtain'd by thoſe below. See Quarter'd.

The Chief is alſo ſaid to be *ſupported* when it is of two Colours, and the upper Colour takes up two Thirds of it: In this Caſe it is *ſupported* by the Colour underneath.

SUPPORTERS, in Heraldry, Figures in an Atchievement, plac'd by the Side of the Shield, and ſeeming to *ſupport*, or hold up the ſame. See Atchievement, Shield, *&c.*

The *Supporters* of the *Engliſh* Arms are a Lion and an Unicorn; ſome of the former Kings had a Leopard and an Unicorn; others Griffons; others Eagles. See Arms.

The *Supporters* of the *French* Arms are Angels; which are ſaid to have been firſt introduc'd by *Philip* VI; his Device being an Angel over-throwing a Dragon: The Dragon being at that Time the Device of the King of *England*.

Thoſe of the Prince of *Monaco*, are Auguſtin Monks: Thoſe of the Family of the *Urſini*, Bears, in Alluſion to their Names.

In *England*, none below the Degree of a Banneret are allow'd *Supporters*.

Some make a Difference between *Tenant* and *Supporter*: When the Shield is bore by a ſingle Animal, 'tis call'd *Tenant*; when by two, they are call'd *Supporters*. See TENANT.

SUPPOSITION, in Muſic, the uſing of two ſucceſſive Notes, of the ſame Value, as to Time; the one whereof being a Diſcord, *ſuppoſes* the other a Concord. See HARMONY.

The Harmony, Mr. *Malcolm* obſerves, is always to be full on the accented Parts of the Bar, or Meaſure, but on the unaccented, Diſcords may tranſiently paſs, without any Offence to the Ear. This tranſient Uſe of Diſcords, follow'd by Concords, makes what we from the *French* call *Suppoſition*. See CONCORD and DISCORD.

There are ſeveral Kinds of *Suppoſition*: The firſt is, when the Parts proceed gradually from Concord to Diſcord; and Diſcord to Concord; the intervening Diſcord ſerving only as a Tranſition to the following Concord.

Another Kind is, when the Parts do not proceed gradually from the Diſcord to the Concord, but deſcend to it by the Diſtance of a Third.

A third Kind, like the ſecond, is, when the riſing to the Diſcord is gradual, but the deſcending from it to the following Concord, is by the Diſtance of a fourth.

A fourth Kind, very different from all the reſt, is, when the Diſcord falls on the accented Parts of the Meaſure, and the Riſing to it is by the Diſtance of a fourth. In which Caſe 'tis abſolutely neceſſary to follow it immediately, by a gradual Deſcent into a Concord, that has juſt been heard before the Harmony; to make the preceding Diſcord paſs without Offence, and only ſeem a Tranſition into the Concord.

SUPPOSITION, in Arithmetick. See POSITION.

SUPPOSITORY, in Pharmacy, a ſolid Medicine thruſt up the Fundament, in lieu of a Liquid one, or Clyſter, where that would not be ſo convenient. See CLYSTER.

'Tis compos'd of common Honey, mix'd up with either Soap, or Oil, and form'd into Pieces of the Length and Thickneſs of the little Finger, only Pyramidal.

The *Suppoſitory* was invented for the Convenience of ſuch as have an Averſion to the taking of Clyſters; or to be uſed where the Diſeaſe does not allow thereof.

The *Latins* call it *Balanus*, becauſe anciently made in Figure of an Acorn.

To the Compoſition is ſometimes added Powder of Scammony, Euphorbium, Colocynthis, *&c.*

On ſome Occaſions 'tis made ſimply of a Cut of Bacon, the Stem of a Leek, or the like Matter, thruſt, like a Tent, up the Anus, to irritate the Sphincter Muſcle, and oblige it to extrude the Excrements.

SUPPRESSION, in the Cuſtoms, the Extinction or Annihilation of an Office, Right, Rent, *&c.*

From the *Latin ſub* and *premo*, *I preſs under*.

SUPPRESSION, in Grammar, an Omiſſion of certain Words in a Sentence, which yet are neceſſary to a full and perfect Conſtruction: As, I come from my Father's; that is, from my Father's Houſe.

Suppreſſion is a Figure of Speech very frequent in our Language; chiefly uſed for Brevity and Elegance. Some Rules relating hereto, are as follow:

1°. Whenever a Word comes to be repeated in a Sentence oftner than once, 'tis to be *ſuppreſs'd*: Thus we ſay, This is my Maſter's Horſe; not, This Horſe is my Maſter's Horſe.

2°. Words that are neceſſarily imply'd, may be *ſuppreſs'd*.

And 3°. All Words that Uſe and Cuſtom *ſuppreſs* in other Languages, are to be *ſuppreſs'd* in *Engliſh*; unleſs there be particular Reaſons for the contrary.

SUPPRESSION, in Medicine, is apply'd to the Humours that are retain'd in the Body by ſome Obſtruction or Stoppage of the uſual Out-lets. As, a *Suppreſſion* of Urine, of the Menſes, *&c.* See URINE, MENSES, *&c.*

SUPPURATION, in Medicine, the Action whereby extravaſated Blood, or other Humours, are chang'd, in the Body, into *Pus*. See PUS.

The Change is begun by a Diſſipation of the moſt ſubtle and ſpirituous Parts of the Blood: What is left behind, thickens and purifies by little and little; that is, its Salts and Sulphurs diſengage themſelves from the groſſer Parts wherein they were embarraſs'd. Theſe Parts thus diſengaged, and acting on one another, bruiſe and break each other, and thus excite a Fermentation, which increaſes the Heat of the Part; whereby the Matter is further digeſted, and a Pain and Tenſion produc'd. At length the Blood loſes its Colour, and becomes quite white, by the Mixture of its Acid, ſulphurous and acrimonious Particles; as we ſee happens to ſulphurous Alcalies, when mix'd with Acids. See DIGESTION.

The Word is form'd from the *Latin*, *ſub*, under, and *pus*, *puris*.

SUPPURATIVE, a Medicine that promotes *Suppuration*. See SUPPURATION.

Suppuratives are all hot; by which Means, increaſing the Heat of the Part, they reſolve the Humour into a *Pus*. See DIGESTIVE.

Such are Mallows, Lilly-Roots, Drachylon, *&c.*

SUPPUTATION. See COMPUTATION.

SUPRALAPSARY, in Theology, a Perſon who holds, that God, without any Regard to the good or evil Works of Men, has reſolv'd, by an eternal Decree, to ſave ſome, and damn others.

Such are alſo call'd *Antelapſaries*; and are oppos'd to *Sublapſaries* and *Infralapſaries*. See SUBLAPSARIES.

According to the *Supralapſaries*, the Object of Predeſtination is *Homo creabilis & labilis*; and according to the *Sublapſaries*, *Homo creatus & lapſus*.

The *Supralapſaries* ſeem, in one ſingle abſolute Decree, to confound two ſeveral ones which ought to be diſtinguiſh'd: The one, the Conditional Decree preceding the Fore-ſight of the Man's Obedience, or Diſobedience to the Grace of God; The other, the Abſolute Decree following this Fore-ſight. See DECREE.

The Predeterminants alſo, admit an Abſolute Decree prior to the Foreſight of Original Sin, in common with the *Supralapſaries*; but diſtinguiſh themſelves from them, as alſo from the *Infralapſaries* and *Janſeniſts*; in that their Abſolute Decree includes the offering of ſufficient Means of Salvation to the Reprobate; ſo that, as to the Point of Power, nothing hinders but they might be ſav'd. See GRACE.

SUPRASPINATUS, in Anatomy, a Muſcle thus call'd from its fleſhy Origination, at the upper End of the Baſis of the Scapula, above the Spine, to the upper Part whereof it is connected, as alſo to the ſuperior Rib of the Scapula; whence marching along the upper Interſcapulum, or thin Part of the Scapula, which it fills, it paſſes under the Acromium and Articulation of the Humerus. It helps to lift the Arm upwards.

SUPREMACY, in the *Engliſh* Cuſtoms, the Superiority of the King over the Church of *England*, whereof he is eſtabliſh'd Head. See KING.

The King's *Supremacy* was firſt eſtabliſh'd by King *Henry* VIII. in 1534, after breaking with the Pope. It is ſince confirm'd by ſeveral Canons, as well as by the Articles of the Church of *England*; and is paſs'd into an Oath, which is requir'd as a neceſſary Qualification for all Offices and Employments both in Church and State, from Perſons to be ordain'd, from the Members of both Houſes of Parliament, *&c.* See OATH.

This Right of *Supremacy* chiefly conſiſts in the following Articles, 1. That the Archbiſhops of either Province cannot ſummon the Biſhop and Clergy to Convocation, nor enact any Canons without the King's expreſs Conſent, by 25 *H.* 8. *c.* 19. Whereas before that Act, the Convocation was often call'd, and Laws made by it for governing the Church, without any Authority from the Crown. 2. In that there lies now an Appeal from the Archbiſhop to the King in Chancery; and on ſuch an Appeal, a Commiſſion under the Great Seal is to be directed to certain Perſons, whereof commonly half are Laymen, and half Clergymen, which is call'd the Court of Delegates, and which finally determine all Eccleſiaſtical Cauſes, by 25 *H.* 8. *c.* 19. tho' ſometimes a Review is granted. Before this Statute, the Appeal from the Archbiſhop's Court lay to the People only. 3. The King can grant Commiſſions for viſiting ſuch Places, as are exempt from the Juriſdiction of the Biſhops or Archbiſhops; and Appeal lies from thence to the King in Chancery: Whereas before 25 *H.* 8. the Pope only could viſit them, and receive Appeals from thoſe Courts. 4. Perſons in holy Orders, are not, as formerly, exempt from the King's Temporal Laws, any more than Laymen. 5. The Biſhops and Clergy do not ſwear, or pay any Obedience to the Pope; but muſt take the Oaths of Allegiance and Supremacy to the King.

SURA, in Anatomy, the Shin-Bone; the ſame as Fibula. See FIBULA.

SURBATING, among Farriers, is when the Sole of a Horſe's Foot is wore, bruis'd, or ſpoil'd, by beating the Hoof againſt the Ground in travelling without Shoes, or going in hot, ſandy Lands, or with a Shoe that hurts the Sole, lies too flat to it, *&c.*

Sometimes, it happens by over-riding a Horſe, while young, e'er his Feet are harden'd; and ſometimes by the Hardneſs of the Ground, and high lifting his Feet.

The Signs hereof, are his halting on both Fore-legs, and going ſtiffly, and creeping as if half founder'd.

In the general, there is nothing better for *Surbated* Feet than Tar melted into the Foot; or Vinegar boil'd with Soot to the Conſiſtence of a Broth, and put into the Foot boiling hot, with Hards over it, and Splints to keep it in.

SURCHARGE of the Foreſt, is when a Commoner puts more Beaſts in the Foreſt than he has a Right to. See FOREST.

SURCINGLE, a Girdle, wherewith the Clergy of the Church of *England* uſually tye their Caſſocks.

SURCOAT, a Coat of Arms, to be wore over other Armour. See COAT *of Arms*.

SURD, in Arithmetick, an irrational Number, or Quantity; or a Number, &c. that is incommenſurate to Unity. See *Irrational* NUMBER.

When any Number or Quantity hath its Root propos'd to be extracted, and yet is not a true figurate Number of that Kind; that is, if its ſquare Root being demanded, it is not a true Square: If its Cube Root being requir'd, itſelf be not a true Cube, &c. then it is impoſſible to aſſign, either in whole Numbers or Fractions, any exact Root of ſuch Number propos'd.

And whenever this happens, it is uſual in Mathematicks, to mark the requir'd Root of ſuch Numbers or Quantities, by prefixing before it the proper Mark of Radicality, which is $\surd :$ Thus $\surd : 2$ ſignifies the Square Root of 2, and $\overset{3}{\surd} : 16$, or $\surd : (3)\ 16$, ſignifies the Cubic Root of 16: Which Roots, becauſe they are impoſſible to be expreſs'd in Numbers exactly, (for no effable Number, either Integer or Fraction, multiply'd into itſelf, can ever produce 2; or being multiply'd Cubically, can ever produce 16) are very properly call'd *Surd* Roots.

There is alſo another Way of Notation now much in Uſe, whereby Roots are expreſs'd without the Radical Sign, by their Indexes: Thus, as x^2, x^3, x^5, &c. ſignify the Square Cube, and 5th Power of x; ſo $x^{\frac{1}{2}}$, $x^{\frac{1}{3}}$, $x^{\frac{1}{5}}$, ſignify the Square Root, Cube, &c. of x.

The Reaſon of which is plain enough; for Since $\surd : x$ is a Geometrical mean Proportional between 1 and x, ſo $\frac{1}{2}$ is an Arithmetical mean Proportional between 0 and 1; and therefore as 2 is the Index of the Square of x, $\frac{1}{2}$ will be the proper Index of its Square Root, &c.

Obſerve alſo, that for Convenience, or Brevity's Sake, Quantities or Numbers, which are not *Surds*, are often expreſs'd in the Form of *Surd* Roots. Thus, $\surd : 4\ \surd : \frac{9}{4}\ \overset{3}{\surd} : 27$, &c. ſignify, $2\ \frac{3}{2}\ 3$, &c.

But tho' theſe *Surd* Roots (when truly ſuch) are inexpreſſible in Numbers, they are yet capable of Arithmetical Operations, (ſuch as Addition, Subſtraction, Multiplication, Diviſion, &c.) which how readily to perform, the Algebraiſt ought not to be ignorant.

Surds are either *Simple*, which are expreſs'd by one ſingle Term; or *Compound*, which are form'd by the Addition or Subſtraction of ſimple *Surds*: As $\surd : 5 + \surd : 2 : \surd : 5 - \surd : 2$, or $\overset{3}{\surd}\overline{:7+\surd}:2$: Which laſt is call'd an univerſal Root, and ſignifies the Cubic Root of that Number, which is the Reſult of adding 7 to the Square Root of 2.

To reduce rational Quantities to the Form of any Surd Roots aſſign'd; involve the rational Quantity according to the Index of the Power of the *Surd*, and then prefix before it the Radical Sign of the *Surd* propos'd. Thus to reduce $a = 10$, to the Form of $\surd : 15 = : b$, you muſt ſquare $a = 10$; and prefixing the Sign, it will ſtand thus, $\surd : a\,a = \surd : 100$, which is the Form of the *Surd* deſir'd.

So alſo, if 3 were to be brought to the Form of $\overset{4}{\surd} : 12$, you muſt raiſe 3 up to its fourth Power, and then prefixing the Note of Radicality to it, it will be $\overset{4}{\surd} : 81$, or $81^{\frac{1}{4}}$, which is in the ſame Form with $\overset{4}{\surd} : 12$.

And this Way may a ſimple *Surd* Fraction, whoſe Radical Sign refers only to one of its Terms, be changed into another, which ſhall reſpect both Numerator and Denominator. Thus $\frac{\surd : 2}{25}$ is reduc'd to $\surd : \frac{2}{25}$ and $\frac{5}{\overset{3}{\surd} : 4}$, to $\overset{3}{\surd} : \frac{125}{4}$; where the Radical Sign affects both Numerator and Denominator.

To reduce ſimple Surds, *having different Radical Signs*, (which are call'd Heterogeneal *Surds*) to others that may have one common Radical Sign, or which are Homogeneal; divide the Indexes of the Powers by their greateſt common Diviſor, and ſet the Quotients under the Dividends; then multiply thoſe Indexes croſs-ways by each other's Quotients, and before the Product ſet the common Radical Sign $\surd :$ with its proper Index: Then involve the Powers of the given Roots alternately, according to the Index of each other's Quotient; and before thoſe Products, prefix the common Radical Sign before found.

To Reduce $\overset{2}{\surd} : a\,a$ and $\overset{4}{\surd} : b\,b$

$$2)\ \surd : a\,a \quad 2)\ \overset{4}{\surd} : b\,b$$

$$_1\text{X}_2$$

$$\overset{4}{\surd} : b\,b \qquad \overset{4}{\surd} : a\,a\,a\,a.$$

To reduce Surds *to the loweſt Terms poſſible*: Divide the *Surd* by the greateſt Square, Cube, Biquadrate, &c. or any other higher Power, which you can diſcover is contain'd in it, and will meaſure it without any Remainder; and then prefix the Root of that Power before the Quotient, or *Surd*, ſo divided, and this will produce a new *Surd* of the ſame Value with the former, but in more ſimple Terms. Thus, $\surd : 16\,a\,a\,b$, by dividing by $16\,a\,a$, and prefixing the Root $4\,a$, will be reduc'd to this, $4\,a\,\surd : b$, and $\surd : 12$, will be depreſs'd to $2\,\surd : 3$. Alſo $\overset{3}{\surd} : c\,b^3\,r$ will be brought down to $b\,\overset{3}{\surd} : c\,r$.

This Reduction is of great Uſe whenever it can be perform'd: But if no ſuch Square, Cube, Biquadrate, &c. can be found for a Diviſor, then you muſt find out all the Diviſors of the Power of the *Surd* propos'd; and then ſee whether any of them be a Square, Cube, &c. or ſuch a Power as the Radical Sign denotes; and if any ſuch can be found, let that be uſed in the ſame Manner as is aboveſaid, to free the *Surd* Quantity in Part from the Radical Sign. Thus, if $\surd : 288$ be propos'd; among its Diviſors will be found the Squares, 4, 9, 16, 36, and 144; by which, if 288 be divided, there will ariſe the Quotients 72, 32, 18, 8, and 2; wherefore inſtead of $\surd : 288$, you may put $2\,\surd : 72$, or $3\,\surd : 32$, or $4\,\surd : 18$, or $6\,\surd : 8$, or laſtly, $12\,\surd : 2$, and the ſame may be done in Species. But for the whole Arithmetic of *Surds*, ſee *Kerſey*'s Algebra, and others on the ſame Subject.

SURETY of the Peace, (ſo call'd, becauſe the Party that was in fear, is thereby ſecur'd) is the acknowledging a Bond to the Prince, taken by a competent Judge of Record, for the keeping the Peace. See PEACE.

This Peace, a Juſtice of the Peace may command, either as a Miniſter, when commanded thereto by higher Authority; or as a Judge, when he doth it of his own Power, deriv'd from his Commiſſion.

Surety of the good abearing, differs from this; that whereas the Peace is not broken without an Affray, or ſuch like; the *Surety de bono geſtu* may be broken by the Number of a Man's Company, or by his or their Weapon, or Harneſs.

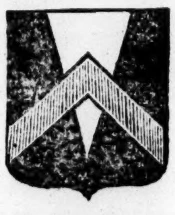
SURFACE, in Geometry. See SUPERFICIES.

SURFEIT, an Indiſpoſition caus'd by Exceſs in Eating or Drinking, that is, by over-charging the Stomach. It is uſually attended with Eruptions, and ſometimes with a Fever. See PLENITUDE.

SURFEIT-*Water*, is a Water diſtill'd from Poppies, and other Herbs, proper to cure Indigeſtions.

SURGE: The Sailors call a Wave or Billow of the Sea a *Surge*: Alſo, when they are heaving at the Capſtan, if the Cable happen to ſlip back a little, they ſay, The Cable *ſurges*.

SURGERY. See CHIRURGERY.



SURMOUNTED, is the Herald's Term for the Bearing of one Ordinary upon another: thus in the adjoining Figure, a Pile is *ſurmounted* of a Chevron. *Harris.*

SURNAME, a Name added to the Proper or Baptiſmal-Name, to denominate the Perſon of ſuch a Family. See NAME.

'Twas the *Romans* firſt introduced the Uſe of Hereditary Names; and that on Occaſions of their League with the *Sabines*; for the Confirmation whereof, it was agreed, That the *Romans* ſhould prefix *Sabine* Names, and the *Sabines*, *Roman* Names, to their own.

Theſe new Names became Family Names, or *Surnames*, and the old Ones continued perſonal Names. The former they call'd *Cognomina*, and the latter *Prænomina*. See PRÆNOMEN and COGNOMEN.

When they came to be uſed among the *French* and *Engliſh*, they were call'd *Sur-names* or *Sir-names*, not becauſe they are the Names of the *Sire* or Father; but, according to *Cambden*, becauſe they are ſuper-added to the perſonal Name; or, rather, with *Du Cange*, becauſe at firſt, this Family-name was wrote over (*Sur*) the other Name thus:

de Bourbon
Louis.

In lieu of *Surnames*, the *Hebrews*, to keep up the Memory of their Tribes, uſed the Name of their Father, with the Addition of *Ben*, Son; as *Melchi Ben-Addi*, *Addi Ben Coſam*, &c. ſo the *Greek*, Ἴκαρος τοῦ Δαιδάλου; Icarus, *the Son of* Dedalus, Dedalus *the Son of* Eupalmus, &c.

So, alſo, the ancient *Britons*, *Ceonred*, *Ceolwalding*, *Ceolwald Cuthing*, that is, *Ceonred* Son of *Ceolwald*, Son of *Cuth*; and in the ſame Senſe, the later *Welſh* uſe *Ap* for *Map*, Son, as, *ap Owen*, *Owen ap Harry*, *Harry ap Rheſe*; and the *Iriſh*, *Mac*, as *Donald Mac Neal*, *Neal Mac Con*, *&c.* and the old *Normans*, *Fitz*, as *John Fitz Robert*, *Robert Fitz Ralph*, *&c.*

Scaliger, adds, That the *Arabs* uſed their Father's Name, or *Surname*, without their perſonal Name; as, *Aven-Pace*, *Aven-Zoar*, *&c.* *q. d.* Son of *Pace*, Son of *Zoar*, *&c.*; as if *Pace* had a Son at his Circumciſion, call'd *Haly*, he would be call'd *Aven-Pace*, concealing *Haly*; but his Son, however he were nam'd, would be call'd *Aven-Haly*, *&c.*

The *Romans*, in Time, multiplied their *Sur-names*: Beſides the general Name of the Race or Family, call'd, alſo, *Gentilitium*; they took a particular one, to diſtinguiſh the Branch of the Family, call'd *Cognomen*; and ſometimes a Third, on account of ſome perſonal Diſtinction; as that of *Africanus*, by *Scipio*; of *Torquatus* by *Manlius*.

Theſe Three different Kinds of *Sur-names*, had alſo their different Names, *viz.* *Nomen*, *Cognomen*, *Agnomen*; but theſe laſt were not Hereditary; being, in effect, a kind of *Nick-names*, if that Word be indifferent with reſpect to Good and Evil.

In theſe, too, they have been imitated by later Times: Thus, in our *Engliſh* Hiſtory, we find that *Edgar* was call'd the *Peaceable*; *Ethelred*, the *Unready*; *Edmond*, *Iron-ſide*; *Harold*, *Hare-foot*; *William*, *the Baſtard*; *Henry* I. *Beau-clerk*; *John*, *Lack-land*, *&c.* But as theſe Names were never bore by the Sons, *Cambden* thinks it ſtrange, that *Plantagenet* ſhould be accounted the *Sur-name* of the Royal Family of *England*, till *Henry* VII.; or *Tydur* or *Tudor*, that from *Henry* VII. to King *James* I.; or that of *Steward* from *James* I. to King *George*; or, that *Valoys* ſhould be eſteem'd the *Sur-name* of the late Family of *French* Kings; or *Bourbon* of the preſent; or *Oldenburg* of the Kings of *Denmark*; or *Hapsbourg* of the Emperors. See PLATAGENET.

Du Cheſne obſerves, that *Sur-names* were known in *France* before the Year 987; when the Lords began to aſſume the Names of their Demaines. *Cambden* relates, That they were firſt taken up in *England*, a little before the Conqueſt, under King *Edward the Confeſſor*: But he adds, they were never fully eſtabliſh'd among the common People, till the Time of King *Edward* II. till then they varied with the Father's Name; if the Father, *E. gr.* were call'd *Richard* or *Roger*, the Son was call'd *Richardſon* or *Hodgſon*; but from that Time they were ſettled, ſome ſay, by Act of Parliament.

The oldeſt *Sur-names*, are thoſe we find in Domeſday-Book, moſt of them taken from Places, with the Addition of *de*, as *Godefridus de Mannevilla*, *Walterus de Vernon*, *Robert de Oily*, *&c.*; others from their Fathers, with *Filius*, as *Gulielmus Filius Osborni*; others from their Offices, as *Eudo Dapifer*, *Gulielmus Camerarius*, *Giſlebertus Cocus*, *&c.* But the inferior People are noted, ſimply, by their Chriſtian Names; without any *Sur-names* at all.

In *Sweden*, 'till the Year 1514, no Body ever took any *Sur-name*; and the common People there, have none to this Day; nor even the native *Iriſh*, *Poles* and *Bohemians*, *&c.* 'Tis very late that the *Welſh* have had any; and thoſe they have, are generally only form'd, by leaving out the *a* in *ap*, and annexing the *p* to their Father's Name, as in lieu of *Evan ap Rice*, they now ſay, *Evan Price*; for *ap Howel*, *Powel*, *&c.*

Du Tillet maintains, That all *Sur-names* were given by way of *Sobriquets*, or Nick-names; and adds, That they are all ſignificant and intelligible, to thoſe who underſtand the ancient Dialects of the ſeveral Countries. The greateſt Part of our *Sur-names*, and thoſe of greateſt Account, *Cambden* ſhews, are local, and borrowed from the Places in *Normandy*, *&c.* where the reſpective Perſons, who came over with the Conqueror, and firſt bore them, had their Poſſeſſions, or their Birth; ſuch as *Mortimer*, *Warren*, *Albigny*, *Percy*, *Devereux*, *Tankervil*, *Nevil*, *Tracy*, *Montfort*, *&c.* He adds, That there is not a Village in *Normandy*, but gives Name to ſome Family in *England*. Others were taken from Places in *England*, as *Aſton*, *Sutton*, *Wotton*, *&c.*

The *Saxon* common People generally took their Father's or Mother's Chriſtian Name, with the Addition of Son: Though many were *Sur-named* from their Trade, as *Smith*, *Carpenter*, *Taylor*, *Weaver*, *Fuller*, *&c.* others from their Offices, as *Porter*, *Shepherd*, *Carter*, *Cook*, *Butler*, *&c.* others from their Complexion, as *Fair*, *fax*, *Pigot*, *Blunt* or *Blind*; others from Birds, as *Wren*, *Finch*, *&c.* others from Beaſts, as *Lamb*, *Hare*, *Hart*, *&c.* others from the Winds; others from Saints, *&c.*

SURPLUSAGE, in common Law, ſignifies a Superfluity, or Addition, more than needeth; which ſometimes is the Cauſe that a Writ abateth.

It is ſometimes alſo applied to Matter of Account, and denotes a greater Diſburſement than the Charge of the Accomptant amounteth to.

SURREBUTTER, in Law, a ſecond Rebutter, or a Rebutting more than once. See REBUTTER.

SURREJOYNDER, is a ſecond Defence of the Plaintiff's Action, oppoſite to the Defendant's Rejoynder. See REJOYNDER.

SURRENDER, an Inſtrument in Writing, teſtifying, That the particular Tenant of Lands and Tenements for Life or Years, doth ſufficiently conſent and agree, That he, who has the next or immediate Remainder or Reverſion thereof, ſhall have the preſent Eſtate of the ſame in Poſſeſſion; and that he yields and gives up the ſame to him; for every *Surrender* ought, forthwith, to give Poſſeſſion of the Things *ſurrender'd*.

There may alſo be a *Surrender* without Writing, whence, a *Surrender* is divided into that in *Deed*, and that in *Law*.

Surrender-in-Deed, is that which is really and ſenſibly perform'd.

Surrender-in-Law, is in the Intendment of Law, by way of Conſequent, and not Actual. As if a Man have a Leaſe of a Farm, and during the Term, he accepts of a new Leaſe; this Act is in Law, a *Surrender* of the former.

There is alſo a cuſtomary *Surrender* of the Copy-hold, as may be ſeen in *Coke ſup. Litılet*. Sect. 74.

SURROGATE, a Perſon ſubſtituted or appointed in Room of another; moſt commonly of a Biſhop, or Biſhop's Chancellor. See BISHOP, SUFFRAGAN, *&c.*

SURSOLID, or SURDESOLID, in Arithmetic, the Fifth Power of a Number, or the Fourth Multiplication of any Number, conſider'd as a Root. See POWER.

The Number 2, for Inſtance, conſider'd as a Root, and multiplied by itſelf, produces Four, which is the Square, or ſecond Power of 2; and 4 multiplied by 2, produces 8, the third Power, or the Cube or ſolid Number of 2; 8, again, multiplied by 2, produces 16, the fourth Power, or *Quadrato-quadratum* of 2; and 16 multiplied once more by 2, produces 32, the fifth Power, or *Surſolid*, or *Surdeſolid* Number of 2.

SURSOLID *Problem*, is that which cannot be reſolved, but by Curves of an higher Kind, than the Conic Sections. See PROBLEM.

E. gr. To deſcribe a regular Endecagon, or Figure of Eleven Sides in a Circle, it is required to deſcribe an Iſoſceles Triangle on a Right Line given, whoſe Angles at the Baſe, ſhall be quintuple to that at the Vertex; which may eaſily be done by the Interſection of a Quadratrix, or any other Curve of the ſecond Gender, as they are by ſome called, but not by any lower Curve. See CURVE.

SURVEYING, the Art or Act of meaſuring Lands; *i. e.* of taking the Dimenſions of any Track of Ground, laying down the ſame in a Map or Draught; and finding the Content or Area thereof. See MEASURING, MAP, *&c.*

Surveying, call'd alſo *Geodeſia*, is a very ancient Art; 'tis even held to have been the Firſt, or primitive Part of Geometry, and that which gave Occaſion to, and laid the Foundation of, all the reſt. See GEOMETRY.

Surveying conſiſts of Three Parts or Members; the Firſt, is the taking of the neceſſary Meaſures, and making the neceſſary Obſervations on the Ground itſelf: The Second, is the laying down of theſe Meaſures and Obſervations on Paper; and the Third, the finding the Area or Quantity of the Ground thus laid down.

The Firſt is what we properly call *Surveying*. The Second we call *Plotting* or *Protracting*, or *Mapping*: And the Third, *Caſting up*.

The Firſt, again, conſiſts of Two Parts, *viz.* the making of Obſervations for the Angles, and the taking of Meaſures for the Diſtances.

The former of theſe is performed by ſome one or other of the following Inſtruments, *viz.* the *Theodolite*, *Circumferentor*, *Semi-circle*, *Plane Table* or *Compaſs*: The Deſcription and Manner of uſing each whereof; ſee under its reſpective Article, THEODOLITE, CIRCUMFERENTOR, PLANE TABLE, COMPASS, *&c.*

The latter is performed, by means either of the Chain or the Perambulator: The Deſcription and Manner of applying each whereof; ſee under its reſpective Article, CHAIN and PERAMBULATOR.

The ſecond Branch of *Surveying*, is perform'd by means of the *Protractor* and *Plotting Scale*: The Uſe, *&c.* whereof; ſee under PROTRACTOR, PLOTTING SCALE, *&c.* See alſo MAP.

The Third is perform'd, by reducing the ſeveral Diviſions, Incloſures, *&c.* into *Triangles*, *Squares*, *Trapeziums*, *Parallelograms*, *&c.* but eſpecially *Triangles*; and finding the Areas or Contents of theſe ſeveral Figures, by the Rules delivered under the Articles AREA, TRIANGLE, SQUARE, *&c.*

SURVEYING *Croſs*, is an Inſtrument little known, and leſs uſed in *England*; though in *France*, *&c.* it ſerves in lieu of a Theodolite or the like Inſtrument: It conſiſts of a braſs Circle, or rather a circular Limb, graduated, and again divided into Four equal Parts, by two Right Lines cutting each other at right Angles in the Centre. At each of the Four Extremities of the Lines, and in the Centre are fix'd Sights. The whole is mounted on a Staff.

SURVEYING *Wheel*. See PERAMBULATOR or WAY-WISER.

SURVEYOR, one that hath the Over-ſight and Care of conſiderable Works, Lands, *&c.*

TA. SURVEYING

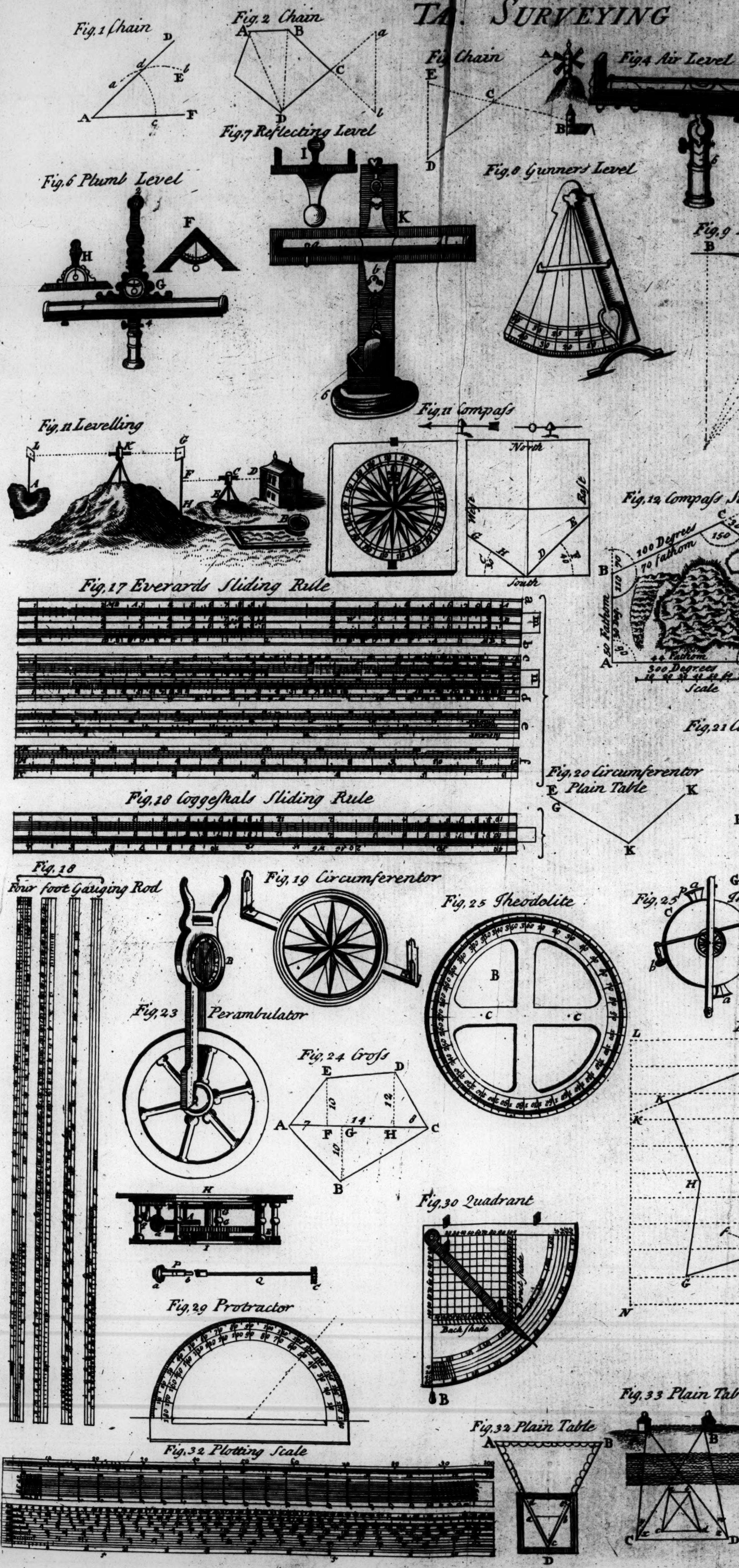
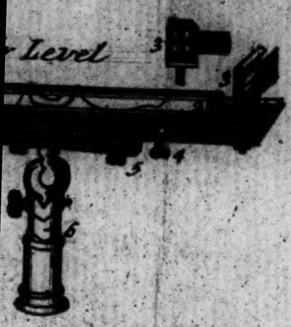


Fig.1 Chain
Fig.2 Chain
Fig.3 Chain
Fig.4 Air Level
Fig.6 Plumb Level
Fig.7 Reflecting Level
Fig.8 Gunners Level
Fig.9
Fig.11 Levelling
Fig.11 Compass
North
South
West
East
Fig.12 Compass
100 Degrees
70 Fathom
150
110
50 Fathom
44 Fathom
300 Degrees
Scale
Fig.17 Everards Sliding Rule
Fig.18 Coggeshals Sliding Rule
Fig.18 Four foot Gauging Rod
Fig.19 Circumferentor
Fig.20 Circumferentor Plain Table
Fig.21
Fig.23 Perambulator
Fig.24 Cross
Fig.25 Theodolite
Fig.25
Fig.29 Protractor
Fig.30 Quadrant
Back shade
Fig.32 Plotting Scale
Fig.32 Plain Table
Fig.33 Plain Table


r Level

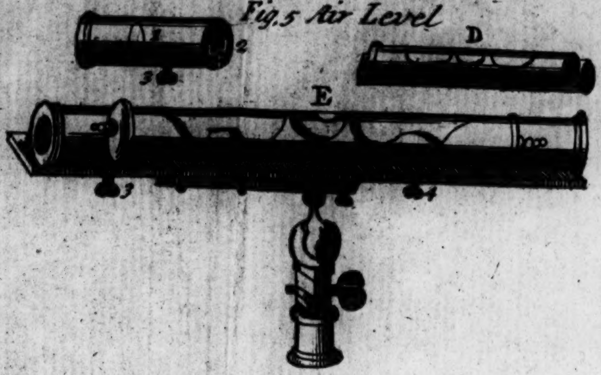


Fig.5 Air Level

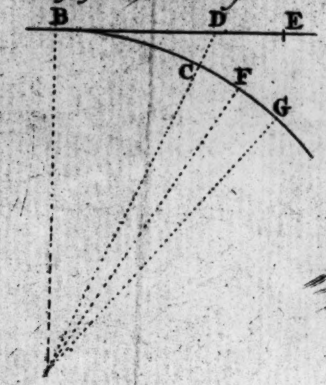


Fig.9 Levelling

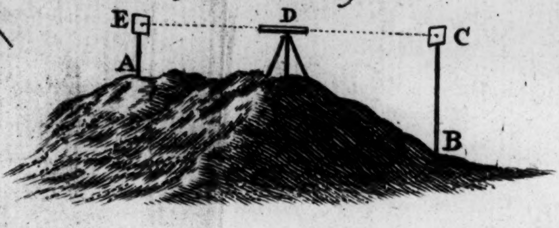
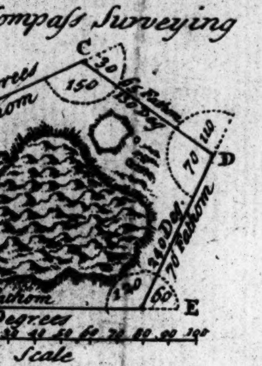


Fig.10 Levelling


mpass Surveying
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Degrees
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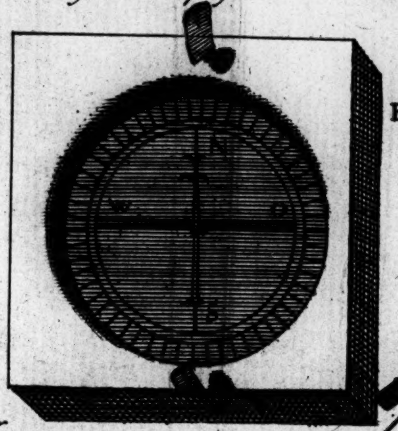


Fig.15 Compass

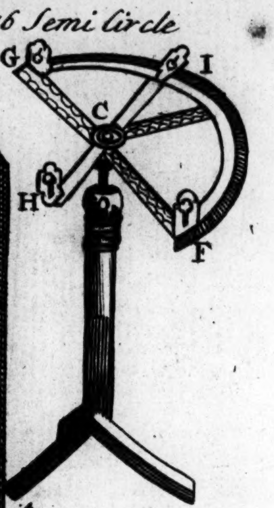


Fig.16 Semi Circle

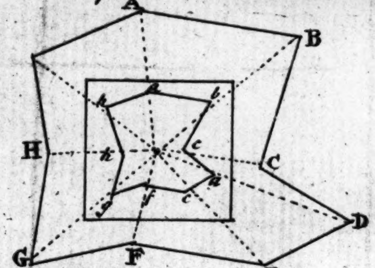


Fig.21 Circumferentor

tor
K

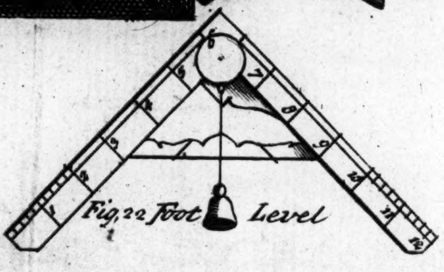
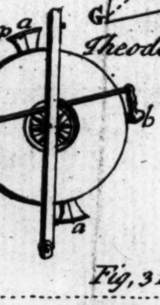


Fig.22 Foot Level


Theodolite

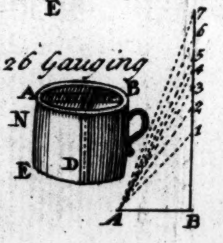


Fig.26 Gauging
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E
D
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1

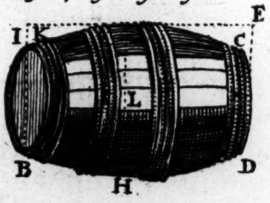
Fig.27 Gauging

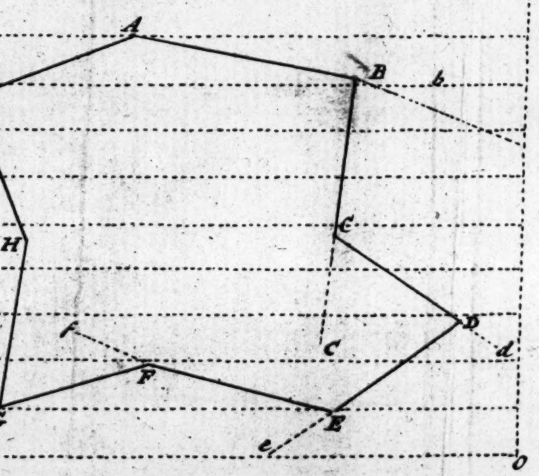
Fig.31 Plotting
M
A
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b
H
C
C
D
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E
e
o

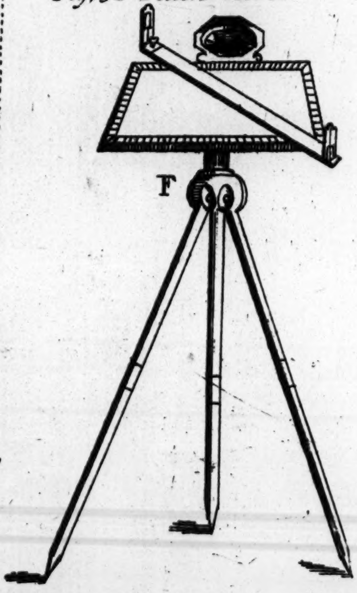
Fig.31 Plain Table

ain Table

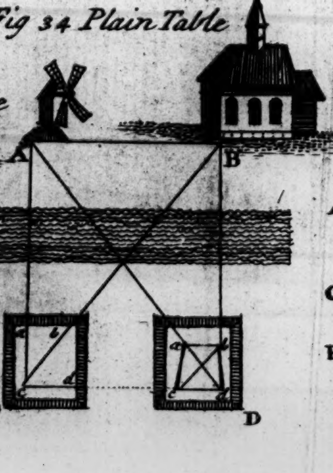
Fig 34 Plain Table

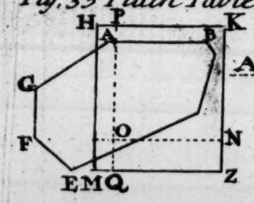
Fig.35 Plain Table
H
P
K
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EMQ
Z

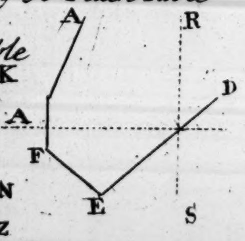


Fig 36 Plain Table

Nº. XVIII.

As, the *Surveyor General of the King's Manors*; *Surveyor the King's Exchange*; *Surveyor General of the Works*; *veyors of the Highways*, &c.

SURVEYOR *of the Melting*, is an Officer of the Mint, ſe Buſineſs is to ſee the Bullion caſt out; and that it be alter'd after the Delivery of it to the Melter. See MINT COINAGE.

SURVEYOR *of the Navy*, is an Officer, whoſe Buſineſs is know the State of all Stores, and ſee the Wants ſupplied; *Survey* the Hulls, Maſts and Yards of Ships; to Audit Boatſwain's and Carpenter's Accounts. See NAVY.

SURVEYOR *of the Ordnance*, is an Officer, whoſe Charge o *Survey* all the King's Ordnance, Stores and Proviſions of t, in the Cuſtody of the Store-keeper of the *Tower* of *don*; to allow all Bills of Debts, to keep Checks on bourers and Artificers Works, *&c.* See ORDNANCE.

Surveyor is alſo uſed for a Gauger; and alſo for a Perſon o meaſures Lands. See SURVEYING and GAUGING.

SURVIVOR, in Law, ſignifies the longer Liver of two nt Tenants; or any Two joined in the Right of any ing.

SUSPENSION or SUSPENSE, in Common Law, is a mporal Stop of a Man's Right.

As, when a Seigniory, Rent, *&c.* by reaſon of the Unity Poſſeſſion thereof, and of the Land out of which they e, are not *in eſſe* for a certain Time, and *tunc dormiunt*; may be revived: and thus it differs from Extinguiſhnt, which dies for ever. See EXTINGUISHMENT.

SUSPENSION, in the Common Law, is what we otherſe call the *minor Excommunication*, *viz*, a Cenſure inted by way of Puniſhment, on an Eccleſiaſtic, for ſome ſiderable Fault. See CENSURE and EXCOMMUNICAON.

'Tis of two Kinds, *viz. ab Officio*, and *a Beneficio*.

Suſpenſion ab Officio, is that whereby a Miniſter is, for a me, declared unfit to execute the Office of a Miniſter. See FICIO.

Suſpenſion a Beneficio, is when a Miniſter is, for a Time, rived of the Profits of his Benefices. See BENEFICIO.

Where the Fault is more Notorious, the two Kinds of *ſpenſions* are ſometimes joined; and the Perſon *ſuſpended Officio*, and *a Beneficio* likewiſe. See DEPRIVATION,

SUSPENSION, the Act of preventing the Effect, or Courſe any thing, for a certain Time.

The principal Point urged in the Philoſophy of the *Sceps* and *Pyrrhonians*, is a *Suſpenſion* of Mind. See SCEPCKS, PYRRHONIANS, *&c.*

A *Suſpenſion of Arms*, in War, is a ſhort Truce the conding Parties agree on, for the Burial of their Dead, the iting for Succours, or the Orders of their Maſters, *&c.*

In Rhetorick, *Suſpenſion* is a keeping the Hearer attentive doubtful; in expectation of what the Speaker will conde in: as, *O God! Darkneſs is not more oppoſite to Light*; *mpeſts to Calms*; *Pain to Pleaſure*; *or Death to Life*; *than to thee.*

SUSPENSION, in Mechanicks. *Points of Suſpenſion* in a lance, are thoſe Points in the Axis or Beam wherein the ights are apply'd; or from which they are *ſuſpended*. See LLANCE.

SUSPENSOR *Teſticuli*, in Anatomy, a Muſcle call'd *Cremaſter*. See CREMASTER.

SUSPIRAL, a Spring of Water, paſſing under Ground ards a Conduit or Ciſtern; alſo a Breathing-Hole, or Venti-t. See VENTIDUCT.

UTE. See SUITE.

UTH-*Dure*, in ancient Cuſtoms, the South Door of a rch. The *Suth-dure* is mentioned in old Authors, as the l Place where canonical Purgation was perform'd: that is, n the Fact could not be proved by ſufficient Evidence, Party accuſed, came to the South Door of the Church; there, in the Preſence of the People, made Oath, that Innocent. See PURGATION.

This was called *Judicium Dei*. 'Tis for this Reaſon, that ches are built at the South Doors of Churches. See PORCH.

UTURE, SUTURA, in Anatomy, a particular Kind of ture, or Articulation, of certain Bones in the Animal y; thus call'd, as reſembling a Seam. See ARTICUION.

here are two Kinds of *Sutures*; the one call'd the *true* or ine *Suture*; wherein the Bones are indented like Saws, reciprocally receiv'd into each other.

he other, call'd the *falſe*, or *ſpurious*, or *ſquammous Su-*; wherein the Bones are laid over each other, like the s of Fiſhes.

he Bones of the Cranium are uſually join'd by three ine *Sutures*; the *Coronal*, reaching acroſs from one Temo t'other. See CORONAL.

e *Sagittal*, joining the Oſſa Parietalia. See SAGITTAL. d the *Lambdoidal*; thus call'd from its reſembling the Λ, Lambda.

Beſides theſe, is a fourth *Suture*, of the ſpurious or ſquammous Kind, ſuppos'd, tho' falſely, to have no Indentures: It joins the Oſſa Temporum to the Os Sphænoides, Occipitis, *&c.* and is alſo call'd the *Temporal Suture*. See SQUAMMOUS.

Natural Hiſtorians tell us, That in *Perſia* 'tis frequent to have People without any *Sutures* at all in the Skull; but the whole one ſolid Bone; yet without any apparent Inconvenience: And M. *Flechier*, in his Life of Cardinal *Ximenes*, affirms the ſame of that Cardinal; yet it ſhould ſeem that great Diſorders ſhould ariſe therefrom; as the Perſpiration could be but very imperfectly effected; whence Heavineſs and Swimming in the Head. See CRANIUM.

SUTURE, in Chirurgery, a Seam made to cloſe the Lips of a Wound, in order to its healing. See WOUND.

The Ancients invented a great Variety of *Sutures*, which they reduced to three Kinds; *Incarnatives*, *Reſtrinctives* and *Conſervatives*.

Incarnative SUTURE, is thus call'd, becauſe, by rejoining the Edges of a Wound, and keeping them together by the means of a Thread run acroſs them with a Needle; they grow together, and incarnate as before. See INCARNATIVE.

This, they ſub-divided into five Kinds, *viz.* the *Interrupted*, *Intertwiſted*, *Pinn'd* or *Feather'd*, *with Claſps*, and the *Dry Suture*.

Of theſe Five, two are perfectly diſuſed, *viz.* the *feather'd Suture* and the *Suture with Claſps*, as being too barbarous, and at the ſame Time unneceſſary. The Firſt was call'd *Pinn'd*, when little Pins were made uſe of; and *feather'd*, when the Barrels of Feathers or Quills.

To perform it, two or three Needles, threaded with a double Thread, were paſs'd through the Lips of the Wound, at a Finger's breadth from each other, and a Pin or Feather put in the Stitch; and another Pin or Feather bound with the Ends of the ſame Thread; that the Feathers might keep the Lips of the Wound cloſe together.

To perform the Second, they had large, crooked Claſps, pointed at each End; one of which they thruſt into the upper Part of the Wound, the other into the lower, to bring the Lips together.

Theſe *Sutures*, cruel as they were, are yet known to be uſeleſs; for in the only Caſes where they ſhould ſeem ſerviceable, *viz.* in deep Wounds, where the Contraction of the fleſhy Parts keeps the Lips far aſunder, and in Wounds of Tendons; they expoſe the Patient to terrible Convulſions and Shudderings, which are avoided, by diminiſhing the Dilatation of the Wounds, by moderate Compreſſions, and waiting till the Fibres relax.

Reſtrinctive SUTURES, were thoſe wherewith they endeavour'd to ſtop the Flux of Blood from large Wounds, where any conſiderable Veſſels were cut.

To this End they invented ſeveral Kinds, in the Number whereof, were the *Shoe-maker's*, *Taylor's*, *Skinner's* and other Seams; all more impertinent than each other. 'Tis evident, the very Deſign of ſuch a *Suture* is blameable: For ſuppoſing the Wound ſo exactly ſew'd up, that no Blood could eſcape through the Lips thereof; yet will it ſtill flow out of the Veſſels; and will thus be forced to make its Way within the Inteſtines of the Muſcles, by which means the Part will ſwell, rot and gangrene. Yet the *Skinners Suture*, *Sutura Pellionum*, is ſtill preſerved for Wounds of the Inteſtines: 'Tis thus call'd, becauſe the Skinners uſe the ſame, in ſewing up the Holes made by the Butchers, in fleaing off the Skin.

Conſervative SUTURE, is that kind of ancient *Suture*, whereby the Lips of large Wounds, wherein there was a Loſs of Subſtance, were prevented from receding too far. But a Bandage, now, ſuffices.

The *Intertwiſted* SUTURE, is thus call'd, becauſe the Needles being left ſticking in the Wound, the Thread is wound around them; much after the ſame Manner as the Taylors do the threaded Needles they keep in their Sleeves, *&c.* This *Suture* is perform'd two Ways; for either the Needles are paſs'd acroſs the Wound, or they are ſtuck on the Sides thereof.

All the *Sutures* hitherto mention'd, are made with Needle and Thread: Beſide which, there is another Kind, call'd *dry Sutures*, which are perform'd with Glue or Size; or other proper viſcous Matter.

The *dry Suture* is ordinarily made with ſmall Pieces of Leather, or Linnen Cloth, indented like a Saw, ſo that the Teeth may fall between each other, and the whole Row may be cloſ'd. The Cloth, before it is cut into this Form, is ſpread with ſome proper Emplaiſter, in order to its firm Adheſion.

The Plaiſters thus prepar'd, being cut into the proper Form, are apply'd on the firm Fleſh, according to the Length of the Wound, reaching from it to the Diſtance of ſome Inches; and after they are dry'd, or well faſten'd to the Part, the Lips of the Wound being approach'd, they may conveniently be held together by the *Suture* in that Poſture.

This kind of *Suture* is principally uſed to Wounds in the Face, to prevent unſightly Scars: 'Tis likewiſe convenient when the Fibres of the Muſcles are cut a-croſs; and where 'tis difficult or impoſſible to apply a Bandage.

In the other Kinds of *Sutures*, the Stitches ought always to be taken at a Depth proportionable to that of the Wound; Care being had to avoid the Nerves as much as poſſible. In long Wounds they are beſt begun at the Ends; but in ſhort ones at the Middle.

SWABBER, the Title of an inferior Officer on Board a Man of War, whoſe Office is to ſee, that the Ship be kept neat and clean.

In order to this, he is to ſee her waſh'd well once or twice a Week at leaſt; eſpecially about the Gun-Walls and Chains. He ought to burn Pitch, or ſome ſuch Thing, now and then between Decks, to prevent Infection; and to acquaint the Captain of ſuch as are naſty and offenſive.

SWALLOWING. See DEGLUTITION.

"Some People," (ſays Dr. *Sloan*, from an Inſtance of an unhappy Perſon who had *ſwallow'd* great Quantities of Pebbles to eaſe him of the Wind, and which remaining in his Stomach to the Number of 200, had brought him into a very ſad Condition,) "from their ſeeing Birds languiſh, unleſs they *ſwallow* Gravel, or ſmall Stones, take up an Opinion, that the *ſwallowing* of Stones helps the Stomach to digeſt its Food; but I have been always againſt that Practice: For tho' the Stomachs, or Gizzards of Birds (they wanting Teeth to grind their Food) are made very ſtrong, muſculous, and defended on the Inſide with a Coat, by the Help whereof, and theſe Stones, their Victuals are ground; yet the Stomachs of Men being very different, 'tis not reaſonable to think they ſhould be of Uſe (or even inoffenſive) to them.

"I knew, adds he, one Mr. *K*——, who for many Years *ſwallow'd* nine or ten every Day, nearly as large as Wallnuts, and without any apparent Harm, as they always paſs'd; but he afterwards dy'd ſuddenly." —— A Lady, mention'd by Mr. *Greenhill* in the *Philoſophical Tranſactions*, got a large and painful Tumor in the Umbilicus, with *ſwallowing* Prune-Stones; which, upon the Tumor's breaking of itſelf, came out in great Quantity: Notwithſtanding all imaginable Care ſhe dy'd of it. —— A Lad, 16 Years of Age, near *Hall* in *Saxony*, playing with a Knife ſix Inches and half long, accidentally *ſwallow'd* it. The Curioſity of the Caſe led *Wolfgang Chriſt. Weſenon*, Phyſician of the Elector of *Brandenbourg*, to take Care of him. The Knife was felt to have chang'd its Poſition ſeveral Times, and in a few Months ceas'd to be very troubleſome; and in a Year was ſo much diminiſh'd, as ſcarce to be felt from without. At length it was drawn out (exceedingly diminiſh'd every way) thro' an Abſceſs which its Point occaſion'd, three Fingers Breadth below the Pit of the Stomach, and the Boy was perfectly well; *Philoſophical Tranſactions*, Nº 219. Among the Rarities in the Anatomy Hall at *Leyden*, is preſerv'd a Knife ten Inches long, *ſwallow'd* by a Peaſant, and cut out of his Stomach; after which he liv'd Eight Years.

SWALLOW-*tail*, in Fortification, is a ſingle Tenaille, narrower towards the fortify'd Place, than towards the Country. See QUEVE d' HIRONDE.

SWALLOW-*tail*, in Joinery and Carpentry, a particular Way of faſtening together two Pieces of Timber; ſo as that they can't fall aſunder. See DOVE-*tail*.

SWAN-*herd*. See KING's *Swan-herd*.

SWANIMOTE, or SWAINMOTE, (from the *Saxon* *Swang*, Swain, Ruſtic, and *Gemote*, Meeting) a Court touching Matters of the Foreſt; kept by the Charter of the Foreſt thrice in every Year, before the Verdurors, as Judges. See FOREST.

This Court is as incident to a Foreſt, as a Court of Piepowder to a Fair. See COURT.

SWATH, among Surgeons, a long and broad Band to bind up any diſeas'd Member, or Part. See BANDAGE.

SWEAT, a Moiſture iſſuing out of the Pores of the Skins of Animals; thro' too much Heat, Exerciſe, or Weakneſs; or through the Action of certain Medicines call'd *Sudorificks*.

Sweat is either the Conſequence of an Acceleration of the Blood's Motion, by Stimuli, or Exerciſe; or of a Relaxation of the Pores of the Cutis; by means of either whereof, the Matter which before perſpir'd inſenſibly, is now render'd ſenſible. See PERSPIRATION.

The former is the Caſe in Natural and Medicinal *Sweats*, and the latter in morbid, fainting, and cold *Sweats*.

The principal Organ of *Sweat* are the milliary Glands; which are ſpread over the whole Ambit of the Body; and furniſh'd, each, with a Vein, Artery, and Nerve, beſides an excretory Duct, thro' the Orifice whereof the *Sweat* is caſt out under the Cuticle. This Duct is cover'd with a little round Valve, lying immediately under the Cuticle, whereby the *Sweat* is occaſionally either retain'd or tranſmitted. See MILLIARY *Gland*.

The *Sweat* thus ſecreted, is various, according to the Variety of the Weather, Soil, Sex, Age, Temperament, Emunctories, Diet, Time of Digeſtion, *&c.* as in the Urine. See URINE.

In a ſound Body, *Sweat* is ſcarce ever found, but from a Fault in ſome of the ſix Non-naturals: Its immediate Effect is always hurtful; By Accident it ſometimes does good.

The Phyſicians order *Sweats* in cold and inveterate Diſeaſes, as the Palſy, Rheumatiſm, Sciatica, and many other Diſeaſes. Diſeaſes frequently have their Criſes in *Sweats*.

Sweating is indicated by the Beginning of a critical *Sweat*, to carry off the Diſeaſe; by the Tenuity of the morbid Matter diſpers'd thro' all the Veſſels, as in the Plague, a venomous Bite, the *French* Diſeaſe, e'er yet fix'd; by the particular Temperature of the Patient, and by various Obſtructions to be remov'd in the ſeveral Parts of the Body; particularly in ſubcutaneous Diſeaſes, the Itch, Pſora, Leproſy, *&c.*

Matthiolus tells us, That the *Sweat* of all Quadrupeds, as Horſes, Aſſes, *&c.* is venomous; and that that of other Beaſts is unwholſome. *Tachenius* adds, that the *Sweat* of Horſes, particularly, is ſo acid, that it pierces the ſtrongeſt and firmeſt Boots, that are Proof againſt all Water. Some Naturaliſts affirm, that Dogs and Cats never *ſweat*, how hot ſoever they be, becauſe they are not found to have any Pores in the Cuticle. See PORE.

Engliſh SWEAT. See SUDOR *Anglicanus*.

SWEEP, among Refiners, the Almond Furnace. See FURNACE.

SWEEP: The Seamen call the Mold of a Ship, when ſhe begins to compaſs in at the Rungheads, the *Sweep* of her, or the *Sweep* of the Futtock.

Sweeping at Sea, ſignifies dragging along the Ground, at the Bottom of the Sea, or Channel, with a Tree-fluk'd Grapnel, to find ſome Hawſer or Cable which is ſlipped from an Anchor.

SWIMMING, the Act or Art of ſuſtaining the Body in Water, and of advancing therein by the Motion of the Arms, Legs, *&c.*

Man alone learns to *ſwim*; all other Animals have it naturally.

Among the ancient *Greeks* and *Romans*, *Swimming* made ſo eſſential a Part of the Diſcipline of their Youth, that to repreſent a Man perfectly rude and uneducated, they uſed to ſay proverbially, he had neither learned to read nor to *ſwim*.

In Fiſhes, 'tis the Tail is the grand Inſtrument of *Swimming*, not the Fins, as is generally imagin'd: For this Reaſon Fiſhes are more ſtrong and muſculous in that Part, than in all the reſt of the Body; according as we find it in all other Animals; the motive Parts whereof are ſtill the ſtrongeſt, as the Thighs of Men for walking, the Pectoral Muſcles of Birds for Flight, *&c.* See FLYING, *&c.*

The Manner wherein Fiſhes row themſelves forwards by the Tail, is well explain'd by *Borelli de Motu Animal.* Pars 1. cap. 23. The Fins of Fiſhes only ſerve to keep the Body well pois'd and ballanc'd, and prevent Vacillation. See FIN.

M. *Thevenot* has publiſh'd a curious Piece in *French*, call'd *L'Art de Nager*, the Art of *Swimming*, demonſtrated by Figures. Before him, *Everard Digby*, an *Engliſhman*, and *Nicholas Winman*, had laid down the Rules of this Art: *Thevenot* has done little more than copy from them.

Indeed, had he but read, with half that Application, *Borelli*'s Treatiſe *de Motu Animalium*, he would ſcarce have maintain'd, as he has done, that Men would *ſwim* naturally, like other Animals, were they not prevented by Fear, which magnifies their Danger.

We have abundant Experience againſt this: Throw any Brute, newly born, into a River, and it *ſwims*: Throw an Infant in, e'er yet capable of Fear, and it *ſwims* not, but is drown'd.

The Reaſon is, that the human Machine differs very notably in its Structure and Configuration from that of Brutes; and particularly, which is very extraordinary, in the Situation of its Centre of Gravity. In Man, the Head is exceedingly heavy, with regard to the Weight of the reſt of the Body; by reaſon the Head is furniſh'd with a very great Quantity of Brain, and has, beſides, a deal of Fleſh and Bones, and no Cavities to be fill'd with Air; ſo that the Head immerging under Water by its own Gravity, the Noſe and Ears are ſoon fill'd: Thus the Strong carrying down the Weak, the Man ſoon drowns, and is loſt.

But in Brutes 'tis otherwiſe: For the Head having but little Brain, and there being abundance of Sinus's therein; its Weight, with Regard to the reſt of the Body, is much leſs conſiderable; ſo that they are eaſily able to keep their Noſe up in the Air, and thus reſpiring freely, are out of Danger of drowning, on the Principles of Staticks.

In effect, the Art of *Swimming*, which is no otherwiſe to be acquir'd but by Exerciſe, conſiſts principally in keeping the Head above Water, ſo, that the Noſe and Mouth being at Liberty, Reſpiration may be carry'd on: For, as to the Feet and Hands, 'tis enough to ſtir them, and to uſe them as Oars to conduct the Veſſel.

SWIMMING *Bladder*, a Veſicle of Air, incloſ'd in the Bodies of Fiſhes, by means whereof they are enabled to ſuſtain themſelves at any Depth of Water. See FISHES.

For the Air in that Bladder being more or leſs compreſs'd, according to the Depth the Fiſh *ſwims* at; takes up more or leſs Space; and conſequently the Body of the Fiſh, Part of whoſe Bulk this Bladder is, is greater or leſſer, according to the ſeveral Depths; and yet retains the ſame abſolute Weight. Now the Rule *de Inſidentibus humido*, is, that a Body heavier than ſo much Water as is equal in Quantity to the Bulk of it, will neceſſarily ſink; a Body that is lighter, will *ſwim*; and a Body of equal Weight, will reſt in any Part of the Water.

By this Rule, if the Fiſh in the middle Region of the Water be of equal Weight with Water, Bulk for Bulk; the Fiſh will reſt there without any natural Tendency upwards or downwards.

And if the Fiſh be deeper in the Water, its Bulk becoming leſs by the greater Compreſſion of the *Bladder*; it will ſtill remain commenſurate to the Gravity of the Water in that Part.

If the Fiſh be higher than the middle Region; the Air dilating itſelf, and the Bulk of the Fiſh conſequently increaſing, but not the Weight; the Fiſh will riſe upwards, and reſt a-top of the Water.

'Tis probable the Fiſh, by ſome Action, can emit Air out of its *Bladder*, and take freſh in: Mr. *Ray* obſerves, that in moſt Fiſhes, there is a manifeſt Channel leading from the Gullet to the *ſwimming Bladder*, which doubtleſs ſerves for the Conveyance; and that there is a muſculous Power in the Coat of the *Bladder*, whereby the Fiſh can contract it when it liſts. The ſame Author adds, in Confirmation of this Doctrine, that 'tis found, if the *ſwimming Bladder* of any Fiſh be prick'd or broke, the Fiſh immediately ſinks to the Bottom, and can neither ſupport nor raiſe itſelf. And that in flat Fiſhes, as Soles, Plaiſe, *&c.* which lie always groveling at the Bottom, there is no *ſwimming Bladder* at all.

SWINE-*Pox*. See POX.

SWOONING, a Kind of Syncope, or Fainting, wherein the Patient loſes all his Strength, and his Underſtanding.

Swooning may be occaſion'd by any thing that alters, corrupts, or diſſipates the Vital Spirits; as, long Watching, violent Pains, great and ſudden Evacuations, putrid Vapours ariſing from Abſceſſes in the noble Parts. See SYNCOPE.

SWORD, an offenſive Weapon, wore at the Side, ſerving either to prick, or cut, or both. See FENCING.

Its Parts are the *Blade*, *Guard*, *Hand* or *Graſp*, and *Pummel*; to which may be added, the *Bow* and *Scabbard*. The Maſters of Defence divide the *Sword* into the upper, middle, and lower Part; or the ſtrong, middle, and ſmall or weak Part.

Anciently there were a kind of two-handed *Swords*, call'd *Spado's*, which were to be manag'd with both Hands; which in thoſe Days they could brandiſh ſo nimbly, as to cover the whole Body therewith.

The Savages of *Mexico*, when firſt viſited by the *Spaniards*, had a kind of Wooden *Swords*, which would do as much Execution as ours. In *Spain*, *Swords* are only allow'd of ſuch a Length, determin'd by Authority. The ancient Cavaliers gave Names to their *Swords*; *Joyeuſe* was that of *Charlemain*; *Durandal* that of *Orlando*, &c.

SWORD-*Blade Company*. See COMPANY.

SYCOPHANT, a *Greek* Term, originally uſed at *Athens*, for Perſons who made it their Buſineſs to inform againſt thoſe who ſtole Figs, to the Owners; or againſt thoſe, who, contrary to the Law, which prohibited the Exportation of Figs, yet practiſed the Thing; and deceiv'd the Officers, the Inſpectors of the Ports, *&c.*

At length, the Term became uſed in the general for all Informers, Tale-bearers, Paraſites, *&c.* eſpecially thoſe in the Courts of Princes: And, at laſt, for a Lyer, Impoſter, *&c.*

The Word is form'd from συκη, a Fig, and φημι, I ſay.

SYCOPHANTIC Plants. See PARASITES.

SYLLABIC, in the *Greek* Grammar. There are two Kinds of Augmentations in the *Greek*: The firſt call'd *Syllabic*, which is when the Word is increas'd by a Syllable; and the other *Temporal*, which is when a ſhort Syllable becomes long. See AUGMENTATIVE.

SYLLABLE, in Grammar, a Part of a Word, conſiſting of one or more Letters pronounc'd together. See LETTER.

Or, a Syllable is a compleat Sound, utter'd in one Breath, conſiſting either of a Vowel alone, or of a Vowel and one or more Conſonants, not exceeding ſeven. See VOWEL, CONSONANT, *&c.*

Scaliger defines a *Syllable* to be an Element under one Accent; that is, what can be pronounc'd at once.

Priſcian, more intelligibly, calls it a Comprehenſion of ſeveral Letters falling under one Accent, and produc'd at one Motion of the Breath: But ſome Grammarians reject this Definition, as excluding all *Syllables* of one Letter.

Another defines *Syllable* a literal, or articulate Voice, of an individual Sound. See VOICE.

In every Word, therefore, there are as many *Syllables* as there are vocal Sounds; and as many vocal Sounds, as there are ſimple or compound Vowels; each whereof requires a diſtinct Motion of the pectoral Muſcles: Thus, *a, a, a,* make three *Syllables*, form'd by ſo many Motions, diſtinguiſh'd by ſmall Stops betwixt each Expiration.

In the *Hebrew*, all the *Syllables* begin with Conſonants; allowing *Aleph* to be one; nor has any *Syllable* more than a ſingle Vowel. See VOWEL.

From the Number of *Syllables* in Words they become denominated *Monoſyllables*, *Biſſyllables*, *Triſſyllables*, and *Polyſyllables*, *q. d.* Words of one *Syllable*, two *Syllables*, three *Syllables*, and many *Syllables*. See WORD, MONOSYLLABLE, *&c.*

The Word is deriv'd from the *Greek* συλλαβὴ, Aſſemblage.

As 'tis the Number of *Syllables* that makes the Meaſure of *Engliſh* Verſe; it were to be wiſh'd, we had fix'd and ſettled Rules to determine the preciſe Number of *Syllables* in each Word: for we have Words very dubious in that reſpect: And there are even ſome which have more *Syllables* in Verſe, than in Proſe. Many of the Words ending in *cious*, give a deal of Embarraſs to ſuch as pique themſelves on Exactneſs; as *odious*, *precious*, &c. See FOOT, QUALITY, MEASURE, *&c.*

SYLLABUB, a kind of compound Drink, moſt affected in the Summer Seaſon; ordinarily made of White-Wine and Sugar, into which is ſquirted new Milk with a Syringe, or Wooden Cow.

Sometimes 'tis made of Canary, in lieu of White Wine; in which Caſe the Sugar is ſpar'd, and a little Lemon and Nutmeg uſed in lieu of it.

To prepare it the beſt Way, the Wine and other Ingredients, excepting the Milk, are mix'd over Night, and the Milk or Cream added in the Morning. The Proportion is, a Pint of Wine to three of Milk. For

Whipt Syllabub, to half a Pint of White Wine, or Rheniſh, is put a Pint of Cream, with the Whites of three Eggs. This they ſeaſon with Sugar, and beat with Birchen Rods. The Froth is taken off as it riſes, and put into a Pot; where, after ſtanding to ſettle two or three Hours, 'tis fit to eat.

SYLLEPSIS, in Grammar, call'd alſo *Conceptio*, is a Figure whereby we conceive the Senſe otherwiſe than the Words import; and thus make our Conſtruction, not according to the Words, but to the Senſe. See CONCEPTIO.

The *Syllepſis*, ſays an ingenious Author, is a Figurative Conſtruction, which agrees more with our Ideas, than with the Words; and which expreſſes more of the Senſe or Ideas in the Mind, than the Terms themſelves.

Other Authors make it a Diſproportion, or Unſuitableneſs in the Parts of the Diſcourſe.

Voſſius will have it the Agreement of a Verb, or Adjective, not with that Word next it, but with the moſt worthy in the Sentence; as *Rex & Regina beati.*

Some Authors call the *Syllepſis*, *Syntheſis*. See SYNTHESIS.

'Tis a Figure of very conſiderable Uſe for the well underſtanding of Authors: Accordingly, *Scioppius* divides it into two Kinds, ſimple and relative. The *ſimple Syllepſis* is when the Words of a Diſcourſe either differ in Gender, or Number, or both: The *relative Syllepſis*, is when the Relative is referr'd to an Antecedent, which is not expreſs'd; but which we conceive by the Senſe of the whole Period.

SYLLOGISM, in Logic, an Argument, or Form of Reaſoning, conſiſting of three Propoſitions; having this Property, that the Concluſion neceſſarily follows from the two Premiſes; ſo that if the firſt and ſecond Propoſition be granted, the Concluſion muſt be granted in like Manner; and the whole allow'd Demonſtration.

If the Premiſes be only probable, or contingent, the *Syllogiſm* is ſaid to be *Dialectical*; if they be certain, *Apodictical*; if falſe, under an Appearance of Truth, *Sophiſtic*, or *Paralogiſtic*. See DIALECTICAL, APODICTICAL, and SOPHISTICAL.

As often as the Mind obſerves any two Notions to agree to a third; which is done in two Propoſitions; it immediately concludes that they agree to each other: Or if it find that one of them agrees, and the other diſagrees; which is likewiſe done in two Propoſitions; it immediately pronounces that they diſagree to each other. And ſuch is a *Syllogiſm*; which, it hence appears, is nothing but an inward Diſcourſe, or Thought, whereby, from any two Propoſitions granted, a third is neceſſarily deduc'd. See PROPOSITION.

Hence, as the *Greeks* call it *Syllogiſm*, the *Latins* call it *Collectio*, or *Ratiocinatio*, as being a kind of Computation, which, either by adding or ſubſtracting, gathers either the Sum or the Remainder: For, as if we add two to three, we thence collect five; ſo, if to this Propoſition, *Man is an Animal*, you add this, *every Animal thinks*; you thence deduce this, *therefore Man thinks.*

Of the three Propoſitions whereof a *Syllogiſm* conſiſts; the firſt is by way of Eminence, call'd the *Propoſition*, as being propos'd for the Baſis of the whole Argument; the ſecond is call'd the *Aſſumption*, as being aſſum'd to aſſiſt in inferring the third: Tho' they are both call'd *Sumptiones*, becauſe aſſum'd for the Sake of the third; and both *Premiſes*, as being premis'd to it; and for the ſame Reaſon both are call'd *Antecedents*, only the firſt the *Major*, and the latter the *Minor*. See ASSUMPTION, PREMISES, MAJOR, MINOR, *&c.*

The third is call'd the *Concluſion*, as being the Cloſe of the whole Argumentation; and ſometimes *Complexio*, as including the two Notions, before ſeparately compar'd; and *Conſequens*, becauſe it follows from the Antecedents; and laſtly, *Illatio*, becauſe inferr'd from the Premiſes by Means of the illative Particle *Ergo*, therefore, *&c.* See CONCLUSION, COMPLEXIO, *&c.*

As the Concluſion is the principal Part of a *Syllogiſm*, it thence ariſes, that tho' both the Propoſition and Aſſumption conſiſt each of its Subject and Attribute; yet the Subject and Attribute of a *Syllogiſm*, are properly underſtood of thoſe of the Concluſion. See SUBJECT and ATTRIBUTE.

Again, in the Inſtance above mention'd, *Animal* being uſed both as Subject and Attribute, 'tis held a kind of Intermediate between the Two, and frequently call'd *Medium*; in reſpect to which, both the Subject and Attribute, *Man* and *Thinks*, are call'd *Extremes*, or *Terms*; only the Subject the *greater Extreme*, and the Attribute *the leſs*. See MEDIUM and EXTREME.

A *Syllogiſm*, whether Simple or Compound; may either be *Categorical*, as that already inſtanced; wherein both Premiſes are Poſitive. See CATEGORICAL.

Or, *Hypothetical*, wherein one or both of the Premiſes are ſuppoſed; as, *As if the Sun ſhines, 'tis Day, but the Sun does ſhine; therefore 'tis Day.* See HYPOTHETICAL.

Or, *Analogical*, as, *As the Baſe is to the Column; ſo is Juſtice to the Commonwealth; but if the Baſe be withdrawn, the Column is overturn'd; therefore if Juſtice be taken away, the Commonwealth is over-turn'd.* See ANALOGICAL.

Or *Diezeutic*, or *Disjunctive*; as, *Either they mean to Pleaſe or to Profit; but they don't aim to Pleaſe; therefore they don't aim to Profit.* See DIEZEUTIC.

The moſt convenient Form of a perfect *Syllogiſm*, is to have the Medium in the Middle, placed between the Subject and the Attribute; as in the Inſtance above-mentioned.

Of this Form, there are two Figures; the one *Coherent*, or *Conjunct* and *Affirmative*, founded on this Canon, That what agrees with any thing, likewiſe agrees with that, wherewith this neceſſarily agrees.

The other *Incoherent* or *Disjunct* and *Negative*, founded on this Canon, That what agrees with any thing, diſagrees with that wherewith this diſagrees. Of each of theſe Figures there are three Modes, *viz.* *General*, *Particular* and *Mix'd*. See MOOD and FIGURE.

A *Syllogiſm*, wherein one of the Premiſes is ſuppreſs'd; but ſo as to be underſtood, is call'd an *Enthymeme*; *e. gr.* *Every Animal Thinks, therefore Man Thinks*; wherein the Propoſition, *Man is an Animal*, is underſtood. See ENTHYMEME.

The Demonſtrations of Mathematicians, 'tis obſerved, are only certain Series's of Enthymemes; ſo that every thing in Mathematicks, is concluded by *Syllogiſm*; only omitting ſuch Premiſes as occur of their own accord, or as are referr'd to by the Citations. See DEMONSTRATION.

For the Uſe *Syllogiſm* is of to Reaſon, Mr. *Lock* obſerves, That of four Things, which Reaſon is employ'd about, *viz.* the finding out of Proofs; the regular Diſpoſition of them, ſo as their Connexion may appear; the perceiving their Connexion; and the making a right Concluſion: *Syllogiſm* only aſſiſts in one, *viz.* the ſhewing the Connexion of the Proofs of any Inſtance.

Nor is it of any great Uſe even here; ſince the Mind can perceive ſuch Connexion, where it really is, as eaſily, nay, perhaps, better, without. We ſee Men reaſon very ſtrongly, who don't know how to make a *Syllogiſm*.

Indeed, *Syllogiſm*, the ſame Author adds, may ſerve to diſcover a Fallacy in a rhetorical Flouriſh; or, by ſtripping an Abſurdity of the Cover of Wit and good Language, ſhew it in its natural Deformity. But it only ſhews the Weakneſs or Fallacy of ſuch a Diſcourſe, by the artificial Form it is put into, to thoſe who have thoroughly ſtudied Mode, and Figure, and have ſo examined the many Ways three Propoſitions may be put together in, as to know which of them does certainly conclude right, and which not, and upon what Grounds they do ſo.

The Mind is not taught to reaſon by theſe Rules: It has a native Faculty, of perceiving the Coherence or Incoherence of its Ideas, and can range them right, without ſuch perplexing Repetitions. Add, that to ſhew the Weakneſs of an Argument, there needs no more, than to ſtrip it of the ſuperfluous Ideas, which, blended and confounded with thoſe on which the Inference depends, ſeems to ſhew a Connexion where there is none; or at leaſt hinders the Diſcovery of the Want of it: And then to lay the naked Ideas, on which the Force of the Argumentation depends, in their due Order. In this Poſition, the Mind taking a View of them, ſees what Connexion they have, and ſo is able to judge of their Inference, without any need of *Syllogiſm* at all. Nor muſt it be omitted, that *Syllogiſms* are as liable to Fallacies, as the plainer Ways of Argumentation; for which one might appeal to common Obſervation, which has always eſteem'd theſe artificial Methods of Reaſoning, more adapted to catch and intangle the Mind, than to inſtruct and inform the Underſtanding. And if it be certain that Fallacy can be couch'd in a *Syllogiſm*, as no Body will deny but it may; it muſt be ſomething elſe, and not a *Syllogiſm*, that muſt diſcover it.

The ſame Author proceeds to ſhew, that this Way of Reaſoning, diſcovers no new Proofs, nor makes any Diſcoveries; but is wholly converſant in the Marſhalling and Ranging thoſe we already have: A Man muſt know, e'er he be able to prove *ſyllogiſtically*; ſo that the *Syllogiſm* comes after Knowledge, when we have but little need of it. See REASON.

SYLVA, in Poetry, a poetical Piece; compoſed, as it were, at a Start; in a kind of Rapture or Tranſport, without much Thought or Meditation.

Such are the *Sylvæ* of *Statius*, which, he aſſures us, were all compoſed after this Manner.

Quintilian extends the Uſe of the Word to any Writing done in haſte, and on the Spot.

The Word is *Latin*, and literally ſignifies *Foreſt*; whence its chief Uſe, in our Language is, metaphorically, to expreſs certain Collections of poetical Pieces, of various Kinds, and on various Subjects; as a Foreſt is an Aſſemblage of Trees of different Kinds.

SYMBOL, a Sign, Type, Emblem or Repreſentation of any moral Thing, by the Images or Properties of natural Things. See SIGN, TYPE, *&c.*

Thus we ſay, the Lion is the *Symbol* of Courage; the Pellican of paternal Love, *&c.*

Symbols were in great Repute among the ancient *Hebrews*, and eſpecially among the *Egyptians*; and ſerved to cover a great Part of their moral Myſteries; being uſed not only to repreſent Moral Things by Natural; but even Natural by Natural.

Symbols are of various Kinds; as *Types*, *Ænigma's*, *Parables*, *Fables*, *Allegories*, *Emblems*, *Hieroglyphicks*, *&c.* each whereof ſee under its reſpective Article ENIGMA, PARABLE, FABLE, *&c.*

The Word is form'd from the *Greek*, *σύμβολον*, a Mark, Sign, or Badge, and that from the Verb *συμβάλλειν*, *Conjicere*.

The *Chineſe* Letters are moſt of them *Symbols*, or Significative. See LETTER.

The *Symbols* in Algebra, *&c.* are various. See CHARACTER.

Medalliſts apply the Term *Symbol* to certain Marks or Attributes peculiar to certain Perſons, or certain Deities. The Thunder-bolt, for Inſtance, accompanying the Heads of certain Emperors, is a Sign or *Symbol* of the Soveraign Authority, and of a Power equal to that of the Gods. The Trident is the *Symbol* of *Jupiter*; the Peacocks of *Juno*; a Figure ſeated on an Urn, of a River.

SYMBOL, among Chriſtians, is particularly uſed for the *Creed*, or the Articles every Chriſtian is to know, and believe. See CREED.

Fleury obſerves, That till the Time of St. *Gregory*, the *Symbol* was never uſed to be rehearſed in the Office of the *Roman* Church; in regard that Church, having never been infected with any Hereſy, did not need to make any Profeſſion of Faith.

Suicer notes, That ſeveral Words and Points have been occaſionally added to the *Symbols*, upon the riſing of new Hereſies.

Though it be a common Opinion, that the *Symbol* is the Work of the Apoſtles; and though, on the footing of ſuch Opinion, we call it the *Apoſtles Creed*; yet, *du Pin* obſerves, there are ſeveral very cogent Arguments to render the Opinion highly improbable.

In the Emperor's Library, is a *Greek* MS of the *Symbol of the Apoſtles*, divided into 12 Articles, with the Names of the reſpective Apoſtles, who are ſaid to have compoſed each Article: The Firſt is attributed to St. *Peter*, and the reſt ſucceſſively to *Andrew*, *James* Major, *John*, *Thomas*, *James* Minor, *Philip*, *Bartholomew*, *Matthew*, *Simon*, *Thadeus* and *Matthias*.

But the Teſtimony of that MS, does not much confirm the Opinion, that each Apoſtle compoſed an Article of the *Symbol*; yet the Opinion is, at leaſt, as old as St. *Leo*, who ſeems to have believed it.

Authors are in doubt, why the Name *Symbol* ſhould be given this Compendium of the Articles of the Chriſtian Faith: Some ſay, 'tis thus call'd, as being the Mark or Characteriſtic of a Chriſtian. Others derive it from an Aſſembly or Conference of the Apoſtles, where each expreſſing his Senſe of the Faith, and what each had chiefly preach'd, the Creed was fram'd, and call'd by the *Greek* Word *σύμβολον*, which ſignifies Collation or Conference. 'Tis added, that St. *Cyprian* is the firſt who appears to have uſed the Word *Symbol* in this Senſe.

SYMBOLICAL *Column* } See { COLUMN
SYMBOLICAL *Philoſophy* } { HIEROGLYPHIC.

Clemens Alexandrinus, *Euſebius*, &c. obſerve, that the *Ægyptians* had two Ways of deſigning their *Symbolical Myſteries*: One by the Virtues of Animals, Herbs, &c. the other by Geometrical Figures: Thus, the *Sun* and *Moon* were repreſented, in the firſt Manner, by the *Beetle* and *Ibis*; and in the latter, by their own Figure. Again, the four Elements they repreſented, after the firſt Manner, by four Animals which had Qualities correſponding thereto; and after the ſecond Manner by +. See HIEROGLYPHIC.

SYMMETRY, the Relation of Equality, in the Height, Length and Breadth of the Parts neceſſary to compoſe a beautiful Whole.

Symmetry, according to *Vitruvius*, conſiſts in the Union and Conformity of Relation, of the Members of a Work, to their Whole, and of each of the ſeparate Parts to the Beauty of the entire Work; Regard being had to ſome certain Meaſure: ſo that the Body is framed with *Symmetry*, by the Relation the Arm, Elbow, Hand, Fingers, &c. have to each other, and to their Whole.

Symmetry, ariſes from that Proportion, which the *Greeks* call *Analogy*, which is the Relation of Conformity of all the Parts of a Building, and of their Whole, to ſome certain Meaſure; whereon depends the Nature of *Symmetry*.

In Architecture, we call *Uniform Symmetry*, that where the Ordonnance reigns in the ſame Manner, throughout the whole Pourtour; and *Reſpective Symmetry*, that where only the oppoſite Sides are equal to each other.

The Word is form'd from the *Greek*, συν, with, and μετρον, Meaſure.

SYMPATHETIC, ſomething that has a *Sympathy*, or that acts by *Sympathy*. See SYMPATHY.

SYMPATHETIC, is particularly applied to all Diſeaſes which have two Cauſes; the one remote, the other near.

In which Senſe, the Word is oppoſed to *Idiopathetic*. See IDIOPATHETIC.

Thus, an Epilepſy is ſaid to be *Sympathetic*, when produced by a remote Cauſe; *i. e.* when the Diſorder in the Brain, embarraſs'd, and, as it were, mired with Blood, is preceded and produced by ſome other Diſeaſe.

There is a *Sympathetic* Palpitation of the Heart, and an *Idiopathetic* one. There is but one Idiopathetic Cauſe of the Palpitation; but there are ſeveral *Sympathetic* ones. See PALPITATION.

Among Chymiſts and Alchymiſts, the Term *Sympathetic* is principally applied to a kind of *Powder*, and a Sort of *Ink*.

SYMPATHETIC *Inks*, are ſuch as can be made to appear and diſappear very ſuddenly, by the Application of ſomething which ſeems to work by *Sympathy*. See INK.

Of theſe, we have ſome very curious Inſtances and Experiments, given us by *Lemery* and Mr. *Boyle*; to the following Effect.

1° To two or three Parts of unſlak'd Lime, put one of yellow Orpiment; powder and mix the Two, adding 15 or 16 times as much Water as there was Orpiment; ſtop up the Viol with a Cork and Bladder, and ſet it in warm Embers. Shake the Viol now and then for five Hours, and warily decant the clear Part, or rather filtrate it. In the mean Time, burn a Piece of Cork thoroughly, and when well inflamed, quench it in common Water, or rather in Brandy. Being thus reduced into a friable Coal, grind it with fair Water, wherein Gum Arabic has been diſſolved; and it will make a Liquor as black as the common *Ink*.

While theſe are doing, diſſolve in three Times as much diſtill'd or ſtrong Vinegar, over warm Embers, a Quantity of Red Lead; or of Saccharum Saturni, in Thrice the Quantity of Water, for three or four Hours; or 'till the Liquor have a ſweet Taſte. This Liquor will be as clear as common Water.

The *Inks* thus prepared: Write any thing on Paper with this laſt Liquor, dry it, and nothing will appear. Over the Place, write what you pleaſe with the Second Liquor; it will appear as if written with common *Ink*: When dry, dip a ſmall Piece of Rag or Spunge in the firſt Liquor, rub it over the written Place, and the black Writing will vaniſh; and that wrote with the inviſible *Ink*, appear black and legible.

Again, take a Book four or five Inches thick, and on the firſt Leaf, write any thing with the laſt Liquor: Turn to the other End of the Book, and rub there with a Rag, dipt in the firſt Liquor, on that Part, as near as you can gueſs, oppoſite to the Writing; and leave alſo the Rag there, clapping a Paper over it; then nimbly ſhutting the Book, ſtrike four or five ſmart Strokes thereon with your Hand, and turning the other Side uppermoſt, clap it into a Preſs, or lay it under a good Weight, for a Quarter of an Hour, or even half that Time: Then will the Writing done with the inviſible *Ink* be found white and legible.

2° Diſſolve white or green Vitriol in Water, and writing with the Solution, nothing will appear. Boil Galls in Water, and dip a Linnen Rag in the Decoction, and with it rub the Place before writ, and it will appear black and legible. Rub it over again with Spirit of Vitriol, or its Oil, and the Writing will diſappear again: Rub it over again with Oil of Tartar *per Deliquium*; the Letters will appear again, but of a yellow Colour.

SYMPATHETIC *Powder*, a Powder once very much fam'd; ſuppoſed to have this wonderful Property, That if ſpread on a Cloth dipt in the Blood of a Wound, the Wound would be cured, though the Patient were any Number of Miles off.

This Powder, M. *Lemery* tells us, is nothing but *Roman* Vitriol, open'd by the Sun-beams penetrating it, and imperfectly calcining it, in the middle of Summer.

But it is now generally allowed a mere Piece of Charletanery, whatever Sir. *Kenelm Digby* and others before him and after, plead in its Favour.

Sir *Kenelm*, in an expreſs Treatiſe on the Subject, where he gives Inſtances of Cures perform'd by it, accounts for the Manner of its Operation thus: The Sun's Rays, ſays he, attract and draw the Spirits of the Blood, at a great Diſtance; by which means the Atoms thereof, are driven and diſperſed far and near in the Air. Now, the Spirits of Vitriol, incorporated with the Blood, fly along with them, and the Two together form a kind of Train of Corpuſcles. On the other Side, there is continually iſſuing and exhaling from the Wound, abundance of fiery Spirits, which attract the neighbouring Air, and this Air, by a continued Concatenation, attracting, ſtill, the next Air, at length, meets the Atoms, with the Spirits of the Blood and Vitriol. Thus the Spirits of the Blood finding their Source again, re-enter into their primitive Seat, and being joined with the vitriolic Spirits, the Wound is comforted and healed, imperceptibly.

But to the Confuſion of all this fine Reaſoning; 'tis found by Experience, that the Powder is ſo far from this Effect at a great Diſtance, that 'tis ſcarce perceived, if done in the ſame Room with the Patient. Though 'tis poſſible, as the Parts of the Vitriol are in continual Motion, if the Cloth be applied juſt by the Patient, ſome of the Effluvia thereof, may enter the Wound, and help to ſtop the Bleeding. See VITRIOL.

SYMPATHY, an Agreement of Affections and Inclinations; or a Conformity of natural Qualities, Humours, Temperaments, &c. which make two Perſons pleas'd and delighted with each other.

The Word is form'd from the *Greek* σὺν, with, and παθος, Paſſion, *q. d.* Com-paſſion, Fellow-feeling.

Sympathy is alſo uſed with regard to inanimate Things; intimating ſome Propenſion they have to unite, or to act on one another.

In this Senſe, Naturaliſts ſay, there is a *Sympathy* between the Vine and the Elm; between the Load-Stone and Iron; the two Poles of a Load-Stone, &c.

Several Authors have wrote on the *Sympathies* and Antipathies between Animals; but the greateſt Part of what they ſay is fabulous: Such, *e. gr.* is that Antipathy between Chords made of Sheeps and Wolfs Guts; A Lute, they ſay, being ſtrung with theſe two Kinds of Chords, they can never be brought into Tune with each other: Such alſo is that of Eagles Feathers, which mix'd with thoſe of other Birds, devour and conſume them. See ANTIPATHY.

The Alchymiſts talk much of the *Powder of Sympathy*. See SYMPATHETIC *Powder*.

SYMPATHY, in Medicine, an Indiſpoſition befalling one Part of the Body, thro' the Diſorder or Faultineſs of another; whether it be thro' the Affluence of ſome Humour, or Vapour ſent from elſewhere; or thro' the Want of the Influence of ſome Matter neceſſary to its Action. See CONSENT *of Parts*.

For the Force and Effect of Sympathy, *in the Production of Monſters.* See MONSTER.

SYMPHISIS, in Medicine, one of the Manners of articulating or jointing the Bones. See ARTICULATION.

Symphiſis is a natural Union, whereby two ſeparate Bones are render'd contiguous, and become one, ſo, as neither has any proper, diſtinct Motion.

Such are moſt of the Junctures of the Epiphyſes, and many others of Bones which in Children are ſeparate, but with Age grow together; as the Os Ethmoides, the Bones of the Cranium, Os Sacrum, &c. See BONE.

The *Symphiſis*, or *Natural Union* of Bones, is of two Kinds; either with a Medium, or without.

The *Symphiſis* without Medium, is where two Bones unite, and grow together of themſelves without the Intervention of any third Thing: Such are the *Symphiſes* of *Epiphyſes* with the principal Bones; and ſuch thoſe of the lower Jaw. This Union is effected much after the ſame Manner as that of a Graft and a Tree.

The *Symphiſis* with a Medium is of three Kinds, call'd *Syneuroſis*, *Syſarchoſis*, and *Synchondroſis*. Each whereof ſee under its proper Article, SYNEUROSIS, &c.

The Word is *Greek*, σύμφυσις, and ſignifies a natural Coherence or Connection.

SYMPHONY, in Muſic, a Conſonance, or Conſort of ſeveral Sounds agreeable to the Ear; whether they be Vocal or Inſtrumental, or both; call'd alſo *Harmony*. See HARMONY and CONSONANCE.

Some Authors reſtrain *Symphony* to the ſole Muſic of Inſtruments: In this Senſe, ſay they, the Recitativo's in ſuch an Opera were intolerable, but the *Symphonies* excellent. See SONG.

The *Symphony* of the Ancients went no further than to two or more Voices or Inſtruments ſet to Uniſon; for they had no ſuch Thing as Muſic in Parts; as is very well prov'd by M. *Perrault*; at leaſt, if ever they knew ſuch a Thing, it muſt be allow'd to have been loſt. See SYNAULIA.

'Tis to *Guido Aretine* we owe the Invention of Compoſition: 'Twas he firſt join'd in one Harmony ſeveral diſtinct Melodies; and brought it even the Length of four Parts, *viz.* Baſs, Tenor, Counter, and Treble. See HARMONY and MELODY.

The Word is form'd from the *Greek* συν, with, and φώνη, Sound.

SYMPOSIAC, an Entertainment, or Converſation of Philoſophers at a Banquet. See BANQUET.

Plutarch has ſeveral Treatiſes which he calls *Sympoſiaca*; or, The Banquet of the ſeven Sages, *&c.*

The Word is form'd from the *Greek*, συμπόσιον, Convivium, Feaſt.

SYMPTOM, in Medicine, is ordinarily confounded with *Sign*, and defin'd an Appearance, or Conjunction of Appearances, in a Diſeaſe, which ſhew or indicate its Nature and Quality, and whence one may judge of the Event thereof. See SIGN.

In this Senſe, a Delirium is held a *Symptom* of a Fever; and Pain, Waking, Drowſineſs, Convulſions, Suppreſſion of Urine, Difficulties of Breathing and Swallowing, Coughs, Diſguſts, Nauſeas, Thirſt, Swoonings, Faintings, Looſeneſs, Coſtiveneſs, Dryneſs and Blackneſs of the Tongue, are held the principal *Symptoms* of Diſeaſes.

But *Boerhaave* gives us a much more juſt and accurate Notion of a *Symptom*: Every præternatural Thing, ſays he, ariſing from a Diſeaſe, as its Cauſe, in ſuch Manner, however, as that it may be diſtinguiſh'd from the Diſeaſe itſelf, and from its next Cauſe, is call'd a *Symptom* of the Diſeaſe. See DISEASE.

If it ariſe, after the ſame Manner, from the Cauſe of the Diſeaſe, it is call'd a *Symptom of the Cauſe*. See CAUSE.

If it ariſe from ſome former *Symptom* as its Cauſe, it is call'd a *Symptom of a Symptom*.

Whatever happens to a Diſeaſe, from any other Cauſes than thoſe mention'd, is more properly call'd an *Epigenema*.

Hence it appears, that theſe former *Symptoms* are really Diſeaſes themſelves, very different as to Number, Effect, *&c.* Tho', after the Ancients, they may be conveniently enough reduc'd to Faults in the *Functions*, *Excretions*, and *Retentions*.

Under the firſt come all Diminutions, Abolitions, Increaſes, and Depravations of Animal Actions, particularly with regard to *Hunger* and *Thirſt*, *Sleeping* and *Waking*. See HUNGER, THIRST, *&c.*

Under the ſecond come, *Nauſea's*, *Vomitings*, *Lienteries*, *Cœliac Affections*, *Diarrhœas*, *Diſenteries*, *Iliac Paſſions*, &c.

Under the third, come the *Jaundice*, *Stone*, *Dropſy*, *Fever*, *Iſchuria*, *Strangury*, *Aſthma*, *Catarrh*, &c. Each whereof ſee under its reſpective Article, HUNGER, NAUSEA, LIENTERY, DIARRHÆA, JAUNDICE, DROPSY, STONE, FEVER, *&c.*

SYMPTOMATICAL, in Medicine, is a Term often uſed to denote the Difference between the primary and ſecondary Cauſes in Diſeaſes; as, a Fever from Pain is ſaid to be *Symptomatical*, becauſe it ariſes from Pain only; and therefore the ordinary Means in Fevers are not, in ſuch Caſes, to be had recourſe to; but to what will remove the Pain; for when that ceaſes, the Fever will ceaſe, without any direct Means taken for that.

SYNÆRESIS, in Grammar, a Figure, whereby two Syllables are united in one; as *vemens* for *Vehemens*.

SYNAGOGUE, a particular Aſſembly of *Jews*, met to perform the Offices of their Religion; alſo the Place wherein they meet. See JEWS.

Some Authors take the Uſe of *Synagogues* to be of no old ſtanding among the *Jews*; and maintain, that 'twas not till after their Return from the *Babyloniſh* Captivity, that the Opinion firſt got footing, that the Worſhip of God was not ſo reſtrain'd to the Temple at *Jeruſalem*, that it could not be held any where elſe. The Conſequence of which new Opinion was, that the *Jews* began to build them *Synagogues* in all their Cities.

Others hold, that there were *Synagogues* even in the Time of *David*.

Be this as it will, no Aſſemblies of the *Jews* appear to have been call'd *Synagogues* till a little before the Coming of *Jeſus Chriſt*; who is ſaid to have preach'd in the Middle of the *Synagogue*.

There were reckon'd 480 *Synagogues* in the ſingle City of *Jeruſalem*.

There are ſtill *Synagogues* ſubſiſting at *London*, *Amſterdam*, *Rotterdam*, *Avignon*, *Metz*, &c.

The Word is *Greek*, συναγωγὴ, Aſſembly.

SYNALÆPHA, in Grammar, a Contraction, or ſhortening of a Syllable, in a *Latin* Verſe. See VERSE.

It is perform'd various Ways; principally, by the ſmothering ſome Vowel or Diphthong at the End of a Word, by Reaſon of another Vowel or Diphthong at the Beginning of the next; as *Ill' ego*, &c.

SYNAUCHE, in Medicine, a kind of Squinancy, wherein the internal Muſcles of the Fauces, or Pharynx, are attack'd. See SQUINANCY.

When the external Muſcles of the ſame are ſeiz'd, it is call'd a *Paraſynanche*. See PARASYNANCHE.

The Word is form'd from the *Greek*, σὺν, with, and ἄγχειν, to preſs, ſuffocate.

SYNARTHROSIS, in Anatomy, a kind of Articulation, or Jointure of the Bones of the Body. See ARTICULATION.

The *Synarthroſis* is when the Bones are bound ſo faſt together, that they are render'd immoveable with regard to each other.

'Tis divided into three Kinds: The firſt, *Sutura*; which is ſometimes in Form of two Combs or Saws, the Teeth whereof enter within one another; and ſometimes in Form of Scales, one Edge lapping over the other. See SUTURE.

The ſecond Kind is call'd *Harmonia*; which is when the Bones meet in an even Line, whether it be right or circular. See HARMONIA.

The third, call'd a *Gomphoſis*, is when one Bone is fixed into another like a Nail or Peg into a Hole. See GOMPHOSIS.

To theſe three Kinds of *Synarthroſis*, ſome add ſeveral others, as *Symphiſis*, *Syntenoſis*, and *Synemenſis*. See SYMPHISIS, *&c.*

The Word is form'd from the *Greek*, σὺν, with, and ἄρθρον, Articulus, Joint.

SYNAULIA, in the ancient Muſic, a Conteſt of Pipes, performing alternately, without Singing.

Mr. *Malcolm*, who doubts whether the Ancients had properly any ſuch Thing as Inſtrumental Muſic, that is, Muſic compoſed wholly for Inſtruments, without any Singing; yet quotes the Practice of the *Synaulia* from *Athenæus*. See SYMPHONY, HARMONY, MUSIC, *&c.*

SYNCATEGOREGMA, in Logic, is uſed for a Word, which ſignifying little or nothing of itſelf, yet when joined with others, adds Force thereto; as *all*, *none*, *certain*, &c.

SYNCELLUS, an ancient Officer in the Family of the Patriarchs, and other Prelates of the Eaſtern Church.

The *Syncellus* was an Eccleſiaſtic, who liv'd with the Patriarch of *Conſtantinople*, to be a Witneſs of his Conduct; whence it is, that the *Syncellus* was call'd the *Patriarch's Eye*, becauſe his Buſineſs was to obſerve and watch.

The Word, in the corrupt *Greek*, ſignifies a Perſon who lies in the ſame Chamber with another.

The other Prelates had alſo their *Syncelli*, who were Clerks living in the Houſe with them, and even lying in the ſame Chamber; to be Witneſſes of the Purity of their Manners.

At length the Office degenerated into a mere Dignity; and there were made *Syncelli* of Churches. At laſt it became a Title, and was beſtow'd by the Emperor on the Prelates themſelves; whom they call'd *Pontifical Syncelli*, and *Syncelli Auguſtales*.

There were alſo *Syncelli* in the Weſtern Church, particularly in *France*. The VIth Council of *Paris* ſpeaks with a deal of Indignation of ſome Biſhops who aboliſh'd the Office of *Syncelli*, and lay alone; and ſtrictly enjoins them, that, for the future, to take away all Occaſion of Scandal, they make the Office of *Syncelli* inſeparable from that of Biſhops.

SYNCHONDROSIS, in Anatomy, a kind of Articulation of the Bones of the Body; being a Species of *Symphiſis*. See SYMPHISIS.

The *Synchondroſis* ſignifies the Union of two Bones by Means of a Cartilage; in which Manner the Ribs are join'd to the Sternum, and the Parts of the Os Pubis to one another.

The Word is form'd from the *Greek*, σὺν, with, and χόνδρος, Cartilage.

SYNCHRONISM, the being or happening of ſeveral Things in the ſame Time.

The Word is form'd from the *Greek*, σὺν and χρόνος, Time.

The happening or performing of ſeveral Things in equal Times, as, the Vibrations of Pendulums, *&c.* is properly call'd *Iſochroniſm*, tho' ſome Authors confound the two. See Isochronism.

SYNCOPE, in Medicine, a deep and ſudden Swooning; wherein the Patient continues without any ſenſible Heat, Motion, Senſe, or Reſpiration; is ſeiz'd with a cold Sweat over the whole Body, and all the Parts turn pale and cold, as if dead.

There are ſeveral Cauſes of *Syncope*'s: 1°. Too great an Exhauſtion of Spirits; as after long Diets, exceſſive Evacuations, violent Exerciſes, long Bathings, *&c.*

2°. The irregular Motion of the Spirits preventing their due Influx into the Parts; as ſometimes happens in Fear, Wrath, and other violent Paſſions.

3°. Immoderate Hæmorrhagies.

4°. An ill Conſtitution of Blood; as in Cacochymies, or in Perſons who have taken ſomething that either diſſolves or coagulates the Blood.

5°. Secret Diſeaſes, as Abſceſſes, or Polypus's of the Heart, Worms, *&c.*

In very numerous crouded Aſſemblies, People ſometimes fall into *Syncopes*, thro' the hot, thick, impure Air they breathe.

Some Women are liable to them upon the Smell of Musk, Civet, *&c.*

For *Syncopes*, give volatile Spirits and Aromatics. *Heurnius* recommends Treacle Water, and Cinnamon Water; and *Etmuller* the Volatile Salt of Vipers, Spirit of Sal Ammoniac, Oil of Ambar, and ſometimes Bleeding.

The Word is form'd from the *Greek*, σὺν, with, and κόπτειν, to cut.

Syncope, in Grammar, is an Eliſion, or Retrenchment of one or more Letters, or Syllables from a Word.

As when we ſay *Virum* for *Virorum*; and *manet alta, mente, repoſtum*, for *repoſitum*.

Syncope, in Muſic, ſignifies the Diviſion of a Note; uſed when two or more Notes of one Part anſwer to a ſingle Note of the other Part: as when a Semibreve of the one anſwers to two or three Crotchets of the other.

A Note is ſaid to be *Syncope'd* when it has a Point added on the Side of it; which increaſes its Value by one half.

SYNDESMUS, in Anatomy, is ſometimes us'd for a Ligament. See Ligament.

In Grammar, it is uſed for a Conjunction. See Conjunction.

The Word in the original *Greek*, συνδεσμός, ſignifies a joining together.

SYNDIC, in Government and Commerce, an Officer in *France*, intruſted with the Affairs of a City, or other Community; who calls Meetings, makes Repreſentations and Solicitations to the Miniſtry, Magiſtracy, *&c.* according to the Exigency of the Caſe.

The *Syndic* is appointed to anſwer and account for the Conduct of the Body; makes and receives Propoſals for the Advantage thereof; controuls and corrects the Failings of particular Perſons of the Body, or, at leaſt, procures their Correction at a publick Meeting.

In effect, the *Syndic* is, at the ſame Time, both the Agent and Cenſor of the Community.

Almoſt all the Companies in *Paris*, *&c.* as the Univerſity, Companies of Arts and Trades, *&c.* have their *Syndics*; and ſo have moſt of the Cities of *Provence* and *Languedoc*.

Syndic is alſo us'd for a Perſon appointed to ſolicit ſome common Affair, wherein he himſelf has a Share; as happens particularly among ſeveral Creditors of the ſame Debtor, who fails, or dies inſolvent.

The chief Magiſtrate of *Geneva* is alſo call'd *Syndic*. There are four *Syndics* choſe every Year; the eldeſt of which preſides in the Council of Twenty-five, which is the chief Council of the City, wherein all Affairs are diſpatch'd both Civil and Political: Thus the other three elect cannot all come at the Office till the four Years end; ſo that the *Syndicate* comes by Turn to ſixteen Perſons, all choſen out of the Council of Twenty-five.

The Word is form'd from the *Latin*, *Syndicus*, and that from the *Greek*, σύνδικος, which ſignifies the ſame Thing.

SYNDROME, from συνδρομή, Concurſus, a Combination of Diſeaſes.

SYNECDOCHE, in Rhetoric, a Figure very frequent among Orators and Poets. See Figure.

There are three Kinds of *Synecdoches*: By the firſt, a Part is taken for the Whole; as the *Point* for the *Sword*; the *Roof* for the *Houſe*; the *Sails* for the *Ship*, &c.

By the ſecond, the Whole is uſed for a Part: And by the third, the Matter whereof the Thing is made, is uſed for the Thing itſelf; as *Steel* for *Sword*, *Silver* for *Money*, &c.

To which may be added another Kind, where the Species is uſed for the Genus, or the Genus for the Species.

The Word is *Greek*, form'd of συνεκδέχομαι, I take together.

SYNEDRIN, or SYNEDRION. See Sanhedrin.

SYNERPHONESIS, in Grammar, an Union, or Colliſion of Vowels, whereby two Syllables are pronounc'd as one. See Syllable.

'Tis much the ſame Thing as *Synalæpha*, or *Synereſis*. See Synalæpha, *&c.*

SYNEUROSIS, in Anatomy, a kind of Articulation, or Jointure of the Bones. See Articulation.

The *Syneuroſis* is reckon'd a Branch of the *Symphiſis*; and is, when the Bones are connected together by a Ligament: as is that of the Os Femoris to the Os Iſchium; that of the Patella to the Tibia. See Symphisis.

The Word is form'd from the *Greek*, σὺν, with, and νεῦρον, Nerve.

SYNOCHA, and *Synochos*, in Medicine, are Terms borrowed from συνόχεω, *ſuſtineo*, I ſupport, or hold up; or συνέχω, *continuo*, I continue. The Practice of Authors, with regard to theſe two Words, is whimſical enough: Literally they both ſignify the ſame Thing; yet is the former uſed to ſignify an intermitting, and the latter a continu'd Fever. See Fever.

SYNOD, in Aſtronomy, a Conjunction, or Concourſe of two Stars, or Planets in the ſame optical Place of the Heavens. See Conjunction.

Synod, in Church Hiſtory, a *Council*, or Meeting, or Aſſembly of Eccleſiaſticks, to conſult Matters of Religion. See Council.

Of theſe there are four Kinds, *viz.* *General*, or *Oecumenical*, where Biſhops, *&c.* meet from all Nations. See Oecumenical.

National; where thoſe of one Nation only come together.

Provincial; where they of one only Province meet. And

Dioceſan; where thoſe of but one Dioceſe meet. See Convocation.

The Word is form'd from the *Greek*, συνοδός, Aſſembly.

SYNODALS, or SYNODIES, were Pecuniary Rents (commonly of two Shillings) paid to the Biſhop, at the Time of the Annual Synod, by every Parochial Prieſt.

For the Biſhops uſed to hold their Dioceſan Synods, and to viſit all at once; from whence theſe *Synodals* are accounted amongſt the Biſhop's Procurations at this Time.

Synodales *Teſtes*; the urban and rural Deans were at firſt ſo call'd, from their informing againſt, and atteſting the Diſorders of the Clergy and People in the Epiſcopal Synod. But when they ſunk in their Authority, in their ſtead roſe *Synodical* Witneſſes, who were a Sort of impannel'd Jury, conſiſting of a Prieſt, and two or three Laymen for every Pariſh; though at length two for every Dioceſe were annually choſen; till at laſt the Office came to be devolv'd on the Church-Wardens. Some think our Queſt-men, who are Aſſiſtants to the Church-Wardens, were call'd Sides-men, *quaſi* Synod-men. See Sides-*Men*.

Synodale *Inſtrumentum*; was the ſolemn Oath that theſe *Synodical* Witneſſes took; as our Church-Wardens now are ſworn to make their juſt Preſentments.

SYNODICAL, ſomething belonging to a *Synod*.

Thus *Synodical Letters*, are Circular Letters wrote by *Synods* to the abſent Prelates and Churches; or even thoſe general ones directed to all the Faithful, to inform them of what had paſs'd in the *Synod*.

In the Collection of Councils are abundance of theſe *Synodical Letters*.

Synodical *Month*, is the Period or Interval of Time, wherein the Moon, departing from the Sun at a Synod or Conjunction, returns to him again. See Moon.

Kepler found the Quantity of the mean *Synodical Month*, 29 Days, 12 Hours, 44 Minutes, 3 Seconds, 11 Thirds. See Month.

This Period is alſo call'd a *Lunation*; in Regard, in the Courſe hereof, the Moon puts on all her Phaſes or Appearances. See Lunation.

SYNOD's-*Men*, or *Teſtes Synodales*. See Sides-men.

SYNOESIA, in Antiquity, a Feaſt celebrated at *Athens*; in Memory of *Theſeus*'s having united all the petty Communities of *Attica*, into one ſingle Commonwealth; the Seat whereof was *Athens*; where all the Aſſemblies were to be held.

The Feaſt was dedicated to *Minerva*; and, according to the Scholiaſt of *Thucydides*, was held in the Month Metagitnion.

SYNONYMOUS, an Epithet apply'd to a Word or Term that has the ſame Import, or Signification with another; call'd alſo *Synonyma*. Some ſevere Criticks condemn all Uſe of *Synonymous* Terms in the ſame Period; but this is to condemn all Antiquity. So far is the Uſe thereof from being vicious, that 'tis frequently neceſſary; as they contribute both to the Force and Clearneſs of the Expreſſion. If the firſt sketch out the Reſemblance of the Thing it repreſents, the *Synonyma* that follows, is, as it were, a ſecond Touch of the Pencil, and finiſhes the Image.

Indeed they muſt be uſed with a deal of Diſcretion and Oeconomy. The Stile muſt be rais'd and brighten'd, not ſtuff'd or loaded with *Synonymous* Terms. They muſt be uſed as Ornaments, and to render the Expreſſion the more forcible, without making a Shew of the Riches thereof, or heaping *Synonyma's* on *Synonyma's*.

But, tho' *Synonymous* Words be laudable, *Synonymous* Phraſes are inexcuſable: The Reaſon is, that two *Synonymous* Phraſes keep the Mind at Reſt, and let it flag and languiſh.

SYNONYMY, in Rhetoric, a Figure whereby *Synonyma's*, or *Synonymous* Terms, that is, various Words of the ſame Signification, are made Uſe of to amplify the Diſcourſe.

As *abiit*, *evaſit*, *effugit*, he went off, he eſcap'd, he run away.

The Word is form'd from the *Greek*, σὺν, with, and ονομος, Name.

SYNOVIA, in Medicine, a Term uſed by ſome Authors for the nutritious Juice proper to each Part. See NUTRITION.

Others uſe it for the Gout, and other Diſeaſes ariſing from a Vice in the nutritious Juice.

Others reſtrain it to the oozing out of the nutritious Juice thro' the wounded Parts.

Van Helmont defines it a kind of tranſparent Mucilage, like Seed, ſuch as iſſues from the Legs of a Calf upon cutting off the Feet.

SYNTAGMA, a diſpoſing, or placing of Things in an orderly Manner.

The Word is *Greek*, σύνταγμα.

SYNTAX, in Grammar, the Conſtruction or Connection of the Words of a Language into Sentences, or Phraſes. See WORD, SENTENCE, PHRASE, *&c.*

Or, as F. *Bouffier* more accurately defines it, *Syntax* is the Manner of conſtructing one Word with another, with regard to the different Terminations thereof, preſcrib'd by the Rules of Grammar. See CONSTRUCTION and GRAMMAR.

Some Authors, as M. *Vaugelas*, *&c.* confound it with Style; but there is a real Difference. See STYLE.

The Office of *Syntax*, is to conſider the natural Suitableneſs of Words with reſpect to one another; in order to make them agree in Gender, Number, Perſon, Mood, *&c.*

To offend in any of theſe Points, is call'd to offend againſt *Syntax*: and ſuch kind of Offence, when groſs, is call'd a *Soleciſm*; and when more ſlight, a *Barbariſm*. See SOLECISM and BARBARISM.

The ſeveral Parts of Speech, are, with regard to Language, what Materials are with regard to a Building. How well prepar'd ſoever they may be, they will never make a Houſe, unleſs they be plac'd conformably to the Rules of Architecture. 'Tis the *Syntax*, then, that properly gives the Form to the Language; and 'tis this makes the moſt eſſential Part of Grammar.

There are two Kinds of *Syntax*; the one of *Concord*, wherein the Words are to agree in Gender, Number, Caſe, and Perſon. See CONCORD.

The other, of *Regimen* or *Government*, wherein one Word governs another, and occaſions ſome Variation therein. See REGIMEN.

The firſt, generally ſpeaking, is the ſame in all Languages, as being the natural Series of what is in Uſe almoſt every where, the better to diſtinguiſh Diſcourſe. Thus, the Diſtinction of two Numbers, Singular and Plural, has render'd it neceſſary to make the Subſtantive agree with the Adjective in Number; that is, to make the one ſingular or plural, when the other is ſo: For, as the Subſtantive is the Subject confuſedly, tho' directly, mark'd by the Adjective; if the Subſtantive expreſs ſeveral, there are ſeveral Subjects to be expreſs'd in that Form by the Adjective: And by Conſequence it ought to be in the Plural; as *Homines Docti*, learned Men: But there being no Termination in the Adjective in *Engliſh* to diſtinguiſh the Number, it is only imply'd. See NUMBER.

The Diſtinction of Maſculine and Feminine Gender, obliges the Languages, which have diſtinct Terminations, to have a Concordance or Agreement between the Subſtantive and Adjective, in Gender as well as Number: And for the ſame Reaſon, the Verbs are to agree with the Nouns and Pronouns in Number and Perſon. If at any Time we meet with any thing that ſeems to contradict theſe Rules, 'tis by a Figure of Speech, *i. e.* by having ſome Word underſtood, or by conſidering the Thoughts rather than the Words themſelves. See GENDER.

The *Syntax* of *Government*, on the contrary, is generally arbitrary; and, on that Account, differs in moſt Languages. One Language, for Inſtance, forms their Regimen by *Caſes*; as the *Latin* and *Greek*: others uſe *Particles* in lieu thereof; as the *Engliſh*, *French*, *Italian*, *Spaniſh*, &c. See CASE and PARTICLE.

One or two general Rules, however, may be here noted, which are of Uſe in all Languages. 1°. That there is no Nominative Caſe, but has a Relation to ſome Verb, either expreſs'd or underſtood; ſince we never ſpeak merely to expreſs what we conceive, but to expreſs what we think of what we conceive, which is done by the Verb. See NOMINATIVE.

2°. That there is no Verb but has its Nominative Caſe either expreſs'd or underſtood; for the Office of the Verb being to affirm, there muſt be ſomething to affirm of; which is the Subject or Nominative Caſe of the Verb; tho' before an Infinitive 'tis an Accuſative; as *Scio Petrum eſſe doctum*, I know *Peter* to be learned. See VERB.

3°. That there is no Adjective but has a Relation to ſome Subſtantive; in regard the Adjective marks confuſedly the Subſtantive, which is the Subject of the Form or Quality diſtinctly mark'd by the Adjective. See ADJECTIVE.

4°. That there never comes any Genitive Caſe but is govern'd by ſome other Noun. See GENITIVE.

5°. The Government of Verbs is frequently taken from various Sorts of References, included in the Caſes, according to the Caprice of Cuſtom or Uſage; which yet does not change the ſpecific Relation of each Caſe, but only ſhews that Cuſtom has made Choice of this or that. Thus, the *Latins* ſay, *Juvare aliquem & opitulari alicui*; the *French*, *Servire quelqu un & ſervir a quelque choſe*; and in the *Spaniſh*, the Generality of Verbs govern indifferently a Dative and an Accuſative Caſe.

SYNTECTOE, in Medicine, a kind of Colliquation of the Solids of the Body; ſuch as frequently happens in Inflammations of the Bowels, Colliquative Fevers, *&c.* wherein a fatty Uliginous is voided with the Excrements by Stool. See COLLIQUATION.

SYNTHESIS, the *Compoſition* or putting of ſeveral Things together; as the making a compound Medicine of ſeveral ſimple Ingredients, *&c.*

The Word is form'd from the *Greek* σὺν, with, and θέσις, *poſitio*.

SYNTHESIS, in Logic, *&c.* a Branch of *Method*, oppoſite to *Analyſis*. See METHOD.

In the *Syntheſis*, or *Synthetic Method*, we purſue the Truth by Reaſons drawn from Principles before eſtabliſh'd or aſſum'd, and Propoſitions formerly proved; thus proceeding by a regular Chain, till we come to the Concluſion.

Such is the Method in *Euclid*'s Elements, and moſt Demonſtrations of the ancient Mathematicians; which proceed from Definitions and Axioms, to prove Propoſitions, *&c.* and from thoſe Propoſitions proved, to prove others.

This Method we alſo call *Compoſition*, in oppoſition to *Analyſis*, which we call *Reſolution*. See COMPOSITION.

SYNTHESIS, in Grammar. See SYLLEPSIS.

SYNTHESIS, in Chirurgery, an Operation, whereby divided Parts are re-united; as in Wounds, Fractures, *&c.*

SYNUSIASTS, or SYNOSIASTS, a Sect of Hereticks, who maintain'd, that there was but one ſingle Nature, and one ſingle Subſtance in *Jeſus Chriſt*.

The *Synuſiaſts* denied, that the Word had taken a Body in the Womb of the Virgin; but held, that a Part of the divine Word being detach'd from the reſt, was there changed into Fleſh and Blood. Thus they taught, that *Jeſus Chriſt* was conſubſtantial to the Father, not only as to his Divinity, but even as to his Humanity and his Body.

The Word is form'd from the *Greek*, σὺν, with, and ουσία, Subſtance.

SYPHILIS, is a Term uſed for the *Lues Venerea*. See VENEREAL.

Some will have it from σὺν, *cum*, with, and φιλία, *Amor*, or *Amicitia*, Love or Friendſhip; becauſe it proceeds from the infectious Intercourſes of Lovers in Coition. Others will have it from the Name of a Shepherd ſo called, who was remarkably afflicted with it.

However, ſome Authors of Note uſe the Term; and *Fracaſtorius* a famous *Italian* Phyſician, gives it for the Title of a fine Poem, which he wrote upon that Diſtemper.

SYPHON. See SIPHON.

SYRENS, SIRENES, in Antiquity, *Mermaids*, or certain fabulous Beings, repreſented by *Ovid*, *&c.* as Sea-monſters, with Womens Faces and Fiſhes Tails; by others, deck'd with a Plumage of the gayeſt Colours.

They are ſuppoſed to have been the Three Daughters of the River *Achelous*; and call'd *Parthenope*, *Ligea*, and *Leucoſia*.

Homer only makes mention of Two *Syrens*; but others reckon Five. *Virgil* places them on Rocks, where Veſſels are in danger of ſplitting. *Pliny* makes them inhabit the Promontory of *Minerva*, near the Iſland *Caprea*. Others fix them in *Sicily*, near *Cape Pelorus*. *Claudian* ſays, they inhabited harmonious Rocks; that they were charming Monſters; and that Sailors were wreck'd on their Rocks without Regret, and even expir'd in Raptures: *Dulce malum Pelago Siren.*

This Deſcription is, doubtleſs, founded on a literal Explication of the Fable, that they were Women who inhabited the Shores of *Sicily*, and who, by all the Allurements of Pleaſure, ſtopp'd Paſſengers, and made them forget their Courſe. Some Explainers of the ancient Fables, will have the Number and the Names of the Three *Syrens*, to have been form'd on the Triple Pleaſure of the Senſes, Wine, Love and Muſic; which are the three moſt powerful Means of ſeducing Men; and hence ſo many Exhortations to avoid the fatal *Syrens* Song.

Probably 'twas hence, that the *Greeks* fetch'd their Etymology of *Syren*, *viz.* from σειρὰ, a Chain, as if there was no getting free of their Enticement.

Others, who don't look for ſo much Myſtery in the Fable, maintain, that the *Syrens* were nothing but certain cloſe Places in the Sea, where the Waves whirling furiouſly around, ſeiz'd and ſwallow'd up Veſſels that approach'd them too near.

Laſtly, others allow them to have been certain Shores and Promontories, where the Winds, by the various Reverberations and Echo's, cauſe a kind of Harmony, that ſurprizes and ſtops Paſſengers. This, probably, might be the Origin of the *Syrens* Song, and of the giving the Name of *Syrens* to theſe Rocks. The *Sculptors* and Painters uſually follow *Ovid*'s Deſcription; but on ſome Medals, we find them repreſented with the upper Parts of Women, and the lower, of Birds.

SYRINGE, an Inſtrument ſerving to imbibe or ſuck up a Quantity of any Fluid, and to expel the ſame with violence.

The *Syringe* is made of a hollow Cylinder, as ABCD (Tab. Hydroſtaticks, Fig. 26.) furniſhed with a little Tube at bottom, EF. In this Cylinder, is an Embolus, K, made or at leaſt cover'd with Leather, or other Matter, that eaſily takes Moiſture; and ſo filling the Cavity of the Cylinder, as that no Air or Water may paſs between the one and the other.

If, then, the little Tube F be put in Water, and the Embolus drawn out; the Water will aſcend into the Cavity left by the Embolus: And upon thruſting back the Embolus, it will be violently expell'd again through the Tube EF: And ſtill, the greater Impetus will the Water be expell'd withal, and to the greater Diſtance, as the Embolus is thruſt down with the greater Force, or the greater Velocity.

This Aſcent of the Water, the Ancients, who ſuppoſed a Plenum, attributed to Nature's Abhorrence of a Vacuum: But the Moderns, more reaſonably, as well as more intelligibly, attribute it to the Preſſure of the Atmoſphere on the Surface of the Fluid. See Air and Vacuum.

For, by drawing up the Embolus, the Air left in the Cavity of the Cylinder muſt be exceedingly rarified; ſo that being no longer a Counter-balance to the Air incumbent on the Surface of the Fluid; that prevails, and forces the Water through the little Tube, up into the Body of the *Syringe*.

In effect, a *Syringe* is only a ſimple Pump, and the Water aſcends in it on the ſame Principle, as in the common ſucking Pump; whence it follows, that Water will not be raiſed in a *Syringe*, to a Height exceeding 31 Feet. See Pump and Suction.

Syringes are of conſiderable Uſe in Medicine and Chirurgery. By them Clyſters are adminiſtred: Injections of medicinal Waters, &c. made into Wounds, &c. They alſo ſerve to inject colour'd Liquors, melted Wax, &c. into the dried Veſſels of the Parts of Animals, to ſhew the Diſpoſition, Texture, Ramifications, &c. thereof. See Injection.

The Word is form'd from the *Latin*, *Syrinx*, Pipe.

SYROP, in Pharmacy, an agreeable Liquor, or Compoſition, of a moderately thick Conſiſtence, extracted from Juices, Tinctures, or Waters of Fruits, Flowers, or Herbs boil'd, and ſeaſon'd with Sugar, or Honey; and taken either for Health or Pleaſure.

There are various Kinds of *Syrops*, denominated from the various Fruits, &c. they are extracted from; as *Syrop* of Violets, of Elder, of Wormwood, of Poppies, &c. *Emetic Syrops*, *Lienteric* and *Antinephritic Syrops*, &c. *Chologogue*, *Phlegmagogue Syrops*, &c.

The *Syrop of Sapor* is a *Syrop*, the Baſe whereof is Apples, with Juices of Bugles, Annis, Saffron, &c. thus call'd from *Sapor* King of *Perſia*, who overcame the Emperor *Valerian*, ſuppos'd to be the Inventer thereof.

The Word, *Menage* derives from the *Latin Syropus*, of the *Arab Schirab*, which ſignifies *Potion*. Others derive it from the *Greek*, σύρω, I draw, and ὀπὸς, Juice. *Skinner* thinks the Word might come from the *Greek* Συρίας, *Syria*, in regard theſe Kinds of Liquors were much in Uſe among the *Syrians*, a very delicate People; tho' he thinks it ſhould rather be deriv'd from the *Arabic Siruph*, which ſignifies the ſame Thing as *Syrop*, or from *Sark* or *Sirab*, a Potion, or Medicinal Drink.

D. Herbelot obſerves, that the Words *Syrop*, and *Sherbet*, or *Sorbet*, all come from the *Arabic*, *Scharab*, which ſignifies any Kind of Drink in the general. See Sherbet.

Syrop *of Alkemes*	See	Scarlet.
Syrop *of Diacodium*		Diacodium.
Syrop *of Capillaries*		Capillaries.
Syrop *of Lemon*		Citron.
Syrop *of Sugar*		Molosses.
Syrop *of Violets*		Violets.

SYSSARCOSIS, in Anatomy, a particular Species of the Kind of Articulation call'd *Symphiſis*. See Symphisis.

The *Syſſarcoſis* is a natural Union of two Bones, by Means of Fleſh or Muſcles: Such is that of the Os Hyoides, and Omoplata.

The Word is *Greek*, compounded of σὺν, with, and σὰρξ, Fleſh.

SYSTEM, in the general, a certain Aſſemblage, or Chain of Principles and Concluſions: Or the Whole of any Doctrine, the ſeveral Parts whereof are bound together, and follow or depend on each other.

The Word is form'd of the *Greek*, Σύστημα, Compoſition.

In this Senſe, we ſay, a *Syſtem of Philoſophy*; a *Syſtem of Motion*; a *Syſtem of Fevers*, &c. The Divines have framed abundance of *Syſtems of Grace*: The *Syſtems* of *intermediate Science*, and *Prædetermination*, are invented to explain that of Grace. See Grace, &c.

Among Phyſicians, ſome follow the *Syſtem of Alcali* and *Acid*; others that of the four Qualities, &c. Dr. *Woodward* accounts for moſt Things on his *Syſtem* of the Bile.

Des Cartes's *Syſtem* is held very deſtructive to Religion. See Cartesianism, Cause, &c.

Gaſſendi renewed the ancient *Syſtem of Atoms*; which was that of *Democritus*, followed by *Epicurus*, *Lucretius*, &c. See Corpuscular.

Sir *Iſaac Newton*'s Doctrine of Colours; M. *Leibniz*'s *Protogæa*, and ſome Diſcourſes of M. *Juſſieu*, to the Academy of Sciences, to ſhew that there are Bodies, whoſe Parts are not to be deſtroy'd by any natural Agents; are very favourable to the *Syſtem* of *Gaſſendi*. See Atom.

Experiments are the Materials of *Syſtems*: An Infinity are required to build one. See Experiment.

System, in Aſtronomy, an Hypotheſis or Suppoſition of a certain Order, and Arrangement of the ſeveral Parts of the Univerſe; whereby Aſtronomers explain all the Phænomena, or Appearances of the heavenly Bodies, their Motions, Changes, &c. call'd, alſo, the *Syſtem of the World*, and the *Solar Syſtem*. See World.

Syſtem and *Hypotheſis*, have the ſame Signification; unleſs, perhaps, *Hypotheſis* be a more particular *Syſtem*; and *Syſtem* a more general *Hypotheſis*. See Hypothesis.

Some late Authors, indeed, furniſh a freſher Diſtinction: An Hypotheſis, ſay they, is a mere Suppoſition, or Fiction; founded rather on Imagination, than Reaſon: A *Syſtem* is only built on the firmeſt Ground, and raiſed by the ſevereſt Rules: 'Tis founded on Aſtronomical Obſervations, and Phyſical Cauſes, and confirm'd by Geometrical Demonſtrations.

The moſt celebrated *Syſtems of the World*, are the *Ptolomaic*, and the *Copernican*; to which may be added, the *Tychonic*: The Oeconomy of each whereof, is as follows;

Ptolomaic System places the Earth at Reſt, in the Centre of the Univerſe; and makes the Heavens revolve round the ſame from *Eaſt* to *Weſt*, and carry all the heavenly Bodies, Stars and Planets along with them. See Ptolomaic.

For the Order, Diſtances, &c. of the ſeveral Bodies in this Syſtem, *ſee Plate Aſtronomy, Fig.* 43.

The principal Aſſerters of this *Syſtem*, are *Ariſtotle*, *Hipparchus*, *Ptolomy*, and many of the old Philoſophers, followed by the whole World, for a great Number of Ages; and ſtill adhered to in ſome of our Univerſities, and other Places, where free Philoſophizing is excluded: But the late Improvements have put it out of all Countenance; and we don't even want Demonſtration againſt it. See Earth, &c.

Copernican System, places the Sun at reſt, nearly in the Centre of the *Syſtem*; excepting for a vertiginous Motion about his own Axis. See Sun.

Around him, move from *Weſt* to *Eaſt*, in ſeveral Orbits, firſt *Mercury*, then *Venus*, the *Earth*, *Mars*, *Jupiter* and *Saturn*. See Planet.

About the Earth, in a peculiar Orbit, moves the Moon; accompanying the Earth, in its whole Progreſs round the Sun. See Moon.

And after the ſame Manner, do four Satellites move round *Jupiter*; and Five round *Saturn*. See Satellites.

Athwart the planetary Space do the Comets move round the Sun; only in very excentrick Orbits, probably Parabola's, in one of whoſe *Foci* is the Sun. See Comet.

At an immenſe Diſtance beyond the Planetary and Cometary Spaces, are the fix'd Stars, which have all a proper Motion from *Weſt* to *Eaſt*. See Star.

The *Solar* or *Planetary Syſtem*, is uſually confined to narrower Bounds: The Stars, by their immenſe Diſtance, and the little Relation they appear to bear to us, being reputed no Part thereof. 'Tis highly probable, that each Star, is, itſelf, a Sun; and the Centre of a particular *Syſtem*, ſurrounded with a Company of Planets, &c. which, in different Periods, and at different Diſtances, perform their Courſes round their reſpective Sun; and are enlighten'd, warm'd and cheriſh'd, &c. thereby: Hence we have a very magnificent Idea of the

World, and the Immenſity thereof: Hence ariſes a *Syſtem* of *Syſtems*. See UNIVERSE.

The *planetary Syſtem*, here deſcribed, is the moſt ancient in the World. 'Twas the firſt that we know of, introduced into *Greece* and *Italy* by *Pythagoras*; whence, for many Ages, it was call'd the *Pythagorian Syſtem*. It was followed by *Plato*, *Archimedes*, *&c.* but loſt under the Reign of the *Peripatetic Philoſophy*; till happily retrieved above 200 Years ago by *Nic. Copernicus*; whence its new Appellation, of *Copernican Syſtem*. See COPERNICAN.

For the Oeconomy of the Copernican Syſtem; ſee the Scheme thereof, Tab. Aſtronomy, Fig. 44.

Tychonic SYSTEM, in moſt reſpects, coincides with the *Copernican*; except in this, that, ſuppoſing the Earth to be fix'd, its Orbit is omitted, and in lieu thereof, the Sun's Orbit is drawn round the Earth, and made to interſect the Orbit of *Mars*; that *Mars* may be nearer the Earth than the Sun. But as there is not any Reaſon, or Foundation in Nature, for ſuch a manifeſt Shift; and as the Author was only led thereto, from a ſuperſtitious Perſuaſion, that to ſuppoſe the Sun at Reſt, and the Earth to move, is contrary to Scripture; the true *Syſtem* is not much prejudiced hereby. See EARTH.

For the Order and Oeconomy of the Tychonic Syſtem; ſee the Scheme in Tab. Aſtronomy, Fig. 45.

SYSTEM, in Poetry, is a certain Hypotheſis, from which the Poet is never to recede; *e.gr.* Having made his Choice either in the Fables of the Heathens, or in Chriſtianity; he muſt always diſtinguiſh between the Two; and never mix ſuch different Ideas in the ſame Poem. Thus, after invoking *Apollo* and the Muſes, he muſt bid adieu to the Language of Chriſtianity, and not confound the two *Syſtems*. The Fabulous Stile, indeed, is the Gayer and more Figurative; but a Pagan God makes but a miſerable Figure in a Chriſtian Poem. The *Syſtem* of Poetry, *Bouhours* obſerves, is, itſelf, wholly Fabulous and Pagan.

SYSTEM, in Muſic, a compound Interval; or an Interval compoſed, or conceived to be compoſed, of ſeveral leſſer; ſuch is the Octave, *&c.* See INTERVAL.

The Word is borrowed from the Ancients, who call a ſimple Interval, *Diaſtem*, and a Compound one *Syſtem*.

As there is not any Interval in the Nature of Things; ſo we can conceive any given Interval, as compoſed of, or equal to the Sum of ſeveral others. This Diviſion of Intervals, therefore, only relates to Practice; ſo that a *Syſtem* is properly an Interval, which is actually divided in Practice, and where, along with the Extremes, we conceive always ſome intermediate Terms. The Nature of a *Syſtem* will be very plain, by conceiving it an Interval, whoſe Terms are in Practice, taken either in immediate Succeſſion; or the Sound is made to riſe and fall, from the one to the other, by touching ſome intermediate Degrees; ſo that the whole is a *Syſtem* or Compoſition of all the Intervals, between one Extreme and the other. *Syſtems* of the ſame Magnitude, and conſequently of the ſame Degree of Concord and Diſcord, may yet differ in reſpect of their Compoſition; as containing and being actually divided into more or fewer Intervals: And when they are equal in that reſpect, the Parts may differ in Magnitude. Laſtly, when they conſiſt of the ſame Parts, or leſſer Intervals, they may differ as to the Order and Diſpoſition thereof between the two Extremes.

There are ſeveral Diſtinctions of *Syſtems*; the moſt remarkable is, into *Concinnous* and *Inconcinnous*.

Concinnous Syſtems, are thoſe conſiſting of ſuch Parts, as are fit for Muſic, and thoſe Parts, placed in ſuch an Order between the Extremes, as that the Succeſſion of Sounds, from one Extreme to the other, may have a good Effect. See CONCINNOUS.

Inconcinnous Syſtems, are thoſe, where the ſimple Intervals are *Inconcinnous*, or ill diſpoſed betwixt the Extremes.

A *Syſtem*, again, is either *Particular* or *Univerſal*. An *univerſal Syſtem*, is that which contains all the particular *Syſtems* belonging to Muſic; and makes what the Ancients call the *Diagramma*, and we the *Scale of Muſic*. See SCALE.

The Ancients alſo diſtinguiſh *Syſtems* into *Perfect* and *Imperfect*. The Diſdiapaſon, or double Octave, was reckon'd the *perfect Syſtem*, becauſe within its Extremes, are contained Examples of all the ſimple and original Concords, and in all the Variety of Order wherein their concinnous Part ought to be taken; which Variety conſtitutes what they call the *Species* or *Figures of Conſonances*.

All the *Syſtems*, leſs than the *Diſdiapaſon*, were reckoned *Imperfect*.

The double Octave was alſo called the *Syſtema Maximum*, and *Immutatum*; becauſe they took it to be the greateſt Extent or Difference of Time that we could go in making Melody; though ſome added a Fifth to it, for the greateſt *Syſtem*: But the Diapaſon, or ſimple Octave, was reckon'd the moſt perfect, with reſpect to the Agreement of its Extremes; ſo that how many Octaves ſoever were put into the greateſt *Syſtem*, they were all to be conſtituted or ſub-divided the ſame Way as the Firſt: So that when we know how the Octave is divided, we know the Nature of the *Diogramma* or *Scale*: The Varieties whereof, conſtituted the *Genera Melodiæ*, which were ſub-divided into Species. See GENERA and SPECIES.

SYSTOLE, in Medicine, the Contraction of the Heart and Arteries of an Animal. See HEART and ARTERY.

The *Syſtole of the Heart* is well accounted for by Dr. *Lower*, who ſhews, that the Heart is a true Muſcle, the Fibres whereof are acted on like thoſe of other Muſcles, by Means of certain Branches of the eight Pair of Nerves inſerted into it, which bring the Animal Spirits from the Brain hither. By a Flux of theſe Spirits, the Muſcular Fibres of the Heart are inflated, and thus ſhorten'd; the Length of the Heart diminiſh'd, its Breadth or Thickneſs increas'd, the Capacity of the Ventricles cloſ'd, the tendonous Mouths of the Arteries dilated, thoſe of the Veins ſhut up by means of their Valves, and the contain'd Juices forcibly expreſs'd into the Orifices of the Arteries. See MUSCLE.

And this we call the Συϛολὴ, or Contraction of the Heart; the oppoſite State to which is call'd the *Diaſtole*, or Dilatation of the Heart. See DIASTOLE.

Dr. *Drake* adds to Dr. *Lower*'s Account, that the intercoſtal Muſcles and Diaphragm, contribute to the *Syſtole*, by opening the Blood a Paſſage from the right Ventricle of the Heart, to the left thro' the Lungs, to which it could not otherwiſe paſs: By which Means, the Oppoſition the Blood contain'd in that Ventricle muſt neceſſarily have made to its Conſtruction, is taken off. See CONTRACTION.

Lower and *Drake* make the *Syſtole* the natural State or Action of the Heart, and the *Diaſtole* the violent one: *Boerhaave*, on the contrary, makes the *Syſtole* the violent, and the *Diaſtole* the natural State.

SYXHINDEMEN, a Term purely *Saxon*, literally ſignifying 600 Men, or Men worth 600 Shillings.

In the Time of our *Saxon* Anceſtors, all Men were rank'd into three Claſſes; the *loweſt*, the *middle*, and the *higheſt*; and were valu'd according to their Claſs: that if any Injury were done, Satisfaction might be made to the Value or Worth of the Man it was done to.

The *loweſt* were call'd *Twyhindemen*, *q. d.* valued at 200 Shillings; the *middle*, *Syxhindemen*, *q. d.* valued at 600 Shillings; and the *higheſt*, *Twelfhindemen*, *i. e.* valued at 1200 Shillings.

SYZYGY, in Aſtronomy, a Term equally uſed for the Conjunction and Oppoſition of a Planet with the Sun. See CONJUNCTION and OPPOSITION.

The Word is form'd from the *Greek*, *συζυγία*, *Conjunctio.*

On the Phænomena and Circumſtances of the *Syzygies*, a great Part of the Lunar Theory depends. See MOON.

For, 1°. It is ſhewn in the Phyſical Aſtronomy, that the Force which diminiſhes the Gravity of the Moon in the *Syzygies*, is double that which increaſes it in the Quadrature: So that in the *Syzygies* the Gravity of the Moon from the Action of the Sun is diminiſh'd by a Part, which is to the whole Gravity as 1 to 89,36; for in the Quadratures, the Addition of Gravity is to the whole Gravity as 1 to 178,73. See QUADRATURE.

2°. In the *Syzygies*, the diſturbing Force is directly as the Diſtance of the Moon from the Earth, and inverſely as the Cube of the Diſtance of the Earth from the Sun. And at the *Syzygies*, the Gravity of the Moon towards the Earth, receding from its Centre, is more diminiſh'd, than according to the inverſe Ratio of the Square of the Diſtance from that Centre. Hence, in the Motion of the Moon from the *Syzygy* to the Quadrature, the Gravity of the Moon towards the Earth is continually increas'd, and the Moon is continually retarded in its Motion; and in the Motion from the Quadratures to the *Syzygies*, the Moon's Gravity is continually diminiſh'd, and its Motion in its Orbit accelerated. See GRAVITY.

3°. Further, in the *Syzygies* the Moon's Orbit or Circle round the Earth, is more convex than in the Quadratures; for which Reaſon the Moon is leſs diſtant from the Earth at the former than the latter. When the Moon is in the *Syzygies*, her Apſides go backwards, or are retrograde. See ORBIT, APSIDES and RETROGRADATION.

When the Moon is in the *Syzygies*, the Nodes move in Antecedentia faſteſt; then ſlower and ſlower, till they become at reſt when the Moon is in the Quadratures. See NODE.

Laſtly, When the Nodes are come to the *Syzygies*, the Inclination of the Plane of the Orbit is leaſt of all. See INCLINATION.

Add, that theſe ſeveral Irregularities are not equal in each *Syzygy*, but all ſomewhat greater in the Conjunction than the Oppoſition. See DISTURBING *Force*, *&c.*

T.

T, A Conſonant, and the nineteenth Letter in the Alphabet. See LETTER.

The *T*, in Sound, bears a near Reſemblance to the D, for which Reaſon they are often put for each other; and *Quintilian* even rallies thoſe who ſcrupled to write the one indifferently for the other; as *at* for *ad*, *ſet* for *ſed*, *haut* for *haud*, &c.

The *T* is one of the five Conſonants which the Abbot *de Dangeau* calls *Palatal*, and which are *D-T*, *G-K*, and *N*: The four firſt whereof have the ſame Relation to each other, as the Labials *B-P* and *V-F* have. *D*, for Inſtance, having the ſame Relation to *T*, that *B* has to *P*, or *V* to *F*. See PALATAL.

The *T*, the ſame Author obſerves, is a Letter of a ſtrong Sound; ſo that a feeble one cannot be pronounc'd before it: Thus to form the Supine of *rego*, the *T* of *tum* changes the *b*, and ſtrengthens it to the Sound of a *c*; ſo that we ſay *rectum*; as in the preterperfect Tenſe *rexi*, which we pronounce *rekſi*.

T among the Ancients was uſed as a Numeral Letter, ſignifying 160; according to the Verſe,

T quoque centenos & Sexaginta tenebit.

When a Daſh was added a-top, thus, T̄, it ſignify'd 160,000. When the Tribunes approv'd of the Decrees of the Senate, they teſtify'd their Conſent by ſubſcribing a *T*.

T, in Muſic, is ſometimes uſed to mark the Tenor. See TENOR.

T is alſo a Mark, or Brand, which by Statute 4 *Hen.* 7. every Perſon convicted of any Felony, ſave Murther, and admitted to the Benefit of the Clergy, ſhall be mark'd withal, on the Brawn of the left Thumb. See STIGMA.

T, or TAU, in Heraldry, is a kind of Croſs potent, or truncated; found in all the Armories of the Commanders of the Order of St. *Anthony*. See CROSS.

The *T*, *Tau*, azure, is ſeen in Arms above 400 Years old: Its Origin, according to ſome Authors, is taken from the Apocalypſe; where the ſame is a Mark that the Angel impreſſes on the Foreheads of the Elect. Others take it to repreſent a Crutch; a Symbol proper enough for this Order, which was ſworn to Hoſpitality. But the Truth, F. *Meneſtrier* obſerves, is, that 'tis the Top of a *Greek* Croſs.

The Biſhops and Abbots of the *Greek* Church wear it ſtill; and if it be found on the Habit of St. *Anthony*, 'tis only to ſhew that he was an Abbot.

TABACCO. See TOBACCO.

TABBY, in Commerce, a kind of coarſe Taffaty, water'd. It is manufactured like the common Taffaty, excepting that 'tis ſtronger and thicker both in the Woof and Warp. See TAFFATY.

The Watering is given it by means of a Calender, the Rolls whereof are of Iron or Copper, variouſly engraven, which bearing unequally on the Stuff, render the Surface thereof unequal, ſo as to reflect the Rays of Light differently. See CALENDER.

TABBYING, the paſſing a Stuff under the Calender, to make a Repreſentation of Waves thereon, as on a Tabby. See CALENDER.

'Tis uſual to *tabby* Mohairs, Ribbonds, &c.

Tabbying is perform'd without the Addition of any Water or Dye; and furniſhes the modern Philoſophers with a ſtrong Proof, that Colours are only Appearances. See COLOUR.

TABELLA, or TABLETTE, in Pharmacy, a ſolid Electuary, or Compoſition of ſeveral Drugs, made up dry, and form'd into little Squares; more uſually call'd *Lozenges*. See LOZENGE.

Powders, Confections, Fruits, Salts, &c. are diſſolv'd, in Sugar, and made into *Tabulæ*; as thoſe of the Juice of Liquorice for Colds, &c.

We have Cordial, Stomachic, Aperitive, Hepatic, &c. *Tablettes.* Jellies and Broths are ſometimes reduc'd into *Tablettes*, to be carry'd in the Pocket. There are *Tablettes* of *Manus Chriſti*, or Sugar of Roſes pearled. *Tabellæ Magnanimitatis*, are thoſe taken by feeble old Men, when match'd with young Wives, to aſſiſt and bear them out in the Affair of Generation.

TABELLION, TABELLIO. TABULARIUS, in the *Roman* Law, a kind of Officer often confounded with *Notary*, *Notarius*.

Yet did the two differ in this; that the Notaries only drew up, and kept the Minutes of Acts and Inſtruments on Paper, and in Notes, or Short-hand; whereas the *Tabellions* deliver'd them engroſs'd on Parchment, in full executory Form. The ſame put the Seals to Contracts, and render'd them authentic.

The Domeſtic Clerks of theſe *Tabelliones*, who, at firſt, wrote under them, in Proceſs of Time came to be call'd Notaries. See NOTARY.

Paſquier obſerves, that the *Tabelliones* at *Rome* were publick Slaves, appointed for the keeping of Contracts made between private Perſons. According to *Loyſeau*, a Contract wrote by a Notary, was not perfect or obligatory, till the *Tabellio* had wrote it fair; after which the Parties ſubſcrib'd it, *i. e.* they wrote at Bottom that they approv'd the Contents; for Signatures were not then in Uſe. See SIGNATURE.

— *Quoniam* Tabellionum *uſus in regno Angliæ non habetur, propter quod magis ad Sigilla Authentica credi eſt neceſſi, ut eorum Copia facilius habeatur, ſtatuimus ut Sigillum habeant non ſolum Archiepiſcopi, & epiſcopi ſed eorum Officinales.* See SEAL.

TABERNACLE, among the *Jews*, the Place wherein the Ark of the Covenant was lodg'd; both while they were in Tents, during their Journey from *Ægypt*; and when fix'd in *Jeruſalem*, and the Ark kept in the Temple.

Philo deſcribes the *Jewiſh Tabernacle* thus: It was a Building compos'd of 48 Cedar Boards, lined with maſſive Gold; under each whereof was a Silver Stand, or Foot, and at the Top a Capital of Gold: It was encompaſs'd with ten Pieces of rich Tapiſtry, of different Colours, Purple, Scarlet, Hyacinth, &c. The Length of the *Tabernacle* was 30 Cubits; its Breadth 10, *Joſephus* ſays 12. See ARK.

The Ark was placed in a ſecret Oratory, in the Middle of this *Tabernacle*; and was gilt both within-ſide and without: the Top whereof, being a Kind of Lid, was call'd *Propitiatory*, becauſe it appeas'd the Wrath of God.

It was encompaſs'd with ſeveral Veils, ſtretch'd over it, with Hooks, and Buckles of Gold.

The Word is form'd from the *Latin Tabernaculum*, a Tent. *Feaſt of* TABERNACLES. See SCENOPEGIA.

TABERNACLE has alſo been uſed of late for a ſort of temporary Church, or Chapel, contriv'd to ſerve the immediate Purpoſes of the Pariſhioners, &c. while their proper Church is Repairing, Rebuilding, or the like.

TABES, in Medicine, a general Name for Conſumptions of all Kinds. See CONSUMPTION, PHTHISIS, ATROPHY, &c.

TABES *Dorſalis*, is a kind, or rather a Degree of Conſumption: proceeding ſometimes from an exceſſive Application to Venery.

The Patient has neither a Fever, nor Loſs of Appetite; but a Senſation, as if there were a Number of Piſmires running from the Head, down the Spinal Marrow; and when he evacuates, either by Urine, or Stool, there flows a liquid Matter like Semen.

After any violent Exerciſe his Head is heavy, and his Ears tingle; and at length he dies of a Lipyria, *i. e.* a Fever, where the external Parts are cold, and the internal burn at the ſame time. See LIPYRIA.

TABLATURE, in Anatomy, a Diviſion or parting of the Scull into two Tables. See CRANIUM.

TABLATURE, in Muſic, in the general, is, when, to expreſs the Sounds, or Notes of a Compoſition, we uſe Letters of the Alphabet, or Cyphers, or any other Characters, not uſual in the modern Muſic. See SCORE.

But in its ſtricter Senſe, *Tablature* is the Manner of Writing a Piece for a Lute, Theorba, Guitarre, Baſs-Viol, or the like; which is done by Writing on ſeveral parallel Lines (each whereof repreſents a String of the Inſtrument) certain Letters of the Alphabet; whereof, A marks that the String is to be ſtruck open, *i. e.* without putting the Finger of the left Hand on the Head; B ſhews, that one of the Fingers is to be put on the firſt Stop; C on the ſecond; D on the third, &c. See WRITING of Muſic.

The *Tablature* of the Lute is wrote in Letters of the Alphabet; that of the Harpſichord in the common Notes. See LUTE, HARPSICHORD, &c.

TABLE, *Tabula*, a Moveable, uſually made of Wood, or Stone, ſupported on Pillars, or the like; for the commodious Reception of Things placed thereon.

Moſes made a *Table* in the Tabernacle for the laying of the Shew-Bread upon; deſcrib'd by *Philo Judæus* as two Cubits long, one broad, and one and half high. Among Chriſtians, the *Table*, or *Lord's Table*, ſignifies the Sacrament of the Euchariſt. See EUCHARIST.

Round TABLE: Knights of the *Round Table*, a military Order, ſuppos'd to have been inſtituted by *Arthur* firſt King of the *Britons*, in the Year 516. See KNIGHT.

They are ſaid to have been 24 in Number; all pick'd from among the braveſt of the Nation.

The *Round Table*, which gave them their Title, was an Invention of that Prince, to avoid Diſputes about the upper and lower End; and to take away all Emulation as to Places.

Leſly aſſures us, he has ſeen the *Table* at *Wincheſter*; At leaſt, ſays he, if we may believe the Keepers thereof, who ſtill ſhew it with a deal of Solemnity. He adds, that the Names of a great Number of Knights wrote around it, ſeem to confirm the Truth of the Tradition.

Larrey, and ſeveral other Authors, make no Scruple to relate this Fable, as Matter of Hiſtory: but that 'tis Fable is certain; F. *Papebroch* having ſhewn, that there was no ſuch Thing as an Order of Knights before the VIth Century.

Cambden obſerves, that the *Table* at *Wincheſter* is of a Structure much more modern than the VIth Century. 'Tis added, that *Arthur* himſelf is no more than a fabulous Prince.

In effect, the *Round Table* does not appear to have been any military Order, but rather a kind of Juſt, or military Exerciſe, between two Perſons, arm'd with Lances. Several Authors ſay, that *Arthur*, Duke of *Bretagne*, renew'd it. See *Matthew Paris*, the Abbot *Juſtiniani*, and F. *Helyot*.

Paulus Jovius ſays, 'twas under the Empire of *Frederic Barberoſa*, that the Knights of the *Round Table* firſt began to be talk'd of: Others attribute their Origin to the Factions of the *Guelphs* and *Gibellins*. K. *Edward* built a Houſe call'd the *Round Table*, the Court whereof was 200 Foot in Diameter.

TABLE, *in Architecture*, a ſmooth ſimple Member, or Ornament, of various Forms; but moſt uſually in that of a long Square.

A *Projecting Table*, is ſuch a one as ſtands out from the Naked of the Wall, Pedeſtal, or other Matter it adorns. ----- *Raked Table*, is that which is hollow'd in the Die of a Pedeſtal, or elſewhere, and which is uſually encompaſs'd with a Moulding. ------ *Razed Table*, an Emboſſment in a Frontiſpiece, for the putting an Inſcription or other Ornament in Sculpture. This is what M. *Perrault* underſtands by *Abacus* in *Vitruvius*. ----- *Crown'd Table*, that cover'd with a Cornice, and wherein is cut a Baſſo Relievo, or a Piece of black Marble incruſtated for an Inſcription. ----- *Ruſticated Table*, that which is pick'd, and whoſe Surface ſeems rough, as in Grotto's, *&c.*

Plain TABLE, a Surveying Inſtrument. See PLAIN *Table*.

TABLE, *in Perſpective*, is a plain Surface, ſuppos'd to be tranſparent, and perpendicular to the Horizon. See PERSPECTIVE.

'Tis always imagin'd to be plac'd at a certain Diſtance between the Eye and Objects, for the Objects to be repreſented thereon by means of viſual Rays paſſing from every Point thereof, thro' the Table to the Eye.

Whence it is alſo call'd *Perſpective Plane*. See PLANE.

TABLE, *in Anatomy*. The Cranium is ſaid to be compos'd of two *Tables*, or Laminæ, *i. e.* 'tis double; as if it conſiſted of two Bones, laid one over another. See CRANIUM.

TABLE of *Pythagoras*, call'd alſo *Multiplication* TABLE, is a Square, form'd of an hundred leſſer Squares, or Cells, containing the Products of the ſeveral Digits, or ſimple Numbers, multiply'd by each other. See MULTIPLICATION.

As 'tis abſolutely neceſſary, thoſe who learn Arithmetic have the ſeveral Multiplications contain'd in this Table, off by Heart; we have thought fit to ſubjoin it here: with an Example, to ſhew the Manner of uſing it.

TABLE *of* Pythagoras, *or* Multiplication TABLE.

1	2	3	4	5	6	7	8	9	10
2	4	6	8	10	12	14	16	18	20
3	6	9	12	15	18	21	24	27	30
4	8	12	16	20	24	28	32	36	40
5	10	15	20	25	30	35	40	45	50
6	12	18	24	30	36	42	48	54	60
7	14	21	28	35	42	49	56	63	70
8	16	24	32	40	48	56	64	72	80
9	18	27	36	45	54	63	72	81	90
10	20	20	40	50	60	70	80	90	100

Example: Suppoſe it were requir'd to know the Product of 6 multiply'd by 8: Look for 6 in the firſt horizontal Column, beginning with 1; then look for 8 in the firſt perpendicular Column, beginning likewiſe with 1; the Square or Cell wherein the perpendicular Column from 6, meets with the horizontal one from 8, contains the Product requir'd, *viz.* 48.

Laws of the Twelve TABLES, were the firſt Set of Laws of the *Romans*; thus call'd, either by reaſon the *Romans* then wrote with a Style on thin, wooden *Tables*, cover'd with Wax; or rather, becauſe they were engraven on *Tables* or Plates of Copper, to be expoſed in the moſt noted Part of the public Forum. See LAW.

After the Expulſion of the Kings, as the *Romans* were then without any fix'd, certain Syſtem of Law; at leaſt had none ample enough to take in the various Caſes that might fall between particular Perſons; 'twas reſolved to adopt the beſt and wiſeſt Laws of the *Greeks*.

One *Hermodorus* was firſt appointed to Tranſlate them; and the *Decemviri* afterwards compiled and reduced them into Ten *Tables*. After a world of Care and Application, they were at length enacted and confirm'd by the Senate, and an Aſſembly of the People, in the Year of *Rome* 303.

The following Year, they found ſome Things wanting therein, which they ſupplied from the Laws of the former Kings of *Rome*, and from certain Cuſtoms, which long Uſe had authoriz'd; theſe being engraven on Two other *Tables*, made the *Law of the Twelve Tables*, ſo famous in the *Roman Juriſprudence*; the Source and Foundation of the Civil or *Roman* Law. See CIVIL *Law*.

The Laws of the Twelve *Tables*, were alſo call'd *Decemviral Laws*, from the Officers entruſted with the Compoſing them. See DECEMVIR.

'Tis great Pity, this Syſtem of Law ſhould have periſhed thro' the Injuries of Time: We have, now, nothing of it, but a few Fragments diſperſed in divers Authors. *J. Gothefrid* has collected them together, and we have them in *Roſinus* and ſome other Authors. The *Latin* is very old and barbarous, and remarkably obſcure.

New TABLES, *Tabulæ Novæ*, an Edict occaſionally publiſh'd in the *Roman* Commonwealth, for the aboliſhing all Kinds of Debts, and annulling all Obligations.

It was thus call'd, in regard all antecedent Acts being deſtroy'd, there were nothing but new ones to take Place.

TABLE, *among Jewellers*. A *Table Diamond*, or other precious Stone, is that whoſe upper Surface is quite flat; and only the Sides cut in Angles: In which Senſe, a Diamond cut *Table-wiſe* is uſed in oppoſition to a Diamond cut *Facetwiſe*. See DIAMOND.

TABLE *of Glaſs*. See CASE *of Glaſs*.

TABLE is alſo an Index or Repertory, put at the Beginning or End of a Book, to direct the Reader to any Paſſages he may have occaſion for. See INDEX.

Thus we ſay, *Table of Matters*: *Table of Authors quoted*; *Table of Chapters*, &c. *Tables*, of themſelves, ſometimes, make large Volumes; as that of *Daoiz* on the Civil and Canon Laws. *Tables of the Bible*, are call'd *Concordances*. See CONCORDANCE.

TABLE *Rents*. See BORD *Lands*.

TABLE *of Houſes*, among Aſtrologers, are certain *Tables* ready drawn up for the Aſſiſtance of Practitioners in that Art, for the erecting or drawing of Figures or Schemes.

TABLES, *in Mathematicks*, are certain Syſtems of Numbers, calculated to be ready at Hand for the expediting Aſtronomical, Geometrical, *&c.* Operations.

Aſtronomical TABLES, are Computations of the Motions, Places and other Phænomena of the Planets, both Primary and Secundary. See PLANET, SATELLITE and MOON.

The oldeſt *Aſtronomical Tables*, are the *Ptolemaic*, found in *Ptolomy*'s *Almageſt*; but theſe no longer agree with the Heavens. See ALMAGEST.

In 1252, *Alphonſus* XI. King of *Caſtile*, undertook the Correcting them, chiefly by the Aſſiſtance of *Iſaac Hazan*, a *Jew*; and ſpent 400000 Crowns therein. Thus aroſe the *Alphonſine Tables*, to which that Prince himſelf prefix'd a Preface.

But the Deficiency of theſe was ſoon perceiv'd by *Purbachius* and *Regiomontanus*; upon which *Regiomontanus*, and after him *Waltherus* and *Warnerus*, applied themſelves to cœleſtial Obſervation, for the further amending them; but Death prevented any Progreſs therein.

Copernicus, in his Books of the Cœleſtial Revolutions, inſtead of the *Alphonſine Tables*, gives others of his own Calculation from the later, and partly from his own, Obſervations.

From *Copernicus*'s Obſervations, and Theories, *Eraſ. Reinholdus* afterwards compiled the *Prutenic Tables*, which have been printed ſeveral Times, and in ſeveral Places.

Tycho de Brahe, even in his Youth, became ſenſible of the Deficiency of the *Prutenic Tables*; which was what determined him to apply himſelf with ſo much Vigour to Cœleſtial Obſervation. Yet all he did thereby, was to adjuſt the Motions of the Sun and Moon; though *Longomontanus*, from the ſame, to the Theories of the ſeveral Planets publiſh'd in his *Aſtronomia Danica*, added *Tables* of their Motions; now call'd the *Daniſh Tables*; and *Kepler*, likewiſe, from the ſame, in 1627, publiſh'd the *Rudolphine Tables*, which are now much eſteem'd.

Theſe were afterwards, *Anno* 1650, turned into another orm, by *Maria Cunitia*, whoſe Aſtronomical *Tables*, comprehending the Effect of *Kepler*'s Phyſical Hypotheſis, are exceedingly eaſy, and ſatisfy all the Phænomena, without ny Trouble of Calculation, or any Mention of Logarithm s; o that the *Rudolphin Calculus* is here greatly improved.

Mercator made a like Attempt in his Aſtronomical Inſtitution, publiſh'd in 1676; and the like did *J. Bap. Morini*, whoſe Abridgment of the *Rudolphin Tables* was prefix'd to a *Latin* Verſion of *Street's Aſtronomia Carolina*, publiſh'd in 1705.

Lansbergius, indeed, endeavour'd to diſcredit the *Rudolphin Tables*, and fram'd *perpetual Tables*, as he calls them, of the heavenly Motions; but his Attempt was never much regarded by the Aſtronomers; and our Country-man *Horrox*, gave an abundant Check to his Arrogance, in his Defence of the *Keplerian Aſtronomy*.

Nor was the Authority of the *Rudolphin Tables* impaired by the *Philolaic Tables* of *Bullialdus*, the *Britannic Tables* of *Vincent Wing*, calculated on *Bullialdus*'s Hypotheſis; or the *Britannic Tables* of *Newton*; or the *French* ones of the Count *de Pagan*, or the *Caroline Tables* of *Street*, all calculated on Dr. *Ward*'s Hypotheſis; or the *Novalmagiſtic Tables* of *Ricciolus*.

Among theſe, however, the *Philolaic* and *Caroline Tables* are eſteem'd the beſt; inſomuch that Mr. *Whiſton*, by the Advice of Mr. *Flamſteed* (a Perſon of undoubted Authority in ſuch Caſes) thought fit to ſubjoyn the *Caroline Tables* to his Aſtronomical Lectures.

The lateſt *Tables*, are the *Ludovician*, publiſh'd in 1702, by M. *de la Hire*, wholly from his own Obſervations, and without the Aſſiſtance of any Hypotheſis; which before the Invention of the Micrometer, Teleſcope, and the Pendulum Clock, was held impoſſible.

Another Set of *Tables*, the Aſtronomical World is in daily Expectation of from Dr. *Halley*, Aſtronomer Royal, *&c.* 'Twere needleſs to prepoſſeſs the Public in their Favour: The Author's Name, and the preſent State of Aſtronomy, will leave no Doubt on any Body but that they will have the laſt Degree of Juſtneſs and Preciſion; and ſuch as Poſterity itſelf ſhall ſcarce be able to amend. They have been in the Preſs ſeveral Years, and what it is retards their Publication, is not known, unleſs it be the rendring them more ample.

For TABLES *of the fix'd Stars*; ſee CATALOGUE.

TABLES *of Sines, Tangents, Secants, &c.* uſed in Trigonometrical Operations, are uſually call'd *Canons*. See CANON. See alſo SINE, TANGENT, *&c.*

TABLES *of Logarithms, Rhumbs, &c.* uſed in Geometry, Navigation, *&c.* See LOGARITHM, RHUMB, SAILING, *&c.*

Loxodromick TABLES, *Tables* of Traverſes, uſed in Navigation for the eaſy and ready Solution of Problems, and Caſes therein. See TRAVERSE.

TABLE, in Heraldry. Coats, or Eſcutcheons, containing nothing but the mere Colour of the Field, and not charged with any Bearing, Figure, Moveable, *&c.* are call'd *Tables d'Attente*: *Tables of Expectation*, or *Tabulæ raſæ*.

TABLET, in Pharmacy, *&c.* See TABELLA.

TABLING *of Fines*, is the making a Table for every County, where his Majeſty's Writs run; containing the Contents of every Fine paſs'd each Term. See FINE.

'Tis to be done by the Chirographer of the Fines of the Common Pleas, who every Day of the next Term, after engroſſing any ſuch Fine, fixes each of the ſaid *Tables* in ſome open Place of the ſaid Court, during its Sitting; and likewiſe delivers to the Sheriff of each County, a Content of the ſaid *Tables*, made for that reſpective County, the Term before the Aſſizes, to be affix'd in ſome Place in the open Court, while the Juſtices ſit, *&c.*

TABOR, *Tabourin*, a ſmall Drum. See DRUM.

Privilege of the Tabouret, in *France*, is a Privilege ſome great Ladies enjoy, to ſit or have a Stool in the Queen's Preſence.

TACAMACHA or TACAMAHACA, a kind of reſinous Gum, diſtilling from the Trunk of a very large Tree, growing in *New Spain*; but, in greateſt Abundance, in the Iſland of *Madagaſcar*. See GUM.

'Tis not unlike our Poplar Tree, only bigger and taller, its Leaves ſmall and green, its Fruit red, of the Size of our Wallnuts, exceedingly Reſinous, and containing a Stone like our Peaches.

The Wood of the Tree makes good Timber for Ships, and the Gum it yields, ſerves for their Caulking; though its chief Uſe is in Medicine.

There are three Kinds of *Tacamacha*; the *Sublime*, call'd alſo *Tacamacha* in the Pod; *Tacamacha* in the Maſs; and *Tacamacha* in Tears.

The Firſt, is the natural Reſin, as it falls of itſelf, without any Inciſion made in the Tree: The Good is dry, reddiſh, tranſparent, of a bitter Taſte and a ſtrong Smell, reſembling that of Lavender. The Iſlanders gather it in little Gourds cut in two, and cover'd with a Palm Leaf.

The *Tacamachas* in *Tears*, and in the *Maſs*, are thoſe which flow from the Tree through Inciſions: They muſt be choſen dry and clear, and their Smell reſembling that of the firſt Kind.

Gum *Tacamacha* is found good for digeſting and reſolving of Tumors, and aſſuaging Pains. Burnt upon Coals, 'tis reckon'd good for Hyſteric Fits in Women, and likewiſe applied to the Belly in form of a Plaiſter. Some apply it to the Temples in the ſame Manner, and to the Nape of the Neck for Pains in the Head, Defluctions of Rheum upon the Throat, and Inflammations of the Eyes, as alſo in the Tooth-ach. It is of ſo ſubtle and penetrating a Nature, that it is greatly uſed in external Applications, to ſuppurate and diſperſe Tumours; and is accounted effectual, even in thoſe which are Scrophulous.

It is likewiſe uſed externally in Arthritical Pains, with Succeſs; in effect, the *Indians* uſe it for all Kinds of Pains. *Schroder* affirms, That he has ſeen intolerable Pains in the Leg removed by it.

TACHEOGRAPHY, or TACHYGRAPHY, the Art of faſt or ſhort writing.

There have been various Kinds of *Tacheography* invented: Among the *Romans*, there were certain Notes uſed, each whereof ſignified a Word. See NOTE.

The Rabbins have a kind of *Tacheography* form'd by Abbreviations, which make a kind of Technical Words; wherein each Conſonant ſtands for a whole Word, as רמבם, *Ramban*, which expreſſes *Rabbi Moſes, Son of Maiemon*; רשו, *Raſchi*, *Rabbi*, *Schelomoh*, *Jarrhi*. See ABBREVIATION.

In *France*, *&c.* the only *Tacheography* uſed is the retrenching of Letters, or even whole Syllables of Words; as in *ſdm* for *ſecundam*, *aut* for *autem*, *d* for *ſed*, *o* for *non*, *Participaon* for *Participation*, *&c.*

The firſt Printers imitated theſe Abbreviations: At preſent they are almoſt laid aſide, except among Scriveners, *&c.*

In *England* we have great Variety of Methods of *Tachygraphy*, or Short-hand; more by far, and thoſe too, much better, eaſier, ſpeedier, and more commodious, than are known in any other Part of the World. Witneſs *Wilkins*'s, *Shelton*'s, *Wallis*'s, *Webſter*'s and *Weſton*'s Short-hands.

The Word is form'd from the *Greek*, ταχὺς, ſwift, and γραφια, writing.

TACK *about*, in Navigation, a Term uſed at Sea when a Ship's Head is brought about, ſo as to lie the contrary Way.

To effect this, they firſt make her *ſtay*; which done, ſhe is ſaid to be *paid*. They then let *riſe* and *hale*, *i. e.* let the Lee Tack riſe, and hale aft the Sheets, and ſo trim all the Sails by a Wind as they were before.

TACKLE, or TACKLING, in Navigation, includes all the Ropes or Cordage of a Ship, with their Furniture, whereby the Sails are manag'd. See CORDAGE and ROPE.

TACKLES *in a Ship*, are ſmall Ropes running in three Parts, having at one End a Pendant, with a Block faſten'd to them, or elſe a Lannier; and at the other End, a Block and an Hook to hang Goods upon, that are to be heav'd into the Ship, or out of it.

There are ſeveral Kinds of theſe *Tackles*, as the *Boat Tackles*, ſerving to hoiſt the Boat, *&c.* in and out: The *Tackles* belonging to the Maſts, ſerving as Shrouds to keep the Maſts from ſtraining: The *Gunner's Tackles*, with which the Ordnance are hoiſted in and out: For the *Winding Tackle*, and the *Burnett*. See BURNETT.

TACTICKS, the Art of diſpoſing Forces in Form of Battle, and of performing the military Motions and Evolutions. See EVOLUTION.

The *Greeks* were very ſkilful in this Part of the military Art, having publick Profeſſors of it, call'd *Tactici*, who taught and inſtructed their Youth therein. *Ælian* hath a particular Book on this Subject; and there is a great deal of it in *Arrian*, in his Hiſtory of *Alex. M.* and in *Mauritius*, and *Leo Imperator*.

Voſſius de ſcient. Mathemat. mentions 24 ancient Authors on the Subject of *Tacticks*.

The Word is form'd from the *Greek* ταξις, Order.

TACTICKS is alſo uſed for the Art of inventing and making the Machines of the Ancients for throwing of Darts, Arrows, Stones, Fire-balls, *&c.* by means of Slings, Bows, and Counter-poiſes. See MACHINE.

Vegetius, *Hero*, &c. have wrote on theſe Machines; and we have them deſcrib'd and deſign'd by *Lipſius*.

TACTIL, or TANGIBLE, in the Schools, ſomething that may fall under the Senſe of Feeling. See FEELING.

Tho' Atoms be corporeal, yet are they not either *tactil* or viſible, by reaſon of their Smallneſs. See CORPUSCLE.

The principal *tactil* Qualities are Heat, Cold, Dryneſs, Hardneſs, and Humidity. See each under its proper Article, HEAT, COLD, HARDNESS.

TACTION in the Schools } See { FEELING.
TACTION in Geometry } { TOUCHING.

TÆNIA, or TENIA, in Architecture (from the *Greek* ταινια, a Bandelet, or little Band, call'd by the *Latins Vitta*, *Faſcia*, *Zona*, and *Corona*,) a Member of the Doric Architrave, reſembling a ſquare Fillet, or Ruler, and ſerving in lieu of a Cymatium. See DORIC and CYMATIUM.

Barbaro calls it *Liſtel*; but *Palladio* uſes the old Name *Tænia*. See LISTEL.

Philander ſays, there are two Kinds, *viz.* the abovemention'd, which he calls the *lower*; and another, which ſerves as a Capital to the Triglyphs. *Leon Baptiſt. Alberti* calls the *Tæniæ*, *Regulæ* and *Faſciolæ*; and *Daviler*, *Bandelettes*. See each under its proper Article.

TAFFAREL, in a Ship, the uppermoſt Part, Frame, or Rail, abaft, near the Poop. See SHIP.

TAFFETY, or TAFFETAS, in Commerce, a kind of fine, ſmooth Silk Stuff; having, uſually, a remarkable Luſtre. See SILK and STUFF.

There are *Taffeties* of all Colours; and ſtriped with all Kinds of Stuffs, as Gold, Silver, Silk, *&c.* others checquer'd, others flower'd, others in the *Chineſe* Point, others the *Hungarian*; with various others, to which the Mode, or the Caprice of the Workmen give ſuch whimſical Names, that it would be as difficult, as 'tis uſeleſs, to rehearſe them: beſides that, they ſeldom hold beyond the Year wherein they firſt roſe.

The old Names of *Taffeties*, and which ſtill ſubſiſt, are *Taffeties* of *Lyons*, of *Spain*, of *England*, of *Florence*, of *Avignon*, &c.

The chief Conſumption of *Taffeties* is in Summer Dreſſes for Women, in Linings, Scarves, Coifs, Window-Curtains, *&c.*

There are three Things which contribute chiefly to the Perfection of *Taffeties*, *viz.* the Silk, the Water, and the Fire.

The Silk is not only to be of the fineſt Kind, but it muſt be work'd a long time, and very much, e'er it be uſed. The Watering, beſide that it is only to be given very lightly, ſeems only intended to give that fine Luſtre, by a peculiar Property not found in all Waters. Laſtly, the Fire, which is paſs'd under it to dry the Water, has its particular Manner of Application, whereon the Perfection of the Stuff depends very much.

Octavio May, of *Lyons*, is held the firſt Author of the Manufacture of gloſſy *Taffeties*; and Tradition tells us the Occaſion of it. *Octavio*, it ſeems, going backwards in the World, and not able to retrieve himſelf by the Manufacture of *Taffeties*, ſuch as were then made, was one Day muſing on his Misfortunes, and, in muſing, chanced to chew a few Hairs of Silk which he had in his Mouth. His Reverie being over the Silk he ſpit out, ſeem'd to ſhine, and on that Account engag'd his Attention. He was ſoon led to reflect on the Reaſon; and, after a good deal of Thought, concluded, that the Luſtre of that Silk muſt come, 1°. From his having preſs'd it between his Teeth. 2°. From his having wet it with his Saliva, which had ſomething glutinous in it: And 3°. From its having been heated by the natural Warmth of his Mouth. All this he executed upon the next *Taffeties* he made; and immediately acquir'd immenſe Riches to himſelf; and to the City of *Lyons* the Reputation it ſtill maintains, of giving the Gloſs to *Taffeties* better than any other City in the World.

'Twill not, we conceive, be leſs uſeful than curious, to give here the Deſcription of the Engine contriv'd by *Octavio* to give the Gloſs to *Taffety*; to add the Manner of applying it, and the Compoſition of the Water uſed therein.

The Machine is much like a Silk Loom, except that inſtead of Iron-Points, here are uſed a kind of crooked Needles, to prevent the *Taffety* from ſlipping: At the two Extremities, are two Beams; on one of which is roll'd the *Taffety* to take the Gloſs; and on the other, the ſame *Taffety* as faſt as it has receiv'd it. The firſt Beam is kept firm by a Weight of about 200 Pounds; and the other turn'd by means of a little Lever paſſing thro' Mortoiſes at each End. The more the *Taffety* is ſtretch'd, the greater Luſtre it takes; Care, however, is to be uſed it be not over-ſtretch'd.

Beſides this Inſtrument for keeping the Stuff ſtretch'd, there is another to give it the Fire: This is a kind of Carriage, in Form of a long Square, and the Breadth of the *Taffeties*. It moves on Trundles, and carries a Charcoal Fire under the *Taffety*, at the Diſtance of about half a Foot.

The two Machines prepar'd, and the *Taffety* mounted, the Luſtre is given it by rubbing it gently with a Pelotoon, or Handful of Liſts of fine Cloth, as it rolls from one Beam to t'other; the Fire, at the ſame Time, being carry'd underneath it to dry it. As ſoon as the Piece has its Luſtre, 'tis put on new Beams to be ſtretch'd, a Day or two; and the oftner this laſt Preparation is repeated, the more it increaſes the Luſtre.

For black *Taffeties*, the Luſtre is given with double Beer, and Orange or Lemon Juice; but this laſt is the leaſt proper, as being apt to whiten. The Proportion of the two Liquors, is a Gallon of Orange Juice to a Pint of Beer, to be boil'd together to the Conſiſtence of a Broth. For colour'd *Taffeties*, they uſe Gourd-Water, diſtill'd in an Alembic.

TAFTOLOGY. See TAUTOLOGY.

TAIL, that Part of an Animal which terminates its Body behind.

The *Tail* is different both in Figure and Uſe in the various Species: In Land Animals, it ſerves to rid them of Flies, and is uſually cover'd with Hair, and ſtrengthen'd with Bones: In Fiſhes it is Cartilaginous, and ſerves them as a Helm to ſteer their Courſe withal in ſwimming. See SWIMMING.

In Birds it is cover'd with Feathers, and greatly aſſiſts in all Aſcents, and Deſcents in the Air; as alſo to render their Flight ſteady, by keeping the Body upright in that ſubtile and yielding Medium, by its readily turning and anſwering to every Vacillation of the Body. See FLYING.

In Anatomy, TAIL is uſed for that Tendon of a Muſcle, which is fix'd to the moveable Part: In Oppoſition to which, the Tendon fix'd to the immoveable Part is call'd the *Head*. See MUSCLE.

Among Botaniſts, the *Pedicle* is ſometimes call'd the *Tail*. The Way to preſerve Fruits in Winter, is to ſeal up their *Tails* or Pedicles with Wax. See PEDICLE.

Dove-TAIL, or *Swallows*-TAIL, among Carpenters, is one of the ſtrongeſt Manners of Jointing; wherein, a Piece of Wood that grows larger towards the End, is inſerted into another Piece; ſo that it cannot ſtir out, by Reaſon the Hole in the one, is narrower than the lower End of the other. As in the Figure of a *Dove*'s *Tail*. See QUEUE *d'Aronde*, and SWALLOWS-*Tail*.

Peacock's-TAIL, a Term apply'd to all circular Compartments, which go enlarging from the Centre to the Circumference; imitating, in ſome meaſure, the Feathers of a Peacock's *Tail*.

Dragon's TAIL, *Cauda Draconis*, in Aſtronomy, the deſcending Node of a Planet; thus characterized ☋. See NODE.

The Aſtrologers take Care to put it in all their Horoſcopes. See HOROSCOPE.

Horſe's TAIL, among the *Tartars* and *Chineſe*, is the Enſign or Flag under which they make War. See ENSIGN.

Among the *Turks*, it is the Standard bore before the Grand Vizier, the Baſhaws, and Sangiacs; in order to which, it is fitted on the End of a half Pike, with a Gold Button, and is call'd *Toug*.

There are Viziers of one, others of two, others of three *Horſes Tails*. The *Horſe's Tail* plac'd on a General's Tent, is a Signal of Battel.

For the Original of this Cuſtom, it is related, that in a certain Battel, the Standard being taken by the Enemy, the General of the Army, or, as others ſay, a private Horſeman, cut off the *Tail* of his Horſe, and faſtening it to the End of a half Pike, encourag'd the Troops, and gain'd the Victory. In Memory of which noble Action, the Grand Signor appointed that Standard to be bore for the future, as a Symbol of Honour. *Ricaut.*

TAIL *of a Comet*. When a Comet darts his Rays forwards, or towards that Part of the Heavens, whither his proper Motion ſeems to be carrying him; thoſe Rays are call'd its *Beard*: On the contrary, when its Rays are ſhot behind, towards that Part from whence it appears to move, the Rays are call'd the *Tail of the Comet*.

The various Phænomena whereof, with their Phyſical Cauſes, ſee under the Article COMET.

TAIL *of the Trenches*, in the military Art, is the firſt Work which the Beſiegers make at the Opening of the Trenches, as the Head of the Attack is carry'd on toward the Place. See TRENCH.

TAIL, or TAILE, *Sectura*, in Common Law, ſignifies two ſeveral Things; both grounded upon one Reaſon.

Firſt, It is uſed for that Kind of Fee, which is oppoſite to the Fee-ſimple; ſuch Fee being ſo minced, or parted, as it were, that it is not in the Owners free Power to diſpoſe of; but is by the firſt Giver *cut*, *taille*, and divided from all others, and tied to the Iſſue of the Donee. See FEE.

This Limitation of *Taile* is either General or Special.

Taile General, is that whereby Lands and Tenements are limited to a Man, and to the Heirs of his Body begotten: It is call'd *General*, becauſe how many Wives ſoever the Tenant holding by this Title ſhall have, one after another, in lawful Marriage, his Iſſue by them all have a Poſſibility to inherit one after another.

Taile Special, is when Lands or Tenements are limited to a Man and his Wife, and the Heirs of their two Bodies begotten: It is call'd *Special*, becauſe if the Man bury his Wife before Iſſue, and take another; the Iſſue by his ſecond Wife cannot inherit the Land, *&c.*

Alſo, if the Land be given to a Man and his Wife, and their Son *R*, for ever; this is *Taile Special*.

Taile, after Poſſibility of Iſſue, extinct; is where Land being given to a Man, and his Wife, and the Heirs of their two Bodies; the one over-lives the other, without Iſſue between them begotten; upon which the Survivor ſhall hold the Land for Term of his own Life in quality of Tenant in *Taile, after the Poſſibility of Iſſue, extinct*; and notwithſtanding that he does Waſte, he ſhall never be impeached of it: And when he dies, he in the Reverſion ſhall not have a Writ of Entry, *in Conſimili Caſu*, but may enter, and his Entry is lawful.

Secondly, Tail, or *Taile* is uſed for what we vulgarly call a *Talley, une Taille de Bois*, for a Cloven Piece of Wood to nick up an Account on. See TALLY.

TAILLOIR, in Architecture, a Term ſome of our Writers, after the *French*, uſe for *Abacus*. See ABACUS.

TAINT, in Law, ſignifies, either, ſubſtantively, a Conviction; or, adjectively, a Perſon convicted of Felony, Treaſon, &c. See ATTAINT.

TAKE *and Leave*, in the Sea Language. The Sailors ſay, a Ship can *take and leave upon her when ſhe will*; when ſhe ſails ſo well that ſhe can come up with another, or outſail her at Pleaſure.

TALBOT, a Sort of Dog, frequent in Coat Armour, noted for its quick Scent, finding out the Tracks, Lodgings, and Forms of Beaſts, and purſuing them with open Mouth, and continual Cry, with ſuch Eagerneſs, that if not taken off by the Huntſmen, they are often ſpoil'd.

TALC, or TALK, in Natural Hiſtory, a ſhining, ſquammous, fiſſile Stone, eaſily ſeparable into thin tranſparent Scales, or Leaves. See STONE.

Anciently, *Talc* was only found in *Spain*; but ſince, Mines thereof have been found in *Cyprus*, *Cappadocia*, and ſince that, in *Arabia* and *Africa*; at preſent, they dig it in the *Alps* and *Apennines*, ſeveral Mountains in *Germany*, and even in *England*, particularly in *Northamptonſhire*.

We uſually diſtinguiſh two Kinds of *Talc*, *viz.* *White Talc of Venice*, and *Red of Muſcovy*.

That from *Venice* is the moſt eſteem'd: 'Tis brought in large ſhining greeniſh Stones; but becomes white, and exceedingly tranſparent when wrought. It appears fatty to the Touch, tho' there is ſcarce any Stone dryer; yet in Spight of its Dryneſs, it pulverizes with Difficulty; nor is it eaſily calcined.

Its chief Uſe is as a Screen or Cover for Paintings in Miniature and Craions; to which Purpoſe thin Slices thereof are uſed: 'Tis ſometimes alſo uſed for a Fucus; in order to which, by Reaſon of the Difficulty of pulverizing it, &c. they content themſelves to raſp it with the Skin of a Sea-Dog, and to paſs the Raſping thro' a Sieve.

Pliny, in his Natural Hiſtory, *lib.* 36. *cap.* 22. obſerves, that the *Romans* built Temples, and Places therewith, and paved the Coliſæum of the ſame.

The *Talc* brought from *Muſcovy* is reddiſh when in the Stone; but it ſeldom comes to us otherwiſe than in Leaves, which are very hard, ſmooth, poliſh'd, and exceedingly tranſparent: 'Tis found in Quarries in *Muſcovy* and *Perſia*, and is uſed to make Lanthorns, to cover Paintings, &c.

The Word is *German*, where it ſignifies the ſame Thing.

Some Chymiſts, and other Empiricks, have held, that *Talc* might be uſed for many more important Purpoſes; and pretend to draw from it that precious Oil, ſo much boaſted of by the Ancients, particularly the *Arabs*, call'd *Oil of Talc*, which is ſuppos'd a wonderful Coſmetic, and Preſerver of the Complexion: But the Truth is, the Word *Talc*, among them, ſignify'd no more than an equal Diſpoſition of the Humours, which kept the Body in good Temperament, and perfect Health. Now, as nothing contributes more than Health to the preſerving of Beauty, this has given Occaſion to the Chymiſts to ſearch this *Oil of Talc*, which is to maintain the Body in this Diſpoſition, and to engage the Ladies to be at the Expence of the Search.

Some have alſo pretended, that yellow or ruddy *Talc* contain'd the Seeds of Gold; and that a Menſtruum might be drawn from it, to tranſmute Metals into Gold and Silver, to fix Mercury, &c.; but this is mere Charletanery.

TALENT, *Talentum*, a Weight and a Coin, both very famous among the Antients; but very different in different Countries. See COIN and WEIGHT.

The Value of the *Talent* is very hard to aſſign in *Engliſh* Money; as being uſed among all the People throughout the Eaſt; and its Value, and the Manner of Computation, different among each. A Difficulty abundantly ſhewn by *Budæus*, in his learned Treatiſe *de Aſſe*.

There were various Kinds of *Talents*, both with regard to Weight, and to Species; the Value of theſe laſt ſtill increaſing, as the Metal whereof it conſiſted was higher: tho' the *Talent Weights* did all contain the ſame Number of Pounds and Drachms.

For as the *French* have a Pound *Pariſis*, and a Pound *Tournois*, each whereof contains alike 20 Sols; yet theſe compar'd together, the *Paris* Pound contains 25 Sols of the *Tournois* Pound, the *Paris* Sol exceeding that of *Tours* by one quarter; ſo all *Talent* Weights were equally 60 Minæ, and the Mina 100 Drachmæ; but the Drachma of one Place exceeding that of another, there hence aroſe a Difference in the *Talents*. See MINA.

The *Attic* Drachma, for Inſtance, was 6 *Attic* Oboli, and that of *Ægina* 10 of the ſame Oboli; whence the *Æginian Talent*, computed on the Foot of the *Attic* Weight, was 100 Minæ; whereas reckon'd on the Foot of its own Drachma, it was no more than 60. See DRACHMA.

The *common Attic Talent* then (the *Talent* Weight we mean) contain'd 60 *Attic* Minæ, or 62 and half *Attic* Pounds, or 6000 *Attic* Drachmæ; equal, according to Dr. *Arbuthnot*'s Reduction, to 56 Pounds 11 Ounces *Engliſh* Troy Weight. Some Authors, as *Priſcian*, mention another *Attic Talant* of 100 Minæ; but this is to be underſtood of ancient Minæ, as they ſtood before *Solon*; each only worth 75 Drachmæ.

The *Syrian Talent* contained 15 *Attic* Minæ; That of *Alexandria* 96 *Attic* Minæ, or 91 Lib. Troy. The *Babylonic*, *Perſian* and *Antiochic Talents* were the ſame with the *Ægyptian*.

Among the *Romans*, there were two Kinds of *Talents*, the *little* and the *great Talent*: The *little* was the common *Talent*; and whenever they ſay, ſimply, *Talent*, they are to be underſtood of this: The *little Talent* was 60 Minæ or *Roman* Pounds, the Mina or Pound eſtimated at 100 Drachmæ or Denarii: It was alſo eſtimated at 24 great Seſterces, which amounted to 60 Pounds.

The *great Talent* exceeded the leſs by one third Part. *Budæus* computes, that the little *Talent* of Silver was worth 75 Pounds Sterling; and the greater 99 *l.* 6 *s.* 8 *d.* Sterling. The greater *Talent* of Silver he makes worth 75 Pounds Sterling; the greater of Gold worth 1125 Lib. Sterling.

Talent, as a Species, or Money, among the *Hebrews*, was a Gold Coin, the ſame with the Shekel of Gold, call'd alſo *Stater*, and weigh'd only 4 Drachms. See SHEKEL.

In the Scripture it is alſo call'd *Solidus*, Shilling. The *Hebrews* reckon'd by theſe *Talents* as we do by Pounds, &c. Thus a Million of Gold, or Million of *Talents* of Gold, among them, was a Million of Shekels, or Nummi; the Nummus of Gold being the ſame Weight with the Shekel, *viz.* 4 Drachms.

TALES, in Law, a Supply or Addition of Men impannel'd on a Jury of Inqueſt, and not appearing, or at their Appearance, challeng'd by either Party as not indifferent. See JURY.

In ſuch Caſe, the Judge, upon Motion, grants a Supply to be made by the Sheriff, of one, or more *Tales*, ſuch there preſent, equal in Reputation to thoſe impannell'd.

This Act of ſupplying is call'd a *Tales de Circumſtantibus*.

He that has had one ſuch *Tales*, either upon Default, or Challenge, may not have another containing ſo many as the former: For the firſt *Tales* muſt be leſs than the principal Pannel, except in a Cauſe of Appeal; and ſo every *Tales* leſs than other, till the Number be made up of ſuch as are unexceptionable.

Theſe, call'd *Tales*, or *Taleſmen*, and corruptly *Tallymen*, are, on ſome Occaſions, call'd *Meliores*.

TALIO, *Lex Talionis*, or *Pœna Talionis*, a Retribution, or Puniſhment, whereby an Evil is return'd perfectly like that committed againſt us, by another; which is what we uſually expreſs by the Words *Eye for Eye*, *Tooth for Tooth*.

The *Pœna Talionis* was enjoyn'd by the Law of *Moſes*, juſt as 'tis in the Goſpel: It was eſteem'd a natural Piece of Juſtice; and yet the *Romans* ſet it aſide; inaſmuch as ſuch a Parity or Equality of Puniſhment could not always be obſerved. For this Reaſon, the Prætor allowed ſuch as had ſuffer'd any Injury, to make an Eſtimate thereof in Money, that Juſtice might be done him that way; only reſerving to himſelf the Power of moderating the ſame.

And this was what was conſtantly practiſed, and thus the *Pœna Talionis*, became quite diſuſed.

The *Lex Talionis*, is never obſerved in the Civil Juſtice, but with regard to falſe Witneſſes.

TALISMANS, certain Figures engraven, or cut, under ſeveral ſuperſtitious Obſervations of the Characters and Diſpoſitions of the Heavens; to which ſome Aſtrologers, hermetical Philoſophers, and other Adepts, attribute marvellous Virtues, particularly that of calling down Cœleſtial Influences.

The Author of a Book, intitled, *Taliſmans Juſtifiez*, ſays; a *Taliſman* is the Seal, Figure, Character or Image of a heavenly Sign, Conſtellation or Planet, engraven on a Sympathetic Stone, or on a Metal correſponding to the Star, &c. in order to receive its Influences The *Taliſmans* of the *Samothracians*, ſo famous of old, were Pieces of Iron, form'd into certain Images, and ſet in Rings, &c.

They were held Preſervatives againſt all Kinds of Evils; there were other *Taliſmans* taken from Vegetables, and others from Minerals. In the general, we uſe to diſtinguiſh three

Kinds of *Taliſmans*. The *Aſtronomical*, which are known by the Signs, or Conſtellations of the Heavens engraven thereon, with other Figures, and ſome unintelligible Characters. The *Magical*, which bear very extraordinary Figures, with ſuperſtitious Words and Names of Angels unheard of. And the *Mixt*, which conſiſt of Signs and barbarous Words, but have no ſuperſtitious ones, or Names of Angels.

Some Rabbins have maintained, that the Brazen Serpent, rais'd by *Moſes* in the *Wilderneſs*, for the Deſtruction of the Serpents that annoy'd the *Iſraelites*, was a *Taliſman*.

All the miraculous Things wrought by *Apollonius Tyanæus*, are attributed to the Virtue and Influence of *Taliſmans*: That Wizard is even ſaid to have been the Inventor of *Taliſmans*.

Some Authors take ſeveral *Runic* Medals, at leaſt Medals whoſe Inſcriptions are in *Runic* Characters, for *Taliſmans*; it being notorious, that the Northern Nations, in their heathen State, were much devoted thereto.

M. *Keder*, however, has ſhewn, that the Medals here ſpoke of are quite otherguiſe Things than *Taliſmans*. See Runic.

The Word is pure *Arabic*; though *Menage* thinks it may come from the *Greek* τελεσμα, Conſervation: *Borel* ſays, 'tis *Perſian*, and ſignifies, literally an engraven Conſtellation. *Du Cange* derives it à *Talamacis literis*, which are myſterious Characters, or Cyphers uſed by Sorcerers; thus call'd from *Talamaſca*, a Fantom, or Illuſion.

TALKING. See Speaking, Speech and Voice.

TALLAGE, a certain Rate, according to which, Barons and Knights were anciently tax'd by the King towards the Expences of the State; and inferior Tenants by their Lords, on certain Occaſions. See Tax.

This latter *Tallage* of the cuſtomary Tenants, was ſometimes fix'd, and certain; and ſometimes at the Pleaſure of the Lord; and was alſo ſometimes compounded for. See Subsidy.

Tallages were anciently call'd *Cuttings*; which Name is ſtill retain'd in *Ireland*, tho' in a different Signification.

Tallage, ſays Sir *Ed. Coke*, is a general Name including all Taxes. See Tax.

TALLY, or TAIL, (from the *French*, *tailler*, to cut,) a Piece of Wood, whereon retail Traders uſe to ſcore or mark, by Notches or Inciſions, the ſeveral Quantities of Goods they deliver out on Credit; to ſave the Trouble of Writing down ſo many little Articles in Books. See Tail.

Each Score conſiſts of two Pieces of Wood, or rather of a ſingle Piece cleft length-wiſe, the Parts whereof falling in with one another, the Things deliver'd are ſcored on both at the ſame time; the Seller keeping one, and the Buyer the other. *Tallies* are taken as Evidences in Courts of Juſtice, as much as Books.

The ancient Way of keeping all Accounts was by *Tallies*; the Debtor ſtill keeping one Part, and the Creditor the other.

There are three Kinds of *Tallies*, mention'd in our Statutes, and long uſed in the *Exchequer*.

The firſt, Tallies *of Loans*; one Part whereof is kept in the *Exchequer*, and the other Part given to particular Perſons, in lieu of an Obligation for the Monies they have lent to the Government on Acts of Parliament. See Loan.

This laſt Part is call'd the *Stock*, and the former the *Counter-ſtock*, or Counter-tail.

The *Tallies* are number'd, bear the Perſon's Name, and the Sum lent: Thus we ſay, The *Tallies*, N° have been paid, diſcharg'd: *Tallies* are riſen, fallen 4, 5, &c.

The ſecond are, Tallies, or Tailes *of Debt*; which are a kind of Acquittances for Debts paid the King.

E. gr. the Univerſity of *Cambridge* pays yearly 10 Lib. for ſuch Things as are by Charter granted them in Fee-Farm. He that pays this, receives a *Tail*, or *Tally* for his Diſcharge, with which, or a Note of it, he repairs to the Clerk of the Pipe; and there for the *Tally* receives a full Diſcharge on Parchment.

The other are, Tallies *of Reward*, or Allowance, made to Sheriffs, for ſuch Matters as (to their Charge) they have perform'd in their Office, or ſuch Money as is by Courſe caſt on them in their Accounts, but which they cannot levy.

TALLOW, a Sort of Fat of Animals, melted down, and clarify'd. See Fat.

There are ſcarce any Animals, but a Sort of *Tallow* may be prepar'd from; but thoſe which yield the moſt, and whereof the moſt Uſe is made, are the Horſe, Bullock, Sheep, Hog, Goat, Deer, Bear, and Viper. Some of which *Tallows*, or Fats, are only uſed in Medicine. See Axungia.

Moſt of the reſt are uſed in the making of Soap; the dreſſing of Leather; but chiefly in the making of Candles. See Soap, Currying, &c.

For Candles, the beſt Compoſition is half Sheeps *Tallow*, and half Cows or Bullocks *Tallow*, without any Mixture of other kinds of Fat, which only ſerve to turn the Candles yellow, make them run, and ſpoil the Clearneſs of their Light. See Candle.

Tallow-*tree*, in *China*, is a Tree growing in great Plenty in that Country, which produces a Subſtance like our *Tallow*, and ſerving for the ſame Purpoſe.

'Tis about the Height of a Cherry-Tree; its Leaves in Form of a Heart, of a deep, ſhining, red Colour, and its Bark very ſmooth. Its Fruit is inclos'd in a kind of Pod, or Cover, like a Cheſnut, and conſiſts of three round white Grains, of the Size and Form of a ſmall Nut, each having its peculiar Capſula, and within, a little Stone.

This Stone is encompaſs'd with a white Pulp, which has all the Properties of true *Tallow*, both as to Conſiſtence, Colour, and even Smell: And accordingly the *Chineſe* make their Candles of it; which would, doubtleſs, be as good as thoſe in *Europe*, if they knew how to purify their *Vegetable Tallow*, as well as we do our *Animal Tallow*.

All the Preparation they give it, is to mix a little Oil with it, to make it ſofter, and more pliant. 'Tis true their Candles made of it yield a thicker Smoak, and a dimmer Light, than ours; but thoſe Defects are owing, in great meaſure, to the Wicks, which are not of Cotton, but only a little Rod, or Switch of dry light Wood, cover'd with the Pith of a Ruſh, wound round it; which being very porous, ſerves to filtrate the inſenſible Parts of the *Tallow*, attracted by the burning Stick, which by this Means is kept alive.

TALMUD, or, rather, THALMUD, a Book, wherein the *Jews* have collected what relates to the Explication of their Law.

The *Thalmud*, is the Body of the *Hebrew* Law, and of Expoſitions of the Duties impos'd on that People, either in Scripture, or by Tradition, or by Authority of their Doctors, or by Cuſtom, or even by Superſtition; and, to ſpeak more plainly ſtill, the Courſe of Caſes of Conſcience, or of moral Theology, wherein the Duties are explain'd, and the Doubts clear'd, not by Reaſoning, but generally by Authority, by the Cuſtom of the Nation, and by the Deciſions of the moſt approv'd of ancient Doctors.

This *Thalmud* conſiſts of two general Parts; the one call'd the *Miſchna*, the other the *Gemara*; which ſecond Part is alſo frequently call'd abſolutely the *Thalmud*, the general Name of the whole Work. See Mischna and Gemara.

The *Jews* divide their Law into *Written*, which is that contain'd in the Books of *Moſes*; and *Unwritten*, which is that convey'd by Tradition. This latter is, in Effect, no other than a Gloſs or Interpretation of the former, given by the ancient Rabbins. See Tradition and Rabbin.

The *Thalmud*, then, contains the Traditions of the *Jews*, their Polity, their Doctrine, and their Ceremonies; which they obſerve as religiouſly as the Law of God itſelf: They would never put it in Writing till they were compell'd to it by the Deſtruction of *Jeruſalem*, and till they ſaw themſelves diſpers'd throughout the World.

They had two famous Schools; the one at *Babylon*, and the other at *Jeruſalem*: In theſe they made two ſeveral Collections of thoſe Traditions, the firſt at *Jeruſalem*, the latter at *Babylon*; but both call'd *Thalmud*, and both exceedingly reverenc'd, eſpecially the *Babylonian*, tho' full of Extravagances.

It was compiled by the *Jews* of *Meſopotamia*, about 500 Years after *Chriſt*.

The *Thalmud* of *Jeruſalem* is the leaſt eſteem'd. It was compiled by the *Jews* of that City 300 Years after *Chriſt*.

The *Babylonian Thalmud* conſiſts of two Parts, the one the Text, the other the Comment: The Comment, call'd the *Gemara*, contains the Deciſions of the *Jewiſh* Doctors, and their Expoſitions of the Text. This we find ſtuffed with Dreams and Chimæra's; a deal of Ignorance, and a world of impertinent Diſputations: The Stile very coarſe. On the contrary, the Text, call'd the *Miſchna*, is wrote in a pretty pure Style, and the Reaſonings generally much more ſolid.

The *Jews* pretend it was compos'd by *Rabbi Juda*, ſurnam'd the *Saint*; and that God reveal'd to him the Doctrine and the chief Myſteries thereof. But this is only to be underſtood of the *Miſchna*, not of the *Gemara*, the Compilation whereof was not begun till the VIth Century after the Deſtruction of the ſecond Temple.

Rabbi Juda is ſaid to have compos'd the *Miſchna* under the Empire of *Antoninus*, in the IId Century; but they don't all agree about this Antiquity, ſome carrying it back much further.

'Tis the *Thalmud of Babylon* that is uſually read, and that is the moſt conſulted among the *Jews*; ſo that when they ſay ſimply the *Thalmud*, they always mean this; never quoting the other without the Addition of *Jeruſalem*.

Rabbi Moſes, *Son of Maiemon*, has made an Abridgement of the *Thalmud*, which *Scaliger* prefers to the *Thalmud* itſelf; as being purg'd of many of the Fables wherewith the other is full. 'Tis a Syſtem of the Laws and Cuſtoms of the *Jews*, both their Civil and their Canon Law, and the beſt of their Traditions.

About the Year 1236, a *Jew* of *Rochel*, well vers'd in the *Hebrew*, becoming Chriſtian, made a Journey to Pope *Gregory* IX. and diſcover'd to him a Number of Errors in the *Thalmud*: Theſe the Pope ſends, in 39 Articles, to the Archbiſhops of *France*, with a Letter, appointing them to ſeize the Books of the *Jews*, and to burn all ſuch as ſhould contain thoſe Errors; in Conſequence of which Order, above 20 Cart Loads of *Hebrew* Books were burnt. He wrote to the ſame Effect to the Kings of *England*, *France*, *Arragon*, *Caſtile*, &c.

His Succeſſor, *Innocent* IV. giving Commiſſion to his Legate *Eudes de Chateauroux*, to examine the *Thalmud*, and other *Jewiſh* Books more carefully, and to tolerate ſuch Errors as were not contrary to the Chriſtian Religion; the Legate wrote to the Pope, that to tolerate them was to approve them; and the 15th of *May*, 1248, he condemn'd them Juridically.

TALON, in Architecture, a kind of Aſtragal; or Moulding conſiſting of a ſquare Fillet, crowning a Cymatium; frequently found to terminate Ornaments of Joyners-Work, as thoſe of Doors, *&c.* See CYMATIUM.

The *Talon* is a Moulding concave at the Bottom, and convex a-top; having an Effect juſt oppoſite to the Doucine. See DOUCINE.

When the concave Part is a-top, 'tis call'd an *Inverted Talon*. The *Talon* is uſually call'd by our *Engliſh* Workmen *Ogee*, or *O. G*; and by Authors an *upright* or *inverted Cymatium*. See OGEE.

The Word is *French*, and literally ſignifies *Heel*.

TALPA, in Medicine and Chirurgery, a Tumour thus call'd, of the Oedematous Kind. See OEDEMATOUS.

The *Talpa*, and Nates, chiefly ariſe about the Head, as the Conſequence of ſome Venereal Diſorder. See NATES.

The *Talpæ* elevate the Skin from the Pericranium; and generally denote a Foulneſs in the ſubjacent Bone of the Skull.

TALUS, in Anatomy, a Bone, call'd alſo *Aſtragalus*. See ASTRAGAL.

In its upper Part, it has a Convex Head, which is articulated with the two Fociles of the Leg, by Ginglymus, it being divided by a little Sinus, which receives the ſmall Protuberance in the Middle of the Sinus of the Tibia: Without this Articulation, we muſt always, in going, have trod on the Heel with our Fore-foot, and our Toes with the Hind-foot. See TIBIA.

The fore Part of the *Talus*, which is alſo convex, is receiv'd into the Sinus of the Os Naviculare. See NAVICULARE.

Below, towards the hind Part of its under Side, it has a pretty large Sinus, which receives the upper and hind Part of the Os Calcis: And towards the fore Part of the ſame Side it has a Protuberance, which is receiv'd into the upper and fore Part of the ſame Bone. Betwixt this Sinus, and this Protuberance, there is a Cavity, which anſwers to another in the Os Calcis; in which is contain'd an oily and mucous Sort of Subſtance, for moiſtening the Ligaments, and facilitating the obſcure Motion of theſe Bones when we go.

TALUS, or TALUT, in Architecture, the ſenſible Inclination or Slope of a Work; as of the Outſide of a Wall, when its Thickneſs is diminiſh'd by Degrees, as it riſes in Height, to make it the firmer. See WALL.

TALUS, in Fortification: The *Talus of a Baſtion*, or *Rampart*, is the Slope allow'd to ſuch a Work, whether it be of Earth or Stone, the better to ſupport its Weight. See RAMPART.

The *Talus exterior* of a Work, is its Steepneſs on the Side of the Field, which is always made as little as poſſible, to prevent the Enemies Scalado; unleſs the Earth be bad, and then it is abſolutely neceſſary to allow a conſiderable *Talus* for its Parapet.

The *Talus interior* of a Work, is its Steepneſs on the Inſide towards the Place.

TAMARINS, or TAMARINDS, a kind of Medicinal Fruit, of a tart, agreeable Taſte; brought from the *Eaſt Indies*, and call'd by ſome *Indian Dates*, and by others the *Indian Acacia*.

The Tree which yields it, call'd by the *Indians Tamarinds*, and the *Portugueſe Tamarindos*, is not unlike our Aſh, or Walnut Tree; its Leaves reſemble thoſe of Female Fern; its Flowers are join'd eight or ten together, like thoſe of the Orange Tree.

Its Fruit is in a Pod, the Length of a Finger, and the Thickneſs of the Thumb; cover'd at firſt with a green Rind, which afterwards becomes brown, and contains a blackiſh Pulp, among which are found Seeds reſembling Lupines: 'Tis this Pulp alone that is brought to us, and us'd in Medicines.

The *Tamarinds* muſt be choſen big, of a Jet Colour, a brisk Taſte, not too dry, and ſuch as have not been laid in the Cellar, nor falſify'd with Molaſſes of Sugar and Vinegar. They are found laxative, cooling, and good to quench Thirſt. In burning Fevers they are preſcrib'd to moiſten and cool the Mouth.

TAMBAC, or TAMBAQUA, a Mixture of Gold and Copper, which the People of *Siam* hold more beautiful, and ſet a greater Value on, than Gold itſelf.

Some Travellers ſpeak of it as a Metal found in its peculiar Mines; but upon what Authority we don't know. The Abbe *de Choiſy*, in his *Journal of Siam*, doubts whether it mayn't be the Electrum, Amber, of *Solomon*.

The Embaſſadors of *Siam* brought ſeveral Works in *Tambac* to *Paris*, in the Reign of *Louis* XIV; which were not found ſo beautiful as was expected.

TAMBOUR, in Architecture, a Term apply'd to the *Corinthian* and Compoſite Capitals; as bearing ſome Reſemblance to a Drum; which the *French* call *Tambour*. See CAPITAL.

Some chuſe to call it the *Vaſe*, and others the *Campana*, Bell. See VASE, *&c.*

TAMBOUR is alſo us'd for a little Box of Timber-Work, cover'd with a Ceiling, within-ſide the Porch of certain Churches; both to prevent the View of Perſons paſſing by, and to keep off the Wind, *&c.* by means of folding Doors, *&c.*

TAMBOUR is alſo a round Stone, or Courſe of Stones, ſeveral whereof form a Section of the Shaft of a Column, not ſo high as a Diameter.

TAMPION, TAMKIN or TOMKIN, a kind of Plug or Stopple, ſerving to cloſe a Veſſel; particularly to keep down the Powder in a Fire-Arm, *&c.*

In charging a Mortar, or the like, over the Powder is uſually put a thin round Piece of Wood to keep the Shot, Ball, Shell, or the like from the Gun-powder. This Piece is call'd a *Tampion*, and by means hereof, the Shot is exploded with the greater Vehemence. See CHARGE, *&c.*

The Word is form'd from the *French*, *Tampon*, a Bung, Stopple, *&c.* Some derive it from the *Engliſh* Tap.

TAN, the Bark of the Oak; chopp'd, and ground, by a *Tanning* Mill, into a coarſe Powder; to be uſed in the *Tanning* or Dreſſing of Skins. See BARK and TANNING.

New Tan is the moſt eſteem'd; when Old and Stale, it loſes a deal of its Effect, which conſiſts in the condenſing or cloſing the Pores of the Skins; ſo that the longer the Skins are kept in *Tan*, the greater Force and Firmneſs they acquire.

In effect, not only the Bark, but every Part of the Oak Tree, of what Age or Growth ſoever, all oaken Coppice, *&c.* cut in Barking Time, makes good *Tan*; as good at leaſt, as the beſt Bark.

This, when got, is to be well dried in the Sun, houſed dry, and kept ſo. To uſe it, the greater Wood may be ſhaved ſmall, or cleft, fit to be cut ſmall by a *Tanning* Engine for the Purpoſe; which done, 'tis well dried again on a Kiln, and then ground by the Mill.

Where Oak is ſcarce, Thorns may ſupply the Defect.

TANGENT, in Geometry, a right Line, which touches a Circle, that is, which meets it in ſuch Manner, as that though infinitely produced, it would never cut the ſame; that is, never come within the Circumference. See CIRCLE, *&c.*

Thus the Line AD (Tab. Geometry Fig. 50) is a *Tangent* to the Circle, in D.

'Tis demonſtrated in Geometry, 1° That if a *Tangent* AD, and a Secant AB, be both drawn from the ſame Point A; the Square of the *Tangent* will be equal to the Rectangle, under the whole Secant AB, and that Portion thereof AC, which falls without the Circle. See SECANT.

2° That if two *Tangents*, as AD AE be drawn to the ſame Circle from the ſame Point A, they will be equal to each other.

TANGENT, in Trigonometry. A TANGENT *of an Arch*, is a right Line, raiſed perpendicularly on the Extreme of the Diameter, and continued to a Point, where it is cut by a *Secant*, that is by a Line, drawn from the Centre through the Extremity of the Arch whereof it is a *Tangent*.

Or thus; A *Tangent of an Arch* EA (Tab. Trigonometry Fig. 26) is a Part of a *Tangent* of a Circle (that is, of a right Line which touches a Circle without cutting it) intercepted between two right Lines, drawn from the Centre C, through the Extremes of the Arch E and A. See ARCH.

Hence, the *Tangent* FE is perpendicular to the Radius EC.

And hence the *Tangent* FE is the *Tangent of the Circle* ACE, as alſo of that ACI; ſo that Two adjacent Angles have only the ſame common *Tangent*.

Co-TANGENT, or TANGENT *of a Complement*, is the *Tangent* of an Arch which is the Complement of another Arch to a Quadrant. See COMPLEMENT.

Thus, a *Tangent* of the Arch AH, is the *Co-tangent* of the Arch AE, or the *Tangent* of the Complement of the Arch AE.

To find the Length of the TANGENT *of any Arch*; The Sine of the Arch being given: Suppoſe the Arch, AE;

the given Sine, A D; and the *Tangent* required, E F. Since both the Sine and *Tangent* are perpendicular to the Radius E C, they are parallel to each other. Wherefore, as the Coſine D C is to the Sine A D, ſo is the whole Sine, to the *Tangent* E F. See SINE.

Hence, a Canon of Sines being had; a *Canon of Tangents* is eaſily conſtructed therefrom. See CANON.

Artificial TANGENTS, are the Logarithms of the *Tangents* of Arches. See LOGARITHM.

Line of TANGENTS, is a Line uſually placed on the Sector and *Gunter*'s Scale; the Deſcription and Uſes whereof, ſee under the Articles SECTOR and GUNTER's *Scale*.

TANGENT *of a Conic Section*, as of a Parabola, or other algebraic Curve, is a right Line, drawn, cutting the Axis. See CURVE, CONIC, &c.

Method of TANGENTS, a Method of determining the Quantity of the *Tangent* of any algebraic Curve; the Equation defining that Curve, being given.

This Method is one of the great Reſults of the *Calculus Differentialis*. See DIFFERENTIAL.

Its Uſe is very great in Geometry; becauſe in determining the *Tangents* of Curves, we determine at the ſame Time, the Quadratures of the Curvilinear Spaces: on which account it well deſerves to be here particularly inſiſted on. See QUADRATURE.

To find the Sub-tangent *in any Algebraic Curve.*

Let the Semiordinate *pm* be infinitely near another P M (Tab. Analyſis Fig. 13) then will P p be the Differential of the Abſciſs; and letting fall the Perpendicular M R = P p; R m will be the Differential of the Semiordinate. Draw, therefore, the *Tangent* T M: The infinitely little Arch M m, will not differ from a Right Line; and therefore M m R will be a right-lined, right-angled Triangle, uſually call'd the *Characteriſtic Triangle of the Curve*, in regard Curve Lines are diſtinguiſh'd from each other hereby. See CHARACTERISTIC.

Now, by reaſon of the Paralleliſm of the Right Lines P M and *pm*; the Angle M m R = T M P. Wherefore the Triangle M m R is Similar to the Triangle T M P. Let, therefore A P = x, P M = y, then will P p = M R = dx, and R m = dy. Conſequently,

$$\begin{array}{ccccccc} \mathrm{Rm} & : & \mathrm{MR} & :: & \mathrm{PM} & : & \mathrm{PT} \\ dy & : & dx & :: & y & : & \dfrac{ydx}{dy} \end{array}$$

If, then, from the given Equation of any Curve, you ſubſtitute the Value of dx to $ydx:dy$, in the general Expreſſion of the *Sub-tangent*, P T; the differential Quantities will vaniſh, and the Value of the *Sub-tangent* come out in common Quantities; whence the *Tangent* itſelf is eaſily determined. This we ſhall illuſtrate in a few Examples:

1° The Equation defining the common Parabola, is,

$$\begin{array}{rl} & ax = y^2 \\ \hline \text{Hence,} & adx = 2ydy \\ \hline & dx = 2ydy : a \end{array}$$

$\mathrm{PT} = ydx : dy = 2y^2dy : ady = 2y^2 : a = 2ax : a = 2x.$ That is, the *Sub-tangent* is double the Abſciſſe.

2° The Equation defining a Circle is,

$$\begin{array}{c} ax - xx = yy \\ \hline adx - 2xdx = 2ydy \\ \hline dx = 2ydy : (a - 2x) \\ \hline \end{array}$$

$\mathrm{PT} = dx : ydy = 2y^2dy : (a - 2x)\,dy = 2y^2 : (a - 2x) = (2ax - 2xx) : (a - 2x) = (ax - xx) : (\frac{1}{2}a - x)$ that is, P C : P B :: A P : P T.

Therefore $\mathrm{AT} = (ax - xx) : (\frac{1}{2}a - x) - x = (ax - xx - \frac{1}{2}ax + xx) : (\frac{1}{2}a - x) = \frac{1}{2}ax : (\frac{1}{2}a - x)$ that is, P C : P A :: C A : A T.

3° The Equation defining an Ellipſis, is;

$$\begin{array}{rl} & ay^2 = abx - bx^2 \\ \hline \text{Hence} & 2aydy = abdx - 2bxdx \\ \hline & 2aydy : (ab - 2bx) = dx \\ \hline \end{array}$$

$\mathrm{PT} = ydx : dy = 2ay^2 : (ab - 2bx) = (2abx - 2bx^2) : (ab - 2bx) = (2ax - 2ax^2) : (a - 2x)$ that is, as the Diſtance of the Semiordinate from the Centre, is to the Half Axis, ſo is the Abſciſs to the Portion of the *Sub-tangent* intercepted between the Vertex of the Ellipſis and the *Tangent*.

Laſtly, for all Algebraic Curves, the Equation is,

$$\begin{array}{c} aym + bx^n + cy^r x^{\text{ſ}} + df = 0 \\ \hline may^m - 1dy + nbx^n - - 1dx + \text{ſ}cy^r x^{\text{ſ}} - 1dx + rcy^r - 1x^{\text{ſ}}dy = 0 \\ \hline nbx^n - 1dx + \text{ſ}cy^r x^{\text{ſ}} - 1dx = -may^m - 1dy - rcy - 1x^{\text{ſ}}dy \\ \hline dx = \dfrac{-may^m - 1dy - rcy^r - 1x^{\text{ſ}}dy}{nbx^n - 1 + \text{ſ}cy^r a^{\text{ſ}} - 1} \\ \hline \mathrm{PT} = \dfrac{ydx}{dy} = \dfrac{-may^m - rcy^r x^{\text{ſ}}}{nbx^n - 1 + \text{ſ}cy^r x^{\text{ſ}} - 1} \end{array}$$

Suppoſe, *e. gr.* $y^2 - ax = 0$; then, by comparing with the general Formula;

$$\begin{array}{cc} ay^m = y^2 & bx^n = -ax \\ \hline a = 1 \quad m = 2 & b = -a \quad n = 1 \\ cy^r \quad x^{\text{ſ}} = 0 & f = 0 \\ \hline c = 0 \; r = 0 \; \text{ſ} = 0 & \end{array}$$

Theſe Values being ſubſtituted in the moſt general Formula of the *Sub-tangent*; we have the *Sub-tangent* of the Parabola of the firſt Kind, $(-2.1y^2 - 0.0y^0x^0) : (1 - ax1 - 1 + 0.0y^0x^0) = -2y^2 : a = 2y^2 : a,$

Suppoſe $y^3 - x^3 \; axy = 0$, then will

$$\begin{array}{c} ay^m = y^3 \; bx^n = -x^3 \\ \hline a = 1 \; m = 3 \; b = 1 \; n = 3 \\ cyr\,x^{\text{ſ}} = -axy \quad f = 0 \\ \hline c = -a \; r = 1 \quad \text{ſ} = 1 \end{array}$$

Theſe Values being ſubſtituted in the general Formula of the *Sub-tangent*; we have the *Sub-tangent* of the Curve, whoſe Equation is given, $\mathrm{PT} = (-3.1y^3 - 1. - ayx) : (3. - 1x^3 - 1 + 1. - ayx^1 - 1) = (-3y^3 + ayx) : (-3x^2 - ay) = (3y^3 - axy) : (3x + ay)$ Conſequently, $\mathrm{AT} = (3y^3 - axy) : (3x^2 + ay) - x = (3y^3 - axy) - (3x^3 - axy) : (3x^2 + ay) = (3axy - 2axy) : 3x^2 + ay.$ The Value of $y^3 - x^3$, that is, $axy : (3x^2 + ay)$ being ſubſtituted from the Equation to the Curve.

In the *Philoſophical Tranſactions*, we have the following Method of drawing *Tangents* to all Geometrical Curves, without any Labour, or Calculation, by M. *Sluſius*.

Suppoſe a Curve, as D Q (Fig. 14) whoſe Points are all referable to any Right Line given, as E A B, whether the Right Line be the Diameter or not; or whether there be more given Right Lines than one, provided their Powers do but come into the Equation. In all his Equations he puts v for the Line D A, y for B A; and for E B, and the other given Lines, he puts *b d*, &c. that is, always Conſonants.

Then, ſuppoſing D C to be drawn touching the Curve in D, and meeting with E B produced in C; he calls the ſought Line C A, by the Name of *a*.

To find which, he gives this general Method: 1. Reject out of the Equation all Members, which have not either v or y with them: Then put all thoſe that have y, on one Side; and all thoſe which have v, on the other; with their Signs + or −; and the latter, for Diſtinction and Eaſe ſake, he calls the Right, the former, the Left Side. 2. On the Right Side, let there be prefix'd to each Member, the Exponent of the Power, which v hath there; or, which is all one, let that Exponent be multiplied into all the Members. 3 Let the ſame be done alſo on the Left Side, multiplying each Member there by the Power of the Exponent of y. Adding this moreover, that one y muſt, in each Member, be always changed into a This done, the Equation thus reform'd, will ſhew the Method of drawing the required *Tangent* to the Point D: For, that being given; as alſo y, v, and the other Quantities expreſſed by Conſonants, a cannot be unknown. Suppoſe an Equation $by - yy = vv$, in which E B is called b; B A = y, D A = v, and let a, or A C be required ſo as to find the Point C, from whence C D being drawn, ſhall be a true *Tangent* to that Curve Q D in D. In this Example, nothing is to be rejected out of the Equation, becauſe y or v are in each Member: It is alſo diſpoſed, as required by the Rule 1; to each Part therefore, there muſt be prefix'd the Exponent of the Powers of y or v, as in Rule 2; and on the Left Side, let one y be changed into a, and then the Equation will be in this Form, $ba - 2ya = 2vv$, which Equation reduced, gives eaſily the Value of $a = \dfrac{2vv}{b - 2y} = \mathrm{AC}$. And ſo the Point C is found, from whence the *Tangent* D C may be drawn.

To determine which Way the *Tangent* is to be drawn, whether towards B or E, he directs to conſider the Numerator and Denominator of the Fraction. For, 1. If in both Parts of the Fraction, all the Signs are Affirmative; or if the Affirmative ones are more in Number; then the *Tangent* is to run towards B. 2. If the Affirmative Quantities are greater than the Negative in the Numerator; but equal to them in the Denominator; the Right Line drawn through D, and touching the Curve in that Point, will be parallel to A B: For in this Caſe, *a* is of an infinite Length. 3. If in both Parts of the Fraction, the Affirmative Quantities, are leſs than the Negative, changing all the Signs, the *Tangent* muſt be drawn now alſo towards B: For this Caſe, after the Change, comes to be the ſame as the Firſt. 4. If the Affirmative Quantities are greater than the Negative in the Denominator; but in the Numerator are leſs; or *vice verſa*; then changing the Signs in that Part of the Fraction where they are leſs, the *Tangent* muſt be drawn a contrary Way;

that is, AC muſt be taken towards E. 5. But whenever the Affirmative and Negative Quantities are equal in the Numerator, let them be how they will in the Denominator, a will vaniſh into nothing: And, conſequently, the *Tangent* is either AD itſelf, or EA, or parallel thereto; as will eaſily be found by the Data. This he gives plain Examples of, in reference to the Circle; thus: Let there be a Semicircle, whoſe Diameter is EB; in which there is given any Point; as D, (Fig. 15.) from which the Perpendicular DA is let fall to the Diameter. Let $DA=v$, $BA=y$, $BE=b$: Then the Equation will be $by-yy=vv$, and drawing the *Tangent* DC, AC, or $a=\frac{2vv}{b-2y}$. Now, if b be greater than $2y$, the *Tangent* muſt be drawn towards B; if leſs, towards E; if it be equal to it, it will be parallel to EB, as was ſaid in the firſt, ſecond and fourth Rules.

Let there be another Semi-circle inverted; as NDD, (Fig. 16.) the Points of whoſe Periphery, are referr'd to the Right Line BB, parallel and = to the Diameter. Let NB be called d; and all Things elſe as before; then the Equation will be $by-yy=dd+vv-2dv$; which being managed according to his Rules, you have $a=\frac{2vv-2dv}{b-2y}$

Now ſince v here is ſuppoſed to be always leſs than d; if b be greater than $2y$, then the *Tangent* muſt be drawn towards E; if equal, it will be parallel to BB; if leſs, changing all the Sines, the *Tangent* muſt be drawn towards B, as by Rules Fourth, Fifth and Third. But there could be no *Tangent* drawn, or at leaſt, EB would be it, if NB had been taken equal to the Diameter. Let there be another Semicircle, whoſe Diameter NB, (Fig. 17.) is perpendicular to EB, and to which its Points are ſuppoſed to be referr'd. Let NB be called B, and all Things elſe as above; the Equation will be $yy=bv-vv$, and $a=\frac{bv-2vv}{2y}$. If, now, b be greater than $2v$, the *Tangent* muſt be drawn towards B, if leſſer, towards E, if equal, DA will be the Tangent, as by Rules 1, 4 and 5, appears.

Inverſe Method of TANGENTS, is a Method of finding the Equation, or the Conſtruction, of any Curve; from the *Tangent* or any other Line whoſe Determination depends on the *Tangent*, given.

This Method is one of the great Reſults of the New *Calculus Integralis*. See CALCULUS.

Its Application we ſhall give in what follows.

The differential Expreſſions of the *Tangent*, *Sub-tangent*, *&c.* being delivered under the laſt Article: If you make the given Value equal to the differential Expreſſion, and either ſum up the differential Equation, or, if that can't be, conſtruct it, the Curve required, is had. For Example:

1° *To find the Curve Line, whoſe* Sub-tangent $=2yy:a$

Since the *Sub-tangent* of an algebraic Line is $=ydx$, we have

$$ydx:dy=2yy:a$$

$$aydx=2y^2dy$$

$$adx=2ydy$$

$$ax=y^2$$

The Curve ſought, therefore, is a Parabola; whoſe Conſtruction is ſhewn under the Article PARABOLA.

2° *To find the Curve, whoſe* Sub-tangent *is a Third Proportional to* $r-x$ *and* y.

Since $$r-x:y=y:\frac{ydx}{dy}$$

We have $$r-x:y=dy:dx$$

$$rdx-xdx=ydy$$

$$rx-2^1x^2=2^1y^2$$

$$2rx-xx=y^2$$

The Curve ſought therefore, is a Circle.

3° *To find the Line wherein the* Sub-tangent *is equal to the Semiordinate.*

Since, $$ydx:dy=y$$

$$ydx=ydy$$

$$dx=dy$$

$$x=y$$

Hence it appears, that the Line ſought, is a right Line, that referrs to the Cathetus of an Equicrural Triangle, as to an Axis or the Hypothenuſe of an Equicrural, rectangled Triangle. If x had been taken for the Arch of a Circle, the ſought Line had been a Cycloid. See CYCLOID.

TANGIBLE. See TACTILE.

TANISTRY, or TANISTRI, in our ancient Cuſtoms, an Heir preſumptive, or ſecond Poſſeſſor. See HEIR, *&c.*

Hence the Law, or Tenure, *Taniſtry*, or *Taniſtria*, an ancient municipal Law, or Tenure of *England*, which allotted the Inheritance of Lands, Caſtles, *&c.* held by this Tenure, to the oldeſt and moſt worthy and capable Perſon of the Deceaſed's Name and Blood; without any Regard to Proximity.

This, in reality, was giving it to the ſtrongeſt; which naturally occaſion'd bloody Wars in Families: for which Reaſon it was aboliſh'd under K. *James* I. Sir *John Davis* deſcribes it thus; *Quant aſcun Perſon moruſt ſeiſie des Aſcuns Caſtles, Manors, Terres ou Tenements del* Nature *&* Tenure de Taniſtry; *que donques meſme les Caſtles*, &c. *doent deſcender, & de temps dont Memory ne Court ont uſe de deſcender* Seniori & digniſſimo Viro Sanguinis & Cognominis *de tiel Perſon*, &c. The Word is ſuppos'd form'd from *Thanis*.

TANNING, the preparing of Skins or Hides in a Pit, with *Tan* and Water, after having firſt taken off the Hair, by ſteeping them in Lime Water. See TAN and LEATHER.

Method of TANNING *Cows, Calves, and Horſes Hides.*

The Skin being flead off the Carcaſs, if 'tis intended to be kept, 'tis ſalted with Sea Salt and Alum, or with a kind of Saltpetre, call'd *Natron*; if 'tis not for keeping, the Salting is ſav'd, as being of no uſe, but to prevent the Hide from corrupting e'er it can be conveniently carry'd to the *Tan-houſe*.

Whether the Hide have been ſalted or not, the *Tanner* begins with taking off the Horns, the Ears, and the Tail; after which 'tis thrown into a running Water for about 30 Hours, to waſh off the Blood, and other Impurities adhering to the Inſide.

This done, 'tis laid over Night in a Lime Pit, already uſed; whence it is taken, and left to drain three or four Days on the Edge of the Pit.

This firſt and ſlighteſt Preparation over, it is return'd into a ſtrong Lime-Pit for two Days; then taken out for four more; and thus for ſix Weeks alternately, taken out and put in, twice a Week.

At the ſix Weeks End, it is put into a freſh Pit, where it continues eight Days, and is taken out for ſo many; and this alternately for a Year or eighteen Months, according to the Strength of the Leather, or the Weather: for in great Heats, they put in freſh Lime twice a Week; and in Froſt they ſometimes don't touch them for three Months. Every freſh Lime-Pit they throw them into, is ſtronger and ſtronger.

At four, five, or ſix Weeks end, the *Tanner* ſcrapes off the Hair, on a Wooden Leg, or Horſe, with a kind of Knife for that Purpoſe. And after a Year or eighteen Months, when the Hair is perfectly gone, he carries it to a River to waſh, pares off the Fleſh on the Leg, with a kind of cutting Knife, and rubs it briskly with a kind of Whet-ſtone, to take off any Remains of Fleſh or Filth on the Side of the Hair.

The Skin is now put into *Tan*; that is, cover'd over with *Tan*, as 'tis ſtretch'd in the Pit, and Water let in upon it: If the Skin be ſtrong, five Coverings of *Tan* will be requir'd; for weaker, three or four may ſuffice. When the Skin has not been kept long enough in Lime, or the *Tan*-Pit; upon cleaving it, in the Middle is ſeen a whitiſh Streak, call'd the Horn, or Crudity of the Skin; and 'tis this is the Reaſon why the Soals of Shoes, Boots, *&c.* ſtretch ſo eaſily, and take Water.

When the Hides are ſufficiently *tann'd*, they are taken out of the Pit, to be dry'd, by hanging in the Air: Then the *Tan* is clean'd off them, and they are put in a Place neither too dry, nor too moiſt; they are well ſtretch'd over one another, with Weights a-top, to keep them tight and ſtraight; and in this Condition are ſold, under the Denomination of *Bend Leather*. This is the Method of *tanning* Bullocks or Oxes Hides.

Cows, Calves, and Horſes Skins are *tann'd* much after the ſame Manner as thoſe of Oxen, except that the former are only kept four Months, in the Lime-Pit; and that before they be put in the *Tan*, there is a Preparation requir'd, thus: Cold Water is pour'd into a Wooden Fat or Tub, wherein the Skins are put, which are kept ſtirring while ſome other Water is warming in a Kettle; and as ſoon as that Water is a little more than lukewarm, 'tis pour'd gently into the Fat, and upon this is caſt a Basket of *Tan*; during which Time, the Skins are ſtill kept turning, that the Water and *Tan* mayn't burn them.

After an Hour, they are taken out, and caſt for a Day in cold Water, then return'd into the former Fat, and the ſame Water they had been in before; and here they are left eight Days; which expir'd, they are put in the *Tan*-Pit, and three Coverings of *Tan* given them, the firſt of which laſts five Weeks, the 2d ſix, and the 3d two Months.

The reſt of the Proceſs is in all reſpects the ſame as that above deliver'd. In ſome Countries, as in *Champagne*, *&c.* the *Tanners* give the firſt Preparation with Barley inſtead of Lime.

TANTAMOUNT, (of the *French tant* and *Montant*, or *Monter*,) ſomething that amounts to, or is equivalent to ſo much.

TAP, among Hunters: A Hair is ſaid to *tap*, or beat, when ſhe makes a Noiſe.

TAPASSANT, denotes *lurking* or *ſquatting*, and is a Term us'd in Hunting: Hence, to *tappy*, is to be hid, as a Deer may be.

TAPER, *Tapering*, is underſtood of a Piece of Timber, or the like, when broad beneath, and ſharp towards the Top; as is the Caſe in Pyramids, Cones, *&c.* See PYRAMID.

To meaſure *taper* Timber, *&c.* See TIMBER, SLIDING-*Rule*, *&c.*

TAPER-*bored*, is apply'd to a Piece of Ordnance, when it is wider at the Mouth than towards the Breech. See ORDNANCE.

TAPER, a kind of tall waxen Candle, placed in a Candleſtick, and burnt at Funeral Proceſſions, and in other Church Solemnities. See CANDLE.

They are made of different Sizes: In ſome Places, as *Italy*, *&c.* they are Cylindrical; but in moſt other Countries, as *England*, *France*, &c. they are Conical, or *taper*, whence the Name.

Both Kinds are pierced at Bottom, for a Pin in the Candleſtick to enter.

The Uſe of Lights in religious Ceremonies, is of a long ſtanding: The Ancients, we know, uſed Flambeaux in their Sacrifices, and particularly in the Myſteries of *Ceres*; and they had *Tapers* placed before the Statues of their Gods.

Some ſuppoſe, that it was in Imitation of this Heathen Ceremony, that Lights were firſt introduc'd into the Chriſtian Church; others take it, that the Chriſtians borrow'd the Practice from the *Jews*: But Recourſe need not be had to the one or the other.

Doubtleſs, as in the firſt Days of Chriſtianity they had their Meetings in obſcure ſubterraneous Vaults, there was a Neceſſity for *Tapers*, *&c.* and there was even Occaſion for them after they had the Liberty of building Churches; thoſe being contriv'd in ſuch Manner, as only to receive very little Light, that they might inſpire the greater Awe and Reſpect by the Obſcurity.

This Original of *Tapers* in Churches is the moſt natural; but 'tis now a long Time ſince the Uſe of *Tapers*, which Neceſſity at firſt introduc'd, is become a mere Ceremony. S. *Paulinus*, who liv'd at the Beginning of the Vth Century, obſerves, that the Chriſtians of his Days were ſo fond of *Tapers*, that they even painted them in their Churches. See LUMINARY.

Manner of making TAPERS.

There are two ways of making *Tapers*: The firſt with the *Ladle*, the ſecond by *Hand*.

In the firſt, after the Wicks (which are uſually half Cotton half Flax) have been well twiſted, and cut of the due Length; a Dozen of them are hung, at equal Diſtances, around an Iron Hoop, directly over a large Copper Baſon full of melted Wax.

Then taking an Iron Ladle-full of the Wax, they pour it gently over the Wicks, a little below the Tops thereof, one after another; ſo that the Wax running down them, they become quite cover'd therewith, and the Surplus returns into the Baſon, under which is a Pan of Coals to keep it in Fuſion.

Thus they continue to caſt on more and more Wax for ten or twelve times, till the *Tapers* be brought to the requir'd Dimenſions. The firſt Caſt only ſoaks the Wick, the ſecond begins to cover it, and the reſt give it the Form and Thickneſs; in order to which, they take Care that every Caſt, after the fourth, be made lower and lower below the Wicks, to make them *taper*.

The *Tapers* thus form'd, are laid, while yet hot, one againſt another, in a Feather Bed, folded double to preſerve them ſoft; and taken out thence, one after another, to be rolled on a long ſmooth Table, with an oblong Inſtrument of Box, poliſh'd at Bottom, and furniſh'd with a Handle above.

The *Taper* thus roll'd and poliſh'd, a Piece of its big End is cut off, and a Conical Hole bored therein, with a Boxen Inſtrument, into which the Pin, or Point of the Candleſtick is to be receiv'd.

While the Broach is yet in the Hole, they uſe to ſtamp the Maker's Name, and the Weight of the *Taper*, with a Boxen Ruler, whereon the Characters are cut. The *Taper* is then hung up to dry and harden; after which it is fit for Uſe.

Making of TAPERS *by Hand.*

The Wicks being diſpos'd, as in the former Manner; they begin to ſoften the Wax by working it in hot Water, in a narrow, deep Copper Veſſel. They then take a Quantity of this Wax out with the Hand, and lay it gradually on the Wick, which is faſten'd to a Hook in the Wall by the End oppoſite to the Wick; ſo that they begin to form the *Taper* by the big End; and proceed, ſtill leſſening the Thickneſs to the Neck or Collet.

The reſt is perform'd after the ſame Manner as in *Tapers* made with the Ladle, except that they don't lay them in the Feather-Bed, but roll them on the Table as faſt as form'd.

Two Things there are to be obſerv'd in the two Kinds of *Tapers*: The firſt, that in the whole Proceſs of *Tapers* with the Ladle, they uſe Water to moiſten the Table, and other Inſtruments uſed therein, that the Wax may not ſtick; and that in the other, they uſe Oil of Olives or Lard for the ſame End.

Paſchal TAPER, among the *Romaniſts*, is a large *Taper*, whereon the Deacon applies five Grains of Frankincenſe, in Holes made for the Purpoſe, in Form of a Croſs; and which he lights with new Fire in the Ceremony of *Eaſter* Saturday.

The Pontifical makes Pope *Zoſimus* the Author thereof; but *Baronius* will have the Uſage more ancient, and quotes a Hymn of *Prudentius* to prove it.

The Pope he ſuppoſes to have only eſtabliſh'd the Uſe thereof in Pariſh Churches; which, till that Time, had been reſtrain'd to the greater Churches. F. *Papebroch* explains the Origin of the Paſchal Torch more diſtinctly in his *Conatus Chronico Hiſtoricus*, &c. It ſeems, tho' the Council of *Nice* regulated the Day whereon *Eaſter* was to be celebrated, it laid it on the Patriarch of *Alexandria* to make a yearly Canon thereof, and to ſend it to the Pope. As all the other moveable Feaſts were to be regulated on that of *Eaſter*, a Catalogue of them was made every Year, and wrote on a *Taper*, *Cereus*, which was bleſs'd in the Church with much Solemnity.

This *Taper*, according to the Abbot *Chaſtelain*, was not a Wax Candle, made to be burnt: It had no Wick; nor was it any thing more than a kind of Column of Wax, made on purpoſe to write the Liſt of moveable Feaſts on, and which would ſuffice to hold it for the Space of a Year.

For among the Ancients, when any thing was to be wrote to laſt for ever, they engrav'd it on Marble or Steel; when it was to laſt a long while, they wrote it on *Ægyptian* Paper; and when it was only to laſt a ſhort Time, they contented themſelves to write it on Wax.

In Proceſs of Time, they came to write the Liſt of moveable Feaſts on Paper, but they ſtill faſten'd it to the Paſchal *Taper*; which Practice is obſerv'd to this Day at *Notre Dame* in *Rouen*, and throughout the Order of *China*.

Such is the Original of the Benediction of the *Paſchal Taper*.

TAPESTRY, or TAPISTRY, a curious Kind of Manufacture, ſerving to adorn a Chamber, or other Apartment, by hanging, or covering the Walls thereof. See HANGING.

Some uſe *Tapeſtry* as a general Name for all Kinds of *Hangings*, whether wove, or wrought with the Needle, and whether Silken, Woollen, Linnen, Leather, or Paper; (in which they are countenanc'd by the Etymology of the Word, form'd from the *French Tapiſſer*, to line, of the *Latin Tapes*, a Cover of a Bed, *&c.*) But in the common Uſe of our Language, the Term is now appropriated to a Kind of woven Hangings, of Wooll and Silk, frequently rais'd, and enrich'd with Gold and Silver, repreſenting Figures of Men, Animals, Landskips, *&c.*

The Invention of *Tapeſtry* ſeems to have come from the *Levant*; and what makes this the more probable is, that formerly the Workmen concern'd herein, were call'd, at leaſt in *France*, *Sarrazins*, or *Sarraſinois*.

'Tis ſuppos'd that the *Engliſh* and *Flemiſh*, who were the firſt that excell'd therein, might bring the Art with them from ſome of the Croiſades, or Expeditions againſt the *Sarazens*. See CROISADE.

Be this as it will, tis certain thoſe two Nations, particularly the *Engliſh*, were the firſt who ſet on Foot this noble and rich Manufacture in *Europe*; now one of the fineſt Ornaments of Palaces, Baſilicks, Churches, *&c.*

Hence, if they ben't allow'd the Inventors, they have, at leaſt, the Glory of being the Reſtorers of ſo curious and admirable an Art, as gives a kind of Life to Woolls and Silks, in no Reſpect inferior to the Paintings of the beſt Maſters.

'Twas late e'er the *French* apply'd themſelves to *Tapiſtry*: he firſt Eſtabliſhment of that Kind, was under *Henry* IV. n the Year 1607, in the *Fauxbourg, S. Michael.* But this ell with the Death of that Prince. Under *Lewis* XIV. the Manufacture was retriev'd by the Care and Addreſs of the great M. *Colbert*, to whom the Eſtabliſhment of the Gobelins is owing, a Royal *Tapiſtry* Manufacture, which has produc'd Works in this Kind, ſcarce inferior to the fineſt *Engliſh* or *Flemiſh Tapiſtry*, either with regard to the Deſigns, the Colours, or the Firmneſs. See GOBELIN.

The *Tapiſtry-men* diſtinguiſh two Kinds of Work, *viz. Tapiſtry* of the *high* and *low Warp*; tho' the Difference is rather in the Manner of working, than in the Work itſelf, which is, in effect, the ſame in both; only the Looms, and conſequently the Warps, are differently ſituate: Thoſe of the *low Warp* being placed flat, and parallel to the Horizon; and thoſe, on the contrary, of the *high Warp*, erected perpendicularly.

The *Engliſh* anciently excell'd all the World in their *Tapiſtry of the high Warp*; and they ſtill retain their former Reputation, tho' with ſome little Change: Their *low Warps* are ſtill admir'd; but as for the *high ones*, they are quite laid aſide in our Nation. See COMMERCE, WOOLLEN *Manufacture*, &c.

The *French* have three conſiderable *Tapiſtry* Manufactures beſides that of the Gobelins; the firſt at *Aubuſſon* in *Auvergne*, the ſecond at *Felletin* in the *Upper Marche*, and the third at *Beauvois*: They were all equally eſtabliſh'd for the high and the low Warp, but have all laid aſide the former, excepting the Gobelins.

There are admirable low Warps in *Flanders*, generally exceeding thoſe of *France*; the chief, and almoſt only *Flemiſh* Manufactories, are at *Bruſſels*, *Antwerp*, *Oudenard*, *Liſle*, *Tournay*, *Bruges*, and *Valenciennes*.

At *Bruſſels* and *Antwerp* they ſucceed both in human Figures, in Animals, and Landſkips; and that both with regard to the Deſigns and the Workmanſhip. At *Oudenard* their Landſkips and Animals are good, but their human Figures naught. *Liſle*, and the other Cities nam'd, come behind *Oudenard*. The *French* Manufacture of *Felletin* does tolerably well in Landſkips, *Aubuſſon* in Figures, and *Beauvois* in both.

The uſual Widths of *Tapiſtries*, are from two Ells to three Ells and half, *Paris* Meaſure.

The Manufacture of *Tapiſtry* of each Kind, is too curious to be here paſs'd over, without a ſhort Deſcription. We ſhall give each under its ſeparate Article.

Manufacture of TAPISTRY *of the high Warp.*

The Loom whereon tis wrought, is placed perpendicularly: It conſiſts of four principal Pieces; two long Planks or Cheeks of Wood, and two thick Rollers or Beams. The Planks are ſet upright, and the Beams acroſs them, one atop, and t'other at Bottom, a Foot's Diſtance from the Ground. They have each their Trunnions, by which they are ſuſpended on the Planks, and are turn'd with Bars. In each Roller is a Groove, from one End to t'other, capable of containing a long round Piece of Wood, faſten'd therein with Hooks. Its Uſe is to tye the Ends of the Warp to. The Warp, which is a kind of worſted, or twiſted Woollen Thread, is wound on the upper Roller; and the Work, as faſt as wove, is wound on the lower.

Within-ſide the Planks, which are ſeven or eight Foot high, fourteen or fifteen Inches broad, and three or four thick, are Holes pierc'd, from Top to Bottom, in which are put thick Pieces of Iron, with Hooks at one End, ſerving to ſuſtain the Coat-ſtave: Theſe Pieces of Iron have alſo Holes pierced; by putting a Pin in which, the Stave is drawn nearer, or ſet further off; and thus the Coats, or Threads, are ſtretch'd or looſen'd at Pleaſure.

The Coat-ſtave is about three Inches Diameter, and runs all the Length of the Loom: On this are fix'd the Coats, or Threads, which make the Threads of the Warp croſs each other. It has much the ſame Effect here, as the Spring-ſtave and Treddles have in the common Looms. The Coats are little Threads faſten'd to each Thread of the Warp, with a kind of ſliding Knot, which forms a Sort of Maſh, or Ring. They ſerve to keep the Warp open, for the Paſſage of Broaches wound with Silks, Woollens, or other Matters uſed in the Piece of *Tapiſtry*.

Laſtly, there are a Number of little Sticks, of different Lengths, but all about an Inch Diameter, which the Workman keeps by him in Baskets, to ſerve to make the Threads of the Warp croſs each other, by paſſing them acroſs: And that the Threads thus croſs'd may retain their proper Situation, a Packthread is run among the Threads, above the Stick.

The Loom thus form'd, and mounted with its Warp, the firſt Thing the Workman does, is to draw, on the Threads of this Warp, the principal Lines and Strokes of the Deſign to be repreſented on the Piece of *Tapiſtry*, which is done by applying Cartoons made from the Painting he intends to copy, to the Side that is to be the wrong Side of the Piece; and then with a Black-lead Pencil following and tracing out the Contours thereof on the Thread of the right Side; ſo that the Strokes appear equally both before and behind. As to the original Deſign the Work is to be finiſh'd by, tis hung up behind the Workman, and wound on a long Staff; from which a Piece is unroll'd from Time to Time, as the Work proceeds.

Beſides the Loom, *&c.* here deſcribed; there are Three other principal Inſtruments required for the working the Silk, or Wooll of the Woof within the Threads of the Warp. Theſe are a Broach, a Reed, and an Iron Needle.

The Broach is of hard Wood, 7 or 8 Inches long, and two Thirds of an Inch thick, ending in a Point with a little Handle. It ſerves as a Shuttle, the Silks, Woollens, Gold or Silver to be uſed in the Work, being wound on it. The Reed or Comb is alſo of Wood, Eight or Nine Inches long, and an Inch thick at the Back; whence it uſually grows leſs and leſs, to the Extremity of the Teeth, which are more or leſs apart, according to the greater or leſs Degree of Fineneſs of the intended Work. Laſtly, the Needle is in Form of the common Needle, only bigger and longer. Its Uſe is to preſs cloſe the Wooll and Silks, when there is any Line or Colour that does not ſit well.

All Things being prepared for the Work; and the Workman ready to begin, he places himſelf on the wrong Side the Piece, with his Back towards the Deſign; ſo that he works, as it were, blind-fold, ſeeing nothing of what he does, and being obliged to quit his Poſt, and go to the other Side the Loom, whenever he would view and examine the Piece, to correct it with his Preſſing Needle.

To put any Silk, *&c.* in the Warp, he firſt turns, and looks at his Deſign: Then taking a Broach full of the proper Colour, he places it among the Threads of the Warp, which he brings acroſs each other with his Fingers, by means of the Coats or Threads faſten'd to the Staff: This he repeats every time he is to change his Colour.

The Silk or Wooll being placed, he beats it with his Reed or Comb; and when he has thus wrought in ſeveral Rows over each other, he goes to ſee the Effect they have; in order to reform the Contours with his Needle, if there be occaſion.

As the Work advances, they roll it up on the lower Beam, and unroll as much Warp from the upper Beam, as ſuffices them to continue the Piece: The like they do of the Deſign behind them.

When the Pieces are wide, ſeveral Workmen may be employ'd at once.

We have but two Things to add: The firſt, that this *high Warp Tapiſtry* goes on much more ſlowly than the *low Warp*, and takes almoſt double the Time and Trouble. The ſecond, that all the Difference the Eye can obſerve between the two Kinds, conſiſts in this, that in the low Warp there is a red Fillet, about one Twelfth of an Inch broad, running on each Side, from Top to Bottom; which is wanting in the high Warp.

Manufacture of TAPISTRY *of the low Warp.*

The Loom or Frame wherein the low Warp is wrought, is much like that of the Weavers: The principal Parts thereof are two ſtrong Pieces of Wood forming the Sides of the Loom, and bearing a Beam or Roller at each End: They are ſuſtain'd at Bottom with other ſtrong Pieces of Wood in Manner of Treſtles; and, to keep them the firmer, are likewiſe faſten'd to the Floor with a kind of Buttreſſes, which prevent any ſhaking, tho' there are ſometimes four or five Workmen leaning on the fore Beam at once.

The Rollers have each their Trunnions, by which they are ſuſtain'd: They are turn'd by large Iron Pins, three Foot long. Along each Beam runs a Groove, wherein is placed the *Wich*, a Piece of Wood of above two Inches Diameter, and almoſt the Length of the Roller: This Piece fills the Groove entirely, and is faſten'd therein, from Space to Space, by wooden Pins. To the two Wiches are faſten'd the two Extremities of the Warp, which is wound on the further Roller; and the Work, as it advances, on the nearer.

A-croſs the two Sides, almoſt in the Middle of the Loom, paſſes a wooden Bar, which ſuſtains little Pieces of Wood, not unlike the Beam of a Balance: To theſe Pieces are faſten'd Strings, which bear certain Spring-ſtaves, wherewith the Workman, by means of two Treadles under the Loom whereon he ſets his Feet, gives a Motion to the Coats, and makes the Threads of the Warp riſe and fall alternately. Each Loom has more or fewer of theſe Spring-ſtaves, and each Stave more or fewer Coats, as the *Tapiſtry* conſiſts of more or fewer Threads. See LOOM.

The Deſign or Painting the *Tapiſtry-man* is to follow, is placed underneath the Warp; where it is ſuſtain'd from Space to Space with Strings, by which the Deſign is brought nearer the Warp.

The Loom being mounted, there are two Inſtruments uſed in working of it, *viz.* the Reed and the Flute. The Flute does the Office of the Weavers Shuttle: 'Tis made of a hard, poliſh'd Wood, three or four Lines thick at the Ends, and ſomewhat more in the Middle, and three or four Inches long. On it are wound the Silks, or other Matters to be uſed as the Woof of the *Tapiſtry*. The Comb or Reed is of Wood, or Ivory; it has uſually Teeth on both Sides; 'tis about an Inch thick in the Middle, but diminiſhes each Way to the Extremity of the Teeth: It ſerves to beat the Threads of the Woof cloſe to each other, as faſt as the Workman has paſs'd and placed them with his Flute among the Threads of the Warp.

The Workman is ſeated on a Bench before the Loom, with his Breaſt againſt the Beam, only a Cuſhion or Pillow between them; and in this Poſture, ſeparating, with his Fingers, the Threads of the Warp, that he may ſee the Deſign underneath, and taking a Flute, wound with the proper Colour, he paſſes it among the Threads; after having rais'd or lower'd them, by means of the Treadles moving the Spring-ſtaves and Coats.

Laſtly, to preſs and cloſe the Threads of the Silk or Yarn, *&c.* thus placed, he ſtrikes each Courſe (*i. e.* what the Flute leaves in its paſſing and coming back again) with the Reed.

What is very remarkable in the Manufacture of the low Warp, and which is common to it with the high, is, that 'tis all wrought on the wrong Side; ſo that the Workman cannot ſee the right Side of his *Tapiſtry*, till the Piece be finiſh'd and taken off the Loom.

TAPPING, the Act of piercing a Hole in a Veſſel, and applying a Tube or Cannula in the Aperture, for the commodious drawing off the Liquors contain'd therein.

TAPPING, in Agriculture, is the making an Inciſion in the Bark of a Tree, and letting out the Juice. See BARK.

To *Tap* a Tree at the Root, is to open it round about the Root.

Ratray, the learned *Scot*, affirms, that he has found by Experiment, that the Liquor which may be drawn from the Birch in the Spring-time, is equal to the whole Weight of the Tree, Branches, Roots and all together.

In the *Tapping* of Trees, the Juice certainly aſcends from the Root, and after it is Concocted and Aſſimulated in the Branches, *&c.* deſcends like a Liquor in an Alembic, to the Orifice or Inciſion where it iſſues out.

One of the moſt effectual Ways of *Tapping*, ſo as to obtain the greateſt Store of Sap in the ſhorteſt Time, is, not only to pierce the Bark, nor yet to cut the Body of the Tree almoſt to the Pith, with a Chiſſel (as ſome have directed) but quite through all the Circles, and the inner Rind itſelf, on both Sides the Pith; leaving only the Outermoſt Circle, and the Bark on the North-Eaſt Side unpierced.

But this Hole is to be bored ſloping upwards, as large as the largeſt Augre you can get, will make; and that alſo through and under a large Arm, near the Ground. So will it not need any Stone to keep open the Orifice, nor Tap to direct the Sap into the Receiver.

This Way, the Tree will, in ſhort Time, afford Liquor enough to Brew withal; and with ſome of this ſweet Sap, one Buſhel of Malt, will make as good Ale as Four Buſhels of Malt with ordinary Water. Sycamore I take to yield the beſt brewing Sap, being very ſweet and wholeſome.

To preſerve the Sap for Brewing.

Inſolate it by a conſtant Expoſure to the Sun in Glaſſes or other Veſſels, till the reſt be gather'd and ready; otherwiſe it will contract an Acidity: when you have enough, put into it as much very thin cut, and hard toaſted Rye-bread, as will ſerve to ferment it; and when it works, take out the Bread, and bottle up the Liquor. A few Cloves in each Veſſel that receives the Sap, as it oozes from the Tree, will certainly preſerve it a Twelve-month. Dr. *Tonge* in the *Philoſophical Tranſactions*.

TAPPING, in Chirurgery. See PARENTHESIS, DROPSY, *&c.*

TAPPING, in Heraldry. See BEATING.

TAR, a groſs, fatty Liquor, iſſuing from the Trunks of old Pines.

When theſe Trees are on the Return, and only fit for burning, they cut off the Bark all around towards the Root, and through theſe Inciſions, there continues flowing, for a conſiderable Time, a blackiſh Liquor, which is the *Tar*. When this ceaſes, 'tis a ſure Indication the Pine is quite dead, and only fit for the Fire.

The chief Uſe of *Tar*, is for the Coating and Caulking of Ships. See CAULKING, *&c.*

Of *Tar*, boil'd to a ſufficient Conſiſtence, Pitch is made. See PITCH.

TARANTISMUS, in Medicine, the Diſeaſe or Affection of thoſe bit by the *Tarantula*. See TARANTULA.

Dr. *Cornelio*, in the *Philoſophical Tranſactions* repreſents this as an imaginary Diſeaſe; and tells us, that all thoſe who think themſelves ſeized with it (excepting ſuch as for particular Ends feign themſelves ſo) are moſt of them young wanton Girls, whom the *Italian* Writers call *Donne di ſale*, who falling, from ſome particular Indiſpoſition, into a melancholy Madneſs, perſuade themſelves, according to the vulgar Prejudice, that they have been ſtung by a Tarantula.

But the Evidence on the other Side the Queſtion, is too ſtrong to be thus overturned; as will appear from the following Article.

TARANTULA, or TARENTULA, in Natural Hiſtory, a venomous Inſect, whoſe Bite gives Name to a new Diſeaſe. See TARANTISMUS.

The *Tarentula* is a kind of Spider, denominated from the City *Tarentum*, in *Apulia*, where it is chiefly found: 'Tis about the Size of an Acorn; and is furniſh'd with eight Feet, and as many Eyes; its Colour various; but it is ſtill hairy: From its Mouth ariſe two Sorts of Horns, or Trunks, made a little hooked, with the Tips exceedingly ſharp; thro' which it conveys its Poiſon.

Theſe Horns, M. *Geoffroy* obſerves, are in continual Motion, eſpecially when the Animal is ſeeking for Food; whence he conjectures they may be a kind of moveable Noſtrils.

The *Tarantula* is found in ſeveral other Parts of *Italy*, and even in the Iſle of *Corſica*; but thoſe of *Apulia* alone are dangerous: Even theſe, when remov'd thence, are ſaid to become harmleſs: 'Tis added, that even in *Apulia*, none but thoſe found on the Plains are much to be fear'd; the Air being hotter there, than on the Mountains.

M. *Geoffroy* adds it as an Opinion of ſome, that the *Tarantula* is never venomous but in the coupling Seaſon; and *Baglivi*, that 'tis never ſo, but in the Heat of Summer, particularly in the Dog-Days, when, becoming enrag'd, it flies on all that paſs by.

The Bite occaſions a Pain, which at firſt appears much like that felt on the Stinging of a Bee, or an Ant: In a few Hours, the Patient feels a kind of Numbneſs; and the Part affected becomes mark'd with a little livid Circle, which ſoon after riſes into a very painful Tumour: A little longer, and he falls into a profound Sadneſs, breathes with much Difficulty, his Pulſe grows feeble, his Sight fails; at length he loſes all Senſe and Motion, and dies, unleſs reliev'd. But theſe Symptoms come ſomewhat differently, according to the Nature of the *Tarantula*, and the Diſpoſition of the Patient. An Averſion for Black and Blue; and, on the contrary, an Affection for White, Red, and Green, are other unaccountable Symptoms of this Diſeaſe.

All the Aſſiſtance Medicine has been able to diſcover by Reaſoning, conſiſts in ſome chirurgical Applications on the Wound, in Cordials and Sudorificks; but theſe are of little Efficacy: A Thing that avails infinitely more, is, what Reaſon could never have thought of, Muſic. See MUSIC.

As ſoon as the Patient has loſt his Senſe, and Motion, a Muſician tries ſeveral Tunes on an Inſtrument; and when he has hit on that, the Tones and Modulation whereof agree to the Patient, he is immediately ſeen to make a faint Motion: His Fingers firſt begin to move in Cadence, then his Arms, then his Legs; by Degrees his whole Body: at length he riſes on his Feet, and begins to dance; his Strength and Activity ſtill increaſing. Some will continue the Dance for ſix Hours without Intermiſſion.

After this, he is put to Bed; and when he is judg'd ſufficiently recruited of his firſt Dance, he is call'd out of Bed, by the ſame Tune, for a Second.

This Exerciſe is continu'd for ſeveral Days, ſix or ſeven at moſt; in which time the Patient finds himſelf exceedingly fatigu'd, and unable to dance any longer; which is the Characteriſtic of his being cured: For as long as the Poiſon acts on him, he would dance, if one pleas'd, without any Diſcontinuation, till he died of the mere Loſs of Strength.

The Patient perceiving himſelf weary, begins to come to himſelf; and awakes, as out of a profound Sleep, without any Remembrance of what had paſs'd in his Paroxyſm, not even of his Dance.

Sometimes the Patient, thus recovering from his firſt Acceſs, is quite cured; if he ben't, he finds a melancholy Gloom hanging on him; he ſhuns the Sight of Men, and ſeeks Water; and if he ben't carefully look'd to, throws himſelf into ſome River. If he don't die, the Fit returns at that Time Twelvemonth, and he is driven to dancing again. Some have had theſe Returns regularly for 20 or 30 Years.

Every *Tarantatus*, or Patient in this Diſeaſe, has his particular and ſpecific Tune; but, in the general, they are all very brisk, ſprightly Tunes. See TUNE.

This Account was given into the Royal Academy of Sciences, by M. *Geoffroy*, at his Return from *Italy*, in 1702; and confirm'd by Letters from F. *Gouye*. The like Hiſtory is given us by *Baglivi*, in an expreſs Diſſertation on the *Tarantula*, publiſh'd in 1696.

To ſuch extraordinary Facts, 'tis no Wonder a few Fables ſhould be added; as, for Inſtance, that the Patient is no longer affected than while the Inſect lives; and that the *Tarantula* itſelf dances, all the while, the ſame Air with the Perſon bitten.

Theory of the Effects of the Tarantula's *Bite, by M.* Geoffroy.

The poiſonous Juice injected by the *Tarantula*, M. *Geoffroy* conceives, may give the Nerves a Degree of Tenſion, greater than is natural to them, or than is proportionate to their Functions: And hence ariſes a Privation of Knowledge and Motion. But, at the ſame time, this Tenſion, equal to that of ſome Strings of an Inſtrument, puts the Nerves in Uniſon to certain Tones, and obliges them to ſhake, after being agitated by the Undulations, and Vibrations of the Air proper to thoſe Tones. And hence this wonderful Cure by Muſic: The Nerves thus reſtor'd to their Motion, call back the Spirits thither, which before had abandon'd them. See UNISON.

It may be added, with ſome Probability, and on the ſame Principles, that the Patient's Averſion for ſome Colours ariſes hence, that the Tenſion of his Nerves, even out of the Paroxyſm, being ſtill different from what it is in the natural State, the Vibrations thoſe Colours occaſion in the Fibres of the Brain, are contrary to their Diſpoſition, and occaſion a kind of Diſſonance, which is Pain.

Theory of the Effects of the Tarantula's *Bite, by Dr.* Mead.

The Malignity of the Poiſon of the *Tarantula* ſeems to conſiſt in its great Force and Energy, whereby it immediately raiſes an extraordinary Fermentation in the whole Arterial Fluid; by which its Texture and Craſis is conſiderably alter'd: The Conſequence of which Alteration, when the Ebullition is over, muſt neceſſarily be a Change in the Coheſion of its Parts, by which the Globules, which did before with equal Force preſs each other, have now a very differing and irregular Niſus, or Action; ſo that ſome of them do ſo firmly cohere together, as to compoſe Moleculæ, or ſmall Cluſters: Upon this Account, as there is now a greater Number of Globules contain'd in the ſame Space, than before, and the Impulſe of many of theſe, when united together, differing according to the Conditions of their Coheſion, as to Magnitude, Figure, &c. the Impetus, with which this Fluid is drove towards the Parts, will not only be at ſome Strokes greater than ordinary, but the Preſſure upon the Blood-Veſſels muſt be very unequal, and irregular; and this will be particularly felt in thoſe which are moſt eaſily diſtended, as thoſe of the Brain, &c.

Upon this the nervous Fluid muſt neceſſarily be put into various undulatory Motions, ſome of which will be like thoſe, which different Objects acting upon the Organs or Paſſions of the Mind do naturally excite in it; whereupon ſuch Actions muſt follow in the Body, as are uſually the Conſequences of the ſeveral Species of Sadneſs, Joy, Deſpair, or the like Determinations of Thought.

This, in ſome Degree, is a Coagulation of the Blood, which will the more certainly, when attended with uncommon Heat, as is the Caſe in thoſe Countries where theſe Creatures abound, produce ſuch like Effects as theſe; becauſe the Spirits ſeparated from the Blood thus inflamed, and compounded of hard, fixed and dry Particles, muſt unavoidably ſhare in this Alteration; that is, whereas their Fluid conſiſts of two Parts, one more active and volatile, the other more viſcid and glutinous, which is a kind of Vehicle to the former; their active Part will bear too great a Proportion to the Viſcid; conſequently they muſt have more than ordinary Volatility and Force, and will therefore, upon the leaſt Occaſion imaginable, be irregularly determined to every Part.

Whereupon will follow, Tumblings, Anger or Fear upon a light Cauſe, extreme Pleaſure at what is trivial, as particular Colours, or the like: And on the other hand, Sadneſs at what is not agreeable to the Sight; nay, Laughter, obſcene Talk and Actions, and ſuch like Symptoms as attend Perſons bit; becauſe in this Conſtitution of the nervous Fluid, the moſt light Occaſion will make as real a Reflux and Undulation of it to the Brain, and preſent as lively Species there, as the ſtrongeſt Cauſe and Impreſſion can produce in its natural State and Condition; nay, in ſuch a Confuſion, the Spirits cannot but ſometimes, without any manifeſt Cauſe at all, be hurried towards thoſe Organs, to which at other Times they have been moſt frequently determined; and every one knows which theſe are in hot Countries.

The Effects of Muſic on Perſons touch'd with this Poiſon, confirms the Doctrine above delivered.

For muſcular Motion, we know, is no other than a Contraction of the Fibres, from the arterial Fluid's making an Effervеſcence with the nervous Juice, which, by the light Vibration and Tremor of the Nerve, is derived into the Muſcle.

Thus there is a two-fold Effect and Operation of the Muſic, that is, upon the Body and the Mind: A briſk Harmony excites lively Species of Joy and Gladneſs, which are always accompanied with a more frequent and ſtronger Pulſe, or an increaſed Influx of the Liquor of the Nerves into the Muſcles; upon which ſuitable Actions muſt immediately follow.

As for the Body, ſince it was ſufficient to put the Muſcles into Action, to cauſe thoſe Tremors of the Nerves by which their Fluid is alternately dropp'd into the moving Fibres, it is all one whether it be done by the Determination of the Will, or the outward Impreſſions of an Elaſtick Fluid.

Such is the Air; and that Sounds are the Vibrations of it, is beyond Diſpute: Theſe, therefore, rightly modulated, may ſhake the Nerves as really, as the *Imperium Voluntatis* can do, and conſequently, produce the like Effects.

The Benefit of Muſic ariſes not only from their dancing to it, and ſo evacuating, by Sweat, a great Part of the inflammatory Fluid; but beſides this, the repeated Percuſſions of the Air hereby made, by immediate Contact ſhaking the contractile Fibres of the Membranes of the Body, eſpecially thoſe of the Ear which being continuous to the Brain, communicate their Tremblings to its Membranes and Veſſels; by theſe continued Succuſſions and Vibrations, the Coheſion of the Parts of the Blood is perfectly broken, and the Coagulation prevented: So that the Heat being removed by Sweating, and the Coagulation by the Contraction of the muſcular Fibrillæ, the wounded Perſon is reſtored to his former Condition.

If any one doubts of this Force in the Air, he may conſider, that it is demonſtrated in Mechanicks, that the ſmalleſt Percuſſion of the ſmalleſt Body, may overcome the Reſiſtance of any the greateſt Weight, which is at reſt; and that the languid Tremor of the Air, which is made by the Sound of a Drum, may ſhake the vaſteſt Edifices.

But beſides this, we muſt allow a great deal to the determinate Force, and particular Modulation of the trembling Percuſſions; for contractile Bodies may be acted upon by one certain Degree of Motion in the ambient Fluid, though a greater Degree of it differently qualified, may produce nothing at all of the like Effect: This is not only apparent in two common-ſtringed muſical Inſtruments tuned both to the ſame Height; but alſo in the Trick which many have of finding the Tone or Note peculiarly belonging to any Wine-Glaſs, and, by accommodating their Voice exactly to that Tone, and yet making it loud and laſting, make the Veſſel, though not touched, firſt to tremble, and then to burſt; which it will not do, if the Voice be too low, or too high. See SOUND.

This makes it no difficult Matter to conceive, why different Perſons infected with this ſort of Venom, do require a different Sort of Muſic, in order to their Cure; inaſmuch as the Nerves and diſtractile Membranes have different Tenſions, and conſequently are not in like Manner to be acted upon by the ſame Vibrations.

TARE, in Commerce, any Defect, Waſte or Diminution in the Weight, the Quantity, or the Quality of Goods. The Seller is uſually to account to the Buyer for the *Tare* and Tret. See TRET.

TARE is particularly uſed for an Abatement, or Deduction in the Price of a Commodity, on account of the Weight of Cheſts, Caſks, Bags, Frails, &c.

The *Tare* is very different, in different Merchandizes; in ſome, there is none at all allowed.

'Tis a Thing much more regarded in *Holland* than in *England* or elſewhere: A Modern Author, M. *Ricard*, treating of the Commerce of *Amſterdam*, obſerves, that the *Tares* are one of the moſt conſiderable Articles a Merchant is to be acquainted withal, if he would trade with Security.

Sometimes, the *Tare* is, as it were, regulated by Cuſtom; but generally, to avoid all Diſpute, the Buyer and Seller make a particular Agreement about it. We ſhall here add, from the fore-mentioned Author, ſome Inſtances of *Tares* allowed at *Amſterdam*, referring the Reader for a more ample Account to his *Negoce d'Amſterdam*, *Edit.* 1722.

Spaniſh Woolls are ſubject to a kind of double *Tare*: For, Firſt, they deduct the *Tare* mark'd on the Bales; and after that, 24 Pounds *Tare* for every 175 Pound weight, beſides the Rebate for prompt Payment. Indeed, for the common Woolls, the Seller will ſeldom allow above 14 *per Cent.* for the whole *Tare*; for which Reaſon, the Bargain is to be agreed on before.

TARE of *Roman* Alum is 4 *lib. per* Sack.
of *Iriſh*, &c. Butter, 20 *per Cent.*
of crude Borax, 15 *lib. per Cent.*
of Cinnamon 17 *lib.* the Burthen.
of Capers 33 *per Cent.*
of White Pepper 40 *lib. per* Barrel.
of Black Pepper 5 *lib.* &c.

TARGET, a *Shield*; thus call'd from the *Latin*, *Tergum*, Back, becauſe originally made of Leather, wrought out of the Back of an Ox's Hide. See SHIELD and BUCKLER.

TARGUM, in the ſacred Literature, a Name the *Jews* give their *Chaldee* Gloſſes, and Paraphraſes on the Scripture. See PARAPHRASE.

As the *Jews*, during their long Captivity in *Babylon*, had forgot their ancient Language, the *Hebrew*; and now underſtood nothing but the Language of their Maſters, the *Chaldeans*: There was a Neceſſity of explaining the Prophets in that Language; and to this Neceſſity, is owing the firſt beginning of the *Chaldee* Paraphraſe to make the Senſe of the Text underſtood. See CHALDEE.

Each Doctor made a Paraphraſe of ſome Part thereof in the vulgar Tongue; and as theſe ſeveral Interpretations in Time, became very Voluminous, certain Rabbins undertook to collect them together; and this Collection they call'd the *Targum*.

The *Jewiſh* Doctors don't agree about the Antiquity of the *Targum*; for the more modern *Jews* having blended their own Comments with thoſe of the Ancients; no certain Age or Æra can be fix'd for the whole Work.

'Tis commonly believed, that *R. Jonathan*, who lived under the Reign of *Herod the Great*, made the firſt *Chaldee* Verſion of the Prophets; and with this Verſion mix'd the Interpretations of Tradition. *Onkelos*, 'tis certain, tranſlated the Pentateuch almoſt Word for Word; and without any Paraphraſe; and another Verſion of the Pentateuch is aſcrib'd to *Jonathan*, but without much Certainty. See PENTATEUCH.

For the *Targum* or Paraphraſe on the other Books; we know little of the Authors, no more than of thoſe of the *Targum of Jeruſalem*, which is another imperfect Paraphraſe on the Five Books of *Moſes*: So that in Strictneſs, the *Targum* of *Jonathan* and *Onkelos*, is the only Paraphraſe of any Authority. See PARAPHRASE.

The Account aſcribed to *Scaliger*, is this: The *Hebrew* was tranſlated under the Reign of *Tiberius* into *Chaldee*, by *Jonathan*; the Prophets by *Onkelos*; and the Book of *Moſes* into good old Hieroſolymitan, which was then uſed at *Jeruſalem*, much as *Latin* is among us.

'Tis certain, there was a *Targum Hieroſolymitanum* ſtill extant: It was wrote in the vulgar Tongue; but that being then greatly corrupted, we have now much ado to underſtand it.

Thoſe *Targumiſts* might have ſeen *Jeſus Chriſt*; 'tis ſure they lived long before the taking of *Jeruſalem*. *Scaligerana.*

TARIF or **TARIFF**, a Book of Rates; a Table, or Catalogue, drawn, uſually, in Alphabetical Order, containing the Names of ſeveral Kinds of Merchandize, with the Duties or Cuſtoms to be paid for the ſame, as ſettled by Authority, and agreed on between the ſeveral Princes and States, that hold Commerce together. See DUTIES.

TARNISHING, a Diminution of the natural Luſtre of any Thing, eſpecially a Metal. See LUSTRE.

Gold and Silver, when *Tarniſh'd*, reſume their Brightneſs, by ſetting them over the Fire with certain Lies. Copper, Pewter, *&c.* that are *Tarniſh'd*, recover their Luſtre with Tripoli and Pot-aſhes.

The Breath of Women, under their monthly Purgations, *Ariſtotle* aſſerts, tarniſhes all Mirrors, *&c.* See MENSES.

TAR-PAWLING, of the *Saxon*, *Tare*, and the *Latin*, *Pallium*, Cloak, *q. d.* a tarred Garment; is a Piece of Canvaſs, well tarred over, to keep off the Rain from any Place.

The Term is alſo uſed in Deriſion for a Perſon bred at Sea, and educated in the Mariner's Art. See MARINER.

TARPEIAN, in Antiquity, an Epithet given to a Rock in ancient *Rome*, of ſurprizing Height; whence, by the Law of the Twelve Tables, thoſe guilty of certain Crimes, were precipitated.

'Twas on this Rock the Capitol was built. See CAPITOL.

It took its Name from a Veſtal, call'd *Tarpeia*, who betray'd the Capitol, whereof her Father was Governor, to the *Sabines*; on Condition they would give her all they bore on their Left Arms, meaning their Bracelets. But inſtead of Bracelets, they threw their Bucklers (which were likewiſe borne on their Left Arm) upon her Head, and cruſh'd her to Death.

Others aſcribe the Delivery of the Capitol to her Father *Spurius Tarpeius*; and add, That he was precipitated down this Rock by *Romulus*'s Order; and that this, henceforward, became the Puniſhment of all Criminals of the like Kind.

The *Tarpeian Games*, were Games inſtituted by *Romulus*, in Honour of *Jupiter Feretrius*; call'd alſo *Capitolini Ludi*. See CAPITOLINI.

TARRASS, or **TERRASS**, a Sort of Plaiſter, or ſtrong Mortar, chiefly uſed to line Baſons, Ciſterns, Wells and other Reſervoirs of Water. See MORTAR, CISTERN, *&c.*

TARSUS, in Anatomy, is what we vulgarly call the *Inſtep*; being the Beginning of the Foot, or the Space between the Ankle and the Body of the Foot which is call'd *Metatarſus*. See FOOT.

The *Tarſus* conſiſts of ſeven Bones: The firſt whereof is call'd *Aſtragalus*, and by the *Latins Talus*, and *Os Baliſte*. See ASTRAGALUS.

The ſecond call'd the *Calx*, or *Calcar pedis*, or *Calcaneum*; the third *Naviculare*, and by the *Greeks Scaphoeides*; the fourth, fifth, and ſixth are generally call'd *Innominata*, but by *Fallopius*, from their Figure, *Cuneiformia*: Laſtly, the 7th, the *Cuboeides*. See each deſcrib'd under its proper Article, CALX, NAVICULARE, INNOMINATA, *&c.*

TARSUS is alſo a Name given by ſome Anatomiſts to the Cartilages which terminate the Palpebræ or Eye-lids. See PALPEBRA.

They are exceedingly thin and fine, which makes them light and flexible.

Their Form is Semicircular: That of the upper Eyelid, is ſomewhat longer than that of the under: They ſerve alike to cloſe the Eyes. See CILIA.

TARTANE, a kind of Bark uſed for Fiſhing and Carriage; having neither a rais'd Poop, nor Prow; and alſo uſing Oars.

Tartanes are common in the *Mediterranean*: They have only a Main-maſt, and a Mizzen: Their Sails are triangular. When they put up a ſquare Sail, 'tis call'd a *Sail of Fortune*.

TARTAR, in Chymiſtry, *&c.* a Kind of Salt, which riſes from fumous Wines, and ſticking to the Top and Sides of the Casks, forms a greyiſh Cruſt, which hardens to the Conſiſtence of a Stone. See SALT.

Tartar, ſays an ingenious Author, has the Juice of the Grape for its Father, Fermentation for its Mother, and the Cask for its Matrix. See WINE, *&c.*

Its Goodneſs rather depends on the Number of repeated Fermentations, which a Succeſſion of new Wines in the ſame Cask for ſeveral Years, makes, than on the Soil or Climate where the Wine is produc'd.

Tartar is either *white*, or *red*, according to the Colour of the Wine it is rais'd from.

That brought from *Germany* is the beſt, as being taken out of thoſe monſtrous Tuns, ſome whereof hold a thouſand Pipes of Wine; ſo that the Salt has Time to come to its Conſiſtence, one of the chief Qualities to be regarded in *Tartar*.

That of *Montpellier* is the next in Order; then that of *Lyons*, *Paris*, &c.

White Tartar is preferr'd to red, and is really better: The Marks of good *Tartar* of either Kind, are, its being thick, brittle, brilliant, and very little Earthy.

Tartar is of conſiderable Uſe among the Dyers; as ſerving to diſpoſe the Stuffs to take the Colours the better. See DYING.

The Chymiſts make abundance of Preparations from *Tartar*; as *Cream*, or *Cryſtal of Tartar*, which is nothing but *Tartar* powder'd, and reduc'd by means of boiling Water, a ſtraining Bag, and a Cellar, into little Cryſtals. See CREAM *of Tartar*.

Salt of TARTAR is made of *Tartar* waſh'd, ground, purify'd, and calcin'd in Paper, by a reverberatory Fire; or 'tis made by pulverizing what remains in the Retort after the Diſtillation of *Tartar*. On the one or the other of theſe Preparations, they pour a great Quantity of hot Water, to make a Lye of it; this they filtrate, and evaporate the Liquor by a Sand Heat, till the fix'd Salt be found at the Bottom of the Veſſel. This is the Alkali, or fix'd Salt of *Tartar*. See SALT.

Oil of TARTAR, is the Salt of *Tartar* expos'd to the Air for ſome Days, in an open Veſſel, in a moiſt Place, till it diſſolve into an Oil; tho' 'tis improperly ſo call'd, being no more than a diſſolv'd Oil. See DELIQUIUM.

Oil of *Tartar per deliquium*, is held the beſt Remedy againſt corroſive Sublimate.

TARTAR *Vitriolated*, which ſome call *Magiſtery of Tartar*, is Oil of *Tartar* mix'd with rectify'd Spirit of Vitriol: Upon mixing the two, there ariſes a great Ebullition; by means whereof, of Liquids they become Solids.

TARTAR *foliated*, is a Preparation of *Tartar* with diſtill'd Vinegar, which reduces it into white Leaves.

TARTAR *Emetic* } See { EMETIC.
TARTAR *Soluble* } See { SOLUBLE.

TARTARIZING, a Term uſed by ſome Writers, for the Act of Refining or Purifying, by means of Salt of *Tartar*. See TARTAR.

TASSEL, a Sort of pendant Handle, hanging down from a Cuſhion, or ſuch like Thing: Alſo a ſmall Ribbon or Silk ſew'd to a Book, to be put between the Leaves.

TASSELS, in a Building, are thoſe Pieces of Boards that lie under the Ends of the Mantle-Trees. See MANTLE.

TASSEL, or TIERCELET, is alſo us'd in Falconry for a *Male Hawk*. See HAWK and FALCON.

TASSELS are alſo a kind of hard Burr, uſed by Clothworkers in dreſſing Cloth.

TASTE, or *Savour*, a Senſation, excited in the Soul by eans of the Organ of *Taſte*; *viz.* the Papillæ of the ongue, *&c.* See SENSATION and TASTING.

Dr. *Grew*, in a Lecture on the Diverſity of *Taſtes*, beore the Royal Society, diſtinguiſhes them into *Simple* and *ompound.*

By the former, he underſtands ſuch as are Simple Modes of *Taſte*, although mingled with others in the ame; thus the *Taſte* of a Pippin is Aci-dulcis; of Rhubarb, Amara-ſtringent, and therefore compounded, in both; but yet in the Pippin the Acid is one ſimple *Taſte*, and the Sweet nother; as diſtinct as the Bitter and Aſtringent are in the Rhubarb.

Two Faults, he obſerves, have here been committed: The firſt, a defective enumerating of ſimple *Taſtes*, and reckoning them, indiſtinctly, among ſuch as are compounded.

Simple Taſtes, of which we uſually only reckon ſix or ſeven Sorts, are at leaſt ſixteen; 1. *Bitter*, as in Wormwood; whoſe contrary is, 2. *Sweet*, as in Sugar. 3. *Sour*, as in Vinegar; whoſe contrary is, 4. *Salt*. 5. *Hot*, as in Cloves; to which is oppoſite, 6. *Cold*, as in Sal Prunella; for we may as properly ſay a cold *Taſte*, as an hot one, ſince there are ſome Bodies which do manifeſtly impreſs the Senſe of Cold upon the Tongue, tho' not to the Touch. 7. *Aromatick*; to which is contrary, 8. *Nauſeous*, or malignant.

He thinks alſo that *Taſtes* may be diſtinguiſh'd into ſuch as are, 9. *ſoft*, which are either Vappid, as in Water, Starch, Whites of Eggs, *&c.* or *Unctuous*, as in Oils, Fat, *&c.* 10. Or ſuch as are *hard*; of which he reckons four Kinds, as, 11. *Penetrant*, which worketh itſelf into the Tongue without any Pungency; as is found in the Root and Leaves of wild Cucumber. 12. *Stupefacient*, as in the Root of black Hellebore; which being chew'd, and for ſome time remain'd upon the Tongue, affects that Organ with a Numbneſs, or Paralytic Stupor. 13. *Aſtringent*, as in Galls: And, 14. *Pungent*, as in Spirit of Sal Armoniac; which two laſt *Taſtes* he makes contrary to the Unctuous, as Penetrant and Stupefacient are contrary to the Vappid one.

The *Compound Taſtes* are very numerous; but we have Words to expreſs but ſix of them, 1. *Auſtere*, which is aſtringent and bitter, as in the green and ſoft Stones of Grapes. 2. *Acerb*, properly ſo call'd, which is aſtringent and acid, as in the Juice of unripe Grapes. 3. *Acrid*, which is pungent and hot. 4. *Muriatick*, which is ſalt and pungent, as in common Salt. 5. *Lixivious*, which is Saltneſs join'd with ſome Pungency and Heat. 6. *Nitrous*, which is Saltneſs join'd with Pungency and Cold.

TASTE, in a Figurative Senſe, is apply'd to the Judgment and Diſcernment of the Mind.

We talk, and we hear Talk, every Day, of *Taſte*, of *good Taſte*, and of *bad Taſte*; and yet without well underſtanding what we mean by the Word: In Effect, a *good Taſte* ſeems to be little elſe but right Reaſon, which we otherwiſe expreſs by the Word *Judgment*. See REASON.

To have a *Taſte*, is to give Things their real Value, to be touch'd with the Good, to be ſhock'd with the Ill; not to be dazzled with falſe Luſtres; but, in ſpight of all Colours, and of every Thing that might deceive or amuſe, to judge ſoundly.

Taſte and Judgment then ſhould be the ſame Thing; and yet 'tis eaſy to diſcern a Difference: The Judgment forms its Opinions from Reflection; The Reaſon, on this Occaſion, fetches a kind of Circuit to arrive at its End: It ſuppoſes Principles; it draws Conſequences; and it judges; but not without a thorough Knowledge of the Caſe: So that after it has pronounc'd, it is ready to render a Reaſon of its Decrees. *Good Taſte* obſerves none of theſe Formalities; e'er it has time to conſult, it has taken its Side: As ſoon as ever an Object is preſented it, the Impreſſion is made; the Sentiment form'd; aſk no more of it.

As the Ear is wounded with a harſh Sound; as the Smell is ſooth'd with an agreeable Odor, before ever the Reaſon have meddled with thoſe Objects, to judge of them; ſo the *Taſte* opens itſelf at once, and prevents all Reflection.

They may come afterwards to confirm it, and diſcover the ſecret Reaſons of its Conduct; but it was not in its Power to wait for them. Frequently, it happens not to know them at all; and what Pains ſoever it uſe, cannot diſcover what it was determin'd it to think as it did.

This Conduct is very different from that the Judgment obſerves in its Deciſions; unleſs we chuſe to ſay that *Good Taſte* is, as it were, a firſt Motion, or a kind of Inſtinct of right Reaſon, which hurries us on with Rapidity, and conducts more ſecurely than all the Reaſonings ſhe could make. 'Tis a firſt Glance of the Eye, which diſcovers to us the Nature and Relations of Things in a Moment.

In Effect, *Taſte* and Judgment are one and the ſame Thing, one and the ſame Diſpoſition, and Habitude of the Soul, which we call by different Names, according to the different Manners wherein it acts: When it acts by Senſation, by the firſt Impreſſion of Objects, we call it *Taſte*; and when by Reaſoning, after having examin'd the Thing by all the Rules of Art, *&c.* we call it Judgment: So that one may ſay, *Taſte* is the Judgment of Nature, and Judgment the *Taſte* of Reaſon. See JUDGMENT.

Good Taſte, as defin'd by Mad. *Scudery*, and Mad. *Dacier*, in an expreſs Treatiſe *of the Corruption of Taſte*, is a Harmony between the Mind and Reaſon; and a Perſon has more or leſs of this *Taſte*, as that Harmony is more or leſs juſt.

One might perhaps improve on this Idea; and ſay, that *Good Taſte* is nothing elſe but a certain Relation between the Mind, and the Objects preſented to it.

A right Reaſon cannot but be mov'd and affected with Things conformable thereto, and wounded by thoſe contrary: There is, then, a kind of Sympathy which unites them as ſoon as ever they meet; and their Union, their good Underſtanding, diſcover each other. Make a fine Diſcourſe; uſe only the richeſt and nobleſt Expreſſions; if they contain an unhappy Thought, or an incoherent Reaſoning; that Thought, this Reaſoning, will immediately be felt by a Perſon of *Taſte*: The Antipathy ſhews itſelf by a Movement of Averſion, as ſudden, as lively, and as natural, as that which Nature inſpires us withal for Toads or Spiders. See BEAUTY.

TASTING, the Senſe whereby we diſtinguiſh Savours; or the Perception the Soul has of external Objects, by means of the Organ of *Taſte*. See SENSE and TASTE.

Authors have differ'd much as to the *Organ of Taſting*. *Bauhin*, *Bartholin*, *Veſlingius*, &c. place it in the laxer fleſhy Parts of the Tongue: Dr. *Wharton* in the Gland at the Root of the Tongue: *Laurentius*, in the thin Tunic covering the Tongue; others in the Palate, *&c.* But the great *Malpighi*, and, after him, all the lateſt Writers, place it in the Papillæ, chiefly lying about the Tip and Sides of the Tongue. See TONGUE.

Theſe Papillæ ariſe from the Corpus Nervoſum that covers the muſcular Fleſh of the Tongue; whence, paſſing thro' the Corpus Reticulare, they ſtand up under the external Membrane of the Tongue, erect, cover'd with Vaginæ, or Sheaths of the ſaid Membrane, to defend them from Objects too violent. See PAPILLA.

Theſe Vaginæ are porous; and ſtick out ſo far, that when the Aliment is ſqueez'd, they enter within the ſame, to receive the Object, or the Matter of *Taſte*.

Theſe Papillæ, *Boerhaave* conjectures, to ariſe from the ninth Pair of Nerves: And theſe he aſſerts, are the only Organ of *Taſte*: Thoſe others of the Tongue, Palate, Jaws, *&c.* he obſerves, contribute nothing thereto, tho' probably thoſe of the Cheeks, next the Dentes Molares, may. See PAPILLÆ, PALATE, *&c.*

The *Object of Taſting*, is any Thing either in Animals, Vegetables, or Minerals, from which Salt or Oil may be extracted. See SALT.

Taſting, then, is perform'd by the Objects being attenuated, and mix'd with Saliva, warm'd in the Mouth, and apply'd to the Tongue; where, inſinuating into the Pores of the membranous Vaginæ of the nervous Papillæ, and penetrating to the Surface of the Papillæ themſelves, it affects and moves them; by which Means a Motion is communicated along the Capillament of the Nerve to the common Senſory, and an Idea excited in the Mind, of Salt, Acid, Sweet, Bitter, Hot, Aromatic, Auſtere, or the like; according to the Figure of the Particles that ſtrike the Papillæ, or the Diſpoſition of the Papillæ to receive the Impulſe. See SENSATION.

TATIANITES, a Sect of ancient Hereticks; thus call'd from *Tatian*, a Diſciple of *Juſtin Martyr*.

This *Tatian*, who has the Character of one of the moſt learned Men of all Antiquity, was perfectly Orthodox during the Life of his Maſter. He was, like him, a *Samaritan*, by Nation, not by Religion, as *Epiphanius* ſeems to inſinuate. They both belong'd to thoſe *Greek* Colonies ſpread throughout the Country of the *Samaritans*.

Juſtin being dead, *Tatian* gave into the Errors of the *Valentinians*; and form'd a Sect call'd ſometimes *Tatianites*, and ſometimes *Encratites*. See ENCRATITES.

TATH, in old Law, a Privilege which ſome Lords of a Manor have, of having their Tenants Sheep folded at Night upon their own Ground.

TAT-*too*, *q. d. tap-to*, a Beat of a Drum, at Night, to advertiſe the Soldiers to repair to their Quarters in a Garriſon, or to their Tents in a Camp. See DRUM.

TAU, in our ancient Cuſtoms, ſignifies a Croſs: — *Tradendo dicto Comiti* Thau *eboreum.* So Mr. *Selden*, in his Notes upon *Eadmerus*, *p.* 159. *Ego Eadgiſa prædicti Regis Ava hoc opus egregium Crucis Taumate conſolidavi.* See Mon. 3. Tom. pag. 121.

TAU, or TAW, in Heraldry, an Ordinary, in Figure of a T, ſuppos'd to repreſent a Croſs potence, the top Part cut off. It is thus call'd from the Name of the *T*, *tau.* See T.

TAUGHT, *Tight*, in the Sea Language, is the ſame as ſetting a Rope ſtiff, or faſt.

Thus they ſay, *Set taught the Shrouds, the Stays, or any other Ropes*, when they are too ſlack and looſe.

TAUNT, a Sea Term: When the Maſts of a Ship are too tall for her, the Sailors ſay, ſhe is *taunt-maſted*.

TAURI *liberi Libertas*: In ſome ancient Charters, *Taurus liber* ſignifies a common Bull to all Tenants within ſuch a Manor or Liberty, *Cum libertate faldiæ, liberi* Tauri *&* *liberi Apri*, &c.

TAURUS, in Aſtronomy, the *Bull*; one of the Twelve Signs of the Zodiac, and the ſecond in Order. See SIGN and CONSTELLATION.

The Stars in the Conſtellation *Taurus*, in *Ptolomy*'s Catalogue are 44; in *Tycho*'s Catalogue 41; in the *Britannic* Catalogue 135. The Longitudes, Latitudes, Magnitudes, *&c.* whereof, are as follow:

Stars in the Conſtellation TAURUS.

Names and Situation of the Stars.	Signs	Longitude			Latitude.			Mag.
		°	′	″	°	′	″	
South of 4 in the Section	♉	16	49	36	9	21	47A	4
That following it		17	33	43	8	49	48A	4
That following this		18	44	58	7	28	29A	6
North of 4 in the Section		19	15	18	5	57	13A	5
That fol. this in preced. Should^r		18	47	41	9	30	27A	6
5								
		22	50	08	5	02	24B	6
		23	06	10	3	41	37B	7
Preced. Inform. under the Foot		17	38	38	18	27	41A	4
		24	26	24	5	32	51A	7
		19	03	08	16	04	57A	7
10								
		23	30	49	0	00	50A	7
		23	50	24	0	07	15A	7
		24	47	09	3	03	43B	7
Preced. of Square of Pleiades		25	07	05	4	19	25B	6
In West Angle of Square		25	05	21	4	09	05B	5
15								
		25	18	52	4	50	42B	7
Moſt North of Pleiades		25	14	42	4	29	02B	5
North of Square		25	21	31	4	21	25B	6
		25	25	13	4	31	33B	7
		25	26	40	4	29	49B	7
20								
South of Square		25	22	30	3	54	47B	5
		25	38	32	4	01	39B	7
Lucida Pleiadum		25	48	08	4	00	37B	3
		25	56	00	3	41	45B	7
In Eaſt Angle		26	01	52	3	52	37B	5
25								
A Leſs, contiguous to it		26	03	19	3	57	34B	6
Preceding in the Foot		21	13	06	13	30	06A	6
Subſeq. in preced. Shoulder		23	00	15	8	40	36A	5
Subſequent in Foot		22	54	17	13	22	57A	6
		27	25	21	1	58	32B	7
30								
		27	36	33	2	38	20B	7
		28	00	57	0	10	38A	7
That in the Breaſt		26	17	31	7	59	37A	4
		29	26	17	3	13	26B	7
In the middle of the Neck		29	07	19	1	13	20B	5
35								
In the Heel of the preced. Foot		25	35	08	14	29	50A	4
		25	37	51	15	04	02A	7
Preced. the Square of the Neck	♊	0	36	09	6	33	06B	6
North of Square of the Neck		0	57	25	7	54	38B	5
Preceding of 2, at the Knee	♉	29	40	52	1	24	06A	6
40								
Prec. the Mid. ones Sq. of Neck	♊	1	19	32	5	16	41B	6
	♉	27	32	58	15	21	10A	7
		28	32	05	13	17	55A	7
		28	55	38	11	47	39A	7
That preced. 1ſt of the Hyades	♊	0	27	43	5	50	14A	7
45								
That in the preceding Cheek	♉	29	14	12	12	13	17A	4
Subſequent of two at Knee	♊	1	43	42	0	47	26A	6
		2	09	33	0	08	53B	7
Subſeq. mid. ones Squa. of Neck		3	32	59	9	46	12B	5
		2	19	18	0	19	23A	7
50								
Firſt of the Hyades in Noſtrils		1	27	34	5	46	22A	3
		2	42	21	0	15	00B	7
That under the 1ſt of the Hyad.		1	13	39	7	20	42A	6 7
		1	33	11	6	19	57A	7
South of Square of the Neck		3	46	56	3	58	41B	5
55								
		1	42	49	7	23	02A	7
Betw. the Noſtrils and N. Eye		2	31	27	4	00	34A	4
		3	53	21	2	37	06B	7
Second		2	47	13	4	09	05A	5
North of the South in the Ear		3	51	53	0	35	21B	4
60								
In the Heel of the hind Foot		1	24	57	12	01	21A	5
South of South in the Ear		3	51	37	0	29	46B	5
3d and ſmall betw. Noſtr. & Ear		3	11	42	3	43	27A	6
Preceding of North in the Ear		4	09	42	1	04	06B	5
		2	54	01	5	41	50A	7
65								
Subſequent		3	02	12	6	02	44A	7
Preceding below the Hyades		4	25	18	1	12	36B	6
In North Eye		2	56	57	6	56	53A	5
		4	07	11	2	35	58A	3 4
		3	39	12	5	23	43A	7
70								
Double one 'twixt Noſt. & S. Eye		3	22	25	6	59	01A	7
		3	36	25	5	47	16A	5
In the following Shoulder		3	36	51	5	52	55A	5
		3	12	31	8	40	32A	5
		3	56	42	6	06	26A	6
75								
		4	07	06	5	37	45A	7
		3	57	22	6	42	04A	7
		3	44	57	8	04	25A	7
		4	05	43	6	43	28A	7
		4	22	35	6	00	53A	7
80								
Middle, beneath the Hyades		4	42	07	7	05	06A	5
South Eye, *Palilicium Aldebaran*		5	27	00	5	29	45A	1
In the following Leg		4	27	10	11	46	51A	5
		5	54	15	6	03	20A	7
Preceding in the hind Knee		5	24	30	9	32	32A	5
85								
		6	07	14	6	19	19A	7
Subſequent beneath Hyades		6	09	52	6	12	35A	6
		5	49	58	9	55	14A	6
Subſequent in hind Knee		7	49	20	0	40	23B	5
In Root of North Horn	♊	8	41	32	6	27	25A	7
90								
In Root of South Horn	♊	9	24	58	3	40	35A	6
		11	40	58	2	19	03B	6
		10	42	09	6	18	31A	7
		11	06	31	6	38	25A	7
Preced. of 3 over South Horn		12	27	36	1	14	34A	4
95								
More South in the South Horn		13	09	18	4	16	08A	6
More North		13	27	04	2	30	59A	6
		13	38	52	3	05	34A	6
Middle of 3 over South Horn		15	22	54	0	48	00A	6
In the middle of the Horn		16	14	58	1	03	03A	6
100								
		17	37	31	5	42	51B	7
		16	54	06	6	30	25A	7
		17	04	29	5	50	14A	6
In Extremity of North Horn		18	13	56	5	21	34B	2
		17	29	44	6	33	02A	6
105								
Hindmoſt of 3 over South Horn		18	10	06	1	20	12A	5
		17	49	31	5	18	04A	7
		17	59	37	6	01	45A	7
		18	42	56	1	51	14B	7
		19	03	45	4	43	55A	6
110								
		19	22	21	4	48	10A	7
		19	15	54	9	02	19A	7
Preced. of Inform. foll. N. Horn		20	03	55	0	40	32B	6
		20	08	47	6	20	26A	7
In Extrem. of South Horn		20	27	55	2	14	24A	3
115								
Inform. in Tycho's Auriga		21	06	07	2	29	23B	4 5
North under South Horn		21	09	28	6	52	43A	6
		21	36	56	4	26	14A	6
		21	59	23	7	20	57A	6
South below South Horn		22	27	01	7	38	01A	6
120								
		22	39	50	5	43	23A	6
		22	32	16	8	57	39A	6
Inform. of Auriga		23	10	03	1	06	31B	4 5
		22	38	44	9	33	28A	6
		23	04	03	10	48	50A	6
125								
		23	19	48	9	09	37A	6
Inform. of Auriga		24	10	37	4	08	15B	4 5
		23	46	29	9	18	02A	6
		23	46	54	9	31	13A	6
Al. preced. in Orion's Club		24	22	03	3	12	03A	6
130								
Another more South		24	28	58	3	44	03A	6
Inform. of Auriga		25	12	28	2	28	05B	4 5
		25	46	35	0	35	03A	7
		26	03	40	1	04	43A	6
Al. Subſeq. in Orion's Club.	♊	26	36	02	3	20	40A	6
135								

TAURUS, in our ancient Cuſtoms, ſignifies a Husband. In leg. H. I. cap. 7. *Videtur autem Matris eſſe, cujuſcunque* Taurus *alluſerit*.

TAUTOLOGY, in Grammar, a needleſs Repetition of the ſame Thing in different Words.

Some People, particularly the Jeſuits, write and pronounce it *Taſtology*. The Difference ariſes from the different Pronunciation of the *Greek upſilon* in ταυτολόγια. The modern *Greeks*, 'tis true, pronounce the υ as *f*; and 'tis argued the Ancients did the like: But as Cuſtom is the Standard of a Language, this Plea avails but little with Regard to the *Engliſh*.

TAUTOLOGICAL *Echo's*, are ſuch Echo's as repeat the ſame Sound or Syllable many Times. See Echo.

TAWING, call'd alſo by ſome *Skinning*, the Art or Manner of preparing or dreſſing Skins in white; to fit them for Uſe in divers Manufactures, particularly Gloves, Purſes, *&c.* See Leather, *&c.*

All Kinds of Skins may be *taw'd*; but 'tis chiefly thoſe of Sheep, Lambs, Kids, and Goats, that are uſed to be dreſs'd this Way; as being thoſe fitteſt for Gloves.

Method of Tawing, *or of dreſſing Skins in white.*

The Wooll or Hair being well got off the Skins, by means of Lime, *&c.* (as deſcrib'd under the Article Chamois) they are laid in a large Vat of Wood or Stone ſet in the Ground, full of Water, wherein quick Lime has been ſlaked; where they continue a Month or ſix Weeks, as the Weather is more or leſs hot, or as the Skins are requir'd to be more or leſs ſoft and pliant.

While in the Vat, the Water and Lime is chang'd twice, and they are taken out and put in again every Day. When taken out for the laſt Time, they are laid all Night to ſoak in a running Water, to get out the greateſt Part of the Lime; and, in the Morning, are laid, ſix together, on the wooden Leg, to get off the Fleſh, by ſcraping them ſtoutly, one after another, on the Fleſh Side, with a cutting two-handed Inſtrument, call'd a Knife; and while this is in Hand, they cut off the Legs, and other ſuperfluous Parts about the Extremes.

This done, they are laid in a Vat or Pit with a little Water; where being well full'd with wooden Peſtles for a quarter of an Hour, the Vat is fill'd up with Water, and the Skins rinced therein.

They are next thrown on a clean Pavement to drain; which done, they are caſt into a freſh Pit of Water, where being well rinced, they are taken out, and laid on the wooden Leg, ſix at once, with the Hair Side outermoſt, over which they rub a kind of Whetſtone very briskly, to ſoften, and fit them to receive four or five more Preparations given them on the Leg, both on the Fleſh Side and the Hair Side, with the Knife, after the Manner above mention'd.

Theſe over, they are put in a Pit with Water and Wheat Bran, and ſtirr'd about therein, with wooden Poles, till the Bran is perceiv'd to ſtick to them; and then they are left: As they riſe of themſelves to the Top of the Water by a kind of Fermentation, they are plung'd down again to the Bottom; and, at the ſame Time, Fire is ſet to the Liquor, which takes as eaſily as if it were Brandy, but goes out the Moment the Skins are all cover'd.

This Operation is repeated as often as the Skins riſe above Water; and when they riſe no more, they are taken out; laid on the wooden Leg, the Fleſh Side outermoſt; and the Knife paſs'd over it to ſcrape off the Bran. The Bran thus clear'd, the Skins are laid in a large Basket, where they are loaden with huge Stones to promote their draining; and when ſufficiently drain'd, their Feeding is given them, which is perform'd after the following Manner.

For a hundred large Sheep Skins, and for ſmaller in Proportion, they take eight Pounds of Alum, and three of Sea Salt, and melt the whole with Water in a Veſſel over the Fire; pouring the Diſſolution out while yet lukewarm into a kind of Trough, wherein is twenty Pounds of the fineſt Wheat Flower, with eight Dozen Yolks of Eggs; of all which is form'd a kind of Paſte, a little thicker than Childrens Pap; which, when done, is put into another Veſſel, to be uſed in Manner following.

A Quantity of hot Water being pour'd into the Trough wherein the Paſte was prepar'd; two Spoonfuls of the Paſte is mix'd therewith; in order to which, they uſe a wooden Spoon, which contains juſt what is requir'd for a Dozen Skins: And when the whole is well diluted, two Dozen of the Skins are plung'd therein: Care being taken, by the Way, that the Water ben't too hot, which would ſpoil the Paſte, and burn the Skins.

Having ſtaid ſome time in the Trough, they are taken out, one after another, with the Hand; and ſtretch'd out; which is repeated twice: When they have all had their Paſte, they are put in Tubs, where they are full'd afreſh with wooden Peſtles.

Then they are put in a Vat, where they remain five or ſix Days, or more; and are at laſt taken out in fair Weather, and hung out to dry on Cords or Racks: The quicker they dry the better; for if they be too long a drying, the Salt and Alum within them, are apt to make them riſe in a Grain, which is an eſſential Fault in this Kind of Dreſſing.

When the Skins are dry, they are put up in Bundles, and juſt dipt in fair Water; from which being taken out and drain'd, they are thrown into an empty Tub; and, after ſome Time, are taken out, and trampled under Foot.

They are then drawn over a flat Iron Inſtrument, the Top whereof is round like a Battledore, and the Bottom fix'd into a wooden Block; to ſtretch and open them: When open'd, they are hung in the Air upon Cords to dry; and when dry, are open'd a ſecond Time by repaſſing them over the ſame Inſtrument.

Laſtly, they are laid on a Table, pull'd out, and laid ſmooth; and are thus in a Condition for Sale and Uſe.

After the ſame Manner are dreſs'd Horſes, Cows, Calves Skins, *&c.* for the Sadlers, Harneſs-makers, *&c.* as alſo Dogs, Wolves, Bears Skins, *&c.* excepting that in theſe the Uſe of the Paſte is omitted, Salt and Alum Water being ſufficient.

TAWNY, in Heraldry. See Tenne.

TAX, a Tribute ſettled on every Town, after a certain Rate; and paid yearly towards the Expences of the Government. See Tribute and Impost.

The ancient *Tax* was what the *Subſidy* now is; excepting that the *Tax* was fix'd to a certain Sum, *viz.* the *Fifteenth* Part of what the Place was anciently valu'd at, whereas the Subſidy is variable according to Occaſion; and that the *Tax* was levy'd on Cities and Towns, but the Subſidy on Perſons. See Subsidy.

Anciently, the *Tax* was impos'd by the King at his Pleaſure; but *Edward* I. bound himſelf, and his Succeſſors, from that Time forward, not to levy it but by Conſent of the Realm. See Fifteenth; ſee alſo Gild and Witerden.

The Word *Tax* is form'd from the *Greek* ταξις, Order. See Taxis.

The Rate, *&c.* of the *Tax* was anciently call'd *Tallage*, from the *French taille*, *Tax*. See Taille.

The People of *France* were Strangers to *Tailles*, or *Taxes*, till the Time of S. *Louis*, when they were firſt impos'd in Form of Subſidies, neceſſary for the Support of the War in the Holy Land.

They were then extraordinary Levies, and were rais'd by Capitation; but were afterwards made perpetual under *Charles* VII. *Philip the Fair*, to raiſe Money without diſturbing the People, call'd the People, as a third Eſtate, into the general Councils of the Realm. See Estate.

The Name *Taille* is deriv'd from the Tally of petty Tradeſmen; in regard the Country People appointed to collect it, not being able to write, ſcored down what they receiv'd on Tallies. See Tally.

Tax is alſo the Tribute which Tenants were occaſionally to pay their Lord. See Lord and Tenant.

Moſt Lords had a Right of *taxing* on four Occaſions, *viz.* when the Lord was taken Priſoner in a juſt War; when he made his eldeſt Son a Knight; when he marry'd his eldeſt Daughter to a Gentleman; and when he made the Voyage of the Holy Land. See Croisade.

Nauda ſhews the extravagant Riſe of this Kind of *Taxes*: Thoſe, he obſerves, which under *Charles* VI. only amounted to the Sum of 40000 Livres, were increas'd, under *Charles* VII. to the Sum of 1800000 Livres; under *Louis* XI. to 4740000 Livres; under *Charles* VIII. to 6000000; under *Louis* XII. to 7640000 Livres.

Taxes were diſtinguiſh'd into *free*, which were thoſe due, in the four Caſes, by Freemen, or thoſe who held free Lands; and *ſervile* and *baſe*, which were thoſe due from Perſons of baſe Condition.

They were alſo diſtinguiſh'd into *real* and *perſonal*. The *perſonal* were impos'd on the Head of the Servant or Man in Main-morte, and ſo follow'd him where-ever he went.

TAXERS, two Officers yearly choſen in *Cambridge*, to ſee the true Gauge of all Weights and Meaſures.

The Name took beginning from Taxing and Rating the Rents of Houſes, which was anciently the Duty of their Office.

TAXIS, in the ancient Architecture, the ſame with *Ordonnance* in the new, is deſcrib'd by *Vitruvius* to be that which gives every Part of a Building its juſt Dimenſions, with regard to its Uſes. See Ordonnance.

TAYL, in Heraldry, *&c.* is particularly uſed for the Tail of an Hart; thoſe of ſeveral other Creatures having peculiar and diſtinct Names.

As that of a Buck, Roe, or any other Deer, is call'd the *Single*; of a Boar, the *Wreath*; of a Fox, the *Buſh*; of a Wolf, the *Stern*; and of a Hare and Coney, the *Scut*.

TCHELMINAR, or TCHILMINAR, or, as we pronounce it, *Chelminar*, one of the moſt celebrated Ruins in the World. See Ruins.

Tchelminar is the Remains of a Palace, ſuppos'd by ſome to have ſtood in the Middle of the City *Eſtekhar*, built by Queen *Homœi*; others will have it the Palace of the Kings of *Perſia* in the ancient *Perſepolis*, the Capital of that Kingdom.

The Word in the *Perſian* ſignifies 40 Towers, or 40 Columns. See Chilminar.

TEA, or, as the *Chineſe* call it, Tcha, the Leaf of a Tree or Shrub, growing in ſeveral Provinces of *China*, *Japan*, and *Siam*.

The *Tea* Plant affects Valleys, and the Feet of Mountains, and a ſtony Soil. Its Seed is uſually ſown in Places expos'd to the South; and bears three Years after ſown. The Root reſembles that of the Peach Tree: The Leaves are green, longiſh at the Point, and pretty narrow, an Inch and half long, and jagged all around. The Flower is much like that of the wild Roſe. The Fruit is of different Forms, ſometimes round, ſometimes long, ſometimes triangular; of the ordinary Size of a Bean; containing two or three Peas, of a Mouſe Colour, including each a Kernel. Theſe Peas are the Seeds by which the Plant is propagated.

The Tree is of various Heights, from one Foot to an hundred: Some there are which two Men can't fathom, while others ſcarce exceed the feebleſt Shrub in a Garden.

The beſt Time to gather the Leaves of *Tea*, is while they are yet ſmall, young, and juicy: When gather'd, they are paſs'd over the Smoak of boiling Water to moiſten them; then they are laid on Copper Plates, which are heated; and thus, the Leaves drying, they curl up in the Manner they are brought to us.

'Tis very rare to find *Tea* perfectly pure; the *Chineſe* always mixing other Herbs with it, to increaſe the Quantity. Indeed, the Price 'tis ſold for among them is moderate enough; uſually 'tis about Three-Pence a Pound Sterling, never more than Nine-Pence.

The *Chineſe* know nothing of *Imperial Tea*, *Flower of Tea*, and many other Names, which in *Europe* ſerve to diſtinguiſh the Goodneſs, and the Price of this faſhionable Commodity; and yet beſide the common *Tea*, they diſtinguiſh two other Kinds, *viz.* the *Voui* and *Soumlo*, which are reſerv'd for People of the firſt Quality, and ſick Folks.

We have three Kinds of *Tea* in *Europe*, *viz.* *Green Tea*; which is the common *Tea* of the *Chineſe*, *&c.* F. *le Compte* calls it *Bing Tea*, and ſays 'tis gather'd from the Plant in *April*.

'Tis held very digeſtive, and a little corroſive. It gives a pale greeniſh Tincture to Water; and its Leaves are much twiſted.

The ſecond is *Bohea Tea*, which is the *Voui Tea*, or *Bou Tea* of the *Chineſe*. F. *le Compte* makes this only to differ from the *Green Tea*, by its being gather'd a Month before it, *viz.* in *March*, while in the Bud; and hence the Smallneſs of the Leaves, as well as the Depth of the Tincture it gives Water. But 'tis much more probably the *Tea* of ſome particular Province; the Soil being found to make an Alteration in the Properties of the *Tea*, as much as the Seaſon of gathering it.

'Tis all bought at *Nanquin*; and it is but lately that the *Dutch* have introduced it into *Europe*, where it begins to be much in Vogue.

The third is *Red Tea*, or *Tartar Tea*, or *Honan Tcha*, which tinges the Water with a pale Red, and which is ſaid to be extremely digeſtive: By means hereof, it is that the *Tartars* are ſaid to be able to feed on raw Fleſh. Its Taſte is Earthy; and much the leaſt agreeable of them all; but little known in *England*.

Tea is to be choſen Green, of the briſkeſt Smell, as whole as poſſible; and the greateſt Care taken that it han't been expos'd to the Air to pall, and evaporate.

The Drink, *Tea*, is made in *China*, and throughout the greateſt Part of the Eaſt, after the ſame Manner as in *Europe*; *viz.* by infuſing the Leaves in boiling Water, and drinking the Infuſion hot. Indeed, among us, 'tis uſual to temper its Bitterneſs with Sugar, which the Orientals uſe little or none of.

However, the *Japaneſe* are ſaid to prepare their Liquor a ſomewhat different Way, *viz.* by pulverizing it; ſtirring the Powder in hot Water, and drinking it as we do Coffee.

The *Chineſe* are always taking *Tea*, eſpecially at Meals: 'Tis the chief Treat wherewith they regale their Friends. The moſt moderate take it at leaſt thrice a Day; others, ten times, or more: And yet 'tis computed, the Conſumption of *Tea* among the *Engliſh* and *Dutch* is as great in Proportion as among the Orientals. In *France*, the Uſe of *Tea* is much declin'd, and Coffee is now become the prevailing Liquor. See COFFEE.

As to the Properties of *Tea*, they are ſtrangely controverted: The Eaſtern Nations are at leaſt as much poſſeſs'd with them as the *Europeans*; but 'tis, perhaps, becauſe Imagination bears as great a Sway there as here. The Reaſon why the Gout and Stone are unknown in *China*, is aſcrib'd to the Uſe of this Plant; which is ſaid further to cure Indigeſtions of the Stomach, to carry off a Debauch, and to give new Strength for Drinking, to diſpel Wind, to cure the Vapours, *&c.*

Sim. Paulli, Phyſician of the King of *Denmark*, in an expreſs Treatiſe on this Plant, endeavours to ſhew, that theſe Virtues aſcrib'd to it in the Eaſt, are local, and don't hold with the Inhabitants of *Europe*. He holds, that thoſe paſt their 40th Year ſhould never uſe it, as being too deſiccative: That *Tea* has no other Virtues but thoſe of Betony: And adds, with *Bauhin*, that 'tis only a Species of Myrtle found in *Europe* as well as the *Indies*.

But this Opinion is refuted by *Pechlin*, in a Treatiſe of *Tea*, intitled, *Theophilus Bibaculus, ſive de Potu Theæ Dialogus*; Where he maintains, That 'tis good to prevent Scorbutic Diſeaſes; that its gentle aſtringent Virtues ſtrengthens the Tonic Motion of the Inteſtines, *&c.* But he blames the Drinking it with Milk; and eſpecially after a full Meal, or after much Wine.

TEAM and THEAME, or TEM and THEME, in our ancient Cuſtoms, ſignifies a Royalty granted by the King's Charter to the Lord of a Manor, for the having, reſtraining, and judging Bondmen, Neifs, and Villains, with their Children, Goods, and Chattels, in his Court.

TEARS, *Lachrymæ*, a watry Humour, iſſuing out at the Corner of the Eye, by the Compreſſion of the Muſcles; ſerving to moiſten the Cornea, to expreſs our Grief, and even to alleviate it. See LACHRYMÆ and LACRYMALIA PUNCTA.

The Ancients had an Opinion, that the *Tears* of the Living were of uſe, at leaſt of Pleaſure, to the Dead; for which Reaſon they took great Care to procure them abundance at their Funerals; ſo much, as to inſtitute a Profeſſion or Trade of Weepers, as judging thoſe of their own Families inſufficient. See LACHRYMATORY and FUNERAL.

Deer, when at Bay, are commonly ſaid to ſhed *Tears*: Indeed, they ordinarily do yield a Sort of *Tears*, which oozing into the two Clefts underneath, call'd Lachrymatories, are there condens'd into a kind of yellow Liquor, or Gum; which diluted in white Wine or Carduus Water, is reputed a Sovereign Remedy for Fits of the Mother, and the Falling Sickneſs.

Virgil makes the Horſe of *Pallas* ſhed *Tears* at the Funeral Pomp of his Maſter: This is one of the Paſſages which the modern Criticks cenſure as a Breach of Probability. See PROBABILITY.

TEAZEL, or TEASEL, the *Fullers Thiſtle*, a kind of Plant much uſed by the Fullers, Cloth-workers, and Stocking-Weavers, to card, or draw out the Wooll or Nap from the Thread or Ground of ſeveral Kinds of Cloths, Stuffs, Stockings, *&c.* in order to render them cloſer and warmer. See FULLING, *&c.*

This Plant is cultivated with great Care in ſeveral Parts of *France*, particularly *Normandy*; and the Exportation thereof prohibited, by Reaſon of the vaſt Uſe thereof in the Woollen Manufacture. See CARDUUS.

The Stem of the Plant is very high; and its Extremity, as alſo thoſe of its Branches, bear a little round prickly yellowiſh Ball or Bur, which is the Part uſed.

The largeſt Burs, and thoſe moſt pointed, are eſteem'd the beſt; and are now call'd *Male Teazles*, moſtly uſed in the dreſſing and preparing of Stockings and Coverlets; the ſmaller Kind, properly call'd the *Fullers* or *Drapers*, and ſometimes the *Female Teazle*, are us'd in the Preparation of the finer Stuffs, as Cloths, Rateens, *&c.*

The ſmalleſt Kind ſometimes, call'd *Linnots Heads*, are us'd to draw out the Nap from the coarſer Stuffs, as Bays, *&c.*

TECHNICAL, ſomething that relates to an Art. See ART.

In this Senſe we ſee *Technical Words*, *Technical Verſes*, *&c.* And in this Senſe Dr. *Harris* intitles his Dictionary of Arts and Sciences, *Lexicon Technicum*.

The Word is form'd of the *Greek*, τεχνικος, Artificial, of τέχνη, Art.

TECHNICAL, is a Term particularly apply'd to a kind of Verſes, wherein are contain'd the Rules or Precepts of any Art; thus digeſted to help the Memory to retain them.

Technical Verſes are uſual in Chronology, *&c.* Such, *e. gr.* are thoſe expreſſing the Order and Meaſures of the Calends, Nones, *&c.* See CALENDS.

Thoſe expreſſing the Seaſons; See under AUGUST.

Thoſe expreſſing the Order, *&c.* of the Signs; See under SIGN.

F. *Labbe* has compos'd *Latin* Verſes, including all the Epochas in Chronology; and *F. Buffier*, after his Example, has put both Chronology and Hiſtory in *French* Verſe; and ſince, Geography too.

Technical Verſes are commonly compos'd in *Latin*: They are generally wretched ones, and often barbarous; but 'tis Utility is all aim'd at. To give ſome Idea hereof, we will here add a few Inſtances. The Caſuiſts include all the Circumſtances which make us ſhare with another in a Theft, or other Crime, in theſe two *Technical Verſes*.

> *Juſſio, Concilium, Conſenſus, Palpo, Recurſus,*
> *Participans, Mutus, non Obſtans, non Manifeſtans.*

The firſt of Father *Buffier*'s *Technical Verſes* of the Hiſtory of *France*, are theſe:

> *Ses Loix en quatre Cents Pharamond Introduit,*
> *Clodion Chevelu, qu Aetius vanquit,*
> *Merovee, avec lui Combatit Attila;*
> *Childeric fat chaſſee, mais on le rapalla.*

TECHNICAL *Words*, are what we otherwiſe call *Terms of rt.* See TERM.

TE DEUM, a kind of Hymn, or Song of Thankſgiving, ſed in the Church, beginning with the Words *Te Deum udamus, We praiſe thee, O God.*

'Tis uſed to be ſung in the *Romiſh* Church with extraor- inary Pomp and Solemnity, upon the gaining a Battle, or ther happy Event. The *Te Deum* is uſually aſcrib'd to St. *Ambroſe*, and St. *Auguſtin*.

TEETH, *Dentes*, in Anatomy, little hard ſmooth Bones, t in the Gums, and ſerving to maſticate or chew the Food, o bite, &c. See FOOD, MASTICATION, &c.

Men, and moſt terreſtrial Animals, as alſo ſome Fiſhes, ave two Rows of Teeth, the one in the upper Jaw, and he other in the lower. See GUM and JAW.

In Men, the ordinary Number of *Teeth* is 32, fixteen in ach Jaw; all fix'd in peculiar Sockets, call'd *Alveoli*; by he Juncture or Articulation, call'd *Gomphoſis*, and by the Joyners, *Pegging*. See GOMPHOSIS.

They are of three Sorts: Thoſe in the fore Part of each Jaw are call'd *Inciſores, Cutters*; and are four in Number in each Jaw, broad, thin, and flat: Some call them the *Primores*, becauſe they appear the firſt; others the *Adverſi*; and others the *Ridentes, Laughers*, becauſe they ſhew themſelves firſt in Laughing. See INCISORES.

Behind theſe, on each Side of each Jaw, ſtand two which are a little more prominent, and pointed, call'd *Canini*, by the People *Eye-Teeth*, becauſe Part of the Nerve which moves the Eyes is inſerted into them; whence the Danger of pulling them out. See CANINI.

Behind theſe are five in each Jaw, call'd the *Molares* or *Grinders*, being thoſe which in Men ſerve chiefly for Maſtication. See MOLARES.

The *Inciſores* have generally only a ſingle Root, or Twang; the *Canini* ſometimes two; and the *Molares* three or four, eſpecially the hind ones, which are put to the greateſt Streſs.

The *Teeth*, according to *Peyer*, are form'd of convolv'd Skins, harden'd and bound together by a viſcid Mucus: And if we view the Grinders of Deer, Horſes, and Sheep, &c. we ſhall find great Reaſon to be of his Mind.

Others ſpeak of their Formation otherwiſe. The Sockets, Dr. *Quincy* obſerves, are lin'd with a thin Membrane, upon which are ſeveral Veſſels, thro' which there paſſes a thick tranſparent Humour, that, as it increaſes, hardens in form of Teeth; and about the ſeventh or eighth Month after Birth, they begin to pierce the Edge of the Jaw, tear the Perioſteum and Gums, which being very ſenſible, create a violent Pain, and other Symptoms incident to Children in the Time of Dentition. See DENTITION.

The *Teeth* begin not to appear all at a Time; but firſt the *Dentes inciſivi* of the upper, and then thoſe of the lower Jaw appear, becauſe the thinneſt and ſharpeſt; after them come out the *Canini*, becauſe they are ſharper than the *Molares*, but thicker than the *Inciſivi*; and laſt of all the *Molares*, becauſe they are thickeſt and blunteſt.

Of this viſcous tranſparent Liquor, which is indurated into the Subſtance of the *Teeth*, there are two Lays, one below the other, divided by the ſame Membrane which covers all the Cavity of the Jaw: The uppermoſt Lay forms the *Teeth* which come out firſt; but about the ſeventh Year of Age they are thruſt out by the *Teeth* made of the undermoſt Lay, which then begin to ſprout; and if theſe *Teeth* be loſt, they never grow again.

If ſome have been obſerv'd to ſhed their *Teeth* twice, they have had three Lays of this viſcous Humour, which hardly ever happens.

About the one and twentieth Year, the two laſt of the *Molares* ſpring up, and are call'd *Dentes Sapientiæ*, becauſe they ariſe when the Perſon is at Years of Diſcretion.

The *Teeth*, M. *de la Hire* the younger, has found to have all that Part which ſtands out beyond the Jaw, cover'd with a peculiar Subſtance quite different from the Bone, which he calls *Email*, or Poliſh.

This Email, by ſome others call'd the *Perioſteum*, is compos'd of an Infinity of little Fibres, which grow to the Bone by their Roots, much like Nails or Horns. See NAIL.

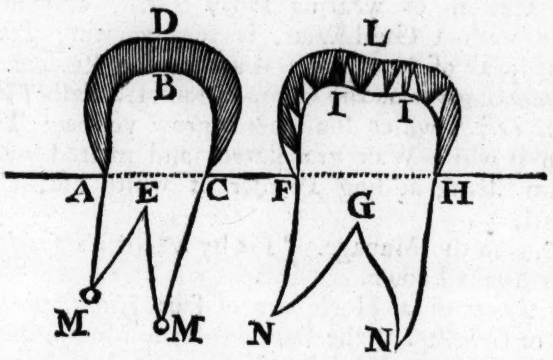
This Compoſition is very diſcernable in a broken Tooth, where the Origin and Situation of the Fibres are apparent. M. *de la Hire* is perſwaded, that the Growth of theſe Fibres is perform'd much like that of Nails. If by any Accident a little Part of this Email be broke off, ſo that the Bone is left bare, that is, if the very Roots of the Fibres be taken away, the Bone, in that Part, will grow carious, and the *Tooth* inevitably periſh; there being no Bone in the Body that can bear the Air. See BONE.

Indeed, in ſome Perſons the Email is very much wore and ſhatter'd, by rubbing them much with Dentrifices, &c. ſo that the Bone appears thro', and yet the *Tooth* keeps ſound; but the Reaſon is, that the Bone is not quite bare, but there is ſtill a thin Lay of the Email which preſerves it; but this Lay being thin enough to be tranſparent, the yellow Bone is ſeen thro' it.

Sometimes alſo a *Tooth* breaks, and the Bone is left bare, yet the Perſon does not find any Pain or aking from it: The Reaſon is, that the Hole in the Root or Twang of the *Tooth* thro' which a little Branch of a Nerve enters that renders the *Tooth* ſenſible, being quite ſtopp'd up by Age, or the like, has pinch'd off the Nerve, and taken away all Communication between the *Tooth* and the Origin of the Nerves, and, by Conſequence, all Senſibility.

It alſo happens in ſome *Teeth*, that the Fibres are only in little Sheaves or Bundles, whoſe upper Extremities meet, but not their lower; as is the Caſe in moſt of the Grinders, where the Separation of the Bundles is apparent. Here, if the upper Extreme of the Fibres chance to be broken, or wore off, the Separation between two of the Bundles often enlarges itſelf, ſo as to admit ſome hard Particle of the Food, by which Means a little Aperture being made thro' the Email, the Bone is laid bare, and the *Tooth* ſoon rots. This Inconvenience is remedy'd a little by ſtopping up the Hole with Lead, which prevents the ſharp pungent Parts of the Food from penetrating to the Bone, and there occaſioning Pain. See ODONTALGY.

What we have ſaid is illuſtrated by the adjoining Figures, where A C F H expreſſes the Extremity of the Jaw the *Teeth* are ſet in; A F C and F G H the Roots or Twangs of the *Teeth* inclos'd in the Jaw; A D C B and F L H I L the *Email*, compos'd of little Fibres ranged aſide of each other, which cover all that Part of the *Tooth* without Side the Jaw; I I ſeveral Threads join'd at the upper Extremity, but apart at the lower; M M Holes thro' which the Nerves enter the Roots of the *Teeth*; N N a *Tooth* cloſed up.



The *Teeth*, Mr. *Derham* obſerves, furniſh us with a notable Inſtance of the Wiſdom and Goodneſs of the Creator: Their peculiar Hardneſs is very remarkable, conſidering the tender Subſtance they are form'd of. See BONE.

The Ancients, and even *Riolanus*, among the Moderns, have held them to be incombuſtible, and the only Part of the Body that was ſo; on which Account they were placed with great Care in the Urns among the Aſhes of the Deceas'd: But the Opinion is falſe, there having only been two found in the Tombs of *Weſtphalia*, one of which was half calcin'd.

Another popular Error is, that the *Teeth* continue growing for ever, even in old People, to the Hour of their Death. M. *de la Hire* obſerves, 'tis only the Email or Poliſh that grows, which is a Subſtance very different from the *Teeth*.

The Form, Diſpoſition, and Order of the *Teeth* are admirable: The foremoſt weak and far from the Centre, as being only Preparers to the reſt; the others being to grind and mince, are accordingly ſtronger, and placed near the Centre of Motion.

Galen puts the Caſe, that the Order of the *Teeth* ſhould have been inverted, and the Grinders, *e. gr.* put in the Place of the Inciſors; and asks, what Uſe the *Teeth* had then been of, and what Confuſion would not there have aroſe by ſuch a ſlight Overſight in the Diſpoſal only? Upon which he argues, that if any Perſon ſhould diſpoſe a Company of 32 Men, the Number of the *Teeth*, in a juſt Order, we ſhould judge him an intelligent Perſon: Why then ſhould we not judge the ſame of the Creator, &c.? *De uſu Partium.*

Again, their various Forms in various Animals is no leſs conſiderable, being all curiouſly adapted to the peculiar Food and Occaſions of the ſeveral Species of Animals: Thus in the Rapacious they are fitted for the catching, holding, and tearing the Prey; in Herbaceous for the Gathering and Communition of Vegetables; and in ſuch as have no *Teeth*, as Birds, the Bill ſupplies the Defect. See BILL.

Add, that the temporary Defect of them is no leſs obſervable in ſome: That Children, for Inſtance, ſhould have none while they are not able to uſe them, but to hurt themſelves, or the Mother; and that at the very Age when they can take in the more ſubſtantial Food, and live without the Breaſt, and begin to need *Teeth* for the Sake of Speech; that then, we ſay, their *Teeth* ſhould begin to appear, and gradually grow as they more and more ſtand in need of them.

Some Perſons are born with all their *Teeth*, as *Marcus Curius Dentatus*, and *Cneius Pampirius Carbo*: Others have only had one continu'd *Tooth*, reaching the whole Length of the Jaw, as *Pyrrhus*, King of *Epirus*, and *Pruſias*, Son of the King of *Bithynia*: Others are ſaid to have had two or three Rows on the ſame Jaw, as *Hercules*.

Mentzelius, a *German* Phyſician, aſſures us, that he ſaw an old Man at *Cleves*, in 1666, aged 120 Years, who had a new Set of *Teeth* two Years before, which cut with great Pain; and he ſaw an *Engliſhman* at the *Hague*, who cut a new Set of *Teeth* in his 118th Year.

A *Daniſh* Phyſician, named *Hagerup*, maintains in certain Theſes, that one may hear with the *Teeth*. See HEARING.

As to Animals, there are ſome Fiſhes have *Teeth* on their Tongues, as Trouts; others have them at the Bottom of the Gullet, as the Cod Fiſh; ſome, as the great Sea-Dog, call'd *Canis Carcharius*, have three, four, or five Rows of *Teeth* on the ſame Jaw; the Requiem and Crocodile have each three, and thoſe all Inciſors; Vipers and Sea Frogs have two large crooked Canine *Teeth*, which are moveable, and ordinarily lie flat, only rais'd when they would bite. See VIPER, &c.

The Toad and Cuttle Fiſh have no *Teeth*, and yet bite. See BITE.

Artificial TEETH, are thoſe ſet in lieu of natural ones which are wanting.

They are uſually made of Ivory; but in regard Ivory, in a little Time, grows yellow in the Mouth, *Fabricius* adviſes them to be made of the Shin-bone of a Bullock, which preſerves its Colour.

The Cuſtom of wearing Ivory *Teeth*, and of binding them in with a Gold Wiar, is very ancient: *Lucian* and *Martial* ſpeak of it as practis'd among the *Romans*.

Guilleman gives us the Compoſition of a Paſte for making *artificial Teeth*, which ſhall never grow yellow: The Compoſition is white Wax granulated, and melted with a little Gum Elemi, adding Powder of white Maſtick, Coral, and Pearl.

TEETH in the Manage. 'Tis by a Horſe's *Teeth*, chiefly, that his Age is known.

The *Teeth* of a Horſe are of four *Kinds*, *viz.* 24 *Jaw Teeth*, or *Grinders* at the Bottom of the Mouth, beyond the Bars; 12 on each Side the Canal, ranged 6 above, and as many below: Theſe never fall, nor are they uſed for the Diſtinction of Age.

12 *Foal-Teeth*, which come in the fore Part of the Mouth at three Months old, and are uſually caſt at two Years and half.

4 *Tuſhes* placed alone in the Bars between the fore *Teeth* and Grinders, one on each Side below, and as many above. Mares ſeldom have Tuſhes, and when they have, they are ſmall, and are reckon'd an Imperfection.

12 *Gatherers* growing before in the Place of the *Foal-Teeth* and Grinders, and with which Horſes draw their Fother, cut Graſs, &c. Theſe are divided into

Nippers, which are the two foremoſt *Teeth* above and below, which a Horſe firſt changes.

Middle Teeth, or *Separaters*, parting the Nippers from the Corner *Teeth*, are the two next the Nippers, one on each Side of 'em both above and below, and are thoſe which change next.

Outward or *Corner Teeth*, are thoſe next the Tuſhes above and below, and which are caſt laſt. 'Tis by theſe that the Horſe's Age is known. They ſhoot forth from the Gum at five Years of Age, and have a Hollow, wherein is a black Speck, reſembling a Bean, call'd the *Mark*, which continues till ſeven or eight Years of Age, and then begins to fill up. See MARK.

TEGUMENT. See INTEGUMENT.

TEINTS, and *Semi*-TEINTS, in Painting, the ſeveral Colours us'd in a Picture, conſider'd as more or leſs high, or bright, or deep, or thin, or weaken'd, or diminiſh'd, &c. to give the proper Relievo, or Softneſs, or Diſtance, &c. of the ſeveral Objects. See COLOURING.

The Word is pure *French*, where it ſignifies the ſame Thing.

TEIRS, the third Part of a Pipe, or the Meaſure of forty-two Gallons. See TIERCE, MEASURE, &c.

TEKUPHÆ, in the *Jewiſh* Chronology, are the Times wherein the Sun proceeds from one Cardinal Point to the next. See CARDINAL *Point*.

The Term is alſo apply'd to the Moments wherein the Sun enters a Cardinal Point: Theſe four Terms, or *Tekuphæ*, are obſerv'd among the *Jews* with a World of Ceremony: The Reaſon, as we are inform'd by *Munſter*, is this:

That People have a Notion, that in each *Tekupha* the Sun has a ſeveral Angel appointed to guard and direct it; and that in the very Point wherein the Sun finiſhes one *Tekupha*, and enters upon another, before the one Director has taken Place of the other, the Devils have a Power to exerciſe all Kinds of Tyranny in the Water.

And hence, they ſay, that if any body drinks the ſmalleſt Quantity of Water at that Time, he'll infallibly have a Dropſy, or ſome other grievous Diſtemper.

TELAMONES: The *Romans* call'd by this Name, what the *Greeks* named *Atlantes*; *viz.* the Figures of Men ſupporting the Out-jettings of Cornices, &c. in Architecture. See ATLANTES.

A late Author thinks, that the Word *Telemon*, which in *Greek* is τλήμων, a Wretch that bears Misfortunes with Patience, does not diſagree with thoſe Statues, which, in Architecture, ſuſtain ſuch Loads.

TELESCOPE, an Optical Inſtrument, conſiſting of ſeveral Glaſſes or Lens's, fitted into a Tube; thro' which remote Subjects are ſeen as if nigh at Hand. See LENS and OPTIC *Glaſs*.

In *Teleſcopes*, the Lens or Glaſs turn'd towards the Object, is call'd the *Object Glaſs*; and that next the Eye, the *Eye-glaſs*; and if the *Teleſcope* conſiſts of more than two Lens's, all but that next the Objects, are call'd *Eye-glaſſes*. See OBJECT-*glaſs*, &c.

The Invention of the *Teleſcope* is one of the nobleſt, and moſt uſeful theſe Ages have to boaſt of: By means hereof, the Wonders of the Heavens are diſcover'd to us, and Aſtronomy brought to a Degree of Perfection, which former Ages could have no Notion of. See ASTRONOMY.

Indeed, the Diſcovery is owing rather to Chance, than to Thought; ſo that 'tis the good Fortune of the Diſcoverer, not his Skill or Ability, we are indebted to: On this Account it concerns us the leſs to know, who it was firſt hit on this admirable Invention. 'Tis certain it muſt be caſual, ſince the Theory it depends on was not then known.

Johannes Baptiſta Porta, a noble *Neapolitan*, is aſſerted by *Wolfius* to be undoubtedly the firſt that made a *Teleſcope*; from this Paſſage in his *Magia Naturalis*, printed in 1549: "If you do but know how to join the two (*viz.* the Concave and Convex Glaſſes) rightly together, you will ſee "both remote and near Objects, much larger than they "otherwiſe appear, and withal very diſtinct. In this Way "we have been of good Help to many of our Friends, who "either ſaw remote Things dimly, or near ones confuſedly; "and have made them ſee every thing perfectly.

But 'tis certain *Porta* did not underſtand his own Invention, and therefore neither troubled himſelf to bring it to greater Perfection, nor ever apply'd it to Cœleſtial Obſervation. What is more, the Account *Porta* gives of his Concave and Convex Lens's is ſo dark and indiſtinct, that *Kepler*, who examin'd it, by particular Command of the Emperor *Rudolphus*, declar'd to that Prince, that it was perfectly unintelligible.

Fifty Years afterwards, a *Teleſcope*, 12 Inches long, was made and preſented to Prince *Maurice* of *Naſſau*, by a Spectacle-maker of *Middlebourg*; but Authors are divided about his Name. *Sirturus*, in a Treatiſe of the *Teleſcope*, printed Anno 1618, will have it to be *John Lipperſein*: And *Borel*, in an expreſs Volume on the Inventor of the *Teleſcope*, publiſh'd in 1655, ſhews it to be *Zacharias Janſen*, or, as *Wolfius* has it, *Hanſen*.

Joh. Lapreius, another Workman of the ſame Town, paſſes for a third Inventor; having made one in 1610, on the mere Relation given him of that of *Zachary*.

In 1620, *James Metius*, Brother of *Adrian Metius*, Profeſſor of Mathematicks at *Franeker*, came with *Drebel* to *Middlebourg*, and there bought *Teleſcopes* of *Zachary's* Children, who had made them publick; and yet *Hadr. Metius* has given his Brother the Honour of the Invention; in which he is miſtakenly follow'd by *Des Cartes*.

But none of theſe Artificers made *Teleſcopes* of above a Foot and half: *Simon Marius* in *Germany*, and *Galileo* in *Italy*, firſt made long ones, fit for Cœleſtial Obſervations.

Le Roſſi relates, that *Galileo* being then at *Venice*, was told of a Sort of Optic Glaſs made in *Holland*, which brought Objects nearer: Upon which, ſetting himſelf to think how it ſhould be, he ground two Pieces of Glaſs into Form as well as he could, and fitted them to the two Ends of an Organ Pipe, and ſhew'd, at once, all the Wonders of the Invention to the *Venetian* Nobleſſe on the Top of the Tower of St. *Mark*. That Author adds, that from this Time *Galileo* devoted himſelf wholly to the improving and perfecting of the *Teleſcope*; and that he thereby almoſt deſerv'd all the Honour uſually done him, of being reputed the Inventor of the Inſtrument, and of its being denominated from him *Galileo's Tube*.

F. *Mabillon*, indeed, relates, in his Travels thro' *Italy*, that in a Monaſtery of his own Order, he ſaw a Manuſcript Copy of the Works of *Commeſtor*, written by one *Coradus*, who liv'd in the 13th Century; in the third Page whereof, was ſeen a Portrait of *Ptolomy* viewing the Stars thro' a Tube of four Draws: But that Father does not ſay that the Tube had Glaſſes in it. In effect, 'tis more than probable, that ſuch Tubes were then uſed for no other Purpoſe but to preſerve and direct the Sight, or to render it more diſtinct, by ſingling out the particular Object look'd at, and ſhutting out all the foreign Rays reflected from others, whoſe Proximity might have render'd the Image leſs preciſe.

This Conjecture is verify'd by Experience; we having often obſerv'd, that without a Tube, by only looking thro' the Hand, or even the Fingers, or a Pin-Hole in a Paper, Objects ſhall appear more clear and diſtinct than otherwiſe.

Be this as it will, 'tis certain the Optic Principles, whereon *Teleſcopes* are founded, are contain'd in *Euclid*, and were well known to the ancient Geometricians; and 'tis for want of Attention thereto, that the World was ſo long without that admirable Invention; as, no doubt, there are numerous others lying hid in the ſame Principles, only waiting for Reflection or Accident to bring them forth.

Teleſcopes are of ſeveral Kinds, diſtinguiſh'd by the Number and Form of their Lens's or Glaſſes, and denominated from their particular Uſes, *&c.* ſuch are the *Terreſtrial* or *Land Teleſcope*, the *Cœleſtial* or *Aſtronomical Teleſcope*: To which may be added, the *Galilean* or *Dutch Teleſcope*, the *Reflecting Teleſcope*, and the *Aerial Teleſcope*.

Galileo's, or the Dutch TELESCOPE, is a *Teleſcope* conſiſting of a Convex Object-glaſs, and a Concave Eye-glaſs. See CONCAVE and CONVEX.

This, of all others, is the moſt ancient Form, being the only Kind made by the Inventors, *Galileo, &c.* or known, before *Huygens*: Whence its Name. Its Conſtruction, Perfections, Imperfections, *&c.* are deliver'd in what follows.

Conſtruction of Galileo'*s or the* Dutch TELESCOPE.

In a Tube prepar'd for the Purpoſe, (the Structure whereof ſee under the Article TUBE) at one End is fitted a Convex Object Lens, either a plain Convex, or Convex on both Sides, but a Segment of a very large Sphere: At the other End is fitted an Eye-glaſs, concave on both Sides, and the Segment of a leſs Sphere; ſo diſpos'd, as to be the Diſtance of the Virtual Focus before the Image of the Convex Lens. See FOCUS.

Theory of Galileo'*s* TELESCOPE.

Now, in an Inſtrument thus framed, *all People, except Myopes*, or thoſe ſhort-ſighted, *muſt ſee Objects diſtinctly, in an erect Situation; and increaſed in the Ratio of the Diſtance of the Virtual Focus of the Eye Glaſs, to the Diſtance of the Focus of the Object Glaſs.*

But, for Myopes to ſee Objects diſtinctly thro' ſuch an Inſtrument, the Eye-glaſs muſt be ſet nearer the Object-glaſs. The Reaſon of theſe Effects will appear from what follows:

For, 1°, Since 'tis far diſtant Objects that are to be viewed with a *Teleſcope*, the Rays proceeding from the ſame Point of the Object, will fall on the Object-glaſs, parallel; and, conſequently, by their Refraction thro' the Convexity will be thrown Converging on the Eye-glaſs. But by their Refraction thro' the Concavity hereof, they will be again render'd parallel; and in ſuch Diſpoſition will enter the Eye. See RAY, CONCAVITY, CONVEXITY, and CONVERGING.

But all, excepting Myopes, ſee Objects *diſtinctly* by parallel Rays. See VISION and PARALLEL. *Therefore the firſt Point is clear.*

2° Suppoſe A (Tab. Opticks, Fig. 41.) to be the Focus of the Object-glaſs; and ſuppoſe A C the furtheſt Ray on the right Hand of the Object that paſſes through the Tube: After Refraction, it will become parallel to the Axis B I, and, conſequently, after a ſecond Refraction through the concave Lens, will diverge from the virtual Focus. Wherefore, ſince all the Rays coming from the ſame Extreme to the Eye placed behind the concave Lens, are parallel to L E; and thoſe from the middle of the Object, parallel to I G (as ſhewn under the former Article) the middle Point of the Object will be ſeen in the Axis G A; and the right Extreme, on the right Side, *viz.* in the Line L N, or parallel thereto: that is, the Object will be *erect*; *Which is the ſecond Point.*

3° Since all Right Lines parallel to L E cut the Axis under the ſame Angle; the Semi-diameter of the Object will be ſeen through the *Teleſcope*, under the Angle E F I; the Rays L E and G I entring the Eye in the ſame Manner, as if the Pupil were placed in F. If, now, the naked Eye were in A, it would ſee the Semi-diameter of the Object under the Angle c A b or C A B. But ſince the Object is ſuppoſed very remote, the Diſtance A F in reſpect hereto is nothing, and therefore the naked Eye, even in F, would ſee the Semi-diameter of the Object under an Angle, equal to A.

The Semi-diameter of the Object, therefore, ſeen with the naked Eye, is to that ſeen through the *Teleſcope* as I M to I E. But 'tis demonſtrated, that I M : I E :: I F : A B; that is, the Semi-diameter ſeen with the naked Eye, is to that viewed through the *Teleſcope*; *in the Ratio of the Diſtance of the virtual Focus of the Eye-glaſs* F I, *to the Diſtance of the Focus of the Object-glaſs*, A B; *Which was the third Point.*

Laſtly, Myopes have their Retina too far from the cryſtallin Humour; and diverging Rays, concur at a greater Diſtance than parallel ones; and thoſe that were parallel become diverging by bringing the Eye-glaſs nearer the Object-glaſs; by means of ſuch Approach, *Myopes will ſee Objects diſtinctly* through a *Teleſcope*; *Which is the fourth Point.*

Hence, 1°, To have the whole Object viſible, the Semi-diameter of the Pupil muſt not be leſs than the Diſtance of the Rays L E and G I; and, therefore, the more the Pupil is dilated, the greater *Field* or Compaſs will be taken in by the *Teleſcope*, and *vice verſa*; ſo that coming out of a dark Place, or ſhutting the Eye for ſome time e'er you apply it to the Glaſs, you will take in a greater Field at firſt Glance, than afterwards, when the Pupil is again contracted by the Increaſe of Light. See PUPIL.

2° Since the Diſtance of the Rays E L and I K is greater, at a greater Diſtance from the Lens; the Compaſs taken in by the Eye at one View, will be greater as the Eye is nearer the Concave Lens.

3° Since the Focus of a Plano Convex Object Lens, and the Focus of a Plano Concave Eye Lens, is at the Diſtance of the Diameter; and the Focus of an Object-glaſs, convex on both Sides, and the virtual Focus of an Eye-glaſs concave on both Sides, is at the Diſtance of a Semi-diameter; if the Object-glaſs be Plano Convex, and the Eye-glaſs Plano Concave, the *Teleſcope* will increaſe the Diameter of the Object, in the *Ratio* of the Diameter of the Concavity to that of the Convexity: If the Object-glaſs be Convex on both Sides, and the Eye-glaſs Concave on both Sides, it will magnify in the *Ratio* of the Semi-diameter of the Concavity to that of the Convexity; if the Object-glaſs be Plano Convex, and the Eye-glaſs Concave on both Sides, the Semi-diameter of the Object will be increaſed in the *Ratio* of the Diameter of the Convexity to the Semi diameter of the Concavity: And, Laſtly, if the Object-glaſs be Convex on both Sides, and the Eye-glaſs Plano Concave, the Increaſe will be in the *Ratio* of the Diameter of the Concavity, to the Semi-diameter of the Convexity.

4° Since the *Ratio* of the Semi-diameters is the ſame as that of the Diameters: *Teleſcopes* magnify the Object in the ſame Manner, whether the Object-glaſs be Plano Convex, and the Eye-glaſs Plano Concave, or whether the one be Convex on both Sides, and the other Concave on both.

5° Since the Semi-diameter of the Concavity, has a leſs *Ratio* to the Diameter of the Convexity, than its Diameter has; a *Teleſcope* magnifies more, if the Object-glaſs be Plano Convex, than if it be Convex on both Sides.

6° The greater the Diameter of the Object-glaſs, and the leſs that of the Eye-glaſs; the leſs *Ratio* has the Diameter of the Object viewed with the naked Eye, to its Semi-diameter viewed with a *Teleſcope*; and, conſequently, the more is the Object magnified by the *Teleſcope*.

7° Since the Semi-diameter of the Object is increaſed in the *Ratio* of the Angle E F I; and the greater the Angle E F I is, the leſs Part of the Object does it take in at one View; the *Teleſcope* exhibits ſo much a leſs Part of the Object, as it increaſes its Diameter more.

And this is the Reaſon that determined the Mathematicians to look out for another *Teleſcope*, after having clearly found the Imperfection of the firſt, diſcover'd by Chance. Nor were their Endeavours vain; as appears from the Aſtronomical *Teleſcope* hereafter to be deſcribed.

If the Semi-diameter of the Eye-glaſs, have too ſmall a *Ratio* to that of the Object-glaſs, an Object through the *Teleſcope*, will not appear ſufficiently clear, by reaſon the great Divergency of the Rays will occaſion the ſeveral Pencils repreſenting the ſeveral Points of the Object on the Retina, to conſiſt of too few Rays. This, too, is found, that equal Object Lens's won't bear the ſame Eye Lens, if they be differently tranſparent, or there be a Difference in their Poliſh. A leſs tranſparent Object-glaſs, or one leſs accurately ground, requires a more ſpherical Eye-glaſs, than another more tranſparent, *&c.*

Hence, though it be found by Experience, that a *Teleſcope* is good, if the Diſtance of the Focus of the Object-glaſs be ſix Inches, and the Diameter of the Plano Concave Eye-glaſs be one Inch and one Line, or of one equally Concave on both Sides, one Inch and a Half; yet is it by no means expedient to recommend to the Artificer, either this or any particular Combination; but to try ſeveral Eye-glaſſes, both greater and ſmaller, with the ſame Object-glaſs; and take that through which Objects appear moſt clear and diſtinct.

Hevelius recommends an Object-glaſs Convex on both Sides, whoſe Diameter is four *Dantzic* Feet; and an Eye-glaſs Concave on both Sides, whoſe Diameter is $4\frac{1}{2}$ Digits or Tenths of a Foot. An Object-glaſs, equally Convex on both Sides, whoſe Diameter is five Feet, he obſerves, will require an Eye-glaſs of $5\frac{1}{2}$ Digits; and adds, that the ſame Eye-glaſs will alſo ſerve an Object-glaſs of eight or ten Feet.

Hence, as the Diſtance of the Object-glaſs and Eye glaſs is the Difference between the Diſtance of the virtual Focus of the

Eye-glaſs, and the Diſtance of the Focus of the Object-glaſs; the Length of the *Teleſcope* is had by ſubſtracting that from this. That is, the Length of the *Teleſcope* is the Difference between the Diameters of the Object-glaſs and Eye-glaſs, if that be Plano Convex and this Plano Concave; or the Difference between the Semi-diameters of the Object-glaſs, and Eye-glaſs, if that be Convex on both Sides, and this Concave on both; or the Difference between the Semi-diameter of the Object-glaſs and Eye-glaſs, if that be Convex on both Sides, and this Concave on both; or the Difference between the Semi-diameter of the Object-glaſs, and the Diameter of the Eye-glaſs, if that be Convex on both Sides, and this, Plano Concave; or the Difference between the Diameter of the Object-glaſs, and the Semi-diameter of the Eye-glaſs if that be Plano Convex, and this Concave on both Sides.

Thus, *e.gr.* If the Diameter of an Object-glaſs on both Sides, be four Foot, and that of an Eye-glaſs Concave on both Sides, be Four and a Half Digits or Tenths of a Foot; the Length of the *Teleſcope* will be one Foot eight Digits.

Aſtronomical TELESCOPE, is a *Teleſcope* conſiſting of an Object-glaſs and an Eye-glaſs, both Convex. See CONVEXITY.

It has its Name, from its being wholly uſed in Aſtronomical Obſervations.

Conſtruction of the Aſtronomical TELESCOPE.

The Tube being prepared, an Object-glaſs, either Plano Convex, or Convex on both Sides, but to be a Segment of a large Sphere, is fitted in at one End. At the other End, an Eye-glaſs Convex on both Sides, which is the Segment of a ſmall Sphere, is fitted into the other End, at the common Diſtance of the Foci.

Theory of the Aſtronomical TELESCOPE.

Now, *an Eye placed near the Focus of the Eye-glaſs, will ſee Objects diſtinctly, but inverted; and magnify'd in the Ratio of the Diſtance of the Focus of the Eye-glaſs to the Diſtance of the Focus of the Object-glaſs.*

For 1° Since 'tis very remote Objects are viewed through *Teleſcopes*, the Rays from any Point of the Object, fall parallel on the Object-glaſs; and, conſequently, after Refraction, will meet in a Point behind the Glaſs, which Point is the Focus of the Eye-glaſs. From this Point they begin to diverge, and fall diverging on the Eye-glaſs, where being refracted, they enter the Eye parallel.

Hence, as all but Myopes ſee diſtinctly by parallel Rays, a *Teleſcope*, thus diſpos'd, will exhibit remote Objects *diſtinctly*.

Suppoſe the common Focus of the Lens's in F, (Fig. 42.) and make A B = B F. Since one of the Rays A C, proceeding from the Right Side of the Object, paſſes thro' A; the Ray C E will be parallel to the Axis A I, and therefore after Refraction in the Eye-glaſs, will fall in with it in its Focus G. Since then, the Eye is placed near it; and all the other Rays proceeding from the ſame Point of the Object with E G, are refracted parallel thereto; the Point in the Right Side of the Object, will be ſeen in the Right Line E G.

After the like Manner it appears, that the middle Point of the Object is ſeen in the Axis G B ſo that the Object appears *Inverted*.

3° From what has been already ſhewn, it appears that the Semi-diameter of the Object will be ſeen through the *Teleſcope*, under the Angle E G I, which to the naked Eye placed in A, is ſeen under the Angle b A c. Suppoſe, now, I F equal to the Diſtance of the Focus I G; ſince the Right Angles at I are equal; E G F = E F I. Therefore drawing F M parallel to A C, we ſhall have I F M = B A C. The Semi-diameter, therefore, viewed with the naked Eye, is to that viewed through the *Teleſcope*, as I M to I E. Draw K E parallel to F M; we ſhall have I M : I E : : I F : I K. But by reaſono fthe Parallelіſm of the Lens's; C E = B I = B F + F I = A B + F I; and by reaſon of the Paralleliſm of the Right Lines C A, and E K; C E = A K, therefore B I = A K, conſequently, A B = I K. And, therefore, I M : I E : : I F : A B; that is, the *Semi-diameter ſeen with the naked Eye, is to the Semi-diameter view'd through the* Teleſcope, *in the* Ratio *of the Diſtance of the Focus of the Eye-Lens* I F, *to the Diſtance of the Focus of the Object-glaſs* A B. Q. e. d.

Hence, 1°, As the *Aſtronomical Teleſcope* exhibits Objects Inverted; it ſerves, commodiouſly enough for obſerving the Stars (it mattering little, whether they be ſeen Erect or Inverted) but for Terreſtrial Objects, 'tis much leſs proper, as the Inverting mutually prevents their being known.

2° If between the Eye-glaſs, and its Focus G, be a plain well-poliſh'd Metal Speculum L N, of the Length of an Inch, and of an Oval Figure, inclined to the Axis under an Angle of 45°, the Rays E P and M Q will be reflected in ſuch Manner, as that concurring in g, they make an Angle P g Q, equal to P G Q: And therefore the Eye being placed in g, will ſee the Object of the ſame Magnitude as before, only in an erect Situation. By the Addition, therefore, of ſuch a Speculum, the *Aſtronomical Teleſcope*, is render'd fit to obſerve Terreſtrial Objects. See MIRROR.

3° Since the Focus of a Glaſs Convex on both Sides, is diſtant from the Glaſs itſelf, a Semi-diameter; and that of a Plano Convex Glaſs, a Diameter; if the Object-glaſs be Convex on both Sides, the *Teleſcope* will magnify the Semi-diameter of the Object, in the *Ratio* of the Semi-diameter of the Eye-glaſs to the Semi-diameter of the Object-glaſs; but if the Object-glaſs be a Plano Convex, in the *Ratio* of the Semi-diameter of the Eye-glaſs, to that of the Object-glaſs.

4° Wherefore, ſince the Semi-diameter of the Eye-glaſs has a greater *Ratio* to the Semi-diameter of the Object-glaſs, than to its Diameter; a *Teleſcope* magnifies the Semi-diameter of the Object more, if the Object-glaſs be a Plano Convex, than if Convex on both Sides.

5° The *Ratio* of the Semi-diameter of the Eye-glaſs, to the Diameter or Semi-diameter of the Object-glaſs, is the leſs, as the Eye-glaſs is a Segment of a leſs Sphere, and the Object-glaſs of a greater. A *Teleſcope*, therefore, magnifies the Diameter of the Object more, as the Object-glaſs is a Segment of a greater, and the Eye-glaſs of a leſſer Sphere. And yet the *Ratio* of the Semi-diameter of the Eye glaſs to the Object-glaſs muſt not be too ſmall: If it be, it will not refract Rays enough to the Eye from each Point of the Object; nor will it ſeparate thoſe coming from different Points ſufficiently: by which means the Viſion will be render'd obſcure, and confuſed. To this may be added, what we have ſhewn, of the *Ratio* of the Object-glaſs to the Eye-glaſs in the *Dutch Teleſcope*.

De Chales obſerves, that an Object Lens of $2\frac{1}{4}$ Feet will require an Eye-glaſs of $1\frac{1}{2}$ Digit or Tenth of a Foot; and an Object-glaſs of eight or ten Feet, an Eye-glaſs of four Digits; in which he is confirm'd by *Euſtachio de Divinis*.

Huygens's great *Teleſcope*, wherewith *Saturn*'s true Face, and one of his *Satellites* were firſt diſcovered, conſiſts of an Object-glaſs of 12 Feet, and an Eye-glaſs of a little more than Three Digits. Though he frequently uſed a *Teleſcope* 23 Feet long, with two Eye-glaſſes joined together, each in Diameter $1\frac{1}{2}$ a Digit; ſo that the Two were equal to One of Three Digits. The ſame Author obſerves, that an Object-glaſs of 30 Feet, requires an Eye-glaſs of $3\frac{3}{10}$ Digits; and gives us a Table of Proportions, for the Conſtructing of *Aſtronomical Teleſcopes*; an Abridgment whereof, we ſhall here give the Reader.

Diſt. of Foc. of Obj. Glaſs.	Diam. of Aperture.	Diſt. of F. of E. Glaſs	Magn. Diam.	Diſt. of Foc. of Obj. Glaſs.	Diam. of Aperture.	Diſt. of F. of E. Glaſs	Magn. Diam.
Rhinland Feet.	Digits & Dec.	Digit and Dec.		15	2 12	2 33	72
				20	2 45	2 70	89
1	0 55	0 61	20	25	2 74	3 01	100
2	0 77	0 85	28	30	3 00	3 30	109
3	6 95	1 05	34	40	3 46	3 56	126
4	1 09	1 20	40	50	4 87	4 26	141
5	1 23	1 35	44	60	4 24	4 66	154
6	1 34	1 47	49	70	4 58	5 04	166
7	1 45	1 60	53	80	5 90	5 39	178
8	1 55	1 71	56	90	5 05	5 56	183
9	1 64	1 80	60	100	5 48	9 03	199
10	1 73	1 90	63				

If in Two or more *Teleſcopes*, the *Ratio* between the Object and Eye-glaſs be the ſame; the Object will be magnified the ſame in both.

Hence ſome may conclude, the making of large *Teleſcopes* a needleſs Trouble. But it muſt be remembered, what we have already laid down: An Eye-glaſs may be in a leſs *Ratio* to a greater Object-glaſs, than to a ſmaller: Thus, *e. gr.* in *Huygens*'s *Teleſcope* of 25 Feet, the Eye glaſs is Three Digits. Now, keeping this Proportion, in a *Teleſcope* of 50 Feet, the Eye-glaſs ſhould be Six Digits; but the Table ſhews, Four and a Half are ſufficient. Hence, from the ſame Table it appears, that a *Teleſcope* of 50 Feet magnifies in the *Ratio* of 1 : 141; whereas that of 25 Feet, only magnifies in the *Ratio* of 1 : 100.

Since the Diſtance of the Lens's is equal to the Aggregate of the Diſtance of the Foci of the Object and Eye-glaſſes; and the Focus of a Glaſs Convex on each Side is a Semi-diameter's Diſtance, and that of a Plano Convex, a Diameter's Diſtance from the Lens; the Length of a *Teleſcope* is equal to the Aggregate of the Semi-diameters of the Lens's, if the Object-glaſs be Convex on both Sides; and to the Sum of the Semi-diameter of the Eye-glaſs, and of the Diameter of the Object-glaſs, if the Object-glaſs be a Plano Convex.

But as the Semi-diameter of the Eye-glaſs is very ſmall, in reſpect of that of the Object-glaſs, the Length of the *Teleſcope* is uſually eſtimated from the Diſtance of the Object-glaſs, *i. e.* from its Semi-diameter, if it be a Convex on both Sides; or its Diameter if Plano Convex. Thus, a *Teleſcope*

Teleſcope is ſaid to be 12 Feet, if the Semi-diameter of the Object-glaſs, Convex on both Sides, be 12 Feet, *&c.*

Since Myopes ſee near Objects beſt; for them the Eye-glaſs is to be remov'd nearer the Object-glaſs, that the Rays refracted thro' it may be the more diverging.

To take in the larger Field at one View, ſome uſe two Eye-glaſſes; the formoſt whereof is a Segment of a larger Sphere than that behind: To this it muſt be added, that if two Lens's be join'd immediately together, ſo as one touch the other, the Focus is remov'd to double the Diſtance which that of one of them would reach to.

To ſhorten the Aſtronomical Teleſcope, i. e. *to conſtruct a* Teleſcope *ſo, as that tho' ſhorter than the common one, it ſhall magnify as much.*

1°. Having provided a drawing Tube, fit in an Object Lens EG (Fig. 43.) which is a Segment of a moderate Sphere; let the firſt Eye-glaſs BD be Concave on both Sides; and ſo placed in the Tube, as that the Focus of the Object-glaſs A may be behind it, but nearer than the Centre of the Concavity G. Then will the Image be thrown in Q, ſo that GA : GI :: AB : QI. Laſtly, fit in another Object-glaſs, Convex on both Sides, and a Segment of a leſſer Sphere, ſo as that its Focus may be in Q.

This *Teleſcope* will magnify the Diameter of the Object, more than if the Object-glaſs were to repreſent its Image at the ſame Diſtance EQ; and conſequently a ſhorter *Teleſcope* conſtructed this Way, is equivalent to a longer in the common Way. The Demonſtration may be ſeen in *Wolfius.*

Sir *Iſ. Newton* furniſhes us with another Method of contracting the *Teleſcope*, in his Caloptrical or Reflecting *Teleſcope*; the Conſtruction whereof ſee hereafter.

Land TELESCOPE, or *Day* TELESCOPE; a *Teleſcope* conſiſting of more than two Lens's, commonly of a Convex Object-glaſs, and three Convex Eye-glaſſes: or, a *Teleſcope* that exhibits Objects erect, yet different from that of *Galileo.*

It has its Name from its being uſed to view Objects in the Day-time, or on the Earth, or from its being uſed by Day.

To conſtruct a Land or Day TELESCOPE.

A Tube being provided, fit in an Object-glaſs, which is either Convex on both Sides, or Plano Convex, and a Segment of a large Sphere: To this add three Eye-glaſſes, all Convex on both Sides, and Segments of equal Spheres; diſpoſing them in ſuch Manner, as that the Diſtance of any two may be the Aggregate of the Diſtance of their Foci.

Theory of a Land TELESCOPE.

Then will an Eye apply'd to the laſt Lens, at the Diſtance of its Focus, *ſee Objects very diſtinctly, erect, and magnify'd in the Ratio of the Diſtance of the Focus of one Eye-glaſs* LK (*Fig.* 44.) *to the Diſtance of the Focus of the Object-glaſs* AB.

For, 1°. the Rays, from what has been already ſaid, falling on the Object parallel; the Image of the Object will be repreſented invertedly at the Diſtance of the principal Focus: Wherefore, ſince this Image is in the Focus of the firſt Eye-glaſs, the Rays after a ſecond Refraction will become parallel, and thus falling on the third Lens, after a third Refraction they exhibit the inverted Image invertedly; that is, a direct Image of the Object. Since then this Image is in the Focus of the third Eye-glaſs, the Rays after a fourth Refraction will become parallel: And in this Diſpoſition the Eye will receive them, and conſequently there will be diſtinct Viſion, and the *Object will appear erect.*

2°. If IQ = IK, that is, equal to the Diſtance of the Focus of the Object-glaſs; the Eye placed in M, will ſee the Semi-diameter of the Object increas'd in the Ratio of LM to KI; but the Ray AQ, proceeding from the Focus Q of the Object Lens AB, after Refraction becomes parallel to the Axis IL; conſequently the firſt Eye Lens CD joins it to the Axis in M, the Diſtance of a Semi-diameter.

And ſince the Focus of the ſecond Eye-glaſs EF, is alſo in M; the Ray FH, after Refraction, will be parallel to the Axis NO; and therefore the third Eye-glaſs will join it at the Axis in P; but the Semi-diameters of the Lens's GH and CD are ſuppos'd equal; therefore PO = LM. Wherefore ſince the right Angles at O and L are equal, as alſo HO = CL, the Angle OPH is equal to CML. The Semi-diameter of the Object, therefore, appears the ſame in P as in M; and is conſequently *magnify'd in the Ratio of* LM, *or* PO *to* KI.

Hence, 1°. An Aſtronomical *Teleſcope* is eaſily converted into a Land *Teleſcope*, by uſing three Eye-glaſſes for one; and the Land *Teleſcope*, on the contrary, into an Aſtronomical one, by taking away two Eye-glaſſes; the Faculty of magnifying ſtill remaining the ſame.

2°. Since the Diſtance of the Eye-glaſſes is very ſmall, the Length of the *Teleſcope* is much the ſame as if you only uſed one.

3°. From the Conſtruction, 'tis evident that the Length of the *Teleſcope* is had by adding five times the Semi-diameter of the Eye-glaſſes to the Diameter of the Object-glaſs, if a Plano Convex; or its Semi-diameter, if Convex on both Sides.

Huygens firſt obſerv'd, both in the *Aſtronomical* and *Land Teleſcope*, that it contributes conſiderably to the Perfection of the Inſtrument, to have a Ring of Wood or Metal, with an Aperture, a little leſs than the Breadth of the Eye-glaſs, fix'd in the Place where the Image is found to radiate upon the Lens next the Eye: By Means hereof the Colours, which are apt to diſturb the Clearneſs and Diſtinctneſs of the Object, are prevented, and the whole Compaſs taken in at a View, perfectly defin'd.

Some make *Land Teleſcopes* of three Lens's, which yet repreſent Objects erect and magnify'd as much as the former. But ſuch *Teleſcopes* labour under very great Inconveniencies, both as the Objects herein are tinged with falſe Colours, and as they are diſtorted about the Margin.

Some again uſe four Lens's, and even more; but ſince ſome Part of the Rays is intercepted in paſſing every Lens, Objects are hereby exhibited dim and feeble.

Reflecting, or *Catoptric*, or *Cata-dioptric* TELESCOPE, is a *Teleſcope*, which, inſtead of Lens's, conſiſts chiefly of Mirrors, and exhibits remote Objects by Reflection, inſtead of Refraction. See CATOPTRICKS, *&c.*

This Inſtrument is the Invention of the great Sir *Iſ. Newton*: What determin'd him to apply his Thoughts this Way, was the different Refrangibility, which in his new Doctrine of Light and Colours, he found the Rays of Light were of. In effect, as he found the Ratio between the greateſt and leaſt Refractions of the different Rays, to be nearly as 28 to 27, it eaſily follow'd, that the Rays could never be all refracted parallel from any Lens, but would ſome of them divaricate more, ſome leſs; beſide that, the Foci would be diſturb'd; the Focus of the moſt refrangible Rays, being nearer the Lens than that of the leaſt refrangible ones, by a Diſtance which is the 27th Part of the Diſtance between the Object-glaſs, and the Focus of the leaſt refrangible ones. See RAY and REFRANGIBILITY.

Hence he concluded, that Refraction was too unequal a Principle; and that Lens's, of whatever Figures, whether Spherical, Parabolical, or any of the other Conic Sections, and how truly ſoever ground, would never ſuffice for the Perfection of *Teleſcopes.*

Upon this he had Recourſe to another more equable Principle, *viz. Reflection*; and made a *Teleſcope*, conſiſting of Specula, or Mirrors: The firſt Hint whereof he owns he took from Dr. *Gregory*'s Opticks.

Conſtruction of a Reflecting TELESCOPE.

Provide a Tube ABCD, (Fig. 45.) open in AD, and clos'd in BC, well black'd within-ſide, and of a Length equal to the Diſtance of the Focus from the Concave Speculum EF. To the Bottom BC, is to be fitted a Concave metallic Speculum *ab*, poliſh'd to the greateſt poſſible Perfection; or rather, to have the Objects clearer, and more diſtinct, let it be a Glaſs Speculum, Concave on its fore Side, and equally Convex on the hind Side; for unleſs it be of the ſame Thickneſs every where, it will reflect the Images of Objects tinged with a ſpurious Colour, and indiſtinct. Towards the other End of the Tube is fix'd an Iron Piece HL, to which is cemented a plain metallic Speculum; or, which is better, a triangular Priſm of Glaſs or Cryſtal G, whoſe upper Angle G is a right Angle, the two others half right. The Faces or Planes that meet in the Angle G, to be ſquare, and the third a Parallelogram. This Priſm is to be ſo diſpos'd, as that a Ray reflected from the Speculum, paſſing thro' the Middle of the Face GM, may cut it at right Angles; but be inclin'd to the Rectangle MN in an Angle of 45°. Its Diſtance from the Concave Speculum EF, is to be ſuch, as that the Rays *ac* and *bd* reflected from the Concave Speculum, may, after a ſecond Reflection from the Baſe of the Priſm, concur in the Point *e*; that is, the Diſtance of the Focus *e* from the reflecting Surface of the Priſm, and the Diſtance of that from the Concave Speculum, is to be equal to the Diſtance of the Focus from the Concave Speculum. In I is placed a Plano Convex Lens, whoſe Focus is in *e*, that the reflected Rays may enter the Eye parallel. Laſtly, this Lens is cover'd with a thin Braſs or Leaden Plate, having a little round Perforation therein, for the Eye to look thro', by which means all foreign Rays are excluded, which would otherwiſe occaſion Confuſion.

In the firſt *Teleſcope* of this Kind which the Inventor made, the Semi-diameter of the Concave Metallic Speculum was 12 $\frac{2}{3}$ Digits, or Tenths of an Inch; from which, therefore, the Focus was 6 $\frac{1}{3}$ Digits diſtant. The Diameter of the Eye-glaſs was $\frac{1}{6}$ of a Digit; ſo that it magnify'd the Diameter of the Object in the Ratio of 1 to 38: But he found that Objects were ſhewn ſomewhat obſcure hereby; on which Account, he afterwards recommended Glaſs Specula inſtead of Metallic ones; adding, that there is nothing more requir'd to the Perfection of this *Teleſcope*, but that the Art of poliſhing Glaſs be brought to greater Perfection; for that ſome Inequalities which don't hurt Lens's, are found to affect Specula, and prevent Objects being ſeen diſtinctly.

The ſame Author obſerves, that if the Length of the Inſtrument be 6 Feet, and conſequently the Semi-diameter of the Concave Speculum 12, the Aperture of the Speculum is to be 6 Inches; by which Means the Object will be increas'd in the Ratio of 1 to 200 or 300.

If it be longer, or ſhorter, the Aperture muſt be as the Cube of the Quadrato-quadrate Root of the Length, and its magnifying Power as its Aperture. The Speculum he orders to be an Inch or two broader than the Aperture.

Aerial TELESCOPE, a kind of *Aſtronomical Teleſcope*, the Lens's whereof are us'd without a Tube.

In Strictneſs, however, the *Aerial Teleſcope*, is rather a particular Manner of mounting and managing long *Teleſcopes*, for Cœleſtial Obſervations in the Night Time, whereby the Trouble of long unweildy Tubes is ſav'd, than a particular Kind of *Teleſcope*. The Contrivance we owe to the noble *Huygens*.

Conſtruction of the Aerial TELESCOPE.

1° A tall Pole or Maſt, A B (Fig. 46.) the Length the Tube ſhould be of, is fix'd perpendicularly in the Ground. Before the erecting it, one Side is planed ſmooth, and upon it two Rulers fix'd parallel to each other, an Inch and Half apart, including a kind of Groove or Channel between them, reaching from top almoſt to bottom. At the Top of the Pole is fitted a little Truckle A, moveable on its Axis, and over it is drawn a Cord G g, double the Length of the Pole, and the Thickneſs of the little Finger, returning into itſelf, and furniſh'd with a piece of Lead, H, equal in Weight to the Lens and a moveable Arm to be ſuſtained thereby.

Then, a wooden Lath, C D, two Foot long, is framed ſo as that it may ſlide freely in the Channel; and in the Middle thereof, is affix'd a wooden Arm E, ſtanding out a Foot from the Pole, and on its Extremity bearing another, F f, a Foot and Half long, fix'd to it at Right Angles; both of them parallel to the Horizon.

2° An Object-glaſs is included in a hollow Cylinder I K, three Inches long: To this Cylinder is fix'd a Staff, K L, near an Inch thick, and a Foot long, which reſts on a braſs Ball M, that moves freely in its Cup or Socket underneath: Only, on Occaſion, the Ball and Socket are fix'd by a Screw. That the Lens thus equally balanced, may be moved with a ſmall Force, a Weight N I of about a Pound, is ſuſpended, by a ſtrong Wiar N F, by bending which, the common Centre of Gravity of the Weight, the Lens is eaſily made to coincide with that of the Ball. To the Staff K L, is fix'd a braſs Style L, which is bent downwards, till its Point be as much below the Centre of the Staff, as the Centre of the Ball is. To the Point is tied a fine ſilken Thread L V, which, of Conſequence, will be parallel to the Staff K L.

3° An Eye-glaſs O, is included in a ſhort Cylinder; and the Staff P V, fix'd to the ſame. To this is hung a little Weight S, ſufficient to make a Balance. In Q is fix'd a Handle, R, which carries a tranſverſe Axis, to be held in the Obſerver's Hand, and the Staff P V directed towards the Object-glaſs, is tied to the Thread L V. The Thread paſs'd through a Hole, V, is wound about a little, Peg T, fix'd in the middle of the Staff; by the turning whereof, the Length of the Thread is ſhorten'd or prolong'd at Pleaſure.

4° That the Obſerver may be able to hold the Eye-glaſs ſteady; he has a Fulcrum or Prop under his Arm, the Structure whereof appears from Inſpection of the Figure. Laſtly, to keep off the feeble Light flowing from the Air upon the Eye, it is conveniently cover'd with a Circle, Y, perforated in the Middle, fitted on to a moveable and flexible Arm.

TELESCOPICAL *Stars*, are ſuch as are not viſible to the naked Eye; but diſcoverable only by the Help of a *Teleſcope*. See STAR.

All Stars leſs than the 6th Magnitude, are *Teleſcopic* to a moderate Eye.

TELLER, an Officer in the Exchequer, of which there are Four. See EXCHEQUER.

Their Buſineſs is to receive all Monies due to the Crown, and thereupon to throw down a Bill through a Pipe, into the Tally-Court, where it is received by the Auditor's Clerks, who attend there to write the Words of the ſaid Bill upon a Tally; and then deliver it to be enter'd by the Clerk of the Pells, or his Clerk. See TALLY and PELL.

The Tally is then ſplit or cloven by the two Deputy Chamberlains, who have their Seals, and whilſt the Senior Deputy reads the one Part, the Junior examins the other Part, with the other two Clerks.

Their Places are in the King's Gift, and they have, beſides their chief Clerk or Deputy, four other Clerks, for the Diſpatch of Buſineſs.

TELLUS, *Terra*, ♁, in Aſtronomy. See EARTH.

TEMPER in a	Phyſical Muſical Mechanical	Senſe. See	TEMPERAMENT TEMPERAMENT *in Muſic.* TEMPERING.

TEMPERAMENT, TEMPERAMENTUM, TEMPERATURE, in Phyſicks, that Habitude or Diſpoſition of a Body ariſing from the Proportion of the ſeveral prime or elementary Qualities it is compoſed of. See QUALITY and ELEMENT.

The Notion of *Temperament*, ariſes from that of Mixture; where different Elements, as Earth, Water, Air and Fire (or, to ſpeak more juſtly, in the Peripatetic Way, hot, cold, moiſt and dry) are blended together; by their Oppoſition, they tend mutually to weaken and incroach on each other: and from the whole, ariſes a ſort of temperate Craſis, or Coalition of them all, in this, or that Proportion; whence, according to the Quality that prevails or predominates, we ſay a *hot* or *cold*, a *moiſt* or *dry Temperament*.

It is controverted among the School-men, Whether the *Temperament* properly comprehends all the Four primary Qualities? or, Whether thoſe do not all ceaſe, and a new one, a Fifth, ſimple Quality, reſult from the total Alteration made in the other Four, by their mutual Action on each other?

Authors diſtinguiſh two Kinds of *Temperaments*, viz. *Uniform* and *Difform*: The Firſt, wherein all the Qualities are mix'd in an equal Degree: The Second, where in an unequal one.

The Uniform *Temperament*, can only be one; the Difform admits of Eight different Combinations, ſince either any one, or any two of the Qualities may prevail; whence *hot* and *moiſt*, *cold* and *moiſt*, &c. Further, ſome conſidering that the Qualities which do prevail, may not be in equal Degree; and the like of thoſe which do not prevail; make ſeveral other Combinations or *Temperaments*; and add 12 more to the Number. In effect, as there are infinite Degrees between the higheſt and loweſt Pitch of any one of the Elements, the different *Temperatures* may be ſaid to be Infinite.

TEMPERAMENT, in Medicine, is particularly underſtood of the natural Habitude and Conſtitution of the Body of Man; or the Diſpoſition of the Animal Humours. See CONSTITUTION and HUMOUR.

The Notion of this *Temperament* ariſes hence, that the Blood flowing in the Veins and Arteries, is not conceived to be a ſimple Fluid; but a ſort of imperfect Mixt, or an Aſſemblage of ſeveral other Fluids. For it does not only conſiſt of the Four ſimple, or primary Qualities; but of Four other ſecondary Ingredients compounded thereof, into which it is ſuppoſed to be reſolvable, *viz. Choler*, *Phlegm*, *Melancholly* and *Blood*, properly ſo called. See BLOOD, CHOLER, BILE, PHLEGM, &c.

Hence, as this, or that Ingredient Humour prevails in a Perſon, he is ſaid to be of a Choleric, Phlegmatic, Melancholic, Sanguine, *&c. Temperament*. See SANGUINE, MELANCHOLLY, CHOLERIC, &c.

The ancient Phyſicians brought theſe Animal *Temperaments* to correſpond with the univerſal *Temperaments* above deſcribed: Thus the *Sanguine Temperament* was ſuppoſed to coincide with *hot* and *moiſt*; the *Phlegmatic* with *cold* and *moiſt*, the *Melancholic* with *dry* and *cold*, &c.

Galen introduced the Doctrine of *Temperaments* into Phyſic, from the Peripatetic School; and made it, as it were, the Baſis of all Medicine. The whole of curing Diſeaſes, conſiſted in *tempering* the Degrees of the Qualities, Humours, &c. See GALENICAL, DEGREE, &c.

On the Footing Medicine now ſtands, the *Temperaments* are much leſs conſider'd. Dr. *Quincy* and other Mechanical Writers, pare away the greateſt Part of the Galenic Notion, as uſeleſs and uncertain; and conſider the *Temperaments* as no other but thoſe Diverſities in the Blood of different Perſons, whereby it becomes more apt to fall into certain Combinations in one Body than another, whether into Choler, Phlegm, &c. whence, according to them, People are denominated *Choleric*, *Phlegmatic*, &c.

The Ancients diſtinguiſh'd two Kinds of *Temperaments* in the ſame Body; the one *ad Pondus*, in Weight; the other, *ad Juſtitiam*.

The *Temperamentum ad Pondus*, is, where the elementary Qualities are found in equal Quantities, and in equal Proportions; ſuch is ſuppoſed to be in the Skin of the Fingers; without which they would want Power of diſtinguiſhing Objects, with ſufficient Accuracy.

The *Temperamentum ad Juſtitiam*, is that which contains unequal Portions of thoſe Qualities, but yet in ſuch Proportion as is neceſſary for the Diſcharge of the Functions proper to the Part: Such is the *Temperament* in a Bone, which contains more earthy than aqueous Parts, to make it more hard and ſolid, for its Office of ſuſtaining.

Galen obſerves, that the *Temperament ad Pondus*, is only imaginary; and that though it were real, it could not ſubſiſt above one Moment.

Dr. *Pitcairn* looks on the *Temperaments* or Conſtitutions, as native Diſeaſes; According to him, any one indued with whatever *Temperament*, hath the Seeds of a real Diſeaſe within him: A particular *Temperament*, ſuppoſing that ſome Secretions are in greater Proportion than is proper for Life Indefinitely long.

As the Diverſities of *Temperaments* are no other than Diverſities of Proportions in the Liquids, which may be diverſified infinite Ways; ſo there may be an infinite Number of *Temperaments*; though Authors have only ſuppos'd Four. The *Sanguin*, which is reckon'd a *Temperament*, *Pitcairn* ſays, is no other than a Plethora. See PLETHORA.

TEMPERAMENT, or *tempering*, in Muſick, a rectifying or mending the falſe or imperfect Concords, by transferring to them part of the Beauty of the perfect ones. See CONCORD.

The Degrees of the Octave, which may be call'd its *Elements*, as being the ſmalleſt Intervals it is reſolvable into; are two greater Semitones, two leſſer Tones, and three greater Tones. See TONE and OCTAVE.

Now the different Situation of theſe Elements, with reſpect to each other, occaſions that Intervals or Concords of the ſame Name, as *Thirds*, *Fourths*, &c. don't conſiſt of the ſame Degrees or Elements, tho' there be always the ſame Number of them; but one Fourth, for Inſtance, is agreeable and perfect, and another not.

To mend theſe imperfect Concords, the Muſicians have bethought themſelves to *temper*, *i. e.* give them part of the Agreeableneſs of perfect ones. In order to this, they take a Medium between the two, and this they call a *Temperament*, which neceſſarily produces a new Diviſion of the Octave, or which amounts to the ſame new Elements.

For Inſtance, whereas naturally its Elements are the greater Semitone, and the greater and leſſer Tone; they take a middle Tone form'd of the greater and the leſs: And the only Elements now, are the greater Semitone, and this mean Tone, which renders the five Intervals that are Tones equal, and thoſe that are Semitones leſs unequal to theſe.

One might alſo divide each of the five Tones of the Octave into Semitones, which, join'd to the two it naturally has, make twelve: In which Caſe, the whole Octave would be divided into twelve equal Parts, which would be mean Semitones.

'Tis eaſy to form various other Kinds of *Temperaments*: All the Difficulty is to find ſuch as are free from two great Inconveniencies, *i. e.* which don't alter either all the Concords too much, or, at leaſt, ſome of them.

All ſuch Diviſions of the Octave are call'd *temper'd*, or *temperative Syſtems*. See SYSTEM and SCALE *of Muſick*.

TEMPERATE *Zone*. See ZONE.

TEMPERING, in the Mechanic Arts, the preparing of Steel and Iron, ſo as to render them more compact, hard, and firm; or even more ſoft and pliant; according to the reſpective Occaſions. See IRON and STEEL.

Theſe Metals are *temper'd* by plunging them, while red hot, in ſome Liquor prepar'd for the Purpoſe: Sometimes pure Water is us'd for that Purpoſe; and, in effect, Lockſmiths, &c. ſcarce uſe any other.

Sometimes a Compoſition of divers Juices, Liquors, &c. is us'd; which is various, according to the Manner and Experience of the Workman; as Vinegar, Mouſe-Ear-Water, the Water oozing from broken Glaſſes, Soot, Salt, Oil, &c.

To harden and *temper Engliſh*, *Flemiſh*, and *Swediſh* Steel, you muſt give them a pretty high Heat, then ſuddenly quench them in Water to make them hard: But *Spaniſh* and *Venice* Steel will need but a Blood-red Heat e'er it be quench'd. See HEAT.

If the Steel be too hard, or brittle for an Edge Tool, &c. let it down by rubbing a Piece of Grindſtone or Whetſtone hard upon the Work, to take off the black Scurf: Then brighten, or heat it in the Fire; and as it grows hotter, you will ſee the Colour change by Degrees, coming firſt to a Straw, or light goldiſh Colour, then to a darker Goldiſh Colour, and at laſt to a Blue Colour. Chuſe ſuch of theſe Colours as the Work requires, then quench it ſuddenly in Water.

The light Gold Colour is for Files, cold Chiſſels, and Punches, that punch Iron and Steel: The dark Goldiſh Colour for Punches to uſe on Braſs, &c. The Blue Colour gives the *Temper* for Springs, &c.

The *Tempering* of Files and Needles is perform'd in a peculiar Manner. See FILE and NEEDLE.

The Ancients appear to have had ſome better Method of *Tempering*, than any of the Moderns are acquainted withal; witneſs their Works in Porphyry; a Stone ſo hard, that none of our Tools make any Impreſſion upon it. See PORPHYRY.

TEMPEST, a Storm, or violent Commotion of the Air, with or without Rain, Hail, Snow, &c. See WIND, HURRICANE, WHIRLWIND, WATER-*ſpout*, EARTHQUAKE, &c.

TEMPLARS, or *Knights*-TEMPLARS, or Knights of the TEMPLE, a Religious-Military Order, firſt eſtabliſh'd at *Jeruſalem*, in Favour of Pilgrims travelling to the Holy Land. See KNIGHT.

The Original of this Order, the firſt Military Order in the World, is this: In 1118, ſome pious noble Perſons devoted themſelves to the Service of God, in the Preſence of the Patriarch of *Jeruſalem*; promiſing to live in perpetual Chaſtity, Obedience, and Poverty, after the manner of Canons.

The two principal Perſons were *Hugo de Paganis*, and *Geoffroy* of S. *Omers*. *Baldwin* II. then King of *Jeruſalem*, gave them an Appartment in his Palace, near the Temple, at *Jeruſalem*, not far from the Sepulchre of our Saviour; whence their Denomination *Templars*.

Soon afterwards, the Canons of the Temple gave them a Piece of Ground hard by the ſaid Temple, to build them regular Houſes on; and the King, the Lords, the Patriarch, and the Prelates, each gave them ſomewhat out of their Revenue, for Food and Cloaths. Their firſt Undertaking, and what they had firſt in View at their Inſtitution, was to guard the Highways againſt Robbers, &c. chiefly for the Safety of Pilgrims and Croiſes. See CROISE.

The principal Articles of their Rule, were: That they ſhould hear the holy Office throughout every Day; or, that when their Military Duties ſhould prevent this, they would ſupply it by a certain Number of Pater Noſters: That they would abſtain from Fleſh four Days in the Week; and on *Fridays* from Eggs and Milk-meats: That each Knight might have three Horſes, and one Eſquire; and that they ſhould neither hunt, nor fowl.

Their firſt Rule was that of St. *Bernard*. Nine Years after their Foundation, a particular Rule was preſcrib'd them in the Council of *Troyes*.

In every Nation they had a particular Governor, call'd *Maſter of the Temple*, or of the *Militia of the Temple*. Their *Grand Maſter* had his Reſidence at *Paris*.

The Order of *Templars* was aboliſh'd at the Beginning of the XIVth Century, under *Clement* V, *Edward* II. of *England*, and *Philip* the Fair of *France*. In 1607 thoſe in *England* were all arreſted, and ſeven burnt alive. And in 1312, the Order was quite ſuppreſs'd in the Council of *Vienna*, and 50 burnt alive.

The Crimes they were charg'd withal, were apoſtatizing to the *Sarazens*, and holding Correſpondence with them. Some Authors will have it, theſe Crimes were only pretended; and that the true Reaſon of the Suppreſſion of the Order, was the immenſe Riches they were poſſeſs'd of. But tho' this might be ſome Reaſon for their Suppreſſion, it could be none for burning them alive: Add to this, that their Effects were given to the Hoſpitallers, or Knights of St. *John*. What then did the Kings of *England*, &c. get by their Suppreſſion? And what was it to them, which of thoſe Orders had the Effects?

TEMPLE, a publick Building, erected in Honour of ſome Deity, either true, or falſe; and wherein the People meet to pay religious Worſhip to the ſame. See GOD.

Clemens Alexandrinus and *Euſebius*, refer the Origin of *Temples* to the Sepulchres built for the Dead. *Herodotus* and *Strabo* will have the *Ægyptians* to be the firſt who built *Temples* to the Gods. The firſt, built in *Greece*, is aſcrib'd to *Deucalion*, by *Apollonius*, *Argonaut.* Lib. III.

In Antiquity we meet with many People who would not build any *Temples* to their Gods, for fear of confining them to too narrow Bounds. They perform'd their Sacrifices in all Places indifferently, from a Perſuaſion, that the whole World is the *Temple* of God, and that he requires no other. This was the Doctrine of the *Magi*, follow'd by the *Perſians*, the *Scythians*, the *Numidians*, and many other Nations mention'd by *Herodotus*, Lib. I. *Strabo* Lib. XV. and *Cicero* in his 2d Oration againſt *Verres*.

The *Perſians*, who worſhipp'd the Sun, believ'd it would wrong his Power, to incloſe Him in the Walls of a *Temple*, who had the whole World for his Habitation: And hence, when *Xerxes* ravag'd *Greece*, the *Magi* exhorted him to deſtroy all the *Temples* he met with.

The *Sicyonians* would build no *Temple* to their Goddeſs *Coronis*: Nor the *Athenians*, for the like Reaſon, erect any Statue to Clemency, who, they ſaid, was to live in the Hearts of Men, not within Walls.

The *Bithynians* had no *Temples*, but the Mountains to worſhip on; nor the ancient *Germans* any other but the Woods.

Even ſome Philoſophers have blamed the Uſe and Building of *Temples*, particularly *Diogenes*, *Zeno*, and his Followers the Stoicks: But, it may be ſaid, That if God have no Need of *Temples*, Men have Need of Places to meet in for the publick Offices of Religion: Accordingly, *Temples* may be traced back even into the remoteſt Antiquity. See *Hoſpinianus de Origine Templorum.*

The *Romans* had ſeveral Kinds of *Temples*; whereof thoſe built by the Kings, *&c.* conſecrated by the Augurs, and wherein the Exerciſe of Religion was regularly perform'd, were call'd, by Way of Eminence, *Templa, Temples.*

Thoſe that were not conſecrated, were call'd *Ædes.*

The little *Temples*, that were cover'd or roof'd, they call'd *Ædiculæ.*

Thoſe open, *Sacella.*

Some other Edifices conſecrated to particular Myſteries of Religion, they call'd *Fana* and *Delubra.*

All which Kinds of *Temples*, *Vitruvius* tells us, had other particular Denominations, according to the Form and Manner of their Conſtruction; as hereafter related.

Indeed, the *Romans* out-did all Nations in the Point of *Temples*; they not only built *Temples* to their Gods, to their Virtues, to their Diſeaſes, *&c.* but alſo to their Emperors, and that in their Life-time; Inſtances whereof we meet withal in Medals, Inſcriptions, and other Monuments. *Horace* compliments *Auguſtus* hereupon, and ſets him above *Hercules*, and all the Hero's of Fable; in that thoſe were only admitted into *Temples* after their Death, whereas *Auguſtus* had his *Temples* and Altars while living.

Viventi tibi maturos largimur honores;
Jurandaſq; tuum per nomen ponimus Aras. Epiſt. ad Auguſt.

TEMPLE, in Architecture. The ancient *Temples* were diſtinguiſh'd, with regard to their Conſtruction, into various Kinds; as,

TEMPLES of *Antæ*, or ſimply *Antæ*: Theſe, according to *Vitruvius*, were the moſt ſimple of all *Temples*; having only angular Pilaſters, call'd *Antæ*, or *Paraſtatæ*, at the Corners, and two Tuſcan Columns on each Side the Doors. See ANTA.

Tetraſtyle-TEMPLE, or ſimply *Tetraſtyle*, was a *Temple* that had four Columns in Front and as many behind; as that of *Fortuna Virilis* at *Rome.* Se TETRASTYLE.

Proſtyle-TEMPLE, that which had only Columns in its Front, or Fore-ſide; as that of *Ceres* in *Eleuſis*, in *Greece.* See PROSTYLE.

Amphiproſtyle, or *double Proſtyle*, that which had Columns both before and behind, and which was alſo Tetraſtyle. See AMPHIPROSTYLE.

Periptere-TEMPLE, that which had four Rows of inſolated Columns around, and was Hexaſtyle, *i. e.* had ſix Columns in Front; as the *Temple* of Honour at *Rome.* See PERIPTERE.

Diptere-TEMPLE, that which had eight Rows of Columns around, and was alſo Octoſtyle: Or had eight Columns in Front; as that of *Diana* at *Epheſus.* See DIPTERE.

PSEUDO *diptere*, or *imperfect diptere*	See	PSEUDO *diptere.*
HYPETRE - - - - - - - -	See	HYPETRE.
MONOPTERE - - - - - - -	See	MONOPTERE.

The Word *Temple* is form'd from the *Latin Templum*, which ſome derive from the *Greek* τέμενος, ſignifying the ſame Thing; and others from τέμνω, *abſcindo*, I cut off, I ſeparate, in Regard a *Temple* is a Place ſeparated from common Uſes; others derive it from the old *Latin* Word *templare*, to contemplate.

The ancient Augurs gave the Name *Temples* to thoſe Parts of the Heavens, which they mark'd out for the obſerving of the Flight of Birds. Their Formula was this: *Templa teſqua ſunto.*

TEMPLES, among us, are two Inns of Court; thus call'd, becauſe anciently the Dwelling-Houſe of the Knights *Templars.* See TEMPLAR.

At the Suppreſſion of that Order, they were purchas'd by ſome Profeſſors of the Common Law, and converted into Hoſpitia, or Inns. See INN.

They are call'd the *Inner* and *Middle Temple*, in relation to *Eſſex* Houſe, which was alſo a Part of the Houſe of the *Templars*, and call'd the *Outer Temple*, becauſe ſituate without *Temple Bar.*

In the *Middle Temple*, during the Time of the *Templars*, the King's Treaſure was kept: As was alſo that of the Kings of *France* in the Houſe of the *Templars* at *Paris.*

The chief Officer was the *Maſter of the Temple*, who was ſummon'd to Parliament in 49 *Hen.* 3. And from him, the chief Miniſter of the *Temple Church* is ſtill call'd *Maſter of the Temple.* See MASTER.

TEMPLES, *Tempora*, in Anatomy, a double Part of the Head, reaching from the Forehead and Eyes, to both Ears. See HEAD.

The *Temples* are form'd of two Bones, call'd *Oſſa Temporis.* See TEMPORIS *Oſſa.*

Menage will have the Word deriv'd from the old *Latin*, *Tempra*, whence *Tempora*, and *Temples.* But the Phyſicians give another Origin. Theſe Parts, they ſay, were call'd *Tempora*, from their ſhewing the Age or Time of Man, by the Colour of the Hair, which turns white in this Part before any other; Which *Homer* ſeems to have been aware of, by his calling Men *Poliocrotaphos*, *q. d.* Grey-templed.

TEMPORAL, *Temporalis*, a Term frequently us'd for *Secular*; in which Senſe it ſtands in Oppoſition to *Eccleſiaſtical.* See SECULAR.

Pope *Boniface* wrote to *Philip* the Fair of *France*, that he was ſubject to him both in Spirituals and *Temporals.* At preſent all the Doctors on this Side the *Alps* own the Supremacy of Kings in Temporals. See SUPREMACY.

TEMPORALIS, in Anatomy, a Muſcle, which ariſes by a Semi-circular fleſhy Beginning, from a Part of the Os Frontis, the lower Part of the Parietale, and upper Part of the *Temporale*; from whence going under the Zygoma, and gathering together, as in a Centre, it is inſerted, by a ſhort and ſtrong Tendon, into the Proceſſus Coronæ of the lower Jaw, which it pulls upward.

This Muſcle is alſo call'd *Crotaphites*, and is cover'd with a ſtrong tendonous Faſcia. See CROTAPHITES.

TEMPORALITIES, the Temporal Revenues of an Eccleſiaſtic; particularly, ſuch Revenues, Lands, Tenements, or Lay-fees, as have been annexed to Biſhops Sees by our Kings, or other Perſons of high Rank in the Kingdom. See BISHOP.

The Canoniſts on the other ſide the *Alps*, anciently gave the Pope a Power over the *Temporalities* of Kings. Yet Pope *Clement* V. owned frankly, that his Predeceſſor *Boniface* VIII. had exceeded the juſt Bounds of his Authority, in meddling with the *Temporalities* of the King of *France. Fevret.*

TEMPORIS *Os*, *Bone of the Temple*, a Bone on each Side the Head. See TEMPLES.

The Figure of the *Os Temporis* is nearly Circular. The fore and upper Parts are very thin, conſiſting only of one Table. The lower and hind Parts are thick, hard, and uneven.

It is joined to the Os Sincipitis, by the Squammous Suture; whence, in that Part, it is call'd *Os Squammoſum.* Its lower Part is joined to the Os Occipitis, and Sphenoides: To which latter, as likewiſe to the Bones of the upper Jaw, it is joined by means of certain Proceſſes, and in that Part, is call'd *Os Petroſum.* See PETROSUM.

Each of the *Oſſa Temporum* has two Sinus's; the Exterior whereof, is lined with a Cartilage, and receives the Proceſs of the lower Jaw; the Interior receives the lower Part of the Sinus Laterales of the Dura Mater. Each likewiſe has four Proceſſes; the *Os Jugale*, *Proceſſus Mamillaris*, *Styloides*, and *Os Petroſum.* See each deſcribed under its proper Article JUGALE, MAMILLARIS, *&c.*

TEMPTATION, in Theology, an Induction, or Sollicitation to Evil; whether from the World, the Fleſh or the Devil.

Among the Myſtic Divines, *profitable Temptations*, are thoſe Trials the Soul is to paſs through, e'er it arrive at the unitive Life, and the Peace within.

When it ſurmounts that Dryneſs and Darkneſs it falls into, through a Suſpenſion of the Effects of divine Love, and that it reſiſts the World, and all the Allurements it preſents; thoſe *Temptations* are called *Tentationes Utiles*, and *Fructuoſæ.*

In our ancient Law Books, *Temptation*, *Tentatio*, is uſed for a Trial, Proof or Aſſay. *Tentatio Panis fiat bis, in Anno Chart. Edw.* I.

TENABLE, in the military Art, ſomething that may be defended, kept and held againſt Aſſailants.

The Word is little uſed, but with a Negative: When a Place is open on all Sides, and its Defences all beaten down, It is no longer *Tenable.* When the Enemy has gain'd ſuch an Eminence, This Poſt is not *Tenable.*

The Word is *French*, form'd from *Tenir*; as that from the *Latin*, *Tenere*, to hold.

TENAILLE, in Fortification, a kind of Out-Work, conſiſting of Two Parallel Sides, with a Front, wherein is a re-entering Angle,

In Strictneſs, that Angle, and the Faces that compoſe it, are the *Tenaille.*

The Word is *French*, and ſignifies, literally, Pincers or Nippers.

The *Tenaille* is of two Kinds: *Simple* and *Double.*

Simple or *ſingle Tenaille*, is a large Out-work, as D A B C E (Tab. Fortification, Fig. 8.) conſiſting of two Faces or Sides A B and C B, including a re-entring Angle B.

The great Defects of the *Tenaille* are, that it takes up too much Room, and on that Account is advantageous to the Enemy; that its Angle B is undefended; the Height of the Parapet hindering the ſeeing down into it, ſo that the Enemy can lodge there under Covert: and that the Sides A C and C D are not ſufficiently defended.

For theſe Reaſons, the *Tenaille* is now excluded out of Fortification by the beſt Engineers; and never made, but where there wants Time to form a Horn-work.

Double or Flank'd TENAILLE, is a large Out-work, conſiſting of two ſimple *Tenailles*, or two re-entring Angles FGH and HIK (Fig. 9). This is now, alſo, excluded out of Fortification for the ſame Reaſons as the former.

TENAILLE *of the Place*, is the Face of the Place, comprehended between the Points of Two neighbouring Baſtions; including the Curtain, the two Flanks raiſed on the Curtain, and the two Sides of the Baſtions which face one another. See BASTION, CURTAIN, *&c.*

So that the *Tenaille* is the ſame with what is otherwiſe call'd, the *Face of a Fortreſs.* See FORTIFIED *Place.*

TENAILLE *of the Ditch*, is a low Work raiſed before the Curtain, in the Middle of the Foſs or Ditch. It is of three Sorts: The Firſt is compoſed of a Curtain, two Flanks and two Faces. The Rampart of the Curtain, including the Parapet and Talus, is but five Fathom thick, but the Rampart of the Flanks and Faces Seven.

The Second, which *Vauban* ſaith, he found to be of very good Defence, is compoſed only of two Faces, made on the Lines of Defence, whoſe Rampart and Faces are parallel.

The third Sort differs from the Second, only in this, that its Rampart is parallel to the Curtain of the Place.

All three Sorts are good Defences for the Ditch, and lie ſo low, that they cannot be hurt by the Beſiegers Cannon, till they are Maſters of the Covert-way, and have planted their Cannon there.

TENANCY, a Habitation or Houſe to live in, or a Tenement, or Poſſeſſion held of another. See TENEMENT.

TENANT or TENENT, in Law, one that holds or poſſeſſes Lands and Tenements, by any kind of Right, either in Fee, for Life, Years, or at Will. See POSSESSION, TENURE, *&c.*

The Term *Tenant*, is uſed in Law with divers Additions: Thus, *Tenant in Dower*, is ſhe that poſſeſſes Lands by Virtue of her Dower. See DOWER.

Tenant per Statute-Merchant, holds Land by Virtue of a Statute, forfeited to him. See STATUTE-*Merchant.*

Tenant in Frank Marriage, is he that holds Lands or Tenements by Virtue of a Gift thereof made to him upon Marriage between him and his Wife. See FRANK-*Marriage.*

Tenant by Courteſy, holds for his Life, by reaſon of a Child begotten by him of his Wife, being an Inheritrix and born alive. See COURTESY.

Tenant by Elegit, holds by Virtue of the Writ call'd an *Elegit.* See ELEGIT.

Tenant in Mortgage, holds by means of a Mortgage. See MORTGAGE.

Tenant by Verge, in ancient Demeſne, is he who is admitted by the Rod in the Court of an ancient Demeſne. See VERGE and DEMESNE.

Tenant by Copy of Court Roll, is one admitted *Tenant* of any Lands, *&c.* within a Manor, which Time out of Mind, have been Demiſable according to the Cuſtom of the Manor. See COPYHOLD.

Tenant paravail. See PARAVAIL.

Tenant by Charter, is he that holdeth by Feoffment in Writing or other Deed. See CHARTER.

Tenant in Capite or Chief, holdeth of the King in Right of his Crown. See CAPITE.

Tenant of the King, is he that holdeth of the Perſon of the King.

Joint Tenants have equal Right in Lands or Tenements by Virtue of one Title.

Tenants in common, have equal Right; but hold by divers Titles. A *Particular Tenant* holds only for this Term. A *Sole Tenant*, is he, who hath no other joined with him; and a *Tenant by Execution*, is he who holds by Virtue of an Execution upon any Statute, Recognizance, *&c.*

Anciently, there was alſo *Tenant by Knight-Service*, *Tenant in Burgage*, *Tenant in Socage*, *Tenant in Frank-Fee*, *Tenant in Villenage*; and there is ſtill *Tenant in Fee-ſimple*, *Tenant in Fee tail*, *Tenant upon Sufferance*, *&c.* See KNIGHTS *Service*, BURGAGE, SOCAGE, VILLENAGE, FEE-*Simple*, TAIL, SUFFERANCE, *&c.*

TENENT, in Heraldry, is uſed for ſomething that ſuſtains, or holds up the Shield, or Armory; and is generally ſynonymous with *Supporter.*

The Difference which ſome Authors make between them, is, that *Tenents* are ſingle, and *Supporters* double; one placed on each Side the Shield. But the proper Diſtinction ſeems to conſiſt in this, that *Tenents* are human Figures, and Supporters, Figures of Beaſts.

There are various Forms of *Tenents*, as well as of Supporters, *viz.* Angels, Maids, Religious, Savages, Moors, *&c.*

The firſt *Tenents*, F. *Meneſtier* obſerves, were Trunks or Branches of Trees; to which the Eſcutcheons were faſten'd by Straps and Buckles. Afterwards, the Knights were repreſented as holding their own 'Scutcheons, which were either tied to their Neck, or elſe they leant on them.

The Origin of *Tenents* and *Supporters* is referr'd to the ancient Tournament, wherein the Cavaliers had their Arms bore by Servants diſguis'd like Savages, Moors, fabulous Deities, Bears, Lions, *&c.* See SUPPORTER.

TENAR, in Anatomy, a Muſcle, whoſe Office is to draw the Thumb from the Fore-finger. See FINGER.

Its Antagoniſt is call'd *Antitenar.* See ANTITENAR.

TENCH-*Fiſhing.* See *Tench*-FISHING.

TENDER, in a legal Senſe, ſignifies as much, as carefully to offer, or circumſpectly to endeavour the Performance of any Thing: Thus, to *Tender Rents*, is to offer it at the Time and Place, where and when it ought to be paid. To *tender a Perſon*'s Law of Summons, is to offer himſelf ready to make his Law, whereby to prove that he was not ſummoned.

TENDER, in the Sea Language, is a Veſſel, attending on ſome other larger, and more conſiderable one.

TENDING-*Penny.* See TITHING-*Penny.*

TENDON, in Anatomy, a hard, white Part of a Muſcle, whereby it is faſten'd to the Bone. See MUSCLE.

Moſt Muſcles have, at leaſt, two *Tendons*, one at each Extreme: that faſten'd to the Part toward which the Motion is to be perform'd, is call'd the *Head of the Muſcle*; and that faſten'd to the Part drawn towards the other, the *Tail of the Muſcle.* See HEAD and TAIL.

The Fibres, whereof the *Tendons* conſiſt, have been ſuppoſed to be Nervous; but they are now found to be no other than Productions of the ſame Fibres, which make the *Belly or Body of the Muſcle.* All the Difference between them is, that in the Belly of the Muſcle they are lax, and at a Diſtance from each other; whereas in the *Tendon*, they are more cloſely and firmly connected.

Their Whiteneſs proceeds wholly from the Blood's being excluded, by the Tightneſs of their Contexture: In effect, there is the ſame Difference between them, that there is between a Skein of Thread, and a Cord made of the ſame Thread.

The Fibres of the *Tendons* undergo no Contraction, or Dilatation, as thoſe of the Belly of the Muſcle do; they act as mere Cords, to draw the Parts towards each other.

The *Suture of a Tendon*, is a very delicate Operation in Chirurgery. It had been abandon'd a long Time, and was not re-eſtabliſh'd till the laſt Century by *J. Bienaiſe.* See SUTURE.

The *Puncture of a Tendon* is very dangerous. See PUNCTURE.

Mr. *Cowper* in the *Philoſophical Tranſactions*, gives us an Account of a Cure of the *great Tendon* above the Heel, after an intire Diviſion, by Stitching.

TENEBRES, TENEBRÆ, in the *Romiſh* Church, a Service perform'd on the *Wedneſday*, *Thurſday* and *Friday* before *Eaſter*, in Commemoration of the Agony of our Saviour in the Garden. See PASSION, *&c.*

TENEMENT, TENANCY, in Law, a Houſe or Lands, depending of a Manor or Lordſhip; or a Fee or Farm, held of a Superior Lord, and which he may re-call, when the Term or Condition is expired. See LORD and TENANT.

Frank Tenement, is any Lands, Houſes, Offices or the like, wherein a Man has Eſtate for Life, or in Fee. ---- *Baſe Tenement*, is where a Man holds Lands, *&c.* at the Will of the Lord.

Kitchin, *Briton*, *&c.* make *Frank Tenement* and *Baſe Tenement*, Oppoſites; ſo that *Frank Tenement* ſhould be where the Tenant is at liberty to quit it when he pleaſes.

TENEMENTARY *Lands*, among our Anceſtors, were ſuch Lands as the *Saxon* Thanes or Nobles let out to Tenants under arbitrary Rents and Services. See TENANT.

TENEMENTIS *Legatis*, in Law, a Writ which lies in *London* and other Places, where the Cuſtom is to deviſe *Tenements* by laſt Will, as well as perſonal Goods and Chattels; for the Hearing of any Cauſe relating hereto.

TENENTIBUS *in Aſſiſa non Onerandis*, a Writ which lies for him to whom a Diſſeſſor has made over Land, whereof he has diſſeis'd of another; that he be not diſturb'd for the Damages awarded.

TENESMUS, in Medicine, a continual Inclination to go to Stool; yet without voiding any Thing, unleſs, ſometimes, a little purulent bloody Slime.

The Cauſe of the *Teneſmus*, is a ſharp, pungent Humour, irritating the Inteſtinum Rectum and exciting thoſe troubleſome Endeavours to evacuate. Thoſe affected with the Stone, are alſo ſubject to the *Teneſmus*, from the Communication, or Conſent between the Bladder and the Rectum.

The Word is form'd from the *Greek*, τείνειν, *tendere*, to bend, in regard thoſe attack'd with this Diſeaſe, feel a continual Tenſion in the Fundament.

The Cure of a *Teneſmus* depends on proper Evacuations and Aſtringents; the former always preceding the latter; ſuch are Bleeding, if Plethoric, gentle Cathartics, eſpecially of the Powder of Rhubarb, *&c.* An Emetic of the *Indian* Root, *Ipecacuanha*, has been found of great Service in a long ſtanding *Teneſmus*; for the augmenting one Evacuation, is the leſſening of another, and it becomes ſo much the more ſervicable, as they happen to be Contraries.

The Reſtringents are ſuch as are of uſe in other Fluxes. See DIARRHEA, DYSENTERY, *&c.*

TENET, a particular Opinion, Dogma, or Doctrine, profeſſedly held by ſome Divine, Philoſopher, *&c.* See DOGMA.

The diſtinguiſhing *Tenets* of the ſeveral Sects in Religion and Philoſophy, ſee under the Names of the Sects themſelves. See alſo PHILOSOPHER, SECT, *&c.*

TENMENTALE, or TEMANTALE, in our ancient Cuſtoms, originally ſignifies the Number of Ten Men; which Number, in the Time of the *Engliſh Saxons*, was call'd a *Decennary*; and ten Decennaries made what we call a Hundred. See DECENNA and HUNDRED.

Theſe ten Men were bound for each other to preſerve the publick Peace; and if any of them was found guilty of a Breach thereof, the other nine were to make Satisfaction, or to bring the Criminal before the King. See FRIBURG.

The Word was alſo us'd for a Duty, or Tribute paid to the King, conſiſting of two Shillings for each Ploughland; which was probably thus call'd, by Reaſon each Perſon of the Decennary was bound to ſee it paid.

TENNY, or TAWNY, in Heraldry, a bright Colour, made of Red and Yellow mix'd; ſometimes alſo call'd *Brusk*, and expreſs'd in Engraving by thwart or diagonal Strokes or Hatches, like Purpure, and mark'd with the Letter T. See PURPURE.

In the Coats of all below the Degree of Nobles, it is call'd *Tenny*; but in thoſe of Nobles, it is call'd *Hyacinth*; and in Princes Coats, the *Dragons Head.*

TENON, in Building, *&c.* the End of a Piece of Wood, or Metal, diminiſh'd by one Third of its Thickneſs, to be receiv'd into a Hole in another Piece, call'd the *Mortiſe*, for the jointing or faſtening the two together. See MORTISE.

Among Joiners, *&c.* the *Tenon* is made in various Forms, ſquare, Dove-tail'd, for double Mortiſes, *&c.*

Vitruvius calls the *Tenons*, *Cardines*; Dove-tail'd *Tenons* he calls *Subſcudes*, or *Securiclæ*. See DOVE-*tail.*

2

TENOR, TENOUR, the Purport or Content of a Writing or Inſtrument in Law, *&c.* Warrants iſſu'd for the Confirmation of Sentences, expreſs, that they ſhall be executed according to their Form and *Tenor*.

It was impoſſible to retain ſo long a Speech Word for Word, but the Subſtance, the *Tenor* is this.

TENOR *in Muſick*, the firſt mean or middle Part; or that which is the ordinary Pitch or *Tenor* of the Voice, when not either rais'd to the Treble, or lower'd to the Baſe. See PART and MUSIC.

The *Tenor* is frequently mark'd on thorough Baſſes with the Letter T.

The *Tenor* is a Part which almoſt all grown Perſons can ſing. But as ſome have a greater Compaſs of Voice upwards, others downwards, others are confin'd to a kind of Medium, and others can go equally either higher or lower; hence many Muſicians make a Variety of *Tenors*, as a *low Tenor*, a *mean Tenor*, a *high Tenor*, a *natural Tenor*; to which is alſo added, a *reacting Tenor*, *Violin Tenor*, &c.

The *Italians* uſually diſtinguiſh no more than two Kinds of *Tenors*, *viz. Tenore primo*, or P° or I°, which anſwers to our upper *Tenor*; and *Tenore ſecundo*, or 2° or II°, which is our natural *Tenor*; confounding the others under the Word *Baritono.*

TENOR is alſo us'd for a Perſon who ſings that Part in Concert; or for an Inſtrument proper to play it.

TENORE *Indictamenti mittendo*, is a Writ whereby the Record of an Indictment is call'd out of another Court into *Chancery.*

TENSE, *Time*, in Grammar, an Inflexion of Verbs, whereby they are made to ſignify or diſtinguiſh the Circumſtance of Time of the Thing they affirm, or attribute. See VERB.

The Affirmations made by Verbs, are different as to Point of Time; ſince we may affirm a Thing *is*, or *was*, or *will be*: Hence, a Neceſſity of a Set of Inflections, to denote thoſe ſeveral Times; which Inflections, our *Engliſh* Grammarians call by a barbarous Word *Tenſes*, from the *French temps*; moſt other Languages call them ſimple *Times.*

There are but three ſimple *Tenſes*, the *Preſent*; as, *I love*, *Amo*: the *Preter*, or *Preterit*, or *Paſt*; as, *I have lov'd*, *Amavi*: and the *Future*; as, *I will love*, *Amabo*. See PRESENT, *&c.*

But in regard, in the Preter one may either expreſs the Thing as juſt done, or paſt, or indefinitely and barely that it was done: Hence, in moſt Languages, ariſe two Kinds of Preterits; the one *definite*, marking the Thing to be preciſely done; as, *I have written*, *I have ſaid*: And the other *indefinite* or *aoriſt*, denoting a Thing done indeterminately; as, *I wrote*, *I went*. See PRETER.

The future *Tenſe* admits of the ſame Variety. See FUTURE.

Beſide the three ſimple *Tenſes*, others have been invented, call'd *compound Tenſes*; expreſſing the Relation of the ſimple ones to each other: The firſt expreſſes the Relation of the paſt to the preſent, and is call'd the *preterimperfect Tenſe*, becauſe it does not mark the Thing ſimply, and properly as done, but as imperfect and preſent with reſpect to another Thing paſt; as, *I was at Supper when he enter'd*; *Cum intravit cænabam.*

The ſecond compound Time marks the paſt doubly, and is therefore call'd the *pluſquamperfect Tenſe*; as, *I had ſupp'd*, *Cænaveram.*

The third compound *Tenſe* denotes the Future with reſpect to the Paſt; as, *I ſhall have ſupp'd*, *Cænavero.*

The ſeveral *Tenſes* or Times, it is to be obſerv'd, are properly denoted in the *Greek* and *Latin* by particular Inflections; in the *Engliſh*, *French*, and other modern Tongues, the auxiliary Verbs *to be* and *to have*, *etre* and *avoir*, are call'd in.

As to the Oriental Languages, they have only two ſimple *Tenſes*, the Paſs'd and Future, without any Diſtinctions of imperfect, more than perfect, *&c.* which renders thoſe Languages ſubject to abundance of Ambiguities which others are free from.

TENSION, the State of a Thing bent, or the Effort made to bend it.

Animals only ſuſtain and move themſelves by the *Tenſion* of their Muſcles, and Nerves. A Chord or String gives an acuter or a deeper Sound, as it is in a greater or leſs Degree of *Tenſion*. See CHORD.

TENSOR, in Anatomy. See EXTENSOR.

TENT, *Tabernacle*, a Pavillion, or portable Lodge, under which to ſhelter in a Campagne, *&c.* from the Injuries of the Weather. See TABERNACLE.

Armies encamp under *Tents*: Moſt of the *Tartars* and *Arabs* are wandring People, that lodge under *Tents*. The *Hebrews* lodg'd forty Years under *Tents* in the Deſart; which gave Occaſion to the Scenopegy or Feaſt of Tabernacles. See SCENOPEGY.

The Word is form'd from the *Latin tentorium*, of *tendo*, I ſtretch; in regard *Tents* are uſually made of Canvas ſtretch'd out, and ſuſtain'd by Poles.

TENT, in Chirurgery, is a Roll of Lint, made in a particular Form, put into Wounds whoſe Suppuration is not perfect; or where there is a Quantity of Matter contain'd in the Tumor, more than what comes out at the firſt Dreſſing, *&c.* See WOUND, *&c.*

Tents are us'd in order to hinder the cloſing too ſoon. But ſeveral Chirurgical Writers, and particularly the Author of the Hoſpital Surgeon, gives us numerous Inſtances, wherein the Uſe, eſpecially of hard *Tents*, has prov'd prejudicial in protracting the Cure, bringing on Inflammations, Sinus's, Mortifications, *&c.* in Wounds and Ulcers. To remedy this, he propoſes, that the Liniments, *&c.* be made of a liquid Conſiſtence, either naturally, or by warming them; and that where *Tents* may ſeem indiſpenſably neceſſary, as in large Cavities, the Orifice may be enlarg'd, and ſoft Doſils put in inſtead of them, which will prevent the Miſchiefs commonly attending *Tents*. See ULCER.

TENTATIVE, is ſometimes uſed Adjectively; thus we ſay, a *Tentative Method*, meaning a kind of unartful or indirect Method, which only proceeds by *trying.*

Tentative is alſo uſed Subſtantively, for an Eſſay, or Effort, whereby we try our Strength, or ſound an Affair, *&c.* to ſee whether or no it will ſucceed.

In the *French* Univerſities, a *Tentative* is the firſt Theſis or Act, which a Student in the Theology School, holds to ſhew his Capacity; if he anſwers well, the Degree of Bachelor is conferr'd on him.

TENTER, called alſo *Tryer* and *Prover*, a Machine uſed in the Cloth Manufactory, to ſtretch out the Cloths, Stuffs, *&c.* or only to make them even, and ſet them ſquare. See CLOTH.

'Tis uſually about Four Feet and a Half high, and for Length, exceeds that of the longeſt Piece of Cloth.

It conſiſts of ſeveral long ſquare Pieces of Wood, placed like thoſe which form the Barriers of a Manage, ſo, however, as that the lower Croſs-piece of Wood may be raiſ'd or lower'd, as is found requiſite, to be fix'd at any Height, by means of Pins. Along the Croſs-pieces, both the upper and under one, are hooked Nails, call'd *Tenter-hooks*, placed from Space to Space.

To put a Piece of Cloth on the Tenter: While the Piece is yet quite wet, one End is faſten'd to one of the Ends of the *Tenter*, then 'tis pull'd by Force of Arms towards the other End, to bring it to the Length required: That other End being faſten'd, the upper Liſt is hook'd on to the upper Croſs-piece, and the loweſt Liſt to the lower Croſs-piece, which is afterwards lower'd by Force, 'till the Piece have its deſired Length. Being thus well ſtretch'd, both as to Length and Breadth; they bruſh it with a ſtiff Hair-bruſh, and thus let it dry. Then they take it off; and till they wet it again, it will ſtill retain the Width and Breadth the *Tenter* gave it.

TENTH, *Decima*. See TITH.

The *Babylonians* and *Egyptians* gave their Kings a *Tenth* of their Revenues: See *Ariſtotle* in his *Oeconomicks*, *lib.* 2. *Diodorus Siculus*, *lib.* 5. and *Strabo*, *lib.* 15.

Afterwards, the *Romans* exacted of the *Sicilians* a *Tenth* of the Corn they reap'd; and *Appian* tells us, that thoſe who broke up, or till'd any new Grounds, were obliged to carry a *Tenth* of their Produce to the Treaſury.

The *Romans* offer'd a *Tenth* of all they took from their Enemies to the Gods, whence the Name of *Jupiter Prædator*: The *Gauls* in like Manner, gave a *Tenth* to their God *Mars*, as we learn in the Commentaries of *Cæſar*.

Authors have been ſtrangely perplex'd, to find the Original of a Cuſtom, eſtabliſh'd among ſo many People of different Manners and Religion, to give a *Tenth* to their Kings, or their Miniſters of Religion. *Grotius* takes it to ariſe hence, That the Number Ten is the moſt known and the moſt common among all Nations; by reaſon of the Number of Fingers which is Ten. On this Account he thinks it is, that the Commandments of God were reduced to *Ten*, for People to retain them with greater Eaſe; that the Philoſophers eſtabliſh'd *Ten* Categories, *&c.*

TENURE, in Law, the Manner or Condition wherein a Tenant holds Lands or Tenements of his Lord; or the Services perform'd to the Lord, in Conſideration of the Uſe and Occupancy of his Lands. See TENANT, LORD, *&c.*

The Kinds of Service, and conſequently of *Tenures*, are almoſt infinite. See SERVICE.

Thoſe for Lands held of the King, are either *great* or *petty Sergeanty*, in *Capite*, *Knights-Service*, &c. See SERGEANTY, CAPITE, *&c.*

Thoſe held of other Lords were very various, *Baſe*, *Frank*, &c. by *Homage*, by *Soccage*, *&c.* But by Stat. 12 *Car.* II. all *Tenures*, both of the King and other Lords, are turn'd into free and common Soccage. See SOCCAGE.

TERES, in Anatomy, a Name given two Muſcles of the Arms, call'd alſo *Rotundi*; diſtinguiſh'd by *major* and *minor*.

The *Teres*, or *Rotundus major*, ariſes from the lower Angle of the Baſis of the Scapula, and aſcending obliquely upwards, in a round ſmooth Body, under the Head of the Longus, is inſerted with a ſhort flat Tendon into the Neck of the Os Humeri.

The *Teres*, or *Rotundus minor*, call'd alſo *Tranſverſalis*, is frequently wanting, or, at leaſt, ſo confounded with the Infraſpinatus, that it is loſt therein. It ariſes from the inferior Angle of the Scapula, and aſcending obliquely in a round fleſhy Body, paſſes over the upper Head of the Longus, and is inſerted by a ſhort flat Tendon below the Os Humeri.

TERGIFÆTOUS *Plants*, are ſuch as bear their Seeds on the Backſides of their Leaves. See PLANT and SEED.

Such are the Capillaries. See CAPILLARY.

TEREBINTHINA, in Medicine, Natural Hiſtory, *&c.* See TURPENTINE.

TERM, *Terminus*, the Extreme of any thing, or that which bounds and limits its Extent. See EXTREME.

TERM, *in Geometry*, is ſometimes us'd for a Point, ſometimes for a Line, *&c.* A Line is the *Term* of a Superficies; and a Superficies of a Solid.

This is what the Schools call *Terminus Quantitatis*.

TERM, *in Law*, ſignifies a Boundary, or Limitation of Time. In this Senſe we ſay, A Leaſe for Term of Life, For Term of Years, *&c.*

TERM, TERMINUS, in Architecture, is a kind of Statue, or Column adorn'd a-top with the Figure of a Man's, Woman's, or Satyr's Head, as a Capital; and the lower Part ending in a kind of Sheath or Scabbord.

Terms are ſometimes us'd as Conſoles, and ſuſtain Entablatures, and ſometimes as Statues to adorn Gardens.

Some write the Word *Thermes*, from *Hermes*, a Name the *Greeks* gave the God *Mercury*; whoſe Statue, made after this Manner, was placed in ſeveral of the Croſs-ways in the City of *Athens*, *&c.*

Others bring the Etymology of the Word from the *Roman* God *Terminus*, the Protector of Land-marks, whoſe Statue (made without Hands or Feet, that he might not change his Place) was uſed to be planted at the Bounds of Lands to ſeparate them.

Of theſe *Termini*, the Architects make great Variety, *viz.* *Angelic*, *Ruſtic*, *Marine*, *Double*, in *Buſt*, *&c.*

Milliary TERMS, or *Termini Milliares*, among the ancient *Greeks*, were the Heads of certain Divinities, placed on ſquare Land-marks of Stone, or on a kind of Sheath, to mark the ſeveral Stadia, *&c.* in the Roads. Theſe are what *Plautus* calls *Lares Viales*. See LARES.

They were uſually dedicated to *Mercury*, whom the *Greeks* believed to preſide over the High-ways. Some of them were repreſented with four Heads; ſuch as we ſtill ſee in *Rome*, at the End of the Fabrician Bridge, which is hence call'd *Ponte de quattro Capi*. *Mercury* was thus repreſented, and alſo call'd by the *Latins*, *Mercurius Quadriformis*, as being ſuppoſed the Firſt, who taught Men the Uſe of Letters, Muſic, Wreſtling and Geometry. See HERMES.

TERMS are alſo us'd for the ſeveral Times or Seaſons of the Year, wherein the Tribunals, or Courts of Judicature, are open to all who think fit to complain of Wrong, or to ſeek their own by due Courſe of Law or Action. See COURT, DAY, LAW, FASTUS, *&c.*

In Contra-diſtinction to theſe, the reſt of the Year is call'd *Vacation*. See VACATION.

Of theſe *Terms* there are four in every Year, during which Time Matters of Juſtice are diſpatch'd, *viz.* *Hillary Term*, which, at *London*, begins the 23d Day of *January*; or if it be *Sunday*, the next Day after, and ends the 12th of *February* following. *Eaſter Term*, which begins the *Wedneſday* Fortnight after *Eaſter-Day*, and ends the *Monday* next after *Aſcenſion-Day*. *Trinity-Term*, beginning the *Friday* next after *Trinity Sunday*, and ending the *Wedneſday* Fortnight after. And *Michaelmas Term*, which begins the 23d of *October*, and ends the 28th of *November* following. Each of theſe *Terms* have their *Returns*. See RETURNS.

Oxford TERMS. *Hillary* or *Lent Term* begins *January* 14, and ends the *Saturday* before *Palm Sunday*. ---- *Eaſter Term* begins the 10th Day after *Eaſter*, and ends the *Thurſday* before *Whitſunday*. *Trinity Term* begins the *Wedneſday* after *Trinity Sunday*, and ends after the Act, ſooner or later, as the Vice Chancellor and Convocation pleaſe. *Michaelmas Term* begins *October* the 10th, and ends *December* the 17th.

Cambridge TERMS. *Lent Term* begins *January* the 13th, and ends the *Friday* before *Palm Sunday*. *Eaſter Term* begins the *Wedneſday* after *Eaſter*-week, and ends the Week before *Whitſunday*. *Trinity Term* begins the *Wedneſday* after *Trinity Sunday*; and ends the *Friday* after the Commencement. *Michaelmas Term* begins *October* the 10th, and ends *December* the 16th.

Iriſh and Scotch TERMS. In *Scotland*, *Candlemas Term* begins *January* the 23d, and ends *February* the 12th. *Whitſuntide Term* begins *May* the 25th, and ends *June* the 15th. *Lammas Term* begins *July* the 20th, and ends *Auguſt* the 8th. *Martinmas Term* begins *November* the 3d, and ends *November* the 29th. ---- In *Ireland* the *Terms* are the ſame as at *London*, except the *Michaelmas Term*, which begins *October* the 13th, and adjourns to *November* the 3d, and thence to the 6th.

TERM, in Grammar, a particular Word, Diction, or Expreſſion in a Language. See WORD.

The Word *Term*, *Terminus*, is borrow'd, metaphorically, by the Grammarians and Philoſophers, from the Meaſurers or Surveyors of Lands: As a Field is defin'd and diſtinguiſh'd by its *Termini*, or Limits, ſo is the Thing or Matter ſpoke of by the Word or *Term* it is denoted by.

Some of our Philoſophers complain loudly of the great Uſe, or rather Abuſe of vague and general *Terms*, which have no preciſe, definitive Signification.

To diſtinguiſh theſe, F. *Mallebranch* obſerves, that every thing that is (whether it have actual Exiſtence, or not) and of conſequence every thing that is intelligible, is either a Being, or a Mode, or Manner of Being: Where, by Being, is meant whatever is abſolute, or which may be conceiv'd alone, and without Relation to any other Thing; and by manner of Being, whatever is relative, or which cannot be conceiv'd alone.

Now, there are two Kinds of Manner of Being; the one conſiſting in the Relation of the Parts of a Whole, to ſome Part of the ſame Whole; the other in the Relation of one thing to another: Of the firſt Kind is the Roundneſs of a Piece of Wax; and of the ſecond, the Motion or Situation of that ſame Wax. If then, every thing that is intelligible, be reducible either to Beings, or Manner of Beings, 'tis evident, every *Term* which does not ſignify either of thoſe Things, ſignifies nothing; and that every *Term* which does not ſignify either a Being, or a Manner of Being, is an obſcure and confus'd *Term*.

In Metaphyſicks, the Uſe of ſuch *Terms* is ſometimes neceſſary and allowable, as in ſpeaking of the Divine Perfections, *&c.* But in Phyſicks 'tis always miſchievous, and yet nothing more common; *e. gr.* when we ſay, that Bodies tend to their *Centre*, that they fall by their *Weight*, that they riſe by their *Levity*, that they move by their *Nature*, that they change ſucceſſively their *Forms*, that they act by their *Virtues*, *Qualities*, *Faculties*, *&c.* we uſe *Terms* which ſignify nothing; and all theſe Propoſitions are abſolutely falſe in the Senſe moſt Philoſophers underſtand them.

There is no Centre in the Senſe commonly meant; and the *Terms Weight*, *Form*, *Nature*, *Quality*, and the like, don't awaken any Idea either of a Being, or a Manner of Being: They are *Terms* void of Senſe, and which Perſons of Underſtanding ſhould always avoid.

Scientia inſenſati inenarrabilia verba.

TERM, *in the Arts*, or TERM *of Art*, is a Word, which, beſides the literal and popular Meaning which it has, or may have, in common Language, bears a further and peculiar Meaning in ſome Art or Science. See ART.

Or, a *Term* is a Word which has one or more Meanings beſide its Grammatical one; or which has a peculiar Force or Import in the Language of ſome particular Science, or Art.

A Word then becomes a *Term*, when its Idea is render'd more complex, conſiſts of more Parts, and includes more ſpecial Circumſtances on ſome Occaſions than on others.

'Tis this greater Complexneſs, this Exceſs of conſtituent Parts in the Idea, that denominates it a *Term* in the general.

Further, as the Parts of the Idea ſignify'd by any Word are arbitrary; and as one may not only add new Parts to thoſe contain'd in the literal Meaning, but alſo ſuper-add others to them, alter them, extend them, and otherwiſe modify them, at Pleaſure: Hence, the ſame Word becomes a *Term* of this, or that Art, or both, as the Inventors and Improvers of thoſe Arts, have thought fit to adopt it for the common Baſis of certain Ideas, and to modify and circumſtantiate its Meaning to the Uſe of their reſpective Arts.

See the Nature and Office of a *Term* further illuſtrated in the Preface to this Work. See alſo the Article DEFINITION.

TERM, *in Logic*. A Propoſition is ſaid to conſiſt of two *Terms*, *i. e.* two principal and eſſential Words, the *Subject* and the *Attribute*. See PROPOSITION.

A Syllogiſm conſiſts of three *Terms*, the *Major*, *Minor*, and *Concluſion*. A Syllogiſm containing four *Terms*, is vicious. See SYLLOGISM.

TERMS *of an Equation*, in Algebra, are the ſeveral Names or Members of which it is compos'd, and ſuch as have the ſame unknown Letter, but in different Powers and Degrees; for if the ſame unknown Letter be found in ſeveral Members in the ſame Degree or Power, they all paſs but for one *Term*. See EQUATION.

Thus in this Equation $aa+ab=R$, the three *Terms* are aa, ab, and R: And in this, $aa+ab+ac=Rd+dc$, the *Terms* are, aa, $ab+ac$, and $Rd+dc$; which are but three, becauſe $ab+ac$, having a in the ſame Dimenſion in both Parts, is taken but for one *Term*.

Hence, the *firſt Term* in any Equation, muſt be that where the unknown Root hath the higheſt Dimenſions; and that *Term* which hath the Root in it of one Dimenſion of Power lower, is call'd the *ſecond Term*; and ſo on.

TERMS *of Proportion* in Mathematicks, are ſuch Numbers, Letters, or Quantities, as are compar'd one with another. See PROPORTION.

Thus, if $\begin{matrix} 4 . 8 :: 6 . 12 \\ a . b :: c . d \end{matrix}$ then a, b, c, d, or 4, 8, 6, 12, are call'd the *Terms*; of which a is call'd the firſt *Term*, b the ſecond *Term*, &c. a and c are call'd the two *Antecedents*, and b and d the two *Conſequents*. See ANTECEDENT and CONSEQUENT.

TERMS, or Courſes in Medicine, the Menſes or Woman's monthly Purgations. See MENSES.

TERMINALIA, in Antiquity, Feaſts celebrated by the *Romans*, in Honour of the God *Terminus*. See FEAST.

In Reality, the *Terminalia*, or Feaſt of Land-Marks, was held in Honour of *Jupiter*, conſider'd in the Capacity of Conſervator of Land-Marks or Bounds. *Dionyſius Halicarnaſſæus* tells us, that it was *Numa Pompilius* who firſt conſecrated Land-Marks to *Jupiter*; and adds, that the ſame Prince appointed an Anniverſary Day, wherein the Country People aſſembling together on the Bounds of the Lands, ſhould offer Sacrifices in Honour of the Tutelary Gods thereof.

The *Terminalia* were held on the 7th, or, as *Struvius* will have it, on the 10th of the Calends of *March*. No Animal was to be ſacrific'd herein, it being deem'd unlawful to ſtain the Land-Marks with Blood. They only offer'd Sacrifices of the Firſt-Fruits of the Earth; and this in the open Air, and on the Spot where the Land-Marks were.

Varro is of Opinion this Feaſt took its Name from the End of the Year: But *Feſtus* is of a different Sentiment, and derives it from the Name of the Deity in whoſe Honour it was held.

TERMINATION, in Grammar, the ending of a Word; or the laſt Syllables thereof.

'Tis the different *Terminations* of one, and the ſame Word, on different Occaſions, that make the different Caſes, Numbers, Tenſes and Moods, &c. See CASE, NUMBER, TENSE, &c.

TERMINISTS, a Sect or Party among the Calviniſts, whoſe particular Tenets are reducible to Five Points.

1° That there are ſeveral Perſons, both in and out of the Church, to whom God has fix'd a certain *Term* before their Death, after which he no longer wills their Salvation, how long ſoever they live afterwards. 2° That God has fix'd this fatal Term of Grace, by a ſecret Decree. 3° That this Term once elapſed, he makes them no further Offer of Repentance or Salvation; but takes away from his Word, all the Power it might have to convert them. 4° That *Pharoah*, *Saul*, *Judas*, moſt of the *Jews*, and many of the Gentiles were of this Number. 5° That God ſtill bears with ſeveral of theſe Sort of People, and even confers Benefits on them after the Term expired; but that he does not do it with any Intention they ſhould be converted.

All the other Proteſtants, and particularly the Lutherans, look on theſe Articles with Abhorrence, as repugnant to the Goodneſs of God, as deſtructive to all Chriſtian Virtue, and as contrary to Scripture, particularly the following Texts; *Ezek.* xviii. 23, 30, 31, 32. xxxiii. 11. 1 *Tim.* ii. 1, 16. 2. *Pet.* iii. 9. *Acts* xvii. 30, 31. *Mat.* xi. 28. *Iſa.* lxv. 2. *Heb.* iii. 7, 13. *Rom.* iv. 5, &c.

TERRA, in Geography
TERRA, in Chymiſtry
TERRA, in natural Hiſtory
} See EARTH.

TERRA *Damnata*	See	CAPUT MORTUUM.
TERRA *Lemnia*	See	LEMNIAM.
TERRA *Japonica*	See	JAPON *Earth*.
TERRA *Sigillata*	See	SIGILLATA.
TERRA *Merita*	See	TURMERIC.

TERRA, *a Terra*, Galleys, and other Veſſels, are ſaid to go *Terra*, *a Terra* when they never go far from the Coaſts. See COASTING.

The Phraſe is alſo apply'd in the Manage, to Horſes, which neither make Curvets nor Balotades, but run ſmoothly on the Ground, on a preſs'd Gallop; only making little Leaps or Riſings ſomething with the fore Feet.

The *Terra, a Terra*, is a Series of very low, eaſy Leaps, which a Horſe makes forward, bearing ſidewiſe, and working on two Treads. In this Motion he lifts both Legs at once; and when thoſe are on the Point of deſcending, they are accompany'd by the hind Legs, with a ſhort and quick Cadence, always bearing and ſtaying on the Haunches, ſo that the Motions of the hind Quarters are very ſhort and quick.

The *Term* is alſo apply'd to Dancers who cut no Capers, nor ſcarce quit the Ground. Hence it is alſo figuratively apply'd to Authors, whoſe Stile and Diction is low and creeping.

TERRACE, or TERRAS, a Bank of Earth, raiſed in a Garden, Court, &c. above the Level of the Ground.

The *Terras* is an Earth-work uſually lined and breaſted with a ſtrong Wall, in Compliance with the natural Inequality of the Ground. Sometimes it is made in Talus, or a-ſlope, and cover'd with Turf. A *Counter-terrace*, is a *Terrace* raiſed over another, for the joining of the Ground, or the raiſing a Parterre.

TERRACE is alſo applied to the Roofs of Houſes that are flat, and whereon one may walk; as alſo to Balconies that project. See ROOF.

The *Terrace* is properly the Covering of a Building, which is in Plat-form; as that of the Periſtyle of the *Louvre*; or that of the Obſervatory, paved with Flint and Mortar. All the Buildings of the Oriental Nations, are cover'd with *Terraſſes*, to take the freſh Air on, and even to lie on. See PLAT-*Form*.

TERRA-*Firma*, in Geography, is ſometimes uſed for a *Continent*; in Contradiſtinction to Iſlands. See CONTINENT.

Thus *Aſia*, the *Indies* and *South America* are uſually diſtinguiſh'd into *Terra-firma*'s and Iſlands. See ISLAND.

In our ancient Law-Books, we meet with *Terra* in the Senſe of *Land* or *Ground*; joined with divers Additions; as,

Terra Normanorum, the Lands of ſuch *Norman* Noblemen, as were forfeited to the Crown, by the Owners taking Part with the *French* King, againſt King *Henry* III.—*Terra Fruſca*, ſuch Land as has not been lately plough'd.—*Terra Gilliflorata*, Land held by the Tenure of paying a Gilliflower yearly. See SERVICE. —— *Terra Veſtita*, Land ſown with Corn, and the Crop ſtill remaining thereon. —— *Terra Teſtamentalis*, Land held free from feodal Services, and deviſable by Will. —— *Terra culta*, Land that is Till'd and Manur'd, in Contradiſtinction to *Terra Inculta*. —— *Terra Affirmata*, Land let out to Farm. —— *Terra Dominica*, or *Indominitata*, Demain Land of a Manor. See DEMAIN. —— *Terra Hydata*, was Land ſubject to the Payment of Hydage. See HYDAGE. —— *Terra Lucrabilis*, Land that may be gain'd from the Sea, or incloſed out of a Waſte or Common, to particular Uſes. —— *Terra Wainabilis*, Tillage Land. —— *Terra Warecta*, Fallow Land. —— *Terra Boſcalis*, Wood Land, &c.

TERRA *extendenda*, is a Writ directed to the Eſcheator, &c. willing him to inquire and find out the true yearly Value of any Land, &c. by the Oath of 12 Men, and certify the Extent into *Chancery*. See ESCHEATOR.

TERRAGE, TERRAGIUM, anciently ſignified a Service, in which a Tenant or Vaſſal was bound to his Lord, to plough and reap the Ground for him. See PRECARIOUS.

Others will have it Money paid for digging or breaking the Earth in Fairs and Markets.

Queti ſint de Theolonio, Pavagio, Paſſagio, Laſtagio, Tallagio, Carvagio, Priſagio & Terragio.

TERRAQUEOUS, an Epithet given to our Globe or Earth, conſider'd as conſiſting of Land and Water; which, together, conſtitute one globular Maſs. See GLOBE and EARTH.

The Word, like the Thing, is a Compound of *Terra* and *Aqua, Earth* and *Water*.

Some Philoſophers, particularly Dr. *Burnet* in his *Theory*, tax the Frame and Faſhion of the *Terraqueous Globe* as rude, unartful and diſorderly; and conclude it highly abſurd to ſuppoſe it came thus out of the Hands of the Creator, and therefore have Recourſe to a Deluge to make it thus. See DELUGE.

But others can perceive a world of Art and Conveniency, even in this apparent Diſorder: Mr. *Derham* particularly obſerves, That the Diſtribution of Land and Water is admirable; the one being laid over the other ſo skilfully all the World over, that there is a juſt Equipoiſe or Ballance of the whole Globe.

Thus the Northern Ocean balances the Southern; and the *American* Continent, is a Counterpoiſe to the *European, African* and *Aſiatic*. See OCEAN, &c.

And what ſome object, that the Waters occupy too great a Part of the Globe, which they imagine would be of more Uſe were it dry Land; he obviates, by ſhewing that this would deprive the World of a due Quantity of Vapours and Rain: For if the Cavities which contain the Sea, and other Waters, were deeper; tho' the Quantity of Water were the ſame, and only the Surface leſſer and narrower, the Evaporations would be ſo much the leſs, inaſmuch as they are made from the Surfaces, and, conſequently, are in proportion thereto. See VAPOUR, CLOUD, RAIN, &c. See alſo MOUNTAIN, VALLEY, &c.

TERRÆ-*Filius*, q. d. *Son of the Earth*. A Student in the Univerſity of *Oxford*, appointed on certain Occaſions to make Jeſting and Satyrical Speeches againſt the Members thereof; to tax them with any growing Corruptions, &c.

TERRE-*Plain*, in Fortification, the Top, Plat-form, or Horizontal Surface of the Rampart, whereon the Cannon are placed, and the Defenders perform their Office. See RAMPART.

It is thus call'd, as lying level; having only a little Slope outwardly, to bear the Recoil of the Cannon.

It is terminated by the Parapet on that Side towards the Campaign; and by the inner Talus, on the Side towards the Place. Its Breadth is from 24 to 30 Feet. See PARAPET, &c.

TERRE-*Tenant*, is he who hath the actual Poſſeſſion of the Land, otherwiſe call'd the *Occupation*. See TENANT and OCCUPATION.

Thus a Lord of a Manor hath a Freeholder, who letteth out his Freehold to another to be occupied: And this Occupier, having the actual Poſſeſſion, is called the *Terre-Tenant*.

TERRELLA, μικρογη, *little Earth*; is a Magnet, turn'd of a juſt ſpherical Figure, and placed ſo as that its Poles, Equator, &c. do exactly correſpond to thoſe of the World. See MAGNET.

'Twas thus firſt call'd by *Gilbert*, as being a juſt Repreſentation of the great magnetic Globe we inhabit. See GLOBE.

Such a *Terrella*, if nicely pois'd, and placed in a Meridian like a Globe, it was ſuppoſed, would be turn'd round like the Earth in 24 Hours by the Magnetic Particles pervading it; but Experience has ſhewn this to be a Miſtake. See MAGNETISM.

TERRESTRIAL *Globe*		GLOBE.
TERRESTRIAL *Paradiſe*	See	PARADISE.
TERRESTRIAL *Line*		LINE *Terreſtrial*.

TERRIER, or TERRAR, in our ancient Cuſtoms, a Collection of Acknowledgments of Vaſſals or Tenants of a Lordſhip, containing the Rents, Services, &c. they owe their Lord; and ſerving as a Title, or Claim for demanding and executing the Payments thereof.

At preſent, by *Terrier* we mean no more than a Book, or Roll, wherein the ſeveral Lands, either of a private Perſon, or of a Town, College, Church, &c. are deſcrib'd. It ſhould contain the Number of Acres, the Scite, Boundaries, Tenants Names, &c.

TERRIER is alſo the Lodge or Hole which Foxes, Badgers, Rabbets, &c. dig themſelves under Ground; and wherein they ſave themſelves from the Purſuit of the Hunters.

Hence *Terrier* is alſo uſed for a kind of little Hound to hunt thoſe Animals, which, like a Ferret, creeps into the Ground, and by that Means affrights and bites them; either tearing them with his Teeth, or elſe haling them by Force out of their Holes.

TERRIS *Bonis & Catallis rehabendis poſt purgationem*, a Writ which lies for a Clerk to recover his Lands, Goods or Chattels formerly ſeiz'd; after having clear'd himſelf of a Felony, upon Suſpicion whereof he was convict, and deliver'd to his Ordinary to be purged.

TERRIS & *Catallis tentis ultra debitum levatum*; a Writ Judicial, for the reſtoring Lands or Goods to a Debtor, that is diſtrained beyond the Quantity of the Debt. See DISTRESS.

TERRIS *Liberandis*, a Writ lying for a Man convicted by Attaint, to bring the Record and Proceſs before the King, and take a Fine for his Impriſonment, and deliver him Lands and Tenements again, and releaſe him of a Strip and Waſte.

TERRITORY, *Diſtrict*, the Extent or Compaſs of Land within the Bounds, or belonging to the Juriſdiction, of any State, City or other Diviſion.

'Tis a Maxim, that the Church has no *Territory*, *i. e.* it has no Temporal Juriſdiction; ſo that an Eccleſiaſtical Judge cannot arreſt any Body, not even a Prieſt.

Much in this Senſe, *Cujas* ſays, the Church has an Auditory, but no *Territory*.

TERSION, the Act of wiping or rubbing a Thing. See ATTRITION.

The Word comes of *tero*, I wear.

TERTIAN, a Fever or Ague intermitting but one Day; ſo that there are two Fits in three Days. See FEVER.

The Method of curing *Tertians*, as well as other Agues, is by the Cortex, either given in Subſtance or Decoction. This laſt is beſt in weak Conſtitutions, and where the Fits are not ſo regular; but the Subſtance more to be depended on as to Certainty in other Caſes. See AGUE, &c.

TERTIATE, in Gunnery: To *Tertiate a great Gun*, is to find the Thickneſs of the Metal at the Touch-hole, the Trunnions, and at the Muzzle; whereby to judge of the Strength of the Piece, and whether it be well fortified or not. See GUN, CANNON, ORDNANCE, &c.

This is uſually done with a Pair of Calliper Compaſſes; and if the Piece be Home-bored, the Diameter leſs by the Height, divided by 2, is the Thickneſs at any Place. See CALLIPER.

TERUNCIUS, in Antiquity, a very ſmall Silver Coin, in uſe among the *Romans*. See COIN.

The Inconvenience of ſuch very ſmall Pieces being ſoon found, the *Teruncius* became diſuſed; but its Name was ſtill retain'd in reckoning; and thus it became a Money of Account. See MONEY.

The *Teruntius* at firſt, was a Quarter of the *As*, or *Libra*: Hence, as the *As* contained 12 Ounces, the *Teruncius* contained Three; whence the Name, which is form'd of the *Latin*, *tres unciæ*.

The *Teruncius* was alſo a Quarter of the Denarius; ſo that when the Denarius was at ten As's, the *Teruncius* was worth Two and a Half, and when the Denarius was riſen to 16 the *Teruncius* was worth Four. See DENARIUS.

TESSELATED *Pavement*, *Pavementum Teſſelatum*, a rich Pavement of *Moſaick* Work, made of curious ſmall ſquare Marbles, Bricks or Tyles, call'd *Teſſelæ*, from the Form of Dies. See MOSAIC *Work*.

Theſe *Pavements* were much uſed in the Tents of the *Roman* Generals.

TESSERA-COSTE, in our ancient Writers, the 40 Days between *Eaſter* and *Holy Thurſday*. See LENT.

TEST, or *Teſt Oath*, in our Cuſtoms, a Form of Oath, whereby the Doctrine of Tranſubſtantiation, the Sacrifice of the Maſs, the Invocation of Saints, &c. are abjured. See OATH.

This Oath was firſt introduced by Authority of Parliament in 1672; and they who refuſed to take it, were excluded the Privilege of holding any public Offices.

The Word ſignifies *Proof* or *Trial*, being form'd of the *Latin*, *Teſtis*, Witneſs; this Oath being a Mark or Evidence, that the Perſon is not a *Roman* Catholic.

TEST, among Chymiſts and Refiners, the ſame as the *Coupel*, *Cuppel* or *Coppel*, an Inſtrument uſed in the purifying Gold and Silver. See COUPEL.

TESTACEOUS, in natural Hiſtory, an Epithet given to a Species of Fiſh, which are covered with a ſtrong, thick Shell; as Tortoiſes, Oyſters, Pearl Fiſh, &c. See FISH.

In Strictneſs, however, *Teſtaceous* is only applied to ſuch Fiſh, whoſe ſtrong and thick Shells are intire and of a Piece: Thoſe which are ſoft, thin, and conſiſt of ſeveral Pieces jointed, as the Lobſter, &c. being called *Cruſtaceous*. See SHELL.

In Medicine, all Preparations of Shells, and Subſtances of the like Kind, are called *Teſtaceous Powders*.

Such are Powders of Crabs Claws and Eyes, Harts-horn, Pearl, &c.

Dr. *Quincy*, and others, ſuppoſe the Virtue of all *Teſtaceous* Medicines to be alike; that they ſeldom or never enter the Lacteals; but that the chief of their Action is in the firſt Paſſages; in which Caſe, they are of great Uſe in abſorbing Acidities. See ABSORBENT.

Hence they become of Uſe in Fevers, and eſpecially in rectifying the many Diſtempers in Children, which generally owe their Origin to ſuch Acidities. See *Diſeaſes of* CHILDREN.

TESTAMENT, in Law, a ſolemn and authentic Act, whereby a Perſon declares his Will, as to the Diſpoſal of his Eſtate, Effects, Burial, *&c.* See Will.

A *Teſtament* has no Effect till after Death; and 'tis always revocable till then. As *Teſtaments* are Acts, of all others the moſt ſubject to Deceits, Surprize, *&c.* it was neceſſary to uſe all kinds of Precautions to prevent the Wills of the Deceaſed from being eluded; and the Weakneſs of dying Perſons from being abuſed.

The moſt ancient *Teſtaments* among the *Romans*, were made *viva voce*; the Teſtator declaring his Will in the Preſence of Seven Witneſſes: Theſe they call'd *Nuncupative Teſtaments*; but the Danger of truſting the Will of the Dead to the Memory of the Living, ſoon aboliſh'd them; and all *Teſtaments* were order'd to be in Writing. See Nuncupative.

The *French* Legiſlators, thought *Holographic Teſtaments*, *i. e. Teſtaments* wrote wholly with the Teſtator's Hand, an abundant Security; but the *Roman* Law, more ſevere, did not admit of *Teſtaments* without further Solemnity.

The eaſieſt and moſt favourable, is the 21ſt Law in the *Code de Teſtamentis*, which permits ſuch as are unwilling to truſt the Secret of their *Teſtaments* to others, to write it with their own Hand, and to cloſe it in the Preſence of Seven Witneſſes, declaring to them, that it is their *Teſtament*; after which it is to be Sign'd by all the Seven Witneſſes.

Otherwiſe, to make a Solemn *Teſtament*, it was required to be atteſted by Seven Witneſſes, and ſealed with their Seals.

Yet the *Military Teſtament* was not ſubject to ſo many Formalities: The Soldier was ſuppoſed too much employ'd in defending the Laws, to be ſubject to the Trouble of knowing them. His tumultuary Profeſſion excuſed him from obſerving all the Rules.

Add, that *Teſtaments*, wherein Fathers diſpoſed of their Eſtates among their Children, had particular Privileges, and were diſpens'd from moſt of the ordinary Formalities.

The Word is form'd from the *Latin*, *Teſtamentum*, which the *Latin* Lawyers derive from *Teſtatio Mentis*.

TESTATOR, or Testatrix, the Perſon who makes his or her Will and Teſtament. See Testament.

M. *Gillet*, ſhews, that a Perſon incapable of a Legacy, cannot demand any Sum, which the *Teſtator* in his Teſtament declares himſelf indebted to him in; in regard ſuch a Declaration of Debt is preſumed a Fraud, againſt the Intention of the Law.

TESTA Nevelli, or Testa de Nevil, an ancient Record kept by the King's Remembrancer in the *Exchequer*; containing the King's Fees throughout the greateſt Part of *England*, with Inquiſitions of Lands Eſcheated, and Serjeanties.

It was denominated from its Compiler, *Johan. de Nevil*, one of the Itinerant Juſtices under K. *Henry* III.

TESTATUM, in Law, a Writ in perſonal Actions. If the Defendant cannot be arreſted on a Capias in the County where the Action is laid, but is return'd *non eſt Inventus* by the Sheriff; this Writ ſhall be ſent into any other County, where this Perſon is thought to have wherewithal to ſatisfy the Demand.

It is call'd *Teſtatum*, becauſe the Sheriff has before teſtify'd, that the Defendant was not to be found in his Bailiwic.

TESTE, a Term commonly us'd in the Cloſe of every Writ, where the Date is contain'd, which begins with *Teſte meipſo*, if it be an original Writ; or if Judicial, *Teſte Matheo Hale*, *Mil.* or *Franciſco North*, *Mil.* *&c.* according to the Court whence it comes.

In ſome ancient Formula's, we read *Teſte Cuſtode Angliæ.*

TESTES, in Anatomy, two white, ſoft, oval Bodies ſerving for Generation; uſually call'd, diminutively, *Teſticles*. See Testicle.

Testes, *of the Brain*, are two little, round, hard Bodies, between the third and fourth Ventricle, near the pineal Gland. See Brain.

TESTICLE, *Teſtis*, a double Part in an Animal, ſerving for the Office of Generation. See Generation.

In Man, and moſt Animals, they are exterior; in ſome, as Fowls, interior.

Some have only one, ordinarily they have two, and ſome have naturally had three; nay, Anatomiſts aſſure us they have known four.

The *Teſticles* are ſoft white Bodies, of an oval Figure, and about the Size of a Pidgeon's Egg: They have been thought to be of a glandulous Subſtance, and, according to the preſent Doctrine of Glands, they may be allow'd to be ſo ſtill. See Gland.

They are form'd of a Convolution of divers Kinds of Veſſels, particularly the Spermatic Veins and Arteries; the latter of which bring the Blood whence the Seed is to be ſecreted in the Meanders of the *Teſticles*; and the former return it back again after the Secretion made. See Seed.

The reſt of the *Teſticle* is made up of Seed-Veſſels, which, indeed, are but one continu'd Series or Rope, intricately convoluted and wound up as it were into a Bottom, but adhering ſo laxly, that they are eaſily drawn out into Length, and in Rats ſhaken from their cloſe Contexture.

Theſe Seminal Veſicles terminate in the Paraſtatæ. See Parastata.

The *Teſticles*, with the Paraſtatæ, are ſaid to be incloſ'd in three proper Coats; the firſt the *Muſculoſa*, deriv'd from the Cremaſter Muſcle; the ſecond the *Elythroides*, or *Vaginalis*, which is a Continuation of the external Lamina of the Peritonæum; the third, the *Abuginea*. See each under its proper Article, Musculosa, Elythroides, *&c.*

The common Capſula or Membrane including both *Teſticles*, is the *Scrotum*; which ſee deſcrib'd under the Article Scrotum.

For the Uſe of the *Teſticles*, in preparing and ſecreting the Seed; See Seed.

They are call'd *Teſticles*, by Diminution, of *Teſtes*, Witneſſes; as giving Teſtimony of Virility. They are what we properly call *Genitors*, *Genitalia*.

The *Greeks* call them *Didymi* or Twins. See Didymi.

TESTIMONIAL, a kind of Certificate, ſign'd either by the Maſter and Fellows of the College where a Perſon laſt reſided; or by three, at leaſt, Reverend Divines, who knew him well for three Years laſt paſt; giving an Account of the Virtues, Uniformity, and Learning of the Perſon. See Certificate.

Such a *Teſtimonial* is always requir'd before Holy Orders are conferr'd; and the Biſhop even ordinarily demands one of a Prieſt before he admits him to a Benefice. See Ordination, *&c.*

Testimonial is alſo a Certificate under the Hand of a Juſtice of Peace, teſtifying the Place and Time when and where a Soldier landed, and the Place of his Dwelling, *&c.* whither he is to paſs.

TESTIMONY. See Evidence and Witness.

For the Credibility of *human Teſtimony*; See Credibility.

TESTUDO, in Natural Hiſtory. See Tortoise.

Testudo, *in Antiquity*, was particularly us'd among the Poets, *&c.* for the ancient Lyre; by Reaſon it was originally made, by its Inventor *Mercury*, of the Back or hollow Shell of a *Teſtudo Aquatica*, or Sea Tortoiſe, which he accidentally found on the Banks of the River *Nile*. See Lyre.

Dr. *Molyneux* has an expreſs Diſcourſe, in the *Philoſophical Tranſactions*, to ſhew that the Tortoiſe-ſhell was the Baſis of the ancient Lyre, and that the whole Inſtrument had thence the Denomination *Teſtudo*; which Account lets ſome Light into an obſcure Paſſage in *Horace*, Ode 3. lib. 4. miſtaken by all the Commentators.

> *O* Teſtudinis *Aureæ*
> *Dulcem quæ ſtrepitum*, *Pieri*, *temperas*;
> *O Mutis quoque piſcibus*,
> *Donatura Cygni*, *ſi libeat*, *ſonum*.

Testudo, *Tortoiſe*, in the military Art of the Ancients, was a Kind of Cover or Screen which the Soldiers, *e. gr.* a whole Company, made themſelves of their Bucklers, by holding them up over their Heads, and ſtanding cloſe to each other.

This Expedient ſerv'd to ſhelter them from Darts, Stones, *&c.* thrown upon them; eſpecially thoſe thrown from above when they went to the Aſſault.

Testudo was alſo a kind of large Wooden Tower which mov'd on ſeveral Wheels, and was cover'd with Bullocks Hides newly flead; ſerving to ſhelter the Soldiers when they approach'd the Walls to mine them, or to batter them with Rams.

They were call'd *Tortoiſes* from the Strength of their Roof, which cover'd the Workmen as the Shell does the Tortoiſe.

Testudo, *in Medicine*, a ſoft broad Tumour, or gathering of impure Humours between the Scull and the Skin, call'd alſo *Talpa*, as reſembling the Form of a Tortoiſe or a Mole. See Talpa.

Testudo *Veliformis quadrabilis*, a Hemiſpherical Vault, or Ceiling of a Church, *&c.* wherein four Windows are ſo contriv'd, as that the reſt of the Vault is quadrable, or may be ſquar'd. See Vault, Quadrature, *&c.*

The determining of theſe Windows, was a Problem propos'd to the great Mathematicians of *Europe*, particularly the Cultivators of the new *Calculus Differentialis*, in the *Acta Eruditorum Lipſiæ*, by Sig. *Viviani*, under the fictitious Name of *A. D. Pia Liſci puſillo Geometra*, which was the Anagram of *Poſtremo Galilæi Diſcipulo*.

It was ſolv'd by ſeveral Perſons, particularly M. *Leibnitz*, the very Day he ſaw it: And he gave it in the *Leipſic* Acts in an Infinity of Manners; as alſo did M. *Bernoulli*, the Marquis *del Hoſpital*, Dr. *Wallis*, and Dr. *Gregory*.

TETANOS, in Medicine, a Term purely *Greek*, and ſignifying a kind of Tonic Spaſmus, or Convulſion, wherein the fore and hind Muſcles of the Head are render'd rigid and inflexible; ſo that it can neither bend one Way nor t'other. See CONVULSION.

The Word is form'd from the *Greek*, τείνειν, to ſtretch.

Some Authors alſo uſe *Tetanos*, or *Tetanus* in a more general Senſe. When a Convulſion is univerſal, they denominate it *Tetanus*; which they ſub-divide into *Emproſthotonus* and *Opiſthotonus*. See EMPROSTHOTONOS and EPISTHOTONOS.

TETRACHORD, in the ancient Muſic, a Concord conſiſting of three Degrees, Tones, or Intervals, or four Sounds or Terms; call'd alſo by the Ancients διατέσσαρον, and by the Moderns a *Fourth*. See FOURTH.

This Interval had the Name *Tetrachord* given it with reſpect to the Lyra, and its Chords or Strings. See CHORD. See alſo DIATESSARON.

Ancient Authors make frequent Mention of the Synaphe, or Conjunction; and Dieſeuſis, or Disjunction of *Tetrachords*. To conceive their Meaning, it muſt be obſerv'd, that two *Tetrachords* were ſaid to be join'd, when the ſame Chord was the higheſt of the firſt, or loweſt Inſtrument, and the loweſt of the ſecond; as was the Caſe in the two *Tetrachords* that compoſe the ancient Heptachord or Seventh. But when two *Tetrachords* had no common Chord; but, on the contrary, had each their different ones to begin and end withal, ſo that between the two there were two Intervals of a Tone, then the *Tetrachords* were ſaid to be disjoin'd; which was the Caſe in the two *Tetrachords* that compoſe the Octachord or Octave. See OCTAVE.

The Word is form'd of the *Greek*, τετρα, four times, and χορδὴ, a Chord or String.

TETRACTYS, in the ancient Geometry. The *Pythagoric Tetractys* is a Point, a Line, a Surface, and a Solid.

TETRADIAPASON, a *Quadruple Diapaſon*; a Muſical Chord, otherwiſe call'd a quadruple eight or nine and twentieth. See DIAPASON.

TETRADITES, in Antiquity, a Name given to ſeveral different Sects of Hereticks, out of ſome particular Reſpect they bore to the Number *four*, τετρα.

The Sabbathians were call'd *Tetradites*, from their faſting on *Eaſter-Day*, as on the fourth Day, or *Wedneſday*. See SABBATHIAN.

The Manichees, and others, who admitted a Quaternity inſtead of a Trinity in the Godhead, or four Perſons in lieu of three, were alſo call'd *Tetradites*. See MANICHEE.

The Followers of *Petrus Fullenſis* bore the ſame Appellation of *Tetradites*, by Reaſon of the Addition they made to the *Triſagion*, to countenance an Error they held, that in our Saviour's Paſſion, 'twas not any particular Perſon of the Godhead, *e. gr.* the Son, that ſuffer'd; but the whole Deity. See TRISAGION.

The Ancients alſo gave the Name *Tetradites* to Children born under the fourth Moon; and theſe they believ'd unhappy.

The Word is form'd from the *Greek*, τέτταρες or τέσσαρες, four.

TETRAEDRON, TETRAHEDRON, in Geometry, one of the five regular or Platonic Bodies, or Solids; comprehended under four equilateral and equal Triangles. See SOLID.

The *Tetraedron* may be conceiv'd as a triangular Pyramid of four equal Faces. See PYRAMID.

Such is that repreſented (Tab. Geometry, Fig. 59.) See REGULAR *Body*.

'Tis demonſtrated by Mathematicians, that the Square of the Side of a *Tetraedron*, is to the Square of the Diameter of a Sphere wherein it may be inſcrib'd, in a ſubſeſquialteral Ratio: Whence it follows, that the Side of a *Tetraedron* is to the Diameter of a Sphere it is inſcrib'd in, as $\sqrt{2}$ to the $\sqrt{3}$, conſequently they are incommenſurable.

TETRAGON, in Geometry, a *Quadrangle*; or a Figure with four Angles. See QUADRANGLE.

Thus a Square, Parallelogram, Rhombus, Trapezium, are *Tetragonal* Figures, See SQUARE, &c.

The Word is form'd from the *Greek*, τέταρες, four, and γωνία, Angle.

TETRAGON, in Aſtrology, &c. an Aſpect of two Planets with Regard to the Earth, when they are diſtant from each other a fourth Part of a Circle, or 90°; as A D Tab. Aſtronomy, Fig. 3.

The *Tetragon* is expreſs'd by the Character, □. See ASPECT.

TETRAGONIAS, a Name given to a Comet, whoſe Head is of a Quadrangular Figure, and its Tail or Train long, thick, and uniform; not much different from the Meteor call'd *Trabs*. See COMET and TRABS.

TETRAGONISM, a Term ſome Authors uſe to expreſs the Quadrature of the Circle. See QUADRATURE.

TETRAGONUS, in Anatomy, a Muſcle, call'd alſo *Quadratus Genæ*. See QUADRATUS.

TETRAGRAMMATON, a Denomination given by the *Greeks* to the Name of God, becauſe conſiſting of four Letters in moſt Languages. See GOD.

TETRAMETER, in the ancient Poetry, an Iambic Verſe conſiſting of eight Feet. See IAMBIC.

We meet with none of theſe but in the Comic Poets, as *Terence*.

The Word is form'd from the *Greek*, τέτρα, four, and μέτρον, Meaſure, *q. d.* four Meaſures.

TETRAPASTUS, in Mechanicks, a Machine wherein are four Pullies. See PULLY.

The Word is form'd from the *Greek*, τετράσπαστον. See POLYPASTUS.

TETRAPETALOUS, in Botany, an Epithet given to Flowers that conſiſt of four *Petala*, or Leaves, plac'd around the Piſtil. See PETALA.

Theſe, M. *Juſſieu* calls *Polypetalous* Flowers. See POLYPETALOUS.

Mr. *Ray*, who calls them *Tretapetalous*, makes them conſtitute a diſtinct Kind, which he divides into

1°. Such as have an uniform *Tetrapetalous* Flower, and their Seed-Veſſels a little oblongiſh, which he therefore calls *Siliquoſe*; as the Keiri or Leucoium Luteum, and the other common Leucoium, the Dentaria, the Leucoium Siliquoſum, Alyſſon, Viola Lunaris, Paronychia, Heſperis, Alliaria, Rapa, Napus, Sinapis, Rapiſtrum, Eruca Spuria, Eriſimum, Cardamine, Turritis, Piloſella Siliquoſa, and the Raphanus Ruſticanus and Aquaticus.

2°. Such as have their Seed Caſe or Veſſel ſhorter, which therefore, for Diſtinction Sake, he calls *Capſulatæ*, and *Siliculoſæ*; as the Myagrum, Draha, Leucoium Siliqua ſubrotunda, Cochlearia, Naſturtium, Lepidium vulgare, Thlaſpi, Braſica marina, Glaſtum, Eruca marina, &c.

3. Such as have a ſeeming *Tetrapetalous* Flower, that is, a Monopetalous one, divided deeply into four Partitions; which he particularly calls *Anomalous*; as the Papaver, Agremony, Veronica, Tithymallus, Plantago, Coronopus, Pſyllium, Lyſimachia Siliquoſa, Alſine ſpuria, &c.

TETRAPHARMACUM, from τετρα, *quater*, four, and φαρμάκον, *Medicamentum*, is any Remedy conſiſting of four Ingredients.

TETRAPLA, in Church Hiſtory, a Bible diſpos'd by *Origen* under *four Columns*, in each whereof was a different *Greek* Verſion, *viz.* that of *Aquila*, that of *Symmachus*, that of the *Seventy*, and that of *Theodoſian*. See BIBLE.

Sixtus of *Sienna* confounds the *Tetrapla* with the *Hexapla*; but the *Tetrapla* is a different Work, compos'd after the *Hexapla*, in Favour of ſuch as could not have the *Hexapla*. See HEXAPLA.

Some Authors are of Opinion, that the Order wherein the four Verſions of the *Tetrapla* were rang'd, was different from that wherein we have rehears'd them; and particularly that the Septuagint was in the firſt Column: But S. *Epiphanius* ſays expreſsly to the contrary, and places it in the third. He even gives us *Origen*'s Reaſon for putting it there; which was, ſays he, that the beſt Verſion might be in the Middle, that the others might be the more eaſily confronted therewith, and corrected from it.

Baronius, however, in his Annals for the Year 231, takes the Septuagint to have been in the third Place in the *Hexapla*, but the firſt in the *Tetrapla*; yet *Epiphanius* gives it the ſame Place in both.

The Word is form'd from the *Greek* τετραπλοῦς, *quadruplex*, fourfold.

TETRAPTOTE, TETRAPTOTON, in Grammar, ſuch defective Nouns as have only four Caſes; as *Plus*, which wants the Dative and Vocative ſingular. See CASE, APTOTE, &c.

TETRARCH, TETRARCHA, a Prince who holds and governs a fourth Part of a Kingdom; thus call'd from the *Greek* τέταρτος, fourth, and ἀρχὴ, Rule, Dominion.

Such, originally, was the Import of the Title *Tetrarch*; but it was afterwards apply'd to any petty King, or Sovereign, and became ſynonymous with *Ethnarch*; as appears from the following Conſideration: 1°. That *Pliny* makes mention of ſix *Tetrarchies* within the Cities of *Decapolis*. 2°. That *Herod*'s Kingdom was only divided into three Parts, which yet were call'd *Tetrarchies*, and the Sovereigns thereof, *Luke* iii. 1. *Tetrarchs*. 3°. *Joſephus*, Antiq. Jud. lib. xiv. c. 23. tells us, that after the Battle of *Philippi*, *Anthony* going into *Syria*, conſtituted *Herod*, *Tetrarch*; and on Medals the ſame *Herod* is call'd *Ethnarch*. See ETHNARCHA.

TETRASTICH, a Stanza, Epigram, or Poem, conſiſting of four Verſes. See DISTICH.

TETRASTYLE, in the ancient Architecture, a Building, and particularly a Temple, with four Columns both before and behind, *i. e.* in Front and Rear. See TEMPLE.

The Word is form'd from τετταρες, four, and στύλος, Columns.

TETRASYLLABICAL, a Word conſiſting of four Syllables. See Word and Syllable.

TEUTONIC, ſomething belonging to the *Teutones*, an ancient People of *Germany*, inhabiting chiefly along the Coaſts of the *German* Ocean.

The Teutonic *Language* is the ancient Language of *Germany*, the ſame with the *Celtic*. See Language, Celtic, *&c.*

The *Teutonic*, or *German*, is rank'd among the Mother Tongues. See Mother *Tongue*.

It is now diſtinguiſh'd into *Upper* and *Lower*.

The *Upper* has two notable Dialects, *viz.* 1°. the *Scandian*, *Daniſh*, or perhaps, *Gothic*; to which belong the Languages ſpoke in *Denmark*, *Norway*, *Sweden*, and *Ireland*. 2°. The *Saxon*; to which belong the ſeveral Languages of the *Engliſh*, *Scots*, *Friſian*, and thoſe on the North of the *Elbe*. See English, *&c.*

To the *Lower* belong the *Low Dutch*, *Flemiſh*, *&c.* ſpoke thro' the *Netherlands*, the more Southerly Parts of *Germany*, &c.

Teutonic *Order*, a Military-Religious Order of Knights, eſtabliſh'd towards the Cloſe of the XIIth Century; and thus call'd, becauſe conſiſting principally of *Germans*. See Knight and Order.

The Origin, *&c.* of this Order was thus: The Chriſtians under *Guy* of *Luſignan*, laying Siege to *Aca*, or *Acra*, a City of *Syria*, on the Borders of the Holy Land; at which Siege were preſent, *Richard* King of *England*, *Philip Auguſte* of *France*, &c. ſome *Germans* of *Bremen* and *Lubec*, touch'd with Compaſſion for the Sick and Wounded of the Army, who wanted common Neceſſaries, ſet on Foot a kind of Hoſpital under a Tent, which they made of a Ship's Sail; and here betook themſelves to a charitable Attendance of the Sick.

This ſtarted a Thought of eſtabliſhing a third Military Order, in Imitation of the Templars and the Hoſpitallers.

The Deſign was approv'd by the Patriarch of *Jeruſalem*, the Archbiſhops and Biſhops of the neighbouring Places, the King of *Jeruſalem*, the Maſters of the Temple and the Hoſpital, and the *German* Lords and Prelates then in the Holy Land, *&c.* And by common Conſent, *Frederic*, Duke of *Suabia*, who was then at their Head, ſent Embaſſadors to his Brother, *Henry*, King of the *Romans*, to ſolicit the Pope to confirm the new Order.

Calixtus III. who then govern'd the Church, granted it by a Bull of the 23d of *February*, 1192; and the new Order was call'd, *The Order of* Teutonic *Knights of the Houſe of St.* Mary *of* Jeruſalem.

The Pope granted them all the Privileges of the Templars, and the Hoſpitallers of St. *John*; excepting that they were to be ſubject to the Patriarchs, and other Prelates, and that they ſhould pay a Tenth of what they poſſeſs'd.

The firſt Maſter of the Order, *Henry Valpot*, elected during the Time of the Siege of *Aca*; after the taking of that City, purchas'd a Garden, wherein he built a Church and an Hoſpital, which was the firſt Houſe of the *Teutonic Order*. Such is the Account given by *Peter* of *Dusbourg*, a Prieſt of this Order.

Jacques de Vitry differs a little herefrom; and relates, that the *Teutonic Order* was eſtabliſh'd at *Jeruſalem* before the City of *Aca* was beſieg'd.

Theſe two Opinions *Hartknok*, in his Notes on *Dusbourg*, reconciles, by ſaying, that the Order was firſt inſtituted by a private Perſon, a *German*, at *Jeruſalem*; that it was confirm'd by the Pope, the Emperor, and the Princes at the Siege of *Aca*; and that after the taking that City, it was become ſo conſiderable, that it was known all over the World.

If it be true that it was a private Perſon who firſt ſet on Foot the Order, and that thoſe People of *Bremen* and *Lubec* only join'd with them; as ſome Authors aſſert; we don't know the preciſe Year of its Eſtabliſhment.

The Order made no great Progreſſes under the three firſt Grand Maſters; but under the fourth, *Herman de Salza*, it became very powerful; inſomuch, that *Conrade*, Duke of *Mazovia* and *Cujavia*, about the Year 1230, ſent an Embaſſy to him, to ſolicit his Friendſhip and Aſſiſtance, offering him and his Order, the Provinces of *Culmes* and *Livonia*, with all the Lands they could recover from the Idolatrous *Pruſſians*, who harraſs'd him exceedingly with their continual Incurſions, and againſt whom he intended this new Militia; his own Knights of the Order of *Chriſt*, or of *Dobrin*, inſtituted for the like Purpoſe, being found too weak.

De Salza accepted the Donation; and *Gregory* IX. confirm'd it; and to aid the Knights in reducing the *Pruſſians*, *Innocent* IV. publiſh'd a Croiſade.

With this Help, in a Year's Time, they ſubdu'd the Provinces of *Warmia*, *Notangerland*, and *Barthia*; the Inhabitants whereof renounc'd the Worſhip of Idols; and in the Courſe of fifty Years more, they reduc'd all *Pruſſia*, *Livonia*, *Samogitia*, *Pomerania*, &c.

In 1204, Duke *Albert* had founded the Order of Swordbearers, *Port-Glaives*, which now became united to the *Teutonic* Knights, and the Union approv'd by Pope *Gregory* IX. See Port-Glaive.

Waldemar III. King of *Denmark*, ſold the Order the Province of *Eſtein*, the Cities of *Nerva* and *Weſſemberg*, and ſome other Provinces.

A new Union ſome time afterwards occaſion'd great Diviſions and Troubles in the Order: It was with the Biſhops and Canons of *Pruſſia* and *Livonia*; who hereupon took the Habit of the *Teutonic* Order, and ſhar'd the Sovereignty with the Knights, in their reſpective Dioceſes.

The Order, thus Maſter of all *Pruſſia*, built the Cities of *Elbing*, *Marienbourg*, *Thorn*, *Dantzic*, *Koningsberg*, and ſome others: The Emperor *Frederic* II. permitted them to add to the Arms of the Order, the Imperial Eagle; and S. *Louis*, in 1250, allow'd them to Quarter the *Flower-de-Luce*.

After the City *Aca*, or *Acra*, had been recover'd by the Infidels, the Grand Maſter of the *Teutonic* Order remov'd his Seat from that City to *Marienbourg*. As the Order grew in Power, the Knights took more State on them; and, at length, inſtead of *Friars*, Brothers, as at firſt, would be call'd *Lords*. And tho' the Grand Maſter *Conrade Zolnera*, of *Rotenſteine*, oppos'd this Innovation, his Succeſſor *Conrade Wallerod* not only approv'd it, but even procur'd himſelf to be treated with Honours only render'd to the greateſt Princes.

Diviſions being got into the Order, the Kings of *Poland* made their Advantage of them: The *Pruſſians* revolted to them; and after ſeveral Wars between the Knights and the *Poles*, the former yielded to King *Caſimir* the upper *Pruſſia*, and did Homage to him for the lower.

Laſtly, at the Time of the Reformation, *Albert*, Marquis of *Brandenbourgh*, then Grand Maſter, becoming Lutheran, renounc'd the Dignity of Grand Maſter, diſſolv'd the Commanderies, and drove the Knights out of *Pruſſia*.

Moſt of the Knights follow'd his Example, and embrac'd the Reformation: The reſt transferr'd the Seat of their Order to *Margentheim*, or *Mariendal* in *Franconia*, which they ſtill retain.

They there elected *Walter* of *Cromberg* their Grand Maſter; form'd a Proceſs againſt *Albert*; and the Emperor put him to the Ban of the Empire. The Order, however, could never recover their Domains; but are now little more than the Shadow of what they formerly were, having only three or four Commanderies, ſcarce ſufficient for the ordinary Subſiſtence of the Grand Maſter and his Knights.

The Officers of the *Teutonic* Order, when in its Splendor, were the *Grand Maſter*, who reſided at *Marienbourg*; under him were the *Grand Commander*; the *Grand Marſhal*, who had his Reſidence at *Koningsberg*; the *Grand Hoſpitaller*, who reſided at *Elbing*; the *Draper*, who took Care to furniſh the Habits; the *Treaſurer*, who lived at the Court of the Grand Maſter; and ſeveral *Commanders*, as thoſe of *Thorn*, *Culme*, *Brandenbourg*, *Koningsberg*, *Elbing*, &c.

They had alſo their Commanders of particular Caſtles and Fortreſſes; Advocates, Proveditors, Intendants of Mills, Proviſions, *&c.*

Waiſſelius in his Annals ſays, they had 28 Commanders of Cities, 46 of Caſtles, 81 Hoſpitallers, 35 Maſters of Convents, 40 Stewards, 37 Proveditors, 93 Maſters of Mills, 700 Bothers or Knights to take the Field, 162 Brothers of the Choir, or Prieſts, 6200 Servitors or Domeſticks, *&c.*

TEXT, a relative Term, contra-diſtinguiſh'd to Commentary. It ſignifies an original Diſcourſe, excluſive of any Note, or Interpretation.

Infinite Pains have been taken by the Criticks to reſtore, reconcile, ſettle, explain, *&c.* the *Text* of the Bible, and the Claſſicks.

Mr. *Whiſton* accounts for all thoſe Miſunderſtandings between the New and Old Teſtament, particularly as to the Propheſies in the Old, cited as fulfill'd in the New, to the Corruption of the *Text* of the Old Teſtament; and to obviate Objections made againſt Chriſtianity on that Head, has publiſh'd an *Eſſay towards reſtoring the true* Text *of the Old Teſtament*, &c.

This Reſtoration he is to effect from the *Samaritan* Pentateuch, the *Roman* Pſalter, the Apoſtolical Conſtitutions, *&c.* But all our Criticks take this Corruption of the *Text* to be imaginary, and look out for other Ways of ſolving thoſe Difficulties. See Prophesy.

Text, is particularly uſed for a certain Paſſage choſe by a Preacher to be the Subject of his Sermon.

Anciently, the Lawyers began all their Pleadings with like *Texts* of Scripture.

A *Text-book*, in ſeveral Univerſities, is a Claſſic Author wrote very wide, by the Students, to give Room for an Interpretation dictated by the Maſter or Regent, to be inſerted in the Inter-lines.

In this Senſe, the *French* ſay, proverbially, *Gloſe d'Orleans plus obſcure que le Texte.*

The *Spaniards* give the Name *Text* to a kind of little Poem or Set of Verſes, placed at the Head of a Gloſs, and making the Subject thereof; each Verſe being explain'd, one after another in the Courſe of the Gloſs. See GLOSS.

In ancient Authors, *Text* is appropriated to the *New Teſtament*, by way of Eminence: it was written in gold Letters, and carefully preſerved in the Churches.

Codex aurato conſeptus Grammate, Scriptus
Auctus Evangelicum conſervat corpore Textum.

TEXTUARIES, TEXTUARII, a Name given the Sect of the Caraites, among the *Jews*. See CARAITES.

Hittel ſhone among the Traditionaries; and *Schammai* among the *Textuaries*. See TRADITIONARY.

The Civil and Canon Lawyers, ſometimes alſo call a Book containing the bare Text, without any Gloſs or Commentary, a *Textuary*.

TEXTUS *Roffenſis*, is an ancient Manuſcript, containing the Laws of *Ethelbert*, *Flothere*, *Eadric* and *Withred* Kings of *Kent*, collected by *Eardulf*, the venerable Biſhop of *Rocheſter*, about the Year 760. See LAW.

TEXTURE, TEXTURA, properly denotes the Arrangement and Coheſion of ſeveral ſlender Bodies or Threads, interwove, or intangled among each other; as in the Webs of Spiders, or in Cloths, Stuffs, &c. See WEB and WEAVING.

The Word is *Latin*, form'd of *Texo*, I weave.

The Word is alſo uſed not only of Threads, but for any Union or Coheſion of the conſtituent Particles of a concrete Body; whether by weaving, hooking, knitting, tying, chaining, indenting, intruding, compreſſing, attracting, or any other way. See COHESION, PARTICLE, BODY, &c.

In this Senſe, we ſay a cloſe, compact *Texture*; a lax, porous *Texture*; a regular, or irregular *Texture*, &c. See PORE, RAREFACTION, CONDENSATION, &c.

A great deal depends on the *Texture* of the Component Parts of a Body; hence moſt of its particular Properties, its ſpecific Gravity, Colour, &c. See COLOUR, &c.

THABORITES, or TABORITES, a Branch of the ancient *Huſſites*. See HUSSITE.

The *Huſſites*, towards the Cloſe of the XVth Century, dividing into ſeveral Parties; one of them retired to a little Mountain or Rock, ſituate in *Bohemia*, 15 Leagues from *Prague*, and there put themſelves under the Conduct of *Ziſca*: Building themſelves a Fort or Caſtle, which they call'd *Thabor*, either from the general Word *Thabor*, which in the *Sclavonic* Language ſignifies Caſtle; or from the Mountain *Thabor*, mention'd in Scripture: And hence they became denominated *Thaborites*.

Theſe carried the Point of the Reformation further than *Hus* has done; rejected Purgatory, Auricular Confeſſion, the Unction at Baptiſm, Tranſubſtantiation, &c.

They reduced the Seven Sacraments of the *Romaniſts* to Four, viz. Baptiſm, the Euchariſt, Marriage and Ordination.

They maintain'd a ſtout War with the Emperor *Sigiſmund*. Pope *Martin* V. was obliged to publiſh a Croiſade againſt them. Nor did this ſucceed: At length, however, in 1544, their Caſtle of *Thabor* was taken, and they diſperſed.

THALAMI *Nervorum Opticorum*, in Anatomy, two oblong Prominences, of the lateral Ventricles of the Brain; Medullary without, but a little Cineritious within. See BRAIN.

They are thus call'd, becauſe the Optic Nerves riſe out of them. See OPTIC.

THANE or THAIN, THANUS, the Name of an ancient Dignity among the *Engliſh*, or *Anglo-Saxons*. See NOBILITY.

Skene makes *Thane* to be a Dignity equal with that of the Son of an Earl; *Cambden* will have it, that *Thanes* were only dignify'd by ſome Offices which they bore.

There were two Kinds or Orders of *Thanes*: The *King's Thanes*, and the *Ordinary Thanes*.

The Firſt, were thoſe who attended our *Engliſh-Saxon* Kings in their Courts; and who held Lands immediately of he King; whence, in *Doomſday-Book*, they are promiſcuouſly ll'd *Thani* and *Servientes Regis*.

Soon after the Conqueſt, the Name was diſuſed; and inead thereof they were call'd the *King's Barons*, *Barones egis*. See BARON.

As to Dignity, they took Place next after Knights.

Their Origin is referr'd to King *Canutus*, who, taking e chief of the *Daniſh* Nobility, to the Number of 3000, r his Guard; and arming them with Battle Axes and Sabres ith gilt Handles, call'd them *Thing-lith*, from the Two *aniſh* Words *Theing* or *Thein* or *Tein*, Body of Nobility, d *Lith*, Order of Battel.

The ordinary *Thanes* or *Thanii Minores*, were the Lords Manors, who had particular Juriſdiction within their mits, and over their own Tenants. See LORD and ANOR.

Theſe, too, changed their Name for that of Barons; and hence their Courts are call'd *Courts Baron*, to this Day. See COURT and BARON.

In old Authors, Charters, &c. we meet with *Thane*, as ſignifying a *Nobleman*; ſometimes, a *Freeman*, and ſometimes a *Magiſtrate*.

THANE *Lands*, were Lands granted by Charter of the *Saxon* Kings to their *Thanes*.

THAUMATURGUS, *q. d. Worker of Miracles*; an Appellation which the *Romaniſts* give to ſeveral of their Saints. See SAINT.

St. *Gregory Thaumaturgus*, or *Gregory* of *Neocæſarea*, was a Diſciple of *Origen*, about the Year 223; and afterwards Biſhop of *Cæſarea* in *Pontus*; and in that Capacity aſſiſted at the Firſt Council of *Antioch*, and at that of *Epheſus* againſt *Paulus Samoſatanus*.

St. *Leo* of *Catanea*, is alſo uſually call'd S. *Leo Thaumaturgus*: He lived in the VIIIth Century; and his Body is ſtill honour'd at *Rome* in the Church of S. *Martin de Tours*.

St. *Francis Paul*, and St. *Francis Xavier*, are the great *Thaumaturgi* of theſe laſt Ages. See MIRACLE.

The Word is form'd from the *Greek*, ϑαυμα, *wonderful thing*, and ἔργον, *work*.

THAWING, the Reſolution of Ice into its former fluid State, by the Warmth of the Air, &c. See ICE; ſee alſo FREEZING.

THEANDRIC, a Term ſignifying Divine and Human under one; or God-Man; form'd from ϑεὸς, God, and ἀνὴρ, Man.

S. *Dionyſius* Biſhop of *Athens*, firſt uſed the Word *Theandric*, to expreſs the two Kinds of Operations in *Jeſus Chriſt*; the one divine, the other human: The *Monothelites* afterwards abuſed it, to ſignify the one only Operation which they admitted in *Jeſus Chriſt*; in whom they believed there was a Mixture of the divine and human Nature, whence reſulted a third Nature, which was a Compound of the one and the other, whoſe Operations follow'd the Eſſence and Qualities of the Mixture, and were neither divine nor human; but both at once, or, in one Word, *Theandric*. See OPERATION and MONOTHELITE.

The Term *Theandric*, and the Dogma of *Theandric Operations* were examined with great Care and Attention, at the Council of the *Lateran*, held in 649; where Pope *Martin* ſolidly refuted the Notion of *Theandric Operations*, and ſhew'd, That the Senſe wherein S. *Dionyſius* firſt uſed the Word, was Catholic, and quite remote from that of the *Monothelites*.

THEANTHROPOS, a Term ſometimes uſed in the Schools, to ſignify the Perſon of *Jeſus Chriſt*, who is really *Theanthropos*, *i. e.* God-Man; from the *Greek*, ϑεὸς, *Deus*, and ανθροπος, *Homo*, Man.

THEATER or THEATRE, THEATRUM, among the Ancients, a Public Edifice, for the exhibiting of Spectacles or Shews to the People. See SPECTACLE.

Under the Word *Theater* was comprehended, not only the Eminence whereon the Actors appear'd, and the Action paſs'd; but alſo the whole Area, or Extent of the Place, common to the Actors and Spectators.

In this Senſe, the *Theater* was a Building encompaſs'd with Portico's, and furniſhed with Seats of Stone, diſpoſed in a Semi-circle, and aſcending by degrees over one another; which encompaſs'd a Space, call'd the *Orcheſtra*, in the Front whereof, was the *Proſcenium*, or *Pulpitum*, whereon the Actors perform'd, and which is what we properly call the *Theater* or *Stage*. See ORCHESTRA and PROSCENIUM.

On the *Proſcenium* ſtood the *Scena*, a large Front, adorn'd with Orders of Architecture, behind which was the *Poſcenium*, or Place where the Actors made themſelves ready, retired, &c. So that the Scena, in its full Extent, comprehended all the Part belonging to the Actors. See SCENA, POSTCENIUM, &c.

In the *Greek Theaters*, the Orcheſtra made a Part of the Scena; but in the *Roman Theaters*, none of the Actors ever deſcended into the Orcheſtra; which was taken up by the Seats of the Senators.

The moſt celebrated *Theaters* remaining of Antiquity, are the *Theater* of *Marcellus*, and that of *Pompey*; which are alſo call'd *Amphitheaters*. See AMPHITHEATER.

At *Athens*, are ſtill ſeen, the Remains of the Temple of *Bacchus*, which was the firſt *Theater* in the World, and a Maſter-piece in Architecture. All *Theaters* were conſecrated to *Venus* and *Bacchus*.

The Word is form'd from the *Greek*, ϑέατρον, Spectacle, Shew, of ϑεαωμαι, *ſpecto*, *video*, *I ſee*

THEATER, among the Moderns, is the Stage, or Place whereon the Drama, or Play is exhibited; anſwering to the *Scena* of the Ancients. See DRAMA.

In its full Latitude, however, the *Theater* includes the whole Play-Houſe; in which Senſe, it is a ſpacious Room, or Hall, part whereof is taken up by the *Scena*, which comprehends the Stage, the Decorations and the Machines; and the reſt diſtributed into a Space, call'd the *Pit*, or *Parterre*, which is cover'd with Seats, Boxes, *&c.* and terminated with an Elevation of one, or two Galleries, diſpoſed into Benches aſcending over one another. See STAGE; ſee alſo COMEDY, TRAGEDY, *&c.*

THEATER is alſo uſed in Architecture, chiefly among the *Italians*, for an Aſſemblage of ſeveral Buildings, which, by a happy Diſpoſition and Elevation, repreſents an agreeable Scene to the Eye.

Such as are moſt of the Vineyards at *Rome*; but particularly that of *Monte Dragone*, at *Freſcati*; and in *France*, the new Caſtle of St. *Germain en Laye*.

Anatomical THEATER, in a School of Medicine and Chirurgery, is a Hall, with ſeveral Rows of Seats, diſpoſed in the Sweep of an Amphitheatre; having a Table, bearing on a Pivot, in the middle; for the Diſſection of Bodies.

Such is the *Anatomical Theater* of the Royal Garden of Plants at *Paris*, *&c.*

The *Theater* at *Oxford* is a beautiful Building erected by Archbiſhop *Sheldon*, for the Uſe of Scholaſtic Exerciſes.

THEATINS, a Religious Order of Regular Prieſts; thus call'd from Don *John Pietro Caraffa*, Archbiſhop of *Chieſi*, in the Kingdom of *Naples*, which was anciently call'd *Theate*.

The ſame Archbiſhop was afterwards Pope, by the Name of *Paul* IV. after having been a Companion of *Caetan*, a *Venetian* Gentleman, the firſt Founder of this Order, at *Rome* in 1524.

The *Theatins* were the firſt that aſſum'd the Title of *Regular Clerks*. They have not only no Lands or fix'd Revenues either in common or in particular; but they don't even ask or beg any thing, but wait for what Providence ſhall ſend them for their Subſiſtance.

They employ themſelves much in Foreign Miſſions; and in 1627 enter'd upon *Mingrelia*, where they have an Eſtabliſhment: They have had the like in *Tartary*, *Circaſſia*, and *Georgia*, which they have ſince abandon'd, by Reaſon of the little Fruit they perceiv'd thereof.

Their firſt Congregation appear'd at *Rome* in 1524, and was confirm'd the ſame Year by *Clement* VII. Their Conſtitutions were drawn up at a General Chapter in 1604, and approv'd by *Clement* VIII. They wear Prieſts Habit.

THEATINES, are Congregations of Nuns, under the Direction of the *Theatins*.

There are two Kinds of *Theatines*, under the Title of Siſters of the *immaculate Conception*, who form two different Congregations, the one engag'd by ſolemn Vows, and the other only by ſimple Vows. Their common Foundreſs was *Urſula Benincaſa*.

Thoſe who make the ſimple Vows, are the moſt ancient; and are call'd ſimply *Theatines* of the Congregation: They had their Riſe at *Naples* in 1583.

The others are call'd *Theatines of the Hermitage*: The whole Buſineſs of theſe is Praying in Retirement; and an auſtere Solitude, to which they engage themſelves by ſolemn Vows.

The *Theatines* of the firſt Congregation take Care of the Temporal Concerns of theſe laſt. Their Houſes ſtand together, and communicate by a large Hall. Their Foundreſs drew up their Conſtitutions, and laid the Foundation of their Houſe at *Naples*; but dy'd e'er it was finiſh'd.

Gregory the XVth, who confirm'd the new Inſtitute under the Rule of S. *Auguſtin*, appointed that they ſhould be under the Direction of the *Theatins*. *Urban* VIII. revok'd this Article by a Brief in 1624, and ſubjected them to the Nuncio of *Naples*; but *Clement* IX. annull'd this Brief, and ſubmitted them anew to the *Theatins* by a Brief in 1668.

THEBAID, THEBAIS, a famous heroic Poem of *Statius*, the Subject whereof is the Civil War of *Thebes* between the two Brothers *Eteocles* and *Polynices*; or *Thebes* taken by *Theſeus*. See HEROIC and POEM.

Statius was twelve Years in compoſing his *Thebaid*, which conſiſts of XII Books: He wrote under *Domitian*.

He is cenſur'd by the beſt Criticks, as *Boſſu*, *&c.* for a vicious Multiplication of Fables and Actions, for too much Heat and Extravagance, and for going beyond the Bounds of Probability. See FABLE and PROBABILITY.

Several *Greek* Poets had compos'd *Thebaids* before him; the principal were, *Antagoras*, *Antiphanes* of *Colophon*, *Menelaus* the *Ægean*, and an anonymous Author mention'd by *Pauſanias*, lib. ix.

Ariſtotle, praiſing *Homer* for the Simplicity of his Fable, oppoſes to him the Ignorance of certain Poets, who imagin'd that the Unity of Fable or Action was abundantly provided for by the Unity of the Hero, and who compos'd *Theſeids*, *Herculeids*, &c. in each whereof they collected every thing that had ever happen'd to their principal Perſon. See FABLE.

THEFT, *Larceny*, *Furtum*, in Law, a felonious taking away another Man's moveable and perſonal Goods, againſt the Owner's Will, with an Intent to ſteal them. See LARCENY.

It is divided into *Theft* or *Larceny*, properly ſo call'd, and *petit Theft* or *Larceny*; the former whereof is of Goods above the Value of 12*d.* and is deem'd Felony: The other, which is of Goods under that Value, is not Felony. See FELONY.

Theft from the Perſon, or in Preſence of the Owner, is properly call'd *Robbery*. See ROBBERY.

THEFTHOLE, the receiving Goods from a Thief, to favour and maintain him, the Puniſhment whereof is Impriſonment, and not Loſs of Life or Member. See THEFT.

THELONIUM, TELONIUM, or *Breve eſſendi quietum de* THELONIO, is a Writ lying for the Citizens of a City, or Burgeſſes of a Town, that have a Charter or Preſcription to free them from Toll; againſt the Officers of any Town or Market, who would conſtrain them to pay it, contrary to the ſaid Grant or Preſcription.

THEME, THEMA, a Subject or Topic, to write or compoſe on.

Theme, among Aſtrologers, is the Figure they conſtruct when they draw the *Horoſcope*: It repreſents the State of the Heavens for a certain Point or Moment requir'd, *i. e.* the Places of the Stars and Planets for that Moment. See HOROSCOPE.

It conſiſts of 12 Triangles, inclos'd within two Squares, and call'd the *Twelve Houſes*.

THENAR, in Anatomy, a Muſcle, call'd alſo *Abductor Pollicis manus*. See ABDUCTOR.

THNETOPSYCHITES, a Sect in the ancient Church, who believ'd the Soul of Man perfectly like that of Brutes; and taught that it dy'd with the Body. See SOUL.

We meet with no Account of theſe Hereticks any where, but in *J. Damaſcenus*, *Hæreſ.* 90. unleſs they be the ſame with thoſe *Euſebius* ſpeaks of, *Hiſt. Eccleſ.* lib. ix. c. 38. who relates, that in *Origen*'s Time, there were Hereticks in *Arabia*, who taught that the Soul of Man dy'd with the Body; but that it ſhould riſe again with it at the End of the World. He adds, that *Origen* refuted them in a numerous Council, and reclaim'd them from their Errors. S. *Auguſtin* and *Iſidore*, calls them *Arabian* Hereticks.

Marſhal, in his Tables, has disfigur'd the Word, for want of underſtanding it; he writes it *Thenopſychites*, inſtead of *Thnetopſychites*: He likewiſe places them in the VIth Century; on what Grounds we can't imagine.

The Word is compos'd of the *Greek*, ϑνητὸς, Mortal, and ψυχὴ, Soul.

THEOCATAGNOSTES, a Sect of Hereticks, or rather Blaſphemers, who dar'd to find fault with certain Words and Actions of God, and to blame many Things in the Scriptures.

Marſhal, in his Tables, places theſe Hereticks in the VIIth Century; for what Reaſon we know not; *Damaſcenus* being the only Author that mentions them, but without taking any Notice of the Time of their Appearance.

Add to this, that in *Damaſcenus*'s Treatiſe of Hereſies, we meet with Hereticks that were not ſo much the Authors of Sects ſubſiſting at any certain Time, as wicked Perſons, ſuch as are found in all Times, and all Ages.

The Word is form'd from the *Greek*, ϑεὸς, God, and καταγινόσκω, I condemn.

THEOCRACY, a State govern'd by the immediate Direction of God alone. See GOVERNMENT.

According to *Joſephus*, the ancient Government of the *Jews* was *Theocratic*; God himſelf ordering and directing every thing belonging to the Sovereign Authority. See JUDGE.

This *Theocracy* laſted till the Time of *Saul*; when the *Iſraelites*, weary thereof, deſir'd they might have a King like other Nations; and thence-forward the State became Monarchic.

There was alſo a kind of imaginary *Theocracy* at *Athens*: While the Sons of *Codrus* were diſputing the Succeſſion; the *Athenians*, weary'd out with the Miſeries of an inteſtine War, aboliſh'd the Royalty, and declar'd *Jupiter the only King of the People of Athens*.

The Word is form'd from ϑεὸς, God, and κράτος, Power, Empire.

THEODOLITE, a Mathematical Inſtrument, much us'd in Surveying, for the taking of Angles, Diſtances, Altitudes, *&c.* See ANGLE, *&c.*

'Tis made variouſly; ſeveral Perſons having their ſeveral Ways of contriving it each more ſimple, and portable, more accurate and expeditious, than other. The following one is not inferior to any we have ſeen: It conſiſts of a Braſs Circle, about a Foot Diameter, cut in Form of Fig. 25. Plate Surveying; having its Limb divided into 360 Degrees, and each Degree ſub-divided either diagonally, or otherwiſe, into Minutes.

Underneath, at *cc*, are fix'd two little Pillars *bb* (Fig 26.) which ſupport an Axis, whereon is fix'd a *Teleſcope*, conſiſting of two Glaſſes, in a ſquare Braſs Tube; for the viewing of remote Objects.

On the Centre of the Circle B, moves the Index C; which is a circular Plate, having a Compaſs in the Middle, whoſe Meridian Line anſwers to the Fiducial Line *aa*: at *bb* are fix'd two Pillars to ſupport an Axis, which bears a *Teleſcope* like the former, whoſe Line of Collimation anſwers to the Fiducial Line *aa*.

At each End of either *Teleſcope*, is fix'd a plain Sight for the viewing nearer Objects. See SIGHT.

The Ends of the Index *aa* are cut circularly, to fit the Diviſions of the Limb B; and when that Limb is diagonally divided, the Fiducial Line at one End of the Index ſhews the Degrees and Minutes upon the Limb. The whole Inſtrument is mounted with a Ball and Socket, upon a three-leg'd Staff.

Moſt *Theodolites* have no Teleſcopes, but only four plain Sights, two of them faſten'd on the Limb, and two on the Ends of the Index.

The *Uſe of the Theodolite* is abundantly ſhewn in that of the *Semicircle*; which is only half a *Theodolite*. See SEMICIRCLE.

And in that of the *plain Table*, which is occaſionally made to be us'd as a *Theodolite*. See PLAIN *Table*.

Note, the Index and Compaſs of the *Theodolite*, likewiſe ſerve for a Circumferentor, and are us'd as ſuch. See CIRCUMFERENTOR.

THEOGONY, that Branch of the Heathen Theology, which taught the Genealogy of their Gods. See GOD.

Heſiod gives us the ancient *Theogony*, in a Poem under that Title. Among the ancient Writers, Dr. *Burnet* obſerves, *Theogony* and *Coſmogony*, ſignify'd the ſame Thing. In effect, the Generation of the Gods of the ancient *Perſians*, Fire, Water, and Earth, is apparently no other than that of the primary Elements. See COSMOGENY; ſee alſo CHAOS.

The Word is form'd from ϑεὸς, God, and γονὴ, Geniture, Seed, Offspring.

THEOLOGY, call'd alſo *Divinity*, a Science which inſtructs us in the Knowledge of God, and divine Things; or which has God, and the Things he has reveal'd, for its Object. See GOD and DIVINITY.

Theology is a Doctrine which ſhews us what we are to think of God, and of the Manner wherein he would be ſerv'd. It is divided into two Branches, *Natural*, and *Reveal'd* or *Supernatural*.

Natural Theology, is the Knowledge we have of God from his Works, by the mere Light of Nature and Reaſon. See NATURE and REASON.

Supernatural Theology, is that which we learn from Revelation. See REVELATION.

Poſitive THEOLOGY, is the Knowledge of the holy Scriptures, and of the Signification thereof, agreeable to the Opinions of the Fathers and Councils; without the Aſſiſtance of any Argumentation. Some will have it, that this ought to be call'd *expoſitive*, not *poſitive*. See POSITIVE.

Moral THEOLOGY, is that which teaches us the divine Laws relating to our Manners. See MORAL.

Scholaſtic, or *School* THEOLOGY, is that which proceeds by Reaſoning; or that derives the Knowledge of ſeveral divine Things from ſome eſtabliſh'd Principles of Faith. See SCHOLASTIC.

The Ancients had a three-fold *Theology*; the firſt μυθικην, *Mythic*, fabulous, which flouriſh'd among the Poets; and was chiefly employ'd in the Theogony, or Genealogy of the Gods. See FABLE and FABULOUS; ſee alſo THEOGONY.

The ſecond, πολιτικην, *Political*, which was that chiefly embrac'd by the Politicians, Prieſts, and People, as moſt ſuitable and expedient to the Safety, Quiet, and Intereſt of the State.

The third, φυσικην, *Natural*, chiefly cultivated by the Philoſophers, as moſt agreeable to Nature.

The Phyſical or Natural *Theology* acknowledg'd one only ſupreme God; to which it added Dæmons, as Mediators between him and Man. See DÆMON.

The Word is compounded of ϑεὸς, God, and λογος, Diſcourſe.

THEOLOGIUM, in the ancient Theater, was a Place, or little Stage, above that whereon the ordinary Actors appear'd.

The *Theologium* was the Place where the Gods appear'd; it alſo included the Machines whereon they deſcended, and from which they ſpoke. See MACHINE.

There was a *Theologium* requir'd for the Repreſentation of the *Ajax* of *Sophocles*, the *Hippolitus* of *Euripides*, &c. Scal. Poet. lib. 1. cap. 1.

The Word is *Latin*, form'd from ϑεὸς, and λογος, Speech, Diſcourſe.

THEOPASCHITES, a Sect of Hereticks, in the Vth Century, the Followers of *Petrus Fullenſis*, or *Peter the Fuller*.

Their diſtinguiſhing Doctrine was, That the whole Trinity ſuffer'd in the Paſſion of *Jeſus Chriſt*. See PATRIPASSIANS.

This Hereſy was embrac'd by the *Eutychean* Monks of *Scythia*; who uſing their utmoſt Efforts to make it obtain, rais'd great Diſorders toward the Beginning of the following Century.

It was condemn'd at its firſt Riſe, in the Councils of *Rome* and *Conſtantinople*, held in 483: It was reviv'd in the IXth Century, and again condemn'd in a Council at *Rome*, held in 862 under Pope *Nicholas* I.

F. *Quien*, in his Notes on *Damaſcenus*, ſays, that the ſame Error had been taught before *Fullenſis*, by *Apollinarius*, whoſe Diſciples were the firſt that were call'd *Theopatites*, or *Theopaſchites*.

THEORBO, THEORBA, a Muſical Inſtrument, made in Form of a Lute; except that it has two Necks, or Juga, the ſecond and longer whereof ſuſtains the four laſt Rows of Chords, which are to give the deepeſt Sounds. See LUTE.

The *Theorbo* is an Inſtrument, which for theſe laſt ſixty or ſeventy Years, has ſucceeded to the Lute, in the playing of thorough Baſſes: 'Tis ſaid to have been invented in *France* by the Sieur *Hotteman*, and thence introduc'd into *Italy*, &c.

The only Difference between the *Theorbo* and the Lute, is, that the former has eight Baſs or thick Strings, twice as long as thoſe of the Lute; which Exceſs of Length renders their Sound ſo exceedingly ſoft, and keeps it up ſo long a Time, that 'tis no Wonder many prefer it to the Harpſichord itſelf. At leaſt it has this Advantage, that it is eaſily remov'd from Place to Place, &c.

All its Strings are uſually ſingle; tho' there are ſome who double the Baſs Strings with a little Octave, and the ſmall Strings with an Uniſon; in which Caſe, bearing more Reſemblance to the Lute than the common *Theorbo*, the *Italians* call it the *Archiluto* or *Arch-Lute*.

The Word *Theorbo* is form'd from the *French Theorbe*, of the *Italian Tiorba*, which ſignifies the ſame Thing, and which ſome will have the Name of the Inventor.

THEOREM, in the Mathematical Method, a Propoſition which terminates in Theory, and which conſiders the Properties of Things already made, or done. See THEORY and PROPOSITION.

Or, ſtrictly, a *Theorem* is a *Theoretical* Propoſition, deduc'd from ſeveral Definitions compar'd together. Thus, if a Triangle be compar'd with a Parallelogram ſtanding on the ſame Baſe, and of the ſame Altitude; and, partly, from their immediate Definitions, and, partly, from other of their Properties already determin'd, 'tis inferr'd, that the Parallelogram is double the Triangle; that Propoſition is a *Theorem*. See DEFINITION, &c.

There are two Things to be chiefly regarded in every *Theorem*, *viz.* the Propoſition and the Demonſtration: In the firſt is expreſs'd what agrees to ſome certain Thing under certain Conditions, and what does not. See PROPOSITION.

In the latter, the Reaſons are laid down, by which the Underſtanding comes to conceive that it does or does not agree thereto. See DEMONSTRATION.

Theorems are of various Kinds: *Univerſal Theorem*, is that which extends to any Quantity without Reſtriction, univerſally; as this, *That the Rectangle of the Sum and Difference of any two Quantities, is equal to the Difference of their Squares.*

Particular Theorem, is that which extends only to a particular Quantity.

Negative, is that which expreſſes the Impoſſibility of any Aſſertion; as, *That the Sum of two Biquadrate Numbers cannot make a Square.*

Local Theorem, is that which relates to a Surface; as, *That Triangles of the ſame Baſe and Altitude are equal.* See LOCAL.

A *plane Theorem*, is that which either relates to a Rectilinear Surface, or to one terminated by the Circumference of a Circle; as, *That all Angles in the ſame Segment are equal.* See PLANE.

A *Solid Theorem*, is that which conſiders a Space terminated by a ſolid Line; that is, by any of the three Conic Sections; *e.gr.* this, *That if a right Line cut two Aſymptotick Parabola's, its two Parts terminated by them ſhall be equal.* See SOLID.

A *Reciprocal Theorem*, is one whoſe Converſe is true; as, That if *a Triangle have two equal Sides, it muſt have two equal Angles*: The Converſe of which is true, *That if it have two equal Angles, it muſt have two equal Sides.* See RECIPROCAL.

THEORETIC, THEORETICAL, or THEORIC, ſomething relating to *Theory*, or that terminates in Speculation; in which Senſe the Word ſtands in Oppoſition to *Practical*.

'Tis form'd from the *Greek*, ϑεωρεω, I ſee, I contemplate.

The Sciences are ordinarily divided into *Theoretical*, as Theology, Philoſophy, &c. and Practical, as Medicine, Law, &c. See SCIENCES.

In ancient Authors, *Theoric Money* was what was rais'd by Way of Tax on the People, to defray the Expences of Theatrical Repreſentations, and other Spectacles.

There were particular Queſtors or Treaſurers of the *Theoric Money*. By a Law of *Eubulus*, it was made a capital Crime to pervert the *Theoric Money* to any other Uſe, even to employ it in the Occaſions of War.

THERORETICKS, or Theoretici, a peculiar Appellation given to an ancient Sect of Phyſicians. See Physician.

The *Theoretic Phyſicians* were ſuch as apply'd themſelves to a careful Study and Conſideration of what relates to Health and Diſeaſes; the Principles of the human Body, its Structure and Parts, with their Actions and Uſes; whatever befalls it either naturally, or preternaturally; the Differences of Diſeaſes, their Nature, Cauſes, Signs, Indications, *&c.* the Textures, Properties, *&c.* of Plants, and other Medicines, *&c.* In a Word, the *Theoretic* Phyſicians were ſuch as went on the Foot of Reaſon; in Oppoſition to the *Empirical Phyſicians*, who went wholly on Experience. See Medicine.

The Word is form'd from the *Greek*, θεωρέω, I ſee.

THEORICAL *Aſtronomy*, is that Part of Aſtronomy which conſiders the true Structure and Diſpoſition of the Heavens, and heavenly Bodies; and accounts for their various Phænomena therefrom. See Astronomy.

It is thus call'd in Oppoſition to that Part which conſiders their apparent Structure, or their Diſpoſition as view'd by the Eye, which is call'd *Spherical Aſtronomy*. See Spherical.

The ſeveral Parts of *Theorical Aſtronomy*, ſee under System, Sun, Star, Planet, Earth, Moon, Satellite, Comet, *&c.*

THEORY, a Doctrine which terminates in the ſole Speculation or Conſideration of its Subject, without any View to the Practice, or Application thereof.

To be learn'd in an Art, *&c.* the *Theory* ſuffices; To be a Maſter of it, both the *Theory* and Practice are requir'd.

Machines, many times, promiſe well in the *Theory*, yet fail in the Practice. See Machine.

Theories *of the Planets*, *&c.* are Hypotheſes, according to which the Aſtronomers explain the Reaſons of the Phænomena or Appearances thereof. See Hypothesis.

THERAPEUTES, or Therapeutæ, a *Greek* Term, ſignifying a Servant wholly employ'd in the Service of God.

The *Greeks* gave the Appellation *Therapeutes* to ſuch as apply'd themſelves to a contemplative Life, whether it were from the great Concern they had for their Souls, or from the particular Mode and Manner of their Religion; the Word θεραπεύειν, whence *Therapeutes*, ſignifying the Care a Phyſician takes of his Patient, and the Service any one renders another.

Philo, in his firſt Book of the contemplative Life, relates, that there were a People ſpread throughout moſt of the known World, but particularly throughout *Ægypt*, and about *Alexandria*, who renounc'd their Friends, their Effects, *&c.* and who, after diſcharging themſelves of all Temporal Concerns, retir'd into ſolitary Places, where they had each their ſeparate Place, call'd a *Semnee*, or Monaſtery. See Monastery.

He adds, that they there reſign'd themſelves wholly to the Exerciſes of Prayer and Contemplation, were continually as in the Preſence of God, pray'd Mornings and Evenings, eat nothing till after Sun-ſet, and many of them not above once in three, or even ſix Days; nor then any thing but a Piece of Bread ſeaſon'd with Salt, or, at beſt, with Hyſſop.

They carry'd nothing with them into their Semnee but the Books of *Moſes*, the Prophets, the Pſalms, and other like Writings, wherein they ſought for Myſtical and Allegorical Meanings, from a Perſuaſion that the Scriptures were only Shadows or Figures, the hidden Meanings whereof were to be unfolded.

They had alſo ſome Books left them by the Founders of their Sect: They met together every ſeventh Day in a large Semnee, to confer together, and partake of the Myſteries.

There are two Points relating to theſe *Therapeutes*, exceedingly controverted among the Criticks, *viz.* 1°. Whether they were *Jews* or Chriſtians; and 2°. If they were the latter, whether they were Monks or Laymen.

As to the firſt, *Scaliger de Emend. Temp.* maintains, they were *Eſſene-Jews*; but *Valeſius* on *Euſebius* rejects this Opinion of *Scaliger*, 1°. Becauſe *Philo* never calls them *Eſſenes*. 2°. Becauſe there were no Eſſenes but in the Holy Land; whereas the *Therapeutæ* were ſpread thro' *Greece*, and all the barbarous Nations. 3°. Becauſe *Joſephus*, who gives a very ample Account of the Eſſenes, does not ſay one Word of the *Therapeutæ*, or the *Therapeutic Life*. See Essene.

And yet *Valeſius* takes them to be *Jews*; and *Photius* is of his Opinion: The chief Reaſons *Valeſius* gives are what *Philo* ſays, That they read nothing but the Law and the Prophets. 2°. That they had ſome Books of their Founders; And how can this quadrate with the Chriſtians, who were then in their firſt Riſe? 3°. That they only pray'd twice a Day, whereas the Chriſtians then pray'd much oftner. 4°. That the Chriſtians had no Hymns or Pſalms till after the Time of *Antoninus*. Laſtly, That the Chriſtians could not be ſpread over the World.

And yet *Euſebius*, lib. II. Hiſt. Eccl. c. 17. S. *Jerom*, *Sozomen*, *Nicephorus*, *Baronius*, *Petavius*, M. *Godeau*, *Montfaucon*, &c. maintain them to have been Chriſtians; urging, that nothing can be more conformable to the Practices of the Church, than the Account given of them by *Philo*; that thoſe Books of their Founders are the Goſpels, and other Writings of the Apoſtles; and that there are Indications even of Biſhops and other Miniſters among them.

M. *Bohier*, Preſident of the Parliament of *Dijon*, refutes this Opinion; ſuppoſing it inconſiſtent in *Philo*, a *Jew*, to write a Book expreſsly in Praiſe of the Chriſtians.

Yet ſeveral Authors, as *Caſſian*, F. *Helyot*, &c. maintain, that the *Therapeutes* were not only Chriſtians, but that they were alſo Religious: And, in effect, M. *Bohier* allows, that if they were Chriſtians, they muſt be confeſs'd to have been Monks. As to his Argument, that *Philo* would never have wrote a Panegyric on the Chriſtians, 'tis anſwer'd, that they were People of his own Nation, *Jews*, as he himſelf expreſſes; and that he only look'd on them as a Sect of *Jews*, who, by their extraordinary Virtue, did Honour to his Nation.

But tho' the Chriſtianity of the *Therapeutes* appears probable enough; yet their Monachiſm is not made out at all.

THERAPEUTICE, Therapeuticks, that Part of Medicine which is employ'd in ſeeking out Remedies againſt Diſeaſes, and in preſcribing and applying them to effect a Cure. See Medicine.

Therapeutice teaches the Uſe of Diet, Pharmacy, Chirurgery, and the *Methodus Medendi*. See Diet, Medicines, Prescription, *&c.*

The Word is form'd from the *Greek*, θεραπεύειν, to attend, to cure, *&c.*

Therapeutice is alſo apply'd, figuratively, to the Mind, and to Diſcourſes made to correct the Errors and Defects thereof.

Such is the *Therapeutice* of *Theodoret*; being a Treatiſe againſt the Errors or unwholſome Opinions of the *Greeks*, *i. e.* the Heathens.

THERAPHIM, a *Hebrew* Term, which has given great Torture to the Criticks.

We meet with it 13 or 14 times in Scripture; where 'tis commonly interpreted *Idols*; but the Rabbins are not contented to have it ſimply ſignify Idols, it muſt be Idols, or Images for the Knowledge of Futurity, *i. e. Oracles*.

R. *David de Pomis* obſerves further, that they were call'd *Theraphim*, from רפה, *Raphah*, to leave, becauſe they quitted every thing to conſult them. He adds, that the *Theraphim* were in human Shape, and that when raiſed upright, they ſpoke, at certain Hours, and under certain Conſtellations, by the Influence of the celeſtial Bodies.

This is a Rabbinical Fable, which he has learnt from *Abenezra*.

Others hold, that the *Theraphim* were brazen Inſtruments which pointed out the Hours and Minutes of future Events, as directed by the Stars. *De Pomis* corrects *Abenezra*, ſaying, that the *Theraphim* being made under a certain Conſtellation, the Devil made them ſpeak under the ſame.

R. *Eliezer* tells us the Reaſon why the Rabbins will have the *Theraphim* to ſpeak and render Oracles: 'Tis, ſays he, becauſe it is written in the Prophet *Zachary*, x. 2. The *Theraphim* ſpeak vain Things.

The ſame Rabbi adds, that to make the *Theraphim*, they kill'd a firſt-born Child, clove his Head, and ſeaſon'd it with Salt and Oil; that they wrote on a Plate of Gold, the Name of ſome impure Spirit, laid it under the Tongue of the Dead; placed the Head againſt the Wall, lighted Lamps before it, pray'd to it; and it talk'd with them.

Be this as it will, *Vorſtius* obſerves, that beſide the Paſſage of *Zachary* juſt quoted, it appears likewiſe from *Ezekiel* xxi. 21. that the *Theraphim* were conſulted as Oracles.

De Pomis ſhews, that the *Theraphim* which *Michal* put in *David*'s Bed, were not of this Kind, becauſe they were not in the Figure of Men; but R. *Eliezer* is of another Sentiment.

As to the manner of making the *Theraphim*, *Vorſtius* takes it to be a vain Tradition of the Rabbins; though R. *Tanchuma* and *Jonathan*, in his *Targum*, *Gen.* xxxi. 21. relate it after R. *Eliezer*. The chief Reaſon of his Disbelief, is, that *Laban*, who had not quite loſt all Notion of the true God, as appears from *Gen.* xxxi. 53. could not be guilty of ſo great a Cruelty; but *Vorſtius* does not conſider that the Cuſtom might not be leſs real, for its not having been eſtabliſh'd ſo early as *Laban*; and that the *Hebrews* ſometimes burnt their Children to *Moloch*.

F. *Kircher* directs us to ſeek the Origin of the *Theraphim* in *Egypt*; adding, that the Word is *Egyptian*.

Spencer, in his Diſſertation on the *Urim* and *Thummin*, maintains the Word to be *Chaldee*, and to ſignify the ſame with Seraphim; the *Chaldeans* being frequently known to change the ש into ת, that is, the *ſ* into *t*. He adds, that thoſe Images were borrowed from the *Amorites*, the *Chaldeans* or *Syrians*; and that the Serapis of the *Egyptians* is the ſame thing with the *Teraphim* of the *Chaldeans*. See *Selden. de Diis Syriis.*

THERIACA, *Treacle*, in Medicine, a Name the Ancients have given to various Compoſitions, eſteem'd good againſt Poiſons; but now generally reſtrained to what, by way of Diſtinction, we ſometimes call *Theriaca Andromachi.* See ALEXIPHARMACHIC.

This is a Compound of no leſs than 64 Drugs, prepared, pulverized and reduced, by means of Honey, into a liquid Electuary.

The Baſis, or Foundation of the Compoſition, is Vipers Fleſh. M. *Charas* has wrote a particular Hiſtory of the Animals, Plants and Minerals, which enter the Compoſition of this fam'd Remedy.

'Tis found ſoveraign againſt the Bites of venomous Beaſts, and in the Wind-cholic; and is alſo uſed in intermitting Fevers, and in Caſes requiring Perſpiratives and Diaphoreticks; alſo in continual Fevers, eſpecially ſuch as are malignant, and where the Pulſe is low and ticking; in the Small-pox and Meaſles: And, as moſt of the Ingredients thereof, are very hot, for all Diſeaſes, where the natural Heat is weak and languid.

Andromachus, *Nero*'s Phyſician, paſſes for the Inventor of the *Theriaca*; at leaſt, 'twas he gave the firſt Deſcription thereof in Elegiac Verſes; his Son did the ſame in Proſe, and *Democrates* in Iambics.

Anciently, the *Treacle* made at *Venice* had all the Vogue; and many ſtill retain the ancient Prejudice; but 'tis now prepared at *Montpellier*, at *Paris*, and even at *London*, with as much Advantage as at *Venice*.

There is another vulgar kind of *Theriaca*, call'd *Diateſſaron*, becauſe only conſiſting of four Ingredients.

Treacle Water and *Treacle Vinegar* are found good Preſervatives againſt putrid Air, whether by being only ſmelt at, or by rubbing the Wriſts, Temples, and Noſe therewith.

THERMÆ, ancient Buildings, deſtined for Bathing in. See BATH.

Among the nobleſt Monuments of ancient *Rome* are reckon'd the *Thermæ* or Baths of *Diocleſian*.

Among us, *Thermæ* is reſtrain'd to ſuch Baths as are hot.

The Word is form'd from the *Greek*, θερμος, hot.

Thermæ, 'tis commonly argued, owe their Heat to a Colluctation, or Effervesſcence of the Minerals in them. Though Dr. *Woodward* aſcribes it to the ſubterraneous Heat, or Fire which communicates with them by ſome Spiracle or Canal whereby a greater Quantity of Heat is derived thither, than to ordinary Springs. See MINERAL and WATER.

THERMOMETER, THERMOMETRUM, an Inſtrument ſhewing, or rather meaſuring, the Increaſe and Decreaſe of the Heat and Cold of the Air. See HEAT, AIR, &c.

The *Thermometer* and *Thermoſcope*, are ordinarily accounted the ſame thing; *Wolfius*, however, makes a Difference; and ſhews that what we call *Thermometers*, are, in reality, no more than *Thermoſcopes*. See THERMOSCOPE.

There are various Kinds of *Thermometers*; the Conſtructions, Defects, Theories, &c. whereof, are as follow:

Conſtruction of a THERMOMETER, *depending on the Rarefaction of the Air.*

In a Tube B C, (Tab. Pneumaticks Fig. 3.) to which is faſten'd a Glaſs Ball A B, is put a Quantity of common Water mix'd with Aqua Regia, to prevent its freezing; and the Mixture ting'd with a Solution of Vitriol to give it a Greenneſs. In filling the Tube, Care is taken that there be ſo much Air left in the Ball and the Tube, as that when at its greateſt Condenſation in the middle of Winter, it may juſt fill the Ball; and yet in its greateſt Rarefaction in Summer, may not drive all the Liquor out of the Tube. To the other Extreme of the Tube, is faſten'd another Glaſs Ball C D, open to the Air at D: On each Side the Tube is applied the Scale E F, divided into any Number of equal Parts.

Now, as the ambient Air becomes warmer, the Air in the Ball and the Top of the Tube, expanding, will drive the Liquor into the lower Ball, and conſequently its Surface will deſcend; on the contrary, as the ambient Air grows colder, that in the Ball becoming condenſed, the Liquor will aſcend. See RAREFACTION and CONDENSATION.

Conſtruction of the Mercurial THERMOMETER.

In the ſame Manner, and with the ſame Caution as before, put a little Quantity of Mercury, not exceeding the Bigneſs of a Pea, into a Tube B C (Fig. 4.) thus bent with Wreaths, that, taking up the leſs Height, it may be the more manageable and leſs liable to Harm; divide this Tube into any Number of equal Parts to ſerve for a Scale.

Here the Approaches of the Mercury towards the Ball A will ſhew the Increaſes of the Degree of Heat. The Reaſon is the ſame, as in the former.

The Defect of both the Inſtruments conſiſts in this, that they are liable to be acted on by a double Cauſe: For, not only a Decreaſe of Heat, but alſo an Increaſe of Weight of the Atmoſphere, will make the Liquor riſe in the one, and the Mercury in the other; and, on the contrary, either an Increaſe of Heat, or Decreaſe of Weight of the Atmoſphere will make it deſcend. See BAROMETER.

Conſtruction of the Florentine or common THERMOMETER.

The *Academiſts del Cimento*, conſidering the Inconveniences of the *Thermometers* juſt deſcribed; attempted another, that ſhould meaſure Heat and Cold, by the Rarefaction and Condenſation of Spirit of Wine; though that be vaſtly leſs than that of Air; and, conſequently, the Alterations in the Air like to be much leſs ſenſible.

The Structure of their *Thermometer* is this: On ſome little Pieces of Turmeric is pour'd a Quantity of rectified Spirit of Wine, which hereby receives a red Tincture; this done, the Spirit of Wine is filtrated again, and again through a brown Paper, that the coarſer Particles of the Root may be ſeparated therefrom. With the Spirit thus tinged and prepared, they fill a Glaſs Ball A B (Fig. 5.) with a Tube B C; and that all the Spirit mayn't deſcend in Winter into the Ball, 'tis convenient to put the Ball into a Lump of Snow, mix'd with Salt: Or, if the Inſtrument be to be made in Summer, into Spring Water, impregnated with Salt-petre; that the condenſed Spirit may ſhew how far it will retire in the extremeſt Cold.

If it be ſtill at too great a Diſtance from the Ball, part of it is to be taken out; and that the Tube mayn't be made longer than needs, 'tis convenient to immerge the Ball, fill'd with its Spirit, in boiling Water; and to mark the furtheſt Point to which the Spirit then riſes.

At this Point the Tube is to be hermetically ſeal'd, by the Flame of a Lamp; and at the Sides, is to be added a Scale, as in the former *Thermometer*.

Now, Spirit of Wine rarifying and condenſing very conſiderably; as the Heat of the ambient Air increaſes, the Spirit will dilate, and, conſequently, will aſcend in the Tube; and as the Heat decreaſes, the Spirit will deſcend; and the Degree or Quantity of Aſcent and Deſcent will be ſeen in the Scale. Yet as the *Ratio* of yeſterdays Heat, to to-days, is not hereby diſcovered, this Inſtrument is not ſtrictly a *Thermometer*, no more than the former.

It is to be here obſerved, 1°. That as the natural Gravity of the Liquor makes it tend downwards; ſo it reſiſts its Aſcent out of the Ball into the Tube; and that the more, as it riſes higher: For which reaſon, 'twere beſt to have the Tube B C Horizontal.

2° Since there muſt of Neceſſity be ſome Air left in the void Part of the Tube over the Liquor; that Air, by its Elaſticity, will tend downwards, and, of conſequence will reſiſt the Riſe of the Liquor, and be compreſs'd by it as it does riſe: Its Elaſticity, therefore, is thus increaſed.

3° Since 'tis found from Experience, that a leſs Degree of Heat is communicated more eaſily to the Spirit of Wine in the Ball, than a greater; the Rarefactions of the Spirit of Wine are not proportionable to their Producing-Cauſes; eſpecially ſince a greater Degree of Heat finds more Liquor in the Tube than a leſs does, to which, notwithſtanding, the Heat may be more eaſily communicated, than to that ſtagnating in the Ball.

On theſe Accounts, the *Florentine Thermometer*, though that commonly in Uſe, is far from being an accurate Meaſure of Heat, &c. to which may be added what Dr. *Halley* obſerves in the *Philoſophical Tranſactions*, that he has learnt from thoſe who have kept Spirit of Wine long, that it loſes Part of its expanſive Force, in Courſe of Time.

Various Methods have been propoſed by various Authors, for finding a fix'd Point, or Degree of Heat and Cold, from which to account the other Degrees, and adjuſt the Scale; that ſo Obſervations made at the ſame or different Times, in different Places, may be compared together.

Some note the Place the Liquor is at in Winter, when Water begins to freeze; and again, that in Summer, when Butter placed near the Ball of the Microſcope, melts: The intermediate Space they divide into two equal Parts, the middle Point whereof anſwers, in their Graduation, to temperate Heat; and each Moiety they ſub-divide into ten Degrees: Adding four other equal Degrees on each of the two Extremes. But this Method ſuppoſes the ſame Degree of Heat and Cold, to anſwer to the freezing of all Water, and the melting of all Butter; as alſo, that all *Thermometers* receive the ſame Impreſſions from the ſame Degree of Heat; all which are contrary to Experience.

Others adviſe the Ball of the *Thermometer* to be put in a Quantity of Snow and Salt, and the Point the Liquor is at to be noted. Thence, the *Thermometer* is to be removed into a deep Cave or Cellar, whither no external Air reaches; ſo that the Liquor receiving the Action of a temperate Air, may ſhew the Degree of temperate Heat. Laſtly, they divide the intermediate Space into 15, or more equal Parts, which they continue beyond each Extreme: But this Method is liable to the like Inconveniences as the former.

Dr. *Halley* aſſumes That for a fix'd Degree of Heat, wherein Spirit of Wine begins to boil; but there is Reaſon to ſuſpect this, too, of being precarious: Though after him, M. *Amontons* retains the Degree of Heat, anſwering to boiling Water, for the graduating his mercurial *Thermometer*. But as the different ſpecific Gravities of Water, argue a Difference of Maſs and Texture; 'tis highly probable that Heat of all boiling Waters is not the ſame: So that the Point is yet undetermined.

THERMOSCOPE, an Inſtrument ſhewing the Changes happening in the Air, with reſpect to Heat and Cold. See AIR, WEATHER, &c.

The Word *Thermoſcope* is generally uſed indifferently, with that of *Thermometer*. There is ſome Difference, however, in the literal Import of the two Words; the firſt ſignifying an Inſtrument that ſhews, or exhibits the Changes of Heat, &c. to the Eye; form'd from θερμὴ, Heat, and σκοπέω, *video*, I ſee; and the latter an Inſtrument that meaſures thoſe Changes; from θερμὴ, Heat, and μέτρειν, to meaſure: on which Foundation the Thermometer ſhould be a more accurate *Thermoſcope*, &c.

This Difference the excellent *Wolfius* taking hold of, deſcribes all the *Thermometers*, in uſe, as *Thermoſcopes*; ſhewing that none of them properly meaſure the Changes of Heat, &c. none of them do more than indicate the ſame. Though their different Heights yeſterday and to-day, ſhew a Difference of Heat; yet ſince they don't diſcover the *Ratio* of yeſterday's Heat to to-days, they are not, ſtrictly, Thermometers. See THERMOMETER.

In the *Acta Erudit. Lipſ.* we have a Method of graduating the common Thermometers ſo, as that the unequal Diviſions thereof ſhall correſpond to equal Degrees of Heat; whereby the *Ratio* of to-day's Heat to yeſterday's, will be meaſured, and, conſequently, the *Thermoſcope* improved into a Thermometer.

The Method is that of *Car. Renaldinus*, and is deſcribed by the *Leipſic* Editors thus: Take a ſlender Tube about four Palms long, with a Ball faſten'd to the ſame; pour into it Spirit of Wine, enough juſt to fill the Ball when ſurrounded with Ice, and not a Drop over. In this State, ſeal the Orifice of the Tube Hermetically; and provide ſix Veſſels, each capable of containing a Pound of Water, and ſomewhat over; and into the firſt, pour 11 Ounces of warm Water, into the ſecond 10 Ounces, into the third 9, &c. This done, immerge the Thermometer in the firſt Veſſel, and pour into it one Ounce of hot Water; obſerving how high the Spirit riſes in the Tube, and noting the Point with Unity: then remove the Barometer into the ſecond Veſſel, into which is pour'd two Ounces of hot Water, and note the Place the Spirit riſes to, with 2. By thus proceeding till the whole Pound of Water is ſpent, the Inſtrument will be found divided into 12 Parts, denoting ſo many Terms or Degrees of Heat: So that at 2, the Heat is double that at 1, at 3 triple, &c.

But the Method, though plauſible, *Wolfius* ſhews is deceitful; and is built on falſe Suppoſitions: For it takes for granted, that we have one Degree of Heat, by adding one Ounce of hot to 11 of cold Water; two Degrees, by adding two Ounces to 10, &c. It ſuppoſes that a ſingle Degree of Heat acts on the Spirit of Wine in the Ball with a ſingle Force, a double with a double Force, &c. Laſtly, it ſuppoſes, that if the Effect be produced in the Thermometer by the Heat of the ambient Air which is here produced by the hot Water, the Air has the ſame Degree of Heat with the Water.

But none of theſe Suppoſitions is true: For, as to the Firſt; allowing the Heat of the hot Water, equally diſtributed through the Cold; one Degree of Heat will then be diſtributed through 11 Parts, two through 10, three through 9, &c. Taking, therefore, equal Bulks of the Water, *e. gr.* a twelfth Part of each, the Heat will not be double in one, triple in another, quadruple in another, &c.

The firſt Suppoſition, therefore, is erroneous; and ſo is the Second: For neither is the Heat of the hot Water equably diffuſed throughout the cold; nor does the Heat of the hot Water act uniformly on the Spirit of Wine; *i. e.* not with the ſame Force, all the time of its Action.

For the third Suppoſition; the Heat of the ambient Air acts not only on the Spirit of Wine in the Ball, but alſo on that in the Tube; and therefore this, as well as that, will be changed.

THESEA, THESÆA, in Antiquity, Feaſts celebrated by the *Athenians*, in Honour of *Theſeus*. See FEAST.

In ſpight of the important Services that *Hero* had done his Country, in delivering it from a ſhameful Tribute of ſo many Youths of either Sex, ſent yearly to be devour'd by the *Minotaur* in *Crete* (as the Fable has it) or ſent as Slaves to *Minos* King of *Crete*, as the Hiſtories have it; from which he freed them, by overcoming *Taurus*, *Minos*'s General: He was baniſh'd for ſome time; and retired to *Scyro*, under the Protection of *Lycomedes*, King of that Iſland; who ſlew him out of Jealouſy.

The Gods revenged this Treatment *Theſeus* received from the *Athenians*, by afflicting them with a Famine, which the Oracle aſſured them ſhould not ceaſe, till they had avenged his Death.

Upon this, they ſlew *Lycomedes*, brought *Theſeus*'s Bones to *Athens*, placed them in a Temple erected to him, and appointed *Theſea* to be held every Eighth Day of each Month; wherein Largeſſes were diſtributed to the People, and the Day ſpent by the Rich in Feaſting and Rejoicing.

THESIS, in the Schools, a general Propoſition, which a Perſon advances, and offers to maintain.

The Word is pure *Greek*, θέσις, *Poſition*. In the Colleges, 'tis frequent to have Placards, containing a Number of theſe *Theſes*.

There are *Theſes* in Theology, in Medicine, in Philoſophy, in Law, &c. The maintaining a *Theſis*, is a great Part of the Exerciſe a Student is to undergo for a Degree. See DEGREE.

THESIS, in Logic, &c. every Propoſition is divided into a *Theſis* and *Hypotheſis*: *Theſis* contains the Thing affirmed or denied; and the Hypotheſis the Conditions of the Affirmation or Negation: Thus, in *Euclid*, *If a Triangle, and Parallelogram have equal Baſes and Altitudes*, (is the Hypotheſis) the Firſt is half of the Second; the *Theſis*. See HYPOTHESIS.

THEURGY, THEURGIA, a Name which the Ancients gave to that Part of Magic, which we ſometimes call *white Magic*, or the white Art. See MAGIC.

The Word is form'd from the *Greek*, Θεὸς, God, and ἔργον, Work, *q. d.* the Art of doing divine Things, or Things which God alone can do; or the Power of working extraordinary and ſupernatural Things by lawful Means, as by Prayer, Invocation of God, &c.

Accordingly, thoſe who have wrote of Magic in the general, divide it into three Parts; the firſt whereof is call'd *Theurgy*, as operating by divine or cœleſtial Means; the ſecond, *Natural Magic*, perform'd by the Powers of Nature; and the third, *Necromancy*, which proceeds by invoking Dæmons. See NECROMANCY, &c.

THIGH, a Part of the Body of Men, Quadrupeds, and Birds, between the Leg and the Trunk. See LEG, &c.

The ſeveral Parts of the *Thigh* have different Names: The fore and upper Part is call'd the *Groin*, or *Inguen*; the Side, the *Hanch*, or *Hip*, *Coxa*, *Coxendix*; the upper hind Part the *Buttock*, *Clunis*; the lower and hind Part the *Ham*, *Poples*, of *poſt* and *plico*, becauſe it bends backwards; and the fore Part the *Knee*, *Genu*, of the *Greek* γόνυ, Angle.

The Bone of the *Thigh* is the largeſt and ſtrongeſt in the whole human Body, as being to bear the whole Burthen thereof; whence its Name *femur*, of *fero*, I bear. See FEMUR.

THINKING, *Cogitation*, a general Name for any Act or Operation of the Mind. See MIND and THOUGHT.

Chauvin, with the *Carteſians*, will have *Thinking* to conſiſt in a certain native inherent Motion or Agitation of the human Mind, whereof itſelf is conſcious. — *Native* and *Inherent*, ſince he conceives it no other than the very Eſſence of the Mind itſelf, or, at leaſt, its principal and fundamental Property; —An *Agitation*, ſince there is a new Modification or Change made in the Mind, which we ſcarce know to conceive without Motion; add, that the Origin and Etymology of the Word Cogitation, according to *Varro* and *Feſtus*, implies as much; *cogito* being us'd for *coagito*.

When the Mind turns its View inwards, upon itſelf, the firſt Idea that offers, ſays Mr. *Lock*, is *Thinking*; wherein it obſerves a great Variety of Modifications, and thereof frames to itſelf diſtinct Ideas: Thus the Perception annex'd to any Impreſſion on the Body made by an external Object, is call'd *Senſation*. See SENSATION.

When an Idea recurs without the Preſence of the Object, 'tis call'd *Remembrance*. See MEMORY.

When ſought after by the Mind, and brought again in View, 'tis call'd *Recollection*. See RECOLLECTION.

When held there long under attentive Conſideration, it is *Contemplation*. See CONTEMPLATION.

When Ideas float in the Mind without Regard or Reflection, 'tis call'd a *Revery*: When they are taken expreſs Notice of, and, as it were, regiſter'd in the Memory, it is *Attention*: And when the Mind fixes its View on any one Idea, and conſiders it on all Sides, it is *Study* and *Intention*. See ATTENTION, STUDY, &c.

Theſe are the moſt obvious Modes of *Thinking*; but there are ſeveral others which we know of; and, doubtleſs, the Mind is capable of infinite others, whereof we have no Notion at all. See MODE.

The School Philoſophers uſually divide *Thinking*, with Regard to the Objects it is employ'd about, into *Underſtanding, Intellectio*; and *Willing, Volitio*. See UNDERSTANDING and WILLING.

And hence, thoſe are ſaid to be two Powers or Faculties of the human Mind. See POWER.

Intellectual *Thinking* is further ſub-divided into divers Kinds: The firſt, when the Mind merely apprehends or takes Notice of a Thing, call'd *Perception*: The ſecond, when it affirms or denies a Thing, call'd *Judgment*: The third, when it gathers or infers a Thing from others given, call'd *Reaſoning*: The fourth, when the Mind diſpoſes its own Thoughts or Ideas in Order, call'd *Method*. See PERCEPTION, JUDGMENT, REASONING, and METHOD.

Volitive Knowledge, or Volition, admits of infinite different Modifications, or new Determinations. See VOLITION.

Some Authors extend the Idea of *Thinking* further; and conſider it in God, Angels, Brutes, &c. whence a new Diviſion of *Thinking* into *Divine*, *Angelical*, *Human*, and *Animal* or *Senſitive*.

But the two firſt we know little or nothing of. See GOD and ANGEL.

The third is that we have already been treating of. As to the laſt, *viz. Animal* or *Senſitive Thought*, it is defin'd to be an Action of the Soul attending to an external Object, effected by means of the Animal Spirits duely agitated in the Brain, to excite an Idea. See SPIRITS; ſee alſo KNOWLEDGE, &c.

The *Carteſians* maintain, that *Thinking* is eſſential to the human Soul; and, conſequently, that there is no Time when the Soul does not *think*: But this Doctrine is overturn'd by Mr. *Lock*, who ſhews, that in Sleep, without Dreaming, there is an entire Ceſſation of all the Modes of *Thinking*. See IDEA.

I think, *cogito*, according to *des Cartes*, is the firſt, and ſureſt of all Truths; from which alone we draw this Conſequence, *therefore I am*, or exiſt, *ſum*.

One might alſo ſay, *Cogito, ergo Deus eſt*; I think, therefore there is a God. See EXISTENCE.

Logic is defin'd the Art of *Thinking* juſtly. See LOGIC.

THIRD, *Tertius*, See NUMBER, and NUMERATION.

THIRD, in Muſic, a Concord reſulting from a Mixture of two Sounds, containing an Interval of two Degrees. See CONCORD.

'Tis call'd a *Third*, as containing *three* Terms, or Sounds between the Extremes. See INTERVAL.

The *Third*, in *Italian*, *Terza*, in *French Tierce*, in *Latin Tertia*, has no general Name in the *Greek*: 'Tis the firſt of the imperfect Concords; *i. e.* of ſuch as admit of Majority and Minority, without ceaſing to be Concords.

And hence it is, that it is diſtinguiſh'd into two Kinds.

The firſt, which the *Italians* call *Ditono*, (from the *Greek Ditonon*) or *Terza Maggiore*, and we *greater Third*, is compos'd diatonically of three Terms or Sounds, containing two Degrees or Intervals; one whereof, in the ancient Syſtem, is a greater Tone, and the other a leſſer Tone; but in the modern temperate Syſtem they are both equal, as *ut*, *re*, *mi*, or *ut*, *mi*. See DEGREE, TONE, SEMITONE, &c.

Chromatically it is compos'd of four Semitones; two whereof are greater, and the *third* leſs: It takes its Form from the Ratio ſeſqui-quarta 4 : 5.

The ſecond *Third*, which the *Italians*, like the *Greeks*, call *Trihemituono*, or *Semi-ditano*, or *Terza minore*, and we *leſſer Third*, is compos'd, like the former, of three Sounds or Terms, and two Degrees or Intervals: But theſe Degrees, diatonically, are only a greater Tone, and a Semitone; and chromatically of three Tones, two greater, and one leſs, as *re*, *mi*, *fa*, or *re*, *fa*: It takes its Form from the Ratio Seſqui-quinta 5 : 6.

Both theſe *Thirds* are of admirable Uſe in Melody, and make, as it were, the Foundation and Life of Harmony. See MELODY and HARMONY.

They are us'd agreeably both aſcending and deſcending; and that either in running over all the Degrees, as *ut*, *re*, *mi*, or *re*, *mi*, *fa*, or in skipping the middle Degree, as *ut*, *mi*, or *re*, *fa*.

But it is to be obſerv'd, the *greater Third* has ſomewhat gay and ſprightly in riſing, and ſomewhat heavy and melancholic in falling: The *leſſer Third*, on the contrary, has ſomewhat ſoft and tender in riſing, and ſomewhat brisk in falling.

For the Uſe of the greater or leſſer Third *in the Series of the Scale*. See SCALE.

There are two other Kinds of *Thirds* that are diſſonant and vicious; the firſt only compos'd of two greater Semitones, and, by Conſequence, of a Semitone leſs than the *leſſer Third*: This they call the *defective Third*.

The ſecond, on the contrary, has a Semitone more than the *greater Third*; and this they call *redundant Third*.

The defective *Third* is very frequent in *Italian* Songs, eſpecially thoſe compos'd for Inſtruments; but is not to be us'd without Neceſſity, and a deal of Diſcretion. The redundant *Third* is abſolutely forbidden.

THIRD-*Point*, or *Tierce-Point*, in Architecture, the Point of Section in the Vertex of an Equilateral Triangle.

Arches or Vaults of the *Third Point*, call'd by the *Italians da terzo Acuto*, are thoſe conſiſting of two Arches of a Circle, meeting in an Angle a-top. See ARCH.

THIRD *Eſtate*. See ESTATE.

THIRD *Order*, a Sort of Religious Order, that obſerves the ſame Rule, and the ſame Manner of Life, in Proportion, as ſome other two Orders inſtituted before. See ORDER.

The *third Orders* are not originally Religious Orders, but Aſſociations of ſecular, and even marry'd Perſons, who conform, as far as their Condition will allow them, to the Deſign, Intention, and Rules of a Religious Order which aſſociates and directs them.

The *Premonſtrantes*, *Carmelites*, *Auguſtines*, and *Franciſcans* diſpute among themſelves the Honour of having firſt introduc'd *third Orders*; But the Pretenſions of theſe laſt appear to be the beſt founded.

The firſt contend that the *third Order* of *Premonſtrantes* began in the Life-time of their Founder, *S. Norbert*, who dy'd in 1134. See PREMONSTRANTES.

F. *Diego de Coria Maldonado*, a *Spaniſh Carmelite*, who has a particular Treatiſe on the *third Order* of *Carmelites*, derives them immediately, as well as the *Carmelites* themſelves, from the Prophet *Elias*; and among the great Men who have made Profeſſion of that *third Order*, reckons the Prophet *Obadiah*, who liv'd 800 Years before Chriſt; and among the Women, our Saviour's Great Grandmother, under the borrow'd Name of St. *Emerentiena*. This *Obadiah*, he ſays, was Controller-General of the Houſe of K. *Ahab*, mention'd in the 1ſt Book of *Kings*, cap. xviii. and Diſciple of the Prophet *Elijah*. After ſerving that Prince, and his Succeſſors, he retir'd to ſerve God, and enter'd the Prophetic Order of *Elijah*, but without quitting his Houſe, his Wife, or Children.

The Author adds, that he was not properly of the *third Order*, but of the *ſecond*, which conſiſted of marry'd People, and was call'd the Order of Eunuchs, under the Direction of *Elijah*. Such, according to him, is the Foundation of the *third Order* of *Carmelites*. See CARMELITE.

F. *Helyot* ſhews, that this *third Order* was not begun till the Year 1476, when *Sixtus* IV. gave Permiſſion to the Prior and Provincials of the *Carmelites*, to give the regular Habit and Rule of their Order, to People of both Sexes, marry'd or unmarry'd, living at Liberty in the World. *De Coria* reckons S. *Louis*, King of *France* in the *third Order* of the *Carmelites*.

The *third Order* of *Auguſtins*, if we credit F. *Bruno*, was inſtituted by St. *Auguſtin* himſelf: But the Arguments he produces are ſo frivolous, that F. *Helyot* obſerves, they are not worth the refuting.

The *third Order* of *Franciſcans* was inſtituted by S. *Francis* in 1221, in Favour of People of both Sexes, who being ſmitten with the Preachings of that Saint, demanded of him an eaſy Manner of living a Chriſtian Life: Upon which he gave them a Rule, the Conſtitutions whereof are not now extant as wrote by himſelf, but only as reduc'd and confirm'd by Pope *Nicholas* IV. 68 Years afterwards.

The firſt Order of this Saint are the Monks call'd *minor Friars*, comprehending the *Cordeliers*, *Capuchins*, and *Recollects*; the ſecond comprehends the Nuns of S. *Clare*; and the third ſeveral Perſons of both Sexes, who live at Liberty, and theſe are what we call the *third Order*.

Of this Order, which was only eſtabliſh'd for ſecular Perſons, ſeveral of both Sexes, to attain the greater Perfection, have ſince commenc'd *Religious*, and form'd various Congregations, under various Names, as *Religious Penitents of the third Order*, &c.

THIRD *Earing*, in Husbandry, the Tilling or Ploughing of the Ground a third Time.

THIRD *Borow*, in our ancient Law Books, denotes a Conſtable. See CONSTABLE.

THIRD-*night-awn-hynd*; by the Laws of S. *Edward* the Confeſſor, a Gueſt who had lain three Nights in an Inn, was reputed a Domeſtic, and his Hoſt was anſwerable for what Offences he ſhould commit.

For one Night he was accounted *Uncuth*, for two Nights *Gueſt*, and the third *awn-hynd*. *Prima Nocte Incognitus, ſecunda hoſpes, tertia Domeſticus cenſetur*. *Bracton*, lib. 3. writes it *Hogenehym*.

THIRDINGS, the third Part of the Corn or Grain growing on the Ground at the Tenant's Death, due to the Lord for a Heriot, within a certain Manor and Lands belonging to the Chapel of *Turfat*, *in Com. Heref.*

THIRST, a painful Senſation, occaſion'd by a preternatural Vellication of the Nerves of the Throat or Fauces, and producing a Deſire of Drinking. See DRINK.

Rohault accounts for *Thirſt* thus: The Stomach Liquor, which ordinarily reſolves into a thick Vapour, and aſcends from the Stomach up into the Throat, to moiſten it; being too much warm'd and agitated, either from a Want of ſome other Liquor to temper and dilute it, or from any other Cauſe, becoming converted into too thin, ſubtile, and penetrating a Vapour, is ſo far from moiſtening and cooling the Throat, that, on the contrary, it dries and heats it; and hence that Motion in the Nerves, the Senſation whereof we call *Thirſt*. See HUNGER.

Thirſt ſometimes alſo ariſes from a mere Dryneſs of the Part; and ſometimes from ſharp Salts, more immediately vellicating the Fibres of the Throat.

There are various Kinds of Liquors which quench *Thirſt*; ſome by tempering the Stomach Liquor, others by diluting, and even diſſolving the Salt; and others by moiſtening and ſuppling the Fibres.

Acids are peculiarly fitted for that End. See ACID.

Thirſt is ſometimes eluded by rolling a leaden Bullet or a Pebble in the Mouth, which occaſions an extraordinary Iſſue of Saliva to moiſten the Throat, *&c.* See SALIVA.

Mr. *Boyle* mentions a Man who could eaſily abſtain from Drinking for nine Days, and yet his Diet nothing more liquid than uſual; the Secretions of Urine, Sweat, *&c.* being perform'd all the while regularly, and in the ſame Quantity as uſual.

In dropſical Caſes, where there is not a right Secretion of the Urine by the Renal Glands, and the Veſſels and Parts of the Body are loaded with too great a Quantity of ſerous Humours, a great Moderation in Drinking might be attended with good Succeſs, provided ſome Liquor could be found out to allay that uneaſy Senſation: Probably this would be beſt perform'd by Mucilages acidulated with Spirit of Vitriol or Sulphur, or Gellies with Juice of Lemon, *&c.* and that a ſmall Quantity of ſuch a Compoſition now and then us'd, might be of as much real Service in quenching *Thirſt*, as Draughts of Liquors which increaſe the Symptoms. See DROPSY.

THISTLE, *Carduus*, a Name common to divers Plants, whoſe Flowers conſiſt of ſeveral little narrow longiſh Leaves, in Manner of Tubes, rang'd cloſe together like a Head, and whoſe Leaves are very prickly.

The moſt known of theſe Plants are 1° *Carduus Benedictus*. The Apothecaries diſtil a Water from it, ſaid to be of great Service in peſtilential Diſeaſes, the worſe Kind of Fevers, and particularly as a Sudorific. The Water is likewiſe accounted one of the four common Cordial Waters: Its fixt Salt is much of the ſame Nature as other fixt Salts prepar'd from Wormwood, *&c. viz.* Anti-emetic, Diuretic, *&c.* See CARDUUS *Benedictus*.

2° The *hundred-headed* THISTLE, or *Eryngium vulgare*; the Root whereof boil'd in Wine, is us'd with good Succeſs againſt Retentions of Urine: This is not properly of the *Thiſtle* Kind.

3° Our *Ladies Thiſtle*, *Carduus Albis Maculis notatus vulgaris* CB, the Decoction whereof is recommended againſt the Dropſy, Jaundice, and Pains of the Kidneys.

The *Fullers Thiſtle*, or Teazel; See under the Article TEAZEL.

Order of the THISTLE, or of St. *Andrew*, is a Military Order in *Scotland*; inſtituted, as ſome ſay, by *Hungus*, or *Hungo*, King of the *Picts*, after a Victory obtain'd over *Athelſtan*. See KNIGHT.

The Legend is, that a Croſs of St. *Andrew* (the Patron of that Kingdom) appearing to him at the Time of the Engagement; he bleſt the happy Augury; took the Figure thereof into his Standard in Honour of his Protector; and inſtituted an Order of Knights, whoſe Collar is of Gold interwoven with *Thiſtle* Flowers.

From the Collar hangs a Medal repreſenting S. *Andrew* holding his Croſs in his Right Hand; with this Motto, *Nemo me impune laceſſet*, No Body ſhall provoke me impune.

Others give a different Account of its Origin, and aſſure us, it was inſtituted after the Concluſion of a Peace between *Charles* VII. of *France*, and the King of *Scotland*.

The Abbot *Juſtiniani* goes up higher, and will have it to have been inſtituted by *Acharus* I. King of *Scotland*, in 809; who, after an Alliance made with *Charlemaign*, took for his Device the *Thiſtle*, with the Words *Nemo me impune laceſſet*, which, in Effect, is that of the Order: He adds, that King *James* the IVth. renew'd the Order, and took St. *Andrew* for its Protector.

The Order only conſiſts of twelve Knights, whereof the King is the Chief: They wear a green Ribbon, with a Gold Medal enamell'd; on the one Side whereof is the Image of St. *Andrew*, and on the Reverſe, the Device above mention'd.

Our Lady of the THISTLE, was alſo a Military Order inſtituted in 1370, by *Louis* II. Duke of *Bourbon*.

It conſiſted of 26 Knights, whereof that Prince and his Succeſſors were the Chiefs: Their Badge was a Sky-blue Girdle; and, on ſolemn Occaſions, a Mantle of the ſame Colour, with a Gold Collar, interwoven with Flower-de-Luces, among which was the Word *Eſperance*, Hope, in Capitals.

They had their Name from a *Thiſtle* fix'd to an Oval, which hung to the Girdle.

THISTLE-*take*, a Cuſtom in the Honour of *Halton*, in the County of *Cheſter*, whereby, if in driving Beaſts over the Common, the Driver permits them to graze, or take but a *Thiſtle*; he ſhall pay a Half-penny a Beaſt to the Lord of the Fee.

At *Fiskerton*, in *Nottinghamſhire*, by ancient Cuſtom, if a Native, or Cottager kill'd a Swine above a Year old, he paid the Lord one Penny; which was alſo call'd *Thiſtle-take*.

THLIPSIS, is uſed by ſome Anatomiſts, for a preſſing together of the Veſſels of a human Body.

THOMÆANS, THOMEANS, THOMITES, or *Chriſtians of St.* THOMAS, a People of the *Eaſt Indies*, who, according to Tradition, receiv'd the Goſpel from the Apoſtle S. *Thomas*. See CHRISTIAN.

Upon the Arrival of the *Portugueſe* at *Calecut*, in their firſt Voyage to the *Indies*, they met with ancient Chriſtians, who pretended to be deſcended from thoſe converted by S. *Thomas*.

The *Thomæans* being inform'd of a new People arriv'd among them, who bore a particular Veneration for the Croſs; ſent Embaſſadors to them to make an Alliance with them, and to ſolicit their Aſſiſtance againſt the Gentile Princes, by whom they were greatly oppreſs'd.

'Tis certain the *Thomæans* are Indigenæ, or originally of *India*: They are call'd *Nazareans*; but Cuſtom has affix'd to that Name an Idea of Contempt: Their other Name *Mappuley*, and, in the plural, *Mappuleymar*, is more honourable.

They form a very conſiderable Clan, or Canton; but are always divided by Factions, inveterate Enmities, *&c.* The Clan extends through all the Lands from *Calecut* to *Travencor*; not that all the Tract is poſſeſs'd wholly by them: Sometimes they have a whole Town to themſelves, and ſometimes only a certain Quarter in it.

They own themſelves Strangers in that Country, and their Tradition is, that they came thither from the Country about the City of *Mailapur*, or S. *Thomas*, by reaſon they were perſecuted by the Prince thereof. But the Time of this Tranſmigration no Body knows any thing of; for they keep no Monuments.

The *Thomæans* aſcribe their Converſion, their Diſcipline, *&c.* to S. *Thomas*: Their Breviary adds, that their Apoſtle paſs'd thence into *China*.

We ſhall not here enter into the Diſpute, whether the S. *Thomas* ſo fam'd in the *Indies*, be the Apoſtle, or ſome other Saint of that Name; which latter is the Opinion of ſeveral learned Men, and particularly of M. *Huet*.

But the Progreſs of the Hiſtory of this Church is not leſs difficult to trace than its Origin: Our *European* Books mention the Patriarch of *Alexandria*'s ſending Biſhops to the *Indies*, particularly S. *Pantænus*, S. *Frument*, &c. It may be doubted, whether or no it were to theſe *Indies* that they were ſent: *Baronius*, indeed, maintains it was; but the *Portugueſe* Author *da Hiſtoria d' Ethiopia*, endeavours to prove it was to *Ethiopia* theſe ancient Miſſionaries went. All we know for certain is, that the *Thomæans*, for ſeveral Ages, were furniſh'd with Biſhops from the Side of *Babylon*, or *Syria*; and there is a kind of Patriarch at *Babylon* who continues to furniſh them.

Whether or no their Apoſtle ordain'd them any Biſhops, (the Order whereof may have been ſince extinct thro' want of proper Subjects, as F. *Bouchet* imagines) is a Queſtion: All we can ſay is, that the *Thomæan Church*, at the firſt Arrival of the *Portugueſe*, was wholly govern'd by theſe foreign Biſhops. The Language they uſe, *in Sacris*, is the *Chaldee*, ſome ſay the *Syriac*: As to their ordinary Language, 'tis the ſame with that of their Neighbours.

The *Chaldee* was doubtleſs brought among them by their Biſhops: 'Tis added, that at the Time the Eaſt was infected with Neſtorianiſm, Eutychianiſm, *&c.* the Biſhops likewiſe carry'd them thoſe Hereſies.

Such a Mixture of Opinions, with a total Interruption of Paſtors, ſometimes for ſeveral Years together, occaſion'd that horrible Chaos their Religion was in at the Arrival of the *Portugueſe*; For a Specimen whereof we ſhall add their Manner of celebrating the Euchariſt.

Over the Altar was a kind of Tribune or Gallery; and while the Prieſt was ſaying the Beginning of the Office below, a Cake of Flower of Rice was frying in Oil or Butter above: When enough, the Cake was let down in a Basket upon the Altar, where the Prieſt conſecrated it. As to the other Species, for Wine, they uſed a kind of Brandy variouſly prepar'd in that Country. Nor was their Ordination much more regular; the Archdeacon, who was ſometimes more reſpected than the Biſhop himſelf, frequently ordained Prieſts.

Their other Abuſes were infinite: The *Portugueſe*, for theſe two laſt Centuries, have labour'd the Reformation of this Church; and have employ'd both the Eccleſiaſtic and Secular Power therein: To this End they have call'd the *Thomæan* Biſhops to the Councils at *Goa*, have inſtructed, charg'd them, *&c.* and have even ſent them for Inſtruction to *Portugal* and *Rome*: But they were ſtill apt to relapſe at their Return; ſo that finding no Good was like to be done with them, they reſolv'd to exclude them once for all, and to appoint an *European* Biſhop in their Room.

Theſe Proceedings have render'd the *Portugueſe* infinitely odious to the *Thomæans.*

The Perſon who contributed moſt to the Reform, is *Dom Frey Alexo de Meneiſes*, Archbiſhop of *Goa*, who governing the *Portugueſe Indies* for ſome time, in defect of a Viceroy, took that Occaſion to call a Synod in the Village of *Diamper*, where Abundance of Regulations were made, and the *Thomæans* united to the *Roman* Church: He was ſeconded by the Jeſuits.

After the Death of the Archbiſhop, a great Part of the *Thomæan* Church relaps'd, and thus ſtill continues, partly *Roman*, partly *Thomæan.*

THOMISM, or Thomaism, the Doctrine of S. *Thomas Aquinas*, and his Followers the *Thomiſts*; chiefly with Regard to Predeſtination and Grace. See Thomist.

There is ſome doubt what the true genuine *Thomiſm* is: The Dominicans pretend to hold pure *Thomiſm*; but there are other Authors who diſtinguiſh the *Thomiſm* of S. *Thomas*, from that of the Dominicans. See Dominicans.

Others again make *Thomiſm* no other than a kind of Janſeniſm diſguis'd; but Janſeniſm we know has been condemn'd by the Pope, which pure *Thomiſm* never was. See Jansenism.

In effect, the Writings of *Alvarez* and *Lemos*, who were appointed by their Order to lay down and defend before the Holy See the Dogmata of their School, have ſince been reputed the Rule of pure *Thomiſm.*

The modern School has abandon'd many ancient *Thomiſts*, whoſe Sentiments and Expreſſions appear'd to *Alvarez* and *Lemos* too hard; and the new *Thomiſts*, who paſs the Bounds mark'd by theſe two Doctors, cannot give their Opinions for the Sentiments of the School of S. *Thomas*, which the Pope has forbid being cenſur'd.

The *Thomiſm* allow'd, is that of *Alvarez* and *Lemos*: Thoſe two Authors diſtinguiſh four Claſſes of *Thomiſts*: The firſt, which they reject, deſtroys or takes away Liberty; the ſecond and third don't differ from *Molinas.* See Molinists.

The laſt, which *Alvarez* embraces, admits a Phyſical *Premotion*, or *Predetermination*, which is a Compliment of the active Power, whereby it paſſes from the firſt Act to the ſecond; that is, from compleat and next Power to Action. See Predetermination.

This Premotion they hold is offer'd in ſufficient Grace: Sufficient Grace is given to all Men; and they have a compleat, independent, next Power not to act, and even to reject the moſt efficacious Grace. See Sufficient and Grace.

THOMISTS, a Sect of School Divines, who maintain *Thomiſm.* See School and Thomism.

The avow'd Antagoniſts of the *Thomiſts* are the Scotiſts. See Scotist.

THORACIC, in Anatomy, an Epithet given to two Branches of the Axillary Artery, on Account of their conveying the Blood into ſome Parts of the *Thorax.* See Thorax.

The *Thoracic Arteries* are diſtinguiſh'd by *upper* and *lower.* There are likewiſe *Thoracic Veins*, an *upper* and *under*, for the Reconveyance of the Blood from the *Thorax* to the Axillary Vein. See Axillary.

Thoracic *Duct*, or *Ductus* Thoracicus *Chyliferus*, is a little Canal ariſing from, or rather a Continuation of, the Exit or Mouth of the Receptaculum Chyli. See Receptacle.

It mounts all along the Thorax, whence it takes its Name, and ends in the left Subclavian Vein.

In its Progreſs thro' the Thorax, it is furniſh'd with a proper Integument from the Pleura, beſides the Membrane it has in common with the Receptaculum: At about one Third of its Way it devaricates, but ſoon unites again.

Dr. *Drake* obſerves, that it has Valves in divers Places of its Tract; *Euſtachio* ſays Glands. Its Uſe is to carry the Chyle and Lympha from the Receptaculum into the Subclavian, by which it is forwarded to the Cava, and thence to the Heart. See Chyle.

It is ſometimes call'd *Pecquets Duct*, or *Ductus Pecquetiocus*, from M. *Pecquet*, the firſt Diſcoverer thereof. See Pecquet's Duct.

THORAX, in Anatomy, that Part of the human Body which forms the Capacity of the Breaſt, and wherein are included the Heart and Lungs. See Breast.

It is bounded a-top by the Clavicles, and at Bottom by the *Cartilago Xiphoides*, and the Diaphragm.

Its fore Part is call'd the *Sternum*, or *Breaſt Bone*; its ſide Parts, the *Coſtæ*, or *Ribs*; its hind Part are the *Spina Dorſi*, and its *Vertebræ*, with the *Omoplate.* See Ribs, Sternum, *&c.*

The *Thorax* is alſo call'd the *ſecond* or *middle Venter*, and popularly the *Cheſt.* See Venter.

Beſide the Heart and Lungs, the *Thorax* likewiſe contains the aſcending Cava, the Aorta, the pulmonary Vein and Artery, the Trachea, Oeſophagus, *&c.*

'Tis lin'd within-ſide with a Membrane call'd the *Pleura*, and divided in the Middle by another call'd the *Mediaſtinum.* See Pleura and Mediastinum.

It has its Name from the *Greek*, θορεῖν, *ſalire*, to leap; by Reaſon the Heart, contain'd therein, makes a continual Motion. *Galen* calls it *Cythara*, and ſays it contains the Parts that excite to love.

THOROUGH-*Baſs*, in Muſic, is that which goes quite through the Compoſition. See Bass.

It is alſo call'd *Continu'd Baſs.* See Continu'd *Baſs.*

THOUGHT, *Sentiment*, a general Name for all the Ideas conſequent on the Operations of the Mind, and even for the Operations themſelves. See Thinking.

As in the Idea of a *Thought*, there is nothing included of what we include in the Idea of an extended Subſtance; and that whatever belongs to Body, may be deny'd to belong to *Thought*: We may conclude that *Thought* is not a Mode of extended Subſtance, it being the Nature of a Mode not to be conceiv'd, if the Thing whereof it is the Mode be deny'd it. Hence we infer, that *Thought* not being a Mode of extended Subſtance, muſt be the Attribute of ſome other Subſtance very different. See Mode.

F. *Mallebranch*, with the Spirit of a *Carteſian*, denies that a Man who thinks ſeriouſly on the Matter, can doubt but the Eſſence of the Mind conſiſts altogether in *Thought*, as that of Matter does in Extenſion; and that according to the various Modifications of *Thought*, the Mind ſometimes wills, ſometimes imagines, *&c.* as, according to the various Modifications of Extenſion, Matter is ſometimes Water, ſometimes Wood, Fire, *&c.*

By the Way, by *Thought* he does not mean the particular Modifications of the Soul, *i. e.* ſuch or ſuch a *Thought*, but *Thought* or *Thinking* in the general, conſider'd as capable of all Kinds of Modifications or *Thoughts*: As by Extenſion he does not mean ſuch or ſuch an Extenſion, as a Square, Oval, or the like, but Extenſion in the Abſtract, conſider'd as ſuſceptible of all Kinds of Modifications or Figures.

He adds, that he takes it to be impoſſible to conceive a Mind which does not *think*, tho' it be eaſy to conceive one which does not feel, or imagine, or will; in like Manner as 'tis impoſſible to conceive a Matter which is not extended, tho' it be eaſy to conceive one that is neither Earth, nor Metal; nor ſquare, nor round; nor that is even in Motion.

Hence it may be concluded, that as 'tis poſſible there may be Matter which is neither Earth nor Metal; nor ſquare nor round; nor even in Motion; 'tis alſo poſſible, that a Mind may neither perceive Heat nor Cold; nor Joy nor Grief; nor imagine any thing, nor will any thing; ſo that theſe Modifications are not eſſential to it. *Thought* alone, therefore, is the Eſſence of the Mind, as Extenſion alone is the Eſſence of Matter. See Essence, Extension, Will, *&c.*

But this Doctrine no longer paſſes among us. The Followers of Sir *Iſaac Newton*, and the new Philoſophy, deny Extenſion to be the Eſſence of Matter (ſee Matter); and the Followers of Mr. *Lock* deny *Thought* to be the Eſſence of the Mind. See Soul.

THOUSAND. See Numeration.

Thousand *Years Reign.* See Millennium.

THRASHING, or Threshing, in Agriculture, the Act of beating the Corn out of the Ears. See Corn.

Thraſhing is perform'd two Ways; or rather there are two Ways of ſeparating Corn from the Ear; the firſt by beating it with a Flail, which is properly what we call *Thraſhing.*

Some Authors will not by any means we ſhould call this by the *Roman* Name *tritura* or *trituratio*, but *flagellatio* of *flagellum*, a Scourge or Flail.

The other Manner, ſtill practis'd in ſeveral Countries, as we are inform'd by *Liger*, is to make Mules or Horſes trample on it backwards and forwards: This is properly what the Ancients call'd *tritura* and *trituratio.*

But they alſo us'd Oxen therein; witneſs the *Hebrews*, who ſometimes yoak'd four Oxen together.

Another Way was with a kind of Sledge made of Boards join'd together, and loaden with Stones or Iron, upon which a Man was mounted, and the whole drawn over the Corn by Horſes: This Inſtrument was call'd *Traha* or *Tributus.*

'Tis a Rule among Husbandmen, that the Seaſon for *Thraſhing*, is when the Corn has ſweated in the Heap, or Mow.

THRAVE *of Corn*, from the *Saxon*, *Threav*, Bundle, or the *Britiſh Dreſa*, twenty-four, is in moſt Parts of *England* twenty-four Sheaves, or four Shocks of ſix Sheaves to the Shock.

King *Athelſtan*, Anno 923, gave by Charter to Sir *John* of *Beverley*'s Church, four *Thraves* of Corn for every Plough Land in the Eaſt Riding of *Yorkſhire.*

Ya ſou Threve *be Heven King*
Of Ilka Plough of Eſt Riding.

See Peter-Corn.

THREE-*Legged Staff*, an Inſtrument conſiſting of three Wooden Legs, made with Joints, ſo to ſhut all together, and to take off in the Middle, for the better Carriage; and uſually having on its Top a Ball and Socket, ſerving to ſupport and adjuſt Inſtruments for Aſtronomy, Surveying, *&c.* See BALL and SOCKET.

THRENGUS, in our ancient Cuſtoms. See DRENCHES. *Quia vero non erant adhuc tempore Regis* Willielmi *Milites in Anglia, ſed* Threnges; *præcipit Rex ut de eis Milites fierent ad defendendam terram: fecit autem Lanfrancus* Threngos *ſuos Milites*, &c. Somn. Gavelk.

They were Vaſſals, but not of the loweſt Degree of thoſe who held Lands of the chief Lord.

The Name was impos'd by the Conqueror; for when one *Edwyn Sharnbourn* of *Norfolk*, and others, were ejected out of their Lands; they complain'd to the Conqueror; inſiſting, that they were always on his Side, and never oppos'd him: which, upon Enquiry, he found to be true; and therefore he commanded that every one ſhould be reſtor'd to their Lands, and for ever after be call'd *Drenches. Spelm.*

THRENODY, THRENODIA, a mournful, or Funeral Song. See FUNERAL.

THROAT, the Part of an Animal between the Head and the Shoulders, wherein is the Gullet. See GULLET.

Phyſicians include under the Word *Throat*, all that Hollow or Cavity which may be ſeen when the Mouth is wide open.

It is ſometimes alſo call'd *Iſthmus*, by Reaſon it is narrow, and bears ſome Reſemblance to thoſe Streights call'd by the Geographers *Iſthmi*.

THROAT, in Architecture, Fortification, *&c.* See GORGE and GULA.

THRONE, from the *Greek* θρόνος, a magnificent Seat or Chair; is a Royal Seat, inrich'd with Ornaments of Architecture and Sculpture, made of ſome precious Matter, rais'd on ſeveral Steps, and cover'd with a kind of Canopy.

Such as are in the Rooms of Audience of Kings and other Sovereigns.

THROWS *of Women*, the Pains of Child-Birth. See DELIVERY, *&c.*

THROWSTER, one who *throws*, *i. e.* winds or rolls Silk. See SILK.

THUNDER, a Noiſe in the loweſt Region of the Air, excited by a ſudden kindling of ſulphurous Exhalations. See AIR, ATMOSPHERE, EXHALATIONS, *&c.*

Seneca, *Rohault*, and other Authors, both ancient and modern, account for *Thunder*, by ſuppoſing two Clouds impending over one another, the upper and rarer whereof becoming condens'd by a freſh Acceſſion of Air rais'd thither by Warmth from the lower Parts of the Atmoſphere; or driven upon it by the Wind; immediately falls forcibly down upon the lower, and denſer Cloud: By which Fall, the Air interpos'd between the two being compreſs'd; that next the Extremities of the two Clouds is ſqueez'd out, and leaves Room for the Extremity of the upper Cloud to cloſe tight upon the under: Thus a great Quantity of Air is inclos'd, which at length eſcaping thro' ſome winding irregular Vent or Paſſage, it occaſions that Noiſe we call *Thunder*. See CLOUD, *&c.*

But this only reaches to the Phænomena of *Thunder* heard without Lightening; and, in effect, we have now a better Solution: *Thunder* is not occaſion'd by the falling of Clouds; but by the kindling of ſulphurous Exhalations, in the ſame Manner as the Noiſe of Aurum Fulminans.

"There are ſulphurous Exhalations, ſays Sir *Iſaac Newton*, always aſcending into the Air when the Earth is dry; "there they ferment with the nitrous Acids, and ſometimes "taking Fire, generate into *Thunder*, Lightening, *&c.*

That, beſide the Vapours rais'd from Water, *&c.* there are alſo Exhalations carry'd off from Sulphur, Bitumen, Volatile Salts, *&c.* is paſt all doubt; the vaſt Quantity of ſulphurous and bituminous Matter all over the Surface of the Earth, and the Volatile Salts of Plants and Animals, afford ſuch an ample Stock thereof; that 'tis no Wonder the Air ſhould be fill'd with ſuch Particles, rais'd higher or lower, according to their greater or leſs Degree of Subtility and Activity; and more copiouſly ſpread in this or that Quarter, according to the Direction of the Winds, *&c.* See SULPHUR.

Now, the Effects of *Thunder* are ſo like thoſe of fir'd Gunpowder, that Dr. *Wallis* thinks we need not ſcruple to aſcribe them to the ſame Cauſe: But the principal Ingredients in Gunpowder we know are Nitre and Sulphur; Charcoal only ſerving to keep the Parts ſeparate, for the better kindling. See GUNPOWDER.

Hence, if we conceive in the Air a convenient Mixture of nitrous and ſulphurous Particles, from the Sources abovemention'd; and thoſe, from ſome Cauſe, to take Fire; ſuch Exploſion may well follow, and with ſuch *Noiſe* and *Light*, the two Phænomena of *Thunder*; as in the firing of Gunpowder: and being once kindled, it will run from Place to Place, this Way or that, as the Exhalations happen to lead it; as in a Train of Gunpowder.

This Exploſion, if high in the Air, and remote from us, will do no Miſchief; but if near us, may deſtroy Trees, Animals, *&c.* as Gunpowder would do in the like Circumſtances.

This Nearneſs or Farneſs may be eſtimated by the Interval of Time between the Flaſh and the Noiſe: Dr. *Wallis* obſerves, that ordinarily the Difference between the two is about ſeven Seconds; which, at the Rate of 1142 Feet in a Second of Time, gives the Diſtance about a Mile and half: But ſometimes it comes in a Second or two, which argues the Exploſion very near us, and even among us. And in ſuch Caſes, the Revd. Doctor aſſures us, he has more than once foretold the Miſchiefs that befell.

Upon the whole, that there is in Lightening a ſulphurous Vapour, appears from the Sulphur which attends it, and from the ſultry Heat in the Air which uſually precedes it; and that there is a nitrous Vapour along with it, the ſame Author concludes hence, that we know of no other Body ſo liable to a ſudden and violent Exploſion. And as to the kindling of theſe Materials, we know that a Mixture of Sulphur and Steel Filings, with a little Water, will break forth into actual Flame. Nothing therefore is wanting to the Exploſion, but ſome Chalybeat, or Vitriolic Vapour; and among the various Effluvia from the Earth, the Doctor does not doubt, but there muſt be ſome of that: But what he leaves as a Probability, we can produce a kind of Proof of.

In Hiſtory we meet with Inſtances of its raining Iron in *Italy*, and Iron Stones in *Germany*: *Jul. Scaliger* tells us, he had by him a Piece of Iron rain'd in *Savoy*. *Cardan* reports 1200 Stones to have fallen from Heaven, ſome of them weighing 30, ſome 40, and one an hundred and twenty Pound, all very hard, and of the Colour of Iron.

The Matter of Fact is ſo well atteſted, that Dr. *Liſter*, in the *Philoſophical Tranſactions*, builds a whole Theory of *Thunder* and Lightening on it; maintaining, that they both owe their Matter to the Breath or Exhalation of *Pyrites*. See PYRITES.

That Rattling in the Noiſe of *Thunder*, which makes it ſeem as if it paſs'd thro' Arches, or were broken variouſly, is doubtleſs owing to the Sound being excited among Clouds hanging over one another, and the agitated Air paſſing between them. See LIGHTENING.

THUNDER-*Bolt*. If what we call *Lightning*, act with extraordinary Violence, and break or ſhatter any thing; it is call'd a *Thunder-bolt*; which the People, to fit it for ſuch Effects, ſuppoſe to be a hard Body, and even a Stone. See LIGHTENING.

But that we need not have recourſe to a hard ſolid Body to account for the Effects commonly attributed to the *Thunder-bolt*, will be evident to any one, who conſiders thoſe of Pulvis Fulminans, *&c.* of Gun-powder. See FULMINANS.

The Phænomena of the *Thunder-bolt* are, that it oftener ſtrikes on high Places than on low: That it frequently burns Peoples Cloaths, without touching their Bodies: That it ſometimes breaks their Bones, without hurting their Fleſh, or their Cloaths; that it has even melted the Sword without touching the Scabbard, *&c.*

The Firſt is eaſily accounted for, from the ordinary Height of the Clouds, out of which the Lightening darts: As to the reſt, ſince Exhalations may be very different from one another; ſome, *e. gr.* coming neareſt the Nature of Sulphur, may only yield a very ſlight lambent Flame, which will only affect ſuch things as take Fire the ſooneſt. And others, on the contrary, ſo ſubtile and penetrating, as to come near the Nature of Volatile Salts or Aqua-fortis, which ſpare ſoft Bodies, and ſpend their whole Force on hard ones.

The Chevalier *de Louville* of the *French* Academy of Sciences, accounts for ſome of the Effects of Thunder upon a new Principle; as to killing of Animals, without burning or wounding them, 'tis naturally enough aſcribed to the Sulphur, which falling near enough the Perſon, the Fumes thereof ſtop his Reſpiration. As to Trees, Buildings, *&c.* ſplit or beat down, there muſt be another Cauſe. M. *de Louville*, therefore, ſuppoſes, that when the Thunder is ſo high, its Flame is diſſipated e'er it arrive at the Earth: And that the Air being violently driven along by the impetuous Motion of the Flame, and of conſequence exceedingly condenſed, becomes a kind of hard Body, capable of producing terrible Effects.

Places ſtruck with *Thunder-bolts*, were held Sacred among the Ancients. *Nigidius* has a very curious Treatiſe on the *Thunder-bolt*.

Marcilius Ficinus, and ſome others, maintain, that Coral diſſipates panic Fears, and keeps off *Thunder-bolts* and Hail: *Fortunat. Licetus* has endeavour'd to account for it phyſically. F. *le Brun* proves very eaſily, that thoſe Philoſophers are miſtaken.

On Medals, the *Thunder-bolt* is ſometimes found to accompany the Emperors Heads; as that of *Auguſtus*. In which Caſe, it is a Mark of Soveraignty, and of a Power equal with the Gods.

Appian informs us, that the *Thunder-bolt* was the principal Divinity of *Seleucia*; adding, that it was adored even in his Time, with various Hymns and Ceremonies. See GOD.

THUS. See FRANKINCENSE.

THUMMIM, in the Scripture Learning. See URIM and THUMMIM.

THURSDAY. See WEEK.

Maunday THURSDAY. See MAUNDAY *Thurſday*.

THYMUS, in Anatomy, a conglobate Gland, ſituated in the upper Part of the Thorax, under the Claviculæ, where the Cava and Aorta divide into the Subclavian Branches. See GLAND.

This Gland is big in Infants, but as they grow in Age, it grows leſs; its Arteries and Veins are Branches of the Carotides and Jugulars. It has Nerves from the Par Vagum, and its Lymphatick Veſſels diſcharge themſelves into the Ductus Thoracicus.

The learned Dr. *Tyſon* ſuppoſes the Uſe of this Gland to be for a Diverticulum to the Chyle in the Thoracick Duct of a Fœtus, whoſe Stomach being always full of the Liquor in which it ſwims, muſt keep the Thoracick Duct diſtended with Chyle; becauſe the Blood which the Fœtus receives from the Mother, fills the Veins, and hinders the free Entrance of the Chyle into the Subclavian Veins. See FOETUS.

M. *Cheſelden* obſerves, that where the *Thymus* in Men is very ſmall, the Thyroid Glands encreaſe proportionably; but in ſuch Brutes as have fallen under his Obſervation, it is juſt the contrary; from which he is inclined to believe that they belong to the ſame Lymphatics, and that either of them encreaſing as much as both ought to do, if both encreaſed, anſwers the ſame End as both did; and that the Reaſon why the *Thymus* encreaſes rather than the Thyroid Glands in Brutes, is, becauſe the Shape of their Thorax affords convenient Room for it to lodge in; and that in Men, the Reaſon why the Thyroid Glands encreaſe ſo much, is, becauſe there is no Room in that part of the Thorax where the *Thymus* is ſeated, for a large Gland to be lodg'd.

The *Thymus* is that, which in a Breaſt of Veal we call the *Sweat-Bread*.

THYMUS, in Medicine, is uſed for a kind of Wen, growing on the natural Parts, the Fundament, and ſeveral other Places of the Body, with cloven Aſperities like thoſe of the Herb *Thyme*, whence its Name. See WEN.

The ordinary Method of curing a *Thymus*, is by Ligature and deſiccative Lotions, or by Cauſtic's; and if large, by Inciſion; taking Care firſt to ſecure the greater Veſſels by tying them.

THYREOARYTÆNOIDEUS, in Anatomy, a Pair of Muſcles, ſituate under the Cartilago Thyreoides; from the fore and back Part of which, it ariſes with a very broad Head, and terminates in the Arytænoides, which it conſtringes, and ſhuts the Larynx. See ARYTÆNOIDES.

THYROIDEÆ *Glandulæ*, THYROID *Glands*, are two Glands of the Larynx. See LARYNX.

There are Four pretty large Glands, which ſerve to moiſten the Larynx; two above and two below.

The two latter are call'd *Thyroideæ*; ſituate at the bottom of the Larynx, aſide of the Annular Cartilage, and of the firſt Ring of the Trachea; one on each Side.

They are in form of little Pears; their Colour a little more reddiſh, their Subſtance more ſolid, more viſcous, and reſembling more the Fleſh of the Muſcles, than the other Glands.

They receive Nerves from the Recurrents, Arteries from the Carotides; Veins which paſs to the Jugulars, and Lymphaticks, which diſcharge themſelves into the Thoracic Duct.

Their Uſe is to ſeparate a viſcid Moiſture, ſerving to line, and lubricate the Larynx, to facilitate the Motion of its Cartilages, to ſoften the Acrimony of the Saliva, and to ſweeten the Voice.

THYROIDES, in Anatomy, one of the five Cartilages of the Layrinx. See LARYNX.

The firſt, and biggeſt of the Cartilages of the Larynx is call'd *Thyroides* or *Scutiformis*, by reaſon of its Figure, which ſome fancy to reſemble a Shield. It is hollow within, and gibbous without ſide; but more ſo in Men than in Women. In the middle is a Prominence, call'd *Pomum Adami*. 'Tis uſually parted by a Line running along the middle; whence ſome make two of it; tho' in reality 'tis very rare 'tis found double.

It is near a Square; and at each Angle is a Proceſs: The two uppermoſt are the longeſt, and tie it by means of a nervous Ligament to the Os Hyoides: The two lower, and ſhorter, connect it to the ſecond Cartilage, call'd *Cricoides*.

The Word is form'd from the *Greek*, θυρεὸς, Buckler, and εἶδος, Form.

THYRSUS, in Antiquity, the Scepter which the ancient Poets put in the Hand of *Bacchus*, and wherewith they furniſh the *Menades* in their *Bacchanalia*. See BACCHANALIA, *&c.*

The *Thyrſus* was originally a Lance, or Spear, wrapt up in Vine-Leaves; wherewith *Bacchus* is ſaid to have arm'd himſelf and his Soldiers in his *Indian* Wars, to amuſe and deceive the unpractiſed *Indians*, and make them ſuſpect no Hoſtilities. Hence it was afterwards bore in the Feaſts and Sacrifices of that God; and as the Satyrs, who were *Bacchus*'s Soldiers, were ſuppoſed to have fought with it, it became a Cuſtom to repreſent them therewith. See SATYR, *&c.*

The Word is form'd from the *Greek*, θυρσος, *Haſtula frondibus veſtiti*, ſignifying the ſame thing.

TIARA or THIARA, an Ornament or Habit, wherewith the ancient *Perſians* cover'd their Head; and which the *Armenians*, and Kings of *Pontus* ſtill wear on Medals; theſe laſt, becauſe deſcended from the *Perſians*.

The *Latin* Authors call it indifferently, *Tiara* or *Cidaris*.

Strabo ſays, the *Tiara* was in form of a Tower: The Scholiaſt on *Ariſtophanes*'s Comedy, Ἀχάρνης, *Act* I. *Scene* 2. affirms, that it was adorn'd with Peacock's Feathers. Some Moderns, however, take it, the Scholiaſt is here ſpeaking of the Cask which the ancient *Perſians* wore in War; rather than the Habit which they wore on the Head in the Cities: But they don't ſeem to have conſider'd the Paſſage in the Poet, to which the Scholiaſt refers: The Matter there ſpoke of is Peace, and Embaſſadors ſent to treat of Peace, with Habits of Pomp and Ceremony, Ἄχθομαι γὼ, *&c.* *Theſe Ambaſſadors, theſe Peacocks, all theſe Things of Pomp and Oſtentation diſpleaſe me.* By *theſe Peacocks*, ſays the Scholiaſt, he means the *Tiaræ*, which among the *Perſians* are Ornaments of the Head, wherein are Peacock's Feathers, *&c.*

St. *Jerom* on *Dan. cap.* iv. defines the *Tiara* a kind of Cap, *genus Pilleoli*, wore by the *Perſians* and *Chaldeans*. In another Place, he adds, 'tis like *Ulyſſes*'s Cap.

The ancient Scholiaſt, on *Juvenal*, deſcribes the *Tiara* as a Prieſt's Cap, which deſcending over the Cheeks, was tied under the Chin; which agrees very well with the Form of that which we ſee *Mithridates* wear, on Medals. *Servius* on *Virgil, lib.* viii. *Æneid.* calls the *Tiara*, a *Phrygian* Cap; and *Statius, Thebaid, lib.* viii. gives it the Kings of *Parthia*, who, doubtleſs, borrowed it from the *Perſians*.

Juſtin attributes the long Garment and *Tiara* of the *Perſians*, to *Semiramis*'s Diſguiſe; whereby ſhe paſs'd for *Nynus*.

The Kings of *Perſia* alone, had the Right of wearing the *Tiara* ſtraight and upright: The Prieſts, and great Lords wore it depreſs'd, or turn'd down on the Fore-ſide. *Xenophon* in his *Cyropæd.* ſays, that the *Tiara* was ſometimes encompaſs'd with the Diadem, at leaſt in Ceremonies; and had frequently the Figure of a Half Moon embroider'd on it: Others are of Opinion, that 'twas the Diadem had the Figure of a Moon, and that it was hence the *Tiara* was call'd *Lunata*; and, laſtly, others think that the *Tiara* itſelf was ſometimes in form of a Half Moon. From what we have ſaid, it appears, that there were different Forms of *Tiara*'s; and, in effect, *Paſchalius, de Coronis*, ſhews there were Five different Kinds. See DIADEM.

TIARA is alſo the Name of the Pope's Triple Crown; anciently call'd *Regnum*. See CROWN.

The *Tiara*, and Keys are the Badges of the Papal Dignity; the *Tiara* of his Civil Rank, and the Keys of his Juriſdiction: For, aſſoon as the Pope is dead, his Arms are repreſented with the *Tiara* alone, without the Keys.

The ancient *Tiara* was a round high Cap, *John* XXIII. firſt encompaſs'd it with a Crown. *Boniface* VIII. added a ſecond Crown; and *Benedict* the XIIth, a Third.

TIBIA, in Anatomy, the bony Part of the Leg, between the Knee and the Ankle. See LEG.

The *Tibia* conſiſts of two Bones, call'd *Fociles*, the one on the Inſide the Leg, call'd the *Fibula*, or *little Focil*. See FIBULA.

The other on the Out-ſide, call'd by the common Name *Tibia*, or the great *Focil*. See the following Article.

TIBIA, is, properly, the inner and bigger Bone of the Leg, call'd alſo *Focile Majus*. See BONE.

The *Tibia* is hard and firm, having a pretty large Cavity in its Middle, to contain the Medulla. See MEDULLA.

It is almoſt Triangular; its fore, and ſharp Edge being call'd the *Shin*: in its upper Extremity, it has two large Sinus's, tipt with a ſoft and fine Cartilage, from its Figure, call'd *Cartilago Lunata*; which runs in between the Extremities of the two Bones, and grows very thin at its Edge; ſerving to facilitate a ſmall Side-motion in the Knee, like thoſe in the Articulation of the lower Jaw.

The Sinus's receive the two Protuberances of the Femur, or Thigh-bone; and the Production which is between the Sinus's of the *Tibia*, is received into the Sinus, which divides theſe two Protuberances of the Femur. See FEMUR.

By bending the Knee, we bring the Leg, in walking, in a ſtrait Line forwards; which we could not have done without this Articulation; but like thoſe who have the Misfortune to have a wooden Leg, we muſt have brought our Foot about in a Semi-circle, in going even upon a Plain, but more evidently upon an Aſcent.

On the Side of this upper End, it has a ſmall Knob, which is received into a ſmall Sinus of the *Fibula*, and on its Fore-part, a little below the Patella, it has another into which the Tendons of the Extenſors of the Leg, are inſerted. See FIBULA.

Its lower Extremity, which is much ſmaller than its upper, has a remarkable Proceſs, which forms the inner Ankle; and a pretty large Sinus, divided in the Middle by a ſmall Protuberance; the Sinus receives the convex Head of the Aſtragalus, and the Protuberance is received into the Sinus, in the convex Head of the ſame Bone.

It has another ſhallow Sinus in the Side of its lower End, which receives the Fibula.

Mr. *Cheſelden* gives an Inſtance of a Boy of Seven Years of Age, where both the Epiphyſes at the upper End of the *Tibiæ*, were ſo far ſeparated, that not more than Half each *Tibia* was join'd to Half the Epiphyſis; which made his Legs wholly uſeleſs. This had been occoſion'd, by the Nurſe's holding him out to Stool by the Heels and Back, when very young; which is among them (as he obſerves) too common a Practice.

TIBIALIS or Tibiæus, in Anatomy, a Name given two Muſcles of the Leg; diſtinguiſh'd by *Anticus* and *Poſticus*.

The *Tibialis Anticus*, ſprings from the exterior Proceſs of the *Tibia*, and becoming gradually broad and fleſhy about the middle of the *Tibia*, down the Fore-part of which it runs, is contracted again, into a ſlender, ſmooth Tendon, which paſſes under the Ligamentum Annulare, and is partly inſerted to the Os Cuneiforme Majus, and partly to the Bone of the Metatarſus, that ſupports the great Toe. Its Office is to draw the Foot up.

Tibialis Poſticus, is derived from both Bones of the *Tibia*, and from the Ligament that bends them together; and runs with a ſmooth, ſtrong Tendon through the Sinus on the inner Malleolus, under the Annular Ligament, to the Inſide of the Os Naviculare.

Its Office is to draw the Foot inwards. From the Uſe Sailors make of it in Sailing, it is alſo called the *Nauticus*.

TICHONIC *Syſtem* or *Hypotheſis*. See Tychonic.

TIDES, Two periodical Motions of the Waters of the Sea, call'd the *Flux* and *Reflux*; or the *Ebb* and *Flow*. See Sea, Flux, Ebb, *&c.*

When the Motion of the Water is againſt the Wind, 'tis call'd a *Windward Tide*; when Wind and *Tide* go the ſame Way, *Leeward Tide*: When it runs very ſtrong, 'tis a *Tidegate*.

To Tide it over or up into any Place, is to go in with the *Tide*, either Ebb or Flood, as long as that laſts; then to ſtay at Anchor all the Time of contrary *Tide*; and thus to ſet in again with the Return of the firſt *Tide*.

It is ſaid to *flow Tide and Half Tide*, when the *Tide* runs three Hours in the Offing, longer than it does by the Shore: but, by *longer*, they don't mean more Hours; but, that if it be high Water a-ſhore at 12, it will not be ſo in the Offing till Three. If it Ebb and Flow longer, they ſay it runs *Half Tide* and *Half-quarter*.

When the Moon is in the Firſt and Third Quarter, *i.e.* when ſhe is New and Full, the *Tides* are High and Swift, and called *Spring Tides*; when ſhe is in the ſecond and laſt Quarter, the Tides are lower and ſlower, and call'd *Neap Tides*. See Neap, *&c.*

Phænomena of the Tides.

The Sea is obſerv'd to flow, for certain Hours, from *South* towards *North*; in which Motion, or Flux, which laſts about Six Hours, the Sea gradually ſwells; ſo that entering the Mouths of Rivers, it drives back the River-waters towards their Heads or Springs. See River, *&c.*

After a continual Flux of Six Hours, the Sea ſeems to reſt for about a Quarter of an Hour; after which it begins to ebb or retire back again from *North* to *South*, for Six Hours more: In which Time, the Water ſinking, the Rivers reſume their natural Courſe. After a ſeeming Pauſe of a Quarter of an Hour, the Sea again begins to flow as before, and thus alternately.

Thus does the Sea ebb twice a-day, and flow as often; but not in the ſame Hours thereof. The Period of a Flux and Reflux is 12 Hours 50 Minutes, ſo that the *Tides* return later, and later each Day, by 50 Minutes or $\frac{3}{4}$ of an Hour, 5 Minutes.

Now, 12 Hours 50 Minutes is a Lunar Day; *i.e.* the Moon paſſes the Earth's Meridian later and later each Day by 50 Minutes. So that the Sea flows as often as the Moon paſſes the Meridian, both the Arch above, and that below the Horizon; and Ebbs as often as ſhe paſſes the Horizon, both the Eaſtern and Weſtern Point thereof. See Moon.

This further Agreement we obſerve between the Moon and the Sea; that the *Tides*, though conſtant, are not equal; but are greateſt, when the Moon is in Conjunction, or Oppoſition to the Sun, and leaſt when in Quadrate thereto.

Laſtly, thoſe *Tides* are the greateſt, which happen in the New and Full Moon, at the Times of the Equinoxes.

Add, that the ſame Things are obſerved throughout moſt of the Coaſts of *Europe*; only that the *Tides* are ſo much the leſs, and happen the later, as the Coaſts are the more Northerly.

Theſe Phænomena of the *Tides* are admirably accounted for, from the Principle of Gravitation. All we require to their Solution, is, that the Earth and Moon, and every Particle thereof, mutually gravitate towards each other; the Reaſonableneſs of which Aſſumption, ſee under the Article Gravitation.

Indeed the ſagacious *Kepler* long ago, conjectured this to be the Cauſe of the *Tides*: "If, ſays he, the Earth ceas'd "to attract its Waters towards itſelf; all the Water of the "Ocean would riſe and flow into the Moon: The Sphere of "the Moon's Attraction extends to our Earth, and draws up "the Water." Thus thought *Kepler* in his *Introd. ad Theor. Mart.* This Surmize, for it was then no more, is now abundantly verified, in the following Theory, deduced by Dr. *Halley*, from the *Newtonian* Principles.

Theory of the Tides.

1° As the Surface of the Earth and Sea is naturally globular; if we ſuppoſe the Moon A (Tab. Geography Fig. 6.) perpendicularly over ſome Part of the Surface of the Sea, as E; 'tis evident the Water E, which is now neareſt the Moon, will gravitate towards it more than any other Part of the Earth and Sea in the Hemiſphere FPH.

The Water in E, therefore, muſt by this means, be rais'd towards the Moon, *i.e.* it will be lighter than uſual, and of conſequence will ſwell in E.

For the ſame Reaſon the Water in G being the moſt remote from the Moon, will gravitate towards the ſame, rather than any other Part of the Earth or Sea in the Hemiſphere FGH.

The Water here, therefore, muſt approach leſs towards the Moon, than any other Part of the Globe, *i.e.* it muſt be rais'd the contrary Way; as being lighter than uſual, and will therefore ſwell in G.

By this means, the Surface of the Ocean muſt neceſſarily form itſelf into a Spheroidal, or Oval Figure, whoſe longer Diameter is EG; its ſhorter FH. And thus, the Moon ſhifting her Poſition in her Diurnal Motion round the Earth; this Oval of Water muſt ſhift with her; by which means are effected thoſe two Floods and Ebbs, obſervable every 25 Hours.

2° Since, in the Conjunctions and Oppoſitions of the Sun and Moon, the Gravitation of the Water to the Sun conſpires with its Gravitation towards the Moon; but in the Quadratures, the Water rais'd by the Sun is depreſs'd by the Moon: Hence it is that the *Tides* are greateſt in the Syzygies, and leaſt in the Quadratures.

In effect, there are two *Tides* every natural Day, from the Action of the Sun, as there are in the Lunar Day from that of the Moon; all govern'd by the ſame Laws: Only thoſe caus'd by the Sun, are much leſs than thoſe of the Moon; becauſe though the Sun be Ten thouſand times bigger than both the Earth and Moon, yet he is at ſo immenſe a Diſtance, that the Earth's Semi-diameter bears no Proportion thereto.

Hence, the different *Tides* depending on the particular Actions of the Sun and Moon are not diſtinguiſh'd, but confounded. The Lunar *Tide* is ſomewhat changed by the Action of the Sun; and this Change varies every Day, by reaſon of the Inequality between the Natural and Lunar Day. See Day.

3° Since the greateſt *Tides* about the Equinoxes (*viz.* thoſe happening in the Syzygies) ariſe from the Sun and Moon being in the Equinoctial; and thoſe about the Solſtices, from the Sun and Moon being in the Tropicks; for this Reaſon, thoſe greateſt *Tides* about the Equinoxes are greater than thoſe about the Solſtices, ſince the greater the Circle is, wherein the Waters turn, the greater is their Agitation. And if the Moon ſtood ſtill in the Pole, the Spheroid would become immoveable about the Pole, and the high Water be fix'd therein.

4°. Since the *Tides* are ſomewhat chang'd by the Libration of the Waters, which uſe to retain a Motion impreſs'd on them for ſome time; for this Reaſon the higheſt *Tides* are not preciſely in the very Conjunction and Oppoſition of the Moon, but two or three *Tides* afterwards.

5°. Since the Sun is ſomewhat nearer the Earth in Winter than in Summer; hence it is, that the greateſt Equinoctial *Tides* are obſerv'd to be a little before the Vernal Equinox, and a little after the Autumnal one.

6°. Since the greateſt of the two *Tides* happening in every Diurnal Revolution of the Moon, is that wherein the Moon is neareſt the Zenith, or Nadir: For this Reaſon, while the Sun is in the Northern Signs, the greater of the two Diurnal *Tides* in our Climates, is that ariſing from the Moon above the Horizon; when the Sun is in the Southern Signs, the greateſt is that ariſing from the Moon below the Horizon.

7°. Such would the *Tides* regularly be, if the Earth were cover'd with Sea very deep; but by Reaſon of the Shoalneſs of ſome Places, and the Narrowneſs of the Straits in others, by which the *Tides* are propagated, there ariſes a great Diverſity in the Effect, not to be accounted for, without an exact Knowledge of all the Circumſtances of the Places; as the Poſition of the Land, and the Breadth and

Depth of the Channels, *&c.* for a very ſlow and imperceptible Motion of the whole Body of Water, where it is (for Example) two Miles deep, will ſuffice to raiſe its Surface 10 or 12 Feet in a *Tides*-time; whereas, if the ſame Quantity of Water were to be convey'd upon a Channel of 40 Fathom deep, it would require a very great Stream to effect it, in ſo large Inlets as are the Channel of *England* and the *German* Ocean; whence the *Tide* is found to ſet ſtrongeſt in thoſe Places where the Sea grows narroweſt, the ſame Quantity of Water being in that Caſe to paſs thro' a ſmaller Paſſage. This is moſt evident in the Straits between *Portland* and *C. de la Hogue*, in *Normandy*, where the *Tide* runs like a Sluice; and would be yet more between *Dover* and *Calais*, if the *Tide* coming about the Iſland did not check it.

And this Force being once impreſs'd upon the Water, continues to carry it above the Level of the ordinary Height in the Ocean, particularly where the Water meets a direct Obſtacle, as it is in St. *Maloes*; and where it enters into a long Channel, which running far into the Land, grows very ſtrait at its Extremity, as it is in the *Severn*-Sea at *Chepſtow* and *Briſtol*.

This Shoalneſs of the Sea, and the intercurrent Continents, are the Reaſon that in the open Ocean, high Water is not at the Time of the Moon's Appulſe to the Meridian, but always ſome Hours after it, as it is obſerv'd upon all the Weſt Coaſt of *Europe* and *Africa*, from *Ireland* to the *Cape of Good Hope*; in all which a South-Weſt Moon makes high Water; and the ſame is reported to be on the Weſt of *America*.

It would be endleſs to recount all the particular Solutions, which are eaſy Corollaries from this Doctrine: as, why the Lakes and Seas, ſuch as the *Caſpian* Sea, and the *Mediterranean* Sea, the *Black Sea*, and *Baltick*, have no ſenſible *Tides*: For Lakes having no Communication with the Ocean, can neither increaſe or diminiſh their Water, whereby to riſe and fall; and Seas that communicate by ſuch narrow Inlets, and are of ſo immenſe an Extent, cannot in a few Hours Time receive and empty Water enough to raiſe or ſink their Surface any thing ſenſibly.

To demonſtrate the Excellency of this Doctrine, the Example of the *Tides* in the Port of *Tunking* in *China*, which are ſo extraordinary, and different from all others we have yet heard of; may ſuffice. In this Port there is but one Flood and Ebb in 24 Hours; and twice in each Month, *viz.* when the Moon is near the Equinoctial, there is no *Tide* at all, but the Water is ſtagnant; but with the Moon's Declination, there begins a Tide, which is greateſt when ſhe is in the Tropical Signs; only with this Difference, that when the Moon is to the Northward of the Equinoctial, it flows when ſhe is above the Earth, and ebbs when ſhe is under, ſo as to make high Water at Moon-ſetting, and low Water at Moon-riſing: But, on the contrary, the Moon being to the Southward, makes high Water at riſing, and low Water at ſetting, it ebbing all the Time ſhe is above the Horizon.

The Cauſe of this odd Appearance is propos'd by Sir *Iſaac Newton* to ariſe from the Concurrence of two *Tides*, the one propagated in ſix Hours out of the great *South-Sea* along the Coaſt of *China*; the other out of the *Indian* Sea from between the Iſlands in twelve Hours, along the Coaſt of *Malacca* and *Camboya*. The one of theſe Tides being produc'd in North Latitude, is, as hath been ſaid, greater when the Moon being to the North of the Equator, is above the Earth, and leſs when ſhe is under the Earth. The other of them, which is propagated from the *Indian* Sea, being rais'd in South Latitude, is greater, when the Moon declining to the South is above the Earth, and leſs when ſhe is under the Earth; ſo that of theſe *Tides* alternately greater and leſſer, there come always ſucceſſively two of the greater, and two of the leſſer together every Day; and the high Water falls always between the Arrival of the two greater Floods; and the low Water between the Times of the Arrival of the two leſſer Floods: And the Moon coming to the Equinoctial, and the alternate Floods becoming equal, the *Tide* ceaſes, and the Water ſtagnates; but when ſhe has paſs'd to the other Side of the Equator, thoſe Floods which in the former Order were the leaſt, now becoming the greateſt, that which before was the Time of the high Water, now becomes the low Water, and the converſe; ſo that the whole Appearance of theſe ſtrange *Tides* is, without any forcing, naturally deduc'd from theſe Principles, and is a great Argument for the Certainty of the whole Theory.

TIDE-*waiters*, or TIDE-*men*, certain Officers belonging to the Cuſtom-houſe, appointed to watch or attend on Ships, coming from abroad, to ſee that nothing be landed till the Cuſtom of the Freight be paid. See CUSTOM, FREIGHT, *&c.*

They are thus call'd, becauſe they go aboard the Ships at their Arrival in the Mouth of the *Thames*, and come up with the *Tide*.

TIERCE, in Heraldry, a Term denoting the Shield to be divided into three equal Parts, of different Colours or Metals.

If the Chief and Baſe be of the ſame Colour when divided by a Feſſe, they blazon it by expreſſing the Colour, and mentioning the Feſſe; otherwiſe, they ſay it is *Tierce en faſce*, and mention each of the Colours; or *Tierce en pal*, if ſo divided in Pale.

TIERCE, or TERCE, is alſo a Meaſure of liquid Things, as Wine, Oil, *&c.* containing the third Part of a Pipe, or 42 Gallons. See MEASURE, GALLON, *&c.*

TIERCE, in Muſic. See THIRD.

TIERCE, *Three*, a Sequence of three Cards of the ſame Colour. See SEQUENCE.

TIERCE, in Fencing. See GUARD.

TIERCE *Order.* See THIRD *Order.*

TIGE, in Architecture, a *French* Term for the Shaft or Fuſt of a Column; comprehended between the Aſtragal and the Capital. See FUST and COLUMN.

TILE. See TYLE.

TILLER, or TILLAR, in Husbandry, a little young Tree left to grow till it be fellable. See TIMBER.

TILLER of a Ship, is a ſtrong Piece of Wood faſten'd to the Rudder. See RUDDER.

The ſame Name is alſo given to that which ſerves for a Helm in a Boat.

TILLING, in Gardening and Agriculture, a moving or ſtirring of the Ground, with the Plough or Spade; which being perform'd on the Top, enters to a certain Depth, and makes the lower and upper Parts change Place; by which means the Goodneſs of the Earth is kept from being ſpent in feeding ill Plants. See PLOUGHING, *&c.*

The Rule, as to Gardening in general, is, that hot and dry Earth ſhould be *till'd* in Summer, either a little before, or while it rains, or ſoon after; and that neither too often nor too deep: In hot Weather 'tis not to be perform'd, unleſs water'd ſoon after: But for moiſt, cold, and ſtrong Earth, it muſt never be *till'd* in Time of Rain, but rather in the greateſt Heats. As to Arable Lands, that which is clayey, ſtiff, cold, and moiſt, is generally thrice *till'd*; in Spring, Summer, and at Seed Time, for Wheat; and four Times for Barley.

Theſe repeated Ploughings or Fallowings are very advantageous to the Soil, both as they deſtroy Weeds, and as the Ground is hereby laid in Ridges, which prevents its being over-drench'd in wet Seaſons, ſaves it much from Blights, and bleak Weather, and makes the Land lighter and fitter for the Seed to take Root in, and to imbibe the nitrous Dews and Influences of the Air, *&c.* See FALLOWING and VEGETATION.

TILT. See JOUST and TOURNAMENTS, CARROUSELS and QUADRIL, *&c.*

TILT-*Boat*, a Boat cover'd with a *Tilt*, *i. e.* a Cloth, or Tent, for the Sheltering of Paſſengers: Such is that which carries Paſſengers between *London* and *Graveſend*.

TIMAR, TIMARIUM, a Lordſhip or Tract of Ground, which the Grand Signior gives the *Spahis*, in Uſu Fruit, *i. e.* to enjoy during Life, for their Subſiſtence. See SPAHI.

Meninſki calls it a Penſion, Stipend, or Revenue, granted to old Soldiers who have deſerv'd well, in Lands and Poſſeſſions of Caſtles, Towns, Villages, Fields, or in Tithes, and other Fruits and Incomes, with the Præfecture, Juriſdiction, or Lordſhip of the ſaid Places.

The *Timar* is a kind of Fief granted for Life. --- The whole Ottoman Empire is divided into Sangiackes or Banneries, under which, all ſuch as hold *Timars*, who are call'd *Timariots*, are bound to liſt themſelves, when ſummon'd upon any Expedition. See TIMARIOT.

Timars may be reſign'd as Benefices among us, only obtaining the Conſent of the Beglerbei, or Governor of the Province.

Indeed, for *Timars* of above 20000 Aſpers *per Annum*, call'd *Zaim*, the Grand Vizier alone grants Diſpenſations. See ZAIM.

TIMARIOTS, thoſe who enjoy Lands and Benefices on the Tenure and Condition of *Timars*. See TIMAR.

The *Timariots* are oblig'd to ſerve in War, perſonally, with as many Men and Horſes for Service, as their *Timar*, by the Eſtimate made thereof, contains Times 2500 Aſpers, or 11 Pounds Sterling; and to maintain them conſtantly mounted and arm'd, after their Manner, to be ready to march at all Hours when commanded; and that on Pain of Death; nothing, not even Sickneſs itſelf, being allow'd to excuſe them.

Beſide this Service, they likewiſe pay an Acknowledgment of one Tenth of their Revenue. --- If they have any Children of Age to bear Arms, and fit for the Service, after their Deceaſe, or in Defect hereof, if they have any Relations, that have the leaſt Intereſt; the *Timar* is us'd to be continu'd to them on the ſame Conditions; otherwiſe, it is transferr'd to others.

If the Revenue thus held of the Grand Signior exceed 15000 Aſpers, or 66 Pounds Sterling, they who hold it, are not call'd *Timariots*, but *Subaſſi*, or *Zaims*; and have the Adminiſtration of Juſtice in the Place, under the Sangiac of the Province.

The *Timariots* have different Appointments, from 4 or 5000 Aſpers; equal to about 22 Pounds Sterling; to 20000 Aſpers: But unleſs their *Timar* exceed 8000 Aſpers, they are never oblig'd to march, except when the Grand Signior goes in the Army in Perſon; on which Occaſion none are exempted.

The Origin of the *Timariots* is referr'd to the firſt Sultans, who being Maſters of the Fiefs or Lands of the Empire, erected them into Baronies or Commanderies; to reward the Services of their braveſt Soldiers; and eſpecially to raiſe and keep on Foot a Number of Troops without disburſing any Money.

But it was *Soliman* II. that firſt eſtabliſh'd the Order and Diſcipline among theſe Barons, or Knights of the Empire; and by his Order it was, that the Number of Horſemen each ſhould maintain, was regulated.

This Body has always been not only exceedingly powerful, but great and illuſtrious, throughout all the Empire: But Avarice, the ordinary Fault of the Orientals, has occaſion'd their Declenſion of late Years.

The Viceroys and Governors of Provinces manage their Matters ſo at Court, that *Timars*, even out of their Juriſdiction, are given to their Domeſticks, or to ſuch as will give the moſt Money for them.

There are two Kinds of *Timariots*; the one appointed by the Porte, the other by the Viceroy of the Country: But the Revenues of both are leſs than thoſe of the *Zaims*, and their Equipage and Tents leſs in Proportion. See ZAIM.

Thoſe who have their Patents from the Court, have from 5 or 6000 Aſpers, to 19999 Aſpers *per Annum*; if they have one Aſper more, they become *Zaims*. Thoſe who receive their Patents from the Viceroys, have from 3 to 6000 Aſpers *per Annum*.

This Cavalry is better diſciplin'd than that properly call'd the *Spahis*, tho' the *Spahis* be the neateſt and briskeſt. Theſe laſt only fight in Plattoons; whereas the *Zaims* and *Timariots* are divided into Regiments, and commanded by Colonels, under the Direction of Baſhaws.

The Baſhaw of *Aleppo*, when in the Army, is Colonel General of this Militia.

TIMBER, includes all Kinds of fell'd and ſeaſon'd Woods, us'd in the ſeveral Parts of Building; as Carpentry, Joinery, Turnery, &c. See WOOD and BUILDING.

The Kinds of *Timber* are numerous: We ſhall only mention ſome of the moſt uſual; from *Evelyn*'s *Sylva*, &c. as,

1°. *Oak*; the Uſes whereof need no enumerating: To endure all Seaſons and Weathers, there is no Wood like it: Hence its Uſe in Pales, Shingles, Poſts, Rails, Boards, &c. For Water-works it is ſecond to none; and where it lies expos'd both to Air and Water, there is none equal to it.

2°. *Elm*: This fell'd between *November* and *February*, is all Spine or Heart, and no Sap; and is of ſingular Uſe in Places where it is always wet or dry: Its Toughneſs likewiſe makes it of Uſe to Wheel-wrights, Mill-wrights, &c. nor muſt it be omitted, that its not being liable to break and fly in Chips, makes it fit for Dreſſers and Planks to chop on.

3°. *Beech*: Its chief Uſe is in Turnery, Joinery, Upholſtery, and the like, as being of a clean, white, fine Grain, not apt to bend or ſlit: Yet is it ſometimes, eſpecially of late, us'd for building *Timber*; and if it lie conſtantly wet, is judg'd to out-laſt Oak.

4°. *Aſh*: Its Uſe is almoſt univerſal: 'Tis good for Building, or other Occaſions where it may lie dry: It ſerves the Carpenter, Cooper, Turner, Plough-wright, Wheel-wright, Gardener; as alſo at Sea for Oars, Hand-Spikes, &c.

5°. *Fir*; commonly known by the Name of *Deal*, is of late much us'd in Building, eſpecially within Doors, for Stairs, Floors, Wainſcot, and moſt Works of Ornament.

6°. *Walnut-Tree*, is of univerſal Uſe; excepting for the Out-ſides of Buildings: None better for the Joiners Uſe; it being of a more curious brown Colour than Beech, and leſs ſubject to Worms.

7°. *Cheſnut-Tree*, next to Oak, is the *Timber* moſt ſought for by Joiners and Carpenters: 'Tis very laſting.

8°. *Service-Tree*, us'd in Joinery, as being of a delicate Grain, and fit for Curioſities: It alſo yields Beams of conſiderable Bigneſs for Building.

9°. *Poplar*, *Abel*, and *Aſpen*, differing very little from one another, are much us'd of late inſtead of Fir: They look as well, and are tougher and harder.

10. *Alder*; much us'd for Sewers or Pipes to convey Water. When always wet it grows hard like a Stone; but where ſometimes wet, and ſometimes dry, it rots immediately.

Felling of TIMBER.

The Seaſon uſually commences about the End of *April*; in regard the Bark then generally riſes the freelieſt; ſo that where a Quantity of *Timber* is to be fell'd, the Statute requires it to be done then for the Advantage of Tanning. See TANNING.

However, the Opinions and Practices of Authors are very different, as to the beſt Seaſon for felling *Timber*: *Vitruvius* recommends an Autumnal Fall; others adviſe *December* and *January*: *Cato* was of Opinion, that Trees ſhould have bore their Fruit e'er fell'd; at leaſt their Fruit ſhould be firſt ripe; which falls in with the Sentiment of *Vitruvius*.

In effect, tho' *Timber* unbark'd be moſt obnoxious to Worms, yet we find the wild Oak, and many other Kinds, if fell'd too late, when the Sap begins to be proud, to be very ſubject to Worms; whereas, about Mid-Winter, it neither caſts, rifts, nor twines.

It were happy, therefore, if a Method of Tanning without Bark could be invented, that Trees being fell'd more early, the *Timber* might be the better ſeaſon'd.

The Ancients had a great Regard to the Age of the Moon in the felling their *Timber*: If their Rules avail ought, they are theſe: Fell *Timber* in the Wain, or four Days after new Moon: Some ſay, let it be the laſt Quarter. *Pliny* orders it to be in the very Article of the Change; which happening in the laſt Day of the Winter Solſtice, the *Timber*, ſays he, will be immortal. *Columella* ſays, from the 20th to the 28th Day. *Cato*, four Days after the Fall. *Vegetius*, from the 15th to the 25th for Ship *Timber*; but never in the Increaſe, Trees then abounding with Moiſture, the only Source of Putrifaction.

Some even have a Regard to the Temper and Time of the Day; the Wind to be low, neither Eaſt nor Weſt; neither in froſty, wet, nor dewy Weather; and therefore never in the Forenoon.

Laſtly, ſome Regard is had to the Species: Fir is beſt fell'd when it begins to ſpring; both as it then quits its Coat beſt, and as the Wood, according to *Theophraſtus*, is by that Means render'd wonderfully durable in Water. Elm, ſays Mr. *Worlidge*, is to be fell'd between *November* and *January*; in which Caſe it will be all Heart; at leaſt, the Sap will be very inconſiderable: This, he adds, is the only Seaſon for felling Aſh.

Some Authors add further, that in felling *Timber*, Care is to be taken only to cut it into the Pith, and ſo to let it ſtand till dry; by which Means the Moiſture is evacuated in Drops, which would otherwiſe occaſion Putrifaction.

Seaſoning of TIMBER.

After felling, and ſawing it, ſome adviſe it to be laid up very dry, in an airy Place, yet out of the Wind and Sun, at leaſt free from any Extremities of either; And that it mayn't decay, but dry evenly, they order it to be daub'd over with Cows Dung.

'Tis not to ſtand upright, but to lie all along, one Piece over another, only kept apart by ſhort Blocks interpos'd, to prevent a certain Mouldineſs, which they are apt to contract in Sweating on one another; from which frequently ariſes a kind of Fungus, eſpecially if there be any ſappy Parts remaining.

Others adviſe Boards, Planks, &c. to be laid in ſome Pool, or running Stream for a few Days, to extract the Sap from them, and afterwards to dry them in the Sun or Air. By this means, 'tis ſaid, they will be prevented from either chapping, caſting, or cleaving; but againſt ſhrinking there is no Remedy. Mr. *Evelyn* particularly recommends this Method for Fir.

Others again, are for burying them in the Earth; others in Wheat; and others for ſcorching and ſeaſoning them in Fire, eſpecially Piles, Poſts, &c. that are to ſtand either in Water or Earth.

Sir *Hugh Platt* informs us, that the *Venetians* burn and ſcorch their *Timber* in the flaming Fire, continually turning it round with an Engine, till it has got a hard, black, cruſty Coal upon it.

Preſerving of TIMBER.

When Boards, &c. are dry'd, ſeaſon'd, and fix'd in their Places, Care is to be taken to defend and preſerve them; to which the ſmearing them with Linſeed Oil, Tar, or the like Oleaginous Matter, contributes much.

The *Dutch* preſerve their Gates, Portcullices, Draw-Bridges, Sluices, &c. by coating them over with a Mixture of Pitch and Tar, whereon they ſtrew ſmall Pieces of Cockle and other Shells, beaten almoſt to Powder, and mix'd with Sea Sands; which incruſts and arms it wonderfully againſt all Aſſaults of Wind and Weather.

Timber fell'd before the Sap is perfectly at reſt, is very ſubject to the Worms; to prevent, or cure which, Mr. *Evelyn* gives us the following Secret, as moſt approv'd. Put common Sulphur in a Cucurbit, with as much Aqua-fortis, as will cover it three Fingers deep; diſtil it to a Dryneſs, which is perform'd by two or three Rectifications.

Lay the Sulphur remaining at Bottom on a Marble, or in a Glaſs; and with the Oil it diſſolves into, anoint the *Timber*. This, he adds, not only infallibly prevents or cures the Wormineſs; but preſerves all Kinds of Woods, and even many other Things, as Ropes, Nets, and Maſts from Putrifaction, either in Air, Water, Snow, *&c.*

For ſuch as would go a ſhorter Way to work, two or three Anointings with Linſeed Oil may do very well. As to Poſts, *&c.* that are to ſtand in the Ground, the burning the Outſides to a Coal is a great Preſervative.

As to the Chops or Clefts green *Timber* is liable to after working, a very great Eye-ſore in many fine Buildings, they are clos'd by anointing, ſuppling, and ſoaking it with the Fat of powder'd Beef-Broth, twice or thrice repeated. Some Carpenters uſe Greaſe and Saw Duſt mingled for the ſame Purpoſe. But the former Method is excellent, only it is not to be us'd while the *Timber* is green.

TIMBER-*Trees*, the Wood of *Timber*, e'er yet fell'd; particularly that of Oak, *&c.* See TIMBER and TREE.

For the *Raiſing*, *Planting*, *Tranſplanting*, *Pruning*, &c. of *Timber-Trees*. See SEMINARY, PRUNING, TRANSPLANTING, *&c.*

TIMBER *Meaſure*. *Timber* is uſually meaſur'd and eſtimated by the *Load* or *Tun*; which is a ſolid Meaſure containing 40 Feet of round *Timber*, or 50 of hewn *Timber*. The Denomination of *Load*, *&c.* we ſuppoſe ariſes hence, that 40 or 50 ſolid Feet of ſuch *Timber* weighs about a Tun, *i. e.* 20 hundred Weight, which is uſually accounted a Cart Load.

I°. *For the Meaſuring of round Timber*; the Practice is to gird the Tree about, in the Middle of the Length, and folding the Line twice, to take one Length or Quarter of the whole, and account that for the true Side of the Square: Then, for the Length, 'tis counted from the But-end of the Tree, ſo far up as the Tree will hold *half a Foot Girt*, as they call it; *i. e.* ſo long as the Line, twice folded, is half a Foot.

The Dimenſions thus taken, the Quantity of *Timber* is had, either by multiplying the Side of the Square into itſelf, and that Product by the Length; by the Method of Croſs-Multiplication. See CROSS-MULTIPLICATION.

Or, more eaſily, and ſpeedily on *Gunter*'s Line, by extending the Compaſſes from 12, to the Side of the Square in Inches; for that Extent turn'd twice (the ſame Way) from the Length in Feet, will reach to the Content in Feet. See GUNTER'S *Scale*.

Or, better ſtill, on *Coggeſhall's* Sliding Rule, by ſetting 12 on the Girt Line D, to the Length in Feet on the Line C. Then againſt the Side of the Square, on the Girt Line D, taken in Inches, you have on the Line C the Content of the *Timber* in Feet. See *Coggeſhall's* SLIDING *Rule*.

Note, 1°. This Method of meaſuring round *Timber*, tho' common, is yet erroneous; and the Content found hereby, 'tis demonſtrated, is leſs than the true Content or Meaſure in the Ratio of 11 to 14. How to avoid this Error, and meaſure it juſtly, we have ſhewn under the Uſe of *Coggeſhall's Sliding Rule*.

2°. If the Tree have any great Boughs that are *Timber*, as the Phraſe is, *i. e.* which will hold Foot girt, they are commonly meaſur'd, and added to the reſt: The Solidity of the whole being thus found, they divide it by 40, which brings it into Loads.

3°. In meaſuring round *Timber* for Sale, they uſually caſt away an Inch out of the Square for the Bark, if Oak; ſo that a Tree 10 Inches ſquare, they only account as if 9; but for Aſh, Elm, Beach, *&c.* an Inch is too much.

II°. *For the Meaſuring hewn* or *ſquared Timber*; the Practice is, to find the Middle of the Length of the Tree, and there to meaſure its Breadth, by clapping two Rules, or other ſtraight Things, to the Sides of the Tree, and meaſuring the Diſtance between them: In the like Manner they meaſure the Breadth the other Way. If the two be found unequal, they add them together, and take half the Sum for the true Side of the Square.

The Dimenſions thus taken, the Content is found either by Croſs-Multiplication, *Gunter*'s Scale, or the Sliding Rule, after the Manner already directed.

The Content divided by 50, gives the Number of Loads. Note, If the *Timber* be unequally ſided, this Method of meaſuring it is erroneous; always giving the Content more than the Truth, and the more ſo, as the Difference of the Sides is greater; yet Cuſtom has authoriz'd it.

To meaſure ſuch *Timber* juſtly, a mean Proportional ſhould be found between the unequal Sides; and this Mean be accounted the Side of the Square.

For the meaſuring of Taper Timber, &c. *Timber* of other Forms, as *Cubes*, *Priſms*, *Pyramids*, &c.; See the Methods under the Article SLIDING *Rule*.

TIMBER *of Skins*, is forty Skins. *Hæc Civitas* (*ſc. Ceſtriæ*) *tunc reddebat de forma* 45 *Libras & tres* Timbres *pellium Martenarum* IL. Edw. Conf.

TIMBER, in Falconry. To *timber*, is to neſtle, or make a Neſt, as Birds of Prey do. See NEST.

TIMBERS *of Ermine*, in Heraldry, are the Ranks or Rows of Ermine in Noblemens Coats. See ERMINE.

TIMBRE, or TIMMER, in Heraldry, the Creſt of an Armoury; or whatever is placed a-top of the Eſcutcheon, to diſtinguiſh the Degree of Nobility, either Eccleſiaſtic or Secular. See CREST.

Such is the Papal Tiara, Cardinals Hat, the Croſs, Mitre, Coronet, Mortier; and particularly the Casks or Helmets, which the Ancients call'd more eſpecially *Timbres*, from their reſembling a kind of Bell without a Clapper, which the *French* call *Timbres*; or becauſe they re-ſounded like thoſe *Timbres* when ſtruck. This is the Opinion of *Loiſeau*, who derives the Word from the *Latin*, *Tintinnabulum*. See CASK.

TIME, a Succeſſion of Phænomena in the Univerſe; or a Mode of Duration, mark'd by certain Periods and Meaſures; chiefly by the Motion and Revolution of the Sun. See MODE and DURATION.

The Idea of *Time* in the General, Mr. *Lock* obſerves, we acquire by conſidering any Part of infinite Duration, as ſet out by periodical Meaſures: The Idea of any particular *Time* or Length of Duration, as a Day, an Hour, *&c.* we acquire firſt by obſerving certain Appearances at regular, and, ſeemingly, equi-diſtant Periods.

Now, by being able to repeat thoſe Lengths or Meaſures of *Time* as often as we will, we can imagine Duration, where nothing really endures or exiſts; and thus we imagine to *Morrow*, *next Year*, *&c.*

Some of the later School Philoſophers define *Time* to be the Duration of a Thing, whoſe Exiſtence is neither without Beginning nor End; by which, *Time* is diſtinguiſh'd from *Eternity*. See ETERNITY.

Ariſtotle and the Peripateticks, define it *Numerus motus ſecundum prius & poſterius*; or a Multitude of tranſient Parts of Motion, ſucceeding each other, in a continual Flux, in the relation of Priority and Poſteriority.

Hence it ſhould follow, that *Time* is Motion itſelf, or at leaſt the Duration of Motion, conſider'd as having ſeveral Parts, ſome whereof are continually ſucceeding to others: But on this Principle, *Time*, or temporal Duration, would not agree to Bodies at reſt, which yet no Body will deny to exiſt in *Time*, or to endure for a *Time*.

To evade this Inconvenience, the *Epicureans* and *Corpuſcularians* made *Time* to be a ſort of Flux, different from Motion, conſiſting of infinite Parts, continually and immediately ſucceeding each other, and this from Eternity to Eternity; but others directly explode this Notion, as eſtabliſhing an Eternal Being, independant of God. For how ſhould there be a Flux, before any thing exiſted to flow? And what ſhould that Flux be, a Subſtance or an Accident?

Time may be diſtinguiſh'd like Place, into *Abſolute* and *Relative*. See PLACE.

Abſolute TIME, is *Time* conſider'd in itſelf, and without any relation to Bodies or their Motions. This flows equally, *i. e.* never proceeds either faſter or ſlower; but glides on in a conſtant, equable Tenor.

Relative or *Apparent* TIME, is the ſenſible Meaſure of any Duration, by means of Motion. For ſince that equable Flux of *Time* does not affect our Senſes, nor is any way immediately cognizable thereby; there is a Neceſſity for calling in the Help of ſome nearly equable Motion to be a ſenſible Meaſure, whereby we may determine its Quantity, by the Correſpondency of the Parts of this, with thoſe of that.

Hence, as we judge thoſe *Times* to be equal, which paſs while a moving Body, proceeding with an equable Velocity, paſſes over equal Spaces; ſo we judge thoſe *Times* to be equal, which flow while the Sun, Moon and other Luminaries perform their Revolutions, which, to our Senſes, are equal.

But ſince the Flux of *Time* cannot be accelerated, nor retarded; whereas all Bodies move ſometimes faſter and ſlower, and there is, perhaps, no perfectly equable Motion in all Nature: It appears hence to follow, that abſolute *Time* ſhould be ſomething truly and really diſtinct from Motion. For let us ſuppoſe the Heavens and Stars to have remained without Motion from the very Creation; does it hence follow, that the Courſe of *Time* would have been at a Stand? Or, rather, would not the Duration of that Quieſcent State be equal to the very *Time* now elapſed?

Since abſolute *Time* is a Quantity uniformly extended, and in its own Nature moſt ſimple; it hence comes to be repreſented by Mathematicians, to the Imagination, under the moſt ſimple, ſenſible Magnitudes, and particularly right Lines and Circles, with which it bears a near Analogy, in reſpect of Geneſis, Similarity, *&c.*

'Tis not, indeed, neceſſary, that *Time* ſhould be meaſured by Motion; any conſtant periodical Appearance in ſeemingly equidiſtant Spaces, as the freezing of Water, the blowing of a Plant, *&c.* returning at ſet Periods, might do as well. In effect, Mr. *Lock* mentions an *American* People, who count their Years by the coming and going away of Birds. See PERIODS.

Some Authors diſtinguiſh *Time* into *Aſtronomical* and *Civil*.

Aſtronomical Time, is that taken purely from the Motion of the heavenly Bodies, without any other regards.

Civil Time, is the former *Time* accommodated to Civil Uſes; and form'd and diſtinguiſh'd into *Years*, *Months*, *Days*, *&c.* See DAY, MONTH, WEEK, YEAR, *&c.*

In this Senſe, *Time* is the Subject of Chronology. See CHRONOLOGY.

TIME, in Muſic, is an Affection of Sound, whereby we denominate it *long* or *ſhort*, with regard to its Continuity in the ſame Degree of Tune. See SOUND.

Time and Tune are the great Properties of Sound, on whoſe Difference, or Proportions, Muſic depends: Each has has its ſeveral Charms; where the Time, or Duration of the Notes is equal, the Differences of Tune alone are capable to entertain us with endleſs Pleaſure. See TUNE.

And of the Power of *Time* alone, *i. e.* of the Pleaſures ariſing from the various Meaſures of long and ſhort, ſwift and ſlow; we have an Inſtance in the Drum, which has no Difference of Notes, as to Tune. See DRUM, ACCENT, *&c.*

Time, in Muſic, is conſider'd, either with reſpect to the abſolute Duration of the Notes, *i. e.* the Duration conſider'd in every Note by itſelf, and meaſured by ſome external Motion foreign to the Muſic; in reſpect to which, the Compoſition is ſaid to be *quick*, or *ſlow*: or it is conſider'd, with reſpect to the relative Quantity or Proportion of the Notes compared with one another. See NOTE.

The Signs or Characters by which the Time of Notes is repreſented, are ſhewn under the Article, CHARACTERS *in Muſic*; where the Names, Proportions, *&c.* are alſo expreſs'd.

A Semi-breve, for Inſtance, is mark'd to be equal to two Minims, a Minim to two Crotchets, a Crotchet to two Quavers, ſo on, and ſtill in a duplicate *Ratio*, *i.e.* in the *Ratio* of 2 : 1. Now, where the Notes reſpect each other, thus, *i. e.* where they are in this *Ratio*; the Muſic is ſaid to be in *Duple*, i. e. *double* or *common Time*.

When the ſeveral Notes are Triple each other, or in the *Ratio* 3 : 1; that is, when the Semi-breve is equal to three Minims, the Minim to three Crotchets, *&c.* the Muſic is ſaid to be *triple Time*.

Now, to render this Part as ſimple as poſſible, the Proportions already ſtated among the Notes, are fix'd and invariable; and to expreſs the Proportion of 3 : 1, a Point (.) is added on the right Side any Note, which is deem'd equivalent to Half of it; and by this means a pointed Semi-breve O· becomes equal to three Minims, *&c.* ſo of the reſt.

From hence ariſe ſeveral other *Ratios* conſtituting new Kinds of triple Time; as 2 : 3 and 3 : 4, *&c.* but theſe Mr. *Malcolm* obſerves, are of no real Service, and are not perceived without a painful Attention. For the Proportions of the Times of Notes, to afford us Pleaſure, muſt be ſuch as are not difficultly perceived; on which account, the only *Ratios* fit for Muſic, beſides that of Equality, are the *Double* and *Triple*.

Common or duple TIME, is of two Species; the Firſt, when every Meaſure is equal to a Semi-breve, or its Value in any Combination of Notes of a leſſer Quantity.

The Second, where every Bar is equal to a Minim, or its Value in leſſer Notes. The Movements of this Kind of Meaſure are various; but there are Three common Diſtinctions; the firſt *ſlow*, ſignify'd at the beginning by the Mark C; the ſecond *briſk*, ſignify'd by ₵; the third *very quick*, ſignify'd by Ɖ.

But what that ſlow, briſk and quick is, is very uncertain, and only to be learnt by Practice. The neareſt Meaſure we know of, is to make a Quaver the Length of the Pulſe of a good Watch; then, a Crotchet will be equal to two Pulſes, a Minim to four, and the whole Meaſure or Semi-breve to eight. This may be reputed the Meaſure of *briſk Time*; for the *ſlow*, 'tis as long again, and the *quick*, only half as long.

The whole Meaſure, then, of common *Time*, is equal to a Semi-breve or a Minim: But theſe are variouſly ſub-divided into Notes of leſs Quantities. See MEASURE.

Now to keep the *Time* equal, we make uſe of a Motion of the Hand or Foot, thus: Knowing the true *Time* of a Crotchet, we ſhall ſuppoſe the Meaſure or Bar actually ſub-divided into four Crotchets for the firſt Species of common *Time*; then the Half Meaſure will be two Crotchets; therefore, the Hand or Foot being up, if we put it down with the very beginning of the firſt Note or Crotchet, and then raiſed with the Third; and then down to begin the next Meaſure: this is call'd *beating of Time*.

By Practice, we get a Habit of making this Motion very equal, and conſequently of dividing the Meaſure or Bar into equal Parts, up and down; as alſo of taking all the Notes in the juſt Proportion, ſo as to begin and end them preciſely with the beating. In the Meaſure of two Crotchets, we beat down the firſt, and the ſecond up. Some call each Half of the Meaſure in common *Time*, *a Time*; and ſo they call this the Mode or Meaſure of *two Times*, or the *Dupla* Meaſure.

Again, ſome mark the Meaſure of two Crotchets with a 2 or $\frac{2}{4}$, ſignifying it to be equal to two Notes, whereof four make a Semi-breve; and ſome mark it $\frac{4}{8}$ for Quavers.

For Triple TIME; ſee TRIPLE *Time*.

TIME *in Fencing*, There are three Kinds of *Time*; that of the Sword; that of the Foot, and that of the whole Body. All the *Times* that are perceived out of their Meaſure, are only to be conſider'd as Appeals or Feints, to deceive and amuſe the Enemy.

TIME *in Grammar*	See	TENSE.
TIME *in Mechanicks*		MOTION.
Periodical TIME *in Aſtronomy*		PERIOD.
Equation of TIME		EQUATION.

TIME-*Keeper*, or TIME-*Meaſure*. See CHRONOMETER.

TIN, a whitiſh Metal, ſofter than Silver, yet much harder than Lead. See METAL.

The Chymiſts, *&c.* hold *Tin* an imperfect Metal, generated of two different Seeds, *viz.* that of Silver and that of Lead; which renders it a kind of Compound of both; and accordingly it is frequently found in Lead and Silver Mines.

Tin, however, has alſo its proper Mines, of which our Counties of *Cornwal* and *Devonſhire* are an abundant Evidence: The greateſt Part of the *Tin* conſumed in *Europe*, is procured from thence; and *Cambden* even ſuppoſes this Abundance of *Tin* in thoſe two Provinces, to have given the original Denomination *Britain* to the whole Country. In the *Syrian* and *Chaldee*, *Tin* is call'd *Bragmanac*; the Primitive whereof is *Bratman* or *Britman*, whence *Britain*.

The principal Characters or Properties of *Tin*, enumerated by *Boerhaave*, are, That it is the lighteſt of all Metals; very little ductile or elaſtic; the moſt fuſible and volatile of all Metals; ſcarce diſſoluble by Acids, unleſs the weaker Sorts; and eaſily and intimately miſcible with other Metals, the Ductility whereof becomes diminiſh'd by ſuch Mixture.

The ſame Author concludes, that Sulphur is a prevailing Ingredient in *Tin*, and deduces ſeveral of its particular Properties therefrom. He adds, that could the Metal be perfectly purged of this heterogeneous Sulphur, 'tis probable it would be found no other than Silver.

Several Authors had before noted a great Conformity, in divers Particulars, between the two Metals; as, that both grow bitter when diſſolved by Acids; that when fuſed together, there is ſcarce any ſeparating them again, not even by Lead. Add, that Mr. *Boyle* and others, give us ſeveral Inſtances of Silver being actually procured in conſiderable Quantity from *Tin* Ore. See SILVER.

Yet ſome Naturaliſts judge the Analogy greater between *Tin* and Lead; and contend that *Tin* is only Lead, under a leſs Degree of Coction; but if there be ſome Marks of Agreement between them, there are as many of Diſagreement. The Calx of Lead, for inſtance, eaſily fuſes and vitrifies, but that of *Tin* not without the laſt Difficulty: If *Tin* and Lead be mix'd by a vehement Fire, a vehement Colluctation enſues, and they both run into a Calx: Add, that *Tin* is eaſily revivified; but Lead with great Labour. See LEAD.

The Method of getting, preparing, *&c.* the *Tin* in the *Corniſh* Mines, much the beſt and moſt conſiderable in the World; is given us in the *Philoſophical Tranſactions*.

The working of the *Tin*-Mines is very hard and difficult; not only by reaſon of the great Depth which the Veins deſcend to, even as low as 50 Fathom; but alſo becauſe the Rocks, through which Paſſages are frequently to be cut, are often ſo hard, that the Workman can't dig a Foot in a Week. Nor is the ſoft, ſhaking Earth found in the *Tin* Mines, much leſs inconvenient to the Workmen; both by reaſon of fœtid, malignant Vapours it exhales, and of the Currents of Water often met withal therein: all theſe Diſadvantages together render it impracticable for the Workmen to hold it above four Hours together.

The mineral Stones or Glebe being dug and drawn out of the Mine, is there broke into Pieces with large Iron Mallets; then brought to a Stamping Mill, where 'tis ſtill pounded ſmaller with Stampers, much like thoſe of Paper Mills; and the Water paſſing through it waſhes away the earthy Parts, leaving the Metallic ones behind: The Lotion is repeated twice, to make the better Separation.

This done, they dry it in a Furnace on Iron Plates; and grind it very fine in a Craſing Mill; then waſh it again; then dry it: In this State, the metallic Matter is call'd *Black*, or *Black Tin*.

To convert it into *Tin*, *i. e.* into *white Tin*, they carry it to a Furnace or blowing Houſe; where, by means of a Charcoal Fire, kept up by huge Bellows work'd with the Water, it is melted; after it has paſs'd all theſe Preparations, and is become cold, they forge it; which is the laſt Thing done to it in the Works.

The Droſs or Scoria ſcumm'd off the *Tin* in Fuſion, being melted down with freſh Ore, runs into Metal; and even the Cauſalty, *i. e.* the Matter waſh'd and ſeparated from the Metal in the Mill, being thrown up in Heaps, after reſting Six or Seven Years, they fetch it over again, and it yields as good *Tin* as any of that of *Germany*.

The Workmen diſtinguiſh ſeveral Kinds of *Tin*; as *Moor-Tin*, which is the beſt Sort, a Fool whereof, weighs 80 Pounds; and *Mine-Tin*, which is the next, a Fool thereof weighing about 52 or 50 Pounds. The *Tin* got from the ſoft, gravelly Earth, they call *Pryan Tin*, to diſtinguiſh it from that got from the Stones, which is better by almoſt Half.

Two Pounds of *black Tin*, when melted, yield about one of *White*.

There is a Curioſity in theſe *Corniſh* Mines, which the Lover of Natural Hiſtory will be pleas'd to hear; and 'tis this: That in digging, at the Depth of 40 or 50 Fathoms, they frequently meet with large Trees, ſtill entire. See SUBTERRANEOUS.

Chilirey, in his Natural Hiſtory, goes back as far as the Deluge to place them there; but without having recourſe to ſo great Antiquity, they who believe that the Mines, when exhauſted of their Ore or Mineral Matter, renew and fill again in courſe of Time, will ſoon ſolve the Difficulty, by ſuppoſing, that in the firſt Working of theſe Mines, theſe Trees had been let down to ſerve as Props and Pillars. See DELUGE.

But there are other People will think this Renewal of the Mines itſelf a Difficulty as great as the former. However, what the former Author adds, *viz.* that in ſome Places in the Mines, they likewiſe find Pick-axes, *&c.* with wooden Shafts, as alſo braſs Nails, and even a Medal of *Domitian*, ſeems to countenance the Opinion. See MINE.

The Chymiſts call *Tin*, *Jupiter*: But from what Analogy between the Metal and the Planet, we leave them to explain. See JUPITER.

By the Analyſes made of this Metal, they hold it compounded of Earth, Sulphur, a metallic Salt, and Mercury.

The chief chymical Preparations from *Tin*, are Salt of *Tin*, Flower of *Tin*, and Diaphoretic of *Tin*.

Salt of TIN, or of *Jupiter*, is *Tin* calcined; and diſtill'd Vinegar pour'd thereon; from which, by means of Fire, and then of a cool Place wherein 'tis put, a very white Salt is drawn. See SALT.

Flower of TIN, is a kind of white Coſmetic, or Paint, for the Complexion; drawn with Sal Ammoniac, by means of Sublimation. See FLOWER.

Diaphoretic of TIN, is fine *Tin*, and Regulus of Antimony melted, firſt together, and then both with Salt-petre. Whence, after various Lotions, is drawn a Powder, held to be ſoveraign againſt various Diſeaſes.

Ceruſs of TIN, is a white Powder, procured from *Tin*, whereof a Fucus is made, call'd *Spaniſh White*.

This *Ceruſs* is not made with Vinegar, as that of Lead is; but with the Urine of a young Perſon: The Powder is alſo uſed to colour *Delft* Ware.

Calx of TIN, is what we properly call *Bezoardicum Joviale*. See BEZOARDICUM.

TIN *of Glaſs*, is what we properly call *Biſmuth*. See BISMUTH.

For the uſe of Tin in the Compoſition of Pewter; ſee PEWTER.

Method of Aſſaying TIN.

To find whether *Tin* be ſoft and ductile, or harſh and brittle; there are two Kinds of Aſſays; the Firſt, is by putting the *Tin* in a hot, braſs Mould, and there melting it. If the Metal be harſh, it will be taken out heavier than before; otherwiſe it will be lighter. The Second, is by caſting the melted *Tin* into a little Mould, made of the Thunder-ſtone. This Mould has a little Canal of moderate Length, which conducts the Matter into a Cavity, capable of containing half a Billiard Ball: If the *Tin* be harſh, it appears whitiſh towards the Entry of the Mould, otherwiſe 'tis tinged ſuperficially with a very faint, bluiſh Brown.

TINCTURE or *Eſſence*, in Pharmacy and Chymiſtry, a Separation of the finer and more volatile Parts of a mixt Body, made by means of a proper Menſtruum diſſolving the ſame. See MENSTRUUM and DISSOLUTION.

TINCTURE is particularly applied to the Extraction, or Separation of a Colour from a mixt, and the Impreſſion it makes in a Liquor, or Menſtruum which takes away a Part of its pureſt Subſtance, and by that means becomes a ſharer in its Colour, Virtues, *&c.*

Thus in Pharmacy, we have Cephalic *Tinctures*, Antiſcorbutic *Tinctures*, Stomachic *Tinctures*, Anticholic *Tinctures*, Invigorating *Tinctures*, *&c.*

Tinctures are drawn from Roſes, from Corals, *&c.* See EXTRACTION.

To make a *Tincture*, the Matter is uſually bruiſed, put in a Matraſs, and the Menſtruum, which commonly is Spirit of Wine, poured on it, to the Height of two or three Fingers above it. Then the Glaſs is cloſed, and ſet for Digeſtion, in a Sand Heat during four or five Hours, till the Spirit is well impregnated, and has received a high Colour. See DIGESTION.

Thus are *Tinctures* of odoriferous Vegetables, as Cinnamon, *&c.* drawn; and the ſame Menſtruum ſerves for thoſe of Metals and Minerals.

The *Tinctures* of Metals, ſo much talk'd of by the Chymiſts and Alchymiſts, are not proper *Tinctures*; they are only Diſſolutions, wherein the Metal is divided and attenuated to a greater Degree, than it is in its natural and ordinary Diſſolvent.

If the *Tincture* were irreductible; that is, if the Metal were diſſolv'd to ſuch a Degree, as that it could not be brought back again into Metal; or, which comes to the ſame, if the Principles which compoſe it were diſunited, it would be what the Chymiſts have ſo long and ſo earneſtly wiſh'd for, and ſought with ſuch infinite Pains, eſpecially with regard to Gold; the *Irreductible Tincture* whereof, is what ſhould be call'd *Aurum Potabile*. See GOLD.

But no ſuch *Tincture* has ever yet been diſcover'd: The Potable Gold in uſe among us, being only Gold extreamly divided; and the Caſe is the ſame with the *Tinctures* of other Metals. See METAL and MINERAL.

The Intention of metalline *Tinctures*, is to rarify and extend the Sulphur of the Metal as much as poſſible; and ſo render the fix'd and earthy Parts, as ſubtle and volatile as may be: If they are deſigned to be of Uſe in Medicine, ſome harmleſs and agreeable Intermedium is to be uſed. See STEEL.

The Alchymiſts give the Name of *Grand Mineral Tincture* to the Philoſophers Stone; from an Opinion, that all which is required to that Operation, is to give the Colour or *Tincture* of Gold to fix'd Mercury. See PHILOSOPHERS *Stone*.

Marble, Alabaſter and Bones, receive *Tinctures* from Lixiviums, and ſharp Juices; and Mr. *Boyle* thinks there is reaſon to hope the ſame may be done of precious Stones; Rock Cryſtal, 'tis certain, is tinged by Subterraneous Juices; ſo is Saphyr itſelf. See STONE.

In the Memoirs of the *French* Academy, mention is made of certain Liquors, *e. gr.* Salts drawn from Wheat, which will extract *Tinctures*, even out of ſome precious Stones. 'Tis added, they are the more capable of producing this Effect, as they give a greater Degree of Redneſs to the Solution of Vitriol.

TINCTURE is alſo applied by the Heralds, to the Colours in an Eſcutcheon, or Coat of Arms; under which may be likewiſe reduced the two Metals, *Or* and *Argent*, becauſe often repreſented by Yellow and White. See COLOUR and METAL.

TINEA, in Medicine, a Diſeaſe call'd by the *Arabic* Writers *Sahafati*, and in *Engliſh* uſually a *ſcall'd Head*.

The *Tinea* is a Diſeaſe of the Leprous Kind: Authors uſually reckon three Species of it, *viz.* a *dry*, *moiſt*, and *lupinous*; which, in reality, are only ſo many Degrees of the ſame Diſeaſe. See LEPRA.

Turner defines it an Ulcer ariſing in the Heads of Children, from a vicious, corroſive, or ſaline Humour, which preying on the Cutaneous Glands, in Time deſtroys their Texture.

In the firſt Stage it is cover'd with white, dry, ſcurfy, or ſquammous Matter: In the ſecond the ſubjacent Fleſh appears granulated: And in the third it is ulcerous.

It has its Name *Tinea*, Moth, from the Similitude of the Holes eat by that Inſect on Paper, *&c.*

The internal Remedies proper for the *Tinea*, are Mercurials, proper Cathartics, and Dietetics, or Edulcorants; and ſometimes a Salivation, eſpecially by Unction, has been efficacious, after all other Methods have prov'd vain. The Externals are Fomentations made of Roots of *Oxylapathum*, *Birthwort*, *Horſe-Radiſh*, *Wormwood*, *&c.* boil'd in Water and ſtrain'd; to which are added, Spirits of Wine camphorated, *&c.* *Liniments* of Hogs Lard, white Precipitate Mercurial Ointments, with powder'd Brimſtone; and ſometimes Powder of *Roman* and white Vitriol, red Precipitate, *&c.*

TIN-*Glaſs*, a mineral Matter, white, ſmooth, and, as to Appearance, reſembling *Tin*; but hard, ſharp, brittle, and diſpos'd into ſhining Scales, as it were Pieces of Glaſs, whence its Name. See MINERAL.

Tin-Glaſs is the ſame with what we otherwiſe call *Biſmuth*. See BISMUTH.

TINNING, the covering or lining any thing with melted *Tin*, or with *Tin* reduc'd to a very fine Leaf.

Looking Glaſſes are foliated or *tinn'd* with thin Tables of beaten *Tin*, the whole Bigneſs of the Glaſs; apply'd and faſten'd thereto by means of Quickſilver. See FOLIATING and LOOKING-*Glaſs*.

Kettles, Saucepans, and other Kitchen Utenſils, are *tinn'd* with melted *Tin*; and Locks, Bits, Spurs, *&c.* with Leaf *Tin* by Help of Fire.

The Plumbers uſe to *tin* or whiten their Sheets of Lead; in order to which they have a *tinning Furnace*, fill'd with live Coal, at the two Sides whereof two Men are plac'd, who hold up the Sheets over the Fire to heat; and the *Tin*-leaves being laid over them, as faſt as the Sheets grow hot, and the *Tin* melts, they fix it on by rubbing and ſtretching it with Tow and Roſin. See PLUMBERY.

TINNITUS *Auris*, *Tingling of the Ear*, a Diſeaſe pretty frequent in the Ear, conſiſting in the Perception of a Sound which is not, or, at leaſt, which is not external.

This Perception is occaſion'd by the beating of an Artery in the Ear, by an Inflammation, or Abſceſs of the Tympanum or Labyrinth, by the Admiſſion of foreign Bodies, by Commotions of the Cranium, Blows on the Ear, *&c.* Extraordinary and irregular Motions of the Animal Spirits are alſo found to occaſion the *Tinnitus*, as we find in Deliriums, Phrenſies, Vertigos, *&c.* The Tingling of the Ear is one of the Diagnoſtic Signs of the Plague.

TIP-*ſtaves*, or *Baſtons*, are the Wardens of the *Fleet*'s Officers, attending the King's Courts, with a painted Staff, for the taking into Cuſtody ſuch Perſons as are committed by the Court; and to attend ſuch Priſoners as go at large by Licence. See BASTON.

By this Name alſo are the Judges Officers call'd, who carry a Rod, or Staff, *tip'd* with Silver, and take Charge of ſuch Priſoners, as are either committed or turn'd over at the Judge's Chambers. See VERGE.

TIRE, or, as the Seamen pronounce it, TEER, *of Guns*, is a Rank of Guns plac'd along upon a Ship's Side, either above upon Deck, or below; the former of which are call'd the *upper Tire*, the latter the *lower Tire*. See SHIP.

TITANS, in the ancient Mythology, the Sons of *Uranius*, or *Cœlus*, and *Veſta*, *i. e.* of *Heaven* and *Earth*, according to *Heſiod* and *Apollodorus*; or, which comes to the ſame Thing, of *Æther* and *Earth*, according to *Hyginus*.

Apollodorus reckons five *Titans*, *Oceanus*, *Cœus*, *Hyperion*, *Crius*, and *Japetus*; all elder Brothers of *Saturn*: *Hyginus* reckons ſix, all, except *Hyperion*, different from the former; their Names, *Briareus*, *Gyges*, *Steropes*, *Atlas*, *Hyperion*, and *Ptolus*; but he ſeems to include the hundred-handed Giants in the Number, which *Apollodorus*, and the Generality of Mythologiſts, diſtinguiſh from the *Titans*.

Cœlus, by the ſame Wife, *Veſta*, had *Briareus*, *Gyges*, and *Cottus*, the hundred-handed Giants, and had chain'd them up in *Tartarus*: *Veſta*, the Earth, their Mother, reſenting this Treatment, rais'd the *Titans* againſt their Father, her Huſband: All, excepting *Oceanus*, made War upon him, and dethron'd him, ſetting up *Saturn* in his Place.

Saturn, it ſeems, prov'd no more favourable to them than his Father; but continu'd the Giants in their Priſon.

Upon this, *Jupiter* revolted againſt *Saturn*; ſerving him as he had done *Cœlus*; and reſcu'd the three Giants; who afterwards prov'd of great Service to him in the War the *Titans* wag'd againſt him.

This War laſted ten Years; but at length the *Titans* were vanquiſh'd; *Jupiter* remain'd in peaceable Poſſeſſion of Heaven, and the *Titans* were bury'd under huge Mountains thrown on their Heads.

Hyginus gives another Origin of the *Titans*: He derives 'em from *Titan*, *Saturn*'s elder Brother, by *Cœlus* and *Veſta*; who, tho' preſumptive Heir of Heaven, yet finding his Father and Mother more inclin'd for *Saturn* than him, ſurrender'd to him his Right of Succeſſion, on Condition he ſhould not bring up any Male Child, that the Empire of Heaven might revert to his own Iſſue the *Titans*.

But *Jupiter*, *Neptune*, and *Pluto* having been afterwards ſav'd by the Artifice of *Ops*; *Titan* and his Sons, the *Titans*, made War on *Saturn*, vanquiſh'd, and impriſon'd him: Thus he continu'd in the Power of his Enemies, till *Jupiter* being grown up, made War on the *Titans*, and deliver'd his Father.

F. *Pezron*, in his Antiquity of the *Celtæ*, makes them the ſame with the *Titans* in Mythology; and their Princes the ſame with the Giants in Scripture: He adds, that the Word *Titan* is perfect *Celtic*, and derives it from *Tit*, Earth, and *Den* or *Ten*, Men: And hence the *Greeks* call them very properly Γηγενεῖς, *q. d. Terrigenæ*, Earth-born.

The Word *Titan* is alſo us'd by the Poets for the Sun; in which Caſe it is likewiſe *Celtic*; only of another Etymology, being form'd from *ti*, Houſe, or Habitation, and *tan*, Fire.

Heſychius obſerves, that the Word *Titan* is likewiſe us'd for *Sodomite*: He adds, further, that 'tis one of the Names of Antichriſt; in which Senſe it muſt be wrote *Teitan* in *Greek*, to contain the Numeral Letters of 666; which in the Apocalypſe xiii. 18. is the Number of the Beaſt.

TITE, or TIGHT: The Seamen ſay a Ship is *tite*, when ſhe is ſo ſtaunch as to let in but very little Water. This is known by the Smell of the Water pump'd out; for if ſhe let in little, it will always ſtink; otherwiſe not.

TITHES, or TYTHS, TENTHS, *Decimæ*, *Dixmes*, the tenth Part of all Fruits, both Prædial, Perſonal, and Mix'd; allotted to the Clergy for their Maintenance. See FRUIT, CLERGY, *&c.*

Of *Tithes* there are three Kinds, *viz.* 1°. *Perſonal Tithes*; which are thoſe due or accruing from the Profits of *Labour*; *Art*, *Trade*, *Navigation*, and *Induſtry* of Man. See PERSONAL.

2°. *Prædial Tithes*, which ariſe either from the Fruits of the Ground; as *Corn*, *Hay*, *Underwood*, *Flax*, *Hemp*, &c. or from the Fruits of Trees; as *Apples*, *Pears*, *Plumbs*, *Cherries*; or from the Fruits of Gardens. See PRÆDIAL.

3°. *Mixt Tithes*, which are ſuch as ariſe from Beaſts, and other Animals fed with the Fruits of the Earth; as *Cheeſe*, *Milk*, *Wooll*, *Lambs*, *Calves*, *Fowls*, &c. See MIXT.

Prædial Tithes, again, are either *great* or *ſmall*: The *great Tithes* are thoſe of Corn, Hay, and Wood; *ſmall Tithes* are thoſe of Flax, *&c.* which are *prædial*; and thoſe of Wooll, Milk, Cheeſe, Lambs, Ferrets, *&c.* which are *mix'd*. See PARSON, RECTOR, VICAR, *&c.*

The Cuſtom of giving or paying *Tithe* is very ancient: In *Gen.* xiv. 2. *Abraham* gives *Abimelech* the Tenth of all the Spoils he had taken from the four Kings he had defeated: In *Gen.* xxviii. 22. *Jacob* makes a Vow at *Bethel*, to give the Tenth of all the Riches he ſhall gather in that Sojourn, to God.

But theſe *Tithes* were free and voluntary; and, beſide, differ'd in divers other Reſpects from what was afterwards call'd *Tithes*: What *Melchiſedech* receiv'd, was only the Tenth of the Spoils, not of *Abraham*'s Poſſeſſions; and this once, not annually; and beſide, not as Maintenance, which *Melchiſedech* wanted not, but as Homage: Add, that this was only from one Prieſt to another; for *Abraham* had not only a Prieſt in his Loins, but was a Prieſt himſelf.— And as to *Jacob*, who was alſo a Prieſt, what he did was the Effect of a Vow, voluntarily taken, to offer the Tenth of all he ſhould poſſeſs; not to any other Prieſt, but to God himſelf upon an Altar.

Tithe was firſt legally enjoin'd by *Moſes*, *Exod.* xii. *Lev.* xxvii. 30. *Numb.* xviii. 21. *Deut.* xiv.

That Legiſlator oblig'd the *Iſraelites* to ſeveral Kinds of *Tithes*; as, 1°. The *firſt Tithe*, מעשר הוראשון, which was a *Tithe* of all the Fruits, given to the *Levites*: This was not taken till after the Oblation call'd תרומה had been made. See LEVITE.

2°. The *ſecond Tithe* was a tenth Part of the nine remaining after Payment of the firſt *Tithe*. This *Tithe* was ſet apart in each Family; and the Maſter of the Family was oblig'd to carry it to *Jeruſalem*, and to ſpend it there; or, in Caſe he could not, he was to redeem it, or convert it into Money, in which Caſe he was to add a Fifth to it, and carry the Money to *Jeruſalem*. The Rabbins ſay, that if he did not redeem it himſelf, that is, if he did not ſubſtitute his own Money in lieu of it, but ſold it to another, he was only requir'd to carry the bare Price to *Jeruſalem*, without any Addition.

3°. The *Tithe of the Tithe*, was the tenth Part of all the *Tithes* that had been given the *Levites* by the People; for the *Levites*, after they had got all their *Tithes* of the People, divided it into ten Parts; and in their Turn, gave a *Tithe* to the Prieſts.

This *Tithe* the Rabbins call תרומתמעשר, the Oblation of the *Tith*, or מעש רמיזהמעשר, *Tithe of Tithe*, or ים מקר שם מעשר, the *Tithe* of ſanctify'd Things. --- And this the *Levites* were oblig'd to carry to the Temple; the reſt was reſerv'd for their own Subſiſtence.

4°. *The Tithe of the third Year*, was another Kind of *Tithe*, not much different from the ſecond *Tithe*, excepting that it was leſs troubleſome, by Reaſon they were not oblig'd to carry it to *Jeruſalem*. Every ſeventh Year God appointed the Ground ſhould lie and reſt, nor ſhould the Owners even gather the Fruits which it produc'd ſpontaneouſly: That Year, therefore, they paid no *Tithe*, but only the ſix preceding ones. See SABBATH.

Now, every third of theſe ſix Years, *i. e.* on the third, and the ſixth, they rais'd, as uſually, the firſt *Tithe*; and after that a ſecond. --- But this ſecond they did not carry to *Jeruſalem* either in Kind or in Money; but kept it by them to be ſpent by the *Levites*, the Strangers, the Fatherleſs, and the Widows of the Place, *Deut.* xiv. 28, 29.

This was alſo call'd the *Tithe of the Poor*, and the *third Tithe*; and theſe third Years it was paid on, were call'd the *Tithe*-Years.

All theſe *Tithes* amounted to above one Sixth of the Revenue of each Perſon: For if, for Inſtance, a Maſter of a Family reap'd 6000 Meaſures of Wheat, and 100 were firſt taken away for the firſt Fruits or Oblation, he had only 5900 left: From this 5900, taking away the firſt *Tithe*, there remain'd 5310, the Tenth whereof is 531; which being taken, leaves 4779 for the Proprietor; who, conſequently, has given 1121, *viz.* 121 more than a Sixth of the whole.

Of the 590 which the *Levites* receiv'd for the firſt *Tithe*, 59 went to the Prieſt for the *Tithe of Tithes*; ſo that they were left 531 for their own Subſiſtence, and that of their Families.

Theſe Matters are all further explain'd in the *Thalmud*, wherein there are two Books of *Tithes*, the Book of Benedictions, ברכות, in the Commentaries of *Bartenora*, *Maimonides*, *R. Schelomoh Jarrhi*, in *Scaliger*, *Amama*, *Selden*, *Friſchmuth*, *Quenſteed*, *Varenius*, *Hottinger*, *Sigonius*, *Cunæus*, *Goodwin*, *Leidekker*, &c.

Under the new Law, 'tis not Jeſus Chriſt that eſtabliſh'd *Tithes*, as 'twas God himſelf did it under the old Law by the Miniſtry of *Moſes*: The Chriſtian Prieſts, and the Miniſters of the Altar of the new Covenant, liv'd, at firſt, wholly of the Alms and Oblations of the Devout. See OBLATIONS, *&c.*

In after Times the Laity gave a certain Portion of their Revenues to the Clergy, but voluntarily, and not out of any Conſtraint or Obligation: The firſt Inſtances we have of it, are in the IVth and Vth Centuries.

This Gift was call'd *Tithe*; not that it was really a tenth Part of their Income, or near ſo much; but only in Imitation of the *Tithes* of the old Law.

In the following Age, the Prelates in their Councils, in Concert with the Princes, made an expreſs Law to the Purpoſe; and oblig'd the Laity to give a full tenth Part of their Revenues, their Fruits, *&c.* to the Eccleſiaſticks.

This the Church enjoy'd without Diſturbance for two or three Centuries; but in the VIIIth Century the Laity got hold of Part of theſe *Tithes*, either by their own Authority, or by Grants and Donations of the Princes; and appropriated them to their own Uſes. See APPROPRIATION.

Some time afterwards they reſtor'd them, or apply'd them to the founding of Monaſteries or Chapters; and the Church conſented, at leaſt tacitely, to this Reſtitution.

In 1179, the third Council of *Lateran*, held under *Alexander* III. commanded the Laymen to reſtore all the *Tithes* they yet held, to the Church.

In 1215, the fourth Council of *Lateran*, held under *Innocent* III. moderated the Matter a little; and, without ſaying any thing of the *Tithes* which the Laity already poſſeſs'd, forbad them to appropriate or take any more for the future.

Fra. Paolo, in his Treatiſe *de materia Beneficiaria*, is of Opinion, that the Cuſtom of paying *Tithes* under the new Law, began in *France*; and affirms, that there are no Inſtances of it before the VIIIth and IXth Centuries: But he muſt be miſtaken; for in the 2d Council of *Matiſcon*, held in 585, 'tis ſaid expreſly, that the Chriſtians had a long Time kept inviolate that Law of God, whereby *Tithe* of all their Fruits was enjoin'd to be given to holy Places, *&c.*

In effect, *Origen*, *Hom.* XI. on *Numb.* thinks, that the old Laws of *Moſes*, touching the firſt Fruits and *Tithes*, both of Cattle, and of the Fruits of the Earth, are not abrogated by the Goſpel; but ought to be obſerv'd on their ancient footing. The Vth Canon of the Council of *Macon*, orders *Tithe* to be paid to the Miniſters of the Church according to the Law of God, and the immemorial Cuſtom of the Chriſtians, and that upon Penalty of Excommunication; which is the firſt Penalty we find impos'd on ſuch as would not pay *Tithe*.

On theſe Grounds it is that many among the modern Clergy hold their *Tithes* to be *Jure Divino*.

Others, on the contrary, plead, that the Recompence to be given Church Miniſters, is differently ordain'd by God, according to the Differences he has put between his two great Diſpenſations, the Law and the Goſpel: Under the Law he gave them *Tithes*; under the Goſpel, having left all Things in his Church to Charity, and Chriſtian Freedom, he has given them only what ſhall be given them freely, and in Charity: That the Law of *Tithes* is in Force under the Goſpel, all the Proteſtant Divines, except ſome among the *Engliſh*, deny; for tho' Hire to the Labourer be of moral and perpetual Right, yet the ſpecial Kind of Hire, the Tenth, can be of no Right or Neceſſity, but to the ſpecial Labour for which God ordain'd it: That ſpecial Labour was the Levitical and Ceremonial Service of the Tabernacle, *Numb.* xviii. 21, 31. which was aboliſh'd; the Right therefore of the ſpecial Hire muſt be aboliſh'd too.

That *Tithes* were Ceremonial, is evident from their not being given to the *Levites* till they had been firſt offer'd as a Heave Offering to the Lord, *v.* 24, 28.

He, then, who by the Law brings *Tithes* into the Goſpel, brings in likewiſe a Sacrifice and an Altar; without which, *Tithes*, by the Law, were unſanctify'd and polluted, *v.* 32. And therefore were never thought of in the firſt Chriſtian Times, till Ceremonial Altars and Oblations had been brought back.

The *Jews* themſelves, ever ſince their Temple was deſtroy'd, tho' they have Rabbies and Teachers of the Law, yet pay no *Tithes*, as having no proper *Levites* to whom, nor Altar whereupon, to hallow them; which argues, that the *Jews* themſelves never look'd on *Tithes* as Moral, but merely Ceremonial. Add, that *Tithes* were not allow'd to the Prieſts and *Levites* merely for their Labours in the Tabernacle; but in Conſideration of this likewiſe, that they were not allow'd to have any other Part or Inheritance in the Land, *v.* 20, 24. and who, by that Means, for a Tenth, loſt a Twelfth.

In effect, for the firſt three hundred Years after Chriſt, no mention is made in all Eccleſiaſtical Hiſtory of any ſuch Thing as *Tithes*; tho', in that Time, Altars and Oblations had been recall'd, and the Church had miſerably Judaiſed in many other Things. The Churchmen confeſſedly liv'd all that Time on Free-will Offerings; nor could the Defect of paying *Tithes* be owing to this, that there were wanting Civil Magiſtrates to injoin it, ſince Chriſtians, having Lands, might have given out of them what they pleas'd, and the firſt Chriſtian Emperors, who did all Things by Advice of the Biſhops, ſupply'd what was wanting to the Clergy, not out of *Tithes*, which were never propos'd, but out of their own Imperial Revenues.

The firſt Authority produc'd, ſetting aſide the Apoſtolical Conſtitutions, which few of the Patrons of *Tithes* will inſiſt on, is a Provincial Synod at *Cullen* in 356, where *Tithes* are voted to be God's Rent: But before that Time, divers other Abuſes and Complaints had got ground, as Altars, Candles at Noon, *&c.* And one Complaint begot another; as 'tis certain that *Tithes* ſuppoſe Altars.

'Tis alledg'd, that *Tithes* are of early and ſolemn Force among us; having been paid by Statute ever ſince the *Saxon* King *Athelſtan*, An. 928: To which it may be ſaid, that *Rome-Scot*, or *Peter Pence*, had been likewiſe paid to the Pope by Statute above 200 Years longer, *viz.* from the Year 725. And by the Way it is to be noted, that theſe ancient *Tithes* among our Anceſtors, kept a nearer Analogy to their Original in the Moſaic Law; for the Prieſts had but a third Part, the other two Thirds being appointed for the Poor, and to adorn and repair the Churches, as appears from the Canons *Ecbert* and *Elfric*.

The Cuſtom of paying *Tithe*, or of offering a Tenth of what a Man enjoys, or of what he reaps from it, has not only been practis'd under the old and the new Law, but we alſo find ſomething like it among the Heathens.

Xenophon, in the 5th Book of the Expedition of *Cyrus*, gives us an Inſcription upon a Column near the Temple of *Diana*, whereby the People were warn'd to offer the tenth Part of their Revenues every Year to the Goddeſs.

Pauſanias, lib. 5. and *Diodorus Siculus*, *Biblioth. Hiſt.* lib. 11. tell us, that a Tenth of the Spoils were offer'd to the Gods. And *Feſtus de Verb. ſignif.* aſſures us, that the Ancients us'd to give *Tithe* of every thing to their Gods: *Decima quæque veteres Diis ſuis offerebant.*

Impropriated and *Appropriated* TITHES, call'd alſo *Infeoff'd Tithes*, are thoſe alienated to ſome Temporal or Eccleſiaſtical Lord, united to their Fee, and poſſeſs'd as ſecular Goods. See IMPROPRIATION.

By the Council of *Lateran*, held under *Alexander* III. in 1179, the Alienation or Infeodation of *Tithes* is prohibited for the future: Whence all Infeodations made ſince that Time are generally held by the Canoniſts illegal.

Some attribute the Original of theſe impropriated *Tithes* to *Charles Martel*; and hold him damn'd for firſt giving the Revenues of Benefices to ſecular Nobles: But *Baronius* will have this a Fable, and refers their Origin to the Wars in the Holy Land; which is alſo the Opinion of *Paſquier*.

The Tribute, it ſeems, which the *Romans* impos'd on all the Provinces of their Empire, was a tenth Part of all the Fruits: Hence ſeveral Authors obſerve, that the *Franks* having conquer'd the *Gauls*, and finding the Impoſition eſtabliſh'd, they kept it on Foot, and gave thoſe *Tithes* in *Fee* to their Soldiers: And this, ſay they, was the Origin of infeoff'd, or impropriated and appropriated *Tithes*. See FEE and BENEFICE.

But the Truth is, they are not ſo ancient; nor do we find any mention of them before the Reign of *Hugh Capet*; even the very Council of *Clermont*, held in 1097, as hot as it was in the Intereſts of the Church, does not ſay one Word of them; which yet would undoubtedly have made loud Complaints of ſuch an Uſurpation, had it been then known.

The *Tithes* of Grounds newly broke up and cultivated, are call'd *Decimæ Novales*, and always belong to the Vicar, as well as the ſmall *Tithes*. The Novelty is confin'd to forty Years before the Demand. See VICAR.

TITHING, from the *Saxon*, *Teothinge*, Decury, a Number or Company of Ten Men, with their Families; knit together in a kind of Society, and all bound to the King, for the peaceable Behaviour of each other. See DECENNA.

Of theſe Companies there was one chief Perſon, who from his Office was call'd *Teothingman*; and at this Day in the Weſt *Tithingman*, tho' now no more than a Conſtable; the old Cuſtom of Tenmentales, or *Tithings*, being long ſince diſus'd. See CHIEF-PLEDGE, FRANK-PLEDGE, DECENNIER, TRITHING, TENMENTALE.

TITILLATION, the Act of *Tickling*, *i. e.* of exciting a ſort of pleaſurable Idea, by a gentle Application of ſome ſoft

Body, upon a nervous Part; and which uſually tends to produce Laughter. See LAUGHTER.

The Word is *Latin*, *Titillatio*, ſignifying the ſame Thing.

TITLE, *Titulus*, an Inſcription put over any thing, to make it known. See INSCRIPTION.

The Word is particularly uſed for that in the firſt Page of a Book, containing the Subject thereof, the Author's Name, *&c.*

What tortures abundance of Authors, is to find ſpecious *Titles* for their Books: A *Title* ſhould be ſimple, and yet clear: Theſe are the two genuine Characters of this kind of Compoſition. Aſſuming *Titles* are a Prevention againſt the Author.

The *French* are much addicted to Fanfaronnades in their *Titles*; Witneſs that of M. *le Pay*'s *Amitiez*, *Amours*, *Amourettes*; or that Improvement hereon, *Fleurs*, *Fleurons*, *Fleurettes*, *&c.*

TITLE, *Titulus*, in the Civil and Canon Law, is a Chapter or Diviſion of a Book. See CHAPTER, *&c.*

A *Title* is ſubdivided into Paragraphs, *&c.* See PARAGRAPH, *&c.*

Each of the 50 Books of the Digeſt conſiſts of a Number of *Titles*; ſome of more, others of leſs. See DIGEST.

TITLE is alſo an Appellation of Dignity, Diſtinction or Preeminence; given to Perſons poſſeſs'd of the ſame. See DIGNITY.

The *Titles* of Order or Dignity, *Loyſeau* obſerves, ſhould always come immediately after the Name, and before the *Titles* of Office.

The King of *Spain* has a whole Page of *Titles*, to expreſs the ſeveral Kingdoms, and Signiories he is Maſter of. The King of *England* takes the *Title* of *King of Great Britain*, *France and Ireland*: The King of *France*, the Title of *King of France and Navarre*: The King of *Sweden* entitles himſelf *King of the Swedes and Goths*: The King of *Denmark*, *King of Denmark and Norway*: The King of *Sardinia*, among his *Titles*, takes that of *King of Cyprus and Jeruſalem*: The Duke of *Lorrain*, the *Title* of *King of Jeruſalem*, *Sicily*, *&c.* See KING, *&c.* See alſo the following Article.

The Cardinals take a *Title* from that of ſome Church in *Rome*; as of St. *Cecilia*, St. *Sabina*, *&c.* and they are call'd Cardinals of the *Title of St. Cecilia*, *&c.* See CARDINAL.

The Emperor can confer the *Title* of *Prince* or *Count* of the Empire; but the Right of Suffrage in Aſſemblies of the Empire, depends on the Conſent of the Eſtates. See EMPIRE.

The *Romans* gave their *Scipio*'s the *Titles* of *Africanus*, *Aſiaticus*, *&c.* and to others, they gave thoſe of *Macedonicus*, *Numidicus*, *Creticus*, *Parthicus*, *Dacicus*, *&c.* in Memory of the Victories obtained over the People ſo call'd. The King of *Spain*, after the like manner, gives honourable Titles to his Cities, in Recompence for their Services, or their Fidelity.

TITLE is alſo a certain Quality aſcribed in way of Reſpect to certain Princes, *&c.* See QUALITY.

The Pope has the *Title* of *Holineſs*; A Cardinal Prince of the Blood, that of *Royal Highneſs* or *Moſt ſerene Highneſs*, according to his Nearneſs to the Throne; other Cardinal Princes, *Moſt Eminent Highneſs*; an Archbiſhop, *Grace*, and *Moſt Reverend*, a Biſhop, *Right Reverend*; Abbots, Prieſts, Religious, *&c.* *Reverend*. See HOLINESS, EMINENCE, GRACE, REVERENCE, *&c.* See alſo POPE, CARDINAL, *&c.*

As to ſecular Powers, to the Emperor is given the *Title* of *Imperial Majeſty*; to Kings, *Majeſty*; to the King of *France*, *Moſt Chriſtian Majeſty*; to the King of *Spain*, *Catholic Majeſty*: The *Italians* give the King of *Poland* that of *Orthodox Majeſty*; to the King of *England*, is given *Defender of the Faith*; to the *Turk*, *Grand Signior*, and *Highneſs*; to the Prince of *Wales*, *Royal Highneſs*; to the Dauphin of *France*, *Serene Highneſs*; to Electors, *Electoral Highneſs*; to the Grand Duke, *Moſt Serene Highneſs*; to the other Princes of *Italy* and *Germany*, *Highneſs*; to the Doge of *Venice*, *Moſt Serene Prince*; to the Republic or Senate of *Venice*, *Signory*; to the Grand Maſter of *Malta*, *Eminence*; to Nuncio's and Embaſſadors of Crown'd Heads, *Excellency*. See EMPEROR, KING, PRINCE, DUKE, *&c.* ſee alſo HIGHNESS, SERENITY, EMINENCE, EXCELLENCY, *&c.*

The Emperor of *China* among his *Titles*, takes that of *Tien ſu*, Son of Heaven.

The Orientals are exceedingly fond of a Number of *Titles*: The ſimple Governor of *Schiras*, for Inſtance, after a pompous Enumeration of Qualities, Lordſhips, *&c.* adds the *Titles* of *Flower of Courteſy*; *Nutmeg of Conſolation, and Roſe of Delight.*

TITLE, in Law, is a Right which a Perſon has to the Poſſeſſion of any thing. See RIGHT.

It is alſo an authentic Inſtrument, whereby he can prove, and make appear his Right.

A Preſcription of Twenty Years, with a *Title*, is good; and of Thirty without a *Title*. See PRESCRIPTION.

There muſt be at leaſt a colour'd *Title*, to come into Poſſeſſion of a Benefice; otherwiſe the Perſon is deem'd an Intruder. See BENEFICE.

TITLE, in the Canon Law, is that by Virtue whereof a Beneficiary holds a Benefice; ſuch is a Collation of an Ordinary, or a Proviſion in the Court of *Rome* founded on a Reſignation, Permutation or other legal Cauſe.

The *Title* of a Benefice, or Beneficiary, is either a *True* or a *Colourable one*: A *True* or *Valid Title*, is that which gives a Right to the Benefice; ſuch is that given by a Collator who has a Right to confer the Benefice to a Perſon capable thereof, the uſual Solemnities being obſerv'd. See COLLATOR, *&c.*

A colourable *Title* is an apparent one, *i. e.* ſuch a one as appears Valid, and is not. Such wou'd that be founded on the Collation of a Biſhop, in Caſe the Benefice in Queſtion were not in his Collation.

By the Canons, a colourable Title, though falſe, produces two very conſiderable Effects. 1° That after peaceable Poſſeſſion of three Years, the Incumbent may defend himſelf by the Rule *de Triennali Poſſeſſione*, againſt ſuch as would diſpute the Benefice with him. 2° That in Caſe he be proſecuted within three Years, and obliged to ſurrender the Benefice; he ſhall not be obliged to reſtore the Fruits.

TITLE is alſo uſed in ſeveral ancient Synods and Councils, for the Church to which a Prieſt was ordained, and where he was conſtantly to reſide. *Nullus in Presbyterium, nullus in Diaconum, niſi ad certum* Titulum *Ordinetur*. *Concil. London. An.* 1125.

There are many Reaſons why a Church might be call'd *Titulus*, *Title*; the moſt probable, *Cowel* takes to be this, That in ancient Days, the Name of the Saint, to whom the Church was dedicated, was engraven on the Porch, as a Token that the Saint had a *Title* to that Church; whence the Church itſelf became afterwards call'd *Titulus*. See *Clerical* TITLE.

TITLES, or *Titular Churches*, M. *Fleury* obſerves, were formerly a particular Kind of Churches at *Rome*. See CHURCH.

In the VI. and VII. Centuries, there were four Sorts of Churches in that Metropolis, *viz.* *Patriarchal*, *Titular*, *Diaconal* and *Oratorial*.

The *Tituli*, *Titular*, were, as it were, Pariſhes, each aſſigned to a Cardinal Prieſt, with a certain Diſtrict or Quarter depending thereon, and a Font for the Adminiſtration of Baptiſm, in Caſe of Neceſſity. See QUARTER, CARDINAL, *&c.*

Clerical or *Sacerdotal* TITLE, is a yearly Revenue or Income, of the Value of 50 Crowns, which the Candidates for Prieſthood were anciently obliged to have of their own; that they might be aſſured of a Subſiſtance. See ORDINATION, *&c.*

By the ancient Diſcipline, there were no Clerks made, but in Proportion as they were wanted for the Service of the Church; which is ſtill obſerved with regard to Biſhops; none being conſecrated, but to fill ſome vacant See. See BISHOP, PRIEST, *&c.*

But, for Prieſts, and other Clerks, they began to make vague Ordinations in the *Eaſt*, as early as the Vth Century: This occaſion'd the Council of *Chalcedon* to declare all vague and abſolute Ordinations null.

Accordingly, the Diſcipline was pretty well obſerved, till towards the End of the XIth Century; but then it began to relax, and the Number of Prieſts was exceedingly increaſed; either becauſe the People became deſirous of the Privileges of the Clericate; or becauſe the Biſhops ſought to extend their Juriſdiction.

One of the great Inconveniencies of theſe vague Ordinations, was Poverty, which frequently reduced the Prieſts to ſordid Occupations, and even to a ſhameful Begging. To remedy this, the Council of the *Lateran*, laid it on the Biſhops, to provide for the Subſiſtance of ſuch as they ſhould Ordain without *Title*, till ſuch time as they had got a Place in the Church, that would afford them a ſettled Maintenance.

There was alſo another Expedient found out to elude the Canon of the Council of *Chalcedon*; and it was appointed, that a Prieſt might be ordained on the *Title* of his Patrimony: That is, it was not neceſſary he had any certain Place in the Church, provided he had a Patrimony ſufficient for a creditable Subſiſtance.

The Council of *Trent* retrieved the ancient Diſcipline in this reſpect; forbidding all Ordinations, where the Candidate was not in peaceable Poſſeſſion of a Benefice ſufficient to ſubſiſt him; and allowing no Body to be ordained on Patrimony or Penſion, unleſs where the Biſhops declare it to be expedient for the Good of the Church: So that the Benefice is the Rule, and the Patrimony the Exception.

But this Rule is not regarded, even in ſome Catholic Countries, particularly *France*, where the Patrimonial *Title* is the moſt frequent; and the *Title* is even fix'd to a very moderate Sum; about 3 *l.* 15 *s.* *per Annum Sterling*. Indeed at *Paris*, and in ſome other Dioceſes 150 Livres are required.

As to Religious, the Profeſſion they make in a Monaſtery ſerves them for a *Title*; in regard the Convent is obliged to maintain them. And as to Mendicants, they are ordained upon the *Title of Poverty*.

Thoſe of the Houſe, and Society of the *Sorbonne*, are alſo ordained without any *Patrimonial Title*, and on the ſole *Title of Poverty*; it being ſuppoſed a Doctor of the *Sorbonne* can never want a Benefice. See SOREONNE.

TITUBATION, or TREPIDATION, in Aſtronomy, a kind of Libration or Shaking, which the ancient Aſtronomers attributed to the Cryſtallin Heaven; to account for certain Inequalities, which they obſerved in the Motion of the Planets. See TREPIDATION.

TITULAR or TITULARY, a Perſon inveſted with a Title, in Virtue whereof he holds an Office, or Benefice; whether he perform the Functions thereof or not. See OFFICE and BENEFICE.

An Officer is always reputed *Titular*, till he have reſigned his Office, and the Reſignation have been admitted.

In this Senſe, the Term is uſed in Oppoſition to *Survivor*, and to a Perſon only acting by Procuration or Commiſſion. See PROCURATOR, *&c.*

TITULAR is ſometimes alſo applied adjectively, to a Perſon who has the Title and Right of an Office or Dignity; but without having Poſſeſſion, or diſcharging the Function thereof.

It is ſometimes alſo uſed, abuſively, for a Perſon who aſſumes and pretends a Title to a Thing, without either a Right thereto, or a Poſſeſſion thereof.

TMESIS, in Grammar, a Figure whereby a compound Word is ſeparated into two Parts; and one or more Words interpos'd between them.

Thus, when *Terence* ſays, *Quæ meo cunque animo lubitum eſt facere*, there is a *Tmeſis*; the Word *quæcunque* being divided by the Interpoſition of *meo*.

Lucretius abounds in *Tmeſes*; as *Sæpe ſalautatum tactu præterque meantum*: Or, *Diſſidio potis eſt ſejungi ſeque gregari*; and, *Diſpectis diſque gregatis*.

The Word is form'd from the *Greek*, τέμνω, I cut.

TOBACCO or TABACCO, a Medicinal Herb, not known in *Europe* till after the Diſcovery of *America* by the *Spaniards*; and firſt Imported about the Year 1560.

The *Americans* of the Continent call'd it *Petun*; thoſe of the Iſlands, *Yoli*. The *Spaniards*, who gave it the Name *Tabaco*, took it from *Tabaco*, a Province of *Jucatan*, where they firſt found it, and firſt learnt its Uſe.

The *French*, at its firſt Introduction among them, gave it various Names; as *Nicotiana*, or the *Embaſſador's Herb*, from *John Nicot*, then Embaſſador of *Francis* II. in *Portugal*, who brought ſome of it with him from *Liſbon*, and preſented it to a Grand Prior of the Houſe of *Lorrain*, and to Queen *Catherine de Medicis*; whence it was alſo called *Queen's Herb* and *Grand Prior's Herb*.

They alſo gave it other Names; which are now all reduced to the original Name *Tobaco*, or *Tobacco*, for *Tabaco*, given it by *Hernandez de Toledo*; who firſt ſent it into *Spain* and *Portugal*.

Culture and Preparation of TOBACCO.

Tobacco is cultivated in ſeveral Parts of *America*; particularly in the *Caribee Iſlands*, *Virginia*, *&c.* where they are forced to mix Aſhes with the Soil, to prevent its riſing too thick.

After ſowing, they water it every Day, and on very hot Days cover it up to prevent its being ſcorched by the Sun.

When 'tis riſen to a convenient Pitch, they tranſplant it, much as we do Lettice, only at a Diſtance of three Feet, and in a Soil prepared with great Care: When re-planted, 'tis kept continually Weeding; the Stem frequently cleans'd; and the loweſt Leaves and the Suckers it puts forth, taken off, that Ten or Fifteen of the fineſt Leaves may have all the Nouriſhment.

The Leaves thus reſerved being ripe, which is known by their breaking when bent; the Stalks are cut, and left to dry two or three Hours in the Sun; after which they are tied two by two, and hung up on Ropes under a Shed to be dried by the Air.

When the Leaves are ſufficiently dried, they are pull'd from off the Stalks, and made up in little Bundles; which being ſteep'd in Sea-water, or for want thereof, in common Water, are twiſted, in manner of Ropes; and the Twiſts form'd into Rolls, by winding them with a kind of Mill around a Stick.

In this Condition 'tis imported into *Europe*, where 'tis cut by the Tobacconiſts, for Smoaking; form'd into Snuff, and the like.

Beſides the *Tobacco* of the *Weſt-Indies*, there are conſiderable Quantities cultivated in the *Levant*, the Coaſts of *Greece* and the *Archipelago*, the Iſland of *Malta* and *Italy*. The Marks of good Twiſt *Tobacco*, are a fine ſhining Cut, an agreeable Smell; and that it have been well kept.

Tobacco is either taken by way of Snuff, as a Sternutatory; or as a Maſticatory by chewing it in the Mouth; or by ſmoaking it in a Pipe. See PIPE, STERNUTATORY, MASTICATORY, FUMIGATION, *&c.*

'Tis ſometimes alſo taken in little longiſh Pellets put up the Noſe, where 'tis found to produce very good Effects, to attract a deal of Water or Pituita, unload the Head, reſolve Catarrhs, and make a free Reſpiration; for the ſubtile Parts of the *Tobacco* in Inſpiration, are carried into the Trachea and Lungs, where they looſen the peccant Humours adhering thereto, and promote Expectoration.

Some have left this *Tobacco* in their Noſes all Night; but this is found to occaſion Vomiting the morrow Morning. Another thing charged on this Way of Application, is, that it weakens the Sight.

Tobacco is held a firſt rate Narcotic. See OPIATE.

When taken in great Quantities in the way of Snuff, 'tis found to prejudice the Smelling, greatly diminiſhes the Appetite, and in time gives riſe to a Phthiſis.

That taken in the way of Smoak, dries and damages the Brain. *Borrheus* in a Letter to *Bartholine*, mentions a Perſon, who through Exceſs of Smoaking had dried his Brain to that degree, that after his Death, there was nothing found in his Head but a little black Lump, conſiſting of mere Membranes.

Some People uſe the Infuſion of *Tobacco* as an Emetic; but 'tis a very dangerous and unjuſtifiable Practice, and often produces violent Vomitings, Sickneſs and Stupidity.

Bates and *Fuller* give ſome Receipts, in which *Tobacco* is an Ingredient with mighty Encomiums in Aſthmatic Caſes.

A ſtrong Decoction of *Tobacco*, with proper Carminatives and Catharticks, given Clyſter-wiſe, ſometimes proves of good Effect in what is uſually called the *Stone Colic*; and alſo in the Iliac Paſſion. See COLIC and ILIAC *Paſſion*.

A Drop or two of the Chymical Oil of *Tobacco* being put on the Tongue of a Cat produces violent Convulſions, and Death itſelf in the Space of a Minute; yet the ſame Oil uſed in Lint, and applied to the Teeth, has been a Service in the Tooth-ach; though it muſt be to thoſe that have been uſed to the taking of *Tobacco*, otherwiſe great Sickneſs, Reachings, Vomiting, *&c.* happens; and even in no Caſe is the internal Uſe of it warranted by ordinary Practice.

A ſtrong Decoction of the Stalks, with ſharp pointed Dock and Allom, is ſaid to be of good Service, uſed externally, in Cutaneous Diſtempers, eſpecially the Itch. Some boil them for that Purpoſe in Urine. The ſame is ſaid to be Infallible in curing the Mange in Dogs.

Sig. *Paulli*, Phyſician of the King of *Denmark*, in an expreſs Treatiſe on *Tobacco*, obſerves that the Merchants frequently lay it in Bog-houſes, to the End that becoming Impregnated with the volatile Salt of the Excrements, it may be rendred the brisker, more fœtid and ſtronger.

Amurath IV. Emperor of the *Turks*; the Grand Duke of *Muſcovy*, and the Emperor of *Perſia* have prohibited the Uſe of *Tobacco* in their States. Our King *James* I. wrote a Treatiſe againſt *Tobacco*, entitled a *Counter-blaſt to Tobacco*. By a Bull of Pope *Urban* VIII. ſuch are excommunicated, as take *Tobacco* in Churches.

TOD *of Wooll*; is mention'd in 12 *Car. c.* 23. as a Weight, containing 28 Pounds and two Stone. See WOOLL.

It is derived from the *French*, *Toilet*, a Wrapper, within which, by Uſage, two Stone of Wooll is folded.

TOES, by Anatomiſts, call'd *Digiti pedis*, are the extreme Diviſions of the Feet, anſwering to the Fingers of the Hand. See FOOT.

The *Toes* of each Foot conſiſt of 14 Bones; the great *Toe* having two, and the reſt three each. They are like the Bones of the Fingers, but ſhorter. See FINGER.

In the *Toes* are found, twelve Oſſa Seſamoidæa as in the Fingers. See SESAMOIDÆA.

The Gout chiefly ſeizes the great *Toe*. See GOUT.

TOFT, TOFTUM or TOFTA, in our Law-books, a Parcel of Land, or a Place where a Meſſuage hath ſtood, but is decay'd or caſually burnt, and not re-edified.

TOGA, in Antiquity, a large woollen Gown or Mantle, without Sleeves, uſed among the *Romans*, both by Men and Women.

In proceſs of Time, none wore the *Toga* but lewd Women, whence that of *Horace*.

> *In Matrona, pecceſve* togata.

The *Toga* was of divers Colours, and admitted of various Ornaments: There was that called *Toga Domeſtica*, wore within Doors; *Toga Forenſis*, wore Abroad; *Toga Militaris*, uſed by Soldiers, tucked up after the *Gabinian* Faſhion; and *Toga Picta*, or *Trium phalis*, wherein the Victorious triumphed, embroidered with Palms: that without any Ornaments, was called *Toga Pura*.

The *Toga* was ſometimes wore open, call'd *Aperta*: Sometimes girt or tuck'd up, call'd *Præcincta*; And this Cincture or Girding again, according to *Sigonius*, was of three Kinds: *Laxior*, or the looſe Kind, where the Tail trailed on the Ground; *Aſtrictior*, the cloſe Kind, wherein it did not reach ſo low as the Feet; and *Gabinia*, where one of the Skirts or Lappets was girt round the Body.

Sigonius diſtinguiſhes the *Togæ* or *Roman* Gowns into *Pura*, *Candida*, *Pulla*, *Picta*, *Prætexta*, *Trabea* and *Paludamentum*. See Prætexta, Paludamentum, *&c.*

The *Toga Pura* was alſo call'd *Virilis*. See Virile.

The *Jus Togæ*, or Right of the *Toga*, was the ſame with the Right of a *Roman* Citizen, *i. e.* the Right of wearing a *Roman* Habit, of taking, as they explain'd it, Fire and Water through the *Roman* Empire. See Citizen.

TOILES, are Snares or Nets ſet by Hunters for catching of wild Beaſts.

TOILET, a fine Cloth, of Linnen, Silk, or Tapiſtry, ſpread over the Table in a Bed-chamber or Dreſſing Room, to undreſs and dreſs upon.

The Dreſſing-Box, wherein are kept the Paints, Pomatums, Eſſences, Patches, *&c.* the Pin-cuſhion, Powder-Box, Bruſhes, *&c.* are eſteem'd Parts of the Equipage of the Ladies *Toilet*.

That of the Men, conſiſts of a Comb-Caſe, Bruſhes, *&c.* To make a Viſit to one at his *Toilet*, is to come to entertain him while he is dreſſing or undreſſing.

Satin, Velvet, Brocade, Point de France, *&c.* are now ordinarily us'd for *Toilets*; anciently they were much plainer; whence the Name, which is form'd from the *French*, *Toilette*, a Diminutive of *Toile*, any thin Stuff.

TOISE, a *French* Meaſure, containing ſix of their Feet, or a Fathom. See Fathom; ſee alſo Measure.

TOISON *d'Or*; is a Term in Heraldry for a Golden Fleece, which is ſometimes borne in a Coat of Arms. See Golden *Fleece*.

TOL-BOOTH, or Toll-booth, a Place in a City where Goods are weigh'd, to aſcertain the Duties or Imports thereon.

TOLERATION, in Religion, a Term which has made a great Figure in the Diſputes among the Proteſtants; who have been exceedingly divided about the Meaſures of *Toleration*, or the Degrees to which Hereticks and Schiſmaticks are, or are not, to be ſuffer'd.

All who have reaſon'd conſiſtently from the Principles of the Reformation, have been for *Toleration*; as well perceiving they had no Right to oblige any body to follow their particular Sentiments: but the Difficulty was, the ſetting Bounds to this *Toleration*.

M. *Baſnage*, and ſome others, diſtinguiſh *Civil Toleration* from *Eccleſiaſtical*. The latter allows of different, and even oppoſite Sentiments in the Church; and the firſt permits them in Civil Society.

By *Civil Toleration*, is meant Impunity and Safety in the State, for every Sect which does not maintain any Doctrine inconſiſtent with the Peace and Welfare of the State. This *Civil* or *Political Toleration*, implies a Right of enjoying the Benefit of the Laws, and of all the Privileges of the Society, without any Regard to Difference of Religion.

Eccleſiaſtical Toleration, is an Allowance of certain Opinions, which not being Fundamentals, don't hinder thoſe who profeſs them from being eſteem'd Members of the Church. But as to the Quality and Number of theſe Fundamental Points, they never could, nor, in all Probability, ever will, be agreed upon.

TOL, in Law, a Term ſignifying to defeat, or take away; from the *Latin*, *tollere*. Thus to *tol the Entry*, is to take away the Right of Entry.

TOLL, a *Saxon* Term, tho' deriv'd originally from the *Latin*, *tollere*, to take away: It has two Acceptations,

1°. It denotes a Liberty to buy and ſell within the Bounds of a Manor.

2°. A Tribute or Cuſtom paid for Paſſage, *&c.* See Passage, Tribute, *&c.*

Some interpret it to be a Liberty, as well to take, as to be free from, *Toll*; for they who are enfeoff'd with *Toll*, are Cuſtom-free.

Of this Freedom from *Toll*, the City of *Coventry* boaſts an ancient Charter, granted them by *Leofrick* or *Luriche*, Earl of the *Mercians*, in *Edward* the Confeſſor's Time, who, at the Importunity of *Godeva* his Lady, granted this Freedom to the City.

Some Records make mention of *Toll-thoro*, or *Thur-toll*, which is Money paid for Paſſage in or through ſome Highways, or over Ferries, Bridges, *&c.*

Toll Travers, for paſſing over a private Man's Ground.

Toll Turn, paid at the Return of Beaſts from Fairs and Markets, tho' they were not ſold.

By the ancient Law, the Buyers of Corn and Cattel in Fairs or Markets ought to pay *Toll* to the Lord of the Market, in Teſtimony of the Contract there lawfully made in open Market; becauſe privy Contracts were held unlawful. See In-toll and Ut-toll.

TOMAN, or Touman, a kind of Money of Account, us'd among the *Perſians* in the keeping of their Books, and to facilitate the Reduction of Money in the Payment of conſiderable Sums.

The *Toman* conſiſts of fifty Abaſſi's, or a hundred Mamoudi's, or two hundred Chayez, or ten thouſand Dinars; which amount to about three Pounds ſeven Shillings Six-pence Sterling. See Money.

D' Herbelot derives the Word from the Language of the Moguls, where it ſignifies the Number *ten thouſand*.

Ebeu Arabſchah ſays, that the Word *Touman*, when us'd to expreſs a Weight, or Money, contains ten thouſand Silver *Arab* Drachmas, call'd *Methkal*; which are a Third lighter than the *Attic*. See Drachma.

The *Moguls*, *&c.* frequently uſe *Toman* for ten thouſand Men; and ſay, *e. gr.* that the City *Samarcand* contains ſeven *Tomans* of People fit to bear Arms; and that of *Andekhan* nine *Tomans*.

TOMB, includes both the *Sepulchre*, wherein the Defunct is interr'd; and the *Monument* erected to preſerve his Memory. See Sepulchre and Monument.

Among the *Romans*, none but the Emperors, Veſtals, and Perſons ſignaliz'd by great Actions, were allow'd to have *Tombs* in the Cities; the reſt were all in the Country, near the High-Roads; whence thoſe common Words, *Siſte*, *&* *abi*, *Viator*; which are ſtill retain'd in the Inſcriptions of our Monuments in Churches, *&c.* tho' the Occaſion be no more. See Viator.

At *Anchiales* is ſtill ſeen the *Tomb* of *Sardanapalus*, with this Inſcription in Verſe: Sardanapalus *built* Anchiales *and* Tarſus *in one Day*: *Go*, *Paſſenger*, *eat*, *drink*, *and be merry*; *the reſt is nothing*.

The Word *Tomb* is form'd from the *Greek*, τύμβος, *Tumulus*, Sepulchre; or, according to *Menage*, from the *Latin*, *Tombe*, which ſignified the ſame Thing.

The *Romans* had a kind of empty *Tomb*, call'd *Cenotaphium*, or an *honorary Tomb*, wherein no Deceas'd was laid. It was us'd to be built in Favour of Perſons periſhing at Sea, in remote Countries, *&c.* where no Sepulture could be had.

The Occaſion hereof was a ſuperſtitious Notion, that the Souls of thoſe whoſe Bodies were not bury'd, wander'd an hundred Years by the Banks of the Rivers of Hell, e'er they were admitted to paſs over.

The Κενοτάφιον being made, the ſame Ceremonies were practis'd as at real Funerals. The *Cenotaphia* were inſcrib'd with the Words *ob Honorem*, or *Memoriæ Sacrum*; whereas other *Tombs*, wherein the Aſhes were really depoſited, were inſcrib'd D. M. S. *q. d.* Sacred to the Manes.

When the Words *Tacito Omine* were added, it declar'd the Aſhes inclos'd therein infamous for ſome Crime.

TOME, is a bound Book; or Writing that makes a juſt Volume.

All the Works of ſuch an Author are compiled, and reduc'd into one, or more *Tomes*. There are *Tomes* in Folio, in Quarto, in Octavo, Duodecimo, *&c.*

The Councils printed in the Louvre are in XXXVII *Tomes*. *Salmeron* has wrote the Life of Chriſt in XII *Tomes*. See Volume.

TOMENTUM, properly ſignifies Flocks, or Locks of Wooll; but by Botaniſts is us'd for that ſoft downy Matter which grows on the Tops of ſome Plants, hence denominated *Tomentoſa*; as, *Gramen Tomentoſum*, *Carduus Tomentoſus*, &c.

M. *Winſlow* obſerves a kind of *Tomentum* in the ſecretory Veſſels of the Glands; and from this, accounts for the Secretion of the various Fluids from the Blood. See Gland and Secretion.

TONDIN, in Architecture. See Tore.

TONE, or Tune, in Muſic, a Property of Sound, whereby it comes under the Relation of *Grave* and *Acute*; or, the Degree of Elevation any Sound has, from the Degree of Swiftneſs of the Vibrations of the Parts of the ſonorous Body. See Sound.

For the Cauſe, Meaſure, Degree, Difference, *&c.* of *Tones*. See Tune.

The Variety of *Tones* in human Voices, ariſes partly from the Dimenſions of the Wind-pipe, which, like a Flute, the longer and narrower it is, the ſharper is the *Tone* it gives; but principally from the Head of the Larynx, or Knot of the Throat, call'd *Pomum Adami*; the *Tone* of the Voice being more or leſs grave, as the Rima, or Cleft thereof is more or leſs open. See Voice.

Tone, is particularly us'd in Muſic for a certain Degree or Interval of Tune, whereby a Sound may be either rais'd or lower'd from one Extreme of a Concord to the other; ſo as ſtill to produce true Melody. See Interval and Concord.

Muſicians, beſide the Concords, or harmonical Intervals, admit three leſſer Kinds of Intervals, which are the Meaſures and component Parts of the greater; and are call'd *Degrees*: The Nature, Origin, Uſe, *&c.* whereof, ſee under the Article Degree.

Of theſe Degrees, two are call'd *Tones*, and a third a *Semitone*; their Ratio's in Numbers are 8 : 9, call'd a *greater Tone*; 9:10, call'd a *leſſer Tone*; and 15:16, a *Semitone.*

The *Tones* ariſe out of the ſimple Concords, and are equal to their Differences: Thus the *greater Tone* 8:9 is the Difference of a Fifth and a Fourth: The *leſſer Tone* 9:10 the Difference of a leſſer Third and Fourth, or of a Fifth and ſixth greater: And the *Semitone* 15:16, the Difference of a greater Third and Fourth. See SEMITONE.

Of theſe *Tones* and *Semitones* every Concord is compounded, and conſequently is reſolvable into a certain Number thereof: Thus, the leſſer Third conſiſts of one *greater Tone* and one *Semitone*; the greater Third of one *greater Tone* and one *leſſer Tone*. See THIRD.

The Fourth of one *greater Tone*, one *leſſer Tone*, and one *Semitone*. See FOURTH.

The Fifth of two *greater Tones*, one *leſſer Tone*, and one *Semitone*. See FIFTH, *&c.*

For the Uſe of theſe Tones, &c. *in the Conſtruction of the Scale of Muſic*; See SCALE.

TONGUE, in Anatomy	See	LINGUA.
TONGUE-*grafting*		GRAFTING.
TONGUE-*Tyed*		RANULA.

TONIC, in Medicine, is apply'd to a certain Motion of the Muſcles, wherein the Fibres being extended, continue their Extenſion in ſuch Manner, as that the Part ſeems immoveable, tho' in reality, it be in Motion. See MUSCLE.

Such is the Caſe in a Man ſtanding, in Birds planing or ſwimming thro' the Air, *&c.*

Galen ſays, that the Muſcles act even when at reſt; for after having made any Contraction to fix themſelves in a certain State or Diſpoſition; the preſerving of that Contraction is what we call the *Tonic Motion.*

The Word is form'd from the *Greek* τείνειν, to ſtretch.

TON	See	TUN.
TONNAGE		TUNNAGE.

TONSILS, in Anatomy, call'd alſo *Amygdalæ*, or *Almonds*, are two round Glands, ſituate near the Root of the Tongue, on each Side the Uvula, under the common Membrane of the Fauces, with which they are cover'd.

Each of them has a large oval Sinus, which opens into the Fauces, and in it are a great Number of leſſer ones, which diſcharge themſelves thro' the great Sinus, of a mucous and ſlippery Matter into the Fauces, Larynx, and Oeſophagus, for the moiſtening and lubricating theſe Parts. When the Muſcle Oeſophagæus acteth, it compreſſeth the *Tonſillæ.* See AMYGDALÆ.

TONSURE, the Art or Act of cutting the Hair, and ſhaving the Head. See HAIR.

The *Tonſure* was anciently a Mark of Infamy in *France*; inſomuch, that when they would render any Prince incapable of ſucceeding to the Crown, they cut off his Hair, and ſhav'd him.

The Word is form'd from the *Latin*, *tondere*, to ſhave.

TONSURE, in the *Romiſh* Church, is us'd for the Entrance or Admiſſion into Holy Orders. See ORDERS.

In Propriety, *Tonſure* is the firſt Ceremony us'd to devote a Perſon to God and the Church, by preſenting him to the Biſhop, who gives him the firſt Degree of the Clericate, by cutting off Part of his Hair, with certain Prayers and Benedictions.

Some hold the *Tonſure* a particular Order; others, as *Loyſeau*, only the Mark and Form of Eccleſiaſtical Orders in general.

The *Tonſure* ſuffices to make a Clerk: The reſt is only to qualify him for the holding a Benefice.

A Perſon is capable of the *Tonſure* at ſeven Years of Age; hence a Benefice of ſimple *Tonſure*, is ſuch a one as may be enjoy'd by a Child of ſeven Years old. The *Tonſure* is the Baſis of all the other Orders.

TONSURE is particularly us'd for the Corona, which Prieſts, *&c.* wear, as the Mark of their Order, and of the Rank they hold in the Church. See CROWN.

The Barbers have the Meaſures and Dimenſions of the different Kinds of *Tonſures*, or Clerical Crowns; to be practis'd according to the different Degrees and Orders.

A *Clerk's Tonſure*, a *Sub-deacon's Tonſure*, a *Deacon's Tonſure*, a *Prieſt's Tonſure*, are each ſucceſſively bigger than other.

Various are the Ceremonies and Cuſtoms the Beard has been liable to: *Kingſon* aſſures us, that a conſiderable Branch of the Religion of the *Tartars* conſiſts in the Management of their Beards; and that they wag'd a long and bloody War with the *Perſians*, and declar'd them Infidels, tho', in other Reſpects, of the ſame Faith with themſelves, merely becauſe they would not cut their Whiskers after the Mode or Rite of the *Tartars.*

Athenæus, from *Chryſippus*, obſerves, that the *Greeks* always wore their Beards till the Time of *Alexander*; and that the firſt who cut it at *Athens*, ever after bore the Addition of κορσης, ſhaven, in Medals. *Plutarch* adds, that *Alexander* commanded the *Macedonians* to be ſhaven, leſt the Length of their Beards ſhould give a Handle to their Enemies: However this be, we find *Philip*, his Father, as well as *Amyntas* and *Archelaus*, his Predeceſſors, repreſented on Medals without Beards.

Pliny obſerves, that the *Romans* did not begin to ſhave till the Year of *Rome* 454, when *P. Ticinius* brought over a Stock of Barbers from *Sicily*: He adds, that *Scipio Africanus* was the firſt who introduc'd the Mode of ſhaving every Day.

Among that People, it became the Cuſtom to have Viſits made in Form at the cutting of the Beard for the firſt Time: The firſt fourteen *Roman* Emperors ſhav'd, till the Time of the Emperor *Adrian*, who retain'd the Mode of wearing the Beard. *Plutarch* tells us, he did it to hide the Scars in his Face.

Formerly there was a great deal of Ceremony us'd in bleſſing the Beard; and there are ſtill extant the Prayers us'd in the Solemnity of conſecrating it to God, when an Eccleſiaſtic was ſhaven.

Perſons of Quality had their Children ſhav'd the firſt time by others of the ſame, or greater Quality, who, by this Means, became Godfather, or adoptive Father of the Children. See ADOPTION.

Anciently, indeed, a Perſon became Godfather of the Child by barely touching his Beard: Thus Hiſtorians relate, that one of the Articles of the Treaty between *Alaric* and *Clovis* was, that *Alaric* ſhould touch the Beard of *Clovis* to become his Godfather. See GOD-*father.*

As to Eccleſiaſtics, the Diſcipline has been very different on the Article of Beards: Sometimes they have been enjoin'd to wear them, from a Notion of too much Softneſs and Effeminacy in ſhaving, and that a long Beard was more ſuitable to the Eccleſiaſtical Gravity; and ſometimes, again, they were forbid it, as imagining Pride to lurk in a venerable Beard.

The *Greek* and *Romiſh* Churches have been long together by the Ears about their Beards: Since the Time of their Separation, the *Romaniſts* ſeem to have given more into the Practice of ſhaving, by Way of Oppoſition to the *Greeks*; and have even made ſome expreſs Conſtitutions *de radendis Barbis.*

The *Greeks*, on the contrary, eſpouſe very zealouſly the Cauſe of long Beards, and are extremely ſcandaliz'd at the beardleſs Images of Saints in the *Roman* Churches.

By the Statutes of ſome Monaſteries it appears, that the Lay Monks were to let their Beards grow, and the Prieſts among them to ſhave; and that the Beards of all that were receiv'd into the Monaſteries, were bleſs'd with a great deal of Ceremony.

To let the Beard grow is a Token of Mourning in ſome Countries, and to ſhave it in others. *Le Comte* obſerves, that the *Chineſe* affect long Beards extravagantly; but Nature has balk'd them, and only given them very little ones, which, however, they cultivate with infinite Care: The *Europeans* are ſtrangely envy'd by them on this Account, and eſteem'd the greateſt Men in the World.

The *Ruſſians* wore their Beards till within a very few Years, when the late Czar enjoin'd them all to ſhave; but notwithſtanding his Injunction, he was oblig'd to keep on Foot a Number of Officers to cut off by Violence the Beards of ſuch as would not otherwiſe part with them.

Chryſoſtom obſerves, that the Kings of *Perſia* had their Beards wove or matted together with Gold Thread; and ſome of the firſt Kings of *France* had their Beards knotted and button'd with Gold. See PERRUKE.

TOOLS, are ſimple Inſtruments, us'd in the more obvious Operations; and particularly in the making of other more complex Inſtruments. See INSTRUMENTS.

Tools are divided into *Edg'd Tools*, *Spring-Tools*, *Pointed-Tools*, &c. See STEEL and TEMPERING.

TOOTH. See TEETH.

TOOTH-ACH. See ODONTALGY.

The *Tooth-ach* uſually proceeds from a Caries which rots the Bone, and eats it hollow. For the Cauſes, *&c.* of this Caries; See TEETH.

Sometimes it proceeds from a Defluxion of a ſharp Matter upon the Gums. For the *Tooth-ach*, a Paſte made of ſoft Bread, and the Seed of Stramonia, laid on the Tooth affected, abates the Pain. If the Tooth be hollow, and the Pain great, a Compoſition of equal Quantities of Opium, Myrrh, and Camphire, made up into a Paſte with Brandy or Spirits of Wine, and about a Grain or two put into the hollow Place, puts a Stop to the Caries, and blunts the acute Pain of the Nerve; by which it often gives immediate Relief.

Chymical Oils, as thoſe of Origanum, Cloves, Tobacco, *&c.* are alſo of Service, deſtroying, by their hot Cauſtic Nature, the Texture of the ſenſible Veſſels of the Tooth affected; tho', from too liberal an Uſe of them, frequently proceeds a Defluxion of Humours, and Impoſtumation.

A Bliſter apply'd behind one or both Ears, ſeldom fails to cure the *Tooth-ach*, eſpecially when attended with a hot Defluxion of Humours, and ſwelling of the Gums, Face, *&c.* Liniments of Ointment of Marſhmallows, Alder, *&c.* mix'd with Rum, Brandy, or Spirit of Wine, camphorated, are good, uſ'd outwardly, to abate the Swelling.

Mr. *Cheſelden* mentions one cur'd of the *Tooth-ach* by applying a ſmall cauterizing Iron to the Anthelix of the Ear, after he had undergone Bleeding, Purging, Salivation, Setons, *&c.* to no Purpoſe: The Caſe was very remarkable; for when he was ſeiz'd with it, a Convulſion of that whole Side of his Face follow'd, whenever the Pain became acute, or he attempted to ſpeak.

Scookins, in his Treatiſe of Butter, maintains, that there is no better Means of keeping the Teeth fair and ſound, than by rubbing them over with Butter: An Opiate not much leſs diſtaſteful than that of the *Spaniards*, who waſh their Teeth every Morning with Urine.

To prevent and cure the Scurvy in the Gums, 'tis recommended to waſh the Mouth every Morning with Salt and Water; and to hinder the Teeth from ſpoiling or growing carious, ſome uſe only Powder of Hartſhorn to rub the Teeth with, and then waſh the Mouth with cold Water: 'Tis alledg'd, this is preferable to other Dentifrices, on this account, becauſe their hard Particles are apt to abrade that fine ſmooth Poliſh, with which the Surface of the Teeth is cover'd, and which is their Preſervative from the ill Effects of Air, Aliment, Liquors, *&c.* which occaſion Ailments of the Teeth when wore off.

Dentifrices are uſually compounded of Powders of Hartſhorn, red Coral, Bone of the Cuttle Fiſh, burnt Alum, Myrrh, Dragon's Blood, *&c.* Some commend Powder of Bricks, as ſufficient to anſwer all the Intentions of a good Dentifrice. See DENTIFRICE.

TOPARCHY, a little State, or Signory, conſiſting only of a few Cities, or Towns; or a petty Country govern'd and poſſeſs'd by a *Toparch*, or Lord.

Judea was anciently divided into ten *Toparchies*. See *Pliny*, lib. 5. c. 14. and *Joſeph.* lib. 3. *de Bel. Jud.* lib. 5. c. 2, *&c.*

The laſt mention'd Author calls the Cities of *Azotes*, *Jamnia*, and *Phaſaelides*, which *Herod* left by Teſtament to his Siſter *Saloma*, a *Toparchy*.

Procopius only gives the Quality of *Toparchy* to the Kingdom of *Edeſſa*; to *Abgarus*, the *Toparch* or Lord whereof there is a Tradition, that Jeſus Chriſt ſent his Picture, with a Letter.

The Word is form'd from the *Greek*, τόπος, Place, and ἀρχὴ, Command, Government.

TOPAZ, a precious Stone; the third in Order after the Diamond. See PRECIOUS *Stone*.

The *Topaz* is tranſparent; its Colour, a beautiful Yellow, or Gold Colour: It is very hard, and takes a fine Poliſh.

It is the true Chryſolite of the Ancients; and is found in ſeveral Parts of the *Indies*, in *Ethiopia*, *Arabia*, *Peru*, and *Bohemia*. See CHRYSOLITE.

The Oriental *Topazes* are moſt eſteem'd; their Colour borders on the Orange: Thoſe of *Peru* are ſofter, but their Colour mnch the ſame: The Yellow of thoſe of *Bohemia* is a little blackiſh; they are the ſofteſt of all, and their Poliſh the coarſeſt. Thoſe of *Madagaſcar* were in much Eſteem, but are now held good for little.

Tavernier mentions a *Topaz*, in the Poſſeſſion of the Great Mogul, weighing 157 Carats, which coſt 20300 Lib. Sterling: And *Boetius de Boot*, in his Treatiſe of precious Stones, affirms to have ſeen in the Cabinet of the Emperor *Rudolphus*, whoſe Phyſician he was, a *Topaz* above three Foot long, and ſix Inches broad. Probably it might be ſome Marble a little tranſparent, of a *Topaz* Colour.

The *Topaz* is eaſily counterfeited; and there are fictitious ones, which, to the Eye, don't come behind the natural ones.

If we might believe the Ancients, the *Topaz* has very notable Virtues; but thoſe are now in Diſcredit: And yet the *Topaz* is of ſome Uſe in Medicine, reduc'd into an impalpable Powder, and apply'd in Water. See GEM.

Some ſay, it takes its Name *Topaz* from an Iſland in the Red Sea, of the ſame Name, where it was firſt found by *Juba*, King of *Mauritania*; but it was known to the *Hebrews* before, as appears from the 118th Pſalm.

TOPHUS, in Medicine, a ſtony Concretion in any Part of an Animal Body; as in the Bladder, Kidneys, *&c.* (See STONE) or in the Joints, *&c.* See GOUT.

Dr. *Rutty*, in a Treatiſe, juſt publiſh'd, of the *Urinary Paſſages*, takes the Stone to ariſe from the Attraction of volatile and ſaline Particles; of which Particles the Stone, when view'd with a Microſcope, ſeems to be made up: He thinks the Fault of theſe Aggregates of ſaline Particles, ought generally to be ſuppos'd to begin in, or proceed from, the Papillæ of the Kidneys, and not from the Sediment of Urine in the Bladder.

The Reaſon why Wine-drinkers are more ſubject to the Stone, and other Concretions, than Malt or Water-drinkers, he ſuppoſes to be the volatile and ſaline, or earthy Particles contain'd in the Wine in greater Quantities than in the Ale, *&c.* A Calculus, he obſerves, reduc'd to a Caput Mortuum, will, upon the Affuſion of warm Water, diſſolve, and entirely mix; but in a ſhort Time will again ſettle, and the Particles thereof ſo cloſely unite or attract, as that, by repeated Affuſions, they cannot be brought again to diſſolve. See LITHONTRIPTIC.

TOPIC, in Rhetoric, a probable Argument, drawn from the ſeveral Circumſtances and Places of a Fact, *&c.* See PLACE, *&c.*

TOPICKS, or TOPICA, expreſſes the Art or Manner of inventing and managing all Kinds of probable Argumentations: *Ariſtotle* has wrote *Topicks*; and *Cicero* a kind of Comment on them, to his Friend *Trebatius*, who, it ſeems, did not underſtand them.

But the Criticks obſerve, that the *Topica* of *Cicero* agree ſo little with thoſe eight Books of *Topicks* which paſs under the Name of *Ariſtotle*, that it follows neceſſarily, either that *Cicero* was much miſtaken; which is not very probable; or that the Books of *Topicks* attributed to *Ariſtotle*, are not wholly his.

Cicero defines *Topica*, or *Topice*, to be the Art of finding Arguments, *Diſciplina Inveniendorum Argumentorum.* See ARGUMENT.

Rhetoric is divided into two Parts, Judgment, call'd alſo *Dialectice*; and Invention, call'd *Topice*. See RHETORIC.

The Word is form'd from the *Greek*, τοπικὸς, of τόπος, Place; its Subject being the *Places*, which *Ariſtotle* calls the *Seats*, of Arguments.

TOPIC, in Medicine. *Topicks*, or *Topical* Remedies, are what we otherwiſe call *External Remedies*, *i. e.* ſuch as are apply'd externally to ſome diſeas'd and painful Part. See MEDICINE.

Such are Plaiſters, Cataplaſms, Bliſters, Unguents, Salves, Collyriums, *&c.*

The Gout is never cur'd by *Topicks*: They may aſſuage the Pain for a Time; but for a Cure, the Source of the Evil muſt be attack'd with Internals. See GOUT.

The Word is form'd from τόπος, Place.

TOPOGRAPHY, a Deſcription or Draught of ſome particular Place, or ſome ſmall Tract of Land; as that of a Manor or Tenement, Field, Garden, Houſe, Caſtle, or the like; ſuch as Surveyors ſet out in their Plots, or make Draughts of, for the Information and Satisfaction of the Proprietors. See MAP, SURVEYING, *&c.*

Topography differs from Chorography, as a Particular from more General; Chorography being a Deſcription of a Country, a Dioceſe, Province, or the like. See CHOROGRAPHY.

The Word is form'd from τόπος and γράφω, I deſcribe.

TORCH, *Teda*, a Sort of Luminary; being, properly, a kind of Staff, or Stick, of Fir, or other reſinous and combuſtible Matter, as Pine, Linden, *&c.* more, or leſs thick, and from ſeven to twelve Foot long; encompaſs'd at one End with ſix Wax Candles, which being lighted, yield a kind of gloomy Brightneſs. See LUMINARY.

Torches are us'd in ſome Church Ceremonies, particularly at the Proceſſions of the Holy Sacrament in the *Romiſh* Church, and at the Interments of the poorer People.

Formerly they were us'd at the Funerals of thoſe of the firſt Rank; but Tapers and Flambeaux are now us'd in their ſtead. See FLAMBEAU and TAPER.

TORCULAR, or TORCULARIS, among Chirurgicns, a Contrivance for ſtopping of Bleedings in Amputations. See AMPUTATION.

TORCULAR *Herophili*, in Anatomy, a Name given to a Part in the Duplicatures of the Dura Mater; form'd of a Concourſe of a Branch of the longitudinal Sinus, with the lateral Sinus's. See DURA *Mater* and SINUS.

It has its Name *Torcular* from its reſembling a Preſs or Screw: *Herophili* is added from the Diſcoverer's Name.

TORE, TORUS, in Architecture, a thick round Moulding us'd in the Baſes of Columns. See BASE.

'Tis the Bigneſs that diſtinguiſhes the *Torus* from the *Aſtragal*. See ASTRAGAL.

The Baſes of *Tuſcan* and *Doric* Columns have but one *Tore*, which is between the Plinth and the Liſtel. In the *Attic* Baſe there are two; the *upper*, which is the ſmaller; and an *under*.

The Word is form'd from the *Greek*, τόρος, a Cable, whereof it bears ſome Reſemblance; or from the *Latin*, *Torus*, a Bed, as being ſuppos'd to repreſent the Edge of ſuch Matters as ſwell out with the Weight of the incumbent Column.

It is alſo call'd a *thick Baton*; ſometimes its Contour reſembles half a Heart; in which Caſe it is call'd *Baguette*. See BAGUETTE.

TOREUMATOGRAPHY, a *Greek* Term, ſignifying the Knowledge, or, rather, the Deſcription of ancient Sculptures, and Baſſo-Relievo's.

The *Italian* Engravers have given a great deal of Light to this Science. See Sculpture and Engraving.

TOREUTICE, τορευτικὴ, that Part of Sculpture, call'd *Turning*. See Sculpture and Turning.

The Word is form'd of the *Greek*, τορνος, or τορος, Lath, of τορέω, terebro, perforo.

TORIES, or Torys, a Party or Faction in *England*, oppoſite to the Whigs. See Faction.

Theſe two celebrated Parties, which have ſo long divided our Country, will make a conſiderable Article in the *Engliſh* Hiſtory, nothing inferior, in many Reſpects, to that of the *Guelfs* and *Gibellins*. ---- The Diviſion has gone ſo deep, that it is preſum'd, no *Engliſhman*, who has any Concern or Principles at all, but inclines more to one Side than the other: For which Reaſon, we ſhall borrow our Account of them from the Mouths of Foreigners, who may be ſuppos'd more impartial; and particularly from M. *de Cize*, a *French* Officer, ſome time in the Service of *England*, who has wrote the Hiſtory of *Whigiſm* and *Toriſm*, printed at *Leipſic*, Anno 1717; and M. *Rapin*, whoſe *Diſſertation ſur les Wighs & les Torys*, printed at the *Hague* the ſame Year, is well known.

During the unhappy War which brought King *Charles* I. to the Scaffold; the Adherents of that King were firſt call'd *Cavaliers*, and thoſe of the Parliament *Round-Heads*; which two Names were afterwards chang'd into thoſe of *Tories* and *Whigs*, on the following Occaſion.

A kind of Robbers, or Banditti in *Ireland*, who kept on the Mountains, or in the Iſlands form'd by the vaſt Bogs of that Country, being call'd *Tories*; a Name they ſtill bear indifferently with that of *Rapparees*; the King's Enemies accuſing him of favouring the Rebellion in *Ireland*, which broke out about that Time, gave his Partiſans the Name of *Tories*: And, on the other Hand, the *Tories*, to be even with their Enemies, who were cloſely leagu'd with the *Scots*, gave them the Name of *Whigs*, which is that given in *Scotland* to another Kind of Banditti, or rather of Fanaticks, in that Country. See Whig.

The Cavaliers, or *Tories*, had then principally in View the Political Intereſts of the King, the Crown, and the Church of *England*: And the Round-Heads, or Whigs, propos'd chiefly the maintaining the Rights and Intereſts of the People, and of Proteſtaniſm. Nor have the two Factions yet loſt their firſt Ideas; tho' their firſt Names, Cavalier and Round-Head, be now entirely diſus'd.

This is the moſt popular Account; and yet 'tis certain the Names *Whig* and *Tory* were but little known till about the Middle of the Reign of King *Charles* II. M. *de Cize* relates, that it was in the Year 1678, that the whole Nation was firſt obſerv'd to be divided into *Whigs* and *Tories*; and that on Occaſion of the famous Depoſition of *Titus Oates*, who accus'd the Catholicks of having conſpir'd againſt the King and the State. ---- The Appellation *Whig* was given to ſuch as believ'd the Plot real; and *Tory* to thoſe who believ'd it fictitious.

We ſhould here, confine ourſelves to the *Tories*; and for what regards the Whigs, refer to that Article; but ſince by comparing and confronting the two Parties together, both the one and the other will appear in the ſtronger Light, it would be imprudent to ſeparate them; ſo that we rather chuſe to ſay the leſs under the Word *Whigs*, and refer thence hither.

The Factions we are ſpeaking of, may be conſider'd either with Regard to the *State*, or to *Religion*.

The *State Tories* are either violent or moderate: The firſt would have the Sovereign to be abſolute in *England*, as in other Countries, and his Will to be a Law. This Party, which is not very numerous, has yet been conſiderable; 1°. On Account of its Leaders, which have been Lords of the firſt Rank, and generally Miniſters and Favourites. 2°. In that being thus in the Miniſtry, it engag'd the Church *Tories* to maintain ſtiffly the Doctrine of Paſſive Obedience. 3°. Becauſe the King has uſually thought it his Intereſt to ſupport them.

The moderate *Tories* would not ſuffer the King to loſe any of his Prerogatives; but neither would they ſacrifice thoſe of the People. Theſe, ſays M. *Rapin*, are true *Engliſhmen*; have frequently ſav'd the State, and will ſave it again whenever it ſhall be in Danger, either from the violent *Tories*, or from the Republican Whigs.

The *State Whigs*, again, are either Republican or Moderate: The firſt, according to our Author, are the Remains of the Party of the long Parliament, who took in Hand to change the Monarchy into a Commonwealth: Theſe make ſo ſlender a Figure, that they only ſerve to ſtrengthen the Party of the other Whigs. The *Tories* would perſuade the World, that all the Whigs are of this Kind; as the Whigs would make us believe that all the *Tories* are violent.

The moderate State Whigs are much in the ſame Sentiments as the moderate *Tories*; and deſire the Government may be maintain'd on its ancient Foundation: All the Difference is, that the moderate *Tories* lean a little more to the Side of the King, and the moderate Whigs to that of the Parliament and People. Theſe laſt are in a perpetual Motion to prevent the Rights of the People from being broke in upon; and have ſometimes taken Precautions at the Expence of the Crown.

Before we conſider our two Parties with Regard to *Religion*, it muſt be obſerv'd, that the Reformation, as carry'd on to a greater or leſs Length, divided the *Engliſh* into Epiſcopalians, and Presbyterians or Puritans: The firſt contended, that the Epiſcopal Juriſdiction ſhould be continu'd on the ſame Footing, and the Church in the ſame Form, as before the Reformation: The latter maintain'd, that all Miniſters or Prieſts had equal Authority; and that the Church ought to be govern'd by Presbyteries, or Conſiſtories of Prieſts and Lay Elders. See Presbyterian, &c.

After long Diſputes, the more moderate of each Party relax'd a little of their Stiffneſs, and thus form'd two Branches of moderate Whigs, and moderate *Tories*, with regard to Religion; but there was a much greater Number kept to their Principles with inconceiveable Firmneſs: And theſe conſtituted two Branches of rigid Epiſcopalians and Presbyterians, ſubſiſting to this Day; and now compriz'd under the general Names of *Whigs* and *Tories*; in regard the firſt join the *Tories*, and the latter the Whigs.

From what has been obſerv'd, we may conclude, that as the Names *Tory* and *Whig* have a Regard to two different Objects, they are equivocal, and of conſequence ought never to be apply'd without expreſſing in which Senſe 'tis done; --- For the ſame Perſon may be, in the different Reſpects, both *Whig* and *Tory*.

A Presbyterian, for Inſtance, who wiſhes the Ruin of the Church of *England*, is certainly, on that Score, of the Party of Whigs; yet if he oppoſe the Attempts ſome of his Party would make againſt the Royal Authority, it can't be deny'd but he is effectually a *Tory*.

After the like Manner, the Epiſcopalians ought to be eſteem'd as *Tories* with Regard to the Church; and yet how many of them are Whigs with Regard to the Government?

For the reſt, the general Motives that have form'd and kept up the two Parties, appear, in the main, to be no other than the private Motives of particular Perſons: Self-Intereſt is the Primum Mobile of their Actions: Ever ſince the Riſe of theſe Factions, each has ſtruggled earneſtly to get the Advantage over the other; inaſmuch as from ſuch Superiority accrue Places, and Honours, and Promotions, &c. which the prevailing Party diſtributes among its own Members, excluſive of the contrary Party.

As to the Characters commonly attributed to the Whigs and *Tories*; The *Tories*, ſays M. *Rapin*, appear fierce and haughty: They treat the Whigs with the laſt Contempt, and even ſomewhat hardly, when they have the Advantage over them: They are very hot and vehement, and proceed with a Rapidity which yet is not always the Effect of Heat and Tranſport, but has its Foundation ſometimes in good Policy: They are very ſubject to change their Principles, as their Party prevails, or gives Way.

If the rigid Presbyterians prevail'd in the Whig Party, it would not be leſs hot and zealous than that of the *Tories*; but 'tis ſaid they have not the Direction thereof; which gives Room to affirm, that thoſe at the Head of the Whig Party are much more moderate than the Chiefs of the *Tories*: Add, that they uſually conduct themſelves on fix'd Principles, proceed to their End gradually, and without Violence; and their Slowneſs is not leſs founded on good Politicks, than the Haſtineſs of the *Tories*. --- Thus much, ſays our Author, may be ſaid to the Advantage of the moderate Whigs, that, in the general, they maintain a good Cauſe, *viz.* the Conſtitution of the Government as by Law eſtabliſh'd. See Whigs.

TORMINA, in Medicine, a Term uſed to expreſs Pains in the General; but particularly a Species of Pain call'd *Tormina Ventris*, or *Alvi*; in *Engliſh*, the Gripes. See Gripes.

Young Children are very often troubled with Gripes; 'tis upon this account, that Nurſes, in order to prevent or remedy them, uſually mix with their Spoon-meats, a little Brandy or ſome Carminitive Seeds, as Carus Seeds, &c. See Children.

Some Children breed their Teeth with violent Gripes, which is apt to turn to Convulſions of the Bowels. See Dentition.

In Adults, the dry Gripes is uſually cured by the Exhibition of warm Catharticks, ſuch are Tincture of Hiera Picra, Elixir Salutis, Tincture of Rhubarb, &c. with the Aſſiſtance of Opiats.

TORNADO, a ſudden and violent Storm at Sea. See Whirlwind.

TORNESOL, Tournesol, or Turnsol, called alſo *Heliotrope*, and *Sun-flower*, and by the Botaniſts *Ricionoides*, a Plant whoſe Flower is ſaid to follow the Motion of the Sun; and to turn ſtill towards it.

Some ſay, ’tis hence it takes its Name, and account for the Effect, by ſuppoſing that its heavy Stalk, warm’d and ſoften’d with the Heat which is ſtrongeſt on that Side toward the Sun, inclines naturally towards the ſame; but others take the Opinion to have had its Riſe from the Name, which was given it by Reaſon of its Appearance in the Time of the greateſt Heats, when the Sun is in the Tropic.

Some have imagined the Sun-flower of uſe in Medicine; but its Reputation that Way is now out of Doors. Its principal Uſe is in Dying: In order to which, its Juice is inſpiſſated and prepared with Calx and Urine, into blue Cakes; uſed alſo for Starch, inſtead of Smalt. See Blue, Smalt, *&c.*

Its Juice likewiſe furniſhes the Colour wherewith the People of *Languedoc* and ſome other Parts of *France*, where it grows, prepare what they call the *Tourneſol en Drapeaux*, or *Turnſol in Rags*. The Proceſs whereof, is owing to M. *Niſſole* of the Royal Academy of Sciences, and is as follows;

The Summets or Tops of the Plant being gather’d in the beginning of *Auguſt*, are ground in Mills, not unlike our Oil Mills: Then, being put up in Bags, the Juice is expreſs’d with Preſſes.

This Juice having been expoſed to the Sun about an Hour, they dip Linnen Rags therein, and hang them out in the Air till they be well dried again. When, moiſtening them for ſome time, over the Vapour of about ten Pound Weight of quick Lime ſlaked in a ſufficient Quantity of Urine, they lay them out again to the Sun to dry; to be again dipp’d in the Juice of the *Ricionoides*.

When they are dried for the laſt Time, they are in their Perfection; and are thus ſent into moſt Parts of *Europe*, where they are uſed to tinge Wines and other Liquors, and give them an agreeable Colour.

The *Dutch* prepare a kind of *Turnſol* in Paſte or Cakes, or Stones; pretended to be the Juice of that Plant Inſpiſſated: But there is Reaſon to think it a Cheat; and to be the Juice of ſome other Plant prepared after the like Manner; the *Tournſol* being no Plant of their Growth.

TORPEDO, in Natural Hiſtory, a Sea-fiſh, fam’d both among the Ancient and Modern Naturaliſts, for a remarkable Numbneſs wherewith it ſtrikes the Arm of ſuch as touch it.

Various are the Accounts given us of this ſingular Fiſh; ſome Authors raiſing the Effects it produces, to a kind of Miracle; and others treating them as little better than Chimera’s; ſome ſolving the Appearance this Way, and ſome that. But M. *Reaumur*, of the *French* Academy of Sciences, has at length cleared the Point, and ſet the Matter in a ſatisfactory Light.

The *Torpedo* is a flat Fiſh, much of the Figure of the Thorn-back; ſufficiently deſcribed in moſt Treatiſes of Fiſhes, and commonly enough found about the Coaſts of *Provence*, *Gaſcony*, *&c.* where the People eat it without any Danger. See its Figure repreſented in Tab. Natural Hiſtory, Fig. 9.

Phænomenon of the TORPEDO.

Upon touching it with the Finger, it frequently, though not always happens, that the Perſon feels an unuſual painful Numbneſs, which ſuddenly ſeizes the Arm up to the Elbow, and ſometimes to the very Shoulder and Head.

The Pain is of a very particular Species, and not to be deſcribed by any Words; yet Meſſieurs *Lorenzini*, *Borelli*, *Redi* and *Reaumur*, who all felt it ſeverally, obſerve it to bear ſome Reſemblance to that painful Senſation felt in the Arm, upon ſtriking the Elbow violently againſt a hard Body: though M. *Reaumur* aſſures us, this gives but a very faint Idea thereof.

Its chief Force, is at the Inſtant it begins; it laſts but a few Moments and then vaniſhes entirely. If a Man don’t actually touch the *Torpedo*, how near ſoever he holds his Hand; he feels nothing: If he touch it with a Stick, he feels a faint Effect: If he touch it through the Interpoſition of any pretty thin Body, the Numbneſs is felt very conſiderably; if the Hand be preſs’d very ſtrong againſt it, the Numbneſs is the leſs, but ſtill ſtrong enough to oblige a Man ſpeedily to let go.

Theory of the Phænomenon of the TORPEDO.

There are different Ways of accounting for this Effect: The firſt is, that of the Ancients, who contented themſelves with aſcribing a *Torporific* Virtue or Faculty to this Animal.

The ſecond, will have this Effect produced by the *Torpedo*, to depend on an Infinity of Corpuſcles iſſuing continually out of the Fiſh, but more copiouſly under ſome Circumſtances than others: This is the Opinion moſt generally received; being adopted by *Redi*, *Perrault* and *Lorenzini*.

They explain themſelves thus; As the Fire emits a Quantity of Corpuſcles, proper to heat us; ſo the *Torpedo* emits a Quantity of Corpuſcles fit to numb the Part they inſinuate themſelves into; whether it be by their entering in too great abundance, or by their falling into Tracks or Paſſages very diſproportionate to their Figures.

The third Account, is that of *Borelli*, who looks on this Emiſſion of Corpuſcles, as imaginary: He ſays, That upon touching the Fiſh, it puts itſelf into a violent Tremor or Agitation, and that this occaſions a painful Numbneſs in the Hand that touches it. But M. *Reaumur* aſſures us, That notwithſtanding all the Attention he could view this Fiſh withal, when ready to ſtrike the Numbneſs, he could perceive nothing of this Trembling or Agitation.

The laſt and juſteſt Hypotheſis, is that of M. *Reaumur*: The *Torpedo*, like other flat Fiſhes, he obſerves, is not abſolutely flat, but its Back, or rather all the upper Part of its Body, a little Convex: When it did not, or would not, produce any Numbneſs in ſuch as touch’d it, its Back, he found, always preſerved its natural Convexity; but whenever it would diſpoſe itſelf to reſent a Touch or Thruſt, it gradually diminiſhed the Convexity of the back Parts of the Body; ſometimes only rendring them flat, and ſometimes even concave.

The very next Moment, the Numbneſs always began to ſeize the Arm; the Fingers that touch’d, were obliged to give back, and all the flat and concave Part of the Body was again ſeen Convex: And whereas, it only became flat inſenſibly, it return’d to its Convexity ſo ſwiftly, that one could not perceive any Paſſage from the one to the other State.

The Motion of a Ball out of a Musket, is not, perhaps, much quicker than that of the Fiſh reaſſuming its former Situation; at leaſt the one is not more perceivable than the other.

’Tis from this ſudden Stroke, that the Numbneſs of the Arm ariſes; and accordingly, the Perſon when he begins to feel it, imagines that his Fingers have been violently ſtruck. ’Tis the mere Velocity of the Stroke that produces the Numbneſs.

The Wonder is, how ſo ſoft a Subſtance, as that of the Fiſh, ſhould give ſo rude a Blow: Indeed a ſingle Stroke of a ſoft Body could never have done it; But in this Caſe, there is an Infinity of ſuch Strokes given in an Inſtant. To explain the admirable Mechaniſm hereof, we muſt give a View of the Parts whereon it depends.

The Mechaniſm, then, conſiſts in two very ſingular Muſcles, *b*, *b*, deſcribed by ſeveral Authors, who have given the Anatomy of the *Torpedo*. *Redi*, and after him *Lorenzini*, call them the *Muſculi Falcati*; their Form is that of Creſcents, and they together, take up almoſt Half the Back of the Fiſh; the one on the right Side, and the other on the Left. Their Origin is a little above the Mouth; and they are ſeparated from each other by the Bronchia, into the laſt of which they have their Inſertion.

What is ſingular in them, is their Fibres; if, with the Authors above-mentioned, we may give that Name to a Sort of leſſer Muſcles as big as Gooſes Quills; of an Aſſemblage whereof the two great Muſcles are form’d. Theſe leſſer Muſcles are hollow Cylinders, their Length nearly equal to the Thickneſs of the Fiſh, and ranged a-ſide of each other; all perpendicular to the upper and lower Surfaces of the Fiſh, accounting theſe Surfaces as two nearly parallel Planes. The exterior Surface of each of theſe Cylinders, conſiſts of whitiſh Fibres, whoſe Direction is the ſame with that of the Cylinder: But theſe Fibres only form a kind of Tube, whoſe Parietes are not above the Thickneſs of a Leaf of Paper. The Cavity of the Tube is full of a ſoft Matter, of the Colour and Conſiſtence of Pap, divided into Twenty-five or Thirty different little Maſſes, by ſo many Partitions, parallel to the Baſe of the Cylinder; which Partitions are form’d of tranſverſe Fibres: So that the whole Cylinder is in ſome meaſure compoſed of Twenty-five or Thirty ſmaller Cylinders placed over each other, and each full of a medullary Subſtance.

We need only now, remember, that when the *Torpedo* is ready to ſtrike its Numbneſs, it ſlowly flattens the outer Surface of its upper Part; and the whole Mechaniſm, whereon its Force depends, will be apparent. By that gradual Contraction, it bends, as it were, all its Springs; renders all its Cylinders ſhorter, and at the ſame time augments their Baſes, or, which amounts to the ſame, ſtretches all the little Incloſures which divide the ſoft Matter. In all Probability, too, the large Fibres, or little Muſcles, in that Moment, loſe their cylindrical Form, to fill the Vacuities between them.

The Contraction being made to a certain Degree, all the Springs unbend; the longitudinal Fibres are lengthen’d, the tranſverſe ones, or thoſe which form the Incloſures, are ſhorten’d; each Incloſure, drawn by the longitudinal Fibres which are lengthen’d, drives the ſoft Matter it contains, upwards; in which it is apparently aſſiſted by the undulatory Motion, which is in the tranſverſe Fibres when contracting.

If then, a Finger touch the *Torpedo*, it inſtantly receives a Stroke, or rather ſeveral ſucceſſive Strokes, from each of the Cylinders whereon it is applied. As the ſoft Matter is diſtributed into divers Incloſures, ’tis more than probable, all the Strokes are not given preciſely at the ſame Moment: Nay, were there no Incloſures to ſeparate the Matter, its Impreſſion would give Strokes, in ſome meaſure, ſucceſſive: For all Parts of ſoft Bodies don't ſtrike at once; the Impreſſion of the laſt does not take till after the firſt have done acting. But theſe ſeveral Incloſures ſerve to augment the Number of the Springs, and, of Conſequence, the Velocity and Force of the Action.

Theſe quick re-iterated Strokes given by a ſoftiſh Matter, ſhake the Nerves, ſuſpend, or change the Courſe of the Animal Spirits, or ſome Fluid equivalent: Or, if you had rather, theſe Strokes produce an Undulatory Motion in the Fibres of the Nerves, which claſhes or diſagrees with that they ſhould have, in order to move the Arm. And hence the Inability we are under of uſing the ſame, and the painful Senſation which accompanies it.

Hence it is, that the *Torpedo* does not convey its Numbneſs to any Degree, except when touch'd on theſe great Muſcles; ſo that the Fiſh is very ſafely taken by the Tail, which is the Part by which the Fiſhermen catch it.

The Authors who have accounted for the Effect of the *Torpedo* from *Torporific* Effluvia, have been obliged to have recourſe to the ſame two Muſcles; but then they only make them Reſervoirs of the Corpuſcles, whereby the Numbneſs is effected.

Lorenzini, who has obſerved the Contraction as well as *Reaumur*, pretends that all its Uſe, is to expreſs thoſe Corpuſcles from out of the hollow Fibres of theſe Muſcles wherein they are impriſon'd; but this Emanation of Corpuſcles admitted by moſt Authors, is diſproved by M. ***Reaumur***, from the following Conſiderations;

1° In that no Numbneſs is convey'd, if the Hand be at the ſmalleſt Diſtance from the *Torpedo*: Now, to uſe their own Compariſon, if the *Torpedo* numbs as the Fire warms, the Hands would be affected at a Diſtance from the one as well as the other.

2° In that the Numbneſs is not felt till the Contraction of the Muſcles is over; whereas were the Cauſe in *Torporific* Particles expreſs'd by the Contraction, the Effect would be felt in the time of the Contraction.

3° In that were the Numbneſs the Effect of *Torporific* Particles, it would be convey'd by degrees, as the Hand warms by degrees.

Laſtly, in that the *Torpedo* conveys its Numbneſs to the Hand, thro' a hard, ſolid Body, but does not do it thro' the Air.

Were the only Uſe the *Torpedo* makes of its Faculty, the ſaving itſelf from the Fiſhermen, as ſome have ſuppoſed, it would ſignify but little; for 'tis very rare that it eſcapes their Hands. ***Pliny***, *Ariſtotle* and moſt Naturaliſts, therefore agree, that it likewiſe ſerves it for the catching of other Fiſhes: All we know for certain, is, that it lives on other Fiſhes, and that 'tis generally found on Banks of Sand, *&c.* probably, to ſerve it as a Foundation or Support for the exerting its Faculty.

M. ***Reaumur*** had no Fiſhes alive to examin what the *Torpedo* would do to them; but an Animal, next a-kin to a Fiſh, he tried it on, *viz.* a Drake, which being ſhut up a while in Water with the Fiſh, was taken out dead; doubtleſs from its too frequent Contacts on the *Torpedo*.

In the Hiſtory of *Abyſſinea*, we are aſſured, that if the *Torpedo* kill living Fiſhes, it ſeems to bring dead ones to life again; dead Fiſhes being ſeen to ſtir, if put in the ſame Veſſel with it: But this is much leſs credible than what is told us in the ſame Hiſtory, that the *Abyſſinans* uſed *Torpedo*'s for the Cure of Fevers, by tying down the Patient to a Table, and applying the Fiſh ſucceſſively upon all his Members, which puts the Patient to cruel Torment, but effectually rids him of his Diſeaſe.

Bellon aſſures us, that our own *Torpedo*'s applied to the Soals of the Feet, have prov'd ſucceſsful againſt Fevers.

M. *du Hamel* in his Memoirs of the Academy of Sciences, *Anno* 1677, mentions a kind of *Torpedo*'s, which he compares to Conger Eels: M. *Richer*, from whom he has the Account, affirms on his Knowledge, that they numb the Arm ſtrongly, when touch'd with a Staff, and that their Effects even go to the giving Vertigo's.

TORQUE, in Heraldry, a round Roll of Cloth twiſted and ſtuff'd; ſuch is the Bandage frequently ſeen in Armories about the Heads of Moors, Savages, *&c.*

It is always of the two principal Colours of the Coat. The *Torque* is the leaſt Honourable of all the Enrichments wore on the Helmet by way of Creſt. See Creſt.

TORREFACTION, in Pharmacy, a kind of *Aſſation*, wherein a Drug is laid to dry on a Metal Plate plac'd over Coals, till it become friable to the Fingers.

Torrefaction is particularly us'd, when, after reducing ſome Drug, as Rhubarb, or Myrabolans into Powder, 'tis laid on an Iron or Silver Plate, and that plac'd over a moderate Fire till the Powder begin to grow darkiſh; which is a Mark thoſe Remedies have loſt their purgative Virtue, and have acquir'd a more aſtringent one. See Rhubarb, *&c.*

The Word is form'd from the *Latin torrefacere*, to roaſt.

Formerly, they us'd to *torrefy* Opium, to get out ſome malignant Parts fancy'd to be in it, e'er they durſt uſe it in Medicine; but the Effect was, that its volatile Spirits and Sulphur, wherein its greateſt Virtue conſiſts, were hereby evaporated. See Opium.

TORRENT, Torrens, in Geography, an impetuous Stream of Water, falling ſuddenly from Mountains wherein there have been great Rains, or an extraordinary Thaw of Snow; and making great Ravages in the Plains. See River, *&c.*

TORRICELLIAN, a Term very frequent among phyſical Writers, uſed in the Phraſes, *Torricellian Tube*, and *Torricellian Experiment*, on account of the Inventor, *Torricelli*, a Diſciple of the great *Galileo*.

The Torricellian *Tube* is a Glaſs Tube, as A B, about three Foot long, and $3\,\frac{1}{4}$ of an Inch in Diameter, repreſented (Tab. Pneumaticks, Fig. *6.*) whoſe upper Orifice A is hermetically ſealed.

The Torricellian *Experiment*, is perform'd by filling the *Torricellian* Tube A B with Mercury; then ſtopping the Orifice B, with the Finger; inverting the Tube; and plunging that Orifice in a Veſſel of ſtagnant Mercury C. See Mercury.

This done, the Finger is removed, and the Tube ſuſtain'd perpendicular to the Surface of the Mercury in the Veſſel.

The Conſequence is, that Part of the Mercury falls out of the Tube into the Veſſel, and there only remains enough in the Tube to fill from 28 to 31 Inches of its Capacity, above the Surface of the ſtagnant Mercury in the Veſſel.

Thoſe 28, *&c.* Inches of Mercury, are ſuſtain'd in the Tube by the Preſſure of the Atmoſphere on the Surface of the ſtagnant Mercury; and according as that Atmoſphere is more or leſs heavy, or as the Winds blowing upwards or downwards, heave up, or depreſs the Air, and ſo increaſe or diminiſh its Weight and Spring; more or leſs Mercury is ſuſtain'd from 28 Inches to 31. See Air and Atmosphere.

The *Torricellian Experiment* makes what we now commonly call the *Barometer* or *Weather-Glaſs*. See Barometer.

TORRID *Zone*, the Tract of Earth lying under the Line, and extending on each Side to the Two Tropicks; or to 23 Degrees and a Half of Latitude. See Tropic, Zone, *&c.*

The Ancients believed the *Torrid Zone* uninhabitable; but from the late Navigations, we learn, that the exceſſive Heat of the Day there, is tempered by the Coldneſs of the Night.

TORT, in Law, an *Injuſtice* or *Injury*; as *de ſon Tort meme*, in his own Wrong, *&c.* Hence alſo *Tort-feaſor*, *&c.* The Word is pure *French*.

TORTEAUX, in Heraldry. See Tourteaux.

TORTOISE-*Shell*, the Spoils or Cover of a Teſtaceous Animal, call'd a *Tortoiſe*; uſed in Inlaying, and on various other Occaſions, as for Snuff-boxes, Combs, *&c.* See Testaceous and Shell.

There are two Kinds of *Tortoiſes*, *viz.* the *Land* and *Sea Tortoiſe*.

The *Sea Tortoiſe*, again, is of four Kinds, *viz.* the *Freſh Tortoiſe*, the *Caret*, the *Cabohanna*, and the *Lager-hu*: But 'tis the *Caret* alone furniſhes that beautiful *Shell*, ſo much admired in *Europe*.

The Shell of the Caret is thick, and conſiſts of two Parts, the upper, which covers the Back, and the lower, the Belly: The Two are joined together at the Sides by ſtrong Ligaments which yet allow of a little Motion.

In the Fore-part is an Aperture for the Head and fore Legs: and behind, for the hind Legs and Tail.

'Tis the under Shell alone is uſed: To ſeparate it from the upper, they make a little Fire beneath it, and aſſoon as ever 'tis warm, the under Shell becomes eaſily ſeparable from the upper, with the Point of a Knife, and is taken off in Laminæ or Leaves, without killing the Animal, which, 'tis ſaid, being turn'd to Sea again, gets a new Shell.

The whole Spoils of the Caret conſiſt in 13 Leaves, 8 of them flat, and 5 a little bent: Of the flat ones, there are 4 large ones, about a Foot long, and 7 Inches broad.

The beſt Shell is thick, clear, tranſparent, of the Colour of Antimony, ſprinkled with Brown and White. When uſed in Marquettry, *&c.* the Workmen give it what Colour they pleaſe, by means of colour'd Leaves, which they put underneath them.

In Generation, *Rondeletius* obſerves, the Embraces of the Male and Female *Sea Tortoiſes*, continue for a whole Lunar Month; and that they ſquirt Water out of the Noſtrils, in the ſame Manner as the Dolphin. On the *Braſilian* Shore, they are ſaid to be ſo big, as ſometimes to dine Fourſcore Men: And that in the *Indian* Sea, the Shells ſerve the Natives for Boats. ***De Laet*** adds, that in the Iſland of *Cuba* they are of ſuch a Bulk, that they will creep along with Five Men on their Backs.

TORTOIS *in the Military Art*. See Testudo.

TORTURE, a grievous Pain inflicted on a Criminal, or Perſon accuſed; to make him confeſs the Truth. See Question.

The Forms of *Torture* are different in different Countries: In ſome they uſe Water, in others Iron, in ſome the Wheel or Rack, in ſome the Boot, Thumbkins, *&c.* See Rack.

In *England*, the uſe of all *Torture* is aboliſh'd, both in Civil and Criminal Matters; and even in Caſes of High Treaſon; tho' ſomething like it ſtill obtains, where the Criminal refuſes to plead. See PAINE *fort & dure*.

In *France*, the *Torture* is not practiſed in Civil Matters: But by an Ordonnance of 1670, if a Perſon be accuſed of a Capital Crime, he may be put to the Queſtion, *i. e.* to the *Torture*, if there be conſiderable Proof againſt him, and yet not Proof enough to convict him. See PROOF.

There are two Kinds of *Torture*; the one *Preparatory*, appointed before Sentence paſs'd; the other *Definitive*, decreed by a Sentence of Death.

The *Preparatory Torture*, is order'd *Manentibus Judiciis*, ſo that if the Accuſed don't confeſs, he cannot be condemn'd to Death, but only *ad omnia citra Mortem*.

The *Definitive Torture*, is that a condemn'd Criminal is put to, to make him confeſs his Accomplices. The Ordinary *Torture* is given at *Paris* with Six Quarts of Water, and the little Treſtle; and the Extraordinary, with Six other Pots, and the great Treſtle.

In *Scotland*, the *Torture* is given with the Boot. See BOOT.

In ſome other Countries, by heating the Criminal's Feet; in others, with Wedges, *&c.*

The *Torture*, ſays M. *Bruyere*, is a ſure Expedient to deſtroy an Innocent Perſon of a weak Complexion, and to ſave a Criminal of a robuſt one. --- It was a noble Saying of an Ancient, *They who can, and they who cannot bear the* Torture, *will equally lie*.

TOTTED. A good Debt to the King is, by the foreign Appoſer, or other Officer in the *Exchequer*, noted for ſuch by writing the Word *tot*, q. d. *tot pecuniæ Regi debentur*, whence it is ſaid to be *totted*.

Alſo that which is paid is to be *totted*. See EXCHEQUER.

TOTUM. See WHOLE.

TOUCAN, in Aſtronomy, a Conſtellation of the Southern Hemiſphere. See CONSTELLATION.

TOUCH, in Muſic. An Organ is ſaid to have a good *Touch*, when the Keys cloſe, and lie down well; being neither too looſe, nor too ſtiff. See ORGAN.

TOUCH *the Wind*, in the Sea Language, is when the Steer's-man at the Helm is bid to keep the Ship as near the Wind as may be. See STEERAGE.

TOUCHING is ſometimes us'd for the Senſe of *Feeling*. See FEELING.

TOUCHING, *in Geometry*. A right Line is ſaid to *touch* a Circle, when it meets it in ſuch Manner, as that being produc'd it does not *cut*, but falls without the Circle. See TANGENT.

TOUCH*ſtone*, a black poliſh'd Stone, us'd to try Metals upon. See STONE.

The Ancients call'd it *Lapis Lydius*, the *Lydian Stone*, from *Lydia*, a Country of *Aſia minor*, whence it was brought.

The Moderns call it *Touch-ſtone*, in regard the Proof they make of Metals, is by *touching* or rubbing the Metal to be try'd on the Stone, and comparing the Colour of the Mark it leaves thereon, with the Mark of another Piece of Metal of the ſame Species, whoſe Goodneſs is paſt doubt. See METAL.

TOUR, *Turn*, a *French* Term, often us'd among *Engliſh* Writers, for a Journey. Thus we ſay the *Tour* of *Paris*, of *Rome*, &c.

TOUR *of Hair*, a Treſs, or Border of Hair, going round the Head, which mingled dexterouſly with the natural Hair, lengthens and thickens it. See HAIR.

Theſe *Tours* are for Men. --- The Women likewiſe uſe *Tours*, and falſe Hair, either to hide their Age, or to ſupply the Thinneſs of their natural Hair on the Forehead and Temples.

The Form is different according to the Mode; ſometimes rais'd and curl'd, ſometimes ſtraight and laid flat along the Forehead. See PERRUKE.

The Word is pure *French*, ſignifying literally *a Round*, or ſomething that goes around.

TOURN, in Law. See TURN.

TOUT *temps priſt & uncore eſt*, *q. d.* always ready, and ſo at the preſent Time; is a kind of Plea in Way of Excuſe or Defence, for him that is ſued for any Debt or Duty belonging to the Plaintiff. See PLEA.

TOW. Whatever is drawn by a Ship or Boat with a Rope, is ſaid to be *towed* after her.

TOWAGE, the haleing or drawing a Ship or Barge by Men or Beaſts, or by another Ship or Boat, faſten'd to her; in order to make her enter a Port, aſcend a River, or the like.

The Term is alſo us'd for the Money, or other Recompence, given by Bargemen to the Owner of the Ground next the River where they *tow* a Barge or other Veſſel, for the Liberty of paſſing along the Side thereof.

The Word is probably deriv'd from the *Saxon*, *Teon*, to draw.

TOWER, a tall Building, conſiſting of ſeveral Stories, and uſually of a round Form.

Before the Invention of Guns, they us'd to fortify Places with *Towers*; and to attack them with moveable *Towers* of Wood, mounted on Wheels, to ſet the Beſiegers on a Level with the Walls, and drive the Beſieg'd from under the ſame.

Theſe *Towers* were ſometimes 20 Stories, and 30 Fathom high: They were cover'd with raw Skins, and an hundred Men employ'd to move them.

Towers are alſo built to enable one, by their Elevation, to view to a great Diſtance.

Theſe are of all Figures; as, ſquare, round, pentagonal, *&c.* See PHAROS.

In *China* is a famous *Tower* of *Porcelain*, whereof the *Dutch* relate Wonders. See PORCELAIN.

Towers are alſo built for Fortreſſes, Priſons, *&c.* as the *Tower* of *London*, the *Towers* of the Baſtille, *&c.* See FORTIFIED *Place*.

The Tower of London is not only a Cittadel, to defend and command the City, River, *&c.* but alſo a Royal Palace, where our Kings with their Courts have ſometimes lodg'd; a Royal Arſenal, wherein are Arms and Ammunition for 60000 Soldiers; a Treaſury for the Jewels and Ornaments of the Crown; a Mint for coining of Money; the great Archive, wherein are preſerv'd all the ancient Records of the Courts of *Weſtminſter*, &c. and the chief Priſon for State Criminals. See ARSENAL, MINT, *&c.*

In the midſt of it is the great ſquare, white *Tower*, built by *William* the Conqueror; --- Within the *Tower* is a Parochial Church, exempt from all Juriſdiction of the Archbiſhop, and a Royal Chapel, now diſus'd.

The chief Officer of the *Tower* is the *Conſtable*, under whom is the *Lieutenant*, who acts by his Direction, and in his Abſence. He has by Grant of ſeveral of our Kings, *Unam Lagenam*, two Gallons and a Pint of Wine, out of every Veſſel; and a certain Quantity out of every Boat laden with Lobſters, Oyſters, and other Shell Fiſh, and double the Quantity out of every Alien's Boat, paſſing by the *Tower*: To him alſo belongs a Fee of 200*l.* for every Duke committed Priſoner; 100*l.* for every Peer not a Duke, and 50*l.* for every Commoner. See CONSTABLE, *&c.*

Under the Conſtable, and, in his Abſence, under the Lieutenant, are a *Gentleman Porter*, and the *Warders*.

The firſt has Charge of the Gates, to lock and unlock them, and deliver the Keys every Night to the Conſtable, or Lieutenant, and receive them of him next Morning: He commands the Warders who are upon the Day's Wait; and at the Entrance of a Priſoner has for his Fee *Veſtimenta Superiora*, or elſe a Compoſition for the ſame, which is uſually 30*l.* for a Peer, and 5*l.* a-piece for others.

Note, The ancient Allowance from the King to a Duke or Marquis, Priſoner in the *Tower*, was 12*l.* a Week, now but 4*l.* To all other Lords anciently 10*l.* a Week, now 2*l.* 4*s.* 5*d.* To Knights and Gentlemen anciently 4*l.* a Week, now 13*s.* and 4*d.* And to inferior Perſons, now 10*s.* per Week.

The *Yeomen Warders* of the *Tower* are 40, who are accounted the King's Domeſtic Servants: Their Duty is to attend State Priſoners, and to wait at the Gates: Ten of them to be upon the Day's Wait, to take account of all Perſons that come into the *Tower*, to enter their Names, and the Names of thoſe they go to: Two of them are on the Watch all Night. See WARDER.

In the *Tower* is likewiſe kept a Court of Record every *Monday*, by Preſcription, for the Liberty of the *Tower*, of Debt, Treſpaſs, and other Actions of any Sum. See COURT.

Beſide the ancient Liberty of the *Tower*, which adjoins to it; the old Artillery Garden by *Spittle-Fields*, and the *little Minories*, are within the *Tower* Liberty; within which the Gentleman Porter has the ſame Power and Authority, as Sheriffs within their reſpective Counties. See ORDNANCE, *&c.*

Hollow TOWER, in Fortification, is a Rounding made of the Remainder of a Briſure, to join the Courtin to the Orillon.

TOWN, a Place inhabited by a conſiderable Number of People; of an intermediate Degree between a City and a Village. See VILLAGE, *&c.*

'Tis very hard to give a tolerable Definition of a *Town*, in regard the Idea is a little arbitrary and unfix'd. A *Town* is generally without Walls, which is the Character that uſually diſtinguiſhes it from a City: But this does not hold univerſally. See CITY.

We have ſeveral Kinds of *Towns*; Borough *Towns*, Market *Towns*, County *Towns*. See BOROUGH, *&c.*

TOXICA, a Sort of Poiſon, ſaid to be us'd by the *Indians* to their Arrows, in order to render Wounds made by them incurable. See POISON.

The *Indians* are ſuppos'd to poiſon their Arrows, Daggers, *&c.* with the Virus of Vipers, the miſchievous Effects whereof continue a long Time after the Matter is quite dry'd up. See VIPER.

TRABEATION, in the ancient Architecture, the ſame with *Entablature*. See ENTABLATURE.

It conſiſts of three principal Members or Diviſions, *viz.* the Architrave, Freeze, and Cornice; each of which conſiſts of divers leſſer Members and Ornaments. See ARCHITRAVE, FREEZE, &c.

The Proportion, Members, &c. are different in the ſeveral Orders. See ORDER; ſee alſo each Order apart, TUSCAN, DORIC, &c.

TRACE, a Mark or Impreſſion which any thing leaves behind it in paſſing over another.

Traces of the Brain, among the *Carteſian* Philoſophers, are thoſe Impreſſions, more or leſs deep, which ſenſible Objects make on the fine Fibres of the Brain, by means of the Organs of Senſe. See BRAIN.

Theſe Impreſſions are alſo call'd *Traces of the Object*: The Courſe of the Animal Spirits ſerves to keep them up, and to renew them. See SPIRIT.

The Vivacity of the Imagination ariſes from the prodigious Quantity of *Traces* of different Objects in the Brain, which are ſo link'd together, that the Spirits cannot be ſent into one of them, but they run into all the reſt; by which Means the Ideas occaſion'd by the Application of the Spirits to thoſe ſeveral *Traces*, are all excited, as it were, at once. See IMAGINATION.

Memory, according to the ſame, conſiſts in the *Traces* which the Animal Spirits have impreſs'd. See MEMORY, HABITUDE, &c.

TRACE *of a Hare*, among Hunters, is her Footing in the Snow; diſtinct from her other Treadings, call'd *Doubling* and *Pricking*, &c.

Traces are alſo the Tracts of ravenous Beaſts, as Wolves, wild Bears, &c.

TRACHEA, in Anatomy, a large Artery, call'd alſo *Aſpera Arteria*, and popularly the *Wind-pipe*; being the Canal or Tube which carries the Air into the Lungs, for the Uſe of Reſpiration and Speech. See RESPIRATION and VOICE.

It is compoſ'd wholly of Cartilages, Membranes, little Veins, Arteries, and Nerves: *Galen* gave it the Name *Trachea*, τραχεῖα, becauſe of its being rough and uneven; on which Account the *Latins* alſo call'd it *Aſpera*.

The Head or Cover of the *Trachea Arteria* is call'd the *Larynx*. See LARYNX.

Its Cartilages are in Form of Rings, flat on one Side, and not finiſhing the whole Circle, but repreſenting the Figure of an ancient *Greek* Sigma, whence they are call'd *Sigmoides*. See ASPERA.

In the *Philoſophical Tranſactions*, is a Letter by Mr. *John Keen*, recommending the more frequent Uſe of Laringotomy, or Opening of the Wind-pipe upon preſſing Occaſions; which he urges from a remarkable Caſe of a Perſon who had the *Trachea*, or Wind-pipe, cut quite thro' beneath the Pomum Adami, cur'd by ſtitching the Wound, and uſing proper Medicines. See LARYNGOTOMY.

TRACHOMA, in Medicine, a Roughneſs or Aſperity of the inner Part of the Palpebræ; attended with an Itching, Redneſs, and frequently with Puſtles, reſembling Millet-Seeds.

Its Degrees are the *Sycoſis* and *Tyloſis*. See SYCOSIS, &c.

TRACT, from the *Latin*, *Tractus*, properly denotes an Extent of Ground, or a Portion of the Surface of the terraqueous Globe. See TERRAQUEOUS, &c.

TRACT, or TRACTATE, from the *Saxon*, *Traht*, or the *Latin*, *Tractatus*, does alſo ſignify a ſmall Treatiſe, or written Diſcourſe, upon any Subject. See TREATISE.

TRACT, in Hunting, denotes the Trace or Footing of a wild Beaſt.

TRACTION, *drawing*, the Action of a moving Power whereby the Moveable is brought nearer to the Mover; call'd alſo *Attraction*. See ATTRACTION.

TRACTRIX, in Geometry, a Curve Line; call'd alſo *Catenaria*. See CATENARIA.

TRADE, *Traffic*, *Commerce*, the negotiating, buying, ſelling, exchanging, &c. of Commodities, Bills, Money, &c.

For the Origin, Progreſs, &c. of *Trade*. See COMMERCE and NAVIGATION.

TRADE-*winds*, are certain regular Winds at Sea, blowing either conſtantly the ſame Way, or alternately this way and that; thus call'd from their great Uſe in Navigation and the *Indian* Commerce.

The *Trade-winds* are of different Kinds; ſome blowing three or ſix Months of the Year one Way, and then the like Space of Time the oppoſite Way; very common in the *Indian* Seas, and call'd *Monſoons*. See MONSOON.

Others blow conſtantly the ſame Way: ſuch is that general Wind between the Tropicks, which off at Sea is found to blow all Day long from Eaſt to Weſt.

For the Phænomena of each, with their Phyſical Cauſes, ſee WIND.

Dr. *Liſter* has a Conjecture in the *Philoſophical Tranſactions*, that the *Tropical*, or *Trade-winds*, ariſe, in great Part, from the daily and conſtant Breath of a Sea Plant, call'd the *Sargoſſa*, or *Lenticula Marina*, which grows in vaſt Quantities from 36° to 18° North Latitude, or elſewhere upon the deepeſt Seas. ---- For the Matter of Wind coming from the Breath of one only Plant, muſt needs be conſtant and uniform; whereas the great Variety of Trees and Plants at Land, furniſhes a confuſ'd Matter of Winds. Hence, he adds, it is, that theſe Winds are briskeſt about Noon; the Sun quickening the Plant moſt then, and cauſing it to breathe faſter, and more vigorouſly. Laſtly, the Direction of this Wind from Eaſt to Weſt, he attributes to the general Current of the Sea; for a gentle Air is obſerv'd to be conſtantly led along with the Stream of a River: Nor muſt it be omitted, that every Plant is, in ſome Meaſure, a Heliotrope, and bends itſelf, and moves after the Sun, and conſequently emits its Vapour thitherward; ſo that the Direction of the *Trade-wind* is, in ſome meaſure, alſo owing to the Courſe of the Sun.

Dr. *Gordon* has another Hypotheſis: The Atmoſphere, which ſurrounds the Earth, and moves along with it in its Diurnal Motion, he ſuppoſes to keep Pace therewith; that Part of it, at leaſt, which is near the Earth; if the remoter Part ſhould be judg'd to loſe Ground.

If then there were no Changes in the Atmoſphere's Gravity, he ſuppoſes it would always go along with the Earth from Weſt to Eaſt in an uniform Motion, altogether inſenſible to us: But the Portion of the Atmoſphere under the Line being extremely rarify'd, its Spring expanded, and ſo its Gravity and Preſſure much leſs than the neighbouring Parts of the Atmoſphere; it is incapable of the uniform Motion towards the Eaſt, and muſt therefore be preſs'd Weſtwards, and make the continual Breeze from Eaſt to Weſt, between the Tropicks.

TRADITION, the Act of delivering a Thing into the Hands of another.

The Sale of a Moveable is compleated by a ſimple *Tradition*. See LIVERY.

TRADITION, in Matters of Religion, is apply'd to thoſe Laws, Doctrines, Relations, &c. which have been handed down to us from our Fore-fathers, without being written.

Taking *Tradition* in this Senſe, for every thing relating to Faith, or the Rites and Ceremonies of Religion thus deriv'd down to us from the Primitive Church, there are two Kinds, *viz.* *Apoſtolical* and *Eccleſiaſtical Tradition*.

Apoſtolical Tradition, which is what we properly call *Tradition*, is defin'd by the *Romaniſts*, to be the unwritten Word of God, deſcended from the Apoſtles to us, thro' a continual Succeſſion of the Faithful.

By this *Tradition*, ſay they, it is that the Holy Scriptures have been kept entire, both as to the Letter, *i. e.* the Text, and as to the Spirit or Senſe thereof: This *Tradition*, the Council of *Trent* declares to have the ſame Authority with the Holy Scripture itſelf; and pronounces every one who rejects it a Heretic.

Eccleſiaſtical Traditions, are certain Statutes and Regulations regarding the Rites, Cuſtoms, and Circumſtances of Religion, introduc'd ſince the Time of the Apoſtles, by Councils, Popes, &c. and continu'd to our Time thro' a conſtant Obſervance of the Church.

The *Romaniſts* make another Diviſion of *Tradition*, *viz.* into *Written* and *Unwritten*.

Written Tradition, is that whereof we find ſome Traces in the ancient Fathers and Doctors.

Unwritten Tradition, is that whereof we find no Signs or Footſteps in any of the Fathers extant.

The Church of *Rome* pretends to be the Depoſitary of each Kind: *Tradition*, ſhe holds to be abſolutely neceſſary in the Church; grounding this Neceſſity on the Promiſe of Infallibility which Jeſus Chriſt is pretended to have made her.

Yet others of that Communion deny *Tradition*, how excellent ſoever it may be for the Reclaiming of Hereticks, to be abſolutely neceſſary; maintaining, that the Church would not be leſs infallible, nor leſs the Rule of Doctrine, &c. if the Fathers had never wrote at all.

TRADITIONARY, TRADITIONARIUS, a Name given among the *Jews*, to ſuch of them as acknowledge *Tradition*, follow it, and explain the Scriptures thereby; in Oppoſition to the Caraites, who refuſe any thing but the pure Scriptures themſelves. See CARAITE.

The *Traditionaries* are what we more uſually call *Rabbins*, or *Talmudiſts*. See RABBIN and TALMUD.

Hillel ſhone among the *Traditionaries*, and *Schammai* among the Textuaries. See TEXTUARY.

TRADITORES, a Name given in the firſt Ages of the Church, to ſuch Chriſtians, as, in Times of Perſecution, to avoid Death and Martyrdom, deliver'd up the ſacred Writings to the Perſecutors.

The Enemies of Religion, even under the old Law, made their utmoſt Efforts to deprive the World of the Holy Scriptures: In that cruel Perſecution which *Antiochus* rais'd againſt the *Jews*, the Books of the Law were very ſolicitouſly ſought after, torn, and burnt, and ſuch as kept them put to Death; as we read in the firſt Book of *Maccab.* cap. iv. 59, and 60.

Diocleſian renew'd the ſame Impiety, by an Edict publiſh'd in the 19th Year of his Empire, commanding all the ſacred Books to be brought to the Magiſtrates, and burnt.

Many weak Chriſtians, and even ſome Biſhops, overcome by the Fear of Puniſhment, carry'd in their Books to the Perſecutors; which the Church deteſting, made very ſevere Laws againſt them, and gave them the infamous Name of *Traditores*, from *Trado*, I deliver.

As the great Pretence of the Schiſm of the Donatiſts was, that the Catholicks tolerated the *Traditores*; it was decreed in the Council of *Arles*, held in 314, that ſuch as ſhould be found guilty of having deliver'd up any of the Holy Books, or Veſſels, ſhould be depos'd from the Order of the Clergy, *&c.*

TRADUCIANS, TRADUCIANI, a Name the *Pelagians* anciently gave to the Catholicks, becauſe of their teaching, that original Sin was tranſmitted from Father to Children, or that it was communicated to the Children by the Father in the Way of Generation. See ORIGINAL *Sin*.

The Word is form'd of the *Latin*, *tradux*, which was made Uſe of to expreſs that Communication; and which comes from *traduco*, I tranſmit, or make paſs from one to another.

At preſent, ſome give the Appellation *Traducian* to ſuch as hold that the Souls are tranſmitted to the Children by the Father.

TRADUCTION, the *Tranſlating*, or turning out of one Language into another. See TRANSLATION.

The Word is form'd of *trans*, beyond, and *duco*, I lead, draw.

TRAFINE, among Surgeons, an Inſtrument, call'd alſo *Trepanum*, *Anabapiſton*, *Modiolus*, &c. See TREPANUM and MODIOLUS.

TRAFFIC. See TRADE and COMMERCE.

The principal *Traffic* in *Muſcovy*, and the North, is in Furs and Skins: The great *Traffic* of the *Dutch* in the Eaſt is in Spices: The *Traffic* of Money is moſtly carry'd on at the Exchange.

The Word is form'd from the *French*, *Trafic*, and that from the *Italian*, *Traſico*, which is again borrow'd from the *Arabic*.

TRAGACANTH, or ADRAGANTH, a kind of Gum oozing out at Inciſions made in the Trunk and larger Branches of a Plant, or little Shrub, of the ſame Name. See GUM.

The naked Hillocks of Mount *Ida* in *Candia*, M. *Tournefort* tells us, produce a deal of the Plant *Tragacantha*, which gives the Gum ſpontaneouſly towards the End of *June*, and in the following Months; when the nutritious Juice of the Plant, thicken'd by the Heat, burſts moſt of the Veſſels it is contain'd in.

This Juice coagulates in Threads, which make their Way into the Pores of the Bark, where being puſh'd forwards by new Juice, they get thro' the Bark, and are at length harden'd in the Air, either into little Lumps, or into twiſted Pieces in Form of little Worms, more or leſs long according to the Matter they are form'd of.

It ſhould ſeem too that the Contraction of the Fibres contributes to the Expreſſion of the Gum: Thoſe fine Fibres, like thoſe of Hemp, laid bare and trampled under Foot by Men and Horſes, contract themſelves, and facilitate the Expreſſion of the extravaſated Juice.

The Plant grows alſo in ſeveral Places of the *Levant*, particularly about *Aleppo*.

The Word is form'd of the *Greek*, *τραγος*, Goat, and *ακανθα*, Thorn, by Reaſon the Plant is beſet with Thorns.

The Gum is of different Colours, and Qualities; ſome being white, other-ſome greyiſh, ſome red, and ſome almoſt black The white is the beſt. It muſt be choſen clear, ſmooth, and twiſted like little Worms.

It diſſolves eaſily in any aqueous Menſtruum, which it will give the Conſiſtence of a Syrup to, in the ſmall Proportion of a Dram to a Pint. It is ſmooth and ſoftening, and therefore good to obtund the Acrimony of any Humours, which makes it of Service in ſuch Coughs as proceed from Catarrhs and Defluxions of Rheum. It is alſo very ſtrengthening in ſome Seminal Weakneſſes, and prevalent againſt the Whites in Women.

TRAGEA, in Pharmacy, a Term frequently uſed to expreſs Powders groſly beat; but now obſolete. See POWDER.

TRAGEDY, a Dramatic Poem, repreſenting ſome ſignal Action, perform'd by illuſtrious Perſons, and which has frequently a fatal Iſſue or End. See DRAMA.

Ariſtotle more Scientifically defines *Tragedy*, the Imitation of one grave and entire Action, of a juſt Length; and which, without the Aſſiſtance of Narration, by raiſing of Terror and Compaſſion, refines and purges our Paſſions.

This Definition has given the Criticks ſome Perplexity; and *Corneille* declares he cannot reconcile *Ariſtotle* with himſelf: The Inſtances *Ariſtotle* cites, he thinks, ruin his own Definition. He even denies the purging our Paſſions to be the End of *Tragedy*.

Our *Engliſh* Authors are more favourable to the Definition: By the purging our Paſſions, they underſtand not the extirpating them, but the reducing them to juſt Bounds; for by ſhewing the Miſeries that attend a Subjection to them, it teaches us to watch them more narrowly; and by ſeeing the great Misfortunes of others, it leſſens the Senſe of our own.

Tragedy, in its Original, M. *Hedelin*, obſerves, was only a Hymn ſung in Honour of *Bacchus*, by ſeveral Perſons, who, together, made a Chorus of Muſic, with Dances and Inſtruments. See CHORUS.

As this was long, and might fatigue the Singers, as well as tire the Audience; they bethought themſelves to divide the ſinging of the Chorus into ſeveral Parts, and to have certain Recitations in the Intervals.

Accordingly, *Theſpis* firſt introduced a Perſon upon the Stage with this View: *Æſchylus* finding one Perſon inſufficient, introduced a Second to entertain the Audience more agreeably, by a kind of Dialogue: He alſo cloath'd his Perſons more decently, and firſt put them on the Buskin. See COTHURNUS.

The Perſons who made theſe Recitations on the Scene, were call'd *Actors*; ſo that *Tragedy* at firſt was without Actors. And what they thus rehearſed, being things added to the ſinging of the Chorus, whereof they were no neceſſary Part, were call'd *Epiſodes*. See EPISODE.

Sophocles found that two Perſons were not enough for the Variety of Incidents; and accordingly introduced a Third: And here the *Greeks* ſeem to have ſtopp'd; at leaſt 'tis very rare that they introduce four Speakers on the ſame Scene. See PERSON.

Tragedy and Comedy were at firſt confounded with each other; But they were afterwards ſeparated; and the Poets applied themſelves to the cultivating of *Tragedy*, neglecting Comedy. See COMEDY.

When *Tragedy* was got into a better Form; they changed the Meaſure of its Verſe, and endeavour'd to bring the Action within the Compaſs of a Day, or of a Revolution of the Sun. See UNITY.

For the ſeveral Parts of Tragedy; ſee ACT, SCENE, ACTION, FABLE, CHARACTER, MANNERS, *&c.*

The *Engliſh* received the firſt Plan of their Drama from the *French*; among whom it had its firſt Riſe towards the End of the Reign of *Charles* V. under the Title of *Chant-Royal*, which were Pieces in Verſe, compoſed in Honour of the Virgin, or ſome of the Saints, and ſung on the Stage; call'd by the Title of *Chant-Royal*, becauſe the Subject was given by the King of the Year; or the Perſon who had bore away the Prize the Year preceding. See CHANT.

The Humour of theſe Pieces run wonderfully among the People, inſomuch that in a little time there were form'd ſeveral Societies, who began to vie with each other: One of theſe, to engage the Town from the reſt, began to intermix various Incidents, or Epiſodes, which they diſtributed into *Acts*, *Scenes*, and as many different *Perſons* as were neceſſary for the Repreſentation.

Their firſt Eſſay was in the *Bourg S. Maur*; and their Subject the Paſſion of Our Saviour. The Prevot of *Paris* prohibiting their continuing of it, they made Application to Court; and to render it the more favourable to them, erected themſelves into a Fryary or Fraternity, under the Title of *Brothers of the Paſſion*; which Title has given ſome Occaſion to ſuſpect them to have been an Order of Religious, or Friars of the Paſſion.

The King, on ſeeing and approving ſome of their Pieces, granted them Letters of Eſtabliſhment in 1402: upon which they built a Theatre; and for an Age and a Half, acted none but grave Pieces, which they called *Moralities*; till the People growing weary of them, they began to intermix Farces or Interludes taken from profane Subjects.

This Mixture of Farce, and Religion, diſpleaſing many; they were re-eſtabliſh'd by an Arret of Parliament in 1548, on Condition of their acting none but profane, lawful and decent Subjects, without intermedling with any of the Myſteries of Religion; and thus were the Brothers of the Paſſion deſpoil'd of their religious Character; upon which they mounted the Stage no more in Perſon; but brought up a new Set of Comedians, who acted under their Direction.

Thus was the Drama eſtabliſh'd; and on this Foundation arrived in *England*. In proceſs of Time, as it was improv'd, it became divided into Branches, agreeable to the Practice of the Ancients, and the Nature of Things, *viz.* into *Tragedy* and Comedy, properly ſo call'd, and this laſt again, was ſub-divided into pure Comedy and Farce; ſee each under its proper Head, COMEDY, *&c.*

TRAGI-COMEDY, another kind of Dramatic Piece, repreſenting ſome Action paſs'd among eminent Perſons, the Event whereof is not unhappy or bloody; and wherein is ſometimes admitted a Mixture of leſs ſerious Characters.

The Ancients, M. *Dacier* obſerves, knew nothing of ſuch Compoſitions, wherein the Serious and Comic are blended: Nor does the Epithet M. *Corneille* gives them of *Heroic Comedies*, excuſe their Irregularity.

Their Foundation is certainly bad; for endeavouring both to make us laugh and cry in their turns, they endeavour at contrary Emotions, which the Heart can never undergo; every thing that diſpoſes for the one, indiſpoſing for the other.

The *Tragi-Comedy* was formerly very common on the *Engliſh* Stage: Scarce ſuch a thing in the 17th Century, as a pure Tragedy without a ſpice of Comedy, or Farce to make the People laugh. Now, that the Stage and our Taſtes are brought nearer to the Model of Nature and the Ancients, the *Tragi-Comedy* is diſuſed. *Tragi-Comedy* is the only Caſe, wherein Comedy is allow'd to introduce Kings and Heroes. See COMEDY.

TRAGUS, in Anatomy, one of the Protuberances of the Auricle, or external Ear; call'd alſo *Hircus*, becauſe uſually hairy. See EAR.

The *Tragus* is that Protuberance next the Temple; that on the oppoſite Side, to which the ſoft Lobe of the Ear is annex'd, is call'd the *Antitragus*.

TRAJAN *Column*, a famous hiſtorical Column, erected in *Rome*, in Honour of the Emperor *Trajan*. See COLUMN.

'Tis of the *Tuſcan* Order, though ſomewhat Irregular: Its Height is Eight Diameters, and its Pedeſtal *Corinthian*; it was built in a large Square there, call'd the *Forum Romanum*.

Its Baſe conſiſts of 12 Stones of an enormous Size, and it is raiſed on a Socle or Foot of Eight Steps. Within-ſide, is a Stair-caſe, illumined with 44 Windows. 'Tis 140 Foot high, which is 35 Foot ſhort of the *Antonine Column*; but the Workmanſhip of the former is much more valued.

'Tis adorn'd from top to bottom with Bas-relievo's, repreſenting the great Actions of that Emperor againſt the *Dacæ*.

Several learned Men have explain'd the Bas-reliefs of the *Trajan Column*, and among others *Ciaconius* and *Fabretti*.

The late King of *France*, *Louis* XIV. had Models of all the Bas-reliefs taken off in Plaiſter of *Paris*.

TRAJECTORY *of a Comet*, is its Path or Orbit; or the Line it deſcribes in its Motion. See ORBIT.

This, *Hevelius*, in his *Cometagraphia*, will have to be very nearly a right Line; but Dr. *Halley* rather concludes it to be a very excentrical Ellipſis. See ELLIPSIS.

Sir *Iſaac Newton* in Prop. 41. of his third Book, ſhews how to determine the *Trajectory* of a Comet from three Obſervations; and in his laſt Propoſition, how to correct a *Trajectory* graphically deſcribed. See COMET.

TRAIL-*Board*, in a Ship, is a curved Board on each Side of her Beak, which reaches from the Main-ſtem to the Figure, or the Brackets. See SHIP.

TRAIN; the Attendance of a great Perſon; or, the Trail of a Gown, or Robe of State.

In Falconry, it is the Tail of an Hawk. See TAIL.

TRAIN is likewiſe uſed for the Number of Beats which a Watch makes in an Hour, or any other certain Time. See WATCH-*Work*, &c.

TRAIN is alſo uſed for a Line of Gun-powder, laid to give fire to a Quantity thereof, in order to do Execution, by blowing up Earth, Works, Buildings, &c. See GUN-*Powder*, MINE, &c.

TRAIN *of Artillery*, includes the great Guns and other Pieces of Ordnance belonging to an Army in the Field. See GUN, CANNON, ORDNANCE, &c.

TRAIN *Oil*, the Oil procured from the Blubber of Whales, by boiling. See OIL and WHALE.

TRAIN-*Bands*, or TRAINED-*Bands*, a Name given to the Militia of *England*. See MILITIA.

TRAINING *a Load*, among Miners, is the ſearching for, and purſuing a Vein of Ore. See VEIN.

TRAMBLING *the Tin Ore*, among Miners, is a waſhing it very clean; which is done with a Shovel, and in a Frame of Boards. See TIN.

TRAMEL, an Iron Inſtrument, wherewithal to make a Horſe amble. See AMBLING.

It is alſo taken in many Places for an Iron moveable Inſtrument in Chimneys, to hang Pots over the Fire.

TRAMEL-*Net*, is a long Net, wherewith to take Fowl by Night, in Champian-Countries; much like the Net uſed for the Low-bell, both in Shape, Bigneſs and Maſhes.

To uſe it, they ſpread it on the Ground, ſo as the nether or further End, fitted with ſmall Plummets, may lie looſe thereon. Then the other Part being bore up by Men, placed at the Fore-ends, it is thus trailed along the Ground. At each Side, are carried great blazing Lights, by which the Birds are raiſed; as they riſe under the Net, they are taken. See LOW-*Bell* and HAND-*Net*.

The Word comes from the *French*, *Tremail*, form'd of the *Latin Tremaculum* or *Tremaclum*, of *Macula*, by reaſon it is compoſed of three Rows of Maſhes.

TRAMONTAN, TRAMONTANE or TRAMONTAIN, ſomething beyond, or on the further Side the Mountains.

The Term is particularly applied by the *Italian* Painters, to all ſuch as live on the other Side the *Alps*, *i. e.* all out of *Italy*; as the *Germans*, *Flemiſh*, *French*, &c.

The *French* Lawyers give the ſame Title of *Tramontane* or *Ultramontane* Doctors to the *Italian* Canoniſts, *Gomez*, *Hoſtienſis*, *Panorm*, &c. who go upon Rules and Maxims, too favourable to the Court of *Rome*, and contrary to thoſe of *France*, &c.

The Word is form'd from the *Italian*, *tra*, of the *Latin*, *trans*, which ſignify beyond; and *mons* or *mont*, Mountain.

On the *Mediterranean*, and in *Italy*, a North Wind is call'd a *Tramontane Wind*: and ſome call the Pole Star, the *Tramontane*.

Hence the Proverb, To *loſe the* Tramontane; that is, to be out of one's Aim, to be diſconcerted.

TRANCHE is uſed by the *French* Armoriſts, to expreſs that Manner of Partition call'd among us *Party per bend Dexter*. See PARTY and BEND.

A Scutcheon is ſaid to be *tranche*, *cut*, when it is divided in two Diagonally; the Diviſion coming from the Dexter Angle of the Chief, to the Siniſter Angle of the Point: When it is divided contrary-wiſe, it is ſaid to be *taille*.

TRANSACTION, a *Negotiation*, particularly an Accommodation, or a Diſpatch of ſome Buſineſs, or of a Diſpute between two Parties, by a mutual and voluntary Agreement or Contract between them.

Philoſophical TRANSACTIONS, are a kind of Journal of theprincipal Things that come before the Royal Society of *London*. See JOURNAL and *Royal* SOCIETY.

The *Tranſactions* contain the ſeveral Diſcoveries and Hiſtories of Nature and Art, made by the Members of the Society, or communicated by them from their Correſpondents; the ſeveral Experiments, Obſervations, &c. made by them, or tranſmitted to them, &c.

They were firſt ſet on Foot in 1665 by Mr. *Oldenbourg*, Secretary of the Society, and continued by him till the Year 1679. After his Death, Dr. *Hook*, the ſucceeding Secretary, continued them under the Title of *Philoſophical Collections*: But Dr. *Grew*, appointed to the ſame Office in 1689, reſumed the former Title of *Philoſophical Tranſactions*, which was retain'd by his Succeſſor Dr. *Plott*, and ſubſiſts to this Day.

They were publiſh'd every Month, with great Care, by Mr. *Oldenbourg*, and the firſt Secretaries; but after Dr. *Plott*, they were frequently interrupted. In the Year 1700 Dr. *Sloan* reſtored their regular Publication, Monthly; in time they relapſed, and only came out once in two Months; from that they fell to 3, 4 and 6 Months. They are now publiſh'd more frequently and regularly, by the Care of Dr. *Jurin*.

TRANGLE, in Heraldry, the Diminutive of a Feſſe, commonly called a *Bar*. See BAR and FESSE.

TRANSCENDANT, or TRANSCENDENTAL, ſomething raiſed, or elevated beyond other Things; or which paſſes and *tranſcends* the Reaſons and Circumſtances of other inferior Beings, ſo as not to be intimately and eſſentially included under them.

The Term is particularly applied to the Object of Metaphyſicks, which conſiders Being in general, or *Tranſcendant* Beings, as God and Angels; and Truths conſiſting in pure Speculation. See METAPHYSICKS.

The Logicians and Metaphyſicians, call *Tranſcendental* Terms, thoſe which are ſo general and of a Signification ſo extenſive and univerſal, that they paſs through all the Catagories, and agree to all kinds of Things; ſuch are the Terms *Ens*, *Unum*, *Verum*, *Bonum*, *Res*. See ENS, &c.

TRANSCENDENTAL *Quantities*, among the School-men, &c. are particularly apply'd to the Continuation of the Exiſtence, Duration, or Time of a Being. See DURATION and TIME.

TRANSCENDENTAL *Quantities*, among Geometricians, are undeterminate ones; or ſuch as cannot be expreſs'd or fix'd to any conſtant Equation: Such is a *Tranſcendental Curve*, or the like. See TRANSCENDENTAL *Curve*.

M. *Leibnitz* has a Diſſertation in the *Acta Erudit. Lipſ.* wherein he endeavours to ſhew the Origin of ſuch Quantities, *viz.* why ſome Problems are neither Plain, Solid, nor Surſolid, nor of any certain Degree, but do *tranſcend* all algebraical Equations. See PROBLEM.

He alſo ſhews how it may be demonſtrated without a Calculus, that an algebraic Quadratrix for the Circle or Hyperbola, is impoſſible: For if ſuch a Quadratrix could be found, it would follow, that by means thereof, any Angle, Ratio or Logarithm might be divided in the given Proportion of one right Line to another, and this, by one univerſal Conſtruction; and, conſequently, the Problem of the Section of an Angle, or the Invention of any Number of mean Proportionals, would be of a certain Degree. See Circle, Quadratrix, Quadrature, *&c.*

Whereas the different Degrees of algebraical Equations; and, therefore, the Problem, underſtood in general of any Number of Parts of an Angle or mean Proportionals; is of an indefinite Degree, and tranſcends all Algebraical Equations. See Equation.

Transcendental *Curve*, in the higher Geometry, is ſuch a one as cannot be defined by any Algebraic Equation, or which, when expreſs'd by an Equation, one of the Terms thereof is a variable or flowing Quantity. See Curve.

Theſe Curves are the ſame with what *Des Cartes*, and, after his Example, ſeveral others, call *Mechanical Curves*; and which they would have excluded out of Geometry; but Sir *Iſaac Newton* and M. *Leibnitz*, are of another Sentiment. For, in effect, in the Conſtruction of Geometrical Problems, one Curve is not to be preferr'd to another, as is defined by a more ſimple Equation; but as it is more eaſily deſcribed than that other. See Geometrical *Line*.

And ſome of theſe *Tranſcendental* or Mechanical Curves, are found of greater Uſe than all the Algebraical ones together, except the Circle. See Mechanical.

Add, That M. *Leibnitz*, in the *Acta Eruditor. Lipſ.* gives us a kind of *Tranſcendant Equations*, whereby theſe *Tranſcendental* Curves are actually defined, and which are of an indefinite Degree; that is, are not always the ſame in all the Points of the Curve.

Whereas Algebraiſts, uſe to aſſume ſome general Letters, or Numbers, for the Quantities ſought; in theſe *Tranſcendental* Problems, M. *Leibnitz* aſſumes general or indefinite Equations for the Lines ſought; *e. gr.* putting x and y for the Abciſs and Ordinate, the Equation he uſes for a Line ſought, is, $a + bx + cy + exy + fxx + gyy$, *&c.* $= 0$. By the help of which indefinite Equation, which in reality is Finite; for it may always be determined, how far ſoever 'tis neceſſary to raiſe it; he ſeeks the Tangent; and that which reſults, comparing with the given Property of Tangents, he finds the Value of the aſſumed Letters, a, b, c, *&c.* and thus defines the Equation of the Line ſought.

If that Compariſon abovementioned, do not proceed, he pronounces the Line ſought, not to be an Algebraical, but a *Tranſcendental* one.

This ſuppoſed, he goes on to find the Species of *Tranſcendency*; for ſome *Tranſcendentals* depend on the general Diviſion or Section of a Ratio, or upon the Logarithms; others upon the Arks of a Circle, and others on more indefinite and compound Enquiries.

Here, therefore, beſides the Symbols x and y, he aſſumes a Third, as v, which denotes the *Tranſcendental Quantity*; and of theſe Three, forms a general Equation for the Line ſought; from which he finds the Tangent, according to the differential Method, which ſucceeds even in *Tranſcendental Quantities*. What he finds he compares with the given Properties of the Tangent; and ſo diſcovers, not only the Values of a, b, c, *&c.* but alſo the particular Nature of the *Tranſcendental Quantity*.

And though it may ſometimes happen, that the ſeveral *Tranſcendents* are ſo to be made uſe of, and theſe of different Natures too, one from another; alſo though there be *Tranſcendents* of *Tranſcendents*, and a Progreſſion of theſe in Infinitum, yet we may be ſatisfied with the moſt eaſy and uſeful one; and for the moſt Part may have recourſe to ſome peculiar Artifices for ſhortning the Calculus, and reducing the Problem, to as ſimple Terms as may be.

This Method being applied to the Buſineſs of Quadratures, or to the Invention of Quadratrices, in which the Property of the Tangent is always given; 'tis manifeſt not only how it may be diſcovered, whether the indefinite Quadrature may be algebraically Impoſſible, but alſo how, when this Impoſſibility is diſcovered, a *Tranſcendental* Quadratrix may be found; which is a Thing which had not before been ſhewn. So that it ſeems, that Geometry is by this Method carried infinitely beyond the Bounds, to which *Vieta* and *Des Cartes* brought it: Since by this means a certain and general Analyſis is eſtabliſh'd, which extends to all the Problems which are of no certain Degree, and conſequently not comprehended within Algebraical Equations.

Again, in order to manage *Tranſcendental* Problems, where-ever the Buſineſs of Tangents or Quadratures occurs, by a Calculus, there is hardly any that can be imagined ſhorter, more advantageous, or univerſal, than the Differential Calculus, or Analyſis of Indiviſibles and Infinites.

By this Method we may explain the Nature of *Tranſcendental* Lines by an Equation, *e. gr.* Let A be the Ark of a Circle, and x the verſed Sine: Then will $A = \frac{\int dx}{\sqrt{2x - xx}}$ and if the Ordinate of the Cycloid be y, then will

$$y = \sqrt{2x - xx} + \frac{\int dx}{\sqrt{2x - xx}}$$

which Equation perfectly expreſſes the Relation between the Ordinate y and the Abciſſa x, and from it all the Properties of the Cycloid may be demonſtrated.

Thus is the Analytical Calculus, extended to thoſe Lines which have hitherto been excluded, for no other Cauſe, but that they were thought incapable of it. See Geometrical *Line*.

TRANSCOLATION, in Pharmacy, the ſame with Filtration or Percolation. See Filtration, *&c.*

TRANSCRIPT, a Copy of any Original Writing; particularly that of an Act or Inſtrument, inſerted in the Body of another. See Copy.

In this Senſe, we ſay *Tranſcript of a Fine*, *&c.* See Fine, Duplicate, *&c.*

TRANSCRIPTIO *Recognitionis factæ coram Juſticiariis Itinerantibus*, *&c.* is a Writ for the certifying a Recognizance into *Chancery*, taken before the Juſtices in Eyre. See Recognizance.

Transcriptio *pedis finis levati mittenda in Cancellariam*, is a Writ for the certifying the Foot of a Fine, levied before the Juſtices in Eyre, *&c.* into *Chancery*. See Fine.

TRANSEAT, in the Schools, *&c.* a Term purely *Latin*, ſignifying *Let it paſs*, or ſuppoſe a Propoſition to be true, without granting it.

Hence the Proverb, *Tranſeat, Græcum eſt, non legitur*: The Diction is ſaid to have taken its Riſe from ſome ancient Commentators, or Gloſſographers of the Civil Law, who not underſtanding *Greek*, paſs'd over all the Words that occurr'd in that Language, without explaining them.

In the *Roman* Chancery, a *Nil Tranſeat* is a kind of Oppoſition made to the ſealing of a Bull, or to the Delivery of ſome other Inſtrument, till the Parties againſt whoſe Intereſt it is directed, have been heard againſt it.

TRANSELEMENTATION, in the Schools, a Change of the Elements or Principles of one Body into thoſe of another. See Element.

Such is that which the *Roman* Catholicks contend for in the Euchariſt; where the Elements of Bread and Wine are changed into thoſe of Fleſh and Blood. See Transubstantiation.

Tranſelementation, where-ever it happens, is always allow'd Miraculous; or an Effect beyond the ordinary Powers of Nature. See Miracle.

TRANSFER, in Commerce, *&c.* an Act whereby a Perſon ſurrenders his Right, Intereſt or Property in any thing moveable or immoveable, to another.

The Term is principally uſed in the Commerce of Stocks; for the aſſigning and making over Subſcriptions, or Shares therein, to ſuch as purchaſe them of the Proprietors. See Subscription, *&c.*

In the *South Sea* Company, the *Bank*, *Eaſt India*, *&c.* *Transfers* are made, by eraſing the former Proprietors Names, and entering the Stock under the Name of the Purchaſer, under his proper Letter of the Alphabet. See Company, Bank, *&c.*

In order to a *Transfer*, 'tis required the Party bring another with him to ſwear he is the ſame Perſon to whom the Stock is enter'd. A Counterfeit in this Caſe is by Act of Parliament made a capital Crime.

The Lawyers ſay, that the Sale, or Donation of an Inheritance, *&c.* *Transfers* the Property, Rights, *&c.* thereof.

TRANSFIGURATION, among Divines, that miraculous Change wrought by *Jeſus Chriſt*, in Preſence of St. *Peter*, St. *James* and St. *John*, on Mount *Thabor*, where he appear'd in his Glory, in the middle of *Moſes* and *Elias*. See the Deſcription thereof in St. *Matthew*, *c.* xvii.

The Term is alſo applied to a Feaſt held in the *Romiſh* Church on the Sixth of *Auguſt*, in Commemoration of that Miracle.

TRANSFORMATION, a Change of Form; or a Metamorphoſis. See Metamorphosis.

The Chymiſts have been a long Time ſeeking the *Tranſformation* of Metals, that is, their *Tranſmutation*, or the Manner of changing them into Gold. See Transmutation.

Among the Myſticks, by *Transformation*, is underſtood a Change of the Contemplative Soul, whereby it is in ſome meaſure deified or converted into the Subſtance of God, and wherein it is, as it were, loſt and ſwallow'd up in the Divinity, ſo as not to perceive its own Diſtinction from God.

The Senſe of the Word *Transformation* is very liable to be abuſed; and, in effect, the Quietiſts and Quakers have abuſed it. But many of the Myſticks uſe it innocently enough; meaning no other by it than what St. *Paul* did when he ſaid, *Vivo ego, jam non ego, vivit vero in me Chriſtus*.

Transformation is alſo ſometimes uſed for what we more properly call *Tranſſubſtantiation*. See Transubstantiation.

TRANSFUSION, the Act of pouring a Liquor out of one Veſſel into another.

The Word is compounded of the *Latin* Prepoſition *trans*, beyond, further, and *fundo*, I pour.

In the Preparations of Chymiſtry and Pharmacy, there are frequent *Tranſfuſions* of Liquors, Syrup, *&c.*

TRANSFUSION *of the Blood*, is particularly uſ'd for the letting out the Blood of one Animal, ſo as to be immediately receiv'd into the Body of another. — See BLOOD.

Dr. *Lower* is uſually accounted the Inventor of this *Tranſfuſion*, and the Experiment ſaid to have been firſt publickly made by him at *Oxford* in 1665, and the Deſcription thereof publiſh'd in his excellent Book *de Corde*.

Yet we are inform'd from good Hands, that it had been propos'd at *Paris* in 1658; that another of our Countrymen had had the Idea before; and that it had been known in *Germany* ſeveral Years. — 'Tis certain there is a Paſſage in *Libavius*, wherein the *Tranſfuſion* is exactly deſcrib'd as now practis'd: 'Tis true he diſapproves of it; and only mentions it to ridicule it.

The Uſe moſt naturally expected from the Operation, is, that one Animal may live of the Blood of another; ſo that thoſe which want Blood, or have corrupt, morbid Blood, may be ſupply'd from others with a ſufficient Quantity, and of ſuch as is good and laudable.

However, 'tis certain the Operation has no Place in the preſent Practice of Phyſic; but whether that be the Fault of the Operation itſelf, or owing to the Indolence and Averſeneſs of People to run into new Methods, we will not undertake to ſay.

The Method of *tranſfuſing*, Dr. *Lower* gives us to the following Effect: Take up the carotid Artery of the Dog, or other Animal whoſe Blood is to be *tranſfus'd* into another of the ſame, or a different Kind; ſeparate it from the Nerve of the eighth Pair, and lay it bare above an Inch. Make a ſtrong Ligature on the upper Part of the Artery; and an Inch nearer the Heart another Ligature with a running Knot, to be looſen'd and faſten'd as Occaſion requires. Draw two Threads between the two Ligatures; open the Artery, put in a Quill, and tye up the Artery again upon the Quill by the two Threads, and ſtop the Quill by a Stick.

Then make bare the Jugular Vein of the other Animal, for about an Inch and half in Length, and at each End make a Ligature with a running Knot; and in the Space between the two Knots, draw under the Vein two Threads, as in the other.

Open the Vein, and put into it two Quills, one into the deſcending Part of the Vein, to receive the Blood from the other Dog, and carry it to the Heart: The other Quill put into the other Part of the Jugular, towards the Head, through which the ſecond Animal's own Blood is to run into Diſhes. The Quills thus ty'd faſt, ſtop them up with Sticks till there be occaſion to open them.

Things thus diſpos'd, faſten the Dogs on their Sides towards one another, in ſuch Manner, as that the Quills may go into each other: Then unſtop the Quill that goes down into the ſecond Dog's Jugular Vein, as alſo that coming out of the other Dog's Artery; and by the Help of two or three other Quills put into each other, as there ſhall be occaſion, inſert them into one another.

Then ſlip the running Knots, and immediately the Blood runs through the Quills as through an Artery, very impetuouſly.

As the Blood runs into the Dog, unſtop the Quill in the upper Part of his Jugular, for his own Blood to run out at, tho' not conſtantly, but as you perceive him able to bear it, till the other Dog begin to cry, and faint, and at laſt die.

Laſtly, Take out both Quills out of the Jugular, tye the running Knot faſt, and cut the Vein aſunder, and ſew up the Skin: The Dog thus diſmiſs'd, will run away as if nothing ail'd him.

In the *Philoſophical Tranſactions*, we have Accounts of the Succeſs of various *Tranſfuſions* practis'd at *London*, *Paris*, in *Italy*, &c. Sir *Edmund King tranſfus'd* 49 Ounces of Blood out of a Calf into a Sheep; the Sheep after the Operation appearing as well and as ſtrong as before.

Mr. *Coxe tranſfus'd* 14 or 16 Ounces out of a mangy into a ſound Dog: The Effect was, that no Alteration was obſerv'd in the ſound Dog, but the mangy one was cur'd.

M. *Gayant tranſfus'd* the Blood of a young Dog into the Veins of an old one almoſt blind with Age, and ſcarce able to ſtir; which yet, two Hours afterwards, leap'd and friſk'd about.

M. *Denis tranſfus'd* the Blood of three Calves into three Dogs, which all continu'd briſk, and eat well as before. --- The ſame Perſon *tranſfus'd* the Blood of four Weathers into a Horſe 26 Years old, which thence receiv'd much Strength, and a more than ordinary Appetite.

At St. *Griffoni*'s at *Udine*, the Blood of a Lamb was *tranſfus'd* into the Veins of a Spaniel 13 Years old, which had been quite deaf for three Years, and ſo feeble as ſcarce to be able to walk at all. --- After the Operation he leap'd from the Table, and went about the Houſe to ſeek his Maſters. --- Two Days afterwards he ran up and down the Streets with other Dogs: His Stomach grew ſtrong, and he recover'd his Hearing.

TRANSGRESSION, *Tranſgreſſio*, an Offence againſt ſome Law, or a Breach or Violation thereof. See LAW.

The Term is chiefly uſ'd in reſpect of the Laws of God. In the Doctrine of Original Sin, all Mankind are ſuppos'd to ſhare with *Adam* in the Guilt of his firſt *Tranſgreſſion*. See ORIGINAL *Sin*.

Moſes threatens the *Tranſgreſſors* of his Law with abundance of Temporal Puniſhments. See PUNISHMENT.

The Word is compounded of *trans*, beyond, and *gradiri*, to go.

TRANSGRESSIONE, in our Law, a Writ uſually call'd a Writ or Action of *Treſpaſs*.

Of this *Fitzherbert* has two Sorts: One Vicountial, thus call'd becauſe directed to the Sheriff, and not returnable; but to be determin'd in the County. See VICOUNTIAL.

Its Form differs from that of the other; as wanting the Words *quare vi & armis*, &c.

The other is term'd a Writ of *Treſpaſs*, and to be ſued in the *Common Pleas* and *King's-Bench*. See TRESPASS.

TRANSIRE, in Stat. Anno 14. *Car.* II. is uſ'd for a Cuſtom-houſe Warrant, or a Let-paſs; from the Verb *tranſeo*, I go forth.

TRANSIT, TRANSITUS, in Aſtronomy, ſignifies the Paſſage of any Planet, juſt by, or over any fix'd Star; and of the Moon, in particular, covering or moving over any other Planet. See STAR and PLANET.

Mercury, *Venus*, &c. in their *Tranſits* over the Sun, appear like dark Specks. See MERCURY and VENUS.

The Word comes from the *Latin*, *tranſire*, to paſs over; form'd of *trans* and *eo*, I go beyond.

TRANSITION, in Muſic, is when a greater Note is broken into leſſer, to make ſmooth the Roughneſs of a Leap, by a gradual Paſſage to the Note next following; whence it is commonly call'd the *breaking of a Note*; being ſometimes very neceſſary in Muſical Compoſitions. See NOTE and PASSAGE.

TRANSITION, in Rhetoric, (which ſome will have to be a Figure, tho' others, with *Quintilian*, deny it) is a kind of Connexion in Diſcourſe, whereby the ſeveral different Parts and Members thereof are join'd, ſo as to conſtitute one regular Whole.

F. *de Colonia* makes two Kinds of *Tranſitions*; the one perfect, the other imperfect.

A *perfect Tranſition*, is ſuch wherein we briefly intimate what is ſaid, and what remains to be ſaid; as, *Now that we have ſpoke of War, there remains ſomething to be ſaid of Peace.* --- *Satis multa de Turpitudine: dicam deinceps, quod propoſui, de periculo.* --- *Uni Epiſtolæ reſpondi: Venio ad alteram.* --- *Sed hæc Vetera; illud recens: Cæſarem meo Conſilio Interfectum.*

An *imperfect Tranſition*, is ſuch wherein only one of theſe is expreſs'd; as, *Let us now conſider the Conſequences of*, &c. *Poſtularet hic locus ut dicerem de* ---- *ſed finis ſit; neque enim præ lachrymis jam loqui poſſum; & hic ſe lachrymis defendi nequeat.*

TRANSITIVE, in Grammar, an Epithet given to ſuch Verbs, as ſignify an Action which paſſes from the Subject that does it, to, or upon another Subject which receives it. See VERB.

Under the Head of *Verbs Tranſitive*, come what we uſually call Verbs Active and Paſſive: Other Verbs, whoſe Action does not paſs out of themſelves, are call'd Neuters, and by ſome Grammarians *Intranſitives*. See NEUTER.

In the *Hebrew*, the Verb היה, *hajah*, in the *Greek*, εἰμὶ, and in the *Latin*, *ſum*, are Verbs purely *Neuter* or *Intranſitive*; or, as the *Latin* and *Greek* Grammarians more uſually expreſs it, Verbs ſubſtantive, ſignifying the mere Exiſtence of the Thing, without the active or *tranſitive* Conjugations.

TRANSITORY, in Law, *&c.* a Term oppoſite to Local. See LOCAL.

TRANSLATION, the Act of transferring or removing a Thing from one Place to another. See PLACE.

As the *Tranſlation* of a Biſhop, a Council, a Seat of Juſtice, a Parliament; the *Tranſlation* of the Relicks of a Saint; the *Tranſlation* of the Empire, *&c.*

The Word is form'd of *trans*, beyond, and *latio*, of *ferre*, to carry.

The *Tranſlations* of Biſhops from one See to another, are prohibited by the Council of *Nice*, which renders them null, and appoints the *tranſlated* Biſhop to return to his former Church. --- The Council of *Sardica* excludes *tranſlated* Biſhops from Communion. It had been obſerv'd, that no Biſhop was ever remov'd from a greater Church to a leſſer; and that thoſe who thus quitted their Churches, only did it out of Ambition or Avarice.

This Diſcipline was obſerv'd for 900 Years; and the firſt Inſtance of any *Tranſlation* of Note, was that of Pope *Formoſa*, who was Biſhop of *Porto*. One of his Succeſſors took hold of this Pretence to have him taken out of his

Grave; and a Council held ſoon after, forbad this *Tranſlation* to be made a Precedent.

However, the ſame Church allow'd of ſome legitimate Cauſes of *Tranſlations*; as, the apparent Advantage of the Church: Under which Pretence, *Tranſlations* ſoon became ſo frequent, that for 500 or 600 Years laſt paſt, they have been eſteem'd a Kind of Common Law. See Bishop.

The *Tranſlation* of a Religious from one Order to another, cannot be effected without the Conſent of the Pope: 'Tis added, that it is not allow'd to *tranſlate* from a ſeverer Rule to a laxer one.

Translation is alſo us'd for the Verſion of a Book, or Writing out of one Language into another. See Version.

Tranſlators frequently endeavour to excuſe themſelves at the Expence of their Language; and aſk Pardon for it, as if it were not rich and copious enough to expreſs all the Force and Beauties of the Original.

Thus is the *Engliſh* Tongue accus'd of the Poverty and Dryneſs which is in the *Tranſlator*'s own Genius; and the Faults charg'd on that, which ſhould only lie at their own Doors.

The *Italians* have a Proverb, *Traduttore, Traditore*: A *Tranſlator*, a Traytor.

TRANSMARINE, Transmarinus, ſomething that comes from, or belongs to, the Parts beyond Sea. See Foreign and Exotic.

TRANSMIGRATION, the Removal or Tranſlation of a whole People into ſome other Country, by the Violence of a Conqueror.

Some tranſlate the leading of the Children of *Iſrael* Captive into *Babylon*, the *Tranſmigration* of the *Iſraelites*, &c. See Migration.

Transmigration is particularly us'd for the Paſſage of a Soul out of one Body into another; the ſame with what we otherwiſe call Metempsychosis.

The *Siameſe*, F. *Tachard* informs us, from a Belief of the *Tranſmigration* of Souls into other Bodies, forbear killing any Beaſts; leſt, by that Means, they ſhould diſpoſſeſs the Souls of their deceas'd Relations.

TRANSMISSION, in Opticks, *&c.* the Act of a tranſparent Body paſſing the Rays of Light through its Subſtance, or ſuffering them to paſs; in which Senſe the Word ſtands in Oppoſition to *Reflection*. See Reflection.

Tranſmiſſion is alſo frequently us'd in the ſame Senſe with *Refraction*, by Reaſon moſt Bodies in *tranſmitting* the Rays, do alſo refract them. See Refraction.

For the Cauſe of *Tranſmiſſion*, or the Reaſon why ſome Bodies *tranſmit*, and others reflect the Rays. See Transparency and Opacity.

The Rays of Light, Sir *Iſaac Newton* obſerves, are ſubject to Fits of eaſy *Tranſmiſſion* and each Reflection. See Ray and Light.

TRANSMUTATION, the Act of transforming, converting or changing one Nature into another. See Conversion and Transformation.

The Term is chiefly us'd in Chymiſtry and Medicine: 'Tis greatly queſtion'd, whether the *Tranſmutation* of Silver into Gold, and of Tin into Silver, ſo much ſought by the Chymiſts, be poſſible or not. See Gold, *&c.*

The pureſt and ſubtileſt Parts of the Food are *tranſmuted* or aſſimulated into the proper Subſtance of the Body. For the Manner how, ſee Nutrition.

Nature, Sir *Iſaac Newton* obſerves, ſeems delighted with *Tranſmutations*: He goes on to enumerate ſeveral Kinds of *Natural Tranſmutations*; groſs Bodies and light, he ſuſpects, may be mutually *tranſmuted* into each other; and adds, That all Bodies receive their active Force from the Particles of Light which enter their Compoſition. See Light and Fire.

For all fix'd Bodies, when well heated, emit Light as long as they continue ſo; and again, Light intermingles itſelf and inheres in Bodies as often as its Rays fall on the ſolid Particles of thoſe Bodies. See Opacity.

Again, Water, which is a fluid, volatile, taſtleſs Salt, is by Heat *tranſmuted* into Vapour; which is a kind of Air; and by Cold, into Ice, which is a cold, tranſparent brittle Stone, eaſily diſſolvable; and this Stone convertible again into Water by Heat, as Vapour is by Cold. See Water, Vapour, Ice, *&c.*

Earth, by Heat, becomes Fire; and by Cold, is turned into Earth again: Denſe Bodies, by Fermentation, are rarified into various kinds of Air; and that Air by Fermentation alſo, and ſometimes without, reverts into groſs Bodies. See Air, *&c.*

Quickſilver ſometimes puts on the Form of a fluid Metal; ſometimes it appears in Shape of a pellucid, fragile Salt, called *Sublimate*; ſometimes of a pellucid volatile, white, taſtleſs Earth, called *Mercurius Dulcis*; by Diſtillation it becomes Vapour, and by Agitation in vacuo, ſhines like Fire, *&c.* See Mercury and Phosphorus.

All Bodies, Beaſts, Fiſhes, Inſects, Plants, *&c.* with all their various Parts, grow and increaſe out of Water, and aqueous and ſaline Tinctures; and by Putrefaction, all of them revert into Water or an aqueous Liquor again. See Water.

Further, Water expos'd a while to the open Air, puts on a Tincture, which in Proceſs of Time has a Sediment and a Spirit; and before Putrefaction, yields Nouriſhment both for Animals and Vegetables. See Nutrition and Vegetation.

Transmutation, in Alchymy, the Act of changing or exalting imperfect Metals into Gold or Silver. See Metal, Gold, *&c.*

This is alſo call'd the *Grand Operation*, and is to be effected with the Philoſophers Stone. See Philosophers *Stone*.

Some Alchymiſts hold, that the *Tranſmutation* ſhould rather be call'd the *Perfection* of imperfect Metals; as holding all Metals intended by Nature to arrive equally at this Perfection, inaſmuch as they are compos'd of the ſame Matter; and that 'tis only the Impurity of their Matrices, that is, of the Place wherein they are form'd by Nature, that has prevented their arriving thereat. See Metal.

The Elixir being projected on any of thoſe Metals, it is ſuppos'd to purge, and ſeparate the impure Parts from the pure, and to join itſelf wholly to the Mercury (which is the pure Part,) as being of the ſame Nature. See Projection.

Whether or no Metals are *tranſmutable* into one another, is a Point ſtrongly diſputed among the Philoſophers; the Alchymiſts ſtrenuouſly aſſerting the Affirmative. See Alchymy.

Some Metals 'tis commonly allow'd may be chang'd into others, *e. gr.* Iron into Braſs or Copper, and Lead into Tin; but *Cardan* and ſome others deny even this, and argue further, that tho' Iron and Braſs, as being nearly alike in Weight and Tenacity, *&c.* provided their Colour and Hardneſs could be chang'd, might be converted into one another, either really, or, at leaſt, apparently, yet would the *tranſmuting* or ripening of other Metals into Gold or Silver be ſtill impoſſible; both as thoſe Metals are all to be firſt calcin'd, after which they can never be brought again to their priſtine Purity; and as there is a Generation requir'd, which is not the Work of Art, but Nature.

Cardan de Metall. Lemery, *Dickenſon*, and others, give us Accounts of the various Impoſtures of *Adepti* in the Buſineſs of *Tranſmutation*; ſome, for Inſtance, fixing Mercury with Verdigreaſe, and then heightening the Colour with Cadmia, Turmeric, *&c.* But this, if try'd with the Coppel, all goes off in Fumes; and, in effect, nothing produc'd this Way ought to be adjudg'd true Gold, unleſs it endure Coppelling, Cementation, Purification, with Antimony and the Depart. See Purification, Essaying, *&c.*

Add, that it muſt have the Malleability, extreme Ductility, and ſpecific Gravity of Gold, which is to Water as 18 and half to 1. See Weight.

The Trick of *tranſmuting* Cinnabar into Silver is thus: The Cinnabar being bruis'd groſsly, is ſtratify'd in a Crucible with granulated Silver, and the Crucible plac'd in a great Fire; and after due Time for Calcination, taken off: then the Matter being pour'd out, is found to be Cinnabar turn'd into real Silver, tho' the Silver Grains appear in the Number and Form they were put into the Crucible; but the Miſchief is, coming to handle the Grains of Silver, you find them nothing but light friable Bladders, which will crumble to Pieces between the Fingers.

Mr. *Boyle* in his Scept. Chymiſt. tells us, that two Friends of his did, by urging Mercury in a ſkilfully manag'd Fire, turn it almoſt Weight for Weight into Water; but does not ſay what was the ſpecific Gravity of the produc'd Water, nor of the remaining *untranſmuted* Maſs of Mercury. --- He likewiſe aſſures us, that Rain Water being diſtill'd and re-diſtill'd by a Friend of his, near 200 times, did, after each Diſtillation, leave, at the Bottom of the Glaſs Body, a conſiderable Quantity of a white Earth; and that more plentifully in the latter Diſtillation than the former.

This he believ'd to be a certain Quantity of Water actually *tranſmuted* into Earth; adding, that it was above twice as heavy ſpecifically as common Water, and of ſo fix'd a Nature, that it lay a conſiderable Time in a red hot Crucible, without loſing any thing of its Weight, or emitting any Smoak.

Transmutation, in Geometry, the Reduction, or Change, of one Figure or Body into another of the ſame Area, or Solidity, but of a different Form; as a Triangle into a Square; a Pyramid into a Parallelopiped, *&c.* See Figure, *&c.*

Transmutation, in the higher Geometry, is us'd for the Converting a Figure into another of the ſame Kind and Order, whoſe reſpective Parts riſe to the ſame Dimenſions in an Equation, admit the ſame Tangents, *&c.* See Transformation.

If a rectilinear Figure be to be *tranſmuted* into another, 'tis ſufficient that the Interſections of the Lines that compoſe it, be transferr'd; and Lines drawn thro' the ſame in the new Figure. See Reduction.

If the Figure to be *tranſmuted* be Curvilinear, the Points, Tangents, and other right Lines, by means whereof the

Curve Line is to be defin'd, muſt be tranſferr'd. See Curve.

Transmutation *of Plants.* See Seed.

TRANSOM, among Builders, the Piece that is framed acroſs a double light Window. See Window.

Transom among Mathematicians, denotes the Vane of a Croſs-ſtaff; or a wooden Member fixed acroſs it, with a ſquare Socket whereon it ſlides, &c. See Vane and Croſs-ſtaff.

Transom, in a Ship, is a Piece of Timber which lies athwart the Stern, between the two Faſhion Pieces, directly under the Gun-room-port.

TRANSPARENCY, or *Diaphaneity*, in Phyſics, a Quality in certain Bodies, whereby they give Paſſage to the Rays of Light. See Light.

The *Tranſparency* of natural Bodies, as Glaſs, Water, Air, &c. ſome have imputed to the great Number, and Size of the Pores or Interſtices between the Particles of thoſe Bodies: But this Account is exceedingly defective; for the moſt ſolid and opake Body in Nature, we know, contains a great deal more Pores than it does Matter; a great deal more, ſure, than is neceſſary for the Paſſage of ſo infinitely fine and ſubtile a Body as Light. See Pore.

Ariſtotle, *Des Cartes*, &c. place *Tranſparency* in the Rectitude or Straightneſs of the Pores; by means of which, ſay they, the Rays are enabled to make their Way through, without ſtriking againſt the ſolid Parts, and being reflected back again: But this Account, Sir *Iſaac Newton* ſhews, is lame; the Quantity of Pores in all Bodies being ſufficient to tranſmit all the Rays that fall on them, howſoever thoſe Pores be ſituated with reſpect to each other.

The Cauſe, then, why all Bodies are not *Tranſparent*, muſt not be aſcribed to their wanting Rectilinear Pores; but either to the unequal Denſity of the Parts; or to the Pores being fill'd with ſome foreign Matters, or their being empty; by means of which, the Rays in paſſing thro', undergoing a great Variety of Reflections and Refractions, are perpetually diverted this way and that, till at length falling on ſome of the ſolid Parts of the Body, they are extinguiſh'd and abſorbed. See Ray and Reflection, &c.

Thus, Cork, Paper, Wood, &c. are Opake; when-as Glaſs, Diamonds, &c. are *Tranſparent:* The Reaſon is, that in the neighbourhood of Parts equal in Denſity, ſuch as thoſe of Glaſs, Water, Diamond, &c. are with reſpect to each other; the Attraction being equal on every Side, no Reflection or Refraction enſues; but the Rays which enter'd the firſt Surface of the Bodies, proceed without Interruption quite through the Body; thoſe few only excepted, which chance to meet with the ſolid Parts. But in the Neighbourhood of Parts, that differ much in Denſity, ſuch as the Parts of Wood and Paper are both in reſpect of themſelves, and of the Air or the empty Space in their Pores; as the Attraction will be very unequal, the Reflections and Refractions muſt be very great; and therefore the Rays will not be able to make their Way through ſuch Bodies, but will be perpetually deflected, and at laſt quite ſtopp'd. See Opacity.

Transparency, in Heraldry, the ſame as *Adumbration.* See Adumbration.

TRANSPIRATION, the inſenſible, or almoſt inſenſible Paſſage of an excrementitious Matter through the Pores of the Skin; called alſo *Perſpiration.* See Perspiration.

There are an Infinity of theſe *tranſpiratory* Pores in the Skin; the moſt conſiderable whereof, are the Orifices of the Ducts ariſing from the milliary Glands. See Pore and Skin.

The Cauſe of *Tranſpiration*, is the Circulation and Heat of the Blood.

Inſenſible *Tranſpiration* is found very much to exceed all the ſenſible Evacuations put together. *Sanctorius* even ſhews, in his *Medicina Statica*, that a Perſon loſes more in one Day by *Tranſpiration*, than by all the other Outlets, in Fifteen. He adds, that if the Food taken in one Day weigh Eight Pounds, the *Tranſpiration* will be Five of them.

Cold prevents *Tranſpiration*, by its conſtringing the Pores of the Skin, and thickening the Liquors circulating in the cutaneous Glands: Heat, on the contrary, augments *Tranſpiration*, both by its opening the excretory Ducts of the Glands, and by its increaſing the Fluidity and Velocity of the Humours. See Cold, &c.

M. *Dodart*, from a Number of Experiments made for 33 Years together, aſſures us that we *tranſpire* much more in Youth than in Age.--- In ſome Perſons, the *Tranſpiration* is ſo copious, that they void but very little of the coarſer Excrements, though they eat very heartily.

Tranſpiration is abſolutely neceſſary in the Animal Oeconomy, to purify the Maſs of Blood, and diſcharge it of a Number of uſeleſs heterogeneous Particles which might corrupt it. Hence it is, that upon a Stoppage of the uſual *Tranſpiration*, there ariſe ſo many Indiſpoſitions, particularly Fevers, Agues, Itch, &c.

Tranſpiration is alſo of uſe to the Organ of Feeling, in that it prevents the Papillæ of the Skin from being dry'd, either by the Air, or by the continual Touches of external Bodies.

Transpiration is alſo uſed by ſome Authors, for the Entrance of the Air, Vapours, &c. through the Pores of the Skin into the Body.

Cardan, by this kind of *Tranſpiration*, accounts for the Prodigy of a Woman, whoſe daily Urines weigh'd 27 Pounds; though all the Foods ſhe took, both dry and liquid, did not exceed Four Pounds. --- Dr. *Baynard* ſuſpects ſome ſuch *Tranſpiration* to be the Caſe in hydropical Perſons. See Dropsy.

TRANSPLANTATION or Transplanting, in Agriculture and Gardening, the Removing of Trees or Plants, from the Places where they were ſowed or bred up, and planting them in other. See Planting and Replanting.

In the Tranſplanting of Foreſt Trees, Care is to be taken to preſerve the Roots, and even the fine Hairs or Filaments thereof, with the Earth that ſticks thereto; theſe Filaments being the Mouths that ſuck the Nouriſhment, and transfuſe it to the Tree. See Root and Vegetable.

The Pits or Foſſes, into which the Trees are *tranſplanted*, ſhould be left open for ſome time before hand, that the Rain, Froſt and Sun may diſſolve the compacted Salt, render the Earth friable, and qualify it for nouriſhing the Tree. ---- The ſame may be done, in ſome meaſure, by burning Straw in the new Pits, and drenching the Mould with Water in dry Seaſons, and by enriching the Ground with Manure. See Manure.

Pliny was of Opinion, no Tree ſhould be removed under two, or above three Years old. *Cato* would have none *tranſplanted* leſs than Five Fingers in Diameter: But we are, now, able to *tranſplant* Trees of all Ages and Sizes, without Danger.

To *tranſplant* old Trees, was reckon'd ſo difficult, that *Veterem Arborem tranſplantare* is become a Proverb for a difficult Enterprize; and yet we are informed of a Grove of Six hundred Coco Trees of 80 Years Growth, and 60 Foot high to the loweſt Bough, *tranſplanted* by Count *Maurice*, to his Paradiſe of *Friburg:* And a great Perſon in *Devonſhire*, Mr. *Evelyn* tells us, *tranſplanted* Oaks, as big as Twelve Oxen could draw, to ſupply a Defect in an Avenue.

For the *Tranſplantation* of grown Trees, Mr. *Evelyn* gives the following Method, as practiſed with good Succeſs by the Lord *Fitzharding:* Chooſe Trees about the Thickneſs of a Man's Thigh; remove the Earth from about them, cut through all the ſide Roots, till the Tree may be, by force, brought down on one Side; ſo that the tap Roots may be conveniently come at to be cut off with the Ax: then redreſs the Tree, and let it ſtand cover'd with the Mould from which it was looſen'd, till next Year, or longer; and by that time it will have drawn new tender Roots fit for *tranſplanting*, and may be taken up at a fit Seaſon.

Otherwiſe, for very large Trees; e'er the hard Froſts come on, make a Trench about the Tree, at ſuch Diſtance from the Stem, as you judge ſufficient for the Root; dig ſo deep, as almoſt to undermine it; place Blocks, and Quarries of Wood to ſuſtain the Earth, and caſt in as much Water as may fill the Trench or ſufficiently wet it, unleſs the Ground were very moiſt before. Thus let it ſtand till ſome hard Froſt bind it firmly to the Roots, and then convey it to its new Station, which may be preſerv'd from freezing, by placing ſtore of warm Litter in it: ſo cloſe the Mould the better to the ſtraggling Fibres, and place the Earth taken out of the Pit about the Root of the new-planted Tree.

The common Rules for *Tranſplanting*, are, 1° The lighter the Soil is, the deeper are the Trees to be planted. 2° If the Soil be Gravel, or Sand, mix Clay with it, and *vice verſa.* 3° The beſt Seaſon, is either *October* or *February*; in warm, moiſt, clear Weather. 4° The large Roots to be abated, to prevent the Neceſſity of digging too deep; but the ſmall Fibrous ones to be ſpared. 5° In taking up the Trees to obſerve how the Roots grow, and in *Tranſplanting*, to diſpoſe them in the ſame Order, and place the Tree to the ſame Aſpect. 6° To defend young Trees after *Tranſplantation*, both from Wind and Sun, till the Roots be fix'd, and they begin to ſhoot. 7° If the Soil you *tranſplant* into, be good, don't top the Trees, but lop all the Boughs to one ſingle one, the moſt upright and promiſing among them: But if the Soil be poor, top them, and when they are ſhot out again, lop off all the Branches to one. See Pruning.

Transplanting *of Fruit-Trees.* After a Summer's Growth of Fruit-Seedlings in the Seminary, ſuch are pull'd up as are above a Foot high, and *tranſplanted* into a Nurſery; the reſt to be left in the Seed-Plot till another Year. See Seminary.

When drawn up, the Sprigs are to be cut off, from about the Top, the Strings from the Roots, and the Extremities, both of the Top, that it mayn't run too faſt upwards, and of the tap or heart Root, that it may not paſs directly downwards; leſt it go beyond the good Soil. The Holes, or Pits to be ſo deep, as that the Plants may ſtand ſomewhat deeper in the Ground, than when in the Seed-plot; cloſe the Mould about them, and if it be a dry Time, water them the firſt Day, and cover the Soil with old Fern.

Mr. *Bradley* gives us a new Method of *Tranſplanting* Trees of all Kinds and Ages with Safety, either while they are in Bloſſom, or with Fruit upon them; thus: The Holes to receive the Trees, are to be prepared before the Trees are taken up; and the Earth which comes out of the Holes to be made very fine, and put into large Tubs and mix'd with Water, till it be about the Conſiſtence of thin Batter. Then the Holes wherein the Trees are to be planted, are to be fill'd with this thus-temper'd Earth, before the earthy Parts have time to ſettle.

The Advantage hereof is, that the Trees thus planted, have their Roots immediately incloſed and guarded from the Air; and the warm Seaſon of the Year diſpoſing every Part of the Tree for Growth and Shooting, it will loſe very little of its Vigour. ---- In Winter it does not ſucceed.

The ſame Author adds, that in conſideration of the Circulation of the Sap, it is as neceſſary to preſerve the Veſſels of Trees entire, as thoſe in Animal Bodies: And therefore in *tranſplanting* Trees in the Summer Seaſons, 'tis not proper to cut off any of the Branches, or wound any of the Veſſels, till they have renewed their Roots, which it is of abſolute Neceſſity to wound in *Tranſplanting* them. For the wounded Roots, he has provided a Plaiſter of a Mixture of Gums to prevent the Canker and Rot, and promote their Healing.

TRANSPLANTATION, in Natural Magic, is uſed for a Method of curing Diſeaſes, by transferring them from one Subject to another; much in Vogue among certain Philoſophers. See SYMPATHETIC.

This *Tranſplantation* is effected, either by the Uſe of a certain Medium, called on that account a *Magnet*; or without, by ſimple Contact.

The firſt Kind, which is that moſt properly call'd *Tranſplantation*, is when the Patient's Excrement being mix'd up with Earth, the Diſeaſe is *tranſplanted* into a Vegetable, ariſing from a Seed ſown in the ſaid Compoſt; or, when the Parings of the Nails of a gouty Perſon, are incloſed in an Auger-hole made in a Plant, particularly an Oak.

Here the Patient's Excrement is the Magnet, and the vital Spirit of the Plant ariſing from the Seed, is the Mumia which the Magnet receives; and the Caſe is the ſame, in the Parings of the Nails, and the vital Spirit of the Oak. See MUMIA.

The ſecond Kind of *Tranſplantation*, properly call'd *Approximation*, is, when a Finger ſeiz'd with a Panaris or Whit-low, is cured by rubbing in a Cat's Ear, which is held to receive the Pain.

In this Caſe, the ſound Subject receives the vital Spirits, unites with them, and corrects their morbific State: And, as certain Diſeaſes are got by Approximation; the infected Spirits of a diſeas'd Body, inſinuating themſelves into a ſound one, and thus infecting the ſame; ſo they are cured by Approximation; when the Spirits of a diſeaſed Perſon entering a ſound Body, the latter corrects and retrieves the morbific State of the former.

Tranſplantation, by means of the Magnet, is of five Kinds, *viz. Inſemination*, *Implantation*, *Impoſition*, *Irroration* and *Ineſcation*; each whereof, ſee under its proper Article, INESCATION, IMPLANTATION, &c.

TRANSPORT-*Ship*, is a Veſſel whereon to convey Proviſions, warlike Stores, Soldiers, *&c.* See VESSEL.

TRANSPORTATION, the Act of conveying, or carrying a thing from one Place or Country to another. See EXPORTATION.

In Matters of Commerce, *Tranſportation* is of equal Import with *Re-exportation*, *viz.* the taking up of Commodities in one foreign State or Kingdom, bringing them hither, and paying Duties for them; and then conveying them into ſome other foreign State, &c. by which it is diſtinguiſh'd from *Importation* and *Exportation*; where the Commodities are either carried originally out of, or brought finally into, our own Kingdom. See IMPORTATION and EXPORTATION.

Our *Tranſportation* or Re-exportation of Wooll, Butter, Hides, Tallow, Herrings, Beef and Salmon, which we tranſport from *Ireland*, to other Provinces, being the Concerns of our Merchants, and paying Duties to His Majeſty, have been reckon'd at 300,000 *l. per Annum*.

'Twou'd be tedious to enumerate the Value of our *Tranſportations* from *Denmark*, *Sweden*, *Spain*, *Portugal*, the *Streights*, *Turkey*, *Guinea*, &c. the moſt conſiderable, is from the *Eaſt Indies*. In the Infancy of that Trade, *viz.* in the Year 1613, of Pepper only, beſides what we conſumed at Home, we *tranſported* in one Year to other Countries, after it had paid Duty here, to the Value of 200,000 *l.* and of late Years our Exportation of what we bring from thence, after we have ſupplied ourſelves, is computed at 500,000 *l. Sterling*. See NAVIGATION and COMMERCE.

TRANSPORTATION is alſo a kind of Puniſhment; or, more properly, an Alleviation or Commutation of Puniſhment, for Criminals convicted of Felony, who, for the firſt Offence, unleſs it be an extraordinary one, are ordinarily *Tranſported* to the Plantations, there to bear hard Labour for a Term of Years, within which if they return, they are executed without further Trial. See FELONY, PUNISHMENT, &c.

TRANSPOSITION, in Algebra, the bringing any Term of an Equation over to the other Side. See TERM.

Thus if, $a+b=c$, and you may make $a=c-b$; b is ſaid to be *tranſpoſed*. See EQUATION.

TRANSPOSITION, in Grammar, call'd alſo *Hyperbaton*, a diſturbing or diſlocating of the Words in a Diſcourſe; or a changing of their natural Order of Conſtruction, to pleaſe the Ear, by rendring the Contexture more eaſy, ſmooth, and harmonious. See HYPERBATON.

A *Tranſpoſition*, which renders the Senſe perplex'd, is vicious.

The Conſtruction of the ancient Languages being much more Artful than that of the Modern ones; allowed of much greater and more frequent *Tranſpoſitions*. The *Engliſh*, *French*, *&c.* ſcarce ever allow of them but in Oratory and Poetry; in which Caſes they ſerve to give a Force and Energy to the Diſcourſe or the Verſe, and to prevent their languiſhing. See CONSTRUCTION.

TRANSPOSITION *in Muſic*, is a changing of the Notes of a Piece of Muſic. See NOTE.

Of this there are two Kinds; the firſt with reſpect to the *Clef*, the ſecond with reſpect to the *Key*.

Tranſpoſition with reſpect to the Clef, conſiſts in the changing of the Places or Seats of the Notes or Letters, amongſt the Lines and Spaces; but ſo as that every Note is ſet at the ſame Letter. See CLEF.

This is done either by removing the ſame Clef to another Line; or by uſing another Clef, but with the ſame Signature, by reaſon the Piece is ſtill in the ſame Key. See CLEF.

The Practice is eaſy in either Caſe: In the firſt, you take the firſt Note at the ſame Diſtance above or below the Clef-Note, in its new Poſition as before; and all the reſt of the Notes in the ſame Relations or Diſtances from one another; ſo that the Notes are all ſet on Lines and Spaces of the ſame Name.

In the ſecond, or ſetting the Muſic to a different Clef, 'tis to be obſerved, the Places of the three Clef Notes are invariable in the Scale, and are to one another in theſe Relations, *viz.* the Mean a 5th above the Baſs, and the Treble a 5th above the Mean. Now to *Tranſpoſe* to a new Clef, *e gr.* from the Treble to the Mean; where-ever that new Clef is ſet, we ſuppoſe it the ſame individual Note, in the ſame Place of the Scale, as if that Piece were that Part in a Compoſition to which this new Clef is generally appropriated; that ſo it may direct to the ſame Notes we had before *Tranſpoſition*: Now, from the fix'd Relations of the three Clefs in the Scale, it will be eaſy to find the Seat of the firſt *tranſpoſed* Note; and then all the reſt are to be ſet at the ſame mutual Diſtances they were at before. See SCALE.

Suppoſe, *e. gr.* the firſt Note of a Song be *d*, a 6th above the Baſs-clef; where-ever that Clef is placed, the firſt Note muſt be the greater 2d above it, becauſe a greater 2d above the Mean is a greater 6th above the Baſs-clef, the Relation of thoſe two being a 5th. --- So that the firſt Note will ſtill be the ſame individual *d*.

The Uſe of this *Tranſpoſition* is, that if a Song being ſet with a certain Clef, in a certain Poſition, the Notes go far above or below the Syſtem of five Lines; they may, by the Change of the Place of the ſame Clef in the particular Syſtem, or by taking a new Clef, be brought more within the Compaſs of the Lines.

Tranſpoſition from one Key to another, is a changing of the Key; or a ſetting all the Notes of the Song at different Letters, and performing it, conſequently, in different Notes upon an Inſtrument. See KEY.

The Deſign hereof is, that a Song which being begun in one Note, is too high or low, or otherwiſe inconvenient for a certain Inſtrument; may be begun in another Note, and from that carried on in all its juſt Degrees and Intervals.

The Clef and its Poſition here remain the ſame; and the Change is of the Notes themſelves, from one Letter, and its Line or Space, to another.

In the former *Tranſpoſition*, the Notes were expreſs'd by the ſame Letters, but both removed to different Lines and Spaces: In this, the Letters are unmoved, and the Notes of the Song transferr'd to, or expreſs'd by other Letters, and conſequently ſet upon different Lines and Spaces, which, therefore, requires a different Signature of the Clef.

TRANSPOSITION *of Equation*. See EQUATION.

TRANSSUMPTIO, TRANSUMPTION, in the Schools, a Syllogiſm by Conceſſion or Agreement, us'd where a Queſtion propos'd is transferr'd to another, with this Condition, that the Proof of this latter ſhall be admitted for a Proof of the former.

Thus *Ariſtotle* in his Book *de Cœlo*, undertaking to ſhew that all the Stars are round, transfers the Queſtion to the Moon, and proves her Rotundity from her Increaſing and

Waining; ſuppoſing it a Thing admitted by his Opponents, that the Stars are all alike.

TRANSUBSTANTIATION, in Theology, the Converſion or Change of the Subſtance of the Bread and Wine, in the Euchariſt, into the Body and Blood of Jeſus Chriſt. See EUCHARIST.

Tranſubſtantiation, taken in its general and literal Senſe, implies any Change of one Subſtance into another; thus, the Change of *Moſes*'s Rod into a Serpent; of the Waters of the *Nile* into Blood; of *Lot*'s Wife into a Pillar of Salt, were preternatural *Tranſubſtantiations*; and the Change of the Food we eat, into the Subſtance of our Bodies, is a natural *Tranſubſtantiation*. See SUBSTANCE.

But the Word in its proper Senſe, as a Term, is reſtrain'd to the miraculous Change which the *Romiſh* Church holds is wrought in the Sacrament, by the Conſecration of the Prieſt.

One of the great Articles of that Church, rejected by the Reform'd, is that of *Tranſubſtantiation*; the latter maintaining the *Tranſubſtantiation* to be only figurative, and the former real.

The Reform'd interpret *eſt*, *is*, in the Text, *Hoc eſt Corpus meum*, This is my Body, by ſignificat; *q. d.* this *ſignifies* my Body: But the Council of *Trent* ſtand up ſtrenuouſly for the literal Senſe of the Verb: Thus, in Can. 1. Seſſ. 13. of that Council, 'tis expreſly decreed, that in *Tranſubſtantiation, the Body and Blood of our Lord Jeſus Chriſt are truly, really, and ſubſtantially under the Species of Bread and Wine.*

'Tis added, that by *truly*, we mean properly, and not only by Signification, as if the Euchariſt were no more than a Sign of the Body and Blood of Jeſus Chriſt: That by *really*, we mean in Fact, and not only in a Figure, as if the Euchariſt were only a Figure and Repreſentation of the Body and Blood of the Saviour of the World: And that by *ſubſtantially*, we mean in Subſtance, and not only in Virtue and Energy. --- Thus is *truly* oppos'd to a ſimple Sign; *really* to a Figure; and *ſubſtantially* to Energy.

TRANSVERSALIS, in Anatomy, a Name given to ſeveral Muſcles, *&c.* in reſpect of their Situation, Progreſs, *&c.* as the

TRANSVERSALIS *Abdominis*, a Muſcle which lies under the Obliqui, and ariſes from the Cartilago Xiphoides, from the Extremities of the falſe Ribs, from the Tranſverſe Apophyſis of the Vertebræ of the Loins, and fix'd to the inner Side of the Spine of the Ilium, and inſerted in the Os Pubis, and Linea Alba.

This, with the Obliqui, (which ſee) unites its Tendons, as it approaches the *Linea Alba*, and is the only Muſcle that is cut in the Operation of the *Bubonocele*: It has a fine and thin Membrane that cloſes exactly its Ring or Hole, through which the Veſſels paſs.

TRANSVERSALIS *Colli*, is a Part of the *Tranſverſalis Dorſi*, which ſome divide into three, *viz.* the Sacer, Semiſpinatus, and *Tranſverſalis Colli*.

It ariſes from the Os Sacrum, and from all the tranſverſe Proceſſes of the Vertebræ of the Loins, Back, and Neck, except the two firſt; and is inſerted by ſo many diſtinct Tendons to all their ſuperior Spines: It moves the whole Spine obliquely backwards.

TRANSVERSALIS *Pedis Placentini* comes from the Bone of the Metatarſus, that ſuſtains the Toe next the little Toe, and paſſing acroſs the other Bones, is inſerted into the Os Seſamoides of the great Toe: Its Uſe is to bring all the Toes cloſe to one another.

TRANSVERSALIS *Penis* ariſes from the Iſchium juſt by the Erectores, and runs obliquely to the upper Part of the Bulb of the Urethra.

It helps to preſs the Veins upon the Back of the Penis, againſt the Os Pubis, which is the Cauſe of Erection. See ERECTION.

TRANSVERSALIS *Dorſi*	See	SEMISPINATUS.
TRANSVERSALIS *Lumborum*		SACER.
TRANSVERSALIS *Femoris*		QUADRATUS.

TRANSVERSALIS is alſo a Name given to a Suture of the Cranium, becauſe of its traverſing or croſſing the Face from one Side to t'other. See SUTURE.

It ariſes at one of the leſſer Angles of the Eye, and paſſing along the Bottom of its Orbit, and the Root of its Noſe, terminates in the other leſſer Angle.

TRANSVERSE, ſomething that goes acroſs from Right to Left, or from Corner to Corner.

Thus Bends and Bars in Heraldry are *tranſverſe* Pieces or Bearings. See BEND.

The Diagonals of a Paralelogram or a Square are *tranſverſe* Lines. See DIAGONAL.

Lines which make Interſections with Perpendiculars, are alſo call'd oblique or *tranſverſe* Lines. See LINE, PERPENDICULAR, OBLIQUE, *&c.*

TRANSVERSE *Axis*, or *Diameter*, call'd alſo the *firſt* or *principal Axis*. See AXIS and LATUS *Tranſverſum*.

The Tranſverſe *Axis of an Ellipſis*, is the longer Axis, or that which *traverſes* it lengthwiſe, in contra-diſtinction to the Conjugate one. See ELLIPSIS and CONJUGATE.

The *Tranſverſe* Axis of an Hyperbola, is the Line D K, Tab. Conicks, Fig. 17. cutting the Curve in the Points D and K. See HYPERBOLA.

TRANSVERSE *Muſcles*, in Anatomy, are certain Muſcles ariſing from the *tranſverſe* Proceſſes of the Vertebræ of the Loins. See VERTEBRÆ and LOINS.

TRANTERY, in ſome Cuſtoms, is the Money ariſing by Amerciaments of Ale-ſellers and Victuallers, for breaking the Aſſize of Bread and Ale. See ASSIZE.

Particularly at *Luſton*, and other Manors in *Herefordſhire*.

TRAVERSE or TRANSVERSE, ſomething that goes athwart another, *i. e.* croſſes and cuts it obliquely. See TRANSVERSE.

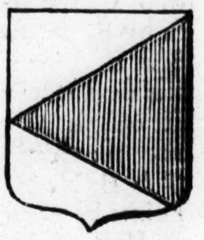
TRAVERSE is particularly uſed for a Piece of Wood or Iron placed tranſverſely, to ſtrengthen and fortify another. Such are thoſe uſed in Gates, Windows, *&c.*

To plane a Board againſt the Grain, is alſo call'd among Joiners, *&c.* to *Traverſe* it.

TRAVERSE, in Gunnery, ſignifies to turn or point a Piece of Ordnance which Way one pleaſes, upon her Platform. See ORDNANCE, CANNON, *&c.*

The laying and removing a Piece of Ordnance or a great Gun, in order to bring it to bear, or lie level with the Mark; is alſo called *Traverſing the Piece*. See GUNNERY, *&c.*

TRAVERSE is ſometimes alſo uſed in Heraldry, for a Partition of an Eſcutcheon, of the Figure adjoining, which they Blazon parted *per pal Traverſe*, Argent and Gules.



TRAVERSE, in Navigation, is the Variation or Alteration of a Ship's Courſe, occaſion'd by the ſhifting of the Winds, Currents, *&c.* See COURSE.

Traverſe Sailing, is uſed when a Ship having ſet Sail from one Port, towards another, whoſe Courſe and Diſtance from the Port ſail'd from, is given or known, is, by reaſon of contrary Winds, or other Accidents, forced to ſhift and ſail on ſeveral Courſes, which are to be brought into one Courſe, to learn, after ſo many Turnings and Windings, the true Courſe and Diſtance made from the Place ſail'd from, and the true Point or Place where the Ship is; that ſo the Wind coming fair, it may be known how to ſhape a Courſe for the Place intended. See SAILING.

This may be perform'd Geometrically two Ways: The Firſt, by drawing new Meridians, through the Extremity of every Courſe, parallel to the firſt Meridian, or North and South Lines at firſt made: and ſetting off every Courſe with a Sweep of 60, as if it were a Queſtion in Plain Sailing. You may alſo let fall Perpendiculars to every new Meridian, from the Point that the Ship ſail'd to upon that Courſe, by which you have the Courſe, Diſtance, Difference of Latitude and Departure to every Courſe. To Illuſtrate this by an Example: A Ship being bound for a Port diſtant 120 Miles N. E. ½ E. ſails S. S. E. 30 Miles, then N. E. by N. 40, then E. by N. 25, then N. N. E. 44; 'tis requir'd to find the Courſe and Diſtance made good, and alſo the Courſe and Diſtance to the Port bound for.

Draw the Line HK (Tab. Navigation, Fig. 17.) at pleaſure, for a Meridian, or North and South Line, and therein aſſume a Point, as at A, for the Port ſail'd from; then with 60 of the Chords, and one Foot in A, draw the Arch L m, upon which ſet off two Points (becauſe the Courſe is S.S.E.) from L to m, and draw the Line A m, upon which ſet off the Diſtance 30, from A to B; then is the Ship at B: Thus letting fall the Perpendicular B K, A K 27° 7′ is the Difference of Latitude, and B K 11° 5′, the Departure for the firſt Courſe.

For the ſecond Courſe, with the Diſtance K B, draw the Parallel B N, and thereby with the Chord of 60, as before, ſet off the Second Courſe and Diſtance, N. E. by N. 40, from B to C, and let fall the Perpendicular C L, then is the Ship at C, the Difference of Latitude upon that Courſe is B L 33 : 3, and Departure C L 22 : 2.

Proceed in the ſame manner for the third Courſe, with the Parallel C O, ſet off E. by N. 25, from C to D, and draw the Line D P, from which ſet off the laſt Courſe, N. N. E. 44, then is your Ship at E.

Since, then, the Ship came from A, and is now at E, the Line A E meaſured on the ſame equal Parts, upon which all the other Diſtances were taken, will be found 91 Miles, and the Arch R Q meaſured on the Rhumbs, five Points, *viz.* N. E. by E. ſo that the Ship is now 91 Miles N. E. by E. from the Port ſailed from.

To find her Courſe and Diſtance to the Port bound for, ſet off 4 half Points upon the Arch R Q from R to S, and from A through S draw the Line A S F; upon which ſet off

120, the Diſtance from the Port ſailed from to the Port bound for, from A to F, then is, F the Port bound for; now the Port bound for being at F, and the Ship being but at E, the Line EF meaſured on the ſame equal Parts that the reſt was taken from, will be found to be 31, and the Arch TU meaſured on the Chords, is 35° 12′, or N. E. by N. ſomewhat eaſterly, *&c.*

This Method is uſeful, where the Courſes tend generally one way, without interſecting one another; but if they often croſs, 'tis beſt to have recourſe to the 2d Method, which is without new Meridian.

In order to this, obſerve how many Points are between the Point next to be laid down, and the Point oppoſite to the Courſe laſt laid down; for that is the Point for laying down; then, with the Chord of 60, and one Foot in the Point the Ship is laſt come to, deſcribe an Arch; upon which ſet off the Points found by the abovesaid Rule, and through that draw the Line for the next Courſe, *&c.* For an Example;

Draw a North and South Line, as in the former, as the Line RM, *Fig.* 17; in which aſſume a Point, as at A, for the Port ſail'd from; then from A ſet off the firſt Courſe and Diſtance, *viz.* N. N. W. 68, from A to B, and for the ſecond Courſe, with the Chord of 60, and one Foot in B, draw the Arch T W, upon which to ſet off the next Courſe S. S. W. 70, obſerve the Rule above delivered, *viz.* To take the Number of Points between the Point oppoſite to the laſt Courſe ſailed, and the Point you are next to ſail. The Reaſon of which Rule is this: If from A to B your Courſe be N. N. W. the Back from B to A, muſt needs be S. S E. the oppoſite Point, and then if you were to ſail S. by E. it muſt be one Point to the Southward of that S. S. E. Line; if South, it is two Points, and conſequently the next Courſe being S. S. W. I ſet off 4 Points, upon which ſet off 70 Miles, from B to C, and then is your Ship at C: For the third Courſe, if from B to C be S. S. W. then from C to B N. N. E. but the next Courſe being E. half N. the Points between N. N. E. and E. half N. are five Points and an Half, and therefore with the Chord of 60 and one Foot in C, draw the Arch *x y*, upon which ſet off five Points and an Half, from *x* to *y*, and through *y* draw the Line C D, upon which ſet off 90 Miles from C to D, then is *y* our Ship at D.

After the ſame Manner lay down all the reſt, as D E W. N. W. half N. 70, then E F South 25, then F G, E. half S. 45; then laſtly G H, South 30, which is the laſt Courſe.

Thus your Ship being at H, and the Port ſailed from at A, the Line A H 28 Miles, is the Diſtance made good; and the Angle at A is four Points, *viz.* S. E. but the Port intended for, being S. W. 55. Set it from A to K, and the Ship being at H, the Line H K, 62 Miles, is the Diſtance from the Ship to the Port bound for; and the Courſe is found by meaſuring the Angle at H 71° 48′ or W. S. W. more than a Quarter Weſterly, *&c.*

To work a TRAVERSE *by the Tables of Difference of Latitude and Departure.*

This is the principal Uſe thoſe Tables are intended for; and the Way of working a *Traverſe* hereby, is equal to the beſt for Exactneſs, and ſuperior in Point of Expedition.

Make a little Table with ſix Columns, the Firſt for the Courſe, the Second for the Diſtance, the Third for the Northing, the Fourth for the Southing, the Fifth for the Eaſting, the Sixth for the Weſting. Then find the Difference of the Latitude and the Departure to every Courſe, and ſet them in their proper Columns; as where the Courſe is Northerly, ſet the Difference of the Latitude under Northing, or in the North Column; and where the Courſe is Southerly, ſet the Difference of Latitude in the South Column.

Again, where the Courſe is Eaſterly, ſet the Departure in the Eaſt Column, and when Weſterly, ſet it in the Weſt Column; then adding up each Column by itſelf, ſubtract the North and South Columns, the greater from the leſſer, the Remainder is the Northing or Southing made good. Alſo ſubtract the Eaſt and Weſt Columns, the bigger from the leſſer, the Remainder is the Eaſting or Weſting made good; then have you the Difference of Latitude and Departure given, to find the Courſe and Diſtance.

In the firſt Example above ſpecified, the firſt Courſe is S. S. E. 30 Miles, or two Points 30 Miles; for which, I find the Difference of Latitude 27 : 7. Now the Courſe being between South and Eaſt, I place my Difference of Latitude in the South Column, and my Departure 11 : 5 in the Eaſt Column, leaving the North and Weſt Columns blank.

Then for the Second Courſe, N. E. by N. or three Points 40 Miles, my Difference of Latitude, 33 : 3 is to be placed in the North Column, and the Departure 22 : 2, in the Eaſt Column, becauſe the Courſe is between the North and Eaſt.

Then the third Courſe being E. by N. or ſeven Points, 25 Miles, I place my Difference of Latitude, 4 : 9 in the North Column, and Departure 24 : 5, in the Eaſt Column.

And ſo for the fourth Courſe N. N. E. or two Points 44 Miles, I place my Difference of Latitude 40 : 6, in the North Column, and my Departure, 16 : 8, in the Eaſt Column; then adding up each Column, the Sum of the Northing Column is 78 : 8, and the Sum of the South Column is 27 : 7, which ſubtracted from the Northing 78 : 8, the Remainder 51 : 1, is the Difference of Latitude made good, which is Northing, becauſe the Northing was the greater Number.

Again, the Sum of the Eaſting Column is 75 : 0, which, becauſe there is no Weſting to ſubtract from it, is the Eaſting made good. Thus you have the Northing 51 : 1, and the Eaſting 75 : 0 given, to find Courſe and Diſtance; and though you cannot find in the Table the exact Number of 51 : 1, and 75 : 0 together, yet find the neareſt you can, which is 75 : 4, and 50 : 9, over which at the Top, you find 34 Degrees for the Courſe, which is N. E. by N. 0° 15′ eaſterly, and the Diſtance 91 Miles.

TRAVESTY or TRAVESTI, a Term which ſome late Authors have introduced into Poetry. The Word is originally *French*, being a Participle, of the Verb *Traveſtir*, to diſguiſe one's ſelf, or to appear in Maſquerade. Hence *Traveſty* comes to be applied to the diſfiguring of an Author, or the Tranſlating him into a Style and Manner different from his own; by which means it becomes difficult to know him.

G. Battiſta Lalli, has *traveſtied Virgil*, or turn'd him into *Italian* Burleſque Verſe. *Scarron* has done the ſame in *French*, and *Cotton* and *Phillips* in *Engliſh* Verſe. See BURLESQUE.

Caſtalio is charged with having *traveſtied* the Bible, by reaſon of the Difference of Air and Stile between his Verſion and the Original.

TRAUMATICKS, Τραυματικὰ, Vulneraries; are Herbs or Drugs good for the curing of Wounds. See VULNERARY.

TRAYL-BASTON, TRAIL-BASTON (*q. d. trahe baculum*, drag a Club or Staff). See JUSTICE *of Trail-baſton.*

Edward I. in his 32d Year, ſent out a new Writ of Inquiſition, called *Trail-baſton*, againſt the Intruders on other Mens Lands, who to oppreſs the right Owner, would make over their Lands to great Men; againſt Batterers hired to beat Men; Breakers of Peace; Raviſhers; Incendiaries; Fighters; falſe-Aſſiſors and other Malefactors; which Inquiſition was ſo ſtrictly executed, and ſuch Fines taken, that it brought in a world of Treaſure to the King.

TRAYTOR, TRAITOR, TRADITOR, a Betrayer of his King and Country; or one guilty of High Treaſon. See TREASON and TRADITOR.

TRAYTEROUS *Poſition*, is particularly underſtood of a Tenet, which ſome formerly held, of the Legality and Property of taking Arms by the King's Authority againſt his Perſon and thoſe commiſſion'd by him; which is condemn'd by Statute 14 *Car.* II.

TREACLE, in Pharmacy, *&c.* See THERIACA.

TREASON, *Treachery*; the Act of Infidelity to one's lawful Soveraign.

Treaſon, in our Laws, is of two Sorts, *viz. High* and *Petty Treaſon.*

High TREASON or TREASON *Paramount*, is an Offence committed againſt the Security of the King or Kingdom, whether by Imagination, Word or Deed. Such are, To compaſs or imagine the Death of the King, Queen or Prince; or to Deflour the King's Wife, or his Eldeſt Daughter unmarried, or his Eldeſt Son's Wife; or to levy War againſt the King in his Realm; to adhere to his Enemies; Counterfeit his great Seal or Money; to kill the King's Chancellor, Treaſurer, Juſtices of either Bench, Juſtices in Eyre, of Aſſize, or of Oyer and Terminer, being in their Place during their Office; diminiſhing or impairing current Money; ſaying that the King is a Heretic or Papiſt, or intends to introduce Popery, *&c. Anno* 13 *Car.* II.

'Tis a Maxim, That *In majori Proditione, omnes ſunt Principales*; there are no Acceſſaries in *Treaſon*, all are Principals.

Alſo, that *Voluntas non reputabitur pro facto, niſi in cauſa Proditionis*; the Will is never taken for the Deed in any Caſe, but that of *High Treaſon*: Though ſome *High Treaſons* are much more Heinous than others, yet the Puniſhment appointed by Law, is the ſame in all (Clipping and Coining only excepted) which is, that the Traitor be laid upon a Hurdle or Sledge, drawn to the Gallows, there hanged, but cut down while alive, the Entrails pulled out and burnt before the Criminal's Face; then his Head and Quarters cut off, and Impaled where the King ſhall judge meet. Add to this, that he forfeits all his Lands and Goods whatever, to the King; his Wife loſes her Dowry; his Children their Nobility, and all Right of Inheriting.

Even an Ideot or Lunatic, though judg'd incapable of moſt Crimes, ſhall be puniſhed as a Traitor, if he go about to kill the King.

For Petty TREASON. See PETTY *Treaſon.*

This Kind gives Forfeiture of Eſcheats to every Lord within his Manor. See Escheat.

There is alſo mention made of *Accumulative* and *Conſtructive Treaſon*, in the Statute 14 *Car.* II.

TREASURE, *Theſaurus*, Θησαυρος, Store of Money in reſerve. See Treasurer and Treasury.

Treasure-*Trove*, q. d. *Treaſure found*, in Law, is when any Money, Gold, Silver, Plate, or Bullion, is found in any Place, and none knows to whom it belongs.

This ſhould, naturally, fall to the Finder; but particular People have made particular Proviſions for it.----- The *Jews* gave it the Proprietor of the Place where it was found: The *Roman* Juriſprudence was various with regard hereto; ſometimes it was given to the Maſter of the Grounds; ſometimes to the Finder; and ſometimes it was adjudged to the public Treaſury.

In *France* and *England*, the general Uſage is to have ſuch *Treaſure* ſequeſtred to the King, unleſs where the Benefit thereof is expreſly granted or made over by the King to ſome other.

In ſome Places in *France*, it is divided into three Parts; one for the Prince, one for the Proprietor of the Land, and one for the Finder.

Briton ſays, 'tis every Subject's Part, as ſoon as he hath found any Treaſure in the Earth, to make it known to the Coroners of the County, *&c.*

This was anciently call'd *Findaringa*, of finding the *Treaſure*, LL. *Hen.* I.

The Puniſhment for concealing *Treaſure* found in *England*, is Impriſonment and Fine; but if any Mine of Metal be found in any Ground, it always appertains to the Lord of the Soil, except it be a Mine of Gold or Silver, which anciently always belong'd to the King, in whoſe Ground ſoever it were found: But by an Act of Parliament, the King now, hath only the Præ-emption.

TREASURER, an Officer to whom the Treaſure of a Prince or Corporation is committed to be kept and duly diſpoſed of in the Payment of Officers and other Expences. See Treasury.

Of theſe there is a great Variety. ---- His Majeſty of *Great Britain*, in Quality of Elector of *Brunſwick*, is *Arch-Treaſurer of the* Roman *Empire.* ---- In the States of *Poland* are two *Grand-Treaſurers*; that of the Kingdom of *Poland*, and that of the Dutchy of *Lithuania.*

In *England*, the principal Officers under this Denomination are the Lord *High Treaſurer*, the *Treaſurer of the Houſhold*; *Treaſurer of the Navy*, of the *Wardrobe*, of the *King's Chamber*, *&c.*

Anciently we had likewiſe a *Treaſurer of the Exchequer*; *Treaſurer of Wars*, *&c.* --- In the *Romiſh* Countries, the Title *Treaſurer* is alſo given, ſomewhat abuſively, to an Eccleſiaſtic, who has the keeping of the Relicks, and the Charters, and Archives of a Church, or Monaſtery.

This Dignity ſucceeds, in ſome meaſure, to that of the ancient Deacons, who had the like Charge in the Primitive Church. See Deacon.

Lord High Treasurer *of England*, is the Third great Officer of the Crown. See Crown.

He receives the Office, by Delivery of a white Staff to him from the King, and holds it during the King's Pleaſure: Anciently, he received it, by Delivery of the Golden Keys of the Treaſury.

Under his Charge and Government, is all the King's Revenue kept in the Exchequer. See Revenue and Exchequer.

He has the Check of all the Officers, any way employ'd in collecting Impoſts, Cuſtoms, Tributes or other Revenues of the Crown. He has the Gift of all the Cuſtomers, Comptrollers and Searchers Places, in all the Ports of *London*, and the Nomination of the Eſcheators in every County. See Custom-*Houſe*, *&c.*

He, alone, or others in Commiſſion with him, letteth Leaſes of all the Crown Lands, gives Warrants to certain Perſons of Quality to have their Wine Cuſtom-free, *&c.*

The ancient Salary was 383 *l.* but at preſent 8000 *l.* The Office of Lord *Treaſurer*, is now in Commiſſion. See Treasury.

Treasurer *of the Houſhold*, is an Officer, who, in the Abſence of the Lord Steward, has Power, with the Comptroller and other Officers of the Green Cloth and the Steward of the *Marſhalſea*, to hear and determine Treaſons, Felonies and other Crimes committed within the King's Palace. See Household, Green *Cloth*, *&c.*

Treasurer *of the Navy*, is an Officer who receives Money out of the Exchequer, by Warrant from the Lord *High Treaſurer*, or the Lords Commiſſioners executing that Place; and pays all Charges of the Navy, by Warrant from the principal Officers of the Navy. See Navy.

TREASURY, the Place wherein the Revenues of a Prince are receiv'd, preſerv'd, and disburs'd.

In *England*, the *Treaſury* is a Part of the Exchequer, by ſome call'd the *Lower Exchequer.* See Exchequer.

The Officers of his Majeſty's *Treaſury*, or the lower *Exchequer*, are, the Lord Treaſurer, a Chancellor, a Secretary, two Chamberlains, an Auditor, four Tellers, a Clerk of the Pells, Uſhers of the Receipt, a Tally-cutter, *&c.* See each Officer under his proper Article, Chancellor, Teller, Tally, *&c.*

At *Rome* under the Emperors, there were two Kinds of *Treaſuries*, the one call'd *Ærarium*, wherein the Monies deſtined to ſupport the Charges of the Government were kept; the other *Fiſcus*, wherein were preſerv'd thoſe intended for the particular Subſiſtence of the Emperor and his Court. In effect the Ærarium belong'd to the People, and the Fiſcus to the Prince. See Fiscus.

We have ſtill a Reſemblance of this Difference among us; but it is confounded in *France*, *&c.* where the King diſpoſes abſolutely of the public Treaſure, *&c.*

Lords of the Treasury. In lieu of one ſingle Director, and Adminiſtrator of his Majeſty's Revenues, under the Title of Lord *High Treaſurer*; it is frequently thought proper to put that Office in Commiſſion, *i. e.* to appoint ſeveral Perſons to diſcharge it, with equal Authority, under the Title of *Lords Commiſſioners of the Treaſury.* See Treasurer.

TREAT, in our old Law-books, from the *French*, *Traiter*, ſignifies as much as taken out, or withdrawn: Thus a Juror was challenged, becauſe he could not diſpend 40 *l.* and therefore was *Treat* by the Statute. *Old. Nat. Br.* or diſcharged.

TREATISE, Tractatus, a ſet Diſcourſe in Writing, on any Subject.

The *Treatiſe* is ſuppoſed more expreſs, formal and methodical than an Eſſay; but leſs ſo than a Syſtem. See Essay, *&c.*

TREATY, a Covenant between ſeveral Nations; or the ſeveral Articles or Conditions ſtipulated and agreed upon between Sovereign Powers. See Alliance.

There are *Treaties* of Peace, of Marriage, of Confederacy, of Neutrality, of Capitulation, and of Commerce and Navigation. See Peace, Confederacy, *&c.*

The celebrated *Treaties* are thoſe of *Nimeguen*, of *Munſter*, of the *Pyreneans*, of *Weſtphalia*, of *Riſwick*, of *Utrecht*, of *Hanover*, of *Vienna*, &c.

Treaties of Commerce are uſually follow'd by various Tarifs, to adjuſt the Duties of Exportation and Importation of Merchandizes into the reſpective Dominions of the contracting Power.

The laſt *Treaty* of Peace, Commerce, Navigation, *&c.* between *England* and *France*, was ſign'd at *Utrecht* the 1ſt of *April*, 1713, and conſiſts of 39 Articles, moſt whereof are regularly executed between the two Nations, only ſome of the more particular ones cannot yet be executed, by Reaſon of ſome Difficulties in the Tarifs. See Tarif.

Treaty, in Commerce, is a Convention or Contract agreed on, and the Clauſes and Conditions thereof regulated between two or more Perſons. The Word is underſtood of any thing that may enter into Commerce by way of Purchaſe, Sale, Exchange, *&c.* There are *Treaties* for the Buying of Merchandize, for the Freighting of Veſſels, for the Aſſurance of Goods, *&c.* See Policy.

TREBELLIANICA, or Trebellian *Fourth*, in the *Roman* Juriſprudence, a Right belonging to an Heir inſtituted by Teſtament. --- If the Teſtator, after appointing a full and general Heir, ſpent and diſpos'd of all his Effects in Legacies; or if he went *ultra Dodrantem*, beyond three Fourths thereof; in that Caſe, the Heir was allow'd to retrench and detain one fourth Part of the Legacies to his own Uſe.

In like Manner, if the Teſtator charg'd his Heir with a Feoffment of Truſt, and to reſtore the Succeſſion to another; in that Caſe, the Heir might likewiſe retain a Fourth of the whole Succeſſion, that the Quality of Heir might not be render'd wholly vain and fruitleſs.

TREBLE, in Muſic, the higheſt or acuteſt of the four Parts in Symphony, or that which is heard the cleareſt in a Concert. See Music, Gravity, and Symphony.

In the like Senſe we ſay, a *Treble* Violin, *Treble* Hautboy, *&c.* See Violin, *&c.*

In Vocal Muſic, the *Treble* is uſually committed to Boys and Girls.--- Their Part is the *Treble.* See Part.

The *Treble* is divided into *firſt* or *higheſt Treble*, and *ſecond* or *Baſe Treble.* --- The half *Treble* is the ſame with Counter-tenor. See Harmony.

TREBUCHET, Tribuch, Tribuchetum, a Tumbrel, or Cucking-ſtool. See Cucking-stool.

TREDECILE. See Aspect.

TREE, *Arbor*, the firſt and largeſt of the vegetable Kind, conſiſting of a ſingle Trunk, out of which ſpring forth Branches and Leaves. See Vegetable, *&c.*

Standards, or *Trees in full Air*, are ſuch as naturally riſe a great Height, and are not topp'd. --- For the Choice of *Trees* of this Kind to be tranſplanted out of a Nurſery, *Quinteney* recommends us to ſuch as are ſtraight, ſix Foot high at leaſt, and five or ſix Inches thick at Bottom, and three or four at Top; the Bark pretty ſmooth and ſhining, as a Token of their Youth, and of the good Soil they grew in. See TRANSPLANTING, NURSERY, *&c.*

Dwarf Trees, are ſuch as are kept low, and never ſuffer'd to have above half a Foot in Stem. --- Theſe are us'd to be kept vacant or hollow in the Middle, that the Branches ſpreading round about the Sides, may form a kind of round Bowl or Buſh. See DWARF.

Wall Trees, are thoſe whoſe Branches are ſtretch'd out, and nail'd againſt Walls. See WALL and ESPALIER.

For Dwarf and Wall *Trees*, ſuch are to be choſe out of the Nurſery for Tranſplantation as are ſtraight, and conſiſt of a ſingle Stem, and a ſingle Graft, rather than two or three Grafts in ſeveral Branches: Their Thickneſs at Bottom ſhould be two or three Inches.

Fruit Trees, are ſuch as bear *Fruit*. See FRUIT.

Timber Trees, are thoſe whoſe Trunks are tall and ſtraight, whereof Beams, Maſts, *&c.* are us'd to be made. See TIMBER.

Coniferous Trees, are thoſe whoſe Fruit is of a conical Figure, as the Pine, Fir, Larch, *&c.* See CONIFEROUS.

Theſe are alſo call'd *Reſiniferous*, by reaſon Coniferous *Trees* are generally cover'd with a Bark that abounds in Reſin.

Mr. *Ray*, and other Authors, ſpeak of ſeveral *Trees* of prodigious Bulk. --- The Jeſuit *d'Acoſta*, in his Hiſtory of the *Indies*, lib. iv. c. 3. mentions a hollow *Tree* at *Tlocochparaya*, three Leagues from *Gauxa* in *New Spain*, nine Fathom within-ſide near the Ground, and ſixteen without-ſide. He adds, that 'tis under this *Tree* the Barbarians aſſemble to perform their religious Ceremonies, dance round their Idols, *&c.* --- *Herrera* mentions another, which ſixteen Men, joining Hands, cannot fathom. --- F. *Kircher*, in his *Latium*, *p.* 50. affirms, he has ſeen a *Tree* near *Gonzano*, which would lodge a whole Family of 25 Perſons in its Cavity. The common People have a Tradition, that it was planted by *Auguſtus*.

In the *Indies* there are very large Foreſts conſiſting only of one ſingle *Tree*, whoſe Branches falling to the Ground, take Root, and put forth new *Trees*: The Fig *Tree* and Paretuvier are of this Kind.

M. *Lonvillier* mentions *Trees* in *Peru*, one Part of whoſe Branches produce Fruit one half the Year, and the other Part the other half.

In *China* is a *Tree* which bears Tallow, whereof that Nation make their Candles. See TALLOW.

There are two or three very remarkable Phænomena in the Growth of *Trees*, which have eſcap'd the Obſervations of the Naturaliſts of all Ages, except thoſe of our own: Theſe are the *Perpendicularity of their Trunks*, or Stems, to the Horizon; and the *Paralleliſm of their Tufts* to the Spot of Earth they grow on. An Account of each, ſee under the Articles PERPENDICULARITY and PARALLELISM.

For the *Planting*, *Tranſplanting*, *Semination*, *Pruning*, *Felling*, *Grafting*, &c. *of Trees*; ſee the reſpective Articles, PLANTING, TRANSPLANTING, SEMINATION, PRUNING, FELLING, GRAFTING.

Mr. *Ray* diſtinguiſhes the *Trees* and Shrubs of our native Growth in *England*, into, I. Such as have their Flower diſjoin'd, and remote from the Fruit. Theſe are,

1°. *Nuciferous* ones, or ſuch as bear Nuts; as the Walnut *Tree*, the Hazle-nut *Tree*, the Beach, the Cheſnut, and the common Oak. See NUT.

2°. *Coniferous* ones, or ſuch as bear a ſquammous or ſcaly Fruit, of a kind of Conical Figure, and of a woody or hard Subſtance, in which are many Seeds, which, when they are ripe, the Cone opens or gapes in all its ſeveral Cells or Partitions, and lets them drop out: Of this Kind are the *Scotch* Firs, Male and Female; the Pine, which in our Gardens is call'd the *Scotch* Fir; the common Alder *Tree*, and the Birch *Tree*.

3°. *Bacciferous* ones, or ſuch as bear Berries; as the Juniper and Yew *Tree*. See BACCIFEROUS.

4°. *Lanigerous* ones, or ſuch as bear a woolly, downy Subſtance; as the black, white, and trembling Poplar, Willows, and Oſiers of all Kinds.

5°. Such as bear their Seeds, (having an imperfect Flower) in leafy Membranes and Caſes; as the Horn-beam, or Hardbeam, call'd, in ſome Places, the Hornbeech.

II. Such as have their Fruits and Flowers contiguous; which are either with the Flower plac'd on the Top of the Fruit, or adhering to the Baſe or Bottom of the Fruit.

Of the former Kind, ſome are *Pomiferous*, as Apples and Pears; and ſome *Bacciferous*, as the Sorb or Service *Tree*, the White or Haw-thorn, the wild Roſe, Sweet-brier, Currants, the great Bilberry-buſh, Honey-ſuckle, Ivy, *&c.*

The latter Kind are either ſuch as have their Fruit moiſt and ſoft when ripe, as 1°. *Pruniferous* ones, whoſe Fruit is pretty large and ſoft, with a Stone in the Middle, as the black Thorn or Sloe *Tree*, the black and white Bullace *Tree*, the common wild Cherry, the black Cherry, *&c.*

2°. *Bacciferous* ones; as the Strawberry *Tree* in the Weſt of *Ireland*, Miſletoe, Water-Elder, the Dwarf, a large Laurel, the Viburnum or way-faring *Tree*, the Dogberry *Tree*, the Sea black Thorn, the Berry-bearing Elder, the Privet, Barberry, common Elder, the Holly, the Buckthorn, the Berry-bearing Heath, the Bramble, and the Spindle *Tree* or Prickwood.

Or ſuch as have their Fruit dry when ripe; as the Bladder-Nut *Tree*, the Box *Tree*, the common Elm and Aſh, the Maple, the Gaule or Sweet Willow, common Heath-Broom, Dyers Weed, Furze or Gorſe, the Lime *Tree*.

Diana's TREE, *Arbor Dianæ*, among the Chymiſts, is a kind of Vegetation of Mercury, which after a long Proceſs ſhoots out into Branches, with the Appearance of Leaves, and even Flowers. See DIANA's *Tree*.

Arbor Martis, or TREE *of Mars*, is another very ſingular Vegetation, firſt diſcover'd accidentally by the younger *Lemery*. See VEGETABLE.

The Manner of the Diſcovery was this: On a Diſſolution of Iron-filings in Spirit of Nitre, contain'd in a Glaſs, he pour'd Oil of Tartar per Deliquium: Upon this the Liquor ſoon ſwell'd very conſiderably, tho' with a very ſmall Fermentation; and was no ſooner at reſt, than there aroſe a Sort of Branches adhering to the Surface of the Glaſs, which continuing to grow, at length cover'd it all over.

The Form of the Branches was ſo perfect, that one might even diſcover a kind of Leaves and Flowers thereon; ſo that this Vegetation has as good a Title to the Appellation of *Arbor Martis*, as the former has to that of *Arbor Dianæ*. See *Hiſtoir. Acad. Royal. An.* 1706.

TREDDLE, or TREADLE, *Chalazza*, in Natural Hiſtory. See CHALAZZA, EGG, CICATRICULA, *&c.*

TREMOR, *Trembling*, in Medicine, a Diſeaſe nearly akin to a Convulſion, wherein there is ſomething of a convulſive Motion accompanying a voluntary or natural Motion. See CONVULSION.

A *Tremor* is frequently found to ariſe upon the more violent Paſſions, particularly, Anger, Gluttony, Venery, *&c.* but this is accidental and tranſitory.

A *Tremor* is ſometimes apt to degenerate into other worſe Diſeaſes, *viz.* Palſey, Apoplexy, Lethargy, Spaſmus, *&c.* In old Men it is incurable.

Tremor of the Heart. See PALPITATION.

The Medicine commonly made uſe of in *Tremors* and other nervous Diſtempers, by the Name of *Palſey Drops*, is no other than *compound Spirit of Lavender*. The moſt ſucceſsful Way of uſing it, is by taking 30 or 40 Drops twice or thrice a Day, dropt on Loaf Sugar or a little Bread. --- 'Tis ſuppos'd, that by this Way the moſt ſpirituous and efficacious Parts make their Way directly by the Nerves of the Fallat, *&c.* without undergoing the Courſe of the Circulation, as it is ſaid to do when taken in a liquid Vehicle.

TRENCH, a Ditch cut or dug in the Ground, to drain off the Waters in a Meadow, a Moraſs, or the like; or to divert the Courſe of a River.

Many of the Bogs in *Ireland* have been drain'd, and made good Ground, by only digging *Trenches* around them. See BOG.

TRENCHES, *in Fortification*, are Moats or Ditches, which the Beſiegers cut to approach more ſecurely to the Place attack'd; whence they are alſo call'd Lines of Approach. See DITCH, APPROACH, *&c.*

Theſe *Trenches* are of ſeveral Sorts, according to the Nature of the Soil; for if the adjacent Territory be rocky, the *Trench* is only an Elevation of Bavins, Gabions, Woollpacks, or Shouldrings of Earth, caſt round about the Place: But where the Ground may be eaſily open'd, the *Trench* is dug therein, and border'd with a Parapet on the Side of the Beſieg'd. See PARAPET, *&c.*

The Breadth of the *Trench* is from eight to ten Foot, and the Depth from ſix to ſeven; and 'tis cut in Talus, or aſlope. See TALUS.

The *Trenches* are to be carry'd on with winding Lines, in ſome Manner parallel to the Works of the Fortreſs, ſo as not to be in View of the Enemy, nor to expoſe its Length to their Shot, which they call *Enfilading*; for then it will be in Danger of being Enfiladed, or ſcoured by the Enemies Cannon: This carrying of the *Trenches* obliquely, they call carrying them by *Coudees* or *Traverſes*.

They call it *Opening the Trenches*, when the Beſiegers begin to work upon the Line of Approaches, which is uſually done in the Night, and ſometimes within Musket-ſhot, and ſometimes within half, or whole Cannon-ſhot of the Place, if there be no riſing Ground about it, the Garriſon ſtrong, and their Cannon well ſerv'd.

The Workmen that open the *Trenches*, are always ſupported by Bodies of Men againſt the Sallies of the Beſieg'd; and ſometimes thoſe Bodies lie between them and the Place, as alſo on their Right and Left.

The Pioneers ſometimes work on their Knees; and the Men that are to ſupport them lie flat on their Faces, in order to avoid the Enemies Shot; and the Pioneers are likewiſe uſually cover'd with Mantelets, or Sauciſſons.

They ſay, *Mount the Trenches*, that is, go upon Duty in them: To *Relieve the Trenches*, is to relieve ſuch as have been upon Duty there.

The Enemy is ſaid to have clear'd the *Trenches*, when they have driven away or kill'd the Soldiers who guarded them.

The *Tail of the Trench*, is the Place where it was begun; and the *Head* that to which it is carry'd. See HEAD.

To TRENCH *the Ballaſt*, is a Sea Phraſe, ſignifying to divide the Ballaſt into ſeveral *Trenches* in a Ship's Hold. See BALLAST.

TRENCHE, in Heraldry. See TRANCHE.

TRENCHING *Plough*, is an Inſtrument for cutting out the Sides of *Trenches* and Drains, or the Sides of Turf, *&c.* See PLOUGH.

TRENTAL, TRIGINTAL, or TRICENNAL, a *Romiſh* Office for the Dead, conſiſting of thirty Maſſes, rehearſ'd for thirty Days after the Party's Death: Thus call'd from the *Italian, trenta, triginta*, thirty.

'Tis mention'd *Anno primo Ed.* VI. *Et volo, & ordino, quod Executores mei ordinant ſeu ordinare faciant unum* Trental *pro ſalute Animæ meæ.*

TREPANUM, a Chirurgeon's Inſtrument, call'd alſo *Anabaptiſton* and *Modiolus*. See MODIOLUS, *&c.*

It is in Form of a Terebra or Wimble, only the Handle indented ſomewhat in Manner of a round Saw.

Its Uſe is for the Cure of Wounds, Contuſions, and Fractures of the Cranium, when they don't go beyond the ſecond Table; for by means hereof, an Amputation or Exfoliation is made of what Part, or Quantity of a Bone one pleaſes. See CRANIUM, FRACTURE, TREPANNING, *&c.*

It has uſually a ſharp Nail in the Middle of its Circumference, ſerving to keep it firm and ſteady during the Operation. — It ſhould alſo have a kind of Cope to riſe and fall as Occaſion requires, that it mayn't go deeper in the Bone than is neceſſary.

There are alſo two-pointed *Trepans*, others Triangular, Quadrangular, and Hexagonal, for the Cure of Caries's of the Bones. — There are alſo perforative *Trepans*, and exfoliative ones.

TREPANNING, in Chirurgery, the Operation of relieving Cuts, Contuſions, Corruptions, and Fractures in the Scull; by means of an Inſtrument call'd the *Trepanum*. See TREPANUM.

Trepanning is a very dangerous and difficult Operation; not to be uſ'd, unleſs when the Chips and Prominences of the Bones prick; when the upper Table is entire, but depreſs'd, and the lower broken; and when the extravaſated Blood would endanger the Perſon's being ſuffocated. See CRANIUM.

The Manner of *Trepanning*, or Opening the Scull, is thus: The Hairs being ſhaven off, the Skin is to be cut thro' to the Pericranium, avoiding, as much as poſſible, the Muſcles of the Temples, and the Sutures of the Scull: And for this Time the Wound is to be bound up, unleſs there be ſo little Blood ſpilt, that the Pericranium may at the ſame time be pull'd up from the Bone.

After a few Hours, ſtop the Patient's Ears, and take one of the Inſtruments call'd a *Male Trepanum*, or *Modiolus*; fix its Point in the Skull, but ſo far off the Fracture, that it touch it not, much leſs the Suture, with its Teeth; tho' ſome Surgeons don't mind to avoid the Sutures, but aſſure us, they have perforated them as ſucceſsfully as any other Part.

Then, holding the Inſtrument faſt with the left Hand, turn it round with the right, till you have cut a pretty deep Hole: After this take a Female *Trepanum*, which has no Point in the Middle, and turn it round as before: In the mean time, take away the Duſt or Chips that proceed from the Perforation, and moiſten the Inſtrument in Oil and Water to make it cool and ſlippery.

The Blood appearing, will ſhew you are now gone as deep as the ſecond Table, *i. e.* beyond the Skull, to the Dura Mater; in which Caſe you muſt preſs very gently, leſt that Membrane be unadviſedly hurt.

When the Bone begins to wag, put ſomething in between the Sides of the Wound; looſen it, and take it out with a Pair of Surgeons Pincers or Forceps.

After the Operation is over, the Part is to be waſh'd gently with weak red Wine; and proper Dreſſings apply'd thereon, as Honey of Roſes, Arceus Liniment, Oil of St. *John's* Wort, *&c.* — If the Dura Mater be corrupted, add, as Occaſion requires, Spirits of Wine, Tincture of Myrrh and Aloes, Venice Turpentine, Honey, Ægyptiacum, *&c.*

Mr. *Cheſelden* takes Notice, that the Sinus's and Spine in the Os Frontis, make it very dangerous, if not impracticable, to apply a Trepanum to the middle and lower Part of the Forehead.

TREPIDATION, in Medicine, a *Tremor*, or Trembling of the Members and Nerves of the Body. See TREMOR.

The firſt Symptom of Madneſs in Dogs, is a *Trepidation* of the Members, *&c.* See HYDROPHOBRA.

TREPIDATION, in the ancient Aſtronomy, is a Libration of the eighth Sphere; or a Motion which the *Ptolomaic* Syſtem attributes to the Firmament, to account for certain almoſt inſenſible Changes and Motions obſerv'd in the Axis of the World; by means whereof the Latitudes of the fix'd Stars come to be gradually chang'd, and the Ecliptic ſeems to approach reciprocally, firſt towards one Pole, then the other. See PTOLOMAIC, *&c.*

This Motion is alſo call'd the Motion of the firſt Libration. See LIBRATION.

TRESPASS, in Law, ſignifies any Tranſgreſſion of the Law, under Treaſon, Felony, or Miſpriſion of Treaſon. See TRANSGRESSION.

For a Lord of Parliament to depart from thence without the King's Licence, is neither Treaſon nor Felony, but *Treſpaſs. Staundford Pl. Cor.*

The Word *Treſpaſs*, however, is generally uſ'd either for that Wrong or Damage which is done to the King in his Foreſt, or by one private Man to another.

According to this Signification, it is of two Sorts; *Treſpaſs general*, otherwiſe call'd *Treſpaſs vi & armis*, where Force or Violence is uſ'd: And *Treſpaſs ſpecial*, otherwiſe call'd *Treſpaſs upon the Caſe*; which ſhould be that done without Force. — But the two are ſometimes confounded.

In an Action of *Treſpaſs*, the Plaintiff always ſues for Damages, or the Value of the Hurt done him by the Defendant. See DAMAGES.

There is alſo *Treſpaſs local* and *Treſpaſs tranſitory*.

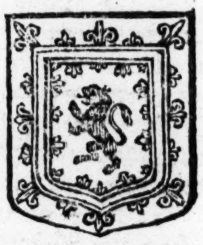
Treſpaſs local is that which is ſo annex'd to the Place certain, that if the Defendant join Iſſue upon a Place, and traverſe the Place mention'd in the Declaration, and aver it; it is enough to defeat the Action.

Treſpaſs tranſitory, is that which cannot be defeated by the Defendants Traverſe of the Place, becauſe the Place is not material. See TRAVERSE.

The Action of *Treſpaſs, quare clauſum fregit*, ought to be local.

TRESSURE, in Heraldry, a Diminutive of an *Orle*, uſually ſuppoſ'd to be half the Breadth thereof. See ORLE.

It is uſually born flory, and counterflory; and ſometimes double, as in the Figure adjoining; and ſometimes triple.



TRESTLE, of the *French Treſteau*, is explain'd by *Minſhew* to be three Stools, or a three-footed Stool; particularly a wooden Frame to bear up Tables, Scaffolds, *&c.*

TRET, in Commerce, an Allowance made for the Waſte or the Duſt that may be mix'd with any Commodity; which is always 4 Pounds in every 104 Pounds Weight. See TARE.

TREVE *de Dieu, Trevia, Treuvia, Treuga*, or *Truga Dei*, a Phraſe famous in the Hiſtories of the XIth Century; when the Diſorders and Licences of private Wars between particular Lords and Families, oblig'd the Biſhops of *France* to forbid ſuch Violences within certain Times, under Canonical Pains.

Thoſe Intervals they call'd *Treve de Dieu, q. d.* Truce of God, a Phraſe frequent in the Councils ſince that Time. See TRUCE.

The firſt Regulation of this Kind was in a Synod held in the Dioceſe of *Elno* in *Rouſſillon*, Anno 1027, where it was enacted, That throughout that County, no Perſon ſhould attack his Enemy from the Hour of Nones on *Saturday*, to that of Primes on *Monday*, that *Sunday* might have its proper Honour: That no Body ſhould attack, at any Time, a Religious or Prieſt walking unarm'd, nor any Perſon going to Church, or returning from the ſame, or walking with Women: That no Body ſhould attack a Church, or any Houſe within thirty Paces around it. — The whole under Penalty of Excommunication, which, at the End of three Months, was converted into an Anathema.

TRIA *prima*, among Chymiſts, the three Hypoſtatical Principles, *viz.* Salt, Sulphur, and Mercury; of which they hold all Bodies to be primarily made, and into which they are all held reſolvable by Fire. See PRINCIPLE and ELEMENT. See alſo SALT, SULPHUR, and MERCURY.

TRIAD, TRIAS, τριας, a Term ſometimes uſ'd for a Trinity. See TRIAS.

TRIAL, in Law, the Examination of any Cauſe, whether Civil or Criminal, according to the Laws of the Realm, before a proper Judge. See CAUSE and PROOF.

Of this there are divers Kinds: Matters of Fact, *e. gr.* being to be *try'd* by the Jurors; Matters of Law by the Juſtices; Matters of Record by the Record itſelf. See JURY, JUDGE, JUSTICE, RECORD, *&c.*

A Lord of Parliament indicted of Treaſon or Felony, ſhall be *try'd*, without any Oath, by his Peers, upon their Honours and Allegiance; but in Appeal, at the Suit of any Subject, they ſhall be *try'd per bonos & legales homines.* See PEER.

If ancient Demeſne be pleaded of a Manor, and deny'd, this ſhall be *try'd* by the Record of Doomſday. See Demesne and Doomsday.

Baſtardy, Excommunication, Lawfulneſs of Marriage, and other Eccleſiaſtical Matters, ſhall be *try'd* by the Biſhop's Certificate.

Before *Trial* in a Criminal Caſe, 'tis uſual to aſk the Criminal how he will be *try'd*? which was anciently a very pertinent Queſtion, tho' not ſo now; in regard there were formerly ſeveral Ways of *Trial, viz.* by *Battel*, *Ordeals*, and *Jury*. See Battel, Ordeal, and Jury.

When the Criminal anſwer'd by God, and his Country, it ſhew'd he made Choice to be *try'd* by a Jury. --- But there is now no other Way of *Trial*. This is alſo call'd *trying per pais, per patriam*.

For the ancient Manner of Trial *by Combat and great Aſſize*; See Combat, Duel, and Assize.

TRIANGLE, in Geometry, a Figure comprehended under three Lines, and which of Conſequence has three Angles. See Figure and Angle.

If the three Lines or Sides of the *Triangle* be all right, it is ſaid to be a *Plane* or *Rectilinear Triangle*. See Plane and Rectilinear.

If all the three Sides of the *Triangle* be equal, (as ABC Tab. Geometry, Fig. 68.) it is ſaid to be *equilateral*. See Equilateral.

If only two of the Sides of the *Triangle* be equal, (as in DEF, Fig. 69.) it is call'd an *Iſoſceles*, or *Equicrural Triangle*. See Isosceles, *&c.*

If all the Sides of the *Triangle* be unequal to each other, (as in ACB, Fig. 70.) the *Triangle* is ſaid to be *Scalenous*. See Scalenous.

If one of the Angles (as K of Fig. 71.) of a *Triangle* KML be a right Angle, the *Triangle* is ſaid to be *Rectangular*. See Rectangle.

If one of the Angles (as N Fig. 72.) be obtuſe, the *Triangle* is ſaid to be *Obtuſangular*, or *Amblygonous*. See Obtusangle.

If all the Angles be acute, (as in ACB, Fig. 68.) the *Triangle* is ſaid to be *Acutangular*, or *Oxygonous*. See Acutangle, *&c.*

If the three Lines of the *Triangle* be all curves, the *Triangle* is ſaid to be *Curvilinear*. See Curvilinear.

If ſome of the Sides be right, and others curve, the Angle is ſaid to be *Mixtilinear*. See Mixtilinear.

If the Sides be all Arches of great Circles of the Sphere, the *Triangle* is ſaid to be *Spherical*. See Spherical *Triangle*.

Conſtruction of TRIANGLES.

1°. Two Sides, as AB and AC, Fig. 73. being given in Numbers, or otherwiſe, together with the Quantity of the Angle intercepted between them, A; to conſtruct a *Triangle* --- Aſſume AB as a Baſe; and in A make the given Angle: On the other Leg ſet off the other given Line AC; laſtly, draw BC: Then will ABC be the *Triangle* requir'd.

Hence, two Sides with the intercepted Angle being determin'd, the whole *Triangle* is determin'd. --- Wherefore, if in two *Triangles* ACB and *acb*; $a=A$; and $ab:ac::AB:AC$, the *Triangles* are determin'd in the ſame Manner, and are therefore ſimilar; conſequently $c=C$ and $b=B$, $ab:bc::AB:BC$, *&c.*

2°. Three Sides, AB, BC, and CA, Fig. 70. being given, any two whereof, as AC, AB, taken together, are greater than the third, to conſtruct a *Triangle* --- Aſſume AB for a Baſe; and from A, with the Interval AC, deſcribe an Arch *y*; and from B, with the Interval BC, deſcribe another Arch *x*: Draw the right Lines AC and BC. Thus is the *Triangle* conſtructed.

Hence, as of any three given right Lines, only one *Triangle* can be conſtructed; by determining the three Sides, the whole *Triangle* is determin'd.

Wherefore if in two *Triangles* ACB and *acb*; $AC:AB::ac:ab$; $AC:CB::ac:bc$; the *Triangles* are determin'd in the ſame Manner, and conſequently are ſimilar, and therefore are mutually equiangular.

3°. A right Line, as AB, and two adjacent Angles A and B, which, taken together, are leſs than two right ones, being given; to deſcribe the *Triangle* ABC. --- On the given Line AB, make the two given Angles A and B: Continue the Sides AC and BC till they meet in C. Then will ABC be the *Triangle* requir'd.

Hence, one Side and two Angles being given, the whole *Triangle* is determin'd. --- Wherefore if in two *Triangles* $A=a$ and $B=b$, Fig. 73. the *Triangles* are determin'd after the ſame Manner, and therefore are ſimilar.

Menſuration of TRIANGLES.

To find the Area of a Triangle. -- Multiply the Baſe AB Fig. 74. by the Altitude C*d*; half the Product is the Area of the *Triangle* ABC.

Or thus: Multiply half the Baſe AB by the Altitude CD; or the whole Baſe by half the Altitude; the Product is the Area of the *Triangle*.

E. gr.	$AB=342$ $Cd=234$	$AB=342$ $\frac{1}{2}CD=117$	$\frac{1}{2}AB=171$ $Cd=234$
	1368 1026 684	2394 342 342	684 513 342
	2) 80028 (	40014	40014 Area
are as	40014		

Or, The Area of any *Triangle* is had by adding all the three Sides together, and taking half the Sum; and from that half Sum, ſubſtracting each Side ſeverally, and multiplying that half Sum and the Remainder continually into one another, and extracting the Square Root of the Product.

Hence, 1°. If between the Baſe, and half the Altitude; or between the Altitude, and half the Baſe, be found a mean Proportional; it will be the Side of a Square equal to the *Triangle*.

2°. If the Area of a *Triangle* be divided by half the Baſe, the Quotient is the Altitude.

General Properties of Plane TRIANGLES.

1°. If in two *Triangles* ABC and *abc*, Fig. 73. the Angle $A bc=a$; and the Sides $AB=ab$, and $AC=ac$; then will the Sides $BC=bc$, and $C=c$, the Angle $B=b$; and therefore the whole *Triangles* will be equal and ſimilar.

2°. If one Side of a *Triangle* ABC (Fig. 75.) be continu'd to D; the external Angle DAB will be greater than either of the internal oppoſite ones B or C.

3°. In every *Triangle*, the greateſt Side is oppos'd to the greateſt Angle, and the leaſt to the leaſt.

4°. In every *Triangle*, any two Sides taken together are greater than the third.

5°. If in two *Triangles*, the ſeveral Sides of the one be reſpectively equal to the Sides of the other, the Angles will likewiſe be reſpectively equal; and conſequently the whole *Triangles* equal and ſimilar.

6°. If any Side, as AC (Fig. 76.) of a *Triangle* ACB be continu'd to D, the external Angle DCA will be equal to the two internal oppoſite ones *y* and *z* taken together.

7°. In every *Triangle*, as ABC, the three Angles A, B, C, taken together, are equal to two right ones, or 180°.

Hence, 1°. If the *Triangle* be rectangular, as MKL, (Fig. 71.) the two oblique Angles M and L, taken together, make a right Angle, or 90°; and therefore are half Right, if the *Triangle* be Iſoſceles. --- 2°. If one Angle of a *Triangle* be oblique, the other two taken together are oblique likewiſe. --- 3°. In an Equilateral *Triangle*, each Angle is 60°. --- 4°. If one Angle of a *Triangle* be ſubſtracted from 180°. the Remainder is the Sum of the other two; and if the Sum of two be ſubſtracted from 180°, the Remainder is the third. --- 5°. If two Angles of one *Triangle* be equal to two of another, either together or ſeparately; the third of the one is likewiſe equal to the third of the other. --- 6°. Since in an Iſoſceles *Triangle* DFE (Fig. 69.) the Angles at the Baſe *y* and *v* are equal; if the Angle at the Vertex be ſubſtracted from 180°, and the Remainder be divided by 2, the Quotient is the Quantity of each of the equal Angles: In like Manner, if the double of one of the Angles at the Baſe *y* be ſubſtracted from 180, the Remainder is the Quantity of the Angle at the Vertex.

8°. If in two *Triangles*, ABC, and *abc*, Fig. 73. $AB=ab$, $A=a$ and $B=b$; then will $AC=ac$, $BC=bc$, $C=c$, and the *Triangle* ACB equal and ſimilar to the *Triangle* *ab'c*. --- Hence, if in two *Triangles*, ACB and *acb*, $A=a$, $B=b$ and $BC=bc$; then will $C=c$; conſequently $AC=ac$, $AB=ab$; and the *Triangle* $ACB=acb$.

9°. If in a *Triangle* DFE the Angles at the Baſe *y* and *v*, Fig. 69. be equal, the *Triangle* is Iſoſceles: Conſequently, if the three Angles be equal, it is equilateral.

10°. If in a *Triangle* ABC, (Fig. 77.) a right Line DE be drawn parallel to the Baſe; then will $BA:BC::BD:BE::AD:EC$. And $BA:AC::BD:DE$. Conſequently the *Triangle* BDE ſimilar to BAC.

11°. Every *Triangle* is inſcribable in a Circle. See Circle.

12°. The Side of an equilateral *Triangle*, inſcrib'd in a Circle, is in Power triple of the Radius. See Radius.

13°. *Triangles* on the ſame Baſe, and having the ſame Height, that is between the ſame parallel Lines, are equal. See Parallel.

14°. Every *Triangle*, as CFD, Fig. 41. is one half of a Parallelogram ACDB on the ſame, or an equal Baſe CD, and of the ſame Altitude, or between the ſame Parallels: Or a *Triangle* is equal to a Parallelogram upon the ſame Baſe, but half the Altitude; or half the Baſe, and the ſame Altitude. See Parallelogram.

15°. In every *Triangle*, as well plane as ſpherical, the Sines of the Sides, are proportional to the Sines of the oppoſite Angles.

16°. In every plane *Triangle*, as the Sum of two Sides is to their Difference, ſo is the Tangent of half the Sum of the oppoſite Angles, to the Tangent of half their Difference. See TANGENT.

17°. If a Perpendicular be let fall upon the Baſe of an oblique angled *Triangle*; the Difference of the Squares of the Sides is equal to double the Rectangle under the Baſe, and the Diſtance of the Perpendicular from the Middle of the Baſe.

18°. The Sides of a *Triangle* are cut proportionably, by a Line drawn parallel to the Baſe.

19°. A whole *Triangle*, is to a *Triangle* cut off by a right Line, as the Rectangle under the cut Sides, is to the Rectangle of the other two Sides.

20°. In a right lined *Triangle*, a Line drawn from the right Angle at the Top perpendicular to the Hypothenuſe, divides the *Triangle* into two other right lined *Triangles*, which are ſimilar to the firſt *Triangle*, and to one another.

21°. In every right angled *Triangle*, the Square of the Hypothenuſe is equal to the Sum of the Squares of the other two Sides. See HYPOTHENUSE.

22°. If any Angle of a *Triangle* be biſſected, the biſſecting Line will divide the oppoſite Side, in the ſame Proportion as the Legs of the Angle are to one another. See BISSECTION.

23°. If the vertical Angle of any *Triangle* be biſſected, the Difference of the Rectangles, made by the Sides and the Segments of the Baſe, is equal to the Square of the Line that biſſects the Angle.

24°. If a right Line BE, Fig. 78. biſſect an Angle ABC of a *Triangle*, the Square of the ſaid Line $BE = AB + BC - AE + EC$. *Newt. Arith. Univerſ.*

Properties of Spherical Triangles. See SPHERICAL *Triangle.*

To divide a Triangle *into any given Number of equal Parts*: Divide the Baſe CD (Fig. 77.) into as many equal Parts as the Figure is to be divided into; and draw the Lines A 1, A 2, &c.

TRIANGLE, in Trigonometry.—The Solution or Analyſis of *Triangles*, is the Buſineſs of *Trigonometry*. See TRIGONOMETRY.

The ſeveral Caſes thereof are reducible to the following Problems.

Solution of plane TRIANGLES.

1°. *Two Angles* A *and* C *(Tab. Trigonometry, Fig. 27.) being given, together with the Side* AB *oppoſite to one of them; to find the Side* BC *oppoſite to the other.*

The Rule or Canon is this: As the Sine of the Angle C, is to the given Side AB, oppoſite to the ſame; ſo is the Sine of the other Angle A, to the Side requir'd. The Side BC, therefore, is commodiouſly found by the Logarithms, from the Rule for finding a fourth Proportional to 3 Numbers given. See LOGARITHM.

For an Example: Suppoſe C = 48° 35′, A = 57° 28′, AB = 74. The Operation will ſtand thus:

Log. of Sine of C	9.8750142
Log. of AB	1.8692317
Log. of Sine of A	9.9258681
Sum of Log. of AB and of Sine of A	11.7950998
Log. of BC	1.9200956

The Number correſponding to which, in the Table of Logarithms, is 83, the Quantity of the Side ſought.

2°. *Two Sides* AB *and* BC, *together with the Angle* C, *oppoſite to one of them given; to find the other Angle* A *and* B.

The Rule is this: As one Side AB is to the Sine of the given Angle oppoſite thereto C; ſo is the other Side BC, to the Sine of the Angle requir'd oppoſite thereto.

E. gr. Suppoſe AB = 94, BC = 69, C = 7° 15′.

Log. of AB	1.9731279
Log. of Sine of C	9.9788175
Log. of BC	1.8388491
Sum of Log. of Sine of C and of BC	11.8176666
Log. of Sine of A	9.9444387

The Number correſponding to which, in the Table of Logarithms, is 61° 37′. Now the given Angle C being 72° 13′, the Sum of the two; 133° 52′ ſubſtracted from 180, the Sum of the three, gives 46° 8′ for the other Angle ſought B.

In like Manner, ſuppoſe, in a right angled *Triangle*, (Fig. 28.) that beſide the right Angle, A, is given the Hypothenuſe BC, 49, and the Cathetus AC, 36, to find the Angle B; Then will the Operation ſtand thus:

Log. of BC	1.6901961
Log. of whole Sine	10.0000000
Log. of AC	1.5563025
Log. of Sine of B	9.8661064

The correſponding Number to which, in the Table of Logarithms, is 47° 16′; conſequently, C = 42° 44′.

3°. *Two Sides* BA *and* AC, *together with the included Angle* A *being given; to find the two remaining Angles.*

I. If the *Triangle* ABC be rectangular; take one of the Sides including the Right Angle, as AB, for Radius; then will CA be the Tangent of the oppoſite Angle B: The Rule then is;

As one Leg AB, *is to the other* AC; *ſo is the whole Sine to the Tangent of the Angle* B.

E. gr. Suppoſe BA 79, and AC 74;

Log. of BA	18976271
Log. of AC	17323938
Log. of whole Sine	100000000
Log. of Tang. of B	98347667

The correſponding Number to which, in the Table of Logarithms, is 34° 21′; conſequently the Angle C is 55° 39′.

II. If the *Triangle* be oblique, the Rule is; *As the Sum of the given Sides* AB *and* AC, *Fig. 29. is to this Difference; ſo is the Tangent of Half the Sum of the ſought Angles* C *and* B, *to the Tangent of Half the Difference.* Adding, therefore, the Half Difference, to the Half Sum; the Aggregate will be the greater Angle C; and ſubtracting the Half Difference from the Half Sum; the Remainder is the leſs Angle B.

E. gr. Suppoſe AB = 75, AC 58, A 108° 24′; Then will

AB 75 AB 75 A+B+C 179° 60′
AC 58 AC 53 A 108 24
Sum 133 Differ. 17 B+C 71 36
$\frac{B+C}{\frac{1}{2}}$ 35 48

Log. of AB + AC	2.1238516
Log. of AB − AC	1.2304489
Log. of Tang. $\frac{B+C}{\frac{1}{2}}$	9.8580694
Sum of Log.	12.0885183
L. of Tang. $\frac{C-B}{\frac{1}{2}}$	8.9646667

The correſponding Number to which is 5° 16′.

$\frac{B+C}{\frac{1}{2}} = 35° 48′$ $\frac{B+C}{\frac{1}{2}} = 35° 48′$
$\frac{C-B}{\frac{1}{2}} = 516$ $\frac{C-B}{\frac{1}{2}} = 5° 16′$
C = 41 4 B = 30 32

4° *The Three Sides*, AB, BC *and* CA *(Fig. 30.) being given, to find the Angle* A, B *and* C.

From the Vertex of the Angle A, with the Extent of the leaſt Side AB, deſcribe a Circle: Then will CD be the Sum of the Legs AC and AB; and CF their Difference. The Rule then is,

As the Baſe BC is to the Sum of the Legs CD; ſo is the Difference of the Legs CF, to the Segment of the Baſe CG. —— This Segment, thus found, being ſubtracted from the Baſe CB, the Remainder is the Chord GB. Then, from A to the Chord GB let fall the Perpendicular AE; thus will $BE = EG = \frac{1}{2} GB$.

Thus, in a rectangled *Triangle*, AEB, the Sides AB and BE being given; Or, in an obliquangled *Triangle*, ACE the Sides AC and CE being given: the Angles B and A are found.

E. gr. Suppoſe AB = 36, AC = 45, BC = 40.

AC = 45 AC = 45
AB 36 AB = 36
AC+AB = 81 FC = 9

Log. of BC =	1. 6020600
Log. of AC + AB	1. 9084850
Log. of FC =	0. 9542425
Sum of Log. =	2. 8627275
Log. of CG =	1. 2606675

The correſponding Number to which, in the Tables, is 18.

BC = 4000	EG = 1089
CG = 1822	CG = 1822
BG = 2178	CE = 2911
BE = 1089	

Log. of A B =	3.5563025
Log. of whole Sine =	10.0000000
Log. of E B =	3.0370279

Log. of Sine of EAC = 9. 8108297; to which the correſpondent Number in the Tables is 40° 18′; therefore A CE 49° 42′; and C A B 57° 54′.

Solution of right angled ſpherical TRIANGLES, *by the common Rules.*

I. *In a right angled ſpherical* Triangle, *any two Parts beſide the right Angle, being given, to find any of the reſt.*

1° Conſider whether the Parts, which come to the Queſtion, be conjunct or disjunct (See PART.) If the disjunct be oppoſite to each other; as, if the Hypothenuſe B C, and the Angle C, Fig. 31. be given for the oppoſite Leg A B; then the Rule is;

As the whole Sine is to the Sine of the Hypothenuſe B C; *ſo is the Sine of the Angle* C, *to the Sine of the oppoſite Leg* A B.

2° If the disjunct Parts be not oppoſite to each other; as, if A B, and the adjacent Angle B be given for the oppoſite Angle C; the Sides of the *Triangle* are to be continued one Way, 'till they become Quadrants, that you may thus have a new *Triangle*, wherein the Parts that come into the Queſtion, are mutually oppoſite to each other; as, in our Caſe, the *Triangle* E B F, wherein we have given B F, the Complement of the Leg A B, and the Angle B for E F, the Complement of the Angle C. The Rule then is;

As the whole Sine is to the Sine of B F; *ſo is the Sine of the Angle* B *to the Sine of* E F, *or Co-ſine of* C.

3° If the Hypothenuſe be not among the conjunct Parts, as if the Legs A B and A C be given for an Angle oppoſite to one of them; the Rule is,

As the Sine of A C *is to the whole Sine; ſo is the Tangent of* A B, *to the Tangent of* O.

4° But if the Hypothenuſe be found among the conjunct Parts; as if the Hypothenuſe B C, and the Angle C be given to find the adjacent Side A C: The Sides of the *Triangle* are to be continued one way, till they become Quadrants, that we may have a new *Triangle*, wherein the Hypothenuſe is not among the Parts that come into the Queſtion; *e.gr.* in our Caſe, the *Triangle* E B F, wherein are given the Complement E B of the Hypothenuſe B C, and the Complement of the Angle C, and the Angle F the Complement of the Leg A C. Since then, in the *Triangle* E F B, the Hypothenuſe does not come in the Queſtion; the Rule is as before.

As the Sine of E F, *or Co-ſine of* C, *is to the whole Sine; ſo is the Tangent of* E B, *or Co-tangent of* B C, *to the Tangent of* F, *or Co-tangent of* A C.

5° When the Sides of a *Triangle* are to be continued, 'tis the ſame thing, which way ſoever they be produced, provided no acute Angle come into the Queſtion; otherwiſe, the Sides are to be continued through the other oblique one. If both be in the Connection, the Sides are to be continued through that adjacent to the Side in Queſtion.

By this means, a *Triangle* is always obtained, wherein the Thing required is found, either by the Rule of Sines or Tangents.

Solution of right angled ſpherical Triangles, *by one catholick Rule.*

Conſider, as before, whether the Parts that come in Queſtion be conjunct or disjunct. See PART.

If either one, or both the Sides, including the right Angle, come into the Queſtion; for it, among the Data, write its Complement to a Quadrant. ---- Since, then, by the catholic Rule, deliver'd under the Article *Trigonometry*; the whole Sine, with the Sine Complement of the middle Part, is equal to the Sines of the disjunct Parts, and the Co-tangents of the conjunct Parts; from the Sum of thoſe Data, ſubtract the third Datum: the Remainder will be ſome Sine or Tangent, the Side or Angle correſponding to which, in the artificial Canon of *Triangles*, is the Side or Angle ſought.

This univerſal Rule being of great Service in Trigonometry, we ſhall apply it to the various Caſes thereof, and illuſtrate it with Examples; which Examples, in the Caſe of ſeparate Parts, will at the ſame time illuſtrate the common Method; but in the Caſe of contiguous Parts, admit of other Solutions.

1° *Given the Hypothenuſe* B C 60° *and the Angle* C 23° 30′, *to find the oppoſite Leg* A B (*Fig.* 32.)

Since A B is the middle Part, C and B C are disjunct (See PART); the whole Sine, with the Co-ſine of the Complement A B, *i. e.* with the Sine itſelf of A B, is equal to the Sines of C and B C.

Therefore, from Sine of C	96006997
Sine of B C	99375306
Sum	195382303
Subtract whole Sine	100000000

Remain Sine of A B 95382303. The correſponding Number to which, in the Canon, is 20° 12′ 6″.

2° *Given the Hypothenuſe* B C 60° *and the Leg* A B 20° 12′ 6″ *to find the oppoſite Angle* C.

'Tis evident from the preceding Problem, that from the Sum of the whole Sine, and the Sine of the Leg A B, the Sine of the Hypothenuſe B C is to be ſubtracted; the Remainder is the Sine of the Angle C. The Example, therefore, of the former Caſe is eaſily converted into an Example of this.

3° *Given the Leg* A B 20° 12′ 6″ *and the oppoſite Angle* C 23° 30′, *to find the Hypothenuſe* B C.

'Tis evident from the firſt Caſe, that from the Sum of the whole Sine, and the Sine of A B is to be ſubtracted the Sine of the Angle C, and the Remainder is the Sine of the Hypothenuſe B C.

4° *Given the Hypothenuſe* B C 60°, *and one Leg* A B 20° 12′ 16″ *to find the other Leg.*

Since B C is the mean Part, and A B and A C are disjunct Parts, the whole Sine, with the Co-ſine of the Hypothenuſe B C, are equal to the Sines of the Complements; *i. e.* to the Co-ſines of the Legs A B and A C.

Therefore from whole Sine	100000000
Co-ſine of B C	96989700
Sum	196989700
Subtract Co-ſine of A B	99724279

Remains Co-ſine of A C 97265421. The Correſponding Number to which, in the Canon, is 32° 11′ 34″; therefore A C 57° 48′ 26″.

5° *Given the Legs* A C 57° 48′ 26″ *and* A B 20° 12′ 6″, *to find the Hypothenuſe* B C.

'Tis evident from the preceding Caſe, that the whole Sine is to be ſubtracted from the Sum of the Co-ſines of the Legs A B and A C; the Remainder is the Co-ſine of the Hypothenuſe BC. The Example, therefore, of the preceding Caſe is eaſily applied to this.

6° *Given the Leg* A C 50° 48′ 26″ *and the adjacent Angle* C 23° 30′ *to find the oppoſite Angle* B.

Since B is the middle Part, and A and C disjunct Parts; the whole Sine, with the Co-ſine of B, is equal to the Sine of C, and the Sine of the Complement, *i. e.* to the Co-ſine of A C;

Therefore from Sine of C	96006997
Co-ſine A C	97265421
Sum	193272418
Subtract whole Sine	100000000

Remains Co-ſine of B 93272418. The Number correſponding to which, in the Canon, is 12° 15′ 56″; therefore B 77° 44′ 4″.

7° *Given the Leg* A C 57° 48′ 26″ *and the oppoſite Angle* B 77° 44′ 4″ *to find the adjacent Angle* C.

'Tis evident from the preceding Caſe, that the Co-ſine of A C is to be ſubtracted from the Sum of the whole Sine, and the Co-ſine of B; the Remainder is the Sine of C. The former Example, therefore, is eaſily accommodated to the preſent Caſe.

8° *Given the oblique Angles* B 77° 44′ 4″ *and* C 23° 30′, *to find the Leg adjacent to the other*, A C.

From Problem the Sixth, 'tis evident that the Sine of C is to be ſubtracted from the Sum of the whole Sine, and the Co-ſine of B; and that the Remainder is the Co-ſine of A C. The Example of the ſixth Problem is eaſily applied to this.

9° *Given the Leg* A C 57° 48′ 26″ *and the adjacent Angle* C 23° 30′, *to find the oppoſite Leg* A B.

Since A C is the mean Part, and C and A B conjunct Parts; the whole Sine, with the Sine of A C, is equal to the Co-tangent of C, and the Tangent of A B.

Therefore from whole Sine	100000000
Sine of A C	99275039
Sum	199275039
Subtract Co-tangent of C	103616981

Remains Tangent of A B 95658058. To which the correſponding Number in the Canon, is 20° 12′ 6″.

10° *Given the Leg* A B 20° 12′ 6″ *and the oppoſite Angle* C 23° 30′, *to find the adjacent Leg* A C.

From the Sum of the Co-tangent of C, and the Tangent of A B, ſubtract the whole Sine; the Remainder is the Sine of A C.

11° *Given the Legs* A B 20° 12′ 6″, *and* A C 57° 48′ 26″, *to find the Angle* C, *oppoſite to one of them.*

From the Sum of the whole Sine, and Sine A C, ſubtract the Tangent of B A; the Remainder is the Co-tangent of C.

12° *Given the Hypothenuſe* B C 60°, *and the oblique Angle* C 23° 30′, *to find the adjacent Leg* A C.

Since C is the middle Part, and B C and A C conjoynt Parts; the whole Sine, with the Co-ſine of C, will be equal to the Co-tangent of A C.

Therefore from whole Sine	100000000
Co-ſine of C	99623978
Sum	199623978
Subtract Co-tangent of B C	97614394

Remains Tangent of A C 102009584. The Number correſponding to which, in the Tables, is 57° 48′ 26″.

13° *Given the Leg* A C 57° 48′ 26″, *and the adjacent Angle* C 23° 30′, *to find the Hypothenuſe* B C.

From the Sum of the whole Sine, and the Co-ſine of C, ſubtract the Tangent of A C, the Remainder is the Co-tangent of B C.

14° *Given the Hypothenuſe* B C 60°, *and the Leg* A C 57° 48′ 26″, *to find the adjacent Angle* C.

From the Sum of the Co-tangent of B C, and Tangent of A C, ſubtract the whole Sine; the Remainder is the Co-ſine of C.

15° *Given the Hypothenuſe* B C 60°, *and one Angle* C 23° 30′, *to find the other*, B.

Since B C is the middle Part, and B and C disjunct Parts, the whole Sine, and the Co-ſine of B C will be equal to the Co-tangents of B and C.

Therefore from whole Sine	100000000
Co-ſine of B C	96989700
Sum	196989700
Subtract Co-tangent of C	10366981

Remains Co-tangent of B 93372719; The correſponding Number to which, in the Canon, is 12° 15′ 56″; therefore B is 77° 44′ 4″.

16° *Given the oblique Angles* B 77° 44′ 4″ *and* C 23° 30′, *to find the Hypothenuſe.*

From the Sum of the Co-tangents of C and B, ſubtract the whole Sine; the Remainder is the Co-ſine of B C.

Solution of oblique-angled ſpherical TRIANGLES.

1° *In an oblique-angled ſpherical* Triangle A B C, (*Tab. Trigonometry Fig.* 32.) *two Sides* A B *and* B C *being given, together with an Angle* A, *oppoſite to one of them, to find the other* C: The Rule is,

As Sine of the Side B C, is to the Sine of the oppoſite Angle A; ſo is the Sine of the Side B A, to the Sine of the oppoſite Angle C,

Suppoſe, for Example, B C 39° 29′; A 43° 20′; B A 66° 45′; then will

Sine of B C	98033572
Sine of A	983647
Sine of B A	99632168
	197996939

Sine of C 99963367. The correſponding Number to which, in the Tables, is 82° 34′ 7″.

2°. *Given two Angles* C 82° 34′ 7″, *and* A 43° 20′, *together with the Side* AB 60° 45″, *oppoſite to one of them* C; *to find the Side* B C *oppoſite to the other of them* A. Say,

As Sine of Angle C, is to Sine of the oppoſite Side A B; ſo is Sine of Angle A, to Sine of oppoſite Side B C. --- The former Example may ſuffice for the preſent Caſe.

3°. *Given two Sides* A B 66° 45′, *and* B C 39° 29′, *together with an Angle oppoſite to one of them* A 45° 20′; *to find the Angle included by them* B.

Suppoſe the Angle C to be acute, ſince the other, A, is alſo acute; the Perpendicular B E falls within the *Triangle.* In the rectangled *Triangle* A B E, therefore, from the given Angle A, and Side A B, find the Angle A B E. Since B E is aſſum'd as a *lateral* Part in the *Triangle* A E B, the Angle E B C is the middle Part, and the Side B C a conjoynt Part: The Coſine of the Angle EBC will be found by ſubtracting the Co-tangent of A B from the Sum of the Coſine of the Angle A B E, and the Co-tangent of B C. If then the Angles A B E and E B C be added together; or, in caſe the Perpendicular fall without the *Triangle*, be ſubtracted from each other, you will have the Angle requir'd B.

E.gr.	whole Sine	10000000
	Coſine of A B	95963154
	Sum	195963154
	Cotang. of A	100252805

Cotang. of A B 95710349. The Number correſponding to which, in the Tables, is 20° 25′ 35″. A B therefore is 69° 34′ 25″.

Coſine of A B E	95428300
Cotang. of B C	100141529
Sum	196269829
Cotang. of B	96330085

Coſine of E B C 9938544. The Number correſponding to which, in the Tables, is 80° 26′. Therefore A B C is 79° 9′ 59″.

4°. *Given two Angles* A 43° 20′, *and* B 79° 9′ 59″, *together with the adjacent Side* A B 66° 45′; *to find the Side* B C *oppoſite to one of them.*

From one of the given Angles B, let fall a Perpendicular E B, to the unknown Side A C; and, in the rectangled *Triangle* A B E, from the given Angle A, and Hypothenuſe A B, find the Angle A B E; which ſubtracted from the Angle A B C, leaves the Angle E B C. But if the Perpendicular ſhould fall without the *Triangle*, the Angle A B C ſhould have been ſubtracted from A B E. Since as the Perpendicular B E is taken for one of the lateral Parts, the middle Part in the *Triangle* A B E, is the Angle E, and the conjoynt Part B C; the Co-tangent of the Side B C is found by ſubtracting the Coſine of E B A, from the Sum of the Co-tangent of A B, and the Coſine of E B C. ---The Example of the preceding Caſe is eaſily apply'd to this.

5°. *Given two Sides* A B 66° 45′, *and* B C 39° 29′, *with the Angle* A *oppoſite to one of them*, 43° 20′; *to find the third Side* A C.

Letting fall, as before, the Perpendicular B E; in the rectangled *Triangle* A B E, from the given Angle and Hypothenuſe A B, find the Side A E. Since, aſſuming B E for a lateral Part in the *Triangle* A E B, A B is the middle Part, and A E the ſeparate Part; and in the *Triangle* B E C, B C, is the mean Part, and E C a disjunct Part; the Coſine of E C is found by ſubtracting the Coſine of A B from the Sum of the Coſines of A E and C B. If then the Segments A E and E C be added together; or in caſe the Perpendicular fall without the *Triangle*, be ſubtracted from each other; the Side A C will be had.

6°. *Given two Sides* A C 65° 30′ 46″, *and* A B 66° 45′, *together with the included Angle* A; *to find the third Side* B C *oppoſite thereto.*

Letting fall the Perpendicular B E, find, in the rectangled *Triangle*, the Segment A E; which ſubtracted from A C, leaves E C. If the Perpendicular fall without the *Triangle*, A C is to be ſubtracted from A E; ſince by aſſuming the Perpendicular B E for a lateral Part in the *Triangle* A E B, A B becomes a middle Part, and A E a ſeparate Part: In the *Triangle* E B C, C B is the middle Part, E C a ſeparate Part: The Coſine of B C is found, by ſubtracting the Coſine of A E from the Sum of the Coſines of A B and E C.

7°. *Given two Angles* A 43° 20′, *and* B 79° 9′ 59″, *together with the Side* C B 39° 29′, *oppoſite to one of them*; *to find the Side* A B *adjacent to both.*

Letting fall the Perpendicular C D from the unknown Angle C, to the oppoſite Side A B; and that falling within the *Triangle*, from the given Angle B, and the Hypothenuſe B C, ſeek in the rectangled *Triangle* B C D for the Segment B D. Since aſſuming the Perpendicular C D for a lateral Part in the *Triangle* C D B, D B is the mean Part, and the Angle B a conjunct Part; and in the *Triangle* C D A, A D is the middle Part, and the Angle A a conjunct Part: The Sine of the Segment A D is found, by ſubtracting the Co-tangent of the Angle B from the Sum of the Sine of D B, and the Co-tangent of the Angle A. If then the Segments A D and D B be added, or in caſe the Perpendicular fall without the *Triangle*, be ſubtracted from each other, the Reſult will be Side A B requir'd.

8°. *Given two Sides* A B 66° 45′, *and* B C 39° 29′, *with the included Angle* 79° 9′ 59″; *to find the Angle* A *oppoſite to one of them.*

Letting fall the Perpendicular C D, find the Segment D B, as in the preceding Problem. This ſubtracted from A B leaves A D. If the Perpendicular fall without the *Triangle*, A B is to be added to D B; ſince by aſſuming the Perpendicular C D for a lateral Part in the *Triangle* CDB, B D is the middle Part, and the Angle B a conjoynt Part; and in the *Triangle* C D A, A D is the middle Part, and the Angle A a conjoynt Part: The Co-tangent of the Angle A is found by ſubtracting the Sine of D B from the Sum of the Co-tangent of the Angle B, and of the Sine of A D.

9°. *Given two Angles* A 43° 20′, *and* B 79° 9′ 59″, *together with the adjacent Side* A B 66° 45′; *to find the Angle* C *oppoſite to the ſame.*

From one of the given Angles B, letting fall the Perpendicular B E, to the oppoſite Side A C; in the rectangled *Triangle* A B E, from the given Angle A, and Hypothenuſe A B, we find the Angle A B E; which ſubtracted from A B C, leaves the Angle E B C. In caſe the Perpendicular fall without the *Triangle*, A B C is to be ſubtracted from A B E; ſince by aſſuming B E for a lateral Part in the *Triangle* C E B, the Angle C is the middle Part, and the Angle C B E the disjoynt Part; and in the *Triangle* A B E, the Angle A is the middle Part, and the Angle A B E the disjoynt Part: The Coſine of the Angle C is found by ſubtracting the Sine of the Angle ABE, from the Sum of the Coſine of the Angle A, and of the Coſine of E B C.

10°. *Given two Angles* A 43° 20', *and* C 82° 34', *together with a Side* B A 66° 45', *oppoſite to one of them; to find the other Angle.*

From the ſought Angle B, let fall a Perpendicular B E; and in the right angled *Triangle* A E B, from the given Angle A, and Hypothenuſe B A, find the Angle A B E; ſince aſſuming the Perpendicular E B for a lateral Part in the *Triangle* E C B, the Angle E is the middle Part, and the Angle C B E a disjunct Part; and in the *Triangle* A B E, the Angle A is the middle Part, and the Angle A B E a disjunct Part: The Sine of the Angle E B C is found by ſubtracting the Coſine of A from the Sum of the Coſine of C, and of the Sine of A B E. If then A B E and E B C be added, or in caſe the Perpendicular fall without the *Triangle*, be ſubtracted from each other, the Reſult will be Angle requir'd A B C.

11°. *Given the three Sides; to find an Angle oppoſite to one of them.*

I. If one Side A C, Fig. 16. be a Quadrant, and the Leg A B leſs than a Quadrant, find the Angle A. Continue A B to F, till A F become equal to a Quadrant; and from the Pole A draw the Arch C F, to cut the Arch A F at right Angles in F. Since in the rectangled *Triangle* C B F, we have given the Hypothenuſe B C, and the Side A F, or its Complement A B to a Quadrant; we ſhall find the Perpendicular C F C, which being the Meaſure of the Angle C A B, that Angle is found of courſe.

II. If one Side A C be a Quadrant, and the other A B greater than a Quadrant, ſeek again the Angle A: From A B ſubtract the Quadrant A D, and from the Pole A deſcribe the Arch C D, cutting the Arch C D at right Angles in D. Since in the rectangled *Triangle* C D B, the Hypothenuſe B C, and Side D B, or Exceſs of the Side A B beyond a Quadrant, is given, the Perpendicular C D will be found as before, which is the Meaſure of the Angle A requir'd.

III. If the *Triangle* be Iſoſceles, and A C = C F, and the Angle A C F be requir'd; biſſect A F in D, and thro' D and C draw the Arch D C. Since C D is perpendicular to A F, the Angles A and F, and A C D and D C F are equal; from the Hypothenuſe A C, and Leg A D, given in the rectangled *Triangle* A C D, we find the Angle ACD; the double whereof is the Angle requir'd ACF: and from the ſame Data may the Angle A or F be found.

IV. If the *Triangle* be Scalenous, and the Angle A, Fig. 32. be requir'd; from C let fall the Perpendicular C D, and ſeek the Semi-difference of the Segments A D and D B, by ſaying, As the Tangent of half the Baſe A B, is to the Tangent of half the Sum of the Legs A C and C B; ſo is the Tangent of their Semi-difference, to the Tangent of the Semi-difference of the Segments A D and D B: Add then the Semi-difference of the Segments to the half Baſe, to find the greater Segment; and ſubtract the ſame from the ſame for the leſs. Thus having in the rectangled *Triangle* C A D, the Hypothenuſe AC, and the Side A D, the Angle A is found thence. After the ſame Manner is B found in the other C D B, from C D and D B given.

12°. *Given the three Angles* A B *and* C, *to find any of the Sides.*

Since in lieu of the given *Triangle*, another may be aſſum'd, whoſe Sides are equal to the given Angles, and the Angles to the given Sides; this Problem is reſolv'd after the ſame Manner as the preceding one.

TRIANGLE, TRIANGULUM, in Aſtronomy, a Name common to two Conſtellations; the one in the Northern Hemiſphere, call'd ſimply *Triangulum*, or *Triangulum Cœleſte*; the other in the Southern Hemiſphere, call'd *Triangulum Auſtrale*. See CONSTELLATION.

The Stars in the Northern *Triangle*, in *Ptolomy*'s Catalogue are 4; in *Tycho*'s as many; in the *Britannic* 24: The Longitudes, Latitudes, Magnitudes, &c. whereof, are as follow:

Stars in the Conſtellation TRIANGULUM.

Names and Situation of the Stars.	Signs	Longitude			Latitude.			Mag.
		°	'	"	°	'	"	
That preceding the Vertex	♉	0	05	17	17	39	08	6
Vertex of the Triangle		2	30	51	16	48	23	4
That following the Vertex		6	00	25	19	28	00	6
Firſt of 3 in the Baſe		7	59	44	20	34	17	4
5		7	18	45	17	06	18	7
1ſt of 3 Inform. under Triangle		6	52	35	15	59	02	6
Contig. to the laſt of the Baſe		8	42	40	18	34	12	6
Middle one of the Baſe		9	09	43	19	21	32	5
Laſt of the Baſe		9	10	21	18	56	07	4
S. of Inform. under the Triang. 10		7	38	31	13	55	26	6
		10	32	52	16	16	32	7
Laſt of theſe Informes		9	59	15	14	13	08	6
A ſmaller contiguous to it.		10	12	15	14	24	24	7
		13	08	28	20	00	37	6
15		13	15	01	18	26	18	7
Informes between the Triangle and the Rams Tail, which are alſo number'd among the Stars of Aries. 28th of Aries	—	10	14	15	8	49	48	7
31ſt of Aries	—	11	48	01	10	51	52	5
33d of Aries	—	12	35	47	11	17	13	4
40th of Aries	—	13	51	45	10	25	37	3
48th of Aries	—	16	13	53	8	51	55	7
50th of Aries	—	16	22	25	8	59	42	7
51ſt of Aries	—	16	39	24	7	29	04	6
54th of Aries	—	18	37	56	10	54	26	7
55th of Aries	—	18	41	07	8	58	28	7 6

TRIANGULAR *Compaſſes*, are ſuch as have three Legs or Feet, whereby to take off any *Triangle* at once. See COMPASSES.

Theſe are much us'd in the Conſtruction of Maps, Globes, &c.

TRIANGULAR *Numbers*, are a kind of Polygonous Numbers; ſee POLYGONOUS *Number*; being the Sums of Arithmetical Progreſſions, the Difference of whoſe Terms is 1: Thus,

Of Arithmetical Progreſs	1	2	3	4	5	6
are form'd Triang. Numb.	1	3	6	10	15	21.

TRIANGULAR *Quadrant*, is a Sector furniſh'd with a looſe Piece, whereby to make it an Equilateral *Triangle*. See SECTOR.

The Calendar is graduated thereon, with the Sun's Place, Declination, and other uſeful Lines; and by the Help of a String and a Plummet, and the Diviſions graduated on the looſe Piece, it may be made to ſerve for a Quadrant. See QUADRANT.

TRIANGULARIS, in Anatomy, a Name given to two Muſcles, in reſpect of their Figure. See MUSCLE.

The *Triangularis Pectoris*, which has ſometimes the Appearance of three or four diſtinct Muſcles, ariſes from the Inſide of the Sternum, and is implanted into the Cartilages which join the four loweſt true Ribs to the Sternum.

The Action of this Muſcle is very obſcure; ſince both the Origination and Inſertion are at Parts not moveable, but together. --- Dr. *Drake* conjectures it may conduce towards the forming the neceſſary Incurvation of the Sternum, and by its Over-tenſion in Children, while the Cartilages are ſoft, may occaſion that morbid Acumination of the Sternum ſeen in rickety Children. --- Others ſuppoſe it may contract the Cavity of the Thorax in Expiration.

TRIANGULARIS *Labii*. See DEPRESSOR *Labii Superioris*.

TRIARII, in the *Roman* Militia, a kind of Infantry, arm'd with a Pike and a Shield, a Helmet and a Cuiraſs.

They were thus call'd, becauſe they made the third Line of Battle.

Polybius diſtinguiſhes four Kinds of Forces in the *Roman* Army: The firſt, call'd *Pilati*, or *Velites*, were a raw Soldiery, lightly arm'd. --- The *Haſtati*, or Spear-men, were a Degree older, and more experienc'd. --- The third, call'd *Principes*, Princes, were ſtill older, and better Soldiers than the ſecond. --- The fourth were the eldeſt, the moſt experienc'd, and the braveſt: Theſe were always diſpos'd in the third Line, as a Corps de Reſerve, to ſuſtain the other two, and to reſtore the Battle, when the others were broken or defeated.

Hence their Name of *Triarii*; and hence the Proverb *ad* Triarios *ventum eſt*, to ſhew that one is at the laſt and hardeſt Struggle.

The *Triarii* were alſo call'd *Poſtſignani*, becauſe rang'd behind the *Principes*, who bore the Standard in a Legion. See PRINCIPES.

TRIAS *Harmonica*, or the *Harmonical* TRIAD, in Muſic, a Compound of three radical Sounds, heard all together; two whereof are a Fifth, and a Third above the other, which is the Fundamental. See CONCORD, &c.

The *Triad* is properly a Conſonance form'd of a Third and a Fifth; which, with the Baſs, or fundamental Sound, makes three different Terms, whence the Name *Trias*. -- That of *harmonical* is doubtleſs given it from that wonderful Property of the Fifth, which divides itſelf naturally into two Thirds, both excellent, and perfectly harmonical; ſo that this one

Sound diſpos'd between two others, makes two Thirds at once, and of Conſequence a double Harmony. See FIFTH.

Hence it is, that in *Trio*'s, particularly, this Concord is preferr'd to that which divides the Octave into a Fifth and a Fourth: In regard that, if there be a Concord on one Side, there is a Diſcord on the other; whereas here the Harmony is compleat on both Sides.

Of the three Sounds which compoſe the harmonical *Triad*, the graveſt is call'd the *Fundamental*, or *Baſs*; the acuteſt, *i. e.* that which makes the Fifth, and which terminates the Concord upwards, is call'd the *excluded* or *higheſt* Sound; and that which divides the Fifth ſo agreeably into two Thirds, is call'd the *harmonical Mean*.

The Diviſion of the Fifth into two Thirds, may be perform'd two Ways, *viz.* 1°. Harmonically, when the greater Third is loweſt, and the leſs a-top; in which Caſe the *Triad* is perfect and natural.

2°. Arithmetically, when the leſs Third is loweſt, and the greater a top; in which Caſe the *Triad* is imperfect and flat. Both are good; but the latter not to be often us'd.

TRIBE, TRIBUS, in Antiquity, a certain Quantity or Number of People; when a Diviſion is made of a Nation into Quarters or Diſtricts.

The City of *Athens* was divided into ten *Tribes*.--- The *Jewiſh* Nation into twelve *Tribes*, the Deſcendants of the twelve Sons of *Jacob*, *viz.* the *Tribes* of *Judah*, of *Reuben*, *Gad*, *Aſher*, *Dan*, *Naphthali*, *Ephraim*, *Manaſſah*, *Simeon*, *Levi*, *Iſſachar*, *Zabulon*, and *Benjamin*.

Theſe, in effect, make thirteen *Tribes*, from twelve Patriarchs; by Reaſon the Poſterity of *Joſeph* was divided into two *Tribes*, that of *Manaſſah*, and that of *Ephraim*. See PATRIARCH.

There were ten of theſe *Tribes* that revolted and follow'd *Jeroboam*.

The *Roman* People was at firſt only divided into three *Tribes*; and from this Number *three*, *tres*, it was that the Word *Tribe*, *Tribus*, took its Riſe. --- This Diviſion was accommodated by *Romulus*, to the ſeveral Nations he had united: The firſt conſiſted of the *Albans*, the ſecond of the *Sabins*, and the third of a Mixture of Fugitives, who came to ſeek an Aſylum at *Rome*.

Servius Tullus fearing this Partition might occaſion Seditions, divided the Inhabitants of *Rome* by Cantons, not by Nations; accordingly, he diſtributed the City into four Quarters or *Tribes*; and by Reaſon a great Number of Citizens had retir'd into the Country about, of thoſe he compos'd 26 other *Tribes*; ſo that from his Time the *Roman* People conſiſted of 30 *Tribes*.

In after-times, the Number of *Tribes* was encreas'd to 35; but they then ceas'd to be rang'd according to the Quarters of the City. --- The Diſtribution depended on the Cenſors, who form'd their Liſt at Diſcretion, frequently confounding the Country *Tribes* with thoſe of the City.

A Man was never abſolutely a *Roman* Citizen, unleſs he had the *Jus Tribus*, *i. e.* till he were intitled to the Honours of the Magiſtrature, as alſo to a Right of voting in Aſſemblies of the People: And this was what they call'd *Jus Quiritium*.

Hence, the Inhabitants of the municipal Cities, were only imperfect Citizens, as being of no *Tribe*. See CITIZEN.

The Freedmen were oblig'd to purchaſe this *Right of Tribe*, which did not otherwiſe belong to them, tho' they were Citizens of *Rome*. See LIBERTUS.

The Names of the 35 *Tribes* were, 1°. the *Palatina*. 2°. the *Suburana*. 3°. the *Collina*. 4°. the *Eſquilina*. 5°. the *Romilia*. 6°. the *Æmilia*. 7°. the *Cruſtumina*. 8°. the *Cornelia*. 9°. the *Fabia*. 10°. the *Galeria*. 11°. the *Leomonia*. 12°. the *Mentina* or *Menenia*. 13°. the *Ocriculana*. 14°. the *Papiria*. 15°. the *Pollia*. 16°. the *Popilia*. 17°. the *Pupinia*. 18°. the *Sergia*. 19°. the *Vegentina*. 20°. the *Voltinia*. 21°. the *Claudia*. 22°. the *Stellatina*. 23°. the *Tromentina*. 24°. the *Arnenſis*. 25°. the *Sabatina*. 26°. the *Pomptina*. 27°. the *Poblilia*. 28°. the *Mœcia*. 29°. the *Scaptia*. 30°. the *Onſentina*. 31°. the *Falerina*. 32°. the *Anienſis*. 33°. the *Terentina*. 34°. the *Velina*. 35°. the *Quirina*. In ancient Authors and Inſcriptions, we meet with the Names of others, *viz.* *Pinaria*, *Sappinia*, *Camilla*, *Ceſtia*, *Cluentia*, &c.

TRIBRACHYS, in the ancient Proſody, a Foot of Verſe, conſiſting of three Syllables, and thoſe all ſhort, as *Melius*.

The Word is form'd from the *Greek*, τρεῖς, three, and βραχυς, ſhort.

TRIBUCH, and TREBUCHET, a Tumbrel, or Cucking-ſtool. See CUCKING-*ſtool*.

TRIBUNAL, *Judgment-Seat*, the Seat of a Judge. See JUDGE.

The *Tribunal* in a Court of Juſtice, is properly the Seat or Bench whereon the Judge and his Aſſociates are placed. See BENCH.

The Word is *Latin*, and takes its Origin from a Seat rais'd from the Ground, wherein the *Tribune* of the *Roman* People was plac'd to adminiſter Juſtice. See TRIBUNE.

Tribunal, *Tribuna*, or *Tribune*, among the Ancients, was alſo a Place from whence the People were harangued.

Among the *Romans*, it was an Eminence near the Temple, in the Place call'd *Pro Roſtris*, where the People were harangued in *Tribes*.

The *French* Architects likewiſe uſe the Word *Tribune* for a Gallery or Eminence in a Church, or other Place, wherein the Muſic is plac'd for a Symphony or Concert.

TRIBUNE, TRIBUNUS *Militum* or *Militaris*; an Officer in the *Roman* Army. See TRIBUNUS.

TRIBUNE, TRIBUNUS *Plebis*, in Antiquity, a *Roman* Magiſtrate, choſen out of the Populace, to protect them againſt the Oppreſſion of the Great, and to defend the Liberty of the People againſt the Attempts of the Senate and Conſuls.

The *Tribunes of the People* were firſt eſtabliſh'd in the Year of *Rome* 259. The firſt Deſign of the Creation, was to ſhelter them from the Cruelties of Uſurers, and to engage them to quit the *Aventine* Mount, whither they had retir'd in Diſpleaſure.

Their Number, at firſt, was but two; but the next Year, under the Conſulate of *A. Poſthumus Aruncius*, and *Caſſius Viſcellinus*, there were three more added; and this Number of five was afterwards increas'd by *L. Trebonius* to ten.

The Appellation *Tribune* was given them, by reaſon they were at firſt choſen out of the *Tribunes* of the Army. See TRIBUNUS.

The *Tribunes* were, as it were, the Leaders and Guardians of the People. --- They call'd Aſſemblies of the People when they pleas'd; and in thoſe Aſſemblies frequently annull'd the Decrees of the Senate. Nothing could be concluded without their Conſent, which they expreſs'd by ſubſcribing the Letter *T* at the Bottom of the Decree. They had it in their Power to prevent the Execution of any Decree, without giving any Reaſon for it, and merely by ſubſcribing *Veto*.

They ſometimes call'd the Conſuls and Dictator to account for their Conduct, before the People.

Auguſtus himſelf was *Tribune* for 37 Years; *Tiberius* aſſum'd the ſame Quality; as likewiſe did his Succeſſor, ſignifying the Year of their *Tribunate* on their Medals and Coins: But their Deſign, herein, was only to poſſeſs themſelves of all the Authority, that there might be no-body to oppoſe them. See TRIBUNICIAN.

TRIBUNICIAN, a Term among Antiquaries and Medalliſts. --- The *Tribunician Power*, was the Dignity, Office, or Authority of a *Tribune of the People*. See TRIBUNE.

This Power was aſſum'd by the Emperors, and makes one of the chief Titles they bear on their Medals: The Quality was firſt introduc'd by *Auguſtus*, to keep the Sovereign Authority over the other Magiſtrates, without either taking that of Dictator or King. Indeed it was offer'd to *Julius Cæſar*, but he deſpis'd it. *Auguſtus* is the firſt who us'd it, and his Succeſſors follow'd his Example. --- They reckon the Years of their Empire on their Medals by thoſe of their *Tribunician Power*.

This Power was ſometimes given them for a certain Number of Years, and ſometimes for ever. Sometimes the Emperors would communicate the Power to ſuch as they aſſociated, or as they intended to ſucceed them: And *Tiberius* held it fifteen Years with *Auguſtus*. But this Practice only obtain'd till the Time of *Valerian* and *Gallian*. After them we only find TR. P. II. in *Claudius*; TR. P. V. in *Aurelian*; and TR. P. in *Probus*.

This, however, is to be underſtood of Medals; for in Inſcriptions we find it after that Time.

Cardinal *Noris* and F. *Pagi* have diſputed about this *Tribunician Power*, wherein it conſiſted. --- The firſt maintains, that it did not at all differ from that of the ordinary Tribunes, which conſiſted in three Things, 1°. In a Right of oppoſing all the Acts and Reſolutions of the other Magiſtrates. 2°. In that it render'd their Perſon ſacred and inviolable. 3°. In a Right of making Edicts and Laws.

F. *Pagi* aſſerts, that it made an Addition to the Power of the Tribunes; that the Privilege it had of making Edicts, was more ample than that of the ordinary Tribunes; beſides, that it carry'd with it a Power of convening the Senate at Pleaſure.

M. *Spanheim* is of F. *Pagi*'s Opinion: He believes that the *Tribunician Power* had much the Advantage of the *Tribunate*, 1°. In that it was peculiar to the Patricians, and did not reduce the Perſon who held it to the Degree of a Plebeian. 2°. In that it was not confin'd to the City of *Rome* alone, like the other, but extended throughout the Empire; as well as the Proconſular Power, which was uſually annex'd to it. 3°. That the Dignity of the Tribunes was inferior to that of the Pretors; whereas the *Tribunician Power* of the *Cæſars*, conferr'd, according to *Tacitus*, a Sovereign Authority over all Magiſtrates, and render'd ſuch as it was communicated to, equal to the Emperors, and even their Collegues in the Empire: Beſides the Power of oppoſing the Enterprizes of all the other Magiſtrates; and that it render'd their Perſons ſacred, and gave them a Right to aſſemble and diſmiſs the Senate, which were Rights the *Tribunician Power* held in common with the Tribunes.

F. *Hardouin* thinks we ſhould diſtinguiſh two *Tribunician Powers*; the one Civil, the other Military; but the Proof he brings thereof is very weak. M. *Spanheim* ſays, his Diſtinction is only founded on vain Conjectures, none of which deſerve Notice.

The Learned are greatly divided as to the Month and Day whereon the *Tribunician* Power commenced: *Sigonius* and *Petavius* will have it begin on the 1ſt of *January*: Others, as *Perizonius*, on the 5th of the Calends of *July*: M. *Toinard* on the 4th of the Ides of *December*: *Onuphrius*, Cardinal *Noris*, F. *Pagi*, &c. on the Day of the Emperor's Acceſſion to the Empire; with this Difference, that F. *Pagi* takes it to be on the 5th of the Calends of the Month wherein the Prince was proclaim'd; and that this Day was, for this Reaſon, held ſacred among the *Romans*.

F. *Hardouin* thinks, that on Medals the *Tribunician Power* commences on the Anniverſary of the Building of *Rome*, *viz.* the 11th of the Calends of *May*; excepting on the *Greek* Medals, where it begins in *September*, in regard this Month, which began the *Greek* Year, was near the Time when the *Tribunician Power* was firſt conferr'd.

Of all theſe Sentiments the moſt probable is that of *Onuphrius*, &c. ſetting aſide the Reſtriction of F. *Pagi*. See M. *Spanheim*, Diſſert. XII. Tom. II. p. 429.

TRIBUNUS *Militum* or *Militaris*, or *Military* TRIBUNE, an Officer in the *Roman* Army who commanded in chief over a Body of Forces, particularly a Legion; much the ſame with our Colonel, or the *French Meſtre de Camp*. See LEGION.

There is ſome Diſtinction of the *Tribunes*, into *Laticlavi*, and *Anguſticlavi*: Thoſe born of noble Families were allow'd, after they were made *Tribunes* of a Legion, to take the *Laticlavus*. See LATICLAVUS.

The reſt were only to wear the *Anguſticlavus*; whence *Suetonius* takes Care to inform us, that his Father was *Tribunus Laticlavus* of the 13th Legion.

Over theſe *Tribunes* of Legions and Cohorts, there were other *Tribunes* who commanded in the Abſence of the Conſuls, and who were inveſted with a Conſular Authority. --- *Budeus* will have theſe to be much the ſame as the Marſhals of *France*, or, at leaſt, Lieutenants General.

Romulus likewiſe eſtabliſh'd a *Tribune* of the Cavalry, *Tribunus Equitum*, who was the ſame with the *Magiſter Equitum* under the Dictators, the firſt Officer after the Kings. See MAGISTER *Equitum*.

The *Tribunes* of the Soldiery, were of an elder ſtanding than thoſe of the People; thoſe latter being elected out of the former.

Varro will have it, they were call'd *Tribunes*, becauſe, at firſt, they were only three in Number in each Legion, when the Legion conſiſted of three thouſand Men, taken out of the three Tribes then on Foot.

In Proportion as the Legion was increas'd, the Number of *Tribunes* was likewiſe increas'd to the Number of ſix.

At firſt, the Election lay in the General of the Army; but in the Year of *Rome* 391, it was appointed, that the People ſhould nominate one Part, and the General another: The latter were call'd *Rufuli*, from *Rotilius Rufus*, who paſs'd the Law.

Thoſe choſe by the People in the Comitia, were call'd *Comitiati*: They were indifferently either Patricians or Plebeians; and had the ſame Marks of Honour as the Conſuls themſelves. --- The *Tribune of the Pretorian Cohorts* was the Captain of the Guards. See PRETORIAN.

The Term *Tribune* was alſo apply'd to various other Officers; as the *Tribuni Ærarii*, *Tribunes* of the Treaſury: --- The *Tribune of the Celeries*, the Officer who commanded them: The *Tribuni Fabricarum*, thoſe who had the Direction of the making of Arms: The *Tribuni Marinorum*; *Tribuni Nolanorum*, *Tribuni Voluptatum*, mention'd in the *Theodoſian Code*, as Intendants of the Publick Shews and other Diverſions.

The Title *Tribune* was alſo given to the chief of a Tribe. See TRIBE.

TRIBUTE, TRIBUTUM, a Duty or Tax which one Prince or State is oblig'd to pay to another, as a Token of Dependance; or in Virtue of a Treaty, and as a Purchaſe of Peace.

The *Romans* made all the Nations they ſubdu'd pay them *Tribute*. --- *Mahomet* laid it down as a Fundamental of his Law, that all the World ſhould pay him *Tribute*.

In the States of the Grand Signior, Chriſtian Children are taken in Way of *Tribute*, to make Janiſaries. See JANISARY.

TRIBUTE is ſometimes alſo us'd for a perſonal Contribution, which Princes levy on their Subjects by Way of Capitation or Poll-Money. See TAX.

In this it differs from an Impoſt, which is properly what is laid on Merchandizes. See IMPOST.

TRIBUTARY, one who pays *Tribute* to another, in order to live in Peace with him, or ſhare in his Protection. See TRIBUTE.

The Republic of *Raguſa* is *Tributary* to the Grand Turk; ſo is the Cham of Little *Tartary*, &c.

TRICEPS, in Anatomy, a Muſcle of the Thigh, having three Originations, and as many Inſertions; and which may therefore, be conveniently divided into three Muſcles, all ariſing from the Os Pubis, and inſerted into the Linea Aſpera of the Thigh Bone, whereof they poſſeſs the greateſt Part. See MUSCLE.

They ſerve as Adductores, and draw the Thighs together.

TRICUSPIDES, in Anatomy, an Epithet given to three Valves, ſituate at the Entrance of the Vena Cava into the Heart. See VALVE.

They open from without inwards, ſo as to let the Blood of the Cava paſs into the Heart, but prevent its Reflux into the Cava. See HEART.

They are thus call'd, from their Figure, which is triangular: Some fancy them to be of the Figure of three Tongues; and call them *Triglottides*.

TRIDENT, TRIDENS, an Attribute of *Neptune*; being a kind of Scepter which the Painters and Poets put in the Hands of that God, in form of a Fork with *three Teeth*; whence the Word. See SCEPTER.

The Poets ſtill tell us, that *Neptune* makes the Earth open, whenever he ſtrikes it with his *Trident*.

TRIDENT, among Mathematicians, is us'd for a Kind of Parabola, by which *Cartes* constructed Equations of ſix Dimenſions. See PARABOLA.

TRIEMIMERIS, a kind of Cæſura of a *Latin* Verſe, wherein, after the firſt Foot of the Verſe, there remains an odd Syllable, which helps to make up the next Foot; as in this Verſe,

Ille latus niveum molli fultus Hyacintho.

TRIENNIAL, an Epithet applied chiefly to Offices or Employments, which laſt for three Years.

Thus we ſay, a *Triennial Government*: Moſt regular Monaſteries have *Triennial* Superiors; they elect new ones at the End of each three Years.

In 1695, an Act was made for *Triennial Parliaments*, *i.e.* for Parliaments which ſhould be diſſolved, and the Members be elected anew every three Years. Till that Time, the King had it in his Power to prorogue and continue his Parliaments as long as he pleas'd. ---- This opened a Door to Corruption, which the *Triennial* Bill was intended to prevent.

The *Triennial* Act has, from ſome other Views, been ſince Repeal'd: The great Struggles uſual at Elections, the great Ferment it uſually puts the Nation into, the great Expences upon that Occaſion, with other Conſiderations, determined the Legiſlature, in 1717, to change *Triennial* Parliaments for Septennial ones. See PARLIAMENT.

TRIENS, in Antiquity, a Term uſed for two different Things; 1° A Copper Money, of the Value of one Third of an As. ----- On one Side, it bore a *Janus*'s Head, and on the other, a Water-Rat. This was the Piece of Money uſed to be put in the Mouths of the Deceas'd, to pay *Charon* his Fare for their Paſſage into the other Life. See MONEY and COIN.

2° The *Triens* was alſo a drinking Cup; and that which was ordinarily uſed. -- - It was a fourth Part of the Septary. SEPTARY.

TRIFOLIUM or TREFOIL, any three-leaf'd Graſs: That which is moſt uſed in Medicine, is the *Trifolium Aquaticum*, or Buck-Bean, which is very detergent, and uſed with Succeſs in Scorbutic, Rheumatic and Scrophulous Habits. The way of uſing it is generally to make a pretty ſtrong Infuſion of the dry'd Herb, in form of Tea.

TRIGA, in Antiquity, a kind of Car, or Chariot with three Horſes. See CAR, &c.

The *Triga*, in reality, was only drawn by two Horſes; ſo that it was properly a Biga: but it had, beſides, a third Horſe tied to the others, like a led Horſe, for Change. See BIGA.

Statius calls the third Horſe *Equus funalis*; *Heſychius*, παρήορος; and *Dionyſius Halicarnaſſæus*, σειραῖος.

We don't find the *Triga* on any ancient Monument; but it was a long time in uſe among the *Romans*, at their Ludi Circenſes. ---- The *Greeks*, who firſt introduced it, ſoon abandon'd it.

TRIGAMY, a third Marriage; or the State of a Perſon who has been married three Times. See MARRIAGE.

In the ancient Church, *Trigamy* was only allowed to ſuch as had no Children by their former Marriages.

If, having Children by one or both the former, they married again, after 40 Years of Age, they were excluded from Communion for five Years. ---- If they were only forty Years old, the Penance was but four Years. See BIGAMY.

TRIGLYPHS, in Architecture, a ſort of Ornaments repeated at equal Intervals in the *Doric* Freeze. See FREEZE, &c.

They conſiſt of two entire Gutters or Channels, cut to a right Angle, call'd *Glyphes*, and ſeparated by two Interſtices, call'd, by *Vitruvius*, *Shanks*, from two Half Channels at the Sides. See GLYPHES.

The ordinary Proportion of *Triglyphs*, is to be a Module broad, and one and a Half high. ---- But this Proportion, M. *le Clerc* obſerves, ſometimes occaſions ill-proportion'd Intercolumnations in Portico's; for which Reaſon he chuſes to accommodate the Proportion of his *Triglyphs* to that of the Intercolumns. See INTERCOLUMNATION.

The Intervals between the *Triglyphs*, are called *Metopes*. See METOPES.

Under the Channels, or Glyphes, are placed Guttæ or Drops. See GUTTÆ.

The *Triglyphs* make the moſt diſtinguiſhing Character of the *Doric* Order. --- Some imagine them originally intended to convey the Guttæ that are underneath them: Others fancy they bear ſome Reſemblance to a Lyre, and thence conjecture the Order to have been originally invented for ſome Temple ſacred to *Apollo*. See DORIC.

The Word is form'd from the *Greek* τρίγλυφος, three Engravings, from γλύφω, *Sculpo*.

TRIGON, TRIGONUS, in Geometry, a Triangle. See TRIANGLE.

The Word is form'd from the *Greek* τριγονος, *Triangle*.

TRIGON, in Aſtrology, is an Aſpect of two Planets, wherein they are 120 Degrees diſtant from each other; called alſo *Trine*. See TRINE.

The *Trigons* of *Mars* and *Saturn*, are held Malefic Aſpects. See ASPECT.

TRIGON, TRIGONON, *in Muſic*, is a Muſical Inſtrument, uſed among the Ancients.

The *Trigon* was a kind of triangular Lyre, invented by *Ibycus*. See LYRE.

TRIGONOMETRY, the Art of finding the Dimenſions of the Parts of a Triangle unknown, from other Parts known: Or, the Art whereby, from any three Parts of a Triangle given, all the reſt are found. See TRIANGLE.

Thus, *e. gr.* from two Sides A B and A C and an Angle B, we find by *Trigonometry*, the other Angles B and C with the third Side B C, Tab. Trigonometry Fig. 1.

The Word literally ſignifies the *meaſuring of Triangles*; form'd from the *Greek*, τρίγωνος, Triangle, and μετρον, Meaſure; yet does not the Art extend to the meaſuring of the Area or Surface of Triangles, which comes under Geometry: *Trigonometry* only conſiders the Lines and Angles thereof.

Trigonometry is of the utmoſt Uſe in various mathematical Arts. --- 'Tis by means hereof, that moſt of the Operations of Geometry and Aſtronomy are perform'd; without it the Magnitude of the Earth and the Stars, their Diſtances, Motions, Eclipſes, &c. would be utterly unknown.-- *Trigonometry*, therefore, muſt be own'd an Art, whereby the moſt hidden Things, and thoſe remoteſt from the Knowledge of Men, are brought to light. A Perſon ignorant hereof, can make no great Progreſs in mixt Mathematicks; but will often be gravell'd, even in Natural Philoſophy, particularly in accounting for the Phænomena of the Rain-bow, and other Meteors.

Trigonometry, or the Solution of Triangles, is founded on that mutual Proportion which is between the Sides and Angles of a Triangle; which Proportion is known, by finding the Proportion which the Radius of a Circle has to certain other Lines, call'd *Chords*, *Sines*, *Tangents* and *Secants*. See RADIUS, CHORD, SINE, TANGENT and SECANT.

This Proportion of the Sines and Tangents to their Radius, is ſometimes expreſs'd in common or natural Numbers, which conſtitute what we call the *Tables of natural Sines*, *Tangents*, &c. -- Sometimes it is expreſs'd in Logarithms, and in that Caſe, conſtitutes the Tables of *artificial Sines*, &c. See TABLES.

Laſtly, ſometimes the Proportion is not expreſs'd in Numbers; but the ſeveral Sines, Tangents, &c. are actually laid down upon Lines or Scales; whence the *Line of Sines*, *Tangents*, &c. See LINE and SCALE.

Trigonometry is divided into *Plain* and *Spherical*: The firſt conſidering rectilinear Triangles; and the ſecond, Spherical ones. --- The *Firſt* is of obvious and continual Uſe in Navigation, Meaſuring, Surveying and other Operations of Geometry. See MEASURING, SURVEYING, SAILING, &c.

The *Second* is only learn'd, with a View to Aſtronomy and its kindred Arts, Geography and Dialling. -- It is generally eſteem'd exceedingly difficult, by reaſon of the vaſt Number of Caſes wherewith it is perplex'd; but the excellent *Wolfius* has removed moſt of the Difficulties. That Author has not only ſhewn how all the Caſes of rectangled Triangles may be ſolv'd the common Way, by the Rule of Sines and Tangents; but has likewiſe laid down an univerſal Rule, whereby all Problems, both in Plain and Spherical rectangled Triangles are ſolved: And even obliquangular Triangles, he teaches to ſolve with equal Eaſe. ---- His Doctrine, ſee under the Article TRIANGLE.

Plain TRIGONOMETRY, is an Art whereby, from three given Parts of a Plain Triangle, we find the reſt.

The great Principle of *Plain Trigonometry*, is, that *in every plain Triangle, the Sides are, as the Sines of the oppoſite Angles.* --- See this Principle applied to the Solution of the ſeveral Caſes of Plain Triangles, under the Article TRIANGLE.

Spherical TRIGONOMETRY, is the Art whereby, from three given Parts of a ſpherical Triangle, we find the reſt. *E. gr.* whereby from two Sides and one Angle, we find the two other Angles, and the third Side. See SPHERICKS.

The Principles of *Spherical Trigonometry*, as reform'd by *Wolfius*, are as follow:

1° *In every rectangled ſpherical Triangle, A B C, rectangular at C, the whole Sine is to the Sine of the Hypothenuſe, B C, Tab. Trigonom. Fig. 33. as the Sine of either of the acute Angles, as C, is to the Sine of the Leg, oppoſite thereto A B; Or, the Sine of the Angle B, to the Sine of its oppoſite Leg A C*; whence we deduce, that the Rectangle of the whole Sine into the Sine of one Leg, is equal to the Rectangle of the Sine of the Angle oppoſite thereto, into the Sine of the Hypothenuſe.

2° *In every right-angled ſpherical Triangle A B C, Fig. 31. none of whoſe Sides is a Quadrant; if the Complements of the Legs A B and A C to a Quadrant, be conſider'd as the Legs themſelves; the Rectangle of the whole Sine into the Coſine of the middle Part, is equal to the Rectangle of the Sines of the disjunct or ſeparate Parts.*

Hence, 1°. If the Sines be artificial, that is, the Logarithms of the natural ones; the whole Sine, with the Co-ſine of the middle Part, will be equal to the Sines of the disjunct Parts. --- 2° Since, in the rectilinear Triangle A B C (Fig. 34.) the whole Sine is to the Hypothenuſe B C, as the Sine of the Angle B or C to the Sine of the oppoſite Leg A C or A B: if, inſtead of the Sines of the Sides, we take the Sides themſelves; here, too, the whole Sine, with the Co-ſine of the middle Part A C or A B, will be equal to the Sines of the disjunct Parts B or C and B C; *i. e.* to the Sine of B or C, and B C itſelf.

This, *Wolfius* calls *Regula Sinuum Catholica*, or the firſt Part of the Catholic Rule of *Trigonometry*; by means whereof all the Problems of either *Trigonometry* are ſolved, when the thing is effected by Sines alone. ---- My Lord *Neper* had the firſt Thought of ſuch a Rule: But he uſed the Complements of the Hypothenuſe B C (Fig. 22.) and the Angles B and C for the Hypothenuſe, and Angles themſelves: So that the Tenor of his Catholic Rule of Sines is this:

The whole Sine, with the Sine of the middle Part, is equal to the Co-ſines of the disjunct, or, as he calls them, oppoſite Parts. --- But, in this, that Harmony between Plain and Spherical *Trigonometry*, viſible in *Wolfius*'s Rule, does not appear.

3° *In a rectangled ſpherical Triangle A B C (Fig. 33.) none of whoſe Sides is a Quadrant; as the whole Sine is to the Sine of the adjacent Leg A C; ſo is the Tangent of the adjacent Angle C to the Tangent of the Leg A B.*

Whence, 1°, as the Co-tangent of the Angle is to the whole Sine, as the whole Sine is to the Tangent of the Angle C, ſo is the Sine of A C to the Tangent of A B; therefore the Co-tangent of the Angle C, will be to the whole Sine, as the Sine of the Leg adjacent thereto, A C, is to the Tangent of the oppoſite one A B. 2° The Rectangle, therefore, of the whole Sine, into the Sine of one Leg A C, is equal to the Rectangle of the Tangent of the other Leg A B, into the Co-tangent of the Angle C, oppoſite to the ſame. And, in like manner, the Rectangle of the whole Sine, into the Sine of the Leg A B, is equal to the Rectangle of the Tangent of the Leg A C into the Co-tangent of the Angle B.

4° *In every right-angled ſpherical Triangle, A B C (Fig. 31) none of whoſe Sides is a Quadrant; if the Complements of the Legs A B and A C to a Quadrant, or their Exceſſes beyond a Quadrant, be conſider'd as the Legs themſelves; the Rectangle of the whole Sine, into the Co-ſine of the middle Part, will be equal to the Rectangle of the Co-tangents, of the conjunct Parts.*

Hence, 1°, If the Sines and Tangents be Artificial; the whole Sine, with the Co-ſine of the middle Part, is equal to the Co-tangents of the contiguous Parts. 2° Since in a rectilinear, right-angled Triangle, we uſe the Tangents, when from the Legs A B and A C (Fig. 34.) given, the Angle C is to be found; and in that Caſe the whole Sine is to the Co-tangent of C. *i. e.* to the Tangent of B, as A B to A C; therefore, alſo, in a rectilinear Triangle, if for the Sines and Tangents of the Sides be taken the Sines themſelves; the whole Sine, with the Co-ſine of the middle Part, *i. e.* with A C, is equal to the Co-tangents of the conjunct Parts, *i. e.* to the Co-tangent of C, or Tangent of B and the Side A B.

This, *Wolfius* calls *Regula Tangentium Catholica*, and conſtitutes the other Part of the Catholic Rule of *Trigonometry*; whereby all Problems in each *Trigonometry*, where Tangents are required, are ſolved.

My Lord *Neper*'s Rule to the like Effect, is thus: ---- That the whole Sine, with the Sine of the middle Part, is equal to the Tangents of the contiguous Parts.

'Tis, therefore, a Catholic Rule, which holds in all *Trigonometry*; that *in a rectangled Triangle*, (*notatis notandis*, *i. e.* the

the Complements of the Legs A B and A C, being conſider'd as Legs themſelves, and in rectilinear Triangles, the Sides themſelves being taken for the Sines and Tangents of the Sides) *The whole Sine with the Co-ſine of the mean or middle Part is equal to the Sines of the disjunct or ſeparate Parts, and the Co-tangents of the conjunct or contiguous Parts.*

For an Illuſtration and Application of this Rule, in the Solution of the various Caſes of ſpherical Triangles; ſee TRIANGLE.

TRIHING or TRICHING, from the *Saxon*, *Trihinga*, an Extent containing three or four Hundreds, or the third Part of a Shire or Province. See TITHING.

The Word is alſo uſed for a Court held within that Circuit, which was the ſame with what we now call a *Court-Leet*, which is above a Court Baron, and inferior to the County Court. See COURT, LEET, &c.

TRILLION or TRILION, in Arithmetic, the Number of a Billion of Billions. See NUMERATION.

After Billions, we reckon by *Trillions*, which makes a Claſs of Numeration, and are divided, like the other Claſſes, into three Places: Thus we ſay *Trillions*; *Tens of Trillions*; *Hundreds of Trillions*, &c.

TRIM, in the Sea Language. --- *To Trim a Boat*, is to ſet the Paſſengers ſo as to keep the Boat even on both Sides.

TRIM of a Ship, is her beſt Poſture, Proportion of Ballaſt, and hanging of her Maſts for ſailing.

Hence, to find the beſt way of making a Ship ſail ſwiftly, is to find her *Trim*.

TRIMACRUS, Τριμακρ☉-, in the ancient Proſody, a Foot in Verſe, conſiſting of three long Syllables. See FOOT.

TRIMILCHI, from the *Saxon Trimilc*, a Name by which the *Engliſh Saxons* called the Month of *May*; becauſe they milked their Cattle three times a Day in that Month.

TRIMMERS, in Architecture, Pieces of Timber, fram'd at right Angles to the Joints, againſt the Ways; for Chimneys and Well-holes for Stairs.

TRINE *Dimenſion*, or *Three-fold Dimenſion*, includes Length, Breadth and Thickneſs. See DIMENSION.

The *Trine* Dimenſion is peculiar to Bodies or Solids. See BODY, &c.

TRINE *in Aſtrology*, is the Aſpect or Situation of one Star with regard to another, when they are diſtant 120 Degrees, as the Arch A B (Tab. Aſtronomy, Fig. 3.) which is a Third of a Circle, and its ſubtenſe A B, a Side of an equilateral Triangle A B inſcribed in the Sphere. See ASPECT.

It is alſo called *Trigon*, and ſignified by the Character △. See TRIGON.

TRINGLE, in Architecture, a Name common to ſeveral little ſquare Members, or Ornaments; as Reglets, Liſtels and Plat-bands. See REGLET, LISTEL, &c.

The Word is *French*, where it ſignifies the ſame thing.

TRINGLE is particularly uſed for a little Member fix'd exactly over every Triglyph, under the Plat-band of the Architrave; from whence hang down the Guttæ or Pendant Drops. See TRIGLYPH and GUTTÆ.

TRINITARIANS, a Term uſed very variouſly, and arbitrarily ---. Frequently it ſtands as a common Name for all Hereticks, who have Sentiments on the Myſtery of the Trinity, contrary to thoſe of the Catholic Church. See TRINITY.

Sometimes it is more immediately reſtrain'd to ſome one or other particular Claſs of Hereticks: Thus the *Trinitarians* are frequently confounded with the *Unitarians*. See UNITARIANS.

Sometimes it is even applied to the Orthodox themſelves, in Contradiſtinction to the *Antitrinitarians*, who deny or impugn the Doctrine of the Trinity: Thus the Socinians and others us'd to call the Athanaſians, *Trinitarians*.

TRINITARIANS are alſo an Order of Religious, inſtituted in Honour of the Trinity, for the Redeeming of Chriſtian Captives from the Infidels; vulgarly call'd *Mathurins*, and Brothers of the *Redemption*. See MATHURIN.

They are cloath'd in White, and bear on the Stomach a Croſs, partly Red and partly Blue; by which three Colours, White, Red and Blue, is ſuppoſed to be repreſented, the Myſtery of the Trinity.

The *Trinitarians* make it their Buſineſs to go and ranſom Chriſtians held in Slavery in the Republicks of *Algiers*, *Tunis* and *Tripoly*, and the States of *Morocco*. --- They have a Rule peculiar to themſelves; though ſeveral Hiſtorians rank them among the Obſervers of the Rule of St. *Auguſtin*.

The Order had its Riſe in 1198, under the Pontificate of *Innocent* III. The Founders were *John de Matha* and *Felix de Valois*: The firſt of *Faucon* in *Provence*; the ſecond, not of the Royal Family of the *Valois*'s, as ſome have imagin'd; but thus call'd, in all probability, as being a Native of the Country *Valois*.

Gauthier of *Chatillon* was the firſt who gave them a Place in his Lands to build a Convent; which afterwards became the Chief of the whole Order: *Honorius* III. confirm'd their Rule. *Urban* IV. appointed the Biſhop of *Paris* and others, to reform them: they did it; and the Reform was approved in 1267, by *Clement* IV.

This Order poſſeſſes about 250 Convents, divided into Thirteen Provinces; whereof ſix are in *France*, three in *Spain*, one in *Italy*, and one in *Portugal*. --- Formerly, there was one in *England*, another in *Scotland*, and a third in *Ireland*.

In the general Chapters held in 1573 and 1576, a Reform was order'd, and begun ſome time afterwards by *Julian de Nantonville*, and *Claude Aleph*, two Hermits of St. *Michael*, but now permitted by Pope *Gregory* to take the Habit of the Trinity; upon which their Hermitage was converted into a Houſe of the Order.

In 1609, Pope *Paul* allow'd them to build new Houſes, and to introduce the Reform into the old One. In 1635 *Urban* VIII. by a Brief, appointed the Cardinal *de Rocheſoucault* to introduce the Reform into all the Houſes of the Order, which was done accordingly, by a Sentence containing the Reform in Eight Articles, the Principal whereof were, That they ſhould obſerve the primitive Rule approved of by *Clement* IV. ſhould abſtain from Fleſh, uſe woollen Shirts, have Matins at Midnight, &c. In 1554 there was alſo a Reform made among thoſe of *Portugal*.

The Habit of the *Trinitarians* is different in different Countries; and that of the Reform'd different from the reſt.

Bare-foot TRINITARIANS, are a Reform of this Order, made in *Spain* at a general Chapter, held in 1594, where it was reſolved, That each Province ſhould eſtabliſh two or three Houſes, where the primitive Rule ſhould be obſerv'd, and where the Religious ſhould live up to a greater Auſterity, uſe coarſer Cloaths, &c. and yet ſhould have the Liberty of returning to their ancient Convents when they thought fit.

Dom. Alvares Baſan, intending to found a Monaſtery at *Valdepegnas*, and deſiring to have it held by bare-foot Religious; it was agreed to add Nudity of Feet to the Reform; that the *Trinitarians* might have the Benefit of that Eſtabliſhment. The Reform afterwards grew into three Provinces, and was at length introduced into *Poland* and *Ruſſia*, and thence into *Germany* and *Italy*.

There are alſo *bare-footed Trinitarians* in *France*, eſtabliſh'd by F. *Jerom Hallies*, who being ſent to *Rome* to ſollicit the firſt Reform mentioned above; not content therewith, he carried it further, and obtain'd a Permiſſion of Pope *Gregory*, to add a coarſe Habit, and Nudity of Feet thereto. He began with the Convent of St. *Denis* at *Rome*, and thoſe of *Aix* in *Provence*.

In 1670 there were Houſes enough of this Reform to make a Province; and accordingly they held their firſt general Chapter the ſame Year. See PROVINCE.

There are alſo Nuns of the *Trinitarian* Order, eſtabliſh'd in *Spain* by St. *John de Matha* himſelf, who built them a Convent in 1201. --- Thoſe who firſt took the Habit were only Oblati, and made no Vows; but in 1201 the Monaſtery was fill'd with real Religious, under the Direction of the Infanta *Conſtantia*, Daughter of *Peter* II. King of *Arragon*, who was the firſt Religious, and the firſt Superior of the Order.

There are alſo *Bare-foot Nuns* of this Order, eſtabliſh'd at *Madrid* about the Year 1612, by *Frances de Romero*, Daughter of *Julian de Romero*, Lieutenant-General in the *Spaniſh* Army. Her Deſign being to found a Monaſtery of *Bare-foot Auguſtines*, ſhe aſſembled a Number of Maids for that End, lodging them, for the Time, in a Houſe belonging to the Monaſtery of *Bare-foot Trinitarians* in the Neighbourhood.

Here, attending at the Church of thoſe Fathers, and being under the Direction of F. *John Baptiſt* of the Conception, their Founder; the Knowledge of that Father, and the Services he did them, made them change their Reſolution of becoming *Auguſtines*, and demand of their Director the Habit of his Order; which he gave them.

But the Order oppoſing their Deſign, and refuſing to take them under its Juriſdiction, they addreſs'd themſelves to the Archbiſhop of *Toledo*, who allow'd them to live according to the Rule of that Order; ſo that they took the Habit anew in 1612, and began their Noviciate.

Laſtly, there is a third Order of *Trinitarians*. See THIRD *Order*.

TRINITY, TRINITAS, TRIAS, TRIAD, in Theology, the ineffable Myſtery of three Perſons in one God; Father, Son, and Holy Spirit. See PERSON and MYSTERY.

'Tis an Article in the Chriſtian Faith, that there is one God; an Unity in Nature and Eſſence, and a *Trinity* of Perſons. --- The Term *Trinity* implies the Unity of three, the Unity of three divine Perſons really different, and the Identity of an indiviſible Nature: The *Trinity* is a Ternary of divine Perſons of the ſame Eſſence, Nature, and Subſtance.

Theology teaches, that there is in God one Eſſence, two Proceſſions, three Perſons, four Relations, five Notions, and the

TAB: TRIGONOMETRY.

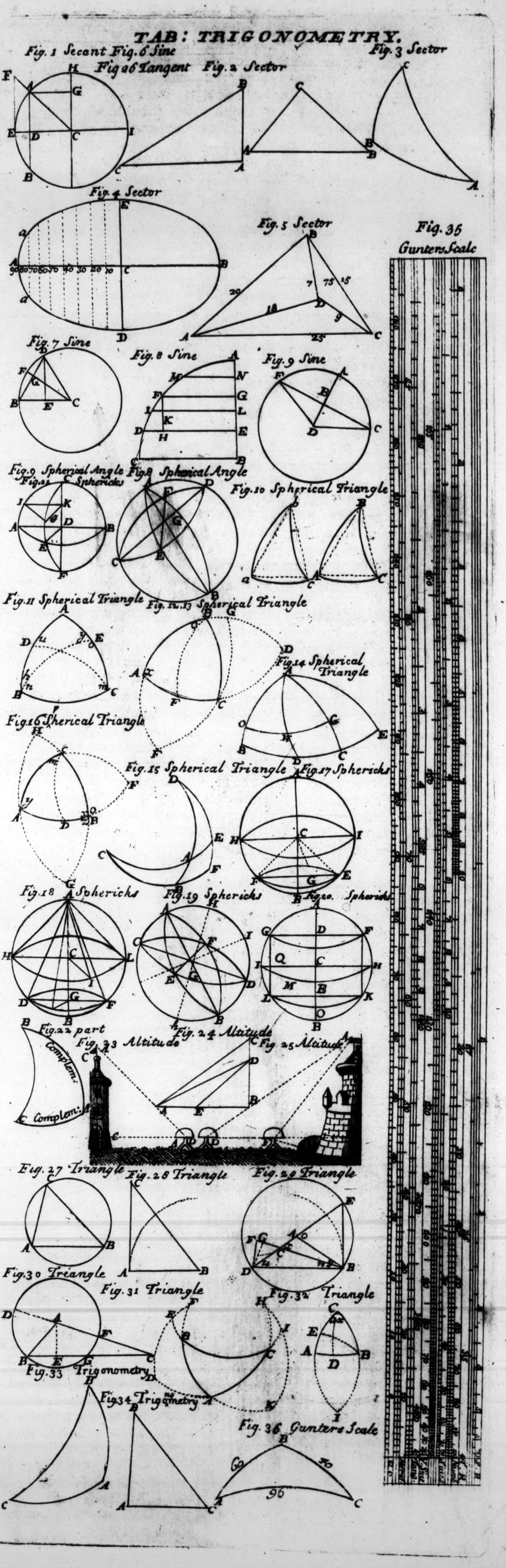


Fig. 1 Secant Fig. 6 Sine
Fig. 26 Tangent Fig. 2 Sector
Fig. 3 Sector
Fig. 4 Sector
Fig. 5 Sector
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Fig. 7 Sine
Fig. 8 Sine
Fig. 9 Sine
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Fig. 17 Sphericks
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Fig. 33 Trigonometry
Fig. 34 Trigonometry
Fig. 36 Gunters Scale
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he Circuminceſſion; which the *Greeks* call *Perichoreſis.* Of ach whereof we ſhall enlarge a little.

There is, then, one ſingle *Eſſence*, one divine Nature, which s Infinite, Eternal, Spiritual; which ſees all Things, which nows all Things, which is every where, All-mighty, and which created all Things of nothing. See GOD.

In this God there are two *Proceſſions*, or Emanations, *viz.* that of the Son, and that of the Holy Spirit: The firſt is call'd *Generation*, and the ſecond *Spiration.* See GENERATION, *&c.*

The Son proceeds from the Father by way of Knowledge; for God in knowing himſelf eternally, neceſſarily and infinitely, produces a Term, an Idea, a Notion or Knowledge of himſelf, and all his adorable Perfections, which is call'd his *Word*, his *Son*, who is equal to him in all Things, eternal, infinite, and neceſſary as his Father. --- The Father regards the Son as his Word, and the Son has a Regard to the Father as his Principle: And in thus reſpecting each other eternally, neceſſarily, and infinitely, they love each other, and produce an Act of their mutual Love: The Term of that Love is the Holy Spirit, who proceeds from the Father and the Son by way of Spiration, Love, and Impulſion; who is alſo equal in every Thing to the Father and the Son. See FATHER, SON, and SPIRIT.

Each divine Proceſſion eſtabliſhes two *Relations*: The one, on the Side of the Principle, or that from whence; and the other, on that of the Term, or that to which. --- Hence, as there are two Proceſſions in God, there muſt be four Relations; the Paternity, the Filiation, the active Spiration, and the paſſive.

The *Paternity* is a Relation founded in what the School Divines call the notional Underſtanding; in which the Father ſtands related to the ſecond Perſon, the Son. --- The Filiation is the Relation wherein the ſecond Perſon, *viz.* the Son refers to the Father.

The *active Spiration*, is the Relation founded in the notional Act of the Will, whereby the firſt and ſecond Perſons regard or refer to the third: The paſſive Spiration or Proceſſion, taken in its ſtrict Senſe, is the Relation whereby the third Perſon regards, and is referr'd to the firſt and ſecond. --- Hence it appears, that there are in God four Relations, as we have already ſaid; and five Notions, as we ſhall ſhew hereafter.

Perſon is defin'd an individual, reaſonable, or intellectual Subſtance; or, an intellectual and incommunicable Subſtance. See PERSON.

The Hypoſtaſis, or Subſiſtence, is what conſtitutes the Perſon. --- There are, then, in the Holy *Trinity*, three Perſons, Father, Son, and Holy Spirit, which have all Things in common, except their Relations; whence that Axiom in Theology comes to have Place, in the divine Perſons there is no Diſtinction where there is no Oppoſition of Relation: And hence it follows, that if Power be ſometimes attributed to the Father, Wiſdom to the Son, and Goodneſs to the Holy Spirit; or if Sins of Infirmity or Weakneſs be ſaid to be againſt the Father, Sins of Ignorance againſt the Son, and Sins of Malice againſt the Holy Spirit, it is only ſpoke by way of Appropriation, and not of Property; for all thoſe Things are in common: Whence that Axiom, The Works of the Holy *Trinity* are common and undivided, (*i. e.* they agree to all the divine Perſons) but not their Productions *ad intra*, (as they are call'd) by Reaſon they are Relative.

By Appropriation we mean the giving of ſome common Attribute to a certain divine Perſon, on account of ſome Suitableneſs or Agreement. Thus, in the Scriptures, in the Apoſtles, and the *Nicene* Creed, *Omnipotence* is attributed to the Father, becauſe he is the firſt Principle, and a Principle without Origin, or higher Principle. --- *Wiſdom* is attributed to the Son, becauſe he is the Term of the divine Underſtanding to which Wiſdom belongs: *Goodneſs* is attributed to the Holy Spirit, as being the Term of the Will to which Goodneſs belongs.

Some Divines give other Reaſons of ſuch Kind of Attributions and Appropriations, *viz.* that it is to ſtave off thoſe Imperfections from the divine Perſons which are found in the Creatures: For created Fathers are weak, drooping, and impotent; wherefore to ward off this Imperfection from the third Perſon, he is peculiarly ſaid to be *Almighty*.

Again, created Sons are uſually imprudent; wherefore to remove this Imperfection from the ſecond Perſon, he is ſaid to be *wiſe*, or *Eternal Wiſdom*.

Laſtly, great Minds or Spirits, among created Beings, are frequently wicked; wherefore to remove this Imperfection from the third Perſon, *Goodneſs* is attributed to him.

The Father is the firſt Perſon in the Holy *Trinity*, by reaſon the Father, alone, produces the Word, by the way of *Underſtanding*; and with the Word produces the Holy Spirit, by way of *Will*.

Here it is to be obſerv'd, that the Holy Spirit is not thus call'd from his Spirituality, that being common and eſſential to all three Perſons; but from the paſſive Spiration, which is peculiar to him alone.

Add, that when one Perſon in the Holy *Trinity* is call'd *firſt*, another *ſecond*, and another *third*, it muſt not be underſtood of a Priority of Time, or of Nature, which would imply ſome Dependance; but of a Priority of Origin and Emanation, which conſiſts in this, that one Perſon produces the other in ſuch Manner, as that the Perſon which produces cannot be, or be conceiv'd, without that produc'd.

From theſe Things it follows, that in the Holy *Trinity* there are five *Notions* (underſtanding by Notion the peculiar Manner whereby one divine Perſon is diſtinguiſh'd from another). The Notions, then, whereby the Father is diſtinguiſh'd from the Son and Holy Ghoſt, are *Innaſcibility* and *Paternity*. --- That whereby the Son is diſtinguiſh'd from the two other divine Perſons, is *Filiation*.

Active Spiration diſtinguiſhes the Father and the Son from the Holy Spirit; and *paſſive* Spiration is that whereby the Holy Spirit is diſtinguiſh'd from the Father and Son

The *Circuminceſſion* or Perichoreſis, is the intimate Inexiſtence of the divine Perſons, or their mutual in-dwelling in each other: For tho' they be really diſtinct, yet are they Conſubſtantial; whence it is that Jeſus Chriſt ſays in St. *John*, cap. xiv. *Believe ye not that I am in the Father, and the Father in me?* Identity of Eſſence, which the *Greeks* call ὁμουσία, and Conſubſtantiality, with a Diſtinction of Perſons, are neceſſary to this Circuminceſſion.

Many of the Heathens ſeem to have had a Notion of a *Trinity*. --- *Steuch. Eugub. de Peren. Philoſ.* lib. 1. cap. 3. obſerves, that there is nothing in all Theology more deeply grounded, or more generally allow'd by them, than the Myſtery of the *Trinity*. The *Chaldeans*, *Hebrews*, *Phœnicians*, *Greeeks*, and *Romans*, both in their Writings and their Oracles, acknowledg'd that the ſupreme Being had begot another Being from all Eternity, which they ſometimes call'd the *Son of God*, ſometimes the *Word*, ſometimes the *Mind*, and ſometimes the *Wiſdom of God*, and aſſerted it to be the Creator of all Things.

Among the Sayings of the *Magi*, the Deſcendants of *Zoroaſter*, this is one; Παντα ὀξετὲλεσε παντα χαὶ νῶ παρέδωκε δευτέρω: *The Father finiſh'd all Things, and deliver'd them to the ſecond Mind.* --- The Son was call'd the *Anima Mundi*. See ANIMA.

The *Ægyptians* call'd their *Trinity Hemphta*, and repreſented it by a Globe, a Serpent, and a Wing diſpos'd into one Hieroglyphic Symbol. --- *Kircher*, *Gale*, *&c.* ſuppoſe the *Ægyptians* learnt their Doctrine of the *Trinity* from *Joſeph* and the *Hebrews*.

The Philoſophers, ſays St. *Cyril*, own'd three Hypoſtaſes or Perſons. --- They have extended the Divinity to three Perſons; and even, ſometimes, us'd the Term *Trias*, *Trinity*: They wanted nothing but to admit the Conſubſtantiality of the three Hypoſtaſes, to ſignify the Unity of the divine Nature, in excluſion of all Triplicity with regard to Difference of Nature; and not to hold it neceſſary to conceive any Inferiority of Hypoſtaſes.

In effect, *Plato*, and ſome of his Followers, ſpeak of a *Trinity* in ſuch Terms, that the primitive Fathers have been accus'd of borrowing the very Doctrine from the Platonic School; but F. *Mourgues*, who has examin'd the Point, aſſerts, that nothing can be more ſtupid, than to ſuppoſe the Platonic *Trinity* brought into the Church; and to have Recourſe to the Platoniſm of the Fathers to diſcredit their Authority with regard to this Opinion. See PLATONIC.

Friary or Fraternity of the Holy TRINITY, is a Society inſtituted at *Rome* by S. *Philip Neri* in 1548, to take Care of Pilgrims coming from all Parts of the World to that Capital to viſit the Tombs of S. *Peter* and S. *Paul*. See FRATERNITY.

In order to this, they had a Houſe wherein they entertain'd them for the Space of three Days, and not only them, but poor People who were on the Recovery, and who being turn'd too haſtily out of the Hoſpitals, were expos'd to Relapſes.

It was firſt ſet on Foot in the Church of S. *Saviour* in *Campo*; and conſiſted only of fifteen poor Perſons, who met in that Church the firſt Sunday of each Month, to practiſe the Exerciſes of Piety preſcrib'd by the Founder, and to hear the Exhortations he there gave.

In 1558 Pope *Paul* IV. gave the Fraternity the Church of St. *Benedict*, to which they gave the Title of the Holy *Trinity*. Since that Time, they have built cloſe by it a very ample Hoſpital for Pilgrims, and Perſons on the Recovery.

The Fraternity is now very conſiderable, and moſt of the Nobleſſe of *Rome*, of either Sex, have done it the Honour to be of it.

Congregation of the Holy TRINITY, is a Congregation of twelve Prieſts eſtabliſh'd in the Hoſpital of the Fraternity juſt mention'd, to take Care of Pilgrims and others entertain'd therein.

The frequent Change of Prieſts in the Hoſpital occaſioning a deal of Diverſity in the Spiritual Conduct and Inſtruction of the Pilgrims; to render it more uniform, the Guardians and Adminiſtrators eſtabliſh'd a Congregation of twelve Prieſts, who lodge in a Quarter of the Hoſpital, as in a Monaſtery, and live there in Community.

Order of the Holy Trinity. See Trinitarian.

Trinity *Sunday*, is the next *Sunday* after *Whitſun-ſunday*; thus call'd, becauſe on that Day was anciently held a Feſtival, (as it ſtill continues to be in the *Romiſh* Church) in Honour of the Holy *Trinity*.

The Obſervation of this Feſtival was firſt enjoin'd by the Council of *Arles* in 1260.

Trinity *Houſe*, is a kind of College at *Deptford*, belonging to a Corporation of Sea-faring Perſons, who have Power, by the King's Charter, to take Cognizance of ſuch as deſtroy Sea-Marks, to correct the Faults of Sailors, *&c.* and to take Care of ſeveral other Things belonging to Navigation and the Seas, the Examination of young Officers, *&c.* Anno 8° *Eliz.*

TRINIUMGELD, Thri-nigon-gild, a Compenſation us'd among our *Saxon* Anceſtors for great Crimes, which were not abſolv'd but by paying a Fine thrice nine Times. See Geld.

TRINODA *Neceſſitas*, in our ancient Cuſtoms, were *Expeditio*; *Pontis, & Arcis Reparatio*; going to the Wars, repairing of Bridges, and of Caſtles.

Theſe were the three Exceptions anciently inſerted in the King's Grants of Lands to the Church, after the Words that freed them from all ſecular Service. See Pontage.

TRINODIA *terræ*, in our ancient Writers, denotes a Quantity of Land containing three Perches. See Perch.

TRINOMIAL, or Trinominal *Root*, in Mathematicks, is a Root conſiſting of three Parts, connected together by the Sign +. See Root.

Such is $x+y+z$. See Binomial.

TRIO, in Muſic, a Part of a Concert, wherein there are only three Perſons ſing; or a muſical Compoſition conſiſting of three Parts.

Trio's are the fineſt Kind of Compoſition; and theſe and Recitativo's are what pleaſe moſt in Concerts.

TRIOCTILE, in Aſtrology, an Aſpect or Situation of two Planets with regard to the Earth, when they are three Octaves, or eight Parts of a Circle diſtant from each other.

This Aſpect, which ſome call the *Seſquiquadrans*, is one of the new Aſpects ſuper-added to the old ones by *Kepler*. See Aspect.

TRIONES, in Aſtronomy, βόες αροτηρες, *q. d.* ploughing Oxen; a Sort of Conſtellation or Aſſemblage of ſeven Stars in Urſa Minor; popularly call'd *Charles*'s *Wane*. See Ursa *minor*.

From the *Septem Triones* the North Pole takes the Denomination *Septentrio*. See North, *&c.*

TRIOURS, in Law, ſuch as are choſen by the Court to examine whether a Challenge made to the Pannel, or any of them, be juſt or no. See Jury.

TRIP, a Sea Term. A Ship is ſaid to bear her Topſails *a-trip*, when ſhe carries them hoiſted up to the higheſt.

TRIPARTITION, is a Diviſion by three, or the taking the third Part of any Number or Quantity. See Partition and Division.

Hence *Tripartite*, *Tripartitus*, ſomething divided into three Parts, or made by three Parties: an Indenture *Tripartite*, *&c.* See Indenture.

TRIPLE, *Three-fold*, *Ratio*. See Ratio.

Triple, in Muſic, is one of the Species of Meaſure or Time. See Time.

Triple Time conſiſts of many different Species; whereof there are in general four, each of which has its Varieties. --- The common Name of *Triple* is taken hence, that the whole or half Meaſure is diviſible into three equal Parts, and beat accordingly.

The firſt Species is call'd the *ſimple Triple*, whoſe Meaſure is equal either to three Semibreves, to three Minims, three Crotchets, three Quavers, or three Semiquavers; which are mark'd thus, $\frac{3}{1}$ or $\frac{3}{2}$, $\frac{3}{4}$, $\frac{3}{8}$, $\frac{3}{16}$; but the laſt is not much us'd, except in Church Muſic.

In all theſe, the Meaſure is divided into three equal Parts or Times, call'd thence *Triple Time*, or the Meaſure of *three Times*, whereof two are beat down, and the third up.

The ſecond Species is the *mix'd Triple*: Its Meaſure is equal to ſix Crotchets, or ſix Quavers, or ſix Semiquavers, and accordingly mark'd $\frac{6}{4}$, or $\frac{6}{8}$, or $\frac{6}{16}$; but the laſt is ſeldom us'd.

Some Authors add other two, *viz.* ſix Semibreves, and ſix Minims, mark'd $\frac{6}{1}$ or $\frac{6}{2}$; but theſe are not in Uſe.

The Meaſure here is uſually divided into two equal Parts or Times, whereof one is beat down, and one up; but it may alſo be divided into ſix Times, whereof the firſt two are beat down, and the third up; then the next two down, and the laſt up; *i. e.* each half of the Meaſure is beat like the *ſimple Triple*, (on which Account it may be call'd the *Compound Triple*); and becauſe it may be thus divided either into two or ſix Times, (*i. e.* two *Triples*) 'tis call'd *mix'd*, and by ſome the *Meaſure of ſix Times*.

The third Species is the *Compound Triple*, conſiſting of nine Crotchets, or Quavers, or Semiquavers, mark'd $\frac{9}{4}$, $\frac{9}{8}$, $\frac{9}{16}$; the firſt and laſt are little us'd; ſome alſo add $\frac{9}{1}$, $\frac{9}{2}$, which are never us'd.

This Meaſure is divided either into three equal Parts or Times, whereof two are beat down, and one up; or each third Part may be divided into three Times, and beat like the ſimple *Triple*; on which Account it is call'd the *Meaſure of nine Times*.

The fourth Species is a Compound of the ſecond Species, containing twelve Crotchets, or Quavers, or Semiquavers, mark'd $\frac{12}{4}$, $\frac{12}{8}$, $\frac{12}{16}$, to which ſome add $\frac{12}{1}$ and $\frac{12}{2}$, which are never us'd; nor are the firſt and third much us'd, eſpecially the latter.

The Meaſure, here, may be divided into two Times, and beat one down, and one up; or each half may be divided, and beat as the ſecond Species, either by two or three; in which Caſe it will make in all twelve Times, and hence is call'd *the Meaſure of twelve Times*.

The *French* and *Italian* Authors make a great many more Species and Diviſions of *Triple* Time, unknown, or, at leaſt, unregarded by our *Engliſh* Muſicians, and therefore not ſo neceſſary to be dwelt upon here.

TRIPLICATE *Ratio*, is the Ratio which Cubes bear to each other. See Cube.

This Ratio is to be diſtinguiſh'd from *Triple* Ratio, and may be thus conceiv'd.

In the Geometrical Proportionals 2, 4, 8, 16, 32; as the Ratio of the firſt Term (2) is to the third (8), Duplicate of the firſt to the ſecond; or as 4, the Square of 2, is Duplicate of 16, the Square of 4; ſo the Ratio of 2 to 16, the fourth Term, is *Triplicate*; or as 8, which is the Cube of 2, to 64, the Cube of 4. --- And this *Triplicate* Ratio is compounded of all the preceding Ratio's. *Harris.*

TRIPLICATIO, Triplication, in Civil Law, is the ſame with Surjoinder in Common Law. See Surjoinder.

TRIPLICITY, among Aſtrologers, is the Diviſion of the Signs, according to the Number of the Elements; each Diviſion conſiſting of three Signs.

Triplicity, a Term frequently confounded with *Trine-Aſpect*; tho', ſtrictly ſpeaking, the two are very different Things.

Triplicity is only us'd with regard to the Signs; and Trine, on the contrary, with regard to the Planets. --- The Signs of *Triplicity* are thoſe which are of the ſame Nature, and not thoſe which are in Trine-Aſpect. --- Thus *Leo*, *Sagittary*, and *Aries* are Signs of *Triplicity*, becauſe thoſe Signs are all ſuppos'd fiery. See Sign.

TRIPLOIDES, of the *Greek*, τριπλος, a Surgeon's Inſtrument, with a three-fold Baſis, us'd in the reſtoring great Depreſſions of the Skull. See Trepanum.

TRIPOD, or Tripos, in Antiquity, a fam'd ſacred Seat or Stool, ſupported by three Feet, whereon the Prieſts and Sybils were plac'd to render Oracles. See Oracle.

'Twas on the *Tripos* that the Gods inſpir'd them with that divine Fury and Enthuſiaſm, wherewith they were ſeiz'd at the delivering their Predictions. See Enthusiasm.

M. *Spanheim* obſerves, that on *Roman* Medals, the *Tripod* expreſſes ſome Prieſthood, or ſacerdotal Dignity. --- A *Tripod* with a Crow and a Dolphin, is the Symbol of the Duumviri, deputed for the keeping of the Sybillin Oracles, and for the conſulting them on Occaſion.

TRIPODIUM. --- In the Laws of *Hen.* I. occurs this Paſſage. --- *In quibus vero cauſis triplicem ladam haberet, ferat judicium* Tripodii, *i. e.* 60 Solid.: The Meaning whereof is, that as for a ſmall Offence, or for a trivial Cauſe, the Compoſition was twenty Shillings; ſo for a great Offence, which was to be purg'd *Triplici lada*, the Compoſition was three times twenty Shillings, *viz. Tripodio.*

TRIPOLI, or Tripoly, call'd alſo *Alana*, a kind of Chalk, or white ſoft Stone, bordering a little on red, us'd in poliſhing the Lapidaries, Goldſmiths, Copperſmiths, and Glaſs-grinders Works. See Glass, Grinding, Polishing, *&c.*

Some imagine *Tripoli* to be a common Stone, burnt and calcin'd by the ſulphurous Exhalations which happen to be under the Mines where it is found: Of theſe Mines there are a Number in divers Parts of *Europe*, particularly in *Italy*, where the *Tripoli* is very good. --- Others take it for a Native Earth.

TRIPPING is a Term in Heraldry. See Passant.

Tripping, in Heraldry, denotes the quick Motion of all Sorts of Deer, and ſome other Creatures repreſented with one Foot up, as it were on a Trot.

TRIPTHONGUE, in Grammar, an Aſſemblage or Concourſe of three Vowels in the ſame Syllable, as *uae*. See Syllable.

Quintilian, lib. I. cap. 6. aſſerts, that there never was any Syllable of three Vowels, but that one of them was always turn'd into a Conſonant: *Scioppius* aſſerts the contrary: — However this may be in the *Latin* and *Greek*, which were the only Languages *Quintilian* underſtood; 'tis certain there are ſeveral Languages in *Europe*, wherein *Tripthongues* are in Uſe. See DIPHTHONG.

TRIPTOTES, in Grammar, defective Nouns, which have only three Caſes. See CASE.

Such are the Words *Tantundem*, *Tantandem*, *Tantidem*, and *Sordis*, *Sordem*, *Sorde*.

The Word is compounded of τρεῖς, three, and πτωτον, Caſe.

TRIREME, TRIREMIS, in Antiquity, a Galley with three Ranks of Oars on a Side. See GALLEY.

TRIS-*Diapaſon*, in Muſic, a Concord, otherwiſe call'd a *Triple Eighth* or Fifteenth. See CONCORD.

TRISACRAMENTALES, TRISSACRAMENTARIANS, an Appellation given to a Sect in Religion, who admit of three Sacraments, and no more. See SACRAMENT.

There have been ſeveral *Triſacramentarians* among the Proteſtants, who allow'd of Baptiſm, the Euchariſt, and Abſolution, for Sacraments. --- The *Engliſh* are often miſrepreſented by Foreigners as *Triſacramentarians*, from an Opinion that they allow Ordination a Sacrament. See ORDINATION.

TRISAGION, or TRISAGIUM, in Church Hiſtory, a Hymn, wherein the Word *holy* is repeated three Times. See HYMN.

The proper *Triſagion* is thoſe Words *holy*, *holy*, *holy*, *Lord God of Hoſts*, which we read in *Iſaiah* vi. 3. and in the Apocalypſe.

From theſe Words, the Church form'd another *Triſagion*, which is rehears'd in *Latin* and *Greek*, in the reſpective Churches, to this Effect: *Holy God, holy Fort, holy Immortal! have Mercy upon us.*

Petrus Fullenſis to this *Triſagion* added, *Thou who waſt crucify'd for us, have Mercy upon us*: Thus attributing the Paſſion not to the Son alone, but to all the three Perſons of the *Trinity*, and pronouncing Anathema to all ſuch as would not ſay the ſame.

The Uſe of this latter *Triſagion*, (excluſive of the Addition of *Fullenſis*) began in the Church of *Conſtantinople*, from whence it paſs'd into the other Churches of the Eaſt, and afterwards into thoſe of the Weſt. --- *Damaſcenus*, *Codin*, *Balſamon*, and others, ſay it was in the Time of the Patriarch *Proclus* that it was firſt introduc'd, and on the following Occaſion: There being a violent Earthquake in the 35th Year of the younger *Theodoſius*, the Patriarch made a grand Proceſſion, wherein, for ſeveral Hours together, was ſung the Kyrie Eleiſon, Lord have Mercy upon us. While this was in Hand, a Child was taken up into the Air, where, it ſeems, he heard the Angels a ſinging the *Triſagion* juſt mention'd. He return'd ſoon after, and told what he had heard: Upon which they began to ſing that Hymn, and the more willingly too, as they attributed the Troubles they were then under to the Blaſphemies which the Hereticks of *Conſtantinople* utter'd againſt the Son. --- *Aſclepiades*, *Cedrenus*, Pope *Felix*, *Nicephorus*, &c. relate the ſame Story.

Petrus Fullenſis, Patriarch of *Antioch*, and a zealous Partizan of *Neſtorius*, endeavour'd to corrupt the Hymn, by adding, *who ſuffer'd for us*; but in vain: It ſtill ſubſiſts in its primitive Purity, both in the *Latin*, *Greek*, *Ethiopic*, and *Moſarabic* Offices. See PATRIPASSIONS.

The Word is compounded of the *Greek*, τρεῖς, three, and ἁγιος, *ſanctus*, holy.

TRISECTION, or TRISSECTION, a dividing of a Thing into three. See DIVISION, SECTION, *&c.*

The Term is chiefly us'd in Geometry, for the Diviſion of an Angle into three equal Parts. See ANGLE.

The *Triſection of an Angle* geometrically, is one of thoſe great Problems, whoſe Solution has been ſo much ſought by Mathematicians for theſe two thouſand Years; being, in this reſpect, on a Footing with the Quadrature of the Circle, and the Duplicate of the Cube Angle. See PROBLEM.

Several late Authors have wrote of the *Triſection* of the Angle, and pretend to have found out the Demonſtration thereof; but they have all committed Paralogiſms. See ANGLE.

TRISMEGISTUS, an Epithet or Surname given to that of the two *Hermes's* or *Mercuries*, Kings of *Thebes*, in *Ægypt*, who was cotemporary with *Moſes*.

Mercury, or *Hermes Triſmegiſtus*, is the latter of the two; the former having reign'd about the Time of the Deluge. --- They are both of them repreſented as Authors of many Arts and Inſtitutions of the *Ægyptians*. See HERMETIC.

The Word is form'd from τρὶς, thrice, and μέγιστος, greateſt.

TRISOLYMPIONICES, among the Ancients, a Perſon who had thrice bore away the Prize at the Olympic Games. See OLYMPIC.

The *Triſolympionices*, or *Triſolympionicks*, had great Privileges and Honours allow'd them. --- Statues were erected to them, of the Kind call'd *Iconicæ*, which were modell'd to the Size and Form of their Perſons. See STATUE.

They were exempted from all Charges and Incumbrances, and could never be mark'd with Infamy.

The Word is compos'd of τρεις, *tres*, three, Ολυμπια, Olympic Games, and νικη, Victory.

TRISOS, of the *Greek* τριζω, a Convulſion of the Muſcles of the Temples, cauſing the Teeth to gnaſh. See CONVULSION, *&c.*

TRISPAST, TRISPASTON, in Mechanicks, a Machine with three Pullies; or an Aſſemblage of three Pullies. See PULLY.

The *Triſpaſton* is a Species of Polyſpaſton. See POLYSPASTON.

The Word is compounded of τρεις, three, and σπαω, *traho*.

TRISTRIS, TRISTIS, and TRISTA, in our old Law-Books, is an Immunity, whereby a Man is excus'd from attending on the Lord of a Foreſt, when he is diſpos'd to chaſe within the Foreſt; and is alſo not compell'd to hold a Dog, follow the Chaſe, nor ſtand at a Place appointed, which otherwiſe he might be under Pain of Amercement. *Manw. ſint quieti, &c. de Chevagio, Londepenny, Buckſtol &* Triſtri, *de omnibus Miſericordiis, &c. Privileg. de Semplingham.*

TRISYLLABLE, or TRISSYLLABLE, in Grammar, a Word conſiſting but of three Syllables. See WORD and SYLLABLE.

TRITE, in Muſic, the third muſical Chord. See CHORD and DIAGRAM.

TRITHEISM, the Opinion of the *Tritheiſts*, or the Hereſy of believing three Gods. See GOD and TRINITY.

Tritheiſm conſiſts in admitting not only of three Perſons in the Godhead; but of three Subſtances, three Eſſences or Hypoſtaſes, and three Gods. See PERSON, HYPOSTASIS, *&c.*

Several People out of Fear of giving into *Tritheiſm* have become Sabellians; and ſeveral others to avoid Sabellianiſm, have commenc'd *Tritheiſts*; ſo delicate and ſubtle is the Medium. See SABELLIAN.

In the famous Controverſy between Dr. *South* and Dr. *Sherlock*, the firſt is judg'd to have run into Sabellianiſm, by a too rigorous aſſerting of the Unity of the Godhead; and the latter into *Tritheiſm*, by a too abſolute maintaining the *Trinity*.

John the Grammarian, ſurnam'd *Philoponus*, Lover of Labour, is held the Author of the Sect of the *Tritheiſts*, under the Emperor *Phocas*; at leaſt it appears he was a zealous Advocate thereof. --- *Leontius* and *Georgius Piſides* wrote againſt him.

TRITON, in Poetry, a Sea Demi-God, held by the Ancients to be an Officer or Trumpeter of *Neptune*, attending on him, and carrying his Orders and Commands from Sea to Sea. See GOD.

The Poets and Painters repreſent him as half Man, half Fiſh, terminating in a Dolphin's Tail, and bearing in one Hand a Sea-ſhell, which ſerv'd as a Trumpet.

Some of the Ancients make him the Son of *Neptune*, and the Nymph *Salacia*; *Heſiod* of *Neptune* and *Amphitrite*; *Neumenius* in his Book *de Piſcationibus*, makes him the Son of *Ocean* and *Tethys*; and *Lycophron* the Son of *Neptune*.

But tho' *Heſiod*, and the Mythologiſts, only ſpeak of one *Triton*, yet the Poets have imagin'd ſeveral; giving ſome of them for Trumpeters to all the Sea-Gods, particularly to *Neptune* and *Venus*: accordingly they were frequently introduc'd on the ancient Theatres, and in the Naumachia.

In effect, the *Tritons* not only officiated as Trumpeters in *Neptune's* Retinue; but were alſo ſuppos'd to draw his Chariot, *i. e.* the Sea-ſhell wherein he rode over the Waters, as we find in *Virgil Æneid* X. 209. *Ovid Metam.* I. 333. and on a Medal of *Claudius*.

The Fable of the *Tritons*, no doubt, took its Riſe from Sea or Mer-men; for that there are ſuch Things as Sea-men, would ſeem a Thing ſcarce to be doubted, after what we have ſaid under the Article MER-*maid*.

The Poets ordinarily attribute to *Triton* the Office of calming the Waves, and of making Tempeſts ceaſe. --- Thus in the 1ſt of the *Metamorphoſes* we read, that *Neptune* deſiring to recal the Waters of the Deluge, commanded *Tri.* to ſound his Trumpet, at the Noiſe whereof the Water all retir'd.

TRITONE, TRITON, in Muſic, a falſe Concord, conſiſting of three Tones, or a greater Third, and a greater Tone. See CONCORD.

Its Ratio, or Proportion in Numbers, is of 45 to 32. In dividing the Octave, we find, on one Side, the falſe Fifth, and the *Tritone* on the other. See OCTAVE.

The *Tritone* is a kind of redundant Third, conſiſting of three Tones, whence its Name; or, more properly, of two Tones, with a greater Semitone, and a leſſer, as of *ut* to *fa*, of *fa* to *ſi*, *&c.* — But it is not, as many imagine, a greater Fourth; for the Fourth is a perfect Interval, which does not admit of any Majority or Minority: Nor muſt the *Tritone* be confounded with the falſe Fifth; for the *Tritone* only comprehends four Degrees, *viz. ut*, *re*, *mi*, *fa*, whereas the falſe Fifth comprehends Five, *viz. fa, ſol, la, ſi, ut*; beſides, that among the Six Semitones, which compoſe the *Tritone* chromatically, there are three greater and three leſſer; whereas among the Six Semitones, which compoſe the falſe Fifth, there are only two leſſer, and four greater. See THIRD, FOURTH, FIFTH, *&c.*

TRITURATION, in Pharmacy, *Grinding*; the Act of reducing a ſolid Body into a ſubtile Powder; call'd alſo *Levigation*, *Pulveriſation*, *&c.* See POWDER, LEVIGATION, *&c.*

The *Trituration* of Woods, Barks, Minerals, and other hard and dry Bodies, is perform'd in Metalline Mortars.

The ſame Term is alſo applied to the comminuting, bruiſing and dividing of humid Matters, into little Parts: --- The *Trituration* of moiſt Bodies is perform'd in Marble, or Stone Mortars, with Peſtles of Wood, Glaſs, Ivory, *&c.*

The Word is form'd from *tri* and *tero*, I wear.

Trituration, *Boerhaave* obſerves, has a wonderful Force to diſſolve ſome Bodies, and will render them as fluid, as if they were fuſed by the Fire. ---- Thus if you grind the Powder of Myrrh, and Salt of Tartar together, they will diſſolve each other. By rubbing new and bright Filings of Iron in a Mortar, with double their Weight of clean Sulphur, the Iron will be diſſolved, ſo as by diluting it with Water to afford the Vitriolum Martis. See IRON and VITRIOL.

Gold long ground in a Mortar, with Salt of Tartar, will yield a kind of Tincture; and rubbed with Mercury, in a Mortar of Glaſs, it entirely diſſolves into a Purple Liquor, and becomes a moſt powerful Medicine.

Dr. *Langelotte* has wrote a curious Treatiſe of the great Effects of *Trituration* in Chymiſtry; and deſcribes a peculiar Way he employed to grind Gold, whereby he could render it as fluid as the Fire does, and make an Aurum Potabile, by the bare Motion of a Mill. See GOLD and POTABLE.

That Author, in the *Philoſophical Tranſactions*, mentions his way of grinding Gold, and deſcribes two Engines, or Philoſophical Mills for the Purpoſe, with one of which, in the Space of Fourteen natural Days, he reduced a Leaf of Gold to a duſky Powder, and putting it into a ſhallow Retort placed in a Sand Heat, he thence obtained, by gradually increaſing the Fire and giving a ſtrong one at laſt, a few very red Drops, which, digeſted *per ſe*, or with tartarized Spirit of Wine, afforded a pure and genuine Aurum Potabile.

The Succeſs of this Operation, the Doctor attributes, in a great meaſure, to the Salt of the Air, which in grinding, plentifully mixes and unites itſelf with the Gold.

TRITURATION, in Medicine, is uſed for the Action of the Stomach, on the Food. See STOMACH, *&c.*

Some Phyſicians have maintain'd, that Digeſtion was perform'd by *Trituration*, and not by *Fermentation*, *i. e.* that all the Stomach does, is to grind and comminute the Food into ſmaller Parts to fit it for Nutrition, without any other Alteration therein. See the Article DIGESTION, where the Doctrine is laid down at large.

This Syſtem was much talk'd of ſome Years ago, being countenanced by Dr. *Pitcairn*, and others; but ſeems now much declined.

The Doctrine of *Trituration* is not new: --- *Eriſiſtratus* maintain'd it in all its Latitude many Ages ago; and the Moderns have only revived it.

It was firſt broach'd in the Time of *Hippocrates*, that is, in a Time when Anatomy was but little known; and 'twas this that render'd it current. ---- An Opinion was entertain'd by ſome Phyſicians of thoſe Times, that the Stomach was only the Receptacle of the ſolid or dry Foods; that thoſe Foods, after having been diluted, and broke in the Mouth, were again broke more perfectly in the Stomach, and by this means alone were converted into Chyle: but that the Drink, by reaſon of its Liquidity, not being ſubject to be broken, went to the Lungs, and not the Stomach, where, by reaſon of its abundance, it would rather have prejudiced the Digeſtion than have aided it.

Hippocrates, we read, in the fourth Book of *Diſeaſes*, ſtood up ſtrenuouſly againſt an Opinion ſo viſibly contrary to Reaſon and Experience; and he informs us, That if he gave himſelf this Trouble, 'twas becauſe the Error had already got a good number of Partizans. ---- It could not ſtand long againſt the Reaſons of *Hippocrates*; and its Defeat was followed by the intire Ruin of the Syſtem of *Trituration*, which had its Foundation thereon.

But *Eriſiſtratus* retrieved it again; and the Doctrine, after having been ſupported for ſome time, fell anew into Oblivion; whence ſome late Authors have in vain endeavour'd to recover it.

TRIUMPH, TRIUMPHUS, a Ceremony or Solemnity, practiſed among the ancient *Romans*, to do Honour to a victorious General, by affording him a magnificent Entry into their City.

The *Triumph* was the moſt pompous Spectacle known among the Ancients: Authors uſually attribute its Invention to *Bacchus*; and tell us, that he firſt *triumph'd* upon the Conqueſt of the *Indies*; and yet this Ceremony was only in uſe among the *Romans*.

The *Triumph* was of two Kinds, the *leſſer* and the *greater*. --- The *leſſer Triumph* was granted upon a Victory over ſome unequal or unworthy Enemy; as over Pyrates, Slaves, *&c.* ---- This they call'd *Ovatio*; becauſe the only Sacrifices offer'd herein, were Sheep. See OVATIO.

The *greater Triumph*, call'd alſo *Curulis*, and, ſimply, The *Triumph*, was decreed by the Senate to a General, upon the conquering of a Province, or gaining a ſignal Battle.

The Order and Oeconomy of the *Triumph* was thus: --- The General having diſpatch'd Couriers with Tidings of his Succeſs, the Senate met in *Bellona*'s Temple to read his Letters: ---- This done, they ſent him the Title of *Imperator*, with Orders for him to return, and to bring his victorious Troops along with him. When he was arrived near the City, the General and principal Officers took Oath of the Truth of the Victory; and the Day of *Triumph* was appointed.

The Day being arrived, the Senate went to meet the Conqueror without the Gate call'd *Capena* or *Triumphalis*, and march'd in order before him to the Capitol. --- He was richly clad, in a Purple Robe Embroider'd with Figures of Gold, ſetting forth his glorious Atchievements: His Buskins were beſet with Pearl, and he wore a Crown, which at firſt was only Laurel, but afterwards, Gold: One Hand bore a Laurel Branch, and the other a Truncheon. He was drawn in a Car or Chariot, adorn'd with Ivory and Plates of Gold, drawn uſually by two white Horſes, though ſometimes by other Animals; as that of *Pompey*, when he *triumph'd* over *Africa*, by Elephants; that of *Mark Anthony*, by Lions; that of *Heliogabalus*, by Tygers; that of *Aurelian*, by Deer; that of *Nero* by Hermophrodite Mares, *&c.*

At his Feet were his Children, or, ſometimes, on the Chariot Horſes. ---- 'Tis added, that the public Executioner was behind him, to remind him, from Time to Time, that theſe Honours were Tranſitory, and wou'd not ſcreen him from the Severity of the Laws, if he ſhould ever be found delinquent.

The Cavalcade was led up by the Muſicians, who had Crowns on their Heads: after them came ſeveral Chariots, wherein were Plans of the Cities and Countries ſubdued, done in Relievo: They were followed by the Spoils taken from the Enemy, their Horſes, Arms, Gold, Silver, Machines, Tents, *&c.* After theſe came the Kings, Princes or Generals ſubdued, loaden with Chains, and followed by Mimicks and Buffoons, who inſulted over their Misfortunes. ---- Next came the Officers of the conquering Troops, with Crowns on their Heads.

Then appear'd the *triumphal* Chariot; before which as it paſs'd, they all along ſtrew'd Flowers; the Muſic play'd in Praiſe of the Conqueror amidſt the loud Acclamations of the People, crying *Io Triumphe*.

The Chariot was follow'd by the Senate clad in white Robes, and the Senate by ſuch Citizens as had been ſet at Liberty or Ranſom'd.

The Proceſſion was cloſed by the Sacrificers, and their Officers and Utenſils, with a white Ox led along for the chief Victim.

In this Order they proceeded through the *triumphal* Gate, along the *Via Sacra* to the Capitol, were the Victims were ſlain.

In the mean time, all the Temples were open; and all the Altars loaden with Offerings and Incenſe; Games and Combats were celebrated in the public Places, and Rejoycings appear'd every where.

What was horrible amidſt all this Mirth, was, that the Captives, when arrived at the Forum, were led back to Priſon and Strangled; it being a Point of Religion with them, not to touch the Victims till they had taken full Revenge of their Enemies. ---- The Rites and Sacrifices over, the *Triumpher* treated the People in the Capitol, under the Porticos, and ſometimes in *Hercules*'s Temple.

TRIUMPHAL *Crown* or *Garland*. See CROWN.

It is ſaid to have been taken from *Apollo*'s crowning his Head with a Laurel, after killing the *Delphick* Serpent. --- It was as much eſteem'd by the *Romans*, as if it had been Gold.

TRIUMVIR, one of three Perſons who govern abſolutely and with equal Authority in a State.

The Word is little uſed but in the *Roman* Hiſtory. --- *Cæſar*, *Craſſus* and *Pompey* were the firſt *Triumvirs*, *i. e.* the firſt who divided the Government of the Republic among them. See TRIUMVIRATE.

There were alſo other Officers, call'd *Triumvirs*, *Triumviri*; as the *Triumviri Capitales*, created in the Year of *Rome* 463, to take Care of Priſoners, and look to the Execution of Criminals.

Triumviri Monetales, who were Magiſtrates created at the ſame time, to look to the Coinage of the Money; whence that Mark ſtill extant on many ancient Coins, IIIVIRI. --- Theſe Officers were very conſiderable, and choſen out of the

Knights. They made Part of the *Centumviri.* The Title they bear on Medals, is IIIVIR AAA FF. *Triumvir Auro Argento Ære Flando, Feriendo,* which ſignifies that they had the Direction of the caſting and ſtriking of Gold, Silver and Braſs.

There were alſo --- *Triumviri Ædibus reficiendis,* Officers appointed to look to the Reparation of Temples. — *Triumviri Colonis deducendis,* for the conducting and ſettling of Colonies. --- *Triumvirs* for the raiſing of Troops. ---- *Nocturnal Triumviri,* to prevent or extinguiſh Fires. --- *Triumvirs* to review the Forces, *&c.*

In the *Acilian* Family, we read of one M. *Acilius* IIIVIR VALETU. that is, *Triumvir of Health,* or a Magiſtrate of Health. ---- M. *Spanheim* takes him to have been a Commiſſioner eſtabliſh'd to perform Sacrifice to the Gods of Health, to Dedicate their Temples, *&c.*

Onuphrius and *Vaillant* read *Triumvir Valetudinis*; *Patin, Triumvir Valetudinarius*; but M. *Spanheim,* with much more Reaſon, reads *Triumvir Valetudo*; in like manner, as on a Medal of the *Aquilian* Family, we read IIIVIR VIRTUS, ſignifying, that one M. *Aquilius* had been made *Triumvir,* to repair the Temple of *Virtue,* and *Acilius,* that of *Health.*

TRIUMVIRATE, an abſolute Government adminiſter'd by three Perſons, with equal Authority. See TRIUMVIR.

There were two famous *Triumvirates* at *Rome,* --- *Pompey, Cæſar* and *Craſſus* eſtabliſhed the firſt; and *Auguſtus, Mark Anthony* and *Lepidus,* the ſecond.

This latter *Triumvirate* gave the laſt Blow to the Liberty of the Republic. *Auguſtus* having vanquiſh'd *Lepidus* and *Anthony,* the *Triumvirate* ſunk into a Monarchy. See MONARCHY.

TRIUNE, *q. d. tres in Uno,* Three in one, a Term ſometimes applied to God, to expreſs the Unity of the God-head, in a Trinity of Perſons. See TRINITY.

TROCHAIC, TROCHAICUS, in the *Latin* Poetry, a kind of Verſe conſiſting of *Trochees*; or wherein that Foot predominates; as the *Iambic*'s do in the Iambic. See IAMBIC and TROCHEE.

The XVIIIth Ode of the II. Book of *Horace*'s Odes, conſiſts of Strophes of two Verſes, the firſt whereof is *Trochaic* Dimetre Catalectic; *i. e. Trochaic,* compoſed of three *Trochees,* beſides a Syllable at the End.

Non ebur neque Aureum -------
Largioria flagito.

TROCHANTER, in Anatomy, a Name given to two Apophyſes ſituate in the upper Part of the Thigh-bone. See APOPHYSIS.

The largeſt, which is above, is call'd the *great Trochanter*; and the ſmaller, beneath, the *leſs Trochanter.* See FEMUR.

The Word literally ſignifies *Rotator* or *Roller,* from the *Greek,* τροχάω, *roto,* I run, I turn round. --- That Appellation was given to thoſe Apophyſes, by reaſon they receive the Tendons of moſt of the Muſcles of the Thigh, amongſt which are the Obturators which move it round. See OBTURATOR.

TROCHEE, TROCHÆUS, in the *Greek* and *Latin* Poetry, a kind of Foot, conſiſting of two Syllables, the firſt long, the latter ſhort --- Such are the Words *vade* and *muſa.* See FOOT.

The *Trochee* is the Reverſe of the Iambus; and has a juſt contrary Effect; the latter being light and ſprightly, and the former weak and languid, as all thoſe Meaſures are, which move from a long to a ſhort Syllable. See IAMBIC.

Some call the *Trochee,* the *Choree, Chorœus,* becauſe proper for Songs and Dances.

TROCHE, TROCHISCUS, in Pharmacy, a Form of Medicine, made to be held in the Mouth to diſſolve.

The *Troche* is properly a dry Compoſition, the chief Ingredients whereof, after having been brought into a very ſubtile Powder, are incorporated with ſome proper Liquor, as diſtill'd Waters, Wine, Vinegar or Mucilages; and reduced into a Maſs, which is moulded into little Cakes or Balls of any Form, at Pleaſure, and dried in the Air far from the Fire.

There are *Troches* of various Kinds, and for various Intentions; as Purgative, Alterative, Aperitive, Corroborative, *&c.*

Latin Authors call them *Paſtilli, Rotulæ, Placentulæ, Orbes* and *Orbiculi*; and the *Engliſh,* frequently, *Lozenges.*

The chief *Troches* are of Agaric, Liquorice, Nutmeg, Amber, Rhubarb, Capers, Myrrh, Roſes, Camphor, Squillæ, Vipers, *&c.*

Thoſe of Coloquintida, are call'd *Troches of Alhandal,* from the *Arabs,* who call Coloquintida, *Handal.*

TROCHILUS, TROCHILE, in Architecture, a large hollow Member, whoſe Cavity is compoſed of two Arches; ſuch is that HKI, Tab. Architect. Fig. 13.

The *Trochilus* is uſually call'd by the Modern Architects, *Scotia.* See SCOTIA; and by our *Engliſh* Workmen, *Caſement.* See CASEMENT.

TROCHITÆ, or TROCHITES, in natural Hiſtory, a kind of figur'd foſſil Stones, reſembling Plants; vulgarly call'd St. *Cutberd*'s *Beads.* See FOSSIL and STONE.

They are uſually of an opake, dark Colour, break like Flint, poliſh'd and ſhining, and are eaſily diſſolv'd in Vinegar. --- Their Figure is generally Cylindrical, ſometimes a little Tapering, the Circumference ſmooth, and both the flat Sides cover'd with fine Radii drawn from a certain Hole in the Middle to the Circumference. See Tab. Natural Hiſtory, Fig. 12.

Two or three or more of theſe *Trochitæ* joyn'd together, conſtitute what the Naturaliſts call an *Entrochos.* See ENTROCHOS.

The *Trochitæ,* or ſingle Joints, are ſo ſet together, that the Rays of one enter into Furrows in the other, as in the Sutures of the Skull. --- They are found in great Plenty in the Bodies of the Rocks at *Braughton* and *Stock,* two Villages in *Craven,* at all Depths under Ground; in *Mendip* Hills, *&c.* ſometimes only ſprinkled here and there, and ſometimes in large Strata or Beds of all Magnitudes, from the Size of the ſmalleſt Pin, to two Inches about.

They are generally found ramous or branchy, larger Branches ariſing from the Stem, or Cylinder, and ſmaller from theſe. The Branches being deeply inſerted into the Stem, the tearing them off leaves great Holes therein.

Dr. *Liſter* has diſcover'd a ſort of little Fragments among them, which he takes to have been the Apices of the Plants; and another Sort, which he ſuppoſes to have been the Roots. --- In effect, the *Trochitæ* are generally allow'd to be the Bodies of Rock-Plants, ſuch as Coral is. See ROCK-*Plant.*

Mr. *Beaumont* in the *Philoſophical Tranſactions,* aſſures us, he has found that all the Cliffs in ſome Mines, are made up of theſe Stone-plants, ſome whereof have been converted into Lime-ſtone Rocks, while in their tender Growth; while others becoming Spar, compoſe Bodies of that Subſtance; and conſidering that all the Cliffs for a very large Circumference in ſome Places, conſiſt wholly of theſe Plants; we may ſay, there have been, and, in all probability, ſtill are whole Fields or Foreſts of theſe under Ground, as there are of Coral in the Red Sea. See CORAL.

In the Courſes between the Cliffs, are found of theſe Plants at all Stages and Degrees of Maturity, growing up in the gritty Clay, and rooted in the rake mold Stones, many of them of the Form and Dimenſions of a Tobacco-pipe, ſome yet crude or raw Clay, others of the Conſiſtence of Lime-ſtone, others ſtill harder, with the evident Beginnings of Circles and Sutures; and others full grown, and become perfect Spar, which is their Point of Maturity. See SPAR.

The Pith continues ſtill white and ſoft; as the whole Plant, no doubt, was at firſt; and is continually refreſhed by the mineral Streams and Moiſture which have free Acceſs to it through Five hollow Slits or Feet in the figured Roots, or through the Maſs of Clay uſually lying under the plain Roots.

Nor can it be denied, but theſe Stone-plants have true Life and Growth. --- In the Curioſity of their Make, they may vie with moſt of the Vegetable Kingdom, and are ſhaped and formed like them, having Stem, Branches, Roots, an inward Pith, as likewiſe Joints and Runnings in their Girt, and ſometimes Cells to ſupply the Place of Veins and Fibres: Why, then, mayn't they be allowed as proper Vegetations, as other Plants?

Indeed 'tis highly probable, theſe Rock-plants are *Lapides ſui Generis,* and not parts of Animals or Plants petrified, as many Authors have imagined. --- If the figured Roots, whereon they ſometimes grow, give any Suſpicion they might have belong'd to an Animal, particularly a Species of the Stella Arboreſcens; the Trunks clearly evince the contrary, and can never be look'd on as Parts of an Animal: nor are they reducible to any known Species of Vegetables. Mr. *Beaumont* tells us, he has by him above 20 different Species of *Trochites,* all of them wonderfully regular, and not to be parallelled by any Vegetable he knows of in Nature: and 'tis inconceivable how ſo many Species diffuſed through many Parts of the Earth, ſhould come to be loſt. See PLANT, PETRIFACTION, CORNU *Ammonis, &c.*

TROCHLEA, one of the mechanical Powers, uſually call'd a *Pulley.* See PULLEY.

Hence the Cavity in the Bone of the Arm or Shoulder, whereinto, when the Arm is ſtretched forth, the Proceſs of the undermoſt and leſſer of the long Bones of the Cubitus enters, is alſo called *Trochlea.* See CUBITUS, *&c.*

TROCHLEARES, in Anatomy, a Name given the oblique Muſcles of the Eye, becauſe ſerving to pull the Eye obliquely upwards or downwards, as if it turn'd like a Pulley. See OBLIQUUS and EYE.

TROCHOID, TROCHOIDES, in Geometry, a Curve, whoſe Geneſis may be thus conceived. --- If a Wheel or Circle be moved with a two-fold Motion at the ſame time, the one in a right Line, and the other circularly about its Centre; and theſe two Motions be equal, *i. e.* deſcribe two equal Lines in the ſame Time: And if in the Radius, which at the beginning of the Motion, reaches from the Centre of the Wheel, or the firſt Point of the Line which deſcribes the Circumference;

If, I ſay, in this Radius a Point be taken any where except in the Centre, this Point will deſcribe a Curve, one Part whereof will be below the Line deſcribed by the Centre, and the other above it. -- This Line, thus deſcribed by the Point taken in the Radius, is call'd the *Trochoid.*

The right Line which joyns the two Extremities of the *Trochoid*, and which is either the Path the Wheel makes, or a Line parallel to that Path, is call'd the *Baſe of the Trichoid.*

The *Axis of the Trochoid*, is the Diameter of the Wheel, perpendicular to the Baſe in the middle of the Motion; or that Part of the Radius between the *Trochoid* and its Baſe. --- The Point wherein the Axis is cut into two Parts by the Line deſcribed by the Centre of the Wheel, is call'd the *Centre of the Trochoid*; the uppermoſt Point of the Axis, the *Vertex of the Trochoid*; and the Plane, comprehended between the *Trochoid* and its Baſe, the *Trochoidal Space.*

The *Trochoid* is the ſame with what we otherwiſe call the *Cycloid*; the Properties, *&c.* whereof, ſee under the Article Cycloid.

The Word is form'd from the *Greek*, τρόχος, Wheel, and εἶδος, Form.

TROGLODYTES, Troglodytæ, in the ancient Geography, a People of *Æthiopia*, ſaid to have lived in Caves under Ground.

Pomp. Mela gives a ſtrange Account of them. --- He ſays they did not ſo properly ſpeak as ſhriek; that they liv'd on Serpents, *&c.*

Tzetza calls them *Ichthyophagi. Montanus* takes them to be the ſame with thoſe call'd in Scripture *Ghanamim. Pintianus* in *Strabo*, will have them wrote without the *l*, *Trogoditæ.*

The Word is form'd of the *Greek*, τρωγλη, Caverna.

Troglodytes are alſo ſpoke of as a Sect of *Jewiſh* Idolaters. See Sect.

The Prophet *Ezekiel* relates, *cap.* viii. *v.* 8. 9. 10, *&c.* that God, among other Abominations of the *Iſraelites* which he ſet before him, ſhew'd him ſeventy old Men, who with their Cenſers in their Hands, adored ſecretly, all kinds of Animals and Reptiles painted on the Wall.

Philaſtrius on this Viſion of the Prophet, erects theſe Idolaters into a Sect of *Iſraelites*, who, hiding themſelves under Ground and in Caves, adored all kinds of Idols: And the Editor of *Philaſtrius* calls this Sect *Troglodytes*, from τρώγλη, a Cave, and δύω, I penetrate, as believing, on the Credit of *Philaſtrius*, that thoſe of this Sect hid themſelves in Caves.

And yet the Prophet plainly ſhews, that it was in ſecret Parts of their Houſes, and not in ſubterraneous Caverns, that theſe 70 *Iſraelites* Idolatrized.

The Word *Troglodytes*, then, is feign'd; ſo is the Sect.

TROIA or Trojan *Games*, *Ludi* Trojani, were Games inſtituted by *Aſcanius*, Son of *Æneas*; and which afterwards paſs'd to the *Romans*, and were celebrated in the Circus by the Youth of *Rome*. See Games and Circus.

One of the Number who preſided over the Solemnity, was call'd the *Princeps Juventutis*; and was always of one of the firſt Families in *Rome*. See Prince.

At firſt, 'tis ſuppoſed, they only engaged on Foot and on Horſeback; becauſe *Virgil*, who deſcribes theſe Games in the *Æneid. lib.* V. only ſpeaks of Horſes and Cavaliers, without any mention of Bigæ and Quadrigæ, which were not in Uſe at *Rome*, till long after *Aſcanius*. --- And yet *Dion*, ſpeaking of *Cæſar*'s Games, ſays, the Youth there combated in Chariots: But 'tis thought by ſome, that theſe were not the *Trojan* Games, but Courſes and Combats of a different Kind, proper for young People of a more advanced Age.

TROLLING, among Anglers. --- *To Troll*, is to fiſh for Pikes with a Rod, whoſe Line runs on a Reel. See *Pike*-Fishing.

TRONCHONNE *&* *demembree*, in Heraldry, denotes a Croſs or other Thing cut in Pieces and diſmembred, yet ſo as all the Pieces keep up the Form of a Croſs, though ſet at a ſmall Diſtance from one another. See Cross.

TRONAGE, Tronagium, an ancient Cuſtom or Toll pay'd for the weighing of Wooll.

The Word comes from *Trona*, an old Name for a Beam to weigh withal. Hence

TRONATOR, an Officer of the City of *London*, whoſe Buſineſs it was to weigh the Wooll brought into that City.

TRONE-*Weight*, was the ſame with what we now call *Troy-weight*. See Weight.

TROOP *of Horſe*, is a ſmall Body of Horſe, under the Command of a Captain; anſwering to a Company of Foot. See Company and Captain.

Independant Troop, is a *Troop* that is not imbodied with, or joined to any Regiment. See Regiment, Guard, *&c.*

To beat the Troop, is the ſecond Beat of a Drum, whereby the Foot are advertis'd to march. See Drum.

TROPE, Tropus, in Rhetoric, a kind of Figure of Speech, whereby a Word or Diction is changed from its proper and natural Signification into another, with ſome Advantage. See Figure.

As, when we ſay an *Aſs*, for a *ſtupid Perſon*; *Thunderbolt of War*, for a *great Captain*, to *waſh the Black-more white*, for a *fruitleſs Undertaking.*

This Change of Senſe is never to be uſed, but where it gives a Force and Dignity, or renders the Diſcourſe more ſignificant, weighty and graceful.

'Tis call'd *Trope*, from the *Greek*, τρέπω, *verto*, I turn, change, in regard the Words are here transferred from the Things they properly import, to others which they only import indirectly; and that *Tropes* only ſignify the Things they are applied to by reaſon of the Connexion and Relation thoſe Things have with thoſe others, whoſe proper Names they are.

This Change or Inverſion is perform'd various Ways; but chiefly Four; whence ariſe four principal *Tropes*, *viz.* the *Metaphora*, *Metonymia*, *Synechdoche* and *Ironia*; each whereof, ſee under the proper Articles, Metaphora, Metonymia, Synecdoche, *&c.*

Some Authors confound the Term *Trope*, with *Figure*; but they are very different Things. --- Moſt Authors, as F. *de Colonia*, *&c.* make Figure, the Genus, and *Trope*, a Species; defining *Figure* to be any Ornament in Diſcourſe, whereby it is raiſed above the common Language; and *Trope* to be that peculiar kind of Ornament which conſiſts in the Change of the Senſe, *&c.*

But *Voſſius* makes *Trope* and Figure to be two collateral and independent Things; defining *Trope* to be the Change of the Senſe, *&c.* And *Figure*, to be any Ornament, except what becomes ſo by ſuch Change, *&c.* See Figure.

'Tis in the *Tropes*, principally, that the Richneſs and Variety of a Language conſiſts; and yet thoſe ſhould never be uſed but to expreſs what could only be repreſented imperfectly, in common and proper Terms. --- *Tropes* ſhould always be clear; they are vicious, if they be obſcure, or too far-fetch'd. The Idea of the *Trope* ſhould be ſo connected with that of the proper Name, that they ſhould follow each other; ſo that in exciting the one, the other ſhould be awakened of courſe.

Beſides the four capital *Tropes* above-mentioned, there are ſeveral inferior ones: When the *Trope* is too bold, 'tis call'd an *Hyperbole*; when continued, 'tis an *Allegory*; when too obſcure, an *Ænigma*; when it ſhocks us, or is too remote, a *Catachreſis*. See Hyperbole, Allegory, Ænigma, *&c.*

Add to theſe, other *Tropes*, as the *Metalepſis*, *Antonomaſia* and *Litotes* or *Extenuation*. See Metalepsis, *&c.*

Some alſo refer the Six Kinds of Irriſion, to the *Tropes*, *viz.* the *Sarcaſm*, *Diaſyrm*, *Charientiſm*, *Aſteiſm*, *Mycteriſm* and *Muneſis*; but without ſufficient Reaſon. See Sarcasm, *&c.*

TROPHY, Trophæum, among the Ancients, a Pile or Heap of Arms of a vanquiſh'd Enemy, rais'd by the Conqueror in the moſt eminent Part of the Field of Battel.

The Word is alſo uſed for an artificial Repreſentation of ſuch a Pile in Marble, Stone or other Matter. -- Such were the *Trophies* of *Marius* and *Sylla* in the Capitol, *&c.*

The ancient *Trophies* conſiſt of *Greek* and *Roman* Arms; and the Modern ones of Arms of the various Nations now in uſe; as in thoſe inſolated ones near *Blenheim*, in the *Fauxbourg*, S. *Antoin*, and in the Caſtle of *Verſailles.*

Some are done in Baſſo-Relievo, as thoſe of the *Trajan* Column, and the Attic of the Court of the *Louvre.*

Trophies are likewiſe frequently exhibited on Medals of the Emperors, ſtruck on occaſion of Victories; wherein, beſides Arms and Spoils, are frequently ſeen, one or two Captives by the Sides of the *Trophy.*

Trophies, M. *Vaillant* obſerves, were, originally, nothing but Trunks of Trees, which the Victor planted on the moſt eminent Part of the conquer'd Province, and which were hung with the Spoils of the Enemy, to perpetuate the Memory of his Defeat.

The Word is form'd from the *Latin*, *Trophæum*, which *Voſſius* deduces from the *Greek*, *Trope*, the Flight of an Enemy.

TROPHY *Money*, a Duty of 4 *d.* paid Annually by the Houſe-keepers or the Trained Bands, for the Drums, Colours, *&c.* of their reſpective Companies. See Militia.

TROPICKS, Tropici, in Aſtronomy, two immoveable Circles of the Sphere, drawn through the Solſtitial Points, parallel to the Equator. See Circle and Sphere.

Such are the Circles M E and N L, Tab. Aſtronomy, Fig. 52. See Solstitial *Point.*

Or, the *Tropicks* may be defined two Circles parallel to the Equator, at ſuch Diſtance therefrom, as is equal to the Sun's greateſt Receſs from the Equator towards the Poles; or to the Sun's greateſt Declination; or the Obliquity of the Ecliptic. See Declination, Obliquity, *&c.*

That of the *Tropicks* drawn through the beginning of *Cancer* E, is called the *Tropic of Cancer*. See Cancer.

And that through the beginning of *Capricorn*, the *Tropic of Capricorn.* See Capricorn.

They have their Name from the *Greek*, τροπὴ, *Turn*, *Converſion*, as being the Limits of the Sun's Way, or Declination towards North and South; ſo that when the Sun is arriv'd at either of them, he *turns* the other Way.

Hence, 1°. Since the Declination of the Ecliptic is the Arch E A or L D; E N will be the Diſtance of the *Tropicks* which is double the greateſt Declination.

2°. Wherefore if the Sun's Meridian Altitude be obſerv'd, both in the Winter and Summer Solſtice, and the latter be ſubtracted from the former, the Remainder will be the Diſtance of the *Tropicks*; half whereof is the greateſt Declination of the Ecliptic. See Ecliptic.

Tropicks, in Geography, are two leſſer Circles of the Globe, drawn parallel to the Equator, thro' the Beginnings of *Cancer* and *Capricorn*. See Cancer and Capricorn.

Theſe *Tropicks* are in the Planes of the Cœleſtial *Tropicks*, and at the Diſtance of 23° 29′ from the Equator, which is the Sun's greateſt Declination. See Circle and Globe.

TROPISTS, or Tropici, the Name of a Sect. --- St. *Athanaſius*, in his Letter to *Serapion*, gives this Appellation to the *Macedonians*, who were alſo call'd *Pneumatomachi* in the Eaſt, and *Patripaſſians* in the Weſt. See Pneumatomachi, *&c.*

The Reaſon of the Name *Tropiſt* was, that they explain'd the Scripture altogether by Tropes and Figures of Speech. See Trope.

The *Romaniſts* alſo give the Appellation *Tropiſts* to thoſe of the Reform'd Religion; in regard of their conſtructing the Words of the Euchariſt figuratively. See Transubstantiation.

TROPITES, Tropitæ, a Sect, who, according to *Philaſtrius*, maintain'd that the Word was *turn'd* or *chang'd* into Fleſh, or into Man.

This Opinion they founded on that Paſſage of St. *John*, miſunderſtood; *The Word was made Fleſh*; as if it imported, that the Word was converted into Fleſh, and not that he was cloath'd with our Fleſh, and our Nature.

TROT, in the Manage, one of the natural Paces of a Horſe, perform'd with two Legs in the Air, and two on the Ground at the ſame time, croſs-wiſe, like St. *Andrew*'s Croſs; and continuing ſo alternately to raiſe the hind Leg of one Side, and the fore Leg of the other Side at once, leaving the other hind and fore Leg upon the Ground till the former come down.

In this Motion, the nearer the Horſe takes his Limbs from the Ground, the opener, the evener, and the ſhorter his Pace will be. --- If he takes up his Feet ſlovenly, it is a Sign of Stumbling and Lameneſs; if he tread narrow, or croſs, it betokens interfering or failing; if he tread long, it ſhews over-reaching; if he ſtep uneven, it beſpeaks Toil and Wearineſs.

TROUBADOURS, or Trouveours, or Trouvers, a Name anciently, and to this Day, given the ancient Poets of *Provence*. See Poetry.

Some will have the Name borrow'd from *trouver*, to find, by reaſon of their *Inventions*; tho' others take them to have been call'd *Trombadours*, by reaſon they ſung their Poems on an Inſtrument call'd a *Trompe* or *Trump*.

The Poeſy of the *Troubadours* conſiſted in Sonnets, Paſtorals, Songs, Syrventes or Satyrs, which were much to their Taſte; and in Tenſons, which were Love Diſputes.

Jean de Notre Dame, commonly call'd *Noſtradamus*, a Procureur in the Parliament of *Provence*, wrote an ample Diſcourſe of theſe Poets. --- He makes their Number ſeventy-ſix.

Paſquier tells us, he had an Extract of an ancient Book belonging to Cardinal *Bembo*, entitled, *Los Noms daquels qui firent Tenſons & Syrventes*, which made their Number ninety-ſix, among which was an Emperor, *viz. Frederick* I. and two Kings, *viz. Richard* I. of *England*, and a King of *Arragon*, with a Dauphin, ſeveral Counts, *&c.* Not that all theſe had compos'd entire Works in Provincial; ſome of them had not brought forth any thing beyond Epigrams.

Petrarch ſpeaks with Applauſe of ſeveral *Troubadours* in the IVth Chapter of the Triumph of Love. --- The *Italian* Poets are ſaid to have borrow'd their beſt Pieces from the *Troubadours*. *Paſquier* declares expreſly, that *Dante* and *Petrarch* are, indeed, the Fountains of the *Italian* Poetry; but Fountains which have their Sources in the Provincial Poetry.

Bouche, in his Hiſtory of *Provence*, relates, that about the Middle of the XIIth Century, the *Troubadours* began to be eſteem'd throughout *Europe*, and that their Credit and Poeſy was at the higheſt about the Middle of the XIVth. He adds, that it was in *Provence* that *Petrarch* learnt the Art of Rhiming, which he afterwards practis'd, and taught in *Italy*.

TROVER, in Law, an Action which a Man hath againſt one that having found any of his Goods, refuſeth to deliver them upon Demand.

Actions of Detinue are frequently turn'd into Actions upon the Caſe, *ſur Trover* and Converſion. See Detinue.

TROUGH *of the Sea*, is the Hollow or Cavity made between the Waves or Billows in a rowling Sea. --- Hence, when a Ship lies down there, they ſay ſhe lies in the *Trough of the Sea*.

TROUSSEQUIN, in the Manage, a Piece of Wood cut arch-wiſe, rais'd above the hinder Bow of a great Saddle, and ſerving to keep the Bolſters firm.

TROUT *colour'd*. --- A Horſe is ſaid to be of this Colour when he is white, and ſpeckled with Spots of black, bay, or ſorrel, eſpecially about the Head and Neck.

Trout-*Fiſhing*. See *Trout*-Fishing.

TROY-*weight*, anciently call'd *Trone-weight*. See Tronage and Weight.

TRUCE, a Suſpenſion of Arms; or a Ceſſation of Hoſtilities between two Parties at War.

Truces are frequently concluded between Princes, in order to come to a Peace. --- *Truces* of many Years ſerve in lieu of Treaties of Peace between Princes, whoſe Differences cannot be finally adjuſted. See Treaty.

The Word, according to *Menage*, *&c.* comes from the *Latin*, *Treuga*, which ſignifies the ſame Thing. *Caſeneuve* derives it from the *German*, *trava*, or *trew*, which ſignifies Faith.

Truce *of God*, or *Treuga Dei*. See Treuga *Dei*.

TRUCHMAN, *Dragoman*, or *Drogman*, in the Countries of the *Levant*, an Interpreter. See Dragoman.

TRUCK, in a Ship, a ſquare Piece of Wood at the Top of a Maſt, to put the Flag Staff in.

TRUCKING, in Commerce. See Permutation, Exchange, Commerce, *&c.*

TRUCKS, among Gunners, round Pieces of Wood like Wheels, fix'd on the Axel-trees of Carriages, to move the Ordnance at Sea.

TRUE, ſomething agreeable to the Reality of Things, or to Truth. See Truth.

In this Senſe we ſay, the *true* God, the *true* Religion, *true* Gold, *&c.* in Oppoſition to falſe or pretended ones. See Falshood.

True *Place* of a Planet, or Star, in Aſtronomy, is a Point of the Heavens ſhewn or pointed out by a right Line, drawn from the Centre of the Earth through the Centre of the Planet or Star. See Place. See alſo Planet, *&c.*

In this Senſe the Word ſtands oppos'd to *apparent Place*; which is that found by a right Line drawn from the Obſerver's Eye through the Centre of the Planet or Star. See Apparent.

This Point in the Heavens is referr'd to the Ecliptick or Zodiack, by the Planet or Stars Circle of Longitude. See *Circle of* Longitude.

TRUFFLES, *Tubera Terræ*, in Natural Hiſtory, a kind of vegetable Productions, not unlike Muſhrooms. See Mushroom.

The ancient Phyſicians and Naturaliſts, rank *Truffles* in the Number of Roots, Bulbs, or Cloves; and define them to be a Species of Vegetables, without Stalks, Leaves, Fibres, *&c.*

They are produc'd moſt in dry chap'd Grounds, and that, as *Pliny* ſays, chiefly after Rains and Thunder, in Autumn. --- Their Duration he limits to a Year. --- Their Colour is uncertain; ſome being white, others black, *&c.*

In *Italy*, *France*, &c. they eat them as a great Dainty, either fry'd in Slices with Oil, Salt and Pepper, or boil'd over and again in their own Broth. --- The Hogs are exceedingly fond of them, and are frequently the Means of diſcovering the Places where they are; whence the common People call them *Swine-bread*.

The modern Botaniſts rank *Truffles* in the Number of Plants; tho' they want moſt of the uſual Parts thereof. --- All we know of their Growth, is, that they are at firſt no bigger than a Pea, rediſh without, and within whitiſh; and that as they ripen, the white Part grows more dusky and black, only there are ſtill left a Number of white Streaks, which all terminate at Places where the outer Coat is crack'd, or open; and which, in all Probability, are the Veſſels that convey the Nouriſhment into the *Truffles*.

In theſe Veſſels is found a whitiſh Matter, which, when view'd with a Microſcope, appears to be a tranſparent Parenchyma, conſiſting of Veſiculæ; in the Middle whereof are perceiv'd little round black Grains, ſeparate from each other, ſuppos'd to be the Seed of the *Truffles*. See Seed.

When the *Truffle* rots in the Ground thro' Exceſs of Ripeneſs, theſe Grains are the only Thing that remain of them; and theſe are ſuppos'd to produce new *Truffles*, which grow one after another.

What confirms the Opinion of their coming from Seed, is, that there have been *Truffles* lately diſcover'd in *England*, and this only in *Northamptonſhire*, and even only in one Place thereof, *viz.* near *Ruſhton*, a Place ſtock'd with Plants formerly brought from *Languedcc*; and 'tis only ſince then, that any *Truffles* have been there obſerv'd; whence 'tis concluded, that the Seed of theſe *Truffles* was brought from *France* among the Roots of the other Plants.

Theſe *Engliſh Truffles* were firſt diſcover'd by Dr. *Hatton*. — Dr. *Tancred Robinſon* aſſures us, they are the true *French Truffles*; the *Italian Tartaffi* or *Tartuffole*, and the *Spaniſh Turmas de Tiera*, being not noted by Mr. *Ray* as ever known on *Engliſh* Ground: Indeed, he adds, that he has ſeen them thrice as large at *Florence*, *Rome*, &c.

Thoſe obſerv'd in *England* are all included in a ſtudded Bark or Coat, and the inner Subſtance is of the Conſiſtence of the fleſhy Part of a young Cheſnut, of a Paſte Colour, a rank or hircine Smell, and unſavoury.

By a Chymical Analyſis, *Truffles* are found to abound in a volatile Alkali mix'd with Oil, upon which their Smell, *&c.* depends. They never riſe out of the Ground; but are found uſually half a Foot beneath the Surface thereof.

Dr. *Hatton* has obſerv'd ſeveral little Fibres iſſuing out of ſome *Truffles*, and inſinuating themſelves within the Soil, which, in all Probability, do the Office of Roots. — The *Truffles* grow tolerably globular, as receiving their Nouriſhment all around them; they being to be conſider'd, like Sea Plants, encompaſs'd with their Food, which they ſuck in thro' the Pores of their Bark or Rind. See Coral.

They are tendereſt and beſt in the Spring, tho' eaſieſt found in Autumn; the Wet ſwelling them, and the Thunder and Lightening diſpoſing them to ſend forth their Scent, ſo alluring to the Swine, that ſome of the Ancients call'd them *Ceraunia*.

The Depth at which the *Truffles* lie, Dr. *Robinſon* obſerves, is no Objection to their being of the vegetable Tribe; that being a Thing common to ſeveral other Plants that ſhoot up Stalks, particularly the Lathyrus tuberoſus, commonly call'd *Chamabalanus* and *Terræ Glandes*, in *Engliſh* Earth-Nuts, the Roots of our Bulbocaſtanum, *&c.*

The Ancients are exceedingly divided as to the Uſe of *Truffles*; ſome affirming them to be wholeſome Food, and others pernicious; *Avicenna* particularly, who will have them to cauſe Apoplexies. — For my own Part, ſays M. *Lemery*, I am of Opinion they have both good and evil Effects; they reſtore and ſtrengthen the Stomach, promote the Semen, *&c.* but when us'd in abundance, they attenuate and divide the Juices immoderately, and by ſome volatile and exalted Principles, occaſion great Fermentations, *&c.* tho' the Pepper and Salt they are ordinarily eaten withal, do doubtleſs contribute greatly to thoſe Effects: — Their rich Taſte is owing to their not putting forth any Stalk; in effect their Principles being united, and, as it were, concentred in a little Bulb, muſt yield a richer and more delicious Savour than if the Juices were diſpers'd by Vegetation thro' the ſeveral Parts of a common Plant. — Some roaſt the *Truffles* under the Aſhes; others pulverize and mix them in Sauces.

The Word is form'd from the *Latin*, *Tuber*, or *Tuberculum*.

TRUG, and Trug-*Corn*, in our ancient Cuſtoms. — *Tres* Trug *frumenti vel avenæ faciunt* 2 *Buſhels*, *intra prebendam de Hunderton in Eccleſia* Heref. M. S. *de temp. E.* 3.

In the black Book of *Hereford*, we find *truga frumenti* for a Meaſure of Wheat: And at *Lempſter*, at this Day, the Vicar has *Trug-Corn* allow'd him for officiating at ſome Chapels of Eaſe, as *Stoke* and *Dockly* within that Pariſh. — Haply it may come from the *Saxon*, *Trog*, which ſignifies a great hollow Veſſel or Trough.

TRULLIZATION, in the ancient Architecture, a Term us'd by *Vitruvius* for all Kinds of Couches or Layers of Mortar, wrought with the Trowel in the Inſide of Vaults; or for the Hatches made on the Layer of Mortar, to retain the Lining of Stuc.

TRULLUM, a barbarous Word, ſignifying *Dome*; chiefly us'd in this Phraſe, The *Council in Trullo*. See Council.

This was a Council aſſembled in the Year 680, againſt the *Monothelites*, in the Dome of the Palace of *Conſtantinople*, call'd *Trullum*; the Name whereof it has retain'd.

It was alſo call'd the *Quinſextum*. See Quinsextum.

The *Trullum* was properly a Hall in the Palace of the Emperors of *Conſtantinople*, where they uſually conſulted of Matters of State. — The Council held therein was the 6th Oecumenical or General Council, call'd in *Trullo*.

The Term is form'd from the *Latin*, *Trulla*, Cup; the Hall being ſo call'd becauſe vaulted.

TRUMPET, a muſical Inſtrument, the moſt noble of all portable ones of the Wind Kind, us'd chiefly in War, among the Cavalry, to direct them in the Service. See Music.

'Tis uſually made of Braſs, ſometimes of Silver, Iron, Tin, and Wood. *Moſes*, we read, made two of Silver, to be us'd by the Prieſts, *Numb.* x. and *Solomon* made 200 like thoſe of *Moſes*, as we are inform'd by *Joſephus*, lib. viii. which ſhews abundantly the Antiquity of that Inſtrument.

The Ancients had various Inſtruments of the *Trumpet* Kind; as the *Tubæ*, *Cornua*, and *Litui*; which ſee under their reſpective Articles.

The modern *Trumpet* conſiſts of a Mouth-piece, near an Inch broad, tho' the Bottom be only one Third ſo much. — The Pieces which convey the Wind are call'd the *Branches*; the two Places where it is bent, *Potences*; and the Canal between the ſecond Bend and the Extremity, the *Pavillion*; the Places where the Branches take aſunder, or are ſolder'd, the *Knots*; which are five in Number, and cover the Joints.

When the Sound of the *Trumpet* is well manag'd, 'tis of a great Compaſs. — Indeed its Extent is not ſtrictly determinable; ſince it reaches as high as the Strength of the Breath can force it. — A good Breath will carry it beyond four Octaves, which is the Limit of the uſual Keys of Spinets and Organs.

In War there are eight principal Manners of ſounding the *Trumpet*: The firſt, call'd the *Cavalquet*, us'd when an Army approaches a City, or paſſes thro' it in a March. — The ſecond the *Boute-ſelle*, us'd when the Army is to decamp or march. — The third is when they ſound to *Horſe*, and then to the *Standard*. — The fourth is the *Charge*. — The fifth the *Watch*. — The ſixth is call'd the *double Cavalquet*. — The ſeventh the *Chamade*. — And the eighth the *Retreat*. Beſide various Flouriſhes, Voluntaries, *&c.* uſed in Rejoycings.

There are alſo People who blow the *Trumpet* ſo ſoftly, and draw ſo delicate a Sound from it, that it is uſed not only in Church Muſic, but even in Chamber Muſic: And 'tis on this Account that in the *Italian* and *German* Muſic we frequently find Parts entitled *Tromba prima*, or Iª firſt *Trumpet*, *Tromba* IIª, *ſegonda*, IIIª, *terza*, ſecond, third *Trumpet*, *&c*, as being intended to be play'd with *Trumpets*.

There are two notable Defects in the *Trumpet*, obſerv'd by Mr. *Roberts*, in the *Philoſophical Tranſactions*; — The firſt is, that it will only perform certain Notes within its Compaſs, commonly call'd *Trumpet Notes*: The ſecond, that four of the Notes it does perform, are out of Tune. See Note.

The ſame Defects are found in the *Trumpet Marine*; and the Reaſon is the ſame in both. See Trumpet *Marine*.

The Word *Trumpet* is form'd from the *French*, *Trompette*. *Menage* derives it from the *Greek*, ϛρόμβος, *turbo*, a Shell anciently uſed for a *Trumpet*. *Du Cange* derives it from the corrupt *Latin*, *Trumpa*, or the *Italian*, *Tromba*, or *Trombetta*; others from the *Celtic*, *Trompill*, which ſignifies the ſame Thing.

Trumpet *Marine*, is a muſical Inſtrument conſiſting of three Tables, which form its triangular Body.

It has a very long Neck, with one ſingle String, very thick, mounted on a Bridge, which is firm on one Side, but tremulous on the other. — 'Tis ſtruck by a Bow with the one Hand, and with the other the String is preſs'd or ſtopp'd on the Neck by the Thumb.

'Tis the Trembling of the Bridge, when ſtruck, that makes it imitate the Sound of a *Trumpet*; which it does to that Perfection, that 'tis ſcarce poſſible to diſtinguiſh the one from the other.

And this is what has given the Denomination of *Trumpet Marine*, tho', in Propriety, it be a kind of Monochord.

The *Trumpet Marine* has the ſame Defects with the *Trumpet*, *viz.* that it performs none but *Trumpet Notes*, and ſome of thoſe either too flat or too ſharp. — The Reaſon, Mr. *Fr. Roberts* accounts for, only premiſing that common Obſervation of two uniſon Strings, that if one be ſtruck, the other will move; the Impulſes made on the Air by one String, ſetting another in Motion, which lies in a Diſpoſition to have its Vibrations ſynchronous to them: To which it may be added, that a String will move, not only at the ſtriking of an Uniſon, but alſo at that of an 8th or 12th, there being no Contrariety in the Motions to hinder each other. See Unison and Chord.

Now in the *Trumpet Marine* you do not ſtop cloſe, as in other Inſtruments, but touch the String gently with your Thumb, whereby there is a mutual Concurrence of the upper and lower Part of the String to produce the Sound. — Hence 'tis concluded, that the *Trumpet Marine* yields no muſical Sound, but when the Stop makes the upper Part of the String an Aliquot of the Remainder, and conſequently of the Whole; otherwiſe the Vibrations of the Parts will ſtop one another, and make a Sound ſuitable to their Motion, altogether confus'd. Now theſe aliquot Parts, he ſhews, are the very Stops which produce the *Trumpet Notes*.

Trumpet *Harmonious*, is an Inſtrument which imitates the Sound of a *Trumpet*, and which reſembles it in every thing, excepting that it is longer, and conſiſts of more Branches.

'Tis ordinarily call'd *Sackbut*. See Sackbut.

Speaking Trumpet, is a Tube from ſix to fifteen Foot long, made of Tin, perfectly ſtraight, and with a very large Aperture; the Mouth-piece being big enough to receive both Lips.

The Mouth being apply'd hereto, it carries the Voice to a very great Diſtance, ſo as it may be heard diſtinctly a Mile; whence its Uſe at Sea.

The Invention of this *Trumpet* is held to be modern; and is commonly aſcrib'd to Sir *Samuel Morland*, who call'd it the *Tuba Stentorophonica*. — But *Ath. Kircher* ſeems to have a better Title to the Invention; for 'tis certain he had ſuch an Inſtrument before ever Sir *S. Morland* thought of his.

Kircher, in his *Phonurg.* ſays, that the Tromba publiſh'd laſt Year in *England*, he invented 24 Years before, and publiſh'd in his *Miſurgia*: He adds, that *Jac. Albanus Gbibbiſius* and *Fr. Eſchinardus*, aſcribe it to him; and that *G. Schottus* teſtifies of him, that he had ſuch an Inſtrument in his Chamber in the *Roman* College, with which he could call to, and receive Anſwers from the Porter.

Indeed, conſidering how fam'd *Alexander* the Great's Tube was, wherewith he uſed to ſpeak to his Army, and which might be heard diſtinctly 100 Stadia or Furlongs, 'tis ſomewhat ſtrange the Moderns ſhould pretend to the Invention; the *Stentorophonic* Horn of *Alexander*, whereof there is a Figure preſerv'd in the Vatican, being almoſt the ſame with that now in Uſe. See STENTOROPHONIC.

Liſtning, or *Hearing* TRUMPET, is an Inſtrument invented by *Joſeph Landini*, to aſſiſt the Ear in hearing of Perſons who ſpeak at a great Diſtance, without the Aſſiſtance of any ſpeaking *Trumpet*. See HEARING and EAR.

TRUMPETER, in Anatomy. See BUCCINATOR.

TRUNCATED *Pyramid*, or *Cone*, is one whoſe Top or Vertex is cut off by a Plane parallel to its Baſe. See PYRAMID and CONE.

A *Truncated* Cone, or the Fruſtum of that Body, is ſometimes alſo call'd a *Curty-Cone*. See FRUSTUM. See alſo GAUGING.

The Word is form'd of the *Latin*, *Truncare*, to cut off a Part from the Whole; whence alſo *Truncus*, *Trunchion*, &c. In Heraldry they ſay *Trunked*.

TRUNCHEON, of the *French Trencon*, and the *Latin Truncus*; a *Battoon*; or a kind of ſhort Staff uſ'd by Kings, Generals, and great Officers, as a Mark of their Command. See BATTOON.

TRUNDLE, is a kind of Carriage with low Wheels, whereon to draw heavy cumberſome Burdens.

TRUNDLE *Shot*, is an Iron Shot about 17 Inches long, ſharp-pointed at both Ends, with a round Bowl of Lead caſt upon it, about a Hand Breadth from each End. See SHOT.

TRUNK, *Truncus*, the Stem, or Body of a Tree; or that Part between the Ground and the Place where it divides into Branches. See STEM, BRANCH, and TREE.

In lopping of Trees, nothing is left but the *Trunk*. See PRUNING.

Trunk is alſo uſed for the Stump, or that Part left over the Root in felling. — Large Trees when fell'd, ſhoot out from the *Trunk*, and make a Copſe or Underwood.

'Tis by means of the *Trunks* left rotting in the Ground, that the Waſtes in Foreſts are diſcover'd.

TRUNK, *in Anatomy*, is uſed for the Buſto of the human Body, excluſive of the Head and Limbs. See BUSTO.

TRUNK, *Truncus*, is alſo uſed for the Body of an Artery or Vein; in contra-diſtinction to the Branches and Ramifications thereof. See VEIN and ARTERY.

The Word is particularly apply'd to certain Parts of the Aorta and Cava. See AORTA and CAVA.

TRUNK, *in Architecture*, is uſed for the *Fuſt*, or *Shaft* of a Column, with that Part of the Pedeſtal between the Baſe and the Cornice, call'd the *Dye*. See SHAFT and COLUMN.

TRUNK, is alſo popularly uſed for the Snout of an Elephant; by Naturaliſts call'd the *Proboſcis* thereof. See PROBOSCIS.

TRUNK *Roots* of a Plant, are little Roots which grow out of the *Trunks* of Plants. See ROOT.

Theſe are of two Kinds, 1°. Such as vegetate by a direct Deſcent, the Place of their Eruption being ſometimes all along the *Trunk*, as in Mints, *&c.* and ſometimes only in the utmoſt Point, as in Brambles.

2°. Such as neither aſcend nor deſcend, but ſhoot forth at right Angles with the *Trunk*; which therefore, tho' as to their Office they are true Roots, yet, as to their Nature, are a Medium between a *Trunk* and a Root.

TRUNKED, among Heralds, is apply'd to Trees cut off at each End, which are ſaid to be *trunked*, or *truncated*.

TRUNNIONS of a Piece of Ordnance, are thoſe Knobs or Bunches of the Gun's Metal, which bear her up upon the Cheeks of the Carriages. See GUN, CANNON, ORDNANCE, CARRIAGE, *&c.*

TRUNNION *Ring*, is the Ring about a Cannon, next before the *Trunnions*. See ORDNANCE.

TRUSS *of Flowers*; is a Term uſ'd by Floriſts to ſignify many Flowers growing together on the Head of a Stalk; as in the Cowſlip, Auricula, *&c.*

A *Truſs of Hay* conſiſts of fifty-ſix Pounds, or half an hundred Weight; thirty-ſix *Truſſes* make a Load: But in *June* and *Auguſt* the *Truſs* muſt weigh ſixty Pounds, on Forfeiture of 18 *s. per Truſs.*

A *Truſs of Forage*, is as much as a Trooper can carry on his Horſe's Crupper.

TRUSS is alſo uſ'd for a Sort of Bandage made of Steel or the like Matter, wherewith to keep up the Parts in thoſe who have Hernias or Ruptures. See HERNIA, BANDAGE, *&c.*

TRUSSES, in a Ship, are Ropes made faſt to the Barrels of a Yard, to bind the Yard to the Maſt, when the Ship rolls. See YARDS.

TRUSSING, in Falconry, is an Hawk's raiſing any Fowl or Prey aloft, ſoaring up, and then deſcending with it to the Ground. See HAWK and FALCONRY.

TRUSTEE, one who has an Eſtate, or Money put or intruſted in his Hands for the Uſe of another.

TRUTH, *Veritas*, a Term uſ'd in Oppoſition to *Falſhood*; and apply'd to Propoſitions which anſwer or accord to the Nature and Reality of the Thing whereof ſomething is affirm'd, or deny'd. See PROPOSITION, *&c.*

Thus, when we ſay that 4 is the fourth Part of twice 8; that Propoſition is *true*, becauſe agreeable to the Nature of thoſe Numbers. See FALSHOOD.

Truth, according to Mr. *Lock*, conſiſts in the joining or ſeparating of Signs as the Things ſignify'd by them do agree or diſagree one with another. --- Now the joining or ſeparating of Signs, is what we call making of Propoſitions. — *Truth* then, properly, belongs only to Propoſitions, whereof there are two Sorts, *mental* and *verbal*; as there are two Sorts of Signs commonly made uſe of, *viz. Ideas* and *Words*. See IDEA and WORD.

Mental Propoſitions, are thoſe wherein the Ideas in our Underſtanding are put together, or ſeparated by the Mind perceiving or judging of their Agreement or Diſagreement.

Verbal Propoſitions, are Words put together, or ſeparated, in affirmative or negative Sentences: --- So that Propoſition conſiſts in joining or ſeparating Signs; and *Truth* conſiſts in putting together or ſeparating thoſe Signs, according as the Things they ſtand for agree or diſagree.

Truth, therefore, as well as Knowledge, may come under the Diſtinction of *verbal* and *real*; that being only *verbal Truth*, where Terms are join'd according to the Agreement or Diſagreement of the Ideas they ſtand for, without regarding whether our Ideas are ſuch as really have, or are capable of having any Exiſtence in Nature. --- But it is then they contain *real Truth*, when theſe Signs are join'd as our Ideas agree; and when our Ideas are ſuch, as we know are capable of having an Exiſtence in Nature; which in Subſtances we cannot know, but by knowing that ſuch have exiſted. See SUBSTANCE.

Truth is the marking down in Words the Agreement or Diſagreement of Ideas, as it is. --- Falſhood is the marking down in Words the Agreement or Diſagreement of Ideas, otherwiſe than it is; and ſo far as theſe Ideas, thus mark'd by Sounds, agree to their Archetypes, ſo far only is the *Truth* real.

The Knowledge of this *Truth* conſiſts in knowing what Ideas the Words ſtand for, and the Perception of the Agreement or Diſagreement of thoſe Ideas, according as it is mark'd by thoſe Words. See PROBABILITY, EVIDENCE, *&c.*

Beſides *Truth* taken in the ſtrict Senſe before mention'd, which is alſo call'd *Logical Truth*, there are other Sorts of *Truths*; as,

1°. *Moral Truth*, which conſiſts in ſpeaking Things according to the Perſuaſion of our own Minds; call'd alſo *Veracity*.

2°. *Metaphyſical*, or *Tranſcendental Truth*, which is nothing but the real Exiſtence of Things conformable to the Ideas which we have annex'd to their Names. See KNOWLEDGE. See alſo ERROR, *&c.*

In this Senſe a Clock may be ſaid to be *true*, when it anſwers the Idea or Intention of the Perſon who made it.

Others, will have *Metaphyſical Truth* to conſiſt in the Agreement of a Thing with the Idea thereof in the divine Underſtanding.

TRUTINA *Hermetis*, is uſed among Aſtrologers, for an artificial Method of examining and rectifying a Nativity. See HOROSCOPE.

TRUTINATION, the Act of weighing or ballancing a Thing. See WEIGHT and BALLANCE.

The Word is form'd from the *Latin Trutina*, a Pair of Scales.

TRYAL. See TRIAL.

To TRY, in the Sea Language. --- A Ship is ſaid to *try*, when ſhe has no more Sails aboard but her Main-ſail, or the Miſſen-ſail only.

TRYPHERA, TRYPHERE, in Pharmacy, a Term uſ'd for ſeveral Kinds of Opiates. — The *Great Tryphere* is compoſed of Opium, Cinnamon, Cloves, and ſeveral other Ingredients: It is uſed to fortify the Stomach, to ſtop Fluxes, and for ſome Diſeaſes of the Womb.

There is alſo the *Saracenic Tryphere*, and the *Perſian Tryphere*, thus call'd, becauſe firſt introduced the one by the *Saracens*, and the other by the *Perſians*; they both purge gently.

The Word is form'd from the *Greek*, τρυφερός, delicate, ſoft, by reaſon it makes thoſe who uſe it, reſt.

TUB is uſed as a kind of Meaſure, to denote the Quantity of divers Things. --- A *Tub of Tea*, is a Quantity of about 60 Pounds. --- A *Tub of Camphire*, is a Quantity from 56 to 80 Pounds.

TUBE, Tubus, a *Pipe*, *Conduit* or *Canal*; being a Cylinder, hollow within ſide, either of Lead, Iron, Wood, Glaſs or other Matter, for the Air or ſome other Fluid to have a free Paſſage or Conveyance through.

The Term is chiefly uſed for thoſe uſed in Phyſicks, Aſtronomy, Anatomy, &c. On other ordinary Occaſions, we uſually ſay Pipe. See Pipe.

In the Memoirs of the *French* Academy of Sciences, M. *Varignon* gives us a Treatiſe on the Proportions neceſſary for the Diameters of *Tubes*, to give preciſely any determinate Quantities of Water. --- The Reſult of his Piece turns upon theſe two Analogies; That the Diminutions of the Velocity of Water, occaſion'd by its Friction againſt the Sides of the *Tubes*, are as the Diameters; the *Tubes* being ſuppoſed equally long; and the Quantities of Water iſſuing out at the *Tubes*, are as the ſquare Roots of their Diameters, deducting out of them the Quantity each is diminiſh'd. See Fluid, Fountain, Friction, &c.

For the Tubes *of Barometers and Thermometers*; ſee Barometer and Thermometer.

For the Aſcent of Liquors in Capillary Tubes; ſee Ascent and Capillary.

Torricellian Tube. See Torricellian *Tube*.

Tube, in Aſtronomy, is ſometimes uſed for *Teleſcope*; but more properly for that Part thereof into which the Lens's are fitted, and by which they are directed and uſed. See Telescope.

The Goodneſs of the *Tube*, being of great Importance to that of the Teleſcope; we ſhall here add its Structure.

*Conſtruction of a Draw-*Tube *for a Teleſcope.*

The great Points to be regarded here, are, that the *Tube* ben't troubleſome by its Weight, nor lyable to warp and diſturb the Poſition of the Glaſſes: So that any kind of *Tube* will not ſerve in every Caſe: But

1° If the *Tube* be ſmall, 'tis beſt made of thin braſs Plates cover'd with Tin, and form'd into Pipes or Draws, to ſlide within one another.

2° For long *Tubes*, Iron would be too heavy; for which reaſon ſome chuſe to make them of Paper, thus: ---- A wooden Cylinder is turn'd, of the Length of the Paper to be uſed; and of a Diameter equal to that of the ſmalleſt Draw. About this Cylinder is roll'd Paper, till it be of a ſufficient Thickneſs: When one Pipe is dry, provide others after the ſame manner; ſtill making the laſt ſerve as a Mould for the next, till you have enough for the length of the Tube deſired. Laſtly, to the Extremes of the Draws are to be glew'd wooden Ferrils, that they may be drawn forth the better.

3° Since Paper Draws are apt to ſwell with moiſt Weather, ſo as to ſpoil their ſliding; and in dry Weather to ſhrink, which renders them looſe and tottering; in both which Caſes, the Situation of the Lens's is eaſily diſturb'd; the beſt Method of making *Tubes*, is as follows: Glue Parchment round a wooden Cylinder; and let the Parchment be colour'd Black, to prevent the reflected Rays making any Confuſion. Provide very thin Slits of Beech, and bending them into a Cylinder, glue them carefully to the Parchment: Cover this wooden Caſe with white Parchment; and about its outer Extreme make a little Ring or Ferril: after the ſame manner make another Draw over the former; and then another, till you have enough for the Length of the *Tube*.

To the inner Extremes of each Draw, fit a wooden Ferril, that the ſpurious Rays ſtriking againſt the Sides, may be intercepted and loſt. In thoſe Places where the Lens's are to be put, it will be proper to furniſh the Ferrils with Female Screws. Provide a wooden Cover to defend the Object Glaſs from the Duſt, and putting the Eye Glaſs in its wooden Ferril, faſten it by the Screw to the *Tube*. Laſtly, provide a little wooden *Tube* of a Length equal to the Diſtance the Eye Glaſs is to be from the Eye, and fit it to the other Extream of the *Tube*.

Tube *Fallopian* } in Anatomy. See { Fallopian-*Tube*.
Tuba *Euſtachiana* } { Eustachiana.

TUBER, or Tubercle, in Botany, a kind of round turgent Root, in form of a Knob or Turnip. See Root.

The Plants which produce ſuch Roots, are hence denominated *Turberoſe* or *Turberous Plants*.

Tuber or Tuberosity, in Medicine, is uſed for a Knob or Tumour growing naturally on any Part; in Oppoſition to Tumors which ariſe accidentally, or from a Diſeaſe. See Tumor.

The ſame Term is alſo uſed for a Knot in a Tree.

TUBERCULES, Tubercles, are little Tumors which ſuppurate and diſcharge Pus; often found in the Lungs. See Lungs.

TUBERI *Lactiferi*, in Anatomy, is a Name uſed by ſome Writers, for thoſe ſmall Tubes through which the Milk flows to the Nipples of the Mammæ or Breaſts. See Milk and Mammæ.

TUBEROSE, an Epithet given to ſuch Roots as are round and fleſhy, and grow in the Fleſh ſolid and continuous; having neither Skin nor Shell. --- Such are the Roots of Saffron, Peony, &c.

TUBILUSTRIUM, in Antiquity, a Feaſt or Ceremony in uſe among the *Romans*. See Feast.

This Name was given to the Day whereon they purified their ſacred Trumpets; as alſo to the Ceremony of purifying them. It was held on the fifth and laſt Day of the Feaſt of *Minerva*, call'd *Quinquatrus* or *Quinquatria*, which was perform'd twice a Year.

The Word is compounded of *Tubus*, and *Luſtro*, I purify.

TUBULI *Vermiculares*, a Name ſometimes uſed by Naturaliſts, for certain ſmall winding Cavities on the out-ſides of Shells. See Shell.

TUFT, a Term uſed by ſome Authors for the buſhy Part of Trees; or that Part ſet with Branches, Leaves, &c. See Branch.

Paralleliſm of the Tufts *of Trees.* ---- All Trees are obſerv'd naturally to affect to have their *Tufts* parallel to the Spot of Ground they ſhadow; an Account of which Phænomenon, ſee under the Article Parallelism.

TUILERIE, or Tylery, a Tyle-work; being properly a large Building with a Drying-place, cover'd a-top, but furniſhed with Apertures on all Sides, through which the Wind having Admittance, dries the Tyles, Bricks, &c. in the Shade, which the Sun would crack, before they be in the Furnace. See Brick and Tyle.

The Word is pure *French*, form'd from *Tuile*.

The Garden of the *Louvre* is call'd the *Tuileries*, as being a Place where Tyles were anciently made, &c. ---- But the Term *Tuileries* does not only include the Garden; but alſo a magnificent Palace, whoſe Face takes up the whole Length of the Garden: And hence it is, that they ſay, The King lodges in the *Tuileries*; The King has quitted the *Tuileries* for a few Days, to reſide in the *Louvre*.

The Palace of the *Tuileries* is joined to the *Louvre* by a large Gallery, which runs all along the ſame, and has its Proſpects thereon. See Louvre.

The *Tuileries* was begun in 1564, by *Catherine de Medicis*, Wife of *Henry* II. in the Time of her Regency; finiſhed by *Henry* IV. and magnificently adorned by *Louis* XIV. --- The Garden of the *Tuileries* was much improved by *Louis* XIII.

TUMBLER, a ſort of Dog, called in *Latin*, *Vertagus*, from his quality of tumbling and winding his Body about, e'er he attacks and faſtens on the Prey.

Theſe Dogs are often leſs than Hounds; being lanker, leaner, and ſomewhat pricked-eared; and by the Form of their Bodies, might be called Mungrel Grey-hounds, if they were a little bigger.

TUMBREL, Tumbrellum, Turbichetum, an Engine of Puniſhment, which ought to be in every Liberty, that has View of Frank-pledge, for the Correction and Cooling of Scolds and unquiet Women. See Cucking-*ſtool*.

TUMEFACTION, the Act of ſwelling, or riſing into a Tumor. See Tumor.

Inflammations and *Tumefactions* of the Teſtes, frequently happen in the Gonorrhæa; either from the Weakneſs of the Veſſels, violent Motion, unſeaſonable Uſe of Aſtringents, a Neglect of Purging, or the like. See Gonorrhæa.

TUMOR or Tumour, in Medicine, &c. a preternatural Riſing or Eminence on any Part of the Body.

Tumor is defined by the Phyſicians, a Solution of Continuity, ariſing from ſome Humor collected in a certain Part of the Body, which disjoyns the continuous Parts, inſinuates itſelf between them, and deſtroys their proper Form.

This has given occaſion to the *Arabs* to define a *Tumor* to be an Indiſpoſition, compoſed of three Kinds of Diſeaſes, *viz.* an Intemperature, an ill Conformation, and a Solution of Continuity, all which they comprize under the Name *Apoſthem*, from the *Greek*, απόϛημα. See Apostнем.

Tumors may proceed from various Cauſes. --- The Maſs of Blood throwing off or diſcharging itſelf of any particular Humor, as ſometimes happens in the Criſis of a Fever, Pleuriſy, Empyema, Bubo, &c. will give riſe hereto. ---

And according to the Nature of the Humour ſo diſcharged, whether Sanguinous, Watery, Bilious, *&c.* the *Tumor* is different.

Other *Tumors* there are, occaſioned by Flatulency, as the Tympany, after the ſame Manner as hydropical *Tumors* are occaſioned by a Collection of the Lympha, or Serum, in a particular Part.

Ruptures of the Inteſtines, or their ſtarting from their Places, will likewiſe cauſe a *Tumor*. See RUPTURE.

External Injuries are another general Cauſe of *Tumors*. --- Thus a Contuſion, or a violent Stricture of any Part, a Wound, Fracture, Diſlocation, *&c.* will make it ſwell, or riſe above its natural Level. And the ſame thing may likewiſe happen from the Bites of venomous Creatures, *&c.* See WOUND, ULCER, CONTUSION, BITE, *&c.*

Tumors, properly ſo call'd, *i.e. Humoral Tumors*, or thoſe which contain a fluid Matter, ariſe either from a Stagnation, *i.e.* an Obſtruction of the Paſſage of ſome Fluid, occaſioning a ſlow Congeſtion; or a Tranſlation or Fluxion of an Humor from ſome other Part; or a Generation of ſome new Humor. See HUMOR.

Tumors of the firſt Kind are very numerous, and are uſually divided, with regard to the particular Humors they are filled with, into Phlegmons, which come from the Blood. See PHLEGMON and BLOOD.

Eryſipela's, which are filled with the Bile. See ERYSIPELAS and BILE.

Oedemas fill'd with Pituita. See OEDEMA and PITUITA.

And *Schirrus's* with Melancholy. See SCHIRRUS.

To which may be added, *Flatulencies*, fill'd with Wind. See FLATULENCY, *&c.*

Of the ſecond Kind, are *critical Tumors*. See CRITICAL.

And of the third Kind, are *Cancers*, *Ganglio's*, and all *Tumors* contain'd in a Cyſtis or Bag. See CANCER, GANGLIO, *&c.*

TUMORS alſo frequently acquire peculiar Denominations from the Part affected, as *Ophthalmia*, if in the Eye; *Parotides* about the Ears; *Paronichia* in the Fingers, *&c.* See OPHTHALMIA, *&c.*

With reſpect to the Cure, all *Tumors* are diviſible into *Simple* and *Compound*, *i.e.* into ſuch as are of a kindly Nature, and go off, or are cured in a reaſonable Time, by the uſe of common Means, without the Appearance of any violent or dangerous Symptoms; and ſuch as are more malignant, or prove difficult of Cure, and are attended with bad Symptoms, and affect the adjacent Parts, or the whole Body. --- When a *Tumor* is formed by Fluxion, a ſudden Pain, Heat, Tenſion and Pulſation are felt in the Part, and manifeſt Signs of a Fever appear.

In thoſe form'd by Congeſtion, the Swelling riſes ſlowly, and the Pain, and other Symptoms, come on gradually, and prove leſs violent; unleſs it happen in the Joints, and other of the more ſenſible Parts.

All *Tumors*, except thoſe from Ruptures, terminate or are removed, either by Diſcuſſion, Suppuration, Putrefaction, Induration, or Tranſlation. See DISCUTIENT, SUPPURATIVE, *&c.*

When a *Tumor* is diſcuſſed, the Part that was affected, appears relaxed, or reduced to its natural Size and Figure, and is free from Pain and Hardneſs. See DISCUSSION.

When a *Tumor* haſtens to Suppuration, a conſiderable Degree of Heat, Pain and Pulſation are felt in the Part, and if the *Tumor* be large, or lie deep, a Fever generally comes on: When the Matter is formed, theſe Symptoms commonly decreaſe, and ſometimes totally vaniſh. And now, if the Situation of the Parts permits of it, the *Tumor* appears drawn to a Point, or becomes Conical in the Middle, or moſt depending Part, where the Matter collected commonly proves White. --- At this Time, likewiſe, the *Tumor* appears to be more contracted, and the Skin of the Part more ſhrivelled or flaccid than before: And now, upon Preſſure, if the *Tumor* be ſuperficial, or by vibrating it between the Fingers, the Matter may be felt to quaſh from Side to Side. See SUPPURATION.

Tumors in the fleſhy Parts of the Body, tend to their State, or ſuppurate faſter than *Tumors* in the Joints, Glands, *&c.*

When a *Tumor* is reſolved by Induration, the Swelling of the Part, and the Pain decreaſe, as the Hardneſs comes on. --- When it terminates in Putrefaction or Mortification, the Part grows ſenſeleſs, and turns black and fœtid. See MORTIFICATION.

But when a *Tumor* goes off by Repulſion, or a Return of the Matter into the Blood, it diſappears at once; upon which a Fever, or ſome other acute Diſeaſe preſently enſues. See REPELLENT.

Windy Tumors, M. *Littre* deſcribes as form'd of Air, incloſed under ſome Membrane, which it dilates more or leſs in proportion to the Quantity, and from which it cannot eſcape; at leaſt not for ſome time.

The Difficulty is, to conceive how the Air ſhould come to be collected here. --- M. *Littre* thinks that the moſt ordinary Cauſe of *windy Tumors*, is the gathering of Juices in ſome neighbouring Part, wherein there is an Obſtruction. The Air which is intimately mix'd with all the Juices of the Body, continues to be ſo while they are in their natural Fluidity and Motion; but if they be collected in any Part, and, by Conſequence, have their Motion and Fluidity diminiſhed, the Air gets its Liberty, and diſengages itſelf from them. Now the Membranes of the Part wherein the Liquor is collected, becoming dilated by this Collection, and their Pores enlarged; the diſengaged Air eſcapes through them; but the Juice is left behind, as being too much thickned by its ſtay there: It therefore runs under ſome other neighbouring Membrane, which it raiſes, ſwells and extends.

TUN or TON, originally ſignifies a large Veſſel or Cask, of an oblong Form, biggeſt in the Middle, and diminiſhing towards its two Ends; girt about with Hoops; and uſed to put up ſeveral kinds of Merchandizes in, for their better Carriage; as Brandy, Oil, Sugar, Skins, Hats, *&c.*

The Term is alſo uſed for certain Veſſels of extraordinary Bigneſs, ſerving to keep Wine in for ſeveral Years. --- In *Germany*, there are many ſcarce ever emptied: The *Heidelberg Tun* is famous.

Some derive the Word from *Autumnus*, in regard 'tis then *Tuns* are moſt needed: *Du Cange* deduces it from *Tunna* or *Tonna*, Words uſed in the baſe *Latin*, for the ſame thing; whence alſo *Tunnare* to *Tun*.

The *Tun*, we frequently call a *Hogſhead*. See HOGSHEAD.

TUN is alſo a certain Meaſure, for Liquids, as Wine, Oil, *&c.* See MEASURE.

The *Engliſh Tun* contains two Pipes or four Barrels, or 252 Gallons.

The *Tun* of *Amſterdam* contains 6 Aems or Ams; the Aem 4 Ankers; the Anker 2 Stekans, the Stekan 16 Mingles; 12 Stekans are equal to an *Engliſh* Barrel or 63 Gallons. See GALLON.

The *Tun* of *Bourdeaux* and *Bayonne* contains four Barrels, equal to three *Paris* Muids. --- At *Orleans* and *Berry*, it is about two *Paris* Muids. See MUID.

The *Tun* of *Malaga*, *Alicant*, *Sevil*, *&c.* is two Bottes, equal to about 36 or 37 Stekans. --- The *Tun* of *Liſbon* is two *Portugueze* Bottes, equal to 25 Stekans.

TUN is alſo a certain Weight, whereby the Contents of Ships, *&c.* are eſtimated. See WEIGHT.

The *Sea Tun* is computed to weigh Two thouſand Pounds, or Twenty Quintals or Hundreds Weight; ſo that when we ſay a Veſſel carries Two hundred *Tuns*, we mean 'tis able to carry Two hundred times the Weight of Two thouſand Pounds, *i.e.* Four hundred thouſand Pounds: It being found, by a curious Obſervation, that the Sea Water, whoſe Room the Veſſel fills, when full loaden, weighs ſo much. See BURTHEN.

To find the Burthen and Capacity of a Ship, they meaſure the Hold or Place where ſhe is loaden; allowing 42 Cubic Feet to the *Sea Tun*. See HOLD.

The Price of Freight, or Carriage of Merchandizes, is ordinarily ſettled on the Foot of the *Sea Tun*: And yet, though the Tun is Twenty hundred Weight, there is ſome Difference made therein, either on account of the Weight or Cumberſomneſs or Bulk of the Commodities, the Space they take up, or the like. See FREIGHT.

Accordingly, at *Bourdeaux*, four Barrels of Wine are held a *Tun*; five Barrels of Brandy are eſtimated two *Tuns*; three of Syrop are one *Tun*; four Barrels of Prunes, one *Tun*; two Dozen of Walnut-tree Tables, one *Tun*; a Dozen of Planks one *Tun*; Twenty Buſhels of Cheſnuts are accounted one *Tun*; and the like of Wheat or other Grain: Ten Bales of Cork; Five Bales of Feathers, and Eight of Paper, make each one *Tun*.

A *Tun* or Load of Timber, is 40 ſolid Feet, if the Timber be round: If it be hew'd, or ſquare, 50. See TIMBER.

TUN, TON, in the end of Words or Names of Places, ſignify a Town, Village, or dwelling Place; from the *Saxon*, *Tun*, *Sepes*, *Vallum*, *Villa*, *Vicus*, *Oppidum*; and this from the *Saxon Thun*, *i.e.* an Hill, where they formerly built Towns. See TOWN.

TUN-*Greve*, from the *Saxon*, *Tungeræva*, *q.d. Villæ præpoſitus*, a Term anciently uſed for a Reeve or Bailiff, *qui in Villis, & quæ dicimus Maneriis, Domini perſonam ſuſtinet, ejuſque vice omnia diſponit & moderatur. Spelman.* See GREVE.

TUNE or TONE, in Muſic, is that Property of Sounds whereby they come under the relation of *Acute* and *Grave* to one another. See GRAVITY, *&c.*

Though Gravity and Acuteneſs be mere Terms of Relation, yet the Ground of the Relation, the *Tune* of the Sound, is ſomething abſolute; Every Sound having its own proper *Tune*, which muſt be under ſome determinate Meaſure, in the Nature of the Thing.

The only Difference, then, between one *Tune* and another, is, in Degrees; which is naturally infinite, *i. e.* we conceive there is ſomething poſitive in the Cauſe of Sound, which is capable of leſs and more, and contains in it the Meaſure of the Degrees of *Tune*; and becauſe we don't ſuppoſe a leaſt or greateſt Quantity of this, we conceive the Degrees depending on thoſe Meaſures to be infinite. See Sound.

If two or more Sounds be compar'd together in this Relation, they are either equal or unequal in the Degree of *Tune*. --- Such as are equal are call'd *Uniſons*. See Unison.

The unequal conſtitute what we call an *Interval*, which is the Difference of *Tune* between two Sounds. See Interval.

Cauſe and Meaſure of Tune; *or that whereon the* Tune *of a Sound depends.*

Sonorous Bodies, we find, differ in *Tune*, 1°. According to the different Kinds of Matter; thus the Sound of a Piece of Gold is much graver than that of a Piece of Silver of the ſame Shape and Dimenſions; in which Caſe, the *Tones* are proportional to the Specific Gravities.

2. According to the different Quantities of the ſame Matter in Bodies of the ſame Figure; as a ſolid Sphere of Braſs, one Foot in Diameter, ſounds acuter than a Sphere of Braſs two Foot Diameter; in which Caſe the *Tones* are proportional to the Quantities of Matter.

Here, then, are different *Tunes* connected with different ſpecific Gravities, and different Quantities of Matter; yet cannot the different Degrees of *Tune* be referr'd to thoſe Quantities, *&c.* as the immediate Cauſe. In Effect, the Meaſures of *Tune* are only to be ſought in the Relations of the Motions that are the Cauſe of Sound, which are no where ſo diſcernable as in the Vibrations of Chords. See Chord.

Sounds, we know, are produc'd in Chords by their vibratory Motions; not, indeed, by thoſe ſenſible Vibrations of the whole Chord, but by the inſenſible ones, which are influenc'd by the ſenſible, and, in all Probability, are proportional to them. --- So that Sounds may be as juſtly meaſur'd in the latter, as they could be in the former, did they fall under our Senſes: But even the ſenſible Vibrations are too ſmall and quick to be immediately meaſur'd. --- The only Reſource we have, is to find what Proportion they have with ſome other Thing, which is effected by the different Tenſions, or Thickneſs, or Lengths of Chords, which, in all other Reſpects, excepting ſome one of thoſe mention'd, are the ſame. See Vibration.

Now, in the general, we find that in two Chords, all Things being equal, excepting the Tenſion, or the Thickneſs, or the Length, the *Tones* are different; there muſt therefore be a Difference in the Vibrations owing to thoſe different Tenſions, *&c.* which Difference can only be in the Velocity of the Courſes and Recourſes of the Chords, thro' the Spaces wherein they move to and again. --- Now, upon examining the Proportion between that Velocity, and the Things juſt mention'd, whereon it depends, 'tis found to a Demonſtration, that all the Vibrations of the ſame Chord are perform'd in equal Times.

Hence, as the *Tone* of a Sound depends on the Nature of thoſe Vibrations whoſe Differences we can conceive no otherwiſe than as having different Velocities, and as the ſmall Vibrations of the ſame Chord are all perform'd in equal Time; and as 'tis found true in Fact, that the Sound of any Body ariſing from one individual Stroke, tho' it grow gradually weaker, yet continues in the ſame *Tone* from firſt to laſt; it follows, that the *Tone* is neceſſarily connected with a certain Quantity of *Tune* in making every ſingle Vibration; or that a certain Number of Vibrations, accompliſh'd in a given Time, conſtitutes a certain and determinate *Tune*; for the frequenter thoſe Vibrations are, the more acute is the *Tune*; and the ſlower and fewer they are in the ſame Space of Time, by ſo much the more grave is the *Tune*; ſo that any given Note of a *Tune*, is made by one certain Meaſure of Velocity of Vibrations, *i. e.* ſuch a certain Number of Courſes and Recourſes of a Chord or String in ſuch a certain Space of Time, conſtitutes a determinate *Tune*. See Note.

This Theory is ſtrongly ſupported by our beſt and lateſt Writers on Muſic, Dr. *Holder*, Mr. *Malcolm*, &c. both by Reaſon and Experience. --- Dr *Wallis*, who owns it very reaſonable, adds, that 'tis evident the Degrees of Acuteneſs are reciprocally as the Length of the Chords; tho', he ſays, he will not poſitively affirm that the Degrees of Acuteneſs anſwer the Number of Vibrations as their only true Cauſe: But his Diffidence ariſes hence, that he doubts whether the Thing have been ſufficiently confirm'd by Experiment. --- Indeed, whether the different Number of Vibrations in a given Time is the true Cauſe on the Part of the Object, of our perceiving a Difference of *Tune*, is a Thing which we conceive does not co[illegible] within the Reach of Experiment; 'tis ſufficient the Hypoth[illegible] is reaſonable. See Concord, Harmony, *&c.*

TUNICA, a kind of Waſtecoat or Under-Garment wore by the Ancients, both at *Rome*, and in the Eaſt.

The common People ordinarily wore only a ſingle *Tunica*; but thoſe of better Faſhion wore a *Toga* or Gown over it. See Toga.

The Philoſophers wore a Gown without a *Tunica*, as profeſſing to go half naked.

The *Tunica* was peculiar to the Men; the Under-Garment of the Women not being call'd *Tunica*, but *Stola*. See Stola.

The Senators wore their *Tunica* enrich'd with ſeveral little Pieces of Purple, cut in Form of large Nails; whence it was call'd *Laticlava*: The Knights had leſſer Nails on their *Tunica*, which was hence call'd *Anguſticlava*: The common People wore their *Tunica* without any Nails at all. — And 'twas by theſe three different Sorts of *Tunicas*, that the three different Orders of the *Roman* People were diſtinguiſh'd. See Laticlava, *&c.*

Among the Religious, the woollen Shifts, or Under-Garments, are ſtill call'd *Tunicas* or *Tuniques*.

Tunica, or Tunic, in Anatomy, is a Term apply'd to the Skins or Membranes which coat or incloſe the Veſſels, and divers other of the leſs ſolid Parts of the Body. See Membrane.

The Eye conſiſts principally of a Number of *Tunics* rang'd over one another; as the *Tunica Albuginea*, the *Tunica Cornea*, the *Tunica Retiformis*, &c. See Eye, *&c.*

Tunica *Vaginalis*. See Vaginalis.

TUNNAGE, or Tonnage, a Duty or Cuſtom due for Merchandize brought or carry'd in Tuns, and ſuch like Veſſels, from or to other Nations; thus call'd, becauſe rated at ſo much *per* Tun. See Custom.

Tunnage is properly a Duty impos'd on Liquids according to their Meaſures; as Poundage is that impos'd on other Commodities according to their Weight. See Poundage.

They were both firſt ſettled by Authority of Parliament under King *Edward* III; were re-eſtabliſh'd in 1660, under the Reign of King *Charles* II. for his Life, upon abrogating all the Laws made under *Oliver Cromwell*, and re ordaining the Execution of the ancient Laws and Regulations; and have been continu'd and renew'd by the Parliaments ever ſince. --- By an Act made in the firſt Year of the Reign of Queen *Anne* they were continu'd for 96 Years, expiring in the Year 1798.

This Duty at firſt was 4*l.* 10*s.* Sterling *per* Tun, for *French* Wines brought into the Port of *London* by the *Engliſh*; and only three for that brought in the other Ports. — For the ſame Wine imported by Strangers to *London*, this Duty was 6*l.* and that brought into the other Ports 4*l.* 10*s.* Sterling.

Rheniſh Wine, in Virtue of the ſame Act, paid 7*l.* 10*s.* Sterling; and *Spaniſh*, *Portugueſe*, *Malmſey*, and Greek Wines, the ſame as the *French* Wines.

But there have been divers additional Duties added ſince. --- As, the *additional Duty of the old Subſidy*, *Seignorage Duty of ancient Impoſt of* Tunnage, *Duty of additional Impoſt*, *Orphans Money*, *new Subſidy*, &c.

Tunnage is alſo uſed for a certain Duty paid the Mariners by the Merchants, for unloading their Ships arriv'd in any Havens, after the Rate of ſo much a *Tun*. See Duty.

TUNNEL, or Funnel, an Inſtrument thro' which any Liquor is pour'd into a Veſſel. --- Part of the Draught of a *Chimney* above the Mantle-piece, is alſo call'd by the ſame Name. See Chimney.

Tunnel-*Net*, is a kind of Net much uſed for the catching of Partridges; thus call'd from its Form, which is a Cone 15 or 18 Feet long.

To uſe it, a Covey of thoſe Birds being found, a Compaſs is taken, and the Net pitch'd at a good Diſtance from them, according to the Situation of the Ground. — Then, with a natural or artificial Stalking Horſe, they are ſurrounded, and gently driven towards the Net, never coming on them in a direct Line, but by Windings, Turnings, *&c.* See Stalking.

TUNNING, a Part of the Proceſs of Brewing, or rather an Operation which is the Sequel thereof. See Brewing.

The *Tunning of Beer*, &c. is perform'd various Ways; ſome being of Opinion 'tis beſt *tunn'd* as it cools, or begins to come; while others let it ſtand longer to become riper.

The moſt regular Method is to cleanſe and *tun* juſt as it comes to a due Ferment, and gets a good Head; for then it has the moſt Strength to clear itſelf. --- What works over is to be ſupply'd with freſh Beer of the ſame Brewing.

TURBAN, or Turbent, the Head-dreſs of moſt of the Eaſtern and Mahometan Nations. See Hat, Cap, *&c.*

A *Turban* conſiſts of two Parts, *viz.* a Cap, and a Shaſh of fine Linnen, or Taffaty, artfully wound in divers Plaits about the Cap.

The *Turks* call the Shaſh *Turbent*; whence we have form'd the Word *Turban*.

The Cap is red or green, without any Brim, pretty flat, tho' roundiſh a-top, and quilted with Cotton, but does not cover the Ears. --- About this is wrapp'd a long Piece of fine, thin Linnen or Cotton, in ſeveral Wreaths variouſly diſpos'd.

There is a good deal of Art in the giving a *Turban* the fine Air; and the making them up makes a particular Trade, as the making of Hats does among us.

The *Emirs*, who pretend to be deſcended of the Race of *Mahomet*, wear their *Turbans* quite green: Thoſe of the other *Turks* are ordinarily red, with a white Shaſh. --- Your genteel People are to have frequent Changes of *Turbans*. --- M. *de Tournefort* obſerves, that the *Turban*, all Things conſider'd, is a very commodious Dreſs; and that he even found it more eaſy to him than his *French* Habit.

The Grand Signior's *Turban* is as big as a Buſhel, and ſo exceedingly reſpected by the *Turks*, that they dare ſcarce touch it. --- It is adorn'd with three Plumes of Feathers, enrich'd with Diamonds and precious Stones: He has a Miniſter on Purpoſe to look to it, call'd *Tulbentoglan*.

That of the Grand Vizier has two Plumes; ſo have thoſe of divers other Officers, only ſmaller, one than another; others have only one; and others none at all. --- The *Turban* of the Officers of the Divan is of a peculiar Form, and call'd *Mugenezek*.

The Shaſh of the *Turks Turban*, we have obſerv'd, is white Linnen; that of the *Perſians* is red Woollen. Theſe are the diſtinguiſhing Marks of their different Religions: *Sophi*, King of *Perſia*, who was of the Sect of *Ali*, being the firſt who aſſum'd that Colour, to diſtinguiſh them from the *Turks*, who are of the Sect of *Omar*, and whom the *Perſians* eſteem Hereticks. See MAHOMETAN, *&c.*

The Word is form'd from the *Arabic* דאר, *dar*, or דור, *dur*, or דאל, *dal*, or דול, *dul*, which ſignifies to encompaſs; and בנר, *band* or *bend*, which ſignifies Shaſh, or Scarf, or Band; ſo that *Durbent*, or *Turbent*, or *Tulbent* only ſignifies a Scarf, or Shaſh, ty'd round; it being the Shaſh that gives the Denomination to the whole *Turban*.

TURBARY, TURBARIA, a Right to dig Turf in another Man's Ground; from *Turba* an old *Latin* Word for a Turf. See TURF.

Common of *Turbary*, is a Liberty which ſome Tenants have by Preſcription to dig on the Lord's Waſte. See COMMON.

TURBARIA is ſometimes alſo taken for the Ground where Turfs are digged. See TURF.

TURBARIA *Bruaria*, particularly denotes a Flaw Turf, or Heath Turf; mention'd in a Charter of *Hamon de Maſſy*.

TURBITH, or TURPETH, TURPETHUM, a Medicinal Root, brought from the *Eaſt Indies*, particularly *Cambaya*, *Surat*, and *Goa*; tho' others will have it, that the true *Turbeth* comes chiefly from *Ceylon*.

The *Turbeth* of the Moderns bears ſo little Reſemblance to that of the Ancients, that 'tis difficult to ſuppoſe them the ſame. --- That ſold by our Druggiſts is longiſh, about the Thickneſs of the Finger, reſinous, heavy, and of a browniſh hue without, and whitiſh within. --- 'Tis brought to us cloven in the Middle, length-wiſe, and the Heart or woody Matter taken out.

When in the Ground it ſhoots out Vines, ſome whereof creep along the Ground, and the reſt wind about the neighbouring Trees and Shrubs.

Turbeth is a violent Purgative, and is uſed in the Dropſy, Palſy, and Apoplexy. See PURGATIVE.

It yields a deal of reſinous Matter in a ſpirituous Menſtruum, which Dr. *Quincy* obſerves, does not affect the larger Paſſages much; but is very active in the ſmaller Veſſels, and glandulous Contorſions, which it wonderfully clears of all viſcid Adheſions. See PURGATIVE.

Some Apothecaries. either thro' Ignorance or Parſimony, ſubſtitute white Thapſia, which they call grey *Turbeth*, for the true *Turbeth*; tho' both as to Taſte, Colour, and Qualities, they are very different.

It is commonly ſuppos'd to take its Name *Turbith* from the Violence of its Operation, as *diſturbing* the whole Oeconomy.

Mineral TURBITH, or TURPETHUM *Minerale*, is a Name which the Chymiſts give to a yellow Precipitate of Mercury, which purges violently. See MERCURY and PRECIPITATE.

The Method of preparing it is thus: - - On the dry Powder gain'd by diſſolving Mercury in Oil of Vitriol, pour a proper Quantity of warm Rain Water, and the Powder will immediately turn of a yellow Colour. Continue to waſh this Powder by repeated Affuſions of Water, till the Liquor comes away as inſipid and colourleſs as it was pour'd on, leaving a beautiful yellow Calx at the Bottom of the Veſſel, which being gently dry'd at the Fire, is call'd by the Name of *Turbith mineral.*

This Powder is call'd *Mineral Turbith* from the Reſemblance it bears to the vegetable *Turbith* of the *Arabians*, in ſtrongly purging the moſt internal Receſſes of the Body; for tho' it be inſipid upon the Tongue, yet it is poſſeſſed of very conſiderable Virtues. --- Being boil'd with Water, it loſes more of its Salts, and thereby grows milder, and more ſafe; ſo it does by being deflagrated twice or thrice, or diſtill'd with Spirit of Wine.

A very few Grains of this *Turbith* will prove emetic and purgative. --- It is alſo accounted an excellent Medicine in the Cure of the Venereal Diſeaſe: But as it operates with conſiderable Violence, it ought not to be given, unleſs the Viſcera are known to be ſound. See PURGATIVE.

This appears to have been the grand Secret of *Paracelſus*, which, in his ſcarce *German* Book of Hoſpital Medicines, he praiſes ſo extravagantly for the Venereal and all Chronical Diſeaſes. --- *Sydenham* alſo commends it in Venereal Caſes, given in the Quantity of ſix or eight Grains, in ſtrong Habits of Body, ſo as to prove emetic; but when imprudently uſed, it is apt to give the Dyſentery. See VENEREAL *Diſeaſe*.

TURBINATED, is a Term frequently apply'd by Naturaliſts to Shells, and other Bodies; to denote them of a Conical Figure, repreſenting a Peer or a Top. See SHELL.

TURBO, in Meteorology, a *Whirlwind*. See WHIRLWIND.

TURCOISE, or TURQUOIS, in Natural Hiſtory, a precious Stone, of a blue Colour; ordinarily opake, but ſometimes a little tranſparent. See PRECIOUS *Stone*.

There are *Turcoiſes* both *Oriental* and *Occidental*, of the *new Rock* and the *old*.

The Oriental partakes more of the blue Tincture than the green; and the Occidental more of the green than the blue. --- Thoſe of the old Rock are a deep blue, and thoſe of the new Rock more whitiſh, and don't keep their Colour.

The Oriental ones come from *Perſia*, the *Indies*, and ſome Parts of *Turky*; and ſome even ſuppoſe that 'tis hence they derive their modern Name *Turquoiſe*. --- The Occidental are found in various Parts of *Europe*, particularly *Germany*, *Bohemia*, *Sileſia*, *Spain*, and *France*.

Turcoiſes all grow of a round or oval Figure: They cut eaſily; and beſides Seals, which are frequently engrav'd on them, ſome are form'd into Crucifix's, or other Figures near two Inches high; tho' *Boetius* miſtakenly affirms, that none have been known to exceed the Bigneſs of a Walnut.

The Ancients attribute a Kind of Sympathetic Virtue to the *Turquois*. --- 'Tis commonly ſuppos'd, that it changes Colour, or breaks, at the Death, Sickneſs, or even Misfortune of the Perſon who bears it; that it diſagrees with marry'd People, and even breaks on their Fingers; that it marks all the Changes and Accidents that happen in the Body of the Wearer, by correſpondent Changes in its Colour; and that it is for this Reaſon the Ladies have forbore the Uſe of it. --- *De Boot* endeavours to account for all theſe Effects from natural, and even probable Cauſes.

The *Turquois* is eaſily counterfeited; and that ſo perfectly, that 'tis impoſſible to diſcover the Deceit, without taking it out of the Collet.

The *Greeks* and *Latins* call it *Calais*, and κυανος; and it appears to have had a Place in the Rationale of the High Prieſt of the *Jews*.

In the Memoirs of the Academy of Sciences, we have a very curious Account of the Formation of the *Turquois*, the Manner of giving it the blue Colour, *&c.* by M. *Reaumur*. --- The *Turquois*, he obſerves, is one of the ſofteſt of precious Stones, its Hardneſs ſcarce exceeding that of a Cryſtal, or a tranſparent Pebble; tho' ſome are much harder than others; and ſtill the harder, *cæteris paribus*, the more valuable, by Reaſon of the Vivacity of the Poliſh, which is always proportionable to the Hardneſs.

Roſnel, a Jeweller, and the Author of a ſcarce Treatiſe call'd *Mercure Indien*, eſtimating the ſeveral precious Stones, ſets a hard *Turquois*, whoſe Blue is neither bright nor deep, on the Foot of the moſt perfect Emeralds, that is, on a Level with a Diamond. --- Thoſe with any Defect he only values at a *French* Crown the Caract.

Tavernier aſſures us, there are but two Mines of *Turquoiſes* known in all the Earth, and thoſe are both in *Perſia*; the one call'd the *Old Rock*, near a Town call'd *Neabourg*, three Days Journey to the North Eaſt of *Meched*: The other call'd the *New Rock*, is five Days Journey. --- The latter, he adds, are but little valued; and the King of *Perſia* has for many Years prohibited the digging in the former for any but himſelf. --- M. *Reaumur* takes the *old Rock* to be now exhauſted; in effect the common Diviſion of *Turquoiſes* into the *old Rock*, or *Oriental*, and *new Rock*, or *Occidental*, is very arbitrary and precarious. --- All the beſt, and moſt perfect, grow they where they will, in *India* or *Europe*, are reckon'd among the former, and the reſt among the latter.

Near *Simore*, in the lower *Languedoc*, are ſeveral conſiderable Mines of *Turquoiſes*; but that fine blue Colour admir'd in the *Turquois*, is not natural to theſe Rocks; the prevailing Colour being ſometimes white, and ſometimes much like that of *Tripoli* and *Venice*. The other precious Stones are dug out of the Mine with all their Colour, to the Force whereof nothing can be added, tho' it may frequently be diminiſh'd, as we ſee Fire bring down the too deep Colour of the Saphir, and quite take away that of a pale Saphir: Theſe *Turquoiſes*, on the contrary, are naturally whitiſh or yellowiſh, of a Colour as common as that of a Free-ſtone; and by oppoſing them for ſome Time to the Action of the Fire, they aſſume a blue Colour.

It ſeems a Paradox, and yet M. *Reaumur* has made it exceeding probable, that *Turquoiſes* are originally the Bones of Animals. --- In the Mines in *France*, Pieces have ſeveral times been ſound in the Figure of Teeth, Bones of the Arms, Legs, &c. And *Turquoiſes* which are yet imperfect or ill form'd, are apparently compos'd of Laminæ or Leaves like thoſe of Bones, between which ſome petrifying Juice inſinuating itſelf, binds them cloſe together: And ſtill, the ſofter, and more imperfect the Stones are, the more diſtinguiſhable are the different Directions of the Fibres and Laminæ, with their Interſections, and the greater Reſemblance they bear to fractur'd Bones, and the leſs to any kind of Stones known.

To give them the blue Colour, they dry them awhile in the Air, then heat them gradually in a Furnace made after a particular Manner. If they be heated too haſtily, the Humidity between the Lamina, wanting Time to evaporate all, will ſeparate into Scales or Flaws. Some of the Stones require a greater Degree of Heat to bring them to their Colour than others; and even in large Pieces, ſeveral Parts ordinarily require ſeveral Degrees of Heat.

On this Account a world of Care is to be taken in the Heating them; for the Fire, which gives them their Blue by Degrees, if they be expos'd beyond a certain Degree, takes it away again.

M. *Reaumur* accounts for their taking a blue Colour by Heat, very well: When freſh cut out of the Rock, it ſeems, their Subſtance is found ſprinkled and ſtreak'd all over with Spots, Veins, little Circles, &c. of a black-blue Colour: Theſe he takes to be Remains of a deep blueiſh Matter, which the Fire rareſying, ſpreads and diffuſes throughout the whole Subſtance of the Stone. --- This Matter, again, he concludes to have been either originally the Juice contain'd in the Bones, ſince mix'd and coagulated with the petrifying Juice, or ſome other Mineral Matter inſinuated into the Pores of the Stone.

The great Defect of all *Turquoiſes* is, that in Time they loſe their blue Colour, and become green; and then ceaſe to be of any Value.

TURF, or PEAT, a blackiſh ſulphurous Earth, us'd in ſeveral Parts of *England*, *Holland*, and *Flanders*, as Fuel. See FUEL.

In *Flanders*, their *Turf* is dug or pared from off the Surface of the Earth, and cut in Form of Bricks. --- The *Gramen*, a Species of Graſs growing very thick on the *Turf* Earth, contributes greatly, when dry, to the Maintenance of the Fire.

The *Dutch* draw their *Turf* from the Bottom of the Dikes or Canals which run acroſs moſt of their Lands; by which Means they not only ſupply the Defect of Wood, which is very great in moſt of the United Provinces, but alſo keep their Dikes clear and navigable: This *Turf* Earth is very black. As they take it up from the Bottoms of the Dikes, they ſpread it about the Edges, of ſuch a Thickneſs, as may be reduc'd to three Inches when moderately dry'd. --- In this Condition they cut it into Pieces or *Turfs* ſeven or eight Inches long, and three broad; and, to compleat the drying, lay them up in Heaps, and at laſt in Stacks.

In the North of *England*, *Scotland*, &c. *Turf* or Peat is dug out of a ſoft, moiſt, rotten Earth, call'd *Peat-Moſs: For the Formation whereof*, ſee MOSS.

They dig horizontally from the Surface, to the Depth of about four Foot, with a Spade, which at once faſhions and takes them out in Parallelopipeds nine or ten Inches long, and three ſquare; which are ſpread on the Ground to drain as faſt as dug; and then ſet up an end three or four againſt each other, for the Wind to blow thro' them; and at laſt ſtack'd or houſed.

The Pits or Dikes in a few Years fill up again, and afford a freſh Crop.

TURFING *Spade*, among Huſbandmen, is an Inſtrument us'd to under-cut the *Turf*, after it is mark'd out with a Trenching Plough.

TURGESCENCE, a Swelling or growing *turged* or bloated. --- From the *Latin*, *turgere*.

TURIONES, the firſt young tender Shoots which Plants do annually put forth. See GEM, CYON, &c.

TURKY *Company*. See COMPANY.

TURLUPINADE, a Term us'd chiefly among the *French* for a low dry Jeſt, or Witticiſm. --- The Occaſion of the Name is deriv'd from a famous Comedian at *Paris*, call'd *Turlupin*; whoſe Talent, like that of our *Pinkethman*, conſiſted chiefly in raiſing a Laugh by miſerable Puns and Points.

TURLUPINES, TURLUPINI, a Sect of Hereticks, or rather of People who made publick Profeſſion of Impudence, going naked, without ſo much as covering their Privy Parts, and having to do with Women, like the Cynicks, in open Market.

They call'd their Sect the *Fraternity of the Poor*, and ſpread themſelves over *England* and *France*.

They are ſaid by ſome to have had their Name *Turlupins*, *quod ea tantum habitarent loca quæ lupis expoſita erant*.

They attempted to ſettle themſelves at *Paris* in 1372, but were a great Part of them burnt, with their Books; as is related by *Gaguin* and *du Tillet* in the Life of *Charles* V.

TURMERIC, a Root us'd by the Dyers to give a yellow Colour, call'd in *Latin*, *Curcuma Officinarum*. See DYING.

'Tis yellow both within and without Side, very hard, as if petrify'd, and not unlike, either in Figure or Size, to Ginger. --- The Leaves it produces are like thoſe of white Hellebore; its Flowers riſe in Manner of a Spica or Ear; and its Fruit rough like our new Cheſnuts.

'Tis brought chiefly from the *Eaſt-Indies*; tho' the Iſland *Madagaſcar* does likewiſe afford it. --- You are to chuſe that which is big, new, reſinous, hard to break, and heavy.

Some People have miſtakenly imagin'd there was a Native red *Turmeric*; their Error was owing to this, that the yellow Root, as it grows old, turns brown; and when pulveriz'd reddiſh.

'Tis much us'd by the Glovers, &c. to dye their Gloves; as alſo by the Founders, &c. to give a Gold Colour to their Metals. --- The *Indians* uſe it to dye their Rice, and other Foods, of a yellow Colour; whence ſome call it *Indian Saffron*.

Our Dyers don't find that it gives ſo ſteady a Yellow as the Luteola or Greening Weed; but 'tis admirable to brighten and heighten the red Colours dyed with Cochineel or Vermillion; as Scarlets, &c.

Turmeric is us'd in Medicine by Way of Decoction, Infuſion, Powder, &c. with other Ingredients, in the Jaundice, Hypochondriac, Leucophlegmatic, and Cachectical Conſtitutions.

TURN, is uſed for a circular Motion; in which Senſe it coincides with Revolution. See REVOLUTION.

TURN, in Clock or Watch Work, particularly denotes the Revolution of a Wheel or Pinion. See WHEEL, PINION, &c.

In Calculation, the Number of *Turns* which the Pinion hath in one *Turn* of the Wheel, is commonly ſet down as a Quotient in common Arithmetic, thus, 5)60(12, where the Pinion 5 playing in a Wheel of 60, moveth round 12 times in one *Turn* of the Wheel: Now, by knowing the Number of *Turns*, which any Pinion hath in one *Turn* of the Wheel it worketh in, you may alſo find how many *Turns* a Wheel or Pinion hath at a greater Diſtance; as the Contrat-wheel, Crown-wheel, &c. by multiplying together the Quotients, and the Number produc'd, is the Number of *Turns*; as in this Example:

5) 55 (11
5) 45 (9
5) 40 (8

The firſt of theſe three Numbers has 11 *Turns*, the next 9, and the laſt 8. If you multiply 11 by 9, it produceth 99; that is, in one *Turn* of the Wheel 55, there are 99 *Turns* of the ſecond Pinion 5, or the Wheel 40, which runs concentrical, or on the ſame Arbor with the ſecond Pinion 5. --- If you multiply 99 by the laſt Quotient 8, it produces 792, which is the Number of *Turns* the third Pinion 5 hath.

TURN is alſo us'd for the Sheriffs Court, kept twice a Year, *viz.* a Month after *Eaſter*, and within a Month after *Michaelmas*. See SHERIFF and COURT.

From this Court none are exempted but Archbiſhops, Biſhops, Earls, Barons, Religious Men and Women, and all ſuch as have Hundreds of their own to be kept.

It is a Court of Record in all Things that pertain to it; and is alſo the King's Leet through all the County, whereof the Sheriff is Judge; this Court being incident to his Office.

It is call'd the Sheriff's *Turn*, becauſe he takes a *Turn* or Circuit thro' the Shire, holding the ſame in ſeveral Places. See SECTA REGALIS.

TURN-*pike*, a Gate ſet up acroſs a Road, watch'd by an Officer for the Purpoſe, in order to ſtop Travellers, Waggons, Coaches, &c. to take Toll of them, towards repairing, or keeping the Roads in repair. See ROAD.

TURN-*pike* is alſo us'd in the Military Art, for a Beam ſtuck full of Spikes, to be plac'd in a Gap, a Breach, or at the Entrance of a Camp; to keep off an Enemy.

The *Turn-pike* is a Spar of Timber, twelve or fourteen Feet long, and about ſix Inches Diameter; of a ſexangular Form; and bored with Holes, one right under another, about an Inch Diameter; the Axis of the Holes being ſix Inches one from another, and to go in from each Side. --- The Spikes or Prickets that are driven into the Holes, are five or ſix Feet long, pointed with Iron; and with Wedges or Nails faſten'd hard into the Holes.

Two of theſe faſten'd together with an Iron Chain and Staple, ſix Inches long, are of great Uſe to ſtop the Enemy in the Breaches or elſewhere.

Thoſe intended to be thrown in Breaches, muſt be made of Oak; and need not be ſo big, or the Pickets ſo long.

TURNADO or TORNADO, a Wind which on ſome Coaſts blows all Night from the Shore. See WIND, WHIRLWIND, TRADE-*Wind*, MONSOON.

TURNAMENT or TOURNAMENT, a martial Sport or Exerciſe, which the ancient Cavaliers uſed to perform, to ſhew their Bravery and Addreſs.

The firſt *Turnaments* were only Courſes on Horſeback, wherein the Cavaliers tilted at each other with Canes, in manner of Lances; and were diſtinguiſh'd from Juſts, which were Courſes accompanied with Attacks and Combats with blunted Lances and Swords.

Others ſay, it was a *Turnament*, when there was only one Quadril or Troop; and that where there were ſeveral to encounter each other, it was a *Juſt*: but 'tis certain the Two became confounded together in proceſs of Time; at leaſt we find them ſo in Authors. See JUST.

The Prince who publiſh'd the *Turnament*, uſed to ſend a King at Arms with a ſafe Conduct, and a Sword to all the Princes, Knights, &c. ſignifying that he *Intended a* Turnament *and a Claſhing of Swords, in the Preſence of Ladies and Damſels*; which was the uſual Formula of Invitation.

They firſt engaged Man againſt Man, then Troop againſt Troop; and after the Combat, the Judges allotted the Prize to the *Beſt Cavalier, and the beſt Striker of Swords*; who was, accordingly, conducted in Pomp, to the Lady of the *Turnament*, where, after thanking her very reverently, he ſaluted her, and likewiſe her two Maids.

Theſe *Turnaments* made the principal Diverſion of the XIIIth and XIVth Centuries. —— *Munſter* ſays, it was *Henry the Fowler*, Duke of *Saxony*, and afterwards Emperor, that firſt introduced them; but it appears from the Chronicle of *Tours*, that the true Inventor of this famed Sport, was one *Geoffrey*, Lord of *Preuilli*, about the Year 1066.

From *France* they paſſed into *England* and *Germany*. —— The *Hiſtoria Byzantina* tells us, That the *Greeks* and *Latins* borrowed the Uſe thereof from the *Franks*; and we find mention made of them in *Cantacuſana*, *Gregorias*, *Beſſarion* and others of the late *Greek* Authors.

Budeus derives the Word from *Trojana agmina*; others from *Trojamentum*, *quaſi ludus Trojæ*. *Menage* deduces it from the *Latin*, *Tornenſis*, or the *French*, *Tourner*, in regard the Combatants turn'd and twiſted this way and that. M. *Paris* calls them in *Latin*, *Haſtiludia*; *Neubrigenſis*, *Meditationes Militares*; others *Gladiaturæ*, others *Decurſiones ludicræ*, &c.

Pope *Eugenius* II. excommunicated thoſe who went to *Turnaments*, and forbad them Burial in holy Ground. —— K. *Henry* II. of *France* died of a Wound received at a *Turnament*. —— One *Chiaoux*, who had aſſiſted at a *Turnament* under *Charles* VIII. ſaid very happily; *If it be in Earneſt, 'tis too little; If in Jeſt, too much.*

'Tis to the Exerciſe of *Turnaments* that we owe the firſt Uſe of Armories; of which, the Name Blazonry, the Form of the Eſcutcheons, the Colours, principal Figures, the Mantlings, Labels, Supporters, &c. are undeniable Evidences. See ARMS.

In *Germany*, 'twas anciently a Cuſtom to hold a ſolemn *Turnament* every three Years, to ſerve as a Proof of Nobility. —— For the Gentleman who had aſſiſted at Two, was ſufficiently blazon'd and publiſh'd, *i. e.* he was acknowledged Noble, and bore two Trumpets by way of Creſt on his *Turnament* Caſk. —— Thoſe who had not been in any *Turnaments*, had no Arms, though they were Gentlemen. See NOBILITY, DESCENT, &c.

TURNETUM, in our old Law-books, a Duty paid to the Sheriff for holding his Turn or County-Court. See TURN and SHERIFF.

TURNING, a Branch of Sculpture; being the Art of faſhioning hard Bodies, as Braſs, Ivory, Wood, &c. into a round or oval Form, in a Lathe. See LATHE.

Turning is performed, by putting the Subſtance to be *turned*, upon two Points, as an Axis; and moving it about on that Axis; while an edge Tool ſet ſteady to the Outſide of the Subſtance, in a Circumvolution thereof, cuts off all the Parts that lie further off the Axis, and makes the Outſide of that Subſtance Concentric to the Axis.

The Invention of *Turning* appears to be very ancient. —— Some, indeed, to do Honour to the Age, will have it brought to Perfection by the Moderns; but if what *Pliny*, and ſome other ancient Authors relate, be true, that the Ancients *turned* thoſe precious Vaſes, enrich'd with Figures and Ornaments in Relievo, which we ſtill ſee in the Cabinets of the Curious; it muſt be owned, that all that has been added in theſe Ages, makes but a poor Amends for what we loſt of the manner of *Turning* of the Ancients. See SCULPTURE.

The principal Inſtruments uſed in *Turning*, beſide the Lathe, are Chiſſels and Mandrels of various Forms; *The Deſcription whereof, ſee under their proper Articles.*

TURNSOLE, TOURNSOL or TORNSOL. See TORNSOL.

TURPENTINE, TEREBENTHINA, a tranſparent Gum or Reſin flowing either Naturally or by Inciſion, from ſeveral fatty reſinous Trees; ſuch as the *Terebinthus*, Larch, Pine, Fir, &c. See GUM and RESINIFEROUS.

We diſtinguiſh ſeveral Kinds of *Turpentines*; as that of *Chio*, that of *Venice*, that of *Bourdeaux*, that of *Cyprus*, *Straſbourg*, &c.

The *Turpentine* of *Chio*, which is the only genuin Kind, and that which gives the Denomination to all the reſt, is a whitiſh Reſin, bordering a little on the Green, very clear and a little odoriferous; drawn by Inciſion from a Tree called *Terebinthus*, very common in that Iſland, as alſo in *Cyprus*, and ſome Parts of *France* and *Spain*.

The Gum muſt be choſen of a Solid Conſiſtence, almoſt without either Taſte or Smell, and not at all Tenacious, which diſtinguiſhes it from the falſe *Turpentine* of *Venice*, commonly ſubſtituted for it, which has a ſtrong Smell, a bitter Taſte, and ſticks much to the Finger. —— This *Turpentine* of *Chio* is indiſputably the beſt; but its Scarcity occaſions it to be little in uſe.

The *Turpentine* of *Venice*, is falſly ſo called, for though there was a *Turpentine* anciently brought from *Venice*, yet that now ſo called, comes all from *Dauphine*. —— 'Tis liquid, of the Conſiſtence of a thick Syrop, and whitiſh; and flows either ſpontaneouſly, or by Inciſion from Larches, Firs and Pines, chiefly in the Wood *de Pilatze*.

That flowing naturally, call'd by the Peaſants, *Bijon*, is a kind of Balm not inferior in virtue to that of *Peru*, to which it is frequently ſubſtituted. —— That drawn by Inciſion, after the Tree has ceas'd to yield ſpontaneouſly, is of very conſiderable Uſe, in ſeveral Arts, and 'tis even of this that Varniſh is made. See VARNISH.

It muſt be choſen White and Tranſparent, and Care be taken it han't been counterfeited with Oil of *Turpentine*.

The *Turpentine* of *Bourdeaux* is white and thick as Honey. —— It does not ooze from the Tree in the Manner it is ſent to us; but is properly a Compoſition, wherein, among other Ingredients, is a white hard Sort of Roſin called *Galipot*. See PITCH.

The *Turpentine* of *Straſbourg*, *Dantzic*, &c. is that moſt commonly uſed among us; and is preferr'd, by our People, to that of *Venice*, which it is diſtinguiſh'd from, by its green Hue.

The Uſes of *Turpentine* in Medicine, are innumerable. —— 'Tis a great Vulnerary, and very Detergent, and as ſuch is preſcribed in all Abſceſſes and Ulcerations, &c. It promotes Expectoration, and as ſuch is preſcribed in Diſeaſes of the Lungs and Breaſt: But it is moſt famous for clearing the Urinary Paſſages, and as ſuch preſcribed in Obſtructions of the Reins, in Gonnorhæas, &c.

Oil of TURPENTINE. —— There are two Kinds of Oils drawn from *Turpentine* by Diſtillation; the firſt White, the ſecond Red; both eſteem'd as Balſoms proper for the Cure of Wounds, Chilblains, &c. But they are ſo little uſed among us, that 'tis not eaſy to procure either of them.

What is commonly ſold under the Name of *Oil of Turpentine*, or *Etherial Oil*, is only a Diſtillation of the Roſin called *Galipot*, freſh from the Tree. —— It is uſed with Succeſs in the Cure of green Wounds, as alſo by the Painters, Farriers, &c. —— To be good, it muſt be clear and white as Water, of a ſtrong penetrating Smell, and very inflammable.

TURUNDA, in Chirurgery, a Tent; or any thing to be thruſt into an Orifice or Cavity. See TENT, &c.

TUSCAN, in Architecture, the firſt, ſimpleſt, and moſt Maſſive of the five Orders. See ORDER.

The *Tuſcan Order* takes its Name from an ancient People of *Lydia*, who coming out of *Aſia* to people *Tuſcany*, firſt executed it in ſome Temples, which they built in their new Plantations.

Vitruvius calls the *Tuſcan*, the *Ruſtic Order*; with whom agrees M. *de Chambray*, who in his Parallel, ſays, it ought never to be uſed but in Country-houſes and Palaces. M. *le Clerc* adds, that in the manner *Vitruvius*, *Palladio* and ſome others, have ordered it, it does not deſerve to be uſed at all. But in *Vignola*'s Manner of Compoſition, he allows it a Beauty, even in its Simplicity; and ſuch as makes it proper not only for private Houſes, but even for public Buildings, as in the Piazzas of Squares and Markets; in the Magazines and Granaries of Cities; and even in the Offices and lower Apartments in Palaces.

The *Tuſcan* has its Character and Proportions, as well as the other Orders; but we have no ancient Monuments, to give us any regular *Tuſcan* Order for a Standard.

M. *Perrault* obſerves, that the Characters of the *Tuſcan* are nearly the ſame with thoſe of the *Doric*; and adds, that the *Tuſcan* is, in effect, no other than the *Doric*, made ſomewhat ſtronger, by the ſhortning of the Shaft of the

Column, and ſimpler, by the ſmall Number, and Largeneſs of the Mouldings. See DORIC.

Vitruvius makes the whole Height of the Order 14 Modules, wherein he is followed by *Vignola*, M. *le Clerc*, *&c.* — *Serlio* only makes it 12. — *Pallaaio* gives us one *Tuſcan* Profile, much the ſame as that of *Vitruvius*; and another too rich: On which Side *Scamozzi* is likewiſe faulty. Hence it is, that that of *Vignola*, who has made the Order very regular, is moſt follow'd by the Modern Architects. See COLUMN.

Of all the Orders, the *Tuſcan* is the moſt eaſily executed; as having neither Triglyphs nor Dentils, nor Modillions to confine its Intercolumns. — On this account the Columns of this Order may be ranged in any of the five Manners of *Vitruvius*, *viz.* the *Picnoſtyle*, *Siſtyle*, *Euſtyle*, *Diaſtyle* and *Areoſtyle*. See INTERCOLUMNATION.

For the Parts and Members of the Tuſcan *Order, their Proportions, &c.* ſee CAPITAL, BASE, PEDESTAL, FREEZE, *&c.*

TUSCULAN, in Matters of Literature, a Term frequently uſed in the Phraſe *Tuſculan Queſtions*. — *Cicero*'s *Tuſculan Queſtions*, are Diſputations on ſeveral Topicks in Moral Philoſophy, which that great Author took Occaſion to denominate from the *Tuſculanum*, a Country Seat or Villa, where they were compos'd, and where he lays the Scene of the Diſpute.

They contain Five Books; the Firſt on the Contempt of Death; the ſecond of enduring Pain; the third on aſſwaging Grief; the fourth on the other Perturbations of the Mind; and the laſt, to ſhew that Virtue is ſufficient to a happy Life.

TUSKES or TUSKS of a Horſe. See TEETH.

TUSSIS, in Medicine, a *Cough*; a Diſeaſe affecting the Lungs, occaſioned by a ſharp ſerous Humor, vellicating the Fibrous Coat thereof, and urging it to a Diſcharge by Spitting, *&c.* See LUNGS.

When the Humor is ſo ſubtile, that the Lungs cannot lay hold of it, to throw it off; or when the Humor is ſo thick that it will not give Way, it is ſaid to be a *dry Cough*.

Dry Coughs are the moſt dangerous. — *Hippocrates* ſays, the Cough ceaſes, if the Teſticles ſwell. See COUGH.

TUT, in Armory, *&c.* an Imperial Enſign of a golden Globe, with a Croſs on it.

TUTELARY, TUTELARIS, one who has taken ſomething into his Patronage and Protection. See PROTECTION.

'Tis an ancient Opinion, that there are *tutelary* Angels of Kingdoms and Cities, and even of particular Perſons, call'd *Guardian Angels*. See ANGEL, DÆMON, GENIUS, *&c.*

The ancient *Romans*, 'tis certain, had their *tutelary* Gods, whom they called *Penates*. See PENATES.

And the *Romiſh* Church to this Day, hold an Opinion not much unlike it. — They believe that every Perſon, at leaſt every one of the Faithful, has, from the Time of his Birth, one of thoſe *Tutelary* Angels attached to his Perſon, to defend him from all Temptations; and 'tis on this, principally, that their Practice of invoking Angels is founded.

F. *Anthony Macedo*, a *Portugueze* Jeſuit, of *Conimbra* has publiſh'd a large Work in Folio, on the *tutelary* Saints of all the Kingdoms, Provinces and great Cities of the Chriſtian World: *Divi Tutelares Orbis Chriſtiani*, at *Lisbon* 1687. See PATRON, SAINT, *&c.*

TUTOR, in the Civil Law, is one choſe to look to the Perſon and Eſtate of Children, left by their Fathers and Mothers in their Minority. See GUARDIAN, MINOR and PUBERTY.

By the Cuſtom of *Normandy*, the Father is the natural *Tutor* of his Children. — A Perſon nominated *Tutor*, either by Teſtament, or by the Relations of the Minor, may decline that Office, if he have Five Children alive; if he have any other conſiderable *Tutorage*; if he be under 25 Years of Age; if he be a Prieſt, or a Regent in an Univerſity; if he have any Law Suit with the Minors, *&c.* See TUTORAGE.

The Marriage of a Pupil, without the Conſent of his *Tutor*, is invalid. — *Tutors* may do any thing for their Pupils, but nothing againſt them; and the ſame Laws which put them under a Neceſſity of preſerving the Intereſt of the Minors, put them under an Incapacity of hurting them. See PUPIL.

TUTOR is alſo uſed in our Univerſities, for a Member of ſome College or Hall, who takes on him the Inſtructing young Students in the Arts and Faculties.

TUTORAGE, TUTELA, in the Civil Law, a Term equivalent to Guardianſhip in the Common Law; ſignifying an Office impoſed on any one, to take care of the Perſon and Effects of one or more Minors. See MINOR.

By the *Roman* Law, there are three Kinds of *Tutorage*. — The *Teſtamentary*, which is appointed by the Father's Teſtament: The *Legal*, which is appointed by the Law to the neareſt Relation; and the *Dative*, which is appointed by the Magiſtrate.

But in all Cuſtomary Provinces, as *France*, *&c.* all *Tutorages* are Dative and Elective; and though the Father have by Teſtament, nominated the next Relation to his Pupil, yet is not that Nomination of any Force, unleſs the Choice be confirm'd by that of the Magiſtrate, *&c.*

By the *Roman* Law, *Tutorage* expires at 14 Years of Age; but in *France* not till 25 Years. A Minor quits his *Tutorage*, and becomes free by Marriage; in which Caſe a *Curator* is given him. See CURATOR and GUARDIAN.

TUTTY, TUTIA or *Lapis* TUTIÆ, a metallic Soot, thrown off from Braſs, in the Furnace; and form'd into Concave Flakes of different Sizes and Thickneſs; very hard, greyiſh, and full of little protuberant Grains as big as Pins Heads.

It is found adhering to Rolls of Earth ſuſpended for that Purpoſe over the Furnaces of the Founders in Braſs, to receive the Fumes of the melted Metal. See BRASS and FOUNDERY.

Tutty is now brought chiefly from *Germany*. Anciently it came from *Alexandria*.

To prepare the *Tutty* for Uſe, they heat it red Hot three times in a Crucible, among burning Coals; and quench it as often in Roſe-water: Then they grind it on a Porphyry Stone, mixing with it as much Roſe-water, or Plantain-water as is neceſſary, till it be brought to a very fine Powder: Then they make it up into little Troches, and thus dry it.

Tutty is very deſiccative. Its principal Uſe is in Diſeaſes of the Eyes, particularly Inflammations; in order to which, it is diluted with Roſe-water or Plantain-water, in form of a Collyrium. See COLLYRIUM.

Some uſe it incorporated with freſh Butter, in form of an Unguent.

In the *London* Diſpenſatory, it gives Title to a Compoſition called *Ointment of Tutty*, good for Eye Diſeaſes, and frequently uſed by Surgeons with other Deſiccatives to cicatrize Ulcers. — Tis alſo good in the Hemorrhoids.

TWA-*Nights-Geſte*, in our ancient Cuſtoms. See THIRD-*nights-awn-Hynde*.

If the *Twa-Nights-geſte* did any harm to any, his Hoſt was not anſwerable for it, but himſelf.

TWELF-HINDUS, in our ancient Cuſtoms, the ſame with *Thanus*. See THANE.

Among the *Engliſh Saxons*, every Man was valued at a certain Price; and where an Injury was done, either to the Perſon or Goods, a pecuniary Mulct was impoſed, and paid in Satisfaction of that Injury, according to the Worth and Quality of the Perſon to whom it was done. — And hence all Men were ranked in three Claſſes; which ſee in HINDENA.

Thoſe who were worth 1200 *s.* were called *Twelf-hindi*, and if an Injury was done to them, Satisfaction was to be made accordingly.

TWELFTH-DAY or *Tide*, the Feſtival of the *Epiphany*, or the Manifeſtation of Chriſt to the Gentiles; ſo called, as being the *Twelfth-day*, excluſively, from the Nativity or *Chriſtmaſs-day*. See EPIPHANY.

TWELVE-MONTH, the Space of a Year, according to the Calender Months. See YEAR and MONTH.

TWELVE-MEN, *Duodecim homines Legales*, otherwiſe called the *Jury* or *Inqueſt*, is a Number of *Twelve* Perſons, or upwards to Twenty-four; by whoſe Oath, as to Matters of Fact, all Trials paſs, both in Civil and Criminal Caſes, through all Courts of the common Law in this Realm. See JURY and TRIAL.

In Civil Caſes, when Proof is made of the Matter in Queſtion, the Point of Fact, whereon they are to give their Verdict, is deliver'd to them; which is called the *Iſſue*. — Then they are put in mind of their Oath, and are by the Judge's ſumming the Evidence, ſent out of Court by themſelves, to conſider on the Evidence on both Sides, till they be agreed.

In Cauſes Criminal, there are two Sorts of Inqueſts: One called the *Grand Inqueſt*, the other the *Inqueſt of Life and Death*.

The firſt is ſo called, becauſe it conſiſts of Sixteen Perſons at leaſt; or becauſe all Cauſes Criminal or Penal paſs through their Hands; whereas the other Inqueſt is eſpecially appointed for one or more Matters.

Thoſe of the Grand Inqueſt are call'd by *Bracton*, *duodecim Milites*, becauſe they were wont to be Knights; if ſo many could be had.

Their Function is to receive all Preſentments of any Offence, and accordingly to give their general Opinion of them, by writing either the Words *Billa vera* upon the Bill of Preſentment, which is an Indictment of the Party preſented; or elſe *Ignoramus*; which is a doubting of the Fact preſented. See ENQUEST and INDICTMENT.

TWI-FALLOWING *Ground*, in Husbandry, is the Tilling or Ploughing it a ſecond Time. See TILLING and FALLOWING.

TWI-HINDI, among our *Saxon* Anceſtors, were Men valued at 200 *s.* See TWELFHINDUS.

Theſe Men were of the loweſt Degree; and if ſuch were killed, the Mulct was 30 *s.* — Thus in *Leg. H.* I *c.* 9. *de* Twihindi *hominis interfecti*, *wera debet reddi ſecundum legem*.

gem. --- Where, Note, that this was not an Introduction of new Law, but a Confirmation of the Old, made in the Reign of King *Alfred*.

TWINS. See GEMINI, DIDYMI, &c.

It has been greatly diſputed, which of two *Twins* is to be ſteem'd the Elder. --- The Faculty of *Montpellier* have iven it, that the latter borne is to be reputed the Elder; ecauſe firſt conceived: But by all the Laws which now btain, the firſt-born enjoys the Privileges of Seniority; and he Cuſtom is confirm'd by the Inſtance of *Eſau* and *Jacob*.

But if two *Twins* be born ſo intermix'd, that one cannot diſtinguiſh which of the Two appeared the firſt; it hould ſeem that neither the one nor the other can pretend o the Right of Primogeniture, which ought to remain in Suſpence, by reaſon of their mutual Concourſe.

In ſuch Caſe, ſome would have the Deciſion left to the Father, and others to the Hazard of a Lot. Sometimes there re born Three *Twins*, as in the Inſtances of *Horatii* and *Curiatii*; and ſometimes there have been known Four, or ven Five or more. See FOETUS, EMBRYO, &c.

TWIST *of a Rope*, Cord, &c. See ROPE, CORDAGE, CABLE, &c.

TWIST, is alſo uſed in Architecture, for a Piece of Timber, otherwiſe called a *Girder*. See GIRDER.

TWIST, again, is uſed for the Inſide, or flat Part of a Man's Thigh, upon which a true Horſeman reſts when on Horſeback. See THIGH.

To TWIST *a Horſe*, is violently to wring or *twiſt* his Teſticles twice about, which cauſes them to dry up, and deprives them of Nouriſhment, and reduces the Horſe to he ſame State of Impotency with a Gelding. See GELDING.

TWISTING of Silk, &c. ſee SILK, &c.

TYCHONICK *Syſtem*, or *Hypotheſis*, is an Order or Arrangement of the heavenly Bodies, of an intermediate Nature between the *Copernican* and *Ptolomaic*, or participating alike of them both. See SYSTEM.

It takes its Name from *Tycho Brahe*, a noble *Dane*; of whom ſome Account is hereafter given, under the Article URANISBOURG.

In this Syſtem, the Earth is, with *Ptolomy*, placed in the Middle, and ſuppos'd immoveable; and the Sun and Moon to revolve in Orbits, reſpecting the ſame as a Centre: But the other five Planets are ſuppos'd, with *Copernicus*, to revolve round the Sun as their Centre. --- So that the Orbits of the three ſuperior Planets include the Earth, but not thoſe of the inferior ones; by reaſon they are nearer to the Sun than the Earth is.

Accordingly, the Heavens are here ſuppos'd to be fluid; and to conſiſt of three different Orbs or Spheres; the firſt moveable, ſuppos'd to make a Revolution in 24 Hours; the ſecond the Sphere of the Planets; and the third the Firmament, or Region of fix'd Stars.

See the Diſpoſition of the heavenly Bodies in this Syſtem, repreſented in Plate Aſtronomy, Fig. 45.

Some later Aſtronomers finding the *Ptolomaic* Syſtem diſagree with the Phænomena; and not daring to make the Earth move; but at the ſame time diſliking the *Tychonic* Notion of two Centres, one of them moveable, *viz.* the Sun; and the other fix'd, the Earth; have fram'd a new Syſtem out of the *Ptolomaic* and *Tychonic*, call'd the *Semi-Tychonic*; wherein, not only the Sun and Moon, but *Jupiter* alſo, and *Saturn*, are ſuppos'd to move in Excentrics or Deferents, reſpecting the Earth as a Centre, tho' revolvent at he ſame time in their reſpective Epicycles. --- But even here, he inferior Planets are ſtill ſuppos'd to move round the Sun their Centre; their Phaſes, obſerv'd with the Teleſcope, eing no otherwiſe accountable for.

TYLE or TILE, in Building, a ſort of thin factitious Stone, ſed in the Roofs, &c. of Houſes; or, more properly, it is a ind of fat, clayey Earth, knodden and moulded of a juſt Thickneſs, dried and burnt in a Kiln, like a Brick, and ſed in the Covering of Houſes. See BRICK and COVERING.

It is thus called from the *French*, *Tuile*, of the *Latin*, *Tegula*.

Tyles are made, ſays M. *Leybourn*, of better Earth than rick-earth, and ſomething nearer akin to the Potter's Earth. --- According to Stat. 17 *Edw.* IV. the Earth for *Tyles* hould be caſt up before the firſt of *November*, ſhired and rned before the firſt of *February*, and not made into *Tyles* fore the firſt of *March*; And ſhould likewiſe be tried and ver'd from Stones, Marle and Chalk.

For the Method of Burning them, ſee BRICK.

As to the applying of *Tyles*; ſome lay them dry, as they me from the Kiln, without Mortar or any thing elſe: thers lay them in a kind of Mortar made of Loam and orſe-dung. --- In ſome Parts, as in *Kent*, they lay them in oſs.

There are various Kinds of *Tyles*, for the various Occa- ns of Building; as *Plain*, *Thack*, *Ridge*, *Roof*, *Creaſe*, *Gutter*, *Pan*, *Crooked*, *Flemiſh*, *Corner*, *Hip*, *Dorman*, *Dormar Scallop*, *Aſtragal*, *Traverſe*, *Paving* and *Dutch Tyles*.

Plain or *thack Tyles*, are thoſe in ordinary Uſe for the Covering of Houſes. They are ſqueez'd flat, while yet ſoft, in a Mould. --- They are of an oblong Figure, and by Stat. 17° *Edw.* IV. are to be $10\frac{1}{2}$ Inches long; $6\frac{1}{4}$ broad, and Half an Inch and Half a Quarter thick. But theſe Dimenſions are not over-ſtrictly kept to.

Ridge, *Roof* or *Creaſe Tyles*, are thoſe uſed to cover the Ridges of Houſes; being made circular breadth-wiſe, like a half Cylinder. --- Theſe are what *Pliny* calls *Laterculi*; and are, by Statute, to be 13 Inches long, and of the ſame Thickneſs with the *Plain Tyles*.

Hip or *Corner Tyles*, are thoſe which lie on the Hips or Corners of Roofs. --- As to Form; they are firſt made flat, like *Plain Tyles*, but of a Quadrangular Figure, whoſe two Sides are right Lines, and two Ends, Arches of Circles, one End being a little Concave and the other Convex; the convex End to be about Seven times as broad as the concave End; ſo that they would be Triangular, but that one Corner is taken off: Then, before they are burnt, they are bent on a Mould, breadthwiſe, like *Ridge Tyles*. --- They have a Hole at their narrow End, to nail them on by; and are laid with their narrow End upwards. By Statute, they are to be $10\frac{1}{2}$ Inches long, and of a convenient Breadth and Thickneſs.

Gutter Tyles, are thoſe which lie in Gutters or Valleys in Croſs-buildings. --- They are made like *Corner Tyles*, only the Corners of the broad End are turned back again with two Wings. --- They have no Holes in them, but are laid broad End upwards, without any nailing. --- They are made in the ſame Mould as *Corner Tyles*, and have the ſame Dimenſions on the convex Side. Their Wings are each 4 Inches broad and 8 long.

Pan, *Crooked*, or *Flemiſh Tyles*, are uſed in covering of Sheds, Lean-to's, and all kinds of flat-roofed Buildings. --- They are in Form of an oblong Parallelogram, as plain *Tyles*; but are bent breadth-wiſe forwards and backwards, in Form of an S, only one of the Arches is at leaſt three Times as big as the other; which biggeſt Arch is always laid uppermoſt; and the leſſer Arch of another *Tyle* lyes over the Edge of the great Arch of the former. --- They have no Holes for Pins, but hang on the Laths by a Knot of their own Earth: They are uſually $14\frac{1}{2}$ Inches long, and $10\frac{1}{2}$ broad.

Dormar, or *Dorman Tyles*, conſiſt of a plain *Tyle*, and a triangular Piece of a plain *Tyle*, ſtanding up at right Angles to one Side of a plain *Tyle*, and ſwept with an Arch of a Circle from the other End, which End terminates in a Point. --- Of theſe *Tyles* there are two Kinds; the triangular Piece, in ſome, ſtanding on the right, in others on the left Side of the plain *Tyle*. --- And of each of theſe, again, there are two Kinds; ſome having a whole plain *Tyle*, others but half a plain *Tyle*. But in them all, the plain *Tyle* has two Holes for the Pins, at that End where the broad End of the triangular Piece ſtands.

Their Uſe is to be laid in the Gutters, betwixt the Roof and the Cheeks or Sides of the Dormars, the plain Part lying on the Roof, and the triangular Part ſtanding perpendicularly by the Cheek of the Dormar. --- They are excellent to keep out the Wet in thoſe Places, and yet are not perhaps known any where but in *Suſſex*. --- The Dimenſions of the plain *Tyle* Part are the ſame as thoſe of a plain *Tyle*, and the triangular Part is of the ſame Length, and its Breadth at one End 7 Inches, and at the other nothing.

Scallop or *Aſtragal Tyles*, are in all reſpects like plain *Tyles*, only their lower Ends are in Form of an Aſtragal, *viz.* a Semicircle, with a Square on each Side. --- They are us'd in ſome Places for Weather *Tyling*.

Travers Tyles, are a kind of irregular plain *Tyles*, having the Pin-holes broke out, or one of the lower Corners broke off. --- Theſe are laid with the broken End upwards, upon Rafters, where pinn'd *Tyles* cannot hang.

Flemiſh or *Dutch Tyles*, are of two Kinds, ancient and modern. --- The firſt were uſed for Chimney-foot Foot-paces: They were painted with antick Figures, and frequently with Poſtures of Soldiers, ſome with Compartments, and ſometimes with Moreſque Devices; but came much ſhort, both as to the Deſign and Colours of the modern ones.

The modern *Flemiſh Tyles* are commonly uſed, plaiſter'd up in the Jaumbs of Chimneys, inſtead of Chimney-Cornerſtones. --- Theſe are better glaz'd; and ſuch as are painted (for ſome are only white) much better perform'd than the ancient ones.

But both Kinds ſeem to be made of the ſame whitiſh Clay as our white glazed Earthen Ware. --- The ancient ones are five Inches three Quarters ſquare, and about three Quarters of an Inch thick: The modern ones ſix Inches and half ſquare, and three Quarters of an Inch thick.

TYLERY. See TUILERIE.

TYLWITH, in Matters of Heraldry and Deſcent, is ſometimes uſed for a Tribe or Family branching out of another;

ther; which the modern Heralds more uſually call the ſecond or third Houſe.

TYMBER *of Skins*, is the Number of forty Skins. See TIMBER.

TYMPAN, or TYMPANUM, in Architecture, the Ground or Area of a Pediment; being that which is in a Level with the Naked of the Freeze. Or it is the Space included between the three Cornices of a triangular Pediment, or the two Cornices of a circular one. See PEDIMENT.

Sometimes the *Tympan* is cut out, and the Part fill'd with an Iron Lattice to give Light; and ſometimes it is enrich'd with Sculpture, in Bas Relief, as in the Weſt Front of St. *Paul*'s, in the Temple of *Caſtor* and *Pollux* at *Naples*, *&c.*

The Word TYMPAN is alſo uſed for that Part of a Pedeſtal call'd the *Trunk* or *Dye*. See PEDESTAL. See alſo DYE.

TYMPAN, among Joyners, is alſo attributed to the Pannels of Doors. See PANNEL.

TYMPAN, among Printers, is a Frame belonging to the Preſs, cover'd with Parchment, on which every Sheet is placed, in order to be printed off. See PRINTING *Preſs*.

TYMPAN *of an Arch*, in Architecture, is a triangular Space or Table in the Corners or Sides of the Arch; uſually hollow'd and enrich'd, ſometimes with Branches of Laurel, Olive-tree, or Oak; or with Trophies, *&c.* ſometimes with flying Figures, as Fame, *&c.* or ſitting Figures, as the Cardinal Virtues. See ARCH.

TYMPANITES, or TYMPANY, in Medicine, a flatuous Tumor, or Swelling of the Abdomen, or Belly; very hard, equable, and permanent; whereby the Skin is ſtretch'd ſo tight, that when ſtruck, it gives a Sound like that of a Drum. See TUMOR.

The *Tympanites* is a Species of a Dropſy; but what the Cauſe and Seat of the Diſeaſe is, or what the morbific Matter is that occaſions the Tumor, Phyſicians are not at all agreed. See DROPSY.

Wind certainly makes a principal Part of the morbid Matter; but this is ſcarce ever found without Water, excepting at the Beginning; ſo that ſome will not allow of any Difference between the *Tympany* and the *Aſcites*.

Some ſuppoſe it to ariſe from a watery Humour extravaſated and rarify'd into Vapour; and by a Property common to it with common Air, corrupting the Parts.

But this *Boerhaave* makes a particular Kind of *Tympanites* or Wind Dropſy; and adds, that it is cured like the Aſcites or Water Dropſy, by Tapping, *&c.* See TAPPING and ASCITES.

Others will have the *Tympanites* to ariſe from the Air's inſinuating itſelf thro' Perforations in the putrify'd Inteſtines. --- A *Tympanites* from this Cauſe, *Boerhaave*, who makes it a peculiar Claſs, obſerves, is almoſt always incurable.

Willis ſets aſide this latter Cauſe, and accounts for the Diſeaſe from an Irregularity in the Animal Spirits belonging to the Viſcera, which ruſhing tumultuarily into the nervous Fibres, bloat them up: Thus is the Peritoneum inflated, the Inteſtines diſtended, and the Meſentery, and other Viſcera, render'd turgid; and while this is doing, that the Vacuities left in the tumify'd Viſcera may be fill'd up, a Quantity of the Humour contain'd in them is rarify'd into Vapour, which preſently ſpreads in Blaſts through the vacant Places.

Others account for the *Tympanites* from a Convulſion of the Muſcles of the Abdomen, *&c.*

M. *Littre* has propos'd a new Syſtem of the *Tympanites*, built on a great Number of Obſervations. --- According to him, it does not proceed from any Convulſion of the Abdominal Muſcles, nor from any Air contain'd in the Cavity thereof, or in the Thorax, the Meſentery, or Epiploon; but from the Air inclos'd in the Stomach and Inteſtines, which ſwells them exceſſively.

This Air, always carry'd into thoſe Parts with the Food, maintains a kind of Equilibrium therein; oppoſing, on the one Hand, the too great Preſſure on that long Canal when empty of Food; and finding, on the other Side, in the Spring of the Coats of the Stomach and Inteſtines, an Obſtacle capable of preventing its too great Dilatation.

If this Equilibrium chance to be deſtroy'd by the Irritation of the Fibres, whoſe Spring in that Caſe prevails over that of the Air; this latter is expell'd either upwards or downwards, or both: (whence Belching, *&c.*) But if the Equilibrium come to be broke by the Force of the Air, render'd ſuperior to that of the Fibres, by thoſe latter being left deſtitute of Spirits, from the Blood's being impoveriſh'd after a long Sickneſs; in that Caſe, the Air, rarifying itſelf beyond Meaſure, ſwells the Cavities it is contain'd in.

If it be demanded, Why when the Stomach and Inteſtines are ſo full of Wind, none of the Wind eſcapes, either thro' the Anus, or by the Mouth, which uſes to be expell'd by thoſe Paſſages?

M. *Mery* ſolves the Paradox thus: According to this Theory, the Fibres, both of the Stomach and Inteſtines have loſt their Spring, at leaſt in Part, and are in an imperfect Palſy; but the Winds evacuated either by the Anus or Mouth, are Winds which thoſe Viſcera expel out of their Cavities, by putting them in a State of Contraction capable of ſurmounting the Forces which oppoſe the Egreſs of the Matters contain'd in thoſe Cavities. --- Theſe Forces are two Sphincters, one whereof ſhuts the upper Orifice of the Stomach, and the other the Anus: But paralytic Viſcera, *i. e.* Viſcera deſtitute of Spirits, in which alone conſiſts the Strength of the Muſcles, cannot overcome the Reſiſtance of thoſe two Muſcles: Whence the Wind, therefore, cannot eſcape thro' its uſual Out-lets.

The *Tympanites* rarely kills of itſelf; but frequently degenerates into an Aſcites. --- Catharticks rather aggravate than alleviate it: Antihyſtericks, Antiſcorbuticks, Chalybeats, and Strengthners are of uſe, before it be fallen into an Aſcites. Equal Quantities of Leek and Elder Leaves mix'd analytically, is a fam'd Empirical Medicine, which has often prov'd effectual when every thing elſe had fail'd.

'Tis uſual to apply Carminatives to the Belly, as the Emplaſter of Cumin-Seeds, *&c.* and alſo to uſe Carminatives mix'd with Cathartics, Diuretics, *&c.* internally: But if the Diſeaſe proceed from a Paralytic Cauſe, deſtroying the Tone of the Fibres of the firſt Paſſages, what is of Uſe in rectifying of Paralytic Diſorders, where the Tenſion of the Fibres are inſufficient, will doubtleſs for the ſame Reaſon be of Uſe here. See PALSY.

TYMPANUM, τυμπανον, *Drum*; a muſical Inſtrument, which among the Ancients, conſiſted of a thin Piece of Leather or Skin, ſtretch'd upon a Circle of Wood or Iron, and beat with the Hand. See DRUM.

TYMPANUM, TYMPAN, in Mechanicks, is a kind of Wheel plac'd on an Axis or Cylindrical Beam, on the Top of which are two Levers or fix'd Staves, for the more eaſy turning the Axis about, in order to raiſe a Weight requir'd. See WHEEL.

The *Tympanum* is much the ſame with the Peritrochium; but that the Cylinder of the Axis of the Peritrochium is much ſhorter and leſſer than the Cylinder of the *Tympanum*. See PERITROCHIUM.

TYMPANUM of a Machine, is alſo us'd for any hollow Wheel, wherein one or more People, or other Animals, walk to turn it; ſuch as that of ſome Cranes, Calanders, *&c.* See WHEEL.

TYMPANUM, in Anatomy, or *Membrana* TYMPANI, is a thin tender Skin or Membrane, ſtretch'd upon a Bony Circle, in the Meatus Auditorius of the Ear, which it ſhuts; and ſuppos'd to be the immediate Organ of Hearing. See EAR.

The *Tympanum*, popularly call'd the *Drum*, with reſpect to the erect Poſture of the Body, is ſituate obliquely, facing downwards; whence it is that we hear Sounds coming from below, better than thoſe from above. See DRUM.

Its external Surface is a little hollow'd in the Middle. --- It is compos'd of two Membranes; or, as others will have it, of only two or more Lamellæ. --- It has a Perforation, or, at leaſt, a diſengaged Part, which admits of the Paſſage of Wind, and, in ſome, of Smoak from the Meatus a Palato.

Behind it is a Cavity of the Os Petroſum, call'd *Tympani Cavitas*, and by ſome ſimply *Tympanum*; wherein are four little Bones, *viz.* the *Malleolus*, *Incus*, *Stapes*, and *Os Orbiculare*: Which ſee under their reſpective Articles, MALLEOLUS, *&c.*

Within the *Cavitas Tympani*, *Vieuſſens* has diſcover'd a very fine thin Membrane, ſerving to ſhut the Door of the Labyrinth, and prevent the internal Air from having any Communication with the external. --- The *Membrana Tympani* has a remarkable Branch of a Nerve paſſing on its internal Surface between the Incus and Malleolus, call'd the *Chorda Tympani*. See CHORDA.

The *Tympanum*, Dr. *Willis* takes to be a kind of preparatory Inſtrument to Hearing; and its Office to be to receive the firſt Impreſſions of the Sound, or the ſenſible Species, and to convey them duly modify'd and proportion'd to the Senſorium. See SOUND.

Its Office, in effect, with reſpect to the Senſe of Hearing, ſeems to be the ſame as that of the Pupil of the Eye with regard to Seeing: Each of them prevent the Ingreſs of too many Rays, temper and ſoften them, and deliver them, as it were, commenſurate to the Senſory; upon which, if they ſhould fall immediately, they might be apt to ſpoil its delicate Conſtitution. See PUPIL.

The *Tympanum*, it's true, does not hear; but it contributes to the better and ſafer Hearing. --- That it may do the Office of a Porter the better, 'tis neceſſary its Expanſe ſhould, like the Pupil, be contracted and relax'd on Occaſion; and to this purpoſe ſerve the four little Bones above mention'd, which have the ſame Uſe in ſtraining and relaxing, as the Braces of the War Drum have in that Inſtrument. --- By means of this Extenſion and Retraction, the *Tympanum* is made to correſpond to all Sounds loud or languid; as the Pupil does to all the Degrees of Light. See HEARING.

But what makes the Uſe of the *Tympanum* appear the leſs conſiderable, is, that there are Inſtances where the Hearing has been perfect without any Uſe of a *Tympanum*. --- Mr. *Cheſelden* relates, that he broke the *Tympanum* in both Ears of a Dog, yet it did not deſtroy his Hearing; tho' for ſome time afterwards he receiv'd ſtrong Sounds with great Horror: He adds, that Mr. St. *Andre* aſſur'd him, that a Patient of his had the *Tympanum* deſtroy'd by an Ulcer, and the Auditory Bones caſt out, without deſtroying his Hearing.

TYMPANY, or TYMPANITES, in Medicine. See TYMPANITES.

TYPE, a Copy of a Model; or a Figure or Character either engraven or printed. See MODEL, CHARACTER, *&c.*

The Term *Type* is leſs in uſe than its Compounds *Prototype* and *Archetype*, which are the Originals that are made without Models. See PROTOTYPE, *&c.*

The Word is form'd from the *Greek*, τυπος, Figure.

TYPE is alſo a School Term, much uſed among Divines, ſignifying a Symbol, Sign, or Figure of ſomething to come.

In this Senſe, the Word is commonly uſed with relation to *Antitype*, αντιτυπος, which is the Thing itſelf, whereof that is a *Type* or Figure. See ANTITYPE.

Thus *Abraham*'s Sacrifice, the Paſchal Lamb, *&c.* were *Types* or Figures of our Redemption: The Brazen Serpent was a *Type* of the Croſs, *&c.*

Theſe *Types* were not ſimple Conformities or Analogies, which the Nature of Things ſets on foot between them; nor arbitrary Images ariſing merely from the caſual Reſemblance of Things; but there is further requir'd a particular Inſtitution of God to make a *Type*; a particular Declaration of his that it is ſo.

Gale divides *Types* into hiſtorical and prophetical. --- The firſt are thoſe uſed by the Prophets in their Agitations and Viſions: The ſecond, thoſe wherein Things done, or Ceremonies inſtituted in the Old Teſtament, præfigure Chriſt, or Things relating to him in the New Teſtament.

The ancient Fathers, as well as the modern Criticks, have been greatly divided about the Nature and Uſe of *Types*, and *typical* Repreſentations, in the Old Teſtament; and 'tis this makes one of the great Difficulties in underſtanding the ancient Propheſies, and in reconciling the new and old Teſtament together. See PROPHESY.

There is no denying but that there were *Types* which the divine Wiſdom inſtituted to be the Shadows and Figures of Things to come; and yet People run into an Exceſs that Way: Some looking for *Types* in every thing; like *Origen*, who diſcover'd Myſteries in the very Caldrons of the Tabernacle. --- One ſhould be contented with the more ſenſible and obvious ones; nor propoſe any without proving them as much as poſſible, and ſhewing that they were really intended for *Types*, in order to juſtify the Solidity of the Reaſoning of the Apoſtles, who argu'd from them.

A late Author maintains, that not the Fathers only, but St. *Paul* himſelf was of the Opinion, that "Chriſtianity "was all contained in the *Old Teſtament*, was implied in the "*Jewiſh* Hiſtory and Law; both which are to be reputed "*Types* and Shadows of Chriſtianity." --- In order to which, he quotes *Hebrews* viii. 5. x. 1, and *Co.* ii. 16, 17. --- He adds "That the Ritual Laws of *Moſes*, being in their own "Nature no other than *Types* and Shadows of future good "Things, are to be conſider'd as having the Effect of Pro"pheſies." --- This is likewiſe the Senſe of Mr. *Whiſton* and others; but the ſame Author even quotes our Saviour ſpeaking in behalf of this *Typical* Reaſoning, in that Paſſage, *Matthew* xi. 13, where he affirms, that "The Law "propheſies; and that he came to fulfil the Law as well as "the Goſpel, *Matthew* v. 17." *Diſcourſe of the Grounds and Reaſon of the Chriſtian Religion.*

An ingenious Divine takes this Occaſion to obſerve, that had the Ancients, with the modern Retainers to the *typical* Way, expreſly deſign'd to have expos'd Chriſtianity, they could not have done it more effectually than by thus making every thing *Types* and Propheſies. --- 'Tis no wonder, he adds, That Atheiſts and Deiſts ſcoff at the Credulity of Chriſtians, and reject what is ſupported by ſuch Folly and Abſurdity.

Not that he denies the Reality of ſuch Things as *Types*. --- 'Tis manifeſt, there were many under the *Old Teſtament*, ſuch were *Zacharia*'s Staves, Beauty and Bands, *c.* xi. 7, 10, 14; ſuch was *Hoſeah*'s Adulterous Wife, *c.* i. 2; and ſuch were his Children, *v.* 4, 6. --- The Prophets deſign'd by theſe to prefigure future Events; but in theſe Inſtances the Reader is at once, by the Declaration of the Prophet, made to underſtand as much, and not left to his own Conjectures about them, after the Events are over.

In effect, all that is urged from Scripture for the *typical* or allegorical Interpretations of the *Jewiſh* Law, Hiſtory, Ceremonies, *&c.* 'tis aſſerted, may be ſet aſide, without any Violence to the ſacred Text, which may be explain'd on more natural and intelligible Principles, and more conſiſtently with *Grammar*. See ALLEGORICAL.

The Word τυπος, we have obſerved, literally denotes no more than a Copy or Impreſſion of any thing; and accordingly, in our Tranſlation, we find it ſometimes render'd by *Print*, ſometimes by *Figure*, ſometimes by *Faſhion*, and ſometimes by *Form*. --- Hence, alſo, the Word is figuratively applied to denote a moral Pattern; in which Senſe it ſignifies no more than *Example* and *Similitude*.

Again, the Word ἀντίτυπος, in Scripture, ſignifies any thing form'd according to a Model or Pattern; and thus in the Epiſtle to the *Hebrews*, the Tabernacle, and Holy of Holies being made according to the Pattern ſhewn to *Moſes*, are ſaid to be *Antitypes* or Figures of the true holy Places. --- In the like Senſe, St. *Peter* ſpeaking of the Flood and the Ark, whereby Eight Perſons were ſaved, calls Baptiſm an *Antitype* thereto; by which he expreſſes no more than a *Similitude* of Circumſtances.

The other Words uſed in Scripture to imply a future Event, prefigured by ſome foregoing Act, are --- Υποδειγμα, render'd by Imitation and Example; and σκια, Shadow.

This laſt Word is frequently uſed by St. *Paul*, and applied to the *Jewiſh* Law, Ceremonies, Prieſt, *&c.* which are repreſented as only *Shadows* of Things to come, or of heavenly Things. 'Tis from ſuch general Expreſſions, that People were led to miſtake the Apoſtles Deſign in theſe Compariſons, and to aſſert, that all the *Moſaic* Rites were *Types* of, or deſign'd to ſignify future Events; and that the Goſpel is to be found in the Pentateuch. --- Whereas St. *Paul*'s Intent appears no other than to ſhew the great Advantage of the Goſpel over the Law in ſeveral Particulars, wherein it has as much Pre-eminence as the Subſtance has over the *Shadow*.

If the *Shadow* of Things to come, ſignify a Prefiguration of future Events, what are thoſe Events to which the *Jewiſh* New Moons, *Col.* xi. 16. or the *Jewiſh* Meats and Drinks, have a reſpect? Or, how did the Law of *Moſes*, made up of Commands about Perſons, Times, Places, and Sacrifices, prefigure a Diſpenſation, where regard to Sacrifices, holy Perſons, Times and Places, are ſo far from being enjoyn'd, that they are declared uſeleſs? Can a particular holy Place in the Law, be deſigned a Prefiguration of a State, where all Places are equally Holy?

Such being the Import of all the Terms uſed in the *New Teſtament* Writers ſeeming to imply any Prefiguration of future Events under the Goſpel, we may obſerve,

1° That to argue from *Types*, is only to argue from Examples or Similitudes, and, conſequently, all Inferences drawn from ſuch Reaſonings, are no farther concluſive, than Reaſonings from Similitudes are. --- The Intent of Similitudes is only to help to convey ſome Ideas more clearly or ſtrongly; ſo that to deduce Conſequences from a Simile, or infer any thing from other Parts of the Simile than what are plainly ſimilar, is abſurd.

2° It cannot be proved that the Ceremonies of the *Moſaic* Law, were ever deſign'd to prefigure any future Events in the State of the *Meſſiah*'s Kingdom. --- No ſuch declared Prefigurations are mention'd in the Writings of the *Old Teſtament*; whatever Notions prevailed among the Writers, who immediately followed. 'Tis granted, that the Apoſtles argued from the Rites in the *Moſaic* Inſtitution; but it appears to have only been by way of Illuſtration and Analogy.

There is certainly a general Likeneſs in all the Diſpenſations of Providence; an Analogy of things in the Natural as well as the Moral World, from which it is eaſy arguing by way of Parity, and 'tis very juſt and uſual ſo to do: But that one of theſe Diſpenſations was therefore given to prefignify another that was future, can never be proved, unleſs it be expreſly declared. --- The Land of Promiſe, we know, was to be a Place where the *Jews* were to enjoy Reſt from their Labours; God likewiſe did, himſelf, reſt the Seventh Day from his Works: Yet, whoever imagin'd God's Reſt from the Creation to be prefigurative of the *Jews* Reſt in *Canaan*; and is it not equally reaſonable to ſay, that God's Reſt on the Seventh Day, prefigured the Entrance of the *Jews* into *Canaan*, as to ſay, that the *Jews* Reſt in *Canaan* prefigured the Reſt mentioned by *David* in the *Pſalms*?

This will equally imply, that all the following Events in the uniform Courſe of God's Government, ſimilar to any preceding ones, were deſign'd to be prefignified; in which Senſe, it will readily be owned, that the Reſt of the *Jews* was *Typical* of the Reſt of Chriſtians.

'Tis in the ſame manner we are to underſtand St. *Paul*, where he ſays, "That Chriſt our Paſſover is ſacrificed for "us." And thus we are to underſtand *John the Baptiſt*, when he calls our Saviour the "Lamb of God." --- There was this Similitude of Circumſtances, that Chriſt was ſlain on the ſame Day with the Paſchal Lamb; that he died about the ſame time of the Day when the Prieſts began their Hillel; that not a Bone of the one, or the other was broken. Add, that as the Paſchal Lamb was without Blemiſh, ſo was Chriſt without Sin. --- From theſe and other Circumſtances, the Apoſtle applied the Term *Paſſover* to Chriſt.

Thus, alſo, are we to account for what St. *Paul* calls the Baptiſm of the Children of *Iſrael* in the Cloud, and in the

Sea; and for the Compariſon betwixt the High Prieſt entring the Holy Place every Year, and Chriſt entring into Heaven. See Quotation.

Type is alſo a Name given to an Edict of the Emperor *Conſtans*, publiſh'd in 648, to impoſe a general Silence both on the Orthodox and the Monothelites.

The *Type* ow'd its Original to *Paul* Patriarch of *Conſtantinople*, who perſuaded that Emperor to take away the Ecteſis compiled and hung up in all the public Places by *Heraclius*; (as occaſioning great Complaints from the Orthodox, by its favouring the Monothelites) and to publiſh an Edict to impoſe Silence on both Parties.

But ſuch kinds of Pacifications are held inexcuſable in Matters of Religion; accordingly Pope *Theodore* ſoon procur'd the Patriarch *Paul* to be depos'd: The *Type* was examin'd in the Council of *Rome* in 649, and condemn'd; and an Anathema pronounc'd againſt all ſuch as admitted either the impious Ecteſis or *Type*. See Ectesis.

It had the Name *Type*, as being a kind of Formulary of Faith; or rather a Form whereon Men were to regulate their Conduct.

Type, Typus, is ſometimes alſo uſed for the Order obſerved in the Intermiſſion of Pulſes, Fevers, &c. See Pulse and Fever.

TYPHOIDES, in Medicine, an ardent or burning Fever. See Fever.

TYPHOMANIA, in Medicine, a Diſeaſe of the Brain, wherein the Patient not being able to ſleep, tho' greatly inclin'd thereto, lies with his Eyes ſhut, talks abſurdly, and flings himſelf this Way and that.

If he be pull'd, or the like, he juſt opens his Eyes, looks about, and ſinks again into a kind of dozing, which is interrupted by a Train of diſagreeable Imaginations.

A *Typhomania* frequently takes Place in Fevers, Phrenzies, and the like Diſeaſes. — 'Tis alſo call'd a *Coma Vigil*. See Coma.

The Word is form'd from the *Greek*, τῦφος, Smoak, and μανία, Madneſs.

TYPOGRAPHY, the Art of Printing. See Printing.

The Word is form'd from the *Greek*, τυπος and γραφη, *ſcriptura*, Writing.

TYRANT, Tyrannus, among the Ancients, denoted ſimply a King or Monarch. See King and Monarch.

But the ill Uſe ſeveral Perſons inveſted with that ſacred Character, made of it, has alter'd the Import of the Word; and *Tyrant* now carries with it the Idea of an unjuſt and cruel Prince, who invades the Peoples Liberty, and rules in a more deſpotic Manner than the Laws of Nature or the Country do allow of.

The Term *Tyrant*, we are told, became odious among the *Greeks*, thoſe zealous Lovers of Liberty, almoſt as ſoon as introduc'd: But *Donatus* aſſures us, it was never taken ſo among the *Romans* till the latter Ages of that Empire.

TYRIAN-*Purple*. See Purple.

TYRO. See Tyrocinium.

TYROCINIUM, Tyrociny, a Novitiate or Apprenticeſhip in any Art or Science. See Novice and Novitiate.

We have ſeveral Writings under the Title of *Tyrociniums*: *Tyrocinium Chymicum*, *Tyrocinium Chirurgicum*, &c. containing the Rudiments of thoſe Arts, accommodated to the Apprehenſions of Beginners.

The Word is form'd of *Tyro*, a raw, freſh-water Soldier.

TYROSIS, in Medicine, a Coagulating or Curdling of Milk in the Stomach; after the Manner of Cheeſe. See Curdling and Coagulation.

The Word is form'd of the *Greek*, τυρος, *Caſeus*, Cheeſe. See Cheese.

TYTH, or rather Tithe. See Tithe.

TYTHING and Tything-*Man*. See Decenna, Tenmentale, Hundred, Wapentake, &c.

U, THE twentieth Letter in the Alphabet, and the fifth Vowel. See LETTER, and VOWEL.

Beſides the Vowel U, there is a Conſonant of the ſame Denomination, wrote *V*, or *U*. See CONSONANT.

The Pronunciation of the *U*, as now uſed among the *Engliſh*, *French*, &c. is borrow'd from the antient *Gauliſh*: for all the other Weſtern People, with the *Romans*, pronounce it *ou*.

V is alſo a Numeral Letter, and ſignifies *five*; according to the Verſe,

> V, *vero quinque dabit tibi, ſi recte numerabis.*

When a Daſh was added a-top, $\overline{V}$, it ſignified 5000.

V.R. among the *Romans*, ſtood for *Uti Rogas*, as you deſire: which was the Mark of a Vote, or Suffrage for the paſſing of a Law. See ROGATIO; ſee alſo A.

VACANCY, or VACUUM, in Philoſophy, an empty Interval, or Space void of Matter. See VACUUM.

VACANCY, in Law, &c. a Poſt or Benefice wanting a regular Officer, or Incumbent. See OFFICER, &c.

The Canoniſts hold, that the Kind of *Vacancy* is to be expreſs'd in the Impetration of a Benefice. See BENEFICE.

A *Future Vacancy*, or Voidance of a Spiritual Living, ſome Writers call *Vacatura*.

Devolution is a Species of Canonical *Vacancy*. See DEVOLUTION.

VACANT *Effects*, *Prædia Vacua*, are ſuch as are abandon'd for want of an Heir, after the Death or Flight of their former Owner. See RESIGNATION, &c.

In our Law-Books, *Vagantes Terræ*, for *Vacantes*, expreſſes forſaken or uncultivated Lands.

A Benefice is ſaid to be *vacant*, *in Curia Romana*, when the Incumbent dies in *Rome*, or within 20 Leagues thereof; tho it be only by Accident that he was there.

The Pope nominates to all Benefices *vacant in Curia Romana*; excepting thoſe of the neighbouring Biſhopricks.

VACATION, *Non-Term*, in Law, is all the Time, reſpectively, included between the End of every Term, and the Beginning of the next ſucceeding one. See TERM, and NON-TERM.

This Intermiſſion was call'd by our Anceſtors *Pax Dei*, and *Eccleſiæ*; and ſometimes the *Times or Days of the King's Peace*.

Among the *Romans*, it was call'd *Juſtitium*, or *Feriæ*, or *Dies Nefaſti*. See DAY; ſee alſo FASTUS.

The Time from the Death of a Biſhop, or other Spiritual Perſon, till the Biſhoprick or other Dignity be ſupplied by another, is alſo call'd *Vacation*. See PLENARY.

Cicero, in his *Orations*, mentions a Law, whereby the Prieſts were exempted from Service in all Wars, except only Uproars and Civil Tumults; which Exemptions he calls *Vacationes*.

VACUUM, VACUITY, in Phyſicks, a Space empty, or devoid of all Matter, or Body. See SPACE, and MATTER.

Whether there be any ſuch Thing in Nature as an abſolute *Vacuum*; or whether the Univerſe be completely full, and there be an abſolute *Plenum*; is a thing has been controverted by the Philoſophers of all Ages. See PLENUM.

The Antients, in their Controverſies, diſtinguiſh two Kinds; a *Vacuum Coacervatum*, and a *Vacuum Interſperſum*, or *Diſſeminatum*.

Vacuum Coacervatum is conceiv'd as a Place deſtitute of Matter: Such, *e.g.* as there would be, ſhould God annihilate all the Air and other Bodies within the Walls of this Chamber.

The Exiſtence of ſuch a *Vacuum* is maintain'd by the *Pythagoreans*, *Epicureans*, and the *Atomiſts*, or *Corpuſcularians*; moſt of whom aſſert ſuch a *Vacuum* actually to exiſt with-out the Limits of the ſenſible World. But the modern *Corpuſcularians*, who hold a *Vacuum Coacervatum*, deny that Application; as conceiving, that ſuch a *Vacuum* muſt be Infinite, Eternal, and Uncreated. See UNIVERSE.

According, then, to the later Philoſophers, there is no *Vacuum Coacervatum* with-out the Bounds of the ſenſible World; nor would there be any *Vacuum*, provided God ſhould annihilate divers contiguous Bodies, than what amounts to a mere Privation, or Nothing: The Dimenſions of ſuch a Space, which the Antients held to be real, being by theſe held to be mere Negations; that is, in ſuch a Place, there is ſo much Length, Breadth, and Depth wanting, as a Body muſt have to fill it. To ſuppoſe, that when all the Matter in a Chamber is annihilated, there ſhould yet be real Dimenſions; is to ſuppoſe Corporeal Dimenſions without Body, which is abſurd.

The *Carteſians*, however, deny any *Vacuum Coacervatum* at all; and aſſert, that if God ſhould immediately annihilate all the Matter, *v.g.* in this Chamber, and prevent the Ingreſs of any other Matter, the Conſequence would be, that the Walls would become contiguous, and include no Space at all. They add, that if there be no Matter in a Chamber, the Walls can be conceiv'd no otherwiſe than as contiguous; thoſe Things being ſaid to be contiguous, between which there is not any thing intermediate: But, if there be no Body between, there is no Extenſion between; Extenſion and Body being the ſame thing: and if there be no Extenſion between, then the Walls are contiguous; and where's the *Vacuum*?

But the Reaſoning is built on a Miſtake, *viz.* that Body and Extenſion are the ſame thing. See EXTENSION, and SPACE.

Vacuum Diſſeminatum, or *Interſperſum*, is that ſuppos'd to be naturally interſpers'd in, and among, Bodies, in the Pores of the ſame Body, and in the Interſtices between different Bodies. See PORE.

'Tis this kind of *Vacuum* which is chiefly diſputed among the modern Philoſophers: The *Corpuſcularians* ſtrenuouſly aſſerting it; and the *Peripateticks* and *Carteſians* as ſtiffly impugning it. See CORPUSCULAR, CARTESIAN, &c.

The great Argument the *Peripateticks* urge againſt a *Vacuum Interſperſum*, is, that there are divers Bodies frequently ſeen to move contrary to their own Nature and Inclination; and for no other apparent Reaſon, but to avoid a *Vacuum*: whence they conclude, that Nature abhors a *Vacuum*; and give us a new Claſs of Motions aſcrib'd to the *Fuga Vacui*, or Nature's flying a *Vacuum*. See FUGA.

Such is the Riſe of Water in a Syringe, upon drawing up the Piſton; ſuch alſo is the Aſcent of Water in Pumps, the Swelling of the Fleſh in a Cupping-Glaſs, &c.

But ſince the Weight, Elaſticity, &c. of the Air, have been aſcertain'd by ſure Experiments; thoſe Motions and Effects are univerſally aſcrib'd to the Gravity, and Preſſure of the Atmoſphere. See AIR; ſee alſo SYRINGE, PUMP, CUPPING *Glaſs*, &c.

The *Carteſians* deny not only the Actual Exiſtence, but even the Poſſibility of a *Vacuum*: and that on this Principle, That Extenſion being the Eſſence of Matter, or Body, wherever Extenſion is, there is Matter: But mere Space, or *Vacuity*, is ſuppos'd to be extended; therefore it is material. Whoever denies an empty Space, conceives Dimenſions in that Space, *i.e.* conceives an extended Subſtance in it; and therefore admits a *Vacuum*, at the ſame time that he admits it.

On the other hand, the *Corpuſcular* Authors prove, not only the Poſſibility, but the Actual Exiſtence of a *Vacuum*, from divers Conſiderations; particularly, from the Conſideration of *Motion*, in general; and that of the *Planets*, *Comets*, &c. in particular; from the *Fall* of Bodies; from the Vibration of *Pendulums*; from *Rarefaction* and *Condenſation*; from the *different* Specific *Gravities* of Bodies; and from the *Diviſibility* of Matter into Parts.

1°. 'Tis argued, that *Motion* could not be effected without a *Vacuum*. See MOTION.

This is what *Lucretius* urg'd long ago,—*Principium quoniam cedendi nulla daret res—undique materies quoniam ſtipata fuiſſet.*

The Force of this Argument will be increas'd from the two following Conſiderations, *viz.* firſt, that all Motion is either in a ſtrait Line; or in a Curve, which returns into it ſelf, as the Circle, and Ellipſis; or in a Curve that does not return into it ſelf, as the Parabola, &c. And, ſecondly, that the moving Force muſt always be greater than the Reſiſtance.

For, hence it follows, that no Force, even tho infinite, can produce Motion where the Reſiſtance is infinite; conſequently, there can be no Motion either in a ſtrait Line, or a non-returning Curve; becauſe in either of thoſe Caſes, the Protruſion, and conſequently the Reſiſtance, would be infinite. There remains, therefore, only the Motion in a revolving Curve practicable; which muſt either be a Revolution upon an Axis, or an annular Motion round a quieſcent Body; both which are, again, impoſſible in an Elliptic Curve: And conſequently, all Motion muſt be in Circles geometrically true; and the revolving Bodies muſt either be Spheres, Spheroids, Cylinders, or Portions of them, exactly geometrical; otherwiſe, their Revolutions in a *Plenum* would be impoſſible: But ſuch Motions, or ſuch figur'd Bodies, we do not know in Nature. Therefore there is a *Vacuum*.

2°. The *Motions of the Planets and Comets* demonſtrate a *Vacuum*: Thus Sir *I. Newton* argues; 'That there is no ſuch fluid Medium as Æther, *(to fill up the porous Parts of all ſenſible Bodies, as the Air and interſtellar Parts, and ſo make a* Plenum) 'ſeems probable; becauſe the Planets and Comets proceed with ſo regular and laſting a Motion thro' the Celeſtial Spaces, both from and to all Parts: For hence it appears, that thoſe Celeſtial Spaces are void of all ſenſible Reſiſtance, and conſequently of all ſenſible Matter. For the reſiſting Force of fluid Mediums, ariſes partly from the Attrition of the Parts of the Medium, and partly from the Inactivity of Matter. Now that Part of the Reſiſtance of any Medium, which ariſes from the Tenacity or Attrition of its Parts, may be leſſen'd by dividing the Matter into ſmaller Parts, and by rendring thoſe Parts more ſmooth and ſlippery: But that Part of the Reſiſtance which ariſes from the Inactivity of Matter, is always in proportion to the Denſity of the Matter; nor can be diminiſh'd by dividing the Matter, nor by any other means, except by diminiſhing the Denſity thereof.

'Conſequently, if the Celeſtial Regions were as denſe as Water, or Quickſilver, they would reſiſt almoſt as much as Water or Quickſilver; but if they were perfectly denſe, without any *interſpers'd Vacuity*, tho the Matter were ever ſo fluid and ſubtile, they would reſiſt more than Quickſilver does; a perfectly ſolid Globe, in ſuch a Medium, would loſe above half its Motion, in moving three Lengths of its Diameter; and a Globe not perfectly ſolid, ſuch as the Bodies of the Planets and Comets are, would be ſtop'd ſtill ſooner. Therefore, that the Motion of the Planets and Comets may be regular and laſting, it is neceſſary the Celeſtial Spaces be void of all Matter, except perhaps ſome few and much rarified Effluvia of the Planets and Comets, and the paſſing Rays of Light. See RESISTANCE, MEDIUM, PLANET, COMET, *&c.*

3°. The ſame great Author deduces a *Vacuum* from the Conſideration of the *Weights of Bodies*; thus: 'All Bodies about the Earth gravitate towards the Earth; and the Weights of all Bodies equally diſtant from the Earth's Centre, are as the Quantities of Matter in thoſe Bodies. —If the Æther, therefore, or any other ſubtile Matter, were altogether deſtitute of Gravity, or did gravitate leſs than in proportion to the Quantity of its Matter: Becauſe, (as *Ariſtotle*, *Des Cartes*, and others argue) it differs from other Bodies only in the Form of the Matter; the ſame Body might by the Change of its Form gradually be converted into a Body of the ſame Conſtitution with thoſe which gravitate moſt in proportion to the Quantity of Matter: and on the other hand, the moſt heavy Bodies might gradually loſe their Gravity, by gradually changing their Form; and therefore the Weights would depend upon the Forms of Bodies, and might be chang'd with 'em; which is contrary to all Experiment. See WEIGHT.

4°. The *Deſcent of Bodies* proves that all Space is not equally full; for the ſame Author goes on, 'If all Spaces were equally full, the Specifick Gravity of that Fluid with which the Region of the Air would in that Caſe be fill'd, would not be leſs than the Specific Gravity of Quickſilver, or Gold, or any other the moſt denſe Body; and therefore, neither Gold, nor any other Body, could deſcend therein. For Bodies do not deſcend in a Fluid, unleſs that Fluid be ſpecifically lighter than the Body. But by the Air-Pump, we can exhauſt a Veſſel, till even a Feather ſhall fall with a Velocity equal to that of Gold in the open Air: The Medium, therefore, thro' which the Feather falls, muſt be much rarer than that thro' which the Gold falls.' See DESCENT.

'The Quantity of Matter, therefore, in a given Space, may be diminiſh'd by Rarefaction: and why may not it be diminiſh'd *in infinitum*? Add, that we conceive the ſolid Particles of all Bodies to be of the ſame Denſity; and that they are only rarefiable by means of their Pores: Whence a *Vacuum* evidently follows.' See RAREFACTION, PORES, and PARTICLE.

5°. 'That there is a *Vacuum*, is evident from the *Vibrations of Pendulums*: For ſince thoſe Bodies, in Places out of which the Air is exhauſted, meet with no Reſiſtance to retard their Motion, or ſhorten their Vibrations; 'tis evident there is no ſenſible Matter in thoſe Spaces, or in the occult Pores of thoſe Bodies. See PENDULUM.

For, as to what *Des Cartes* urges of his *Materia Subtilis*, that its Tenuity prevents its Reſiſtance from being ſenſible, and that a ſmall Body ſtriking againſt a greater, cannot in the leaſt move, or reſiſt the Motion of that other; but is reflected back again with all its Momentum: 'tis contrary to all Experience. For Sir *Iſaac* proves, that the Denſity of fluid Mediums, is proportionable to their Reſiſtances very nearly; and that they are exceedingly miſtaken, who ſuppoſe the Reſiſtance of Projectiles to be infinitely diminiſh'd, by dividing the Parts of the Fluid, even *in infinitum*. (*Princip.* Lib. II. Prop. 38.) When, on the contrary, 'tis clear the Reſiſtance is but little diminiſh'd by the Subdiviſion of the Parts; (*Ibid.* Prop. 40.) and that the reſiſting Forces of all Fluids are nearly as their Denſities. For why ſhould not the ſame quantity of Matter, whether divided into a great number of ſubtile Parts, or into a few larger ones, have the ſame reſiſting Force? If then there were no *Vacuum*, it would follow, that a Projectile moving in the Air, or even in a Space whence the Air is exhauſted, ſhould move with as much difficulty as in Quickſilver; which is contrary to Experience. See PROJECTILE.

6°. That there are *Interſpers'd Vacuities*, appears from *Matter's being actually divided* into Parts, and from the Figures of thoſe Parts: For, on Suppoſition of an abſolute Plenitude, we do not conceive how any Part of Matter could be actually divided from that next adjoining, any more than it is poſſible to divide actually the Parts of abſolute Space from one another: for by the actual Diviſion of the Parts of a *Continuum* from one another, we conceive nothing elſe underſtood, but the placing thoſe Parts at diſtances from one another which in the *Continuum* were at no diſtance from one another: But ſuch Diviſions between the Parts of Matter, muſt imply *Vacuities* between. See DIVISIBILITY.

7°. As for the *Figures* of the Parts of Bodies, upon the Suppoſition of a *Plenum*, they muſt either be all Rectilinear, or all Concavo-convex; otherwiſe, they would not adequately fill Space; which we do not find to be true in Fact.

8°. The denying a *Vacuum* ſuppoſes what it is impoſſible for any one to prove to be true, *viz.* That the material World hath no Limits. See UNIVERSE.

Since, then the Eſſence of Matter does not conſiſt in Extenſion, but in Solidity, or Impenetrability, the Univerſe may be ſaid to conſiſt of ſolid Bodies moving in a *Vacuum*: Nor need we at all fear, leſt the Phænomena of Nature, moſt of which are plauſibly accounted for from a Plenitude, ſhould become inexplicable when the *Plenum* is ſet aſide. The principal ones, ſuch as the Tides; the Suſpenſion of the Mercury in the Barometer; the Motion of the Heavenly Bodies, of Light, *&c.* are more eaſily and ſatisfactorily accounted for from other Principles. See TIDES, *&c.*

VACUUM, or VACUUM *Boyleanum*, is alſo uſed, ſomewhat abuſively, to expreſs that approach to a real *Vacuum*, which we arrive at by means of the Air-Pump. See AIR-*Pump*.

Thus, any thing put in a Receiver ſo exhauſted, is ſaid to be put *in Vacuo*: and thus, moſt of the Experiments with the Air-Pump, are perform'd *in Vacuo*, or *in Vacuo Boyleano*.

Some of the principal Phænomena obſerv'd of Bodies in Vacuo, are; That the heavieſt and lighteſt Bodies, as a Guinea and a Feather, fall here with equal Velocity:—That Fruits, as Grapes, Cherries, Peaches, Apples, *&c.* kept for any time *in Vacuo*, retain their Nature, Freſhneſs, Colour, *&c.* and thoſe wither'd in the open Air, recover their Plumpneſs *in Vacuo*:—All Light and Fire becomes immediately extinct *in Vacuo*:—The Colliſion of Flint and Steel *in Vacuo*, produces no Sparks:—No Sound is heard, even from a Bell rung *in Vacuo*:—A ſquare Viol, full of common Air, well clos'd, breaks *in Vacuo*; a round one does not:—A Bladder half full of Air, will heave up 40 Pound weight *in Vacuo*:—Cats, and moſt other Animals, readily expire *in Vacuo*.

By Experiments made in 1704, Mr. *Derham* found, that Animals which have two Ventricles, and no *Foramen Ovale*, as Birds, Dogs, Cats, Mice, *&c.* die in leſs than half a Minute; counting from the firſt Exſuction: A Mole died in one Minute; a Bat liv'd ſeven or eight. Inſects, as Waſps, Bees, Graſhoppers, *&c.* ſeem'd dead in two Minutes; but, being left *in Vacuo* 24 Hours, came to life again in the open Air: Snails continu'd 24 Hours *in Vacuo*, without appearing much concern'd.

Seeds planted *in Vacuo* don't grow:—Small Beer dies, and loſes all its Taſte *in Vacuo*:—Lukewarm Water boils very vehemently *in Vacuo*:—Air, ruſhing thro' Mercury into a *Vacuum*, throws the Mercury in a kind of Shower upon the Receiver, and produces a great Light in a dark Room. See ATTRITION, *&c.*

The Air-Pump can never produce a preciſe *Vacuum*; as is evident from its Structure, and the manner of its working: In effect, every Exſuction only takes out a part of the Air: ſo that there will ſtill be ſome left, after any finite Number of Exſuctions. Add, that the Air-Pump has no longer any effect, than while the Spring of the Air remaining in the Receiver, is able to lift up the Valves: When the Rarefaction is come to that degree, you can come no nearer to a *Vacuum*.

Sir *I. Newton*, obſerving that a Thermometer ſuſpended *in Vacuo*, and in that State removed to a warm or a cold Room, receives the Heat or Cold, riſes, or falls, almoſt as ſoon as another not *in Vacuo*; takes thence occaſion to ſuſpect, that the Heat of the warm-Room is convey'd thro' the *Vacuum* by the Vibrations of a much ſubtiler Medium than Air, which remain'd in the *Vacuum* after the Air was drawn out. *(Opt.* p. 323.*)* See MEDIUM, HEAT, *&c.*

VADARI, in the Civil Law, denotes a Perſon to pledge, undertake, or give Security in behalf of another; that he ſhall, on a certain Day, appear in Court, to proſecute, or anſwer.

If he fails, his Surety has *Actionem Vadimonii deſerti* againſt him; that is, an Action for deſerting his Bail. See VADIMONIUM, and BAIL.

Properly ſpeaking, the *Vadari Reum*, among the *Romans*, was the Act of the Plaintiff himſelf, who hereby demanded Surety or Bail from the Defendant, that he would appear before the Prætor on a certain Day.

VADE-MECUM, or VENI-MECUM, a *Latin* Term, us'd in *Engliſh* to expreſs a Thing that is very handy and familiar; and which one uſually carries about with him.

'Tis chiefly apply'd to ſome favourite Book: Some make *Virgil*, others *Horace*, their *Vade mecum*, or *Veni-mecum*; others an *Epictetus*, others a *Thomas à Kempis*, &c.

This is what the *Greeks* call an ἐγχειρίδιον, or *Manual*.

The *Arabs* have a Phraſe of equal import, *viz. Habib al feir*, Friend of the Journey. In *Latin* it is beſt expreſs'd by *Comes*; as, *Comes Theologicus*, *Comes Ruſticus*, &c.

VADIMONIUM, in the Civil Law, a Promiſe, or Bond for appearance before the Judge upon a Day appointed. See VADARI.

VAGABOND, a Perſon that wanders about, having no certain Dwelling; or a ſturdy Beggar, *&c.* mention'd in divers Statutes.——*De Vagabundis & aliis hominibus mendicantibus qui ſe nominant.—Travelling Men*, &c. Charta 22. *Hen.* VI.——*Item utemur quod nullus vagabundus vagetur ſeu deambulet de nocte in Villa ſeu Suburbio poſt pulſationem campanæ noſtræ communis, vocatæ* Coverfeu, *& ſi aliquis ibidem capiatur poſt pulſationem dictæ campanæ, ducatur ad Gaulam Domini Regis, & ibi morabitur uſq; in Craſtinum ut Notitia perſonæ ſuæ habeatur*, &c. MS. Cod. de Leg. & Stat. Burgi villæ Mountgomer. Temp. *Hen.* II.

VAGINA, a *Latin* Term, literally ſignifying a *Sheath*, or *Scabbard*; uſed on divers Occaſions.

VAGINA, in Architecture, is uſed for the lower Part of a *Terminus*; becauſe reſembling a Sheath, out of which the Statue ſeems to iſſue. See TERMINUS.

The *Vagina* is that long Part between the Baſe and the Capital; and is found in divers Manners, and with divers Ornaments.

VAGINA, in Anatomy, a Canal, or Cavity leading from the *Pudendum* to the *Uterus*, or Womb of Women. See UTERUS.

The *Vagina Uteri*, or *Matricis*, is a membranous Part, reaching from the *Rima*, or Aperture of the *Labia*, to the Neck of the Womb. See LABIA.

It lies upon the *Rectum*, to which it finally adheres; and under the Urinary Bladder: Its length is ordinarily ſeven or eight Inches.

Its inward Subſtance is nervous, and exquiſitely ſenſible; the outer membranous, and looſe: At its Orifice it is much narrower than elſewhere; eſpecially in Virgins.

Thro' its whole Courſe it is full of *Rugæ*, or Wrinkles; eſpecially in the upper internal Surface: which *Rugæ* the uſe of Venery renders leſs apparent, and frequent Parturition almoſt obliterates: Which ſhews, that they were intended to render the Part more eaſily diſtendible for Parturition.

Along the whole Tract of the *Vagina* are Pores, or *Oſtia*, or little Ducts ſeen, which in the Act of Venery emit a Liquor, that has been by many miſtaken for Seed. See SEED.

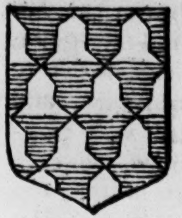
The *Vagina* has a Conſtrictory Muſcle, inſerted under the *Clitoris*; which with a broad Series of Fibres embraces and conſtringes the lower Part of the *Vagina*, and puts the Dimenſion of the Part, in ſome meaſure, in the Power of the Mind. See MATRIX.

VAGINÆ *Uteri Sphincter*. See SPHINCTER *Uteri*, &c.

VAGINALIS *Gulæ*, in Anatomy, a Name ſome Anatomiſts give to the muſculous Coat of the *Gula*; as ſuppoſing it a proper Muſcle, conſpiring with the *Oeſophagus* in thruſting the Aliment down, when entred. See GULA, DEGLUTITION, *&c.*

VAGINALIS *Tunica*, the ſame with what we otherwiſe call'd the *Elythroides*. See ELYTHYROIDES.

VAGUM, in Anatomy, a Name given to the eighth Pair of Nerves of the *Medulla Oblongata*, call'd the *Par vagum*, becauſe diſpenſed to divers Parts of the Body. See PAR, and NERVE.



VAIR, in Heraldry, a kind of Fur, or Doubling, conſiſting of divers little Pieces, Argent and Azure, reſembling a *Dutch* U, or a Bell glaſs. See VAIRY.

Vairs have their Point Azure, oppoſite to their Point Argent, and the Baſe Argent to the Azure.

When there are only two, or three *Vairs*, the antient Heralds call it *great Vair*; and when there are more, *ſmall Vair*.

Vair is intended to repreſent a kind of Skin, uſed antiently by the Kings of *France* in lieu of a Fur, and wherewith the Gowns of the Preſidents *à Mortier*, the Counſellors of the Court, the Heralds Coats, *&c.* were lined, till the XVth Century.

It was properly the Skin of a kind of Squirrel, call'd alſo in French *Vair*, and in Latin *Scriveus*, which was white underneath, and Dove-colour a-top. It is deſcrib'd by *Aldrovandus* under the Name of *Scriveo Vario*, and is the ſame, according to *Geſner*, with the *Mus ponticus* of *Ariſtotle* and *Pliny*; which the *Latins* call *Varus*, or *Varius*, from the Variety of its Colour. Its two Skins join'd together, make the Figure of the *Vairs* in Armories; being naturally white and azure.

Vair, *Colombiere* obſerves, is a ſecond Fur, antiently us'd as a Lining of the Garments of great Men; conſiſting of little Pieces, ſew'd by the Furriers on white Skins: and becauſe theſe Pieces were uſually blue, thoſe who firſt ſettled the Rules of Heraldry, decreed, that this Fur, in its natural Blazon, ſhould always be Argent and Azure. So that if it be abſolutely ſaid, ſuch a Family bears *Vair*; it is ſuppoſed to be Argent and Azure.

Regularly, there muſt be but four Rows or Ranks of *Vair* in the Shield; if there be either more, or leſs, the Number muſt be ſpecify'd. The ſmalleſt Number, being three Rows, is called *Beffroy de Vair*; and the moſt, being five or ſix, is call'd *Menu*, or *ſmall Vair*.

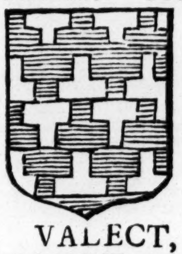
The *Beffroy* is alſo known by the firſt Figure on the Dexter-ſide of the Eſcutcheon, being always of Metal, and in form of a Belt; whereas that of mere *Vair* is in ſhape of a Glaſs.

VAIRY, VAIRE, VERRY, or VARRY, is applied to a Coat, or the Bearings of a Coat, when charged or chequer'd with *Vairs*. See VAIR.

When the Colours are Argent and Azure, 'tis *Vairy proper*: if they be otherwiſe, the Colours are to be expreſly nam'd; *Vairy* of ſuch a Colour or Metal; he bears *Vairy* Or, and Gules. This is particularly call'd *Vair compoſed*.

The Bearings are likewiſe ſaid to be *Vairy* when they are charged with *Vairs*. When Chiefs, Croſſes, Pales, Feſſes, *&c.* happen to be *Vairy*, the number of Ranks are to be ſpecify'd.

Vairy Gowns are obſerved by *Julius Pollux* to have been the Habit of the antient *Gauls*, as Ermins were of the *Armenians*. See ERMIN.



VAIRY *Cuppy*, or VAIRY *Taſſy*, or *Potent Counter-potent*; is a Bearing in Heraldry of the Figure adjoining. In blazon, the Colours muſt be expreſs'd; as Azure, Argent, *&c.*

VALECT, VALET, VADELECT, VADLAT, and VASSET, in our Law-Books; is, according to *Camden*, a Servitor, or Gentleman of the Privy-Chamber: but, according to *Selden*, antiently ſignify'd the young Heirs which were to be knighted, or young Gentlemen of Quality and Deſcent.

But the Term is now applied to thoſe of the Rank of Yeomen.—In the Accounts of the *Inner Temple*, it is us'd for a Bencher's Clerk, or Servant: The Butlers of the Houſe corruptly call 'em *Varlets*.

VALENTINIANS, an antient and famous Sect of *Gnoſticks*; thus called from their Leader *Valentinian*. See GNOSTIC.

VALERIAN, the *great Set-wall*, a Plant, whoſe Root is of conſiderable uſe in Medicine.

There are various Kinds of *Valerian*; but the only one in uſe is that cultivated in Gardens, call'd the *large Valerian*, or *Valeriana Hortenſis*; and by *Dioſcorides*, *Phic*, *folio oliſatri*.

It has its Name, according to ſome, from one *Valerius*, who firſt brought it into uſe; according to others, from *Valere*, to have great Virtues.

It is warm and aromatick, but ſomewhat of a fetid Scent: Its efficacy, as a Sudorific, is ſupported by the Teſtimony of both antient and modern Practice. It has been reckon'd by ſome Deterſive, ſo much as to make it Diuretick, and good in all Obſtructions of the *Viſcera*. It is extoll'd alſo for ſtrengthning the Optic Nerves, and reſtoring decay'd Sight; but the preſent Practice acknowledges it not in any ſuch Intentions. It ſometimes does Wonders in hyſterical Affections; eſpecially where thoſe of the fetid kind are good, and the Spirits are too impetuous in their Motions, ſo as to occaſion Convulſions. It is alſo aſſiſted with Camphire, and ſome other things of the like Nature which are very powerful in breaking thro' the minuteſt Obſtructions, to cure obſtinate Agues.

It is efficacious in all nervous Caſes; and particularly the Epilepſy: which Virtue in it ſeems to have been firſt diſcover'd by *Fabius Columna*, who preſcrib'd it for that Purpoſe in Pouder.

M. *Marchant*, in the Memoirs of the Academy of Sciences, has confirm'd this Virtue by many Inſtances within his Knowledge: And what is very remarkable, is, that in the two Obſervations he enlarges moſt upon, the Patients voided great Quantities of Worms. His Cuſtom was, always to purge before he adminiſter'd it.

VALESIANS, VALESIANI, antient Sectaries, ſo called from one *Valens*, a Perſon unknown to *Epiphanius*, who makes mention of this Sect, *Hær*. 58. tho he owns we know but very little of 'em; only this, that they admitted none into their Society but Eunuchs: at leaſt, if any were admitted before Caſtration, they oblig'd 'em not to eat any Meat till the Operation was perform'd.

For, then, being no longer ſubject to the Motions of the Fleſh, they allow'd 'em to eat any kind of Meats.

VALET, a *French* Term, antiently wrote *Varlet*.

In *France*, *Valet* is a common Name for all domeſtick Servants, employ'd in the lower, and more ſervile Offices; including what we call *Grooms*, *Footmen*, *Coachmen*, *Bailiffs*, &c.

But the Word is not uſed among us in this Senſe, nor any otherwiſe than in the Phraſe *Valet de Chambre*; which is a Servant, whoſe Office is to dreſs and undreſs his Maſter, to look to his Bed-Chamber, wait on him at Table, *&c.* the ſame with what we otherwiſe call a *Gentleman*.

In the Hiſtory of *Lewis* XII. by *Seiſel*, we always find *Varlet de Chambre du Roi*, *Varlet de la Gardrobe*, &c. But *Varlet*, like *Knave*, and divers other Words, is now degenerated into a Word of reproach.

Valet, *Valect*, *Vadelect*, *Vadlat*, and *Vallet*, *Camden* obſerves, were antiently uſed at our Court for a Gentleman of the Privy-Chamber.

Selden, in his *Titles*, relates, that *Valets* antiently ſignify'd young Gentlemen, and Heirs of great Eſtate and Quality; eſpecially ſuch as were to be knighted. See VALECT.

VALETUDINARY, *Valetudinarius*, a Term ſometimes uſed by the Writers of Medicine, for a Perſon of a weak, crazy, ſickly Conſtitution, frequently out of order, *&c.*

Dr. *Cheyne*, by all means, directs the weakly, the ſtudious, the ſedentary, and the *valetudinary*, to a low, ſpare Regimen. See FOOD, EXERCISE, DIET, *&c.*

VALID, a Term applied to Acts, Tranſactions, Expeditions, *&c.* which are clothed in all the Formalities requiſite to their being put in Execution, and to their being admitted in a Court of Juſtice.

A Contract by a Minor is not *valid*, or is *invalid*: A Marriage is not *valid*, unleſs perform'd with the Solemnities enjoin'd.

VALLAR, VALLARIS, in Antiquity, an Epithet given to a kind of Crown, which the *Roman* Generals beſtow'd on him who in attacking the Enemies Camp firſt broke in upon the Enemies Lines. See CROWN.

The Word is form'd from *Vallum*, a Stake with Branches, whereof they made the Palliſade of a Camp, call'd *Lorica*.

The *Corona Vallaris* was the ſame with what was otherwiſe call'd *Corona Caſtrenſis*, from *Caſtra*, a Camp. *Aulus Gellius* aſſures us, that it was of Gold, as the Mural and Naval Crowns were: yet, tho they were made of that precious Metal, they were not the moſt valued: For *Pliny*, Lib. XXII. cap. 3. gives the Preference to the *Corona Obſidionalis*, which yet was only of Gramen, or Graſs.

VALLEY, **VALE**, in Geography. See MOUNTAIN.

VALORE *Maritagii*, *Value of Marriage*, a Writ which antiently lay for the Lord, after having proffer'd ſuitable Marriage to an Infant who refuſed the ſame; to recover the Value of the Marriage. See MARITAGIUM.

VALUE, in Commerce, the Price or Worth of any Thing.

Intrinſick Value, is the proper, real, and effective *Value* of any Thing: and is uſed chiefly with regard to Money; the *popular Value* whereof, may be rais'd and lower'd at the Pleaſure of the Prince; but its *real*, or *intrinſick Value*, depending wholly on its Weight and Fineneſs, is not at all affected by the Stamp, or Impreſſion thereon. See MONEY, *&c.*

'Tis generally on the Foot of this *intrinſick Value*, that Species are receiv'd in foreign Countries; tho in the Places where they are coin'd, and where the Sovereign Power makes 'em current, they generally paſs for much more. See PAR.

'Tis, in good meaſure, on the difference of thoſe two *Values*, one whereof is, as it were, arbitrary, and the other, in ſome ſort, natural; that the difference of Exchanges depends: and thoſe ſtill riſing and falling, as the Rate at which a Species is current, comes nearer or farther off the juſt Price of the Metal whereof it conſiſts. See EXCHANGE.

In Bills of Exchange, *Value* is us'd to ſignify the Nature of the Thing, (as ready Money, Merchandizes, Bills, Debts, *&c.*) which is given, as it were, in Exchange for the Sum ſpecify'd in the Bill.

From four different Manners of expreſſing this *Value*, ſome diſtinguiſh four Kinds of Bills of Exchange: The firſt bears *Value receiv'd*, ſimply and purely, which comprehends all Kinds of *Value*; the ſecond, *Value receiv'd in Money*, or *Merchandize*; the third, *Value of my ſelf*; and the fourth, *Value underſtood*.

The firſt is dangerous, and the fourth but little uſed: accordingly, to have the *Value* well expreſs'd, and to prevent the ill Conſequences of Overſights therein, 'tis well provided by the *French* Ordonnance of 1673, that Bills of Exchange ſhall contain the Name of the Perſon to whom the contain'd Sum is to be paid; the Time of Payment; the Name of him who has given the *Value*; and whether it was receiv'd in Money, Merchandize, or other Effects. See BILL *of Exchange*.

VALUE, **VALOR**, **VALENTIA**, in Law, *&c.* *Weſt* gives us a nice Difference between *Value* and *Price*.—‘The *Value*, (*ſays he*) of Things in which Offences are committed, is uſually compris'd in Indictments; which ſeems neceſſary in Theft, to make a difference from petty Larceny, and in Treſpaſs, to aggravate the Fault, and increaſe the Fine: But no Price of Things *feræ Naturæ* may be expreſs'd, as of Deers, Hares, *&c.* if they be not in Parks and Warrens. And where the Number of Things taken is to be expreſs'd in the Indictment, as of young Doves in a Dove-houſe, there muſt be ſaid *Pretii*, or *ad Valentiam*: but of divers dead Things, *ad Valentiam*, and not *Pretii*: Of Coin not current, it ſhall be ſaid *Pretii*; but of Coin current, neither *Pretii* nor *ad Valentiam*; the Price and *Value* being certain.

VALVE, VALVULA, in Anatomy, a thin Membrane, applied, like a Door or Shutter, on divers Cavities and Veſſels of the Body; to afford a Paſſage to ſome Humour, or other Matter, going one way, and prevent its Re-flux towards the Part whence it came. See VESSEL, *&c.*

The Veins and Lymphaticks have *Valves*, ſituate from Space to Space, which open towards the Heart, but keep cloſe on that Side toward the Extremities, *i. e.* they let the Blood and Lymph paſs towards the Heart, but prevent their returning to the extreme Parts, whence they came. See VEIN, and BLOOD.

The Heart has alſo its *Valves*, placed at the Entrance of the Veſſels ariſing out of it. Thoſe at the Entrance of the *Vena Cava* and Pulmonary Vein, let the Blood paſs on to the Heart, and prevent its return: On the contrary, thoſe at the Entrance of the *Aorta* and Pulmonary Artery, let the Blood paſs out of the Heart, and prevent its flowing back again. See HEART, and CIRCULATION; ſee alſo CAVA, *&c.*

In the *Jejunum Inteſtinum* there are *Valves* which retard the Deſcent of the Chyle. See INTESTINES.

The Colon has a thick *Valve*, to prevent the Excrements from paſſing into the *Ileon*; and ſeveral other *Valves*, to retard the Deſcent of the Excrements. See COLON, and EXCREMENT.

The *Valves* in the Body acquire different Denominations from their different Forms, and other Circumſtances; as *Sigmoides*, *Semilunares*, *Mitrales*, *Tricuſpides*, &c. *See each under its reſpective Article*, SIGMOIDES, MITRALES, *&c.*

Some attribute the Diſcovery of the *Valves* in the Veins to *Fra. Paolo*. *Ruyſch* has a particular Treatiſe on the *Valves* of the *Lymphatic* and *Lacteal* Veſſels. See LACTEAL, *&c.*

VALVE, *Valvula*, in Hydraulics, Pneumatics, *&c.* is a kind of Lid, or Cover of a Tube, or Veſſel, ſo contriv'd as to open one way; but which, the more forcibly 'tis preſs'd the other way, the cloſer it ſhuts the Aperture: ſo that it either admits the Entrance of a Fluid into the Tube, or Veſſel, and prevents its return; or admits it to eſcape, and prevents its re-entrance.

Valves are of great uſe in the *Air-Pump*, and other Wind-Engines; in which they are ordinarily made of Pieces of Bladder. See AIR-*Pump*; and WIND-*Gun*.

In Hydraulic Engines, as the Emboli of Pumps, they are frequently of Leather; their Figure round, and are fitted to the Bottoms, or other Parts of the Barrels, *&c.* to ſhut the Apertures. See EMBOLUS.

Sometimes they are made of two round Pieces of Leather, incloſed between two others of Braſs; having divers Perforations, which are cover'd with another piece of Braſs, moveable upwards and downwards, on a kind of Axis, which goes thro' the middle of them all.

Sometimes they are made of Braſs cover'd over with Leather, and furniſh'd with a fine Spring, which gives way upon a Force apply'd againſt it: but, upon the ceaſing of that, returns the *Valve* over the Aperture. See PUMP, *&c.*

Conſtantine Varole, a *Boulogneſe*, and Phyſician of *Gregory* XIII. who dy'd in 1570, was the firſt who obſerv'd the *Valve* in the Colon. *Bart. Euſtachio*, a Native of *San Severino* in *Italy*, diſcover'd, about the ſame time, the *Valve* at the Orifice of the Coronary Vein, and that remarkable one at the Orifice of the lower Trunk of the *Vena Cava*, near the right Auricle of the Heart: Tho he did not take it for a *Valve*, but merely for a Membrane.

Sig. *Lanciſi*, Phyſician to the late Pope, who firſt publiſh'd *Euſtachio*'s Works, takes the Uſe of this *Valve* to be to prevent the Blood of the upper *Vena Cava* from ſtriking with too much violence againſt that of the lower: And Monſieur *Winſlow*, who has conſider'd it very diligently in the Memoirs of the Royal Academy of Sciences, is much of the ſame Opinion.

But as it gradually dwindles in Children, and at length becomes quite loſt in Adults, ſtill diminiſhing as the *Foramen Ovale* does; it ſhould ſeem to have ſome other Office; and that, chiefly, regarding the Circulation of the Blood in the *Fœtus*.

In effect, by means hereof, M. *Winſlow* reconciles the two oppoſite Syſtems of the Circulation of the Blood in the *Fœtus*, deliver'd under the Article *Circulation*. See CIRCULATION *of the Blood*; and FOETUS.

VALVULA, *Valve*. See VALVE.

The *great Valve*, in Latin *Valvula Major*, is the upper Part, and, as it were, the Lid of the *Iſthmus* between the *Teſtes*, and the firſt Vermicular Proceſs of the *Cerebellum*: Its Subſtance is medullary. Its Uſe is to prevent the Lymph from falling on the Nerves at the Baſe of the *Cranium*.

'In the *Jejunum* and *Ileum*, the inner Tunic being larger than the outer, is much corrugated; the looſe Folds of which, have been thought in ſome meaſure to do the Office of *Valves*; and have therefore been call'd *Valvulæ Conniventes*.' Drake's *Anat.* p. 49.

'The Lacteals, opening into the Inteſtines, receive the prepared fluid Part of the Chyle; and appear at Intervals, as it were, girt and ſtraiten'd; and when preſs'd, do not admit of a Reflux towards the Inteſtines: tho the Liquor be eaſily propell'd towards the Glands: Which argues, that there are *Valves* in 'em, tho too minute to be ſenſible to the Eye.' *Id. ibid.* p. 56.

The Word is form'd from the Latin *Valvæ*, folding Doors.

VAN, or VANT, or VAUNT, of the French, *avant*, or *avaunt*, before; a Term uſed in Compoſition with ſeveral Words in our Language.

VAN-*Couriers*, are Light-arm'd Soldiers, ſent before to beat the Road, upon the Approach of an Enemy. See RECONNOITRE.

VAN-*Foſſe*, a Ditch dug without the Counterſcarp, and running all along the Glacis; uſually full of Water. See DITCH.

VAN, or VANT, or VAUNT-*Corps*. See CORPS.

VAN-*Guard*, is a Military Term, ſignifying the firſt Line of an Army, drawn up in Battalia.

It is the ſame with the *Front* of an Army, and gives the firſt Charge upon the Enemy. See FRONT.

Every Army is compos'd of three Parts, a *Van-guard*, *Rear-guard*, and *Main Body*.

VANES, on Mathematical Inſtruments, are Sights made to move and ſlide upon Croſs-ſtaves, Fore-ſtaves, *Davis*'s Quadrants, *&c.* See CROSS-STAFF, FORE-STAFF, *&c.*

VANES, or FANES *of Feathers.* } See { FEATHER.
VANES *of Windmills.* } See { WINDMILL.

VANILLA, or BANILLA, a little black Seed, growing in longiſh Pods; uſed in the *Weſt-Indies*, *France*, *Spain*, &c. as a principal Ingredient in the Compoſition of Chocolate; to give it Strength, and an agreeable Flavour. See CHOCOLATE.

It is alſo uſed to perfume Tobacco withal. See TOBACCO.

It is ſuppoſed to ſtrengthen the Brain, and Stomach; to attenuate viſcid Humours, provoke Urine, and the Menſes.

VAPORATION, in Chymiſtry, a Term applied to the Action of *Vapour*. See VAPOUR.

The Chymiſts have a Bath call'd a *Vaporatory*, or *Balneum Vaporationis*, or *Vaporis*; whereby the Warmth or Humidity of a *Vapour* is made to act on ſome other Body, that is to be warm'd, or moiſten'd. See BALNEUM, HEAT, *&c.*

VAPOROSUM *Balneum*, or VAPOUR-*Bath*, in Chymiſtry, a Term applied to a Chymiſt's Bath, or Heat, wherein the Body is placed ſo as to receive the Fumes of boiling Water.

The *Balneum Vaporoſum* conſiſts of two Veſſels, diſpoſed over one another in ſuch manner, as that the *Vapour* rais'd from the Water contain'd in the lower, heats the Matter encloſed in the upper. See HEAT.

The *Vapour-Bath* is very commodious for the diſtilling of odoriferous Waters, and the drawing of Spirit of Wine.

We alſo uſe the Term *Vapour-Bath*, when a ſick Perſon is made to receive the *Vapours* ariſing from ſome liquid Matter placed over a Fire. See BATH.

VAPOUR, in Meteorology, a thin Veſicle of Water or other humid Matter, fill'd or inflated with Air; which being rarefy'd to a certain degree by the Action of Heat, aſcends to a certain height in the Atmoſphere, where it is ſuſpended, till it return in form of Rain, Snow, or the like. See RAIN, and SNOW.

An Aſſemblage of a Number of Particles, or Veſicles of *Vapour*, conſtitutes what we call a *Cloud*. See CLOUD.

Some uſe the Term *Vapour*, indifferently, for all Fumes emitted, either from moiſt Bodies, as Fluids of any kind; or from dry Bodies, as *Sulphur*, &c. But Sir *I. Newton*, and other Authors, better diſtinguiſh between *humid* and *dry* Fumes, calling the latter *Exhalation*. See EXHALATION.

For the Manner wherein VAPOURS *are rais'd, and again precipitated*; ſee DEW, RAIN, HEAT, COLD, and BAROMETER.

For the Effect of VAPOUR *in the Formation of Springs*, &c. See SPRING, and RIVER.

The quantity of *Vapour* rais'd from the Sea by the Warmth of the Sun, is far greater than one would imagine. Dr. *Halley* has attempted to eſtimate it.

In an Experiment made with that view, and deſcribed in the *Philoſophical Tranſactions*, he found that a Quantity of Water no warmer than Air in Summer, loſt in *Vapour* in the Space of two Hours, no leſs than $\frac{1}{53}$ part of an Inch in depth: Now, for $\frac{1}{53}$ in two Hours, taking, for the eaſier Calculation, $\frac{1}{80}$ in the twelve Hours that the Sun is up each Day, it will raiſe $\frac{1}{10}$ of an Inch from the Surface of the Sea.

On this Suppoſition, every 10 ſquare Inches of the Surface of Water, yield in *Vapour*, *per Diem*, a Cubic Inch of Water; and each ſquare Foot, half a Wine Pint; every Space of four Foot ſquare, a Gallon; a Mile ſquare, 6914 Tuns; a ſquare Degree, ſuppoſed of 69 *Engliſh* Miles, will evaporate 33 Millions of Tuns: And if the *Mediterranean* be eſtimated at 410 Degrees long, and four broad, Allowances being made for the Places where it is broader, by thoſe where it is narrower, there will be 160 ſquare Degrees at Sea: and conſequently the whole *Mediterranean* muſt loſe in *Vapour*, in a Summer's Day, at leaſt, 5280 Millions of Tuns.

And this Quantity of *Vapour*, tho very great, is only the Remains of another Cauſe, which cannot be reduced to Rule; we mean the Winds; whereby the Surface of the Water is lick'd up, ſometimes faſter than it exhales by the Heat of the Sun; as is well known to thoſe that have conſider'd thoſe drying Winds. See EVAPORATION.

VAPOURS, in Medicine, a Diſeaſe, call'd popularly the *Hypo*, or *Hypochondriacal* Diſeaſe; and in Men, particularly, the *Spleen*. See SPLEEN.

'Tis ſuppoſed to be owing to a ſubtile *Vapour*, riſing from the lower Parts of the Abdomen, particularly the *Hypochondrium*, to the Brain; which it diſturbs, and poſſeſſes with wild, delirious, but generally diſagreeable Imaginations. See HYPOCHONDRIACAL *Diſeaſe*.

Vapours, ſuppoſed to be emitted from the Womb, in Women, are what we otherwiſe call *Hyſterical Affections*, or *Suffocations*, or *Fits of the Mother*. See HYSTERICAL, *&c.*

VAPOUR-*Bath*. See VAPOROSUM *Balneum*.

VARI, in Medicine, little, hard, ruddy Tumors, whitiſh about the Tips, and of the ſize of an Hemp-ſeed; frequently found on the Face and Neck of young People; chiefly ſuch as are much addicted to Venery.

If the red be very lively, the Cure is ſomewhat difficult; and tho the Puſtles be taken away, the Redneſs remains.

To which, if an Inflammation and Hoarſeneſs be added, 'tis a Symptom of an approaching Leproſy. See LEPROSY.

VARIABLE, in the new Doctrine of Infinites, is a Term applied chiefly by the foreign Mathematicians, to ſuch Quantities, as either increaſe, or diminiſh, according as ſome other Quantity either increaſes or diminiſhes.

Thus, the Semiordinates and Abſciſſes of a Circle, *&c.* are *Variable Quantities*; becauſe, if the one increaſe, the other increaſes likewiſe. See SEMIORDINATE, *&c.*

They are thus call'd, in contradiſtinction to *conſtant*, or *given*, or *ſtable Quantities*; which are always the ſame, tho others change; as the Semidiameter of a Circle, which remains the ſame, tho the Abſciſſes and Semiordinates increaſe.

Variable Quantities, are uſually denoted by the laſt Letters of the Alphabet, $x\,y\,z$. See QUANTITY.

Our *Engliſh* Authors, inſtead of *variable*, and *conſtant* Quantities, generally uſe the Terms *fluent*, and *ſtable* Quantities. See FLUENT.

The infinitely ſmall Quantity whereby a *variable* Quantity is continually increaſing, or diminiſhing, is called the *Fluxion*, or Difference; the Calculation whereof, is the Subject of the new *Methodus Differentialis*, or *Doctrine of Fluxions*. See DIFFERENTIAL, and FLUXION.

VARIANCE, in Law, an Alteration or Change of Condition in a Perſon, or Thing; after ſome former Concern or Tranſaction therewith.

Thus, if the Commonalty of a Town make a Compoſition with a Lord, and afterwards Bailiffs be granted by the King to the ſame Town; there, if the Lord commence any Suit for breach of the Compoſition, he muſt *vary* from the Word *Commonalty*, uſed in the Compoſition; and uſe *Bailiffs and Commonalty*.

The Term *Variance* is alſo uſed for an Alteration of ſomething formerly laid in a Plea. See PLEA.

VARIATION, in Geography, Navigation, &c. a Term apply'd to the Deviation of the Magnetical Needle, or Compaſs, from the true North-Point, towards either Eaſt, or Weſt; call'd alſo the *Declination*. See DECLINATION.

The Variation *or Declination of the Needle*, is properly defin'd, the Angle which a Magnetic Needle, ſuſpended at liberty, makes with the Meridian-Line on a horizontal Plane. See NEEDLE.

In the Sea Language, the *Variation* is uſually called *North-Eaſting*, or *North-Weſting*. See COMPASS, &c.

All Magnetic Bodies, we find, range themſelves, in ſome ſort, to the Meridian; but 'tis rare they fall in preciſely with it: In one Place, they decline from the North to the Eaſt, and from the South to the Weſt; and in another Place, on the contrary, from the North to the Weſt, and from the South to the Eaſt; and that, too, differently, at different Times. See MAGNET, and MAGNETISM.

Various are the Hypotheſes fram'd to account for this extraordinary Phænomenon: We ſhall only mention ſome of the later and more probable. The firſt is that of *Gilbert*, which is follow'd by *Cabeus*, &c.

Their Notion was, that 'tis the Earth, or Land, that draws the Needle out of its Meridional Direction; and hence they argued, that the Needle *vary'd* more, or leſs, as it was more or leſs diſtant from any great Continent: conſequently, that if it were placed in the middle of an Ocean, equally diſtant from equal Tracts of Land, on each ſide, Eaſtward and Weſtward, it would not decline either to the one or the other; but point juſtly North and South.

Thus, in the *Azores* Iſlands, which are equally diſtant from *Africa* on the Eaſt, and *America* on the Weſt, there is, in effect, found no *Variation*: but, as from the *Azores* you ſail towards *Africa*, the Needle begins to decline from the North to the Eaſt; and that ſtill more and more, till you reach the Shore.

If you ſtill proceed Eaſtward, the Declination gradually diminiſhes again; by reaſon of the Land left behind on the Weſt, which continues to draw the Needle.

The ſame holds till you arrive at a Place where there are equal Tracts of Land on each ſide, and there, again, there is no *Variation*.

The Obſervations of our Mariners in their *Eaſt-India* Voyages, ſeem to confirm this Syſtem: As they proceed towards the Cape of *Good Hope*, the *Variation* is ſtill Eaſtward; at length, arriving at the Cape *De las Aguillas*, q.d. *of the Needles*, the Meridian-Line, then, dividing *Africa* into two equal Parts; there is no *Variation* at all: But as they proceed further, and leave the *African* Coaſts on the Weſt, the *Variation* becomes Weſtward.

But the Misfortune is, the Law does not hold univerſally: In effect, a great Number of Obſervations of the *Variation*, in various Parts, made and collected by Dr. *Halley*, overturn the whole Theory.

Others, therefore, have recourſe to the Frame and Compages of the Earth, conſider'd as interwove with Rocks and Shelves; which being generally found to run towards the Poles, the Needle comes to have a general tendency that way; but which ſeldom going perfectly in the Direction of the Meridian, the Needle, of conſequence, has commonly a *Variation*. See EARTH.

Others hold various Parts of the Earth to have various degrees of the Magnetic Virtue; as ſome are more intermix'd with heterogeneous Matters, which prevent the free Action or Effect thereof, than others. See MAGNETISM.

Others aſcribe all to Magnetic Rocks, and Iron Mines, which affording more of the Magnetic Matter than other Parts, draw the Needle more. See IRON, &c.

Laſtly, others imagine Earthquakes, or High Tides, to have diſturb'd and diſlocated ſeveral conſiderable Parts of the Earth, and ſo chang'd the Magnetic Axis of the Globe, which originally was the ſame with the Axis of the Globe it ſelf.

But ſtill, that great Phænomenon, the *Variation of the Variation*, *i. e.* the continual Change of the Declination in one and the ſame Place, which the modern Obſervations do abundantly evince, is not accountable for, on any of theſe Foundations; nor even conſiſtent with 'em.

Dr. *Halley*, therefore, gives us a new Syſtem; the Reſult of a great Number of Obſervations; and even of a great Number of Voyages made, at the publick Charge, on this very Account: The Light that excellent Author has let into this obſcure Part of Natural Hiſtory is very great; and the Conſequences thereof in Navigation, &c. very conſiderable. Add, that he has reduced the divers *Variations* of divers Places to a preciſe Rule, or Order, which before appear'd all precarious, and arbitrary.

His Theory, therefore, will deſerve a more ample Detail.—The Obſervations it is built on, as laid down in the *Philoſophical Tranſactions*, are as follow.

Obſervations of the Variations *of the Needle, in divers Places, and at divers Times.*

Names of Places.	Longitude from *London*.	Latitude.	Year of Obſerv.	Variation obſerv'd.
	° ′	° ′		° ′
London	0 0	51 32 N	1580	11 15 E
			1622	6 0 E
			1634	4 5 E
			1672	2 30 W
			1683	4 30 W
Paris	2 25 E	48 51 N	1640	3 0 E
			1666	0 0
			1681	2 30 W
Uraniburg	13 0 E	55 54 N	1672	2 35 W
Copenhagen	12 53 E	55 41 N	1649	1 30 E
Dantzick	19 0 E	54 23 N	1679	7 0 W
Montpelier	4 0 E	43 37 N	1574	1 10 W
Breſt	4 25 W	48 23 N	1680	1 45 W
Rome	13 0 E	41 50 N	1681	5 0 W
Bayonne	1 20 W	43 33 N	1680	1 20 W
Hudſon's *Bay*	79 40 W	51 0 N	1668	19 15 W
In *Hudſon*'s Streights (Sound	57 0 W	61 0 N	1668	29 30 W
In *Baffin*'s *Bay*, at Sir *Tho. Smith*'s	80 0 W	78 0 N	1616	57 0 W
At Sea	50 0 W	38 40 N	1682	7 30 W
At Sea	31 30 W	43 50 N	1682	5 30 W
At Sea	42 0 W	21 0 N	1678	0 40 E
Cape *St. Auguſtine*	35 30 W	8 0 S	1670	5 10 E
At Sea off the Mouth of *R. Plata*	58 0 W	39 30 S	1670	20 30 E
Cape *Frio*	41 10 W	22 40 S	1670	12 10 E
Eaſt Entrance of *Magellan* Streights	68 0 W	52 30 S	1670	17 0 E
Weſt Entrance	75 0 W	53 0 S	1670	14 10 E
Baldivia	73 0 W	40 0 S	1670	8 10 E

Names of Places.	Longitude from *London*.	Latitude.	Year of Obſerv.	Variation obſerv'd.
	° ′	° ′		° ′
Cape *Aguillas*	16 30 E	34 50 S	1622	2 0 W
	W		1675	8 0 W
At Sea	1 0 E	34 30 S	1675	0 0
At Sea	20 0 W	34 0 S	1675	10 30 E
At Sea	32 0 W	24 0 S	1675	10 30 E
St. Helena	6 30 W	16 0 S	1677	0 40 E
J. Aſcenſion	14 10 W	7 50 S	1678	1 0 E
Johanna	44 0 E	12 15 S	1675	19 30 W
Monbaſa	40 0 E	4 0 S	1675	16 0 W
Zocatra	56 0 E	12 30 N	1674	17 0 W
Aden, at the Mouth of the Red Sea	47 30 E	31 0 N	1674	15 0 W
Diego Roiz	61 0 E	20 0 S	1676	20 30 W
At Sea	64 30 E	0 0	1676	15 30 W
At Sea	54 0 E	27 0 S	1676	24 0 W
Bombay	72 30 E	19 0 N	1676	12 0 W
C. Comorin	76 0 E	8 15 N	1680	8 48 W
Ballaſore	87 0 E	21 30 N	1680	8 20 W
Fort *St. George*	180 0 E	13 15 N	1680	8 10 W
Weſt Point of *Java*	104 0 E	6 40 S	1676	3 10 W
At Sea	58 0 E	39 0 S	1677	27 30 W
I. St. Paul	72 0 E	38 0 S	1677	23 30 W
At *Van Diemens*	142 0 E	42 25 S	1642	0 0
At *New Zealand*	170 0 E	40 50 S	1642	9 0 E
At *Three King Iſle* in *New Zealand*	169 30 E	34 35 S	1642	8 40 E
I. Roterdam in the South Sea	184 0 E	20 15 S	1642	6 20 E
On the Coaſt of *New Guinea*	149 0 E	4 30 S	1643	8 45 E
At the Weſt Point of *New Guinea*	126 0 E	0 26 S	1643	5 30 E

From theſe Obſervations the learned Author gathers, 1ſt, That throughout all *Europe*, the *Variation*, at this Time, is *Weſt*; and more in the Eaſtern Parts thereof than the Weſtern, increaſing that way.——2d, That on the Coaſts of *America*, the *Variation* is *Weſterly*; increaſing all the way as you go Northerly along the Coaſt; ſo as to be above 20 Degrees at *Newfoundland*, nearly 30 Degrees in *Hudſon*'s *Streights*, and not leſs than 57 Degrees in *Baffin*'s *Bay*: And that as you ſail Eaſtward from this Coaſt, the *Variation* diminiſhes. Hence, he argues, ſomewhere between *Europe* and the North Part of *America*, there muſt be an Eaſterly *Variation*, or at leaſt no *Variation*.—3d, That on the Coaſt of *Brazil*, there is Eaſt *Variation*; increaſing as you go to the Southward, ſo as to be 12 Deg. at *Cape Frio*, and 20 Degrees and half over againſt *R. Plata*; and thence ſailing South-weſterly, to the Streights of *Magellan*, it decreaſes 17 Degrees, and at the Weſt Entrance about 14 Degrees.——4th, That Eaſtward of *Braſil*, this Eaſterly *Variation* decreaſes, ſo as to be very little at *St. Helena* and *Aſcenſion*, and to be quite gone, and the Compaſs point true about 18 Degrees of Longitude Weſt from the Cape of *Good Hope*.——5th, That to the Eaſtward of the aforeſaid Places, a Weſtward *Variation* begins, and governs in all the *Indian* Sea, ariſing to 18 Degrees under the Equator, about the Meridian of the Northern Part of *Madagaſcar*; and 27 Degrees and a half in 39 Degrees South Latitude, near the ſame Meridian: Eaſterly from thence, the Weſt *Variation* decreaſes, ſo as to be not much above 8 Degrees at Cape *Comorin*, and about 3 Degrees upon the Coaſt of *Java*; and about the *Molucca Iſlands* to be quite gone; as alſo a little to the Weſtward of *Van Diemen's Land*.——6th, That to the Eaſtward of the *Molucca's* and *Van Diemen's Land*, in South Latitude, there ariſes another Eaſterly *Variation*, which ſeems not ſo great as the former, nor of ſo large Extent; for that at the Iſland *Rotterdam*, it is ſenſibly leſs than upon the Eaſt Coaſt of *New Guinea*; and at the Rate it decreaſes, it may well be ſuppoſed, that about 20 Degrees further Eaſtward, or 225 Degrees Eaſt Longitude from *London*, in the Latitude of 20 Degrees South, a Weſterly *Variation* begins.——7th, That the *Variation* taken at *Baldivia*, and at the Weſt Entrance of the Streights of *Magellan*, ſhews, That the Eaſt *Variation* noted in the third Obſervation, is decreaſing apace; and that it cannot well extend many Degrees into the *South Sea*, from the Coaſt of *Peru* and *Chili*, leaving room for a ſmall Weſterly *Variation* in that Tract of the unknown World that lies in the mid-way between *Chili* and *New Zealand*, and between *Hounds Iſland* and *Peru*.——8th, That in ſailing North-weſt from *St. Helena*, by *Aſcenſion*, as far as the Equator, the *Variation* continues very ſmall Eaſt, and as it were, conſtantly the ſame: So that in this Part of the World, the Courſe, wherein there is no *Variation*, is evidently no Meridian, but rather North-weſt.——9th, That the Entrance of *Hudſon's Streights*, and the Mouth of *R. Plata*, being nearly under the ſame Meridian, at the one Place the Needle varies 29 Degrees and a half Weſt; at the other 20 Degrees and a half Eaſt.

Theory of the VARIATION *of the Needle.*

From the Circumſtances above rehearſed, the learned Author takes occaſion to aſſert, 'That the whole Globe of 'the Earth is one great Magnet, having four Magnetical 'Poles, or Points of Attraction; near each Pole of the E'quator, two; and that in thoſe Parts of the World which 'lie near adjacent to any one of theſe Magnetical Poles, 'the Needle is govern'd thereby; the neareſt Pole being 'always predominant over the more remote.'

The Pole which at preſent is neareſt to us, he conjectures to lie in or near the Meridian of the Lands-End of *England*, and not above 7 Degrees from the Arctick Pole: by this Pole, the *Variation* in all *Europe* and *Tartary*, and the North Sea, are principally govern'd; tho ſtill with ſome regard to the other Northern Pole, whoſe Situation is in the Meridian, paſſing about the Middle of *California*, and about 15 Degrees from the North Pole of the World; to which the Needle has chiefly reſpect in all the North *America*, and in the two Oceans on either ſide thereof, from the *Azores* Weſtwards, to *Japan*, and farther.

The two Southern Poles, he imagines, are rather farther diſtant from the South Pole of the World: The one about 16 Degrees therefrom, in a Meridian ſome 20 Degrees to the Weſtward of *Magellan Streights*, or 95 Degrees Weſt from *London*: This commands the Needle in all South *America*, in the Pacifick Sea, and the greateſt Part of the Ethiopick Ocean.——The other ſeems to have the greateſt Power, and largeſt Dominions of all, as it is the moſt remote from the Pole of the World, being little leſs than 20 Deg. diſtant therefrom, in the Meridian which paſſes thro' *New Holland* and the Iſland *Celebes*, about 120 Degrees Eaſt from *London*: This Pole is predominant in the South Part of *Africa*, in *Arabia* and the Red Sea, in *Perſia*, *India*, and its Iſlands; and all over the Indian Sea, from the Cape of *Good Hope* Eaſtwards, to the middle of the great South Sea that divides *Aſia* from *America*.

Such ſeems to be the preſent Diſpoſition of the Magnetical Virtue, throughout the whole Globe of the Earth. It remains to ſhew, how this Hypotheſis accounts for all the *Variations* that have been obſerv'd of late; and how it anſwers to the ſeveral Remarks drawn from the Table.

1°, Then, it is plain, that as our *European* North Pole is in the Meridian of the Land's-End of *England*, all Places more Eaſterly than that, will have it on the Weſt ſide of their Meridian; and conſequently the Needle, reſpecting it with its Northern Point, will have a Weſterly *Variation*; which will ſtill be greater as you go to the Eaſtwards, till you come to ſome Meridian of *Ruſſia*, where 'twill be greateſt, and from thence decreaſe again. Accordingly, in fact, we find that at *Breſt* the *Variation* is but 1 Degree 3 Quarters; at *London*, 4 Degrees and an half; and at *Dantzick* 7 Degrees, Weſt. Again, to the Weſtward of the Meridian of the Land's-End, the Needle ought to have an Eaſterly *Variation*; were it not that (by approaching the *American* Northern Pole, which lies on the Weſt ſide of the Meridian, and ſeems to be of greater force than this other) the Needle is drawn thereby Weſtward, ſo as to counter-balance the Direction given by the *European* Pole, and to make a ſmall Weſt *Variation* in the Meridian of the Land's-End it ſelf. Yet, about the Iſle *Tercera*, 'tis ſuppoſed our neareſt Pole may ſo far prevail, as to give the Needle a little Turn to the Eaſt; tho but for a very little Space; the Counter-balance of thoſe two Poles permitting no conſiderable *Variation* in all the Eaſtern Part of the Atlantick Ocean; nor upon the Weſt Coaſt of *England* and *Ireland*, *France*, *Spain*, and *Barbary*: But to the Weſtward of the *Azores*, the Power of the *American* Pole, overcoming that of the *European*, the Needle has chiefly reſpect thereto; and turns ſtill more and more towards it, as you approach it. Whence it comes to paſs, that on the Coaſt of *Virginia*, *New England*, *Newfoundland*, and in *Hudſon's Streights*, the *Variation* is Weſtward; that is, increaſes as you go from thence towards *Europe*: and that it is leſs in *Virginia* and *New England*, than in *Newfoundland* and *Hudſon's Streights*.

2°, This Weſterly *Variation*, again, decreaſes, as you paſs over the North *America*, and about the Meridian of the middle of *California*, the Needle again points due North; and from thence Weſtwards to *Tedzo* and *Japan*, 'tis ſuppoſed the *Variation* is Eaſterly; and half Sea over, not leſs than 15 Degrees: And that this Eaſt *Variation* extends over *Japan*, *Tedzo*, Eaſt *Tartary*, and part of *China*, till it meet with the Weſterly, which is govern'd by the *European* North Pole, and which is the greateſt; ſomewhere in *Ruſſia*.

3°, Towards the South Pole the Effect is much the ſame; only that here the South Point of the Needle is attracted. Whence it will follow, That the *Variation* on the Coaſt of *Braſil*, at the River of *Plata*, and ſo on to the Streights of *Magellan*, ſhould be Eaſterly; if we ſuppoſe a Magnetical Pole ſituated about 20 Degrees more Weſterly than the Streights of *Magellan*. And this Eaſterly *Variation* doth extend Eaſtward over the greateſt Part of the Ethiopick Sea, till it be counterpoiz'd by the Virtue of the other Southern Pole; as it is about mid-way, between the Cape of *Good Hope*, and the Iſles of *Triſtan d'Acunha*.

4°, From thence Eaſtwards, the *Aſian* South Pole becoming prevalent, and the South Point of the Needle being attracted thereby, there ariſes a Weſt *Variation*, very great in Quantity and Extent; becauſe of the great Diſtance of this Magnetical Pole of the World. Hence it is, That all the Indian Sea, as far as *Hollandia Nova*, and farther, there is conſtantly a Weſt *Variation*; and that under the Equator it ſelf, it ariſes to no leſs than 18 Degrees, where 'tis moſt. Add, that about the Meridian of the Iſland of *Celebes*, being likewiſe that of this Pole, this Weſterly *Variation* ceaſes, and an Eaſterly begins, which reaches to the middle of the South Sea, between the middle of *Zelandia Nova* and *Chili*; leaving room for a ſmall Weſt *Variation*, govern'd by the *American* South Pole.

5°, From the whole it appears, That the Direction of the Needle in the Temperate and Frigid Zone, depends chiefly upon the Counterpoiſe of the Forces of two Magnetical Poles of the ſame Nature: As alſo why, under the ſame Meridian, the *Variation* ſhould be in one Place 29 Degrees and a half Weſt, and in another 20 Degrees and a half Eaſt.

6°, In the Torrid Zone, and particularly under the Equinoctial, reſpect muſt be had to all four Poles, and their Poſitions well conſider'd; otherwiſe it will not be eaſy to determine what *Variations* ſhall be; the neareſt Pole being always ſtrongeſt: yet not ſo, as not to be counter-balanc'd ſometimes by the united Forces of two more remote: Thus, in ſailing from *St. Helena* by the Iſle of *Aſcenſion*, to the Equator, on the North-weſt Courſe, the *Variation* is very little Eaſterly, and in that whole Tract unalterable; becauſe, the South *American* Pole (which is conſiderably the neareſt in the aforeſaid Places) requiring a great Eaſterly *Variation*, is counterpoiz'd by the contrary Attraction of the North *American*, and the *Aſian* South Pole; each whereof, ſingly, are, in theſe Parts, weaker than the *American* South Pole: and upon the North-weſt Courſe, the Diſtance from this latter is very little varied; and as you recede from the *Aſian* South Pole, the Balance is ſtill preſerv'd by acceſs towards the North *American* Pole. In this Caſe, no notice is taken of the *European* North Pole; its Meridian being little remov'd from thoſe of theſe Places, and of it ſelf requiring the ſame *Variations* we here find.

After the ſame manner, may the *Variations* in other Places, under and near the Equator, be accounted for: So that the Hypotheſis muſt be allow'd very adequate, and ſufficient for the Phænomena.

Theory of the Variation of the Variation.

From the Obſervations abovemention'd, it ſeems to follow, that all the Magnetical Poles have a Motion Weſtward: but if it be ſo, 'tis evident, that it is not a Rotation about the Axis of the Earth; for then the *Variations* would continue the ſame, in the ſame Parallel of Latitude (the Longitude only changed) as much as the Motion of the Magnetical Poles: But the contrary is found by Experience; for there is no where, in the Latitude of 51 and an half North, between *England* and *America*, a *Variation* of 11 Degrees Eaſt, at this time; as it was once here at *London*. Wherefore, it ſeems that our *European* Pole is grown nearer the Arctick Pole than it was heretofore; or elſe, that it has loſt Part of its Virtue.

But whether theſe Magnetick Poles move altogether with one Motion, or with ſeveral; whether equally, or unequally; whether circular, or libratory: If circular, about what Centre; if libratory, after what manner? are Things yet unknown.

This Theory ſeems yet ſomewhat obſcure, and defective: To ſuppoſe four Poles in one Magnetical Globe, in order to account for the *Variation*, is a little unnatural; but to conceive thoſe Poles to move, and that by ſuch Laws as to ſolve the *Variation* of the *Variation*, is ſtill more extraordinary. In effect, the Solution appears as implicite and arbitrary as the Problem.

The Author, therefore, found himſelf under a Neceſſity to ſolve the Phænomena of his Solution; and with this View, preſented the following Hypotheſis.

The external Parts of the Globe, he conſiders as the Shell, and the internal as a *Nucleus*, or inner Globe; and between the two he conceives a fluid Medium. That inner Earth having the ſame common Centre, and Axis of diurnal Rotation, may turn about with our Earth each 24 Hours. Only the outer Sphere having its turbinating Motion ſome ſmall Matter either ſwifter or ſlower than the internal Ball; and a very minute difference in length of Time, by many Repetitions, becoming ſenſible; the internal Parts will by degrees recede from the external; and not keeping pace with one another, will appear gradually to move, either Eaſtward or Weſtward, by the difference of their Motions.

Now, ſuppoſing ſuch an internal Sphere, having ſuch a Motion, the two great Difficulties in the former Hypotheſis are eaſily ſolv'd: For if this exterior Shell of Earth be a Magnet, having its Poles at a diſtance from the Poles of diurnal Rotation, and if the internal *Nucleus* be likewiſe a Magnet, having its Poles in two other Places, diſtant alſo from the Axis; and theſe latter, by a gradual and ſlow Motion, change their Place in reſpect of the External: We may then give a reaſonable Account of the four Magnetical Poles aforemention'd, as likewiſe of the Changes of the Needle's *Variations*.

The Period of this Motion being wonderful great, and there being hardly an hundred Years ſince theſe *Variations* have been duly obſerv'd; it will be very hard to bring this Hypotheſis to a *Calculus*; eſpecially ſince, tho the *Variations* do increaſe and decreaſe regularly in the ſame Place, yet in differing Places, at no great diſtance, there are found ſuch caſual Changes thereof, as can no ways be accounted for by a regular Hypotheſis; but ſeem to depend upon the unequal and irregular Diſtribution of the Magnetical Matter within the Subſtance of the external Shell or Coat of the Earth, which deflect the Needle from the Poſition it would acquire from the Effect of the general Magnetiſm of the whole. Of which, the *Variations* at *London* and *Paris* give a notable Inſtance; for the Needle has been conſtantly about 1½ more Eaſterly at *Paris* than at *London*: Tho it be certain, that according to the general Effect, the Difference ought to be the contrary way; notwithſtanding which, the *Variations* in both Places do change alike.

Hence, and from ſome other things of like Nature, it ſeems plain, that the two Poles of the external Globe are fix'd in the Earth; and that if the Needle were wholly govern'd by them, the *Variations* thereof would be always the ſame, with ſome Irregularities upon the Account juſt now mention'd. But the internal Sphere having ſuch a gradual Tranſlation of its Poles, does influence the Needle, and direct it variouſly, according to the Reſult of the attractive or directive Power of each Pole; and conſequently, there muſt be a Period of the Revolution of this internal Ball; after which, the *Variations* will return again, as before. But if it ſhall in future Ages be obſerv'd otherwiſe, we muſt then conclude, that there are more of theſe internal Spheres, and more Magnetical Poles than four; which, at preſent, we have not a ſufficient number of Obſervations to determine, and particularly in that vaſt *Mer del Zur* which occupies ſo great a Part of the whole Surface of the Earth.

If then two of the Poles be fix'd, and two moveable, it remains to aſcertain, which they are that keep their Place.

The Doctor thinks it may be ſafely determin'd, that our *European* North Pole is the moveable one of the two Northern Poles, and that which has chiefly influenc'd the *Variations* in theſe Parts of the World: For in *Hudſon's Bay*, which is under the Direction of the *American* Pole, the Change is not obſerv'd to be near ſo faſt, as in theſe Parts of *Europe*, tho that Pole be much farther removed from the Axis. As to the South Poles, he takes the *Aſian* Pole to be fixed, and conſequently the *American* Pole to move.

This granted, 'tis plain the fixed Poles are the Poles of this external Shell or Cortex of the Earth; and the other the Poles of the Magnetical *Nucleus*, included and moveable within the other. It likewiſe follows, that this Motion is Weſtwards; and, by conſequence, that the aforeſaid *Nucleus* has not preciſely attain'd the ſame Degree of Velocity with the exterior Parts in their diurnal Revolutions; but ſo very nearly equals it, that in 365 Revolves, the Difference is ſcarce ſenſible. That there is any difference, ariſes hence, That the Impulſe whereby the diurnal Motion was impreſs'd on the Earth, was given to the external Parts; and from thence, in time, communicated to the internal: but not ſo, as yet perfectly to equal the Velocity of the firſt Motion impreſs'd on, and ſtill conſerv'd by, the ſuperficial Parts of the Globe.

As to the preciſe Period, we want Obſervations to determine it; tho the Author thinks we may with ſome Reaſon conjecture, that the *American* Pole has moved Weſtward 46 Degrees in 90 Years; and that the whole Period thereof is perform'd in about 700 Years.

Mr. *Whiſton*, in his *New Laws of Magnetiſm*, raiſes ſeveral Objections againſt this Theory; *which ſee under the Article* Magnetism.

To obſerve the Variation *or Declination of the Needle.*

Draw a Meridian-Line, as directed under the Article Meridian: Then, a Style being erected in the middle thereof, place a Needle thereon, and draw the right Line it hangs over. Thus will the Quantity of the *Variation* appear. See Compass.

Or thus: As the former Method of finding the Declination cannot be applied at Sea, others have been thought of; the Principal whereof follow. Suſpend a Thread and Plummet over the Compaſs, till the Shadow paſs thro' the Centre of the Card: Obſerve the Rhumb, or Point of the Compaſs, which the Shadow touches when 'tis the ſhorteſt. For the Shadow is then a Meridian-Line: Conſequently the *Variation* is ſhewn.

Or thus: Obſerve the Rhumb wherein the Sun or ſome Star riſes and ſets: Biſſect the Arch intercepted between the riſing and ſetting; the Line of Biſſection will be the Meridian-Line: Conſequently, the Declination is had as before. The ſame is had from two equal Altitudes of the ſame Star, obſerved either by Day or Night.

Or thus: Obſerve the Rhumb wherein the Sun, or a Star riſes and ſets; and from the Latitude of the Place, find the Eaſtern or Weſtern Amplitude: For the difference between the Amplitude, and the diſtance of the Rhumb obſerved, from the Eaſtern Rhumb of the Card, is the *Variation* ſought.

Or thus: Obſerve the Altitude of the Sun, or ſome Star, SI, (Tab. *Navigation*, Fig. 16.) whoſe Declination is known; and note the Rhumb in the Compaſs to which it then correſponds. Since then in the Triangle ZPS we have three Sides, *viz.* PZ, the Complement of the Elevation of the Pole PR; SP, the Complement of the Declination DS; and ZS, the Complement of the Altitude SI; the Angle PSZ is found by Spherical Trigonometry, (ſee Triangle:) the contiguous one to which, *viz.* AZS, meaſures the Azimuth HI. The difference, then, between the Azimuth, and the Diſtance of the Rhumb obſerved from the South, is the *Variation* ſought.

Note, To have the Eaſtern or Weſtern Amplitude accurately, regard muſt be had to the Refraction; the Laws whereof are abundantly deliver'd under the Article Refraction.

For the more commodious obſerving in what Rhumb of the Compaſs the Sun, or a Star is ſeen, it will be proper to have two little Apertures, or glaſs Windows oppoſite to each other under the Limb thereof; with a Teleſcope Sight fitted to one of them, and to the other a fine Thread.

Variation *of the* Variation, *or Declination*, is the Change in the Declination of the Needle, obſerved at different Times in the ſame Place.

This *Variation*, firſt, 'tis ſaid, diſcover'd by *Gaſſendus*, is found to obſerve one and the ſame Law pretty regularly.

It is ſuppoſed owing to the difference of Velocity of the Motions of the internal and external Parts of the Globe. We want Obſervations of two or three hundred Years, to determine the Quantity of this *Variation* in any certain Time: but from what Obſervations we have, Dr. *Halley* computes it to be at about 23 Degrees in 90 Years: So that in 700 Years it will come round; and every Place have the ſame *Variation* it had.——*See more at large under* Variation, and Magnetism.

VARIATION *of Quantities*, in Algebra. See COMBINATION, and PERMUTATION.

VARIATION, in Aſtronomy. The *Variation of the Moon*, called alſo the *Reflection of her Light*, is the third Inequality obſerv'd in the Moon's Motion; whereby, when out of the Quadratures, her true Place differs from her Place twice equated. See PLACE, EQUATION, *&c.*

Sir *I. Newton* takes the Moon's *Variation* to ariſe partly from the form of her Orbit, which is an Ellipſis; and partly from the Inequality of the Parts of Space which the Moon deſcribes in equal Times, by a Radius drawn to the Earth. See MOON.

To find the greateſt Variation, obſerve the Moon's Longitude in the Octants; and for the Time of Obſervation, compute the Moon's Place twice equated: The difference between the computed and the obſerv'd Place, is the greateſt *Variation*.

Tycho makes the greateſt *Variation* 40′ 30″: *Kepler* makes it 51′; Sir *I. Newton* makes the greateſt *Variation* at a mean diſtance between the Sun and the Earth, to be 35′ 9″; at the other Diſtances, the greateſt *Variation* is in a Ratio compounded of the duplicate Ratio of the Times of the Moon's Synodical Revolution directly, and a triplicate Ratio of the Diſtance of the Sun from the Earth inverſly. *Phil. Nat. Princ. Math.* Prop. XXXIX. Lib. iii.

VARIATION, in the *Italian* Muſick, is underſtood of the different Manners of playing or ſinging a Tune, or Song; whether by ſubdividing the Notes into ſeveral others, of leſſer Value, or by adding Graces, *&c.*——In ſuch manner, however, as that one may ſtill diſcern the Ground of the Tune thro' all the Enrichments; which ſome call *Embroideries*.

Thus, *e. g.* the divers Couples of Chacons, *Spaniſh* Folies, Gavots, *French* Paſſacaillies, *&c.* are ſo many *Variations*: So alſo many Diminutions of Courants, Gavots, and other Pieces for the Lute, Harpſichord, *&c.* are real *Variations*.

VARICIFORMES *Paraſtatæ*, in Anatomy, a Name ſome Authors give to two Veſſels near the Bladder; by reaſon of their many Turnings; ſerving to work the Seed the better. See PARASTATÆ.

VARICOSUM *Corpus*, in Anatomy, the ſame as *Corpus Pyramidale*. See PYRAMIDALE *Corpus*.

VARIEGATION, among Botaniſts and Floriſts, the Act or Art of ſtreaking or diverſifying the Leaves, *&c.* of Plants and Flowers with ſeveral Colours.

Variegation is either *Natural*, or *Artificial*.

Of *Natural Variegation* there are three Kinds; the firſt ſhewing it ſelf in yellow Spots here and there in the Leaves of Plants; call'd by the Gardeners the *yellow Bloach*.

The ſecond, call'd the *white Bloach*, marks the Leaves with a great number of white Spots, or Stripes; the whiteſt lying next the Surface of the Leaves, uſually accompany'd with other Marks of a greeniſh white, that lie deeper in the Body of the Leaves.

The third, and moſt beautiful, is where the Leaves are *edg'd* with white, being owing to ſome Diſorder or Infection in the Juices, which ſtains the natural Complexion or Verdure of the Plant.

Variegation is in it ſelf a Diſeaſe; and theſe are only ſo many Species, or rather Degrees thereof.

In the *yellow*, the Diſeaſe is the ſlighteſt: The *white* is a ſure Sign of a deep Infection, and Weakneſs in the Plant: which is further evinc'd by this; that no two Leaves are ever mark'd exactly like. This ſometimes degenerates into the third, or *edg'd* Kind; which is a total and immoveable Diſeaſe, that lays hold not only of the Leaves, but of the Wood, and even the Fruit, Seed, *&c.*

In the two firſt Kinds, there is a poſſibility of recovering the Plants to their native Verdure, by inarching 'em into a healthful Stock of the ſame Species, and letting the Stocks ſtand a Year or two join'd together; by which means, the Juices of the ſtrong Stock overpowering the Diſtemper, throw off the morbid Humours by Perſpiration: But the third Kind is incurable; no Art can recover the edg'd Plant to produce plain green Leaves again.

Artificial Variegation, is perform'd by inarching, or inoculating a ſtriped, or *variegated* Plant into a plain one of the ſame ſort: as a *variegated* common Jeſſamin, into a plain, common, *Spaniſh*, *Brazil*, or *Indian* Jeſſamin. See INOCULATION, and ABLACTATION.

A ſingle Bud, or Eye, Mr. *Bradley* obſerves, being plac'd in the Eſcutcheon of a diſtemper'd Tree, where it can only receive Nouriſhment from the vitiated Juices, will become *variegated* proportionably to the Nouriſhment it draws; and will partake more of the white or yellow Juice, than if a Branch ſhould be inarch'd: the Bud having nothing to nouriſh it, but the Juices of the Plant it is inoculated on; whereas, a Cyon inarch'd is fed both by the ſtriped Plant, and the healthful one.

As to the natural Stripes, or *Variegations*, there are ſome particular Circumſtances to be obſerv'd; 1°, That ſome Plants only appear *variegated*, or bloach'd in the Spring and Autumn; the Stains diſappearing as they gather Strength in Summer: Of this Kind are Rue, Thyme, and Pot Marjoram.

2°, Some Plants are continually bloach'd in the ſpongy Part of their Leaves; the Sap-Veſſels all the Time remaining of a healthful green: Such are the Alaternus, Orange-Mint, *&c.* which being ſtrengthen'd by rich Manure, or being inarch'd into healthful Plants, throw off the Diſtemper.

3°, In other Plants, the Diſeaſe is ſo rooted and inveterate, that it is propagated with the Seed: Such are the Archangel, Water Betony, Bank Creſs, Borage, Striped Salary, and Sycamore. The Seeds of which produce ſtriped Plants.

VARIOLÆ, in Medicine, a contagious Diſeaſe, popularly called the *Small Pox*.

It is call'd *Variolæ*, as ſhewing it ſelf in Puſtles, or little Tumors like *Varices*; or as *variegating* the Skin. See *Small* POX.

VARIORUM, in Matters of Literature, a Term or Phraſe of Abreviation, uſed for an Edition of a Claſſic Author, printed in *Holland*, with the Notes of divers Authors thereupon; *Cum Notis Variorum*, or *Cum Selectis Variorum Obſervationibus*. See EDITION.

In this Senſe, we ſay, *Plautus Variorum*; a Set of *Dutch Variorums*, &c.

The *Variorums*, for the generality, are the beſt Editions.

The Word is the Genitive Plural of the Latin *Varius*, different, divers.

VARIX, in Medicine, a little Dilatation of a Part of a Vein, ſo as to make it bulge out, or thruſt the Skin above its natural level. See VEIN.

Sometimes, it is confin'd to one ſingle Branch of a Vein; and ſometimes it extends to ſeveral; and ſometimes runs crooked, and bent, in various Knots and Circumvolutions.

It happens oftneſt to the Crural and Hemorrhoidal Veins; ſometimes, alſo, to thoſe in the Teſtes, and frequently in the Abdomen and Breaſts of pregnant Women, and ſuch as give ſuck.

It is ſuppoſed owing to the too great abundance or thickneſs of the Blood; or to the Relaxation of the Membranes of the Veins; immoderate Labour, Sprains, Cramps, too great Preſſure or Stricture by Bandages; and Stagnations of the Blood from a Plethora, Cacochymia, *&c.* may give occaſion thereto.

Melancholic Perſons, and thoſe who feed on coarſe Meats, are moſt ſubject to them: The generality of Women with Child have *Varices* on their Thighs and Legs, occaſion'd by the *Fœtus* compreſſing the Iliac Veins; and by that means preventing the Reflux of the Blood to the Heart.

Varices happening ſpontaneouſly, and proving of a moderate ſize, are rarely dangerous; but even are allow'd ſerviceable in caſe of the Hemorrhoids. When immoderate, they ſometimes occaſion a Cachexy, Dropſy, or Conſumption.

The Cure is to be attempted by Evacuations, as Phlebotomy and Cathartícks; external Applications, as diſcutient Fomentations, Cataplaſms, Embrocations, Bandages, *&c.* Or, laſtly, where the Caſe grows dangerous, by Inciſion.

The Word is pure *Latin*, form'd from the Verb *Variare*; by reaſon of the Turns and Meanders of the Veins, which the Tumor ſometimes follows.

Hernia VARICOSA, in the Teſtes, is known by the Situation of the Tumor, the Courſe of the Vein, Relaxation of the Part, or its appearing inflated with Air, diſtended, and painful. See HERNIA.

It is remedy'd by a proper Truſs, or Bandage, with the Medicines abovemention'd.

VARLET. See VALET.

VARNISH, or VERNISH, a thick, viſcid, ſhining Liquor; uſed by Painters, Gilders, and various other Artificers, to give a gloſs and luſtre to their Works, as alſo to defend 'em from the Weather, Duſt, *&c.*

There are ſeveral Kinds of *Varniſh* in uſe; as the *Siccative*, or *Drying Varniſh*, made of Oil of Aſpin, fine Turpentine, and Sandarac, melted together.

White Varniſh, call'd alſo *Venetian Varniſh*; made of Oil of Turpentine, fine Turpentine, and Maſtick.

Spirit of Wine Varniſh, made of Sandarac, White Amber, Gum-Elemy, and Maſtick; ſerving to gild Leather, Picture Frames, *&c.* withal.

Gilt Varniſh, made of Linſeed Oil, Sandarac, Aloes, Gum-Gutta, and Litharge of Gold.

China Varniſh, made of Gum Lacca, Colophony, Maſtick, and Spirit of Wine.

And, laſtly, the Common *Varniſh*; which is only common Turpentine, diſſolv'd in Oil of Turpentine.

Beſides theſe *Varniſhes*, there are *hard* and *ſoft Varniſhes*, or Grounds, uſed by the Etchers and Engravers. See ETCHING.

Varnish, is alſo uſed for a kind of ſhining Plaiſter, wherewith Potters Ware, Delft Ware, China Ware, *&c.* are cover'd, to give them a Smoothneſs and Luſtre. Melted Lead is the *Varniſh* us'd for the firſt; and Smalt for the ſecond.

The true *Varniſh* uſed by the *Chineſe* and *Japoneſe*, to give that inimitable Luſtre to their Porcelain, is one of the grand Secrets in that Manufacture; and the only thing wanting, to make *Delft* and *French* Ware vie with the *Chineſe*. Several have deſcribed the Preparation thereof; particularly *Kircher*: but none ever ſucceeded in the Trial. See Porcelain.

Varnish is alſo a Term given to the Colours which antique Medals have got in the Earth. See Medal.

The Value of a Medal is heighten'd by a Beauty which Nature alone is able to give, and Art has never yet attain'd to counterfeit: we mean, the Colour or *Varniſh* which certain Soils tinge the Medal withal; ſome with a blue, almoſt as beautiful as that of a Turquoiſe; others with an inimitable Vermilion Colour; others with a certain ſhining poliſh'd brown, infinitely finer than our Brazil Figures.

The moſt uſual *Varniſh* is a fine green, which hangs to the moſt delicate Strokes without effacing them; much more accurately than the fineſt Enamel does on Metals.

Braſs alone is ſuſceptible of it; for as to Silver, the green Ruſt that gathers on it always ſpoils it; and it muſt be ſcower'd off with Vinegar, or Lemon Juice.

There is alſo a *falſe*, or *modern Varniſh*; which the Falſifiers of Medals give to their Counterfeits, to give them the Air of Antiquity: 'Tis diſcover'd by its being ſofter than the natural *Varniſh*, which is as hard as the Metal it ſelf.

Some lay their ſpurious Medals under-ground, where they contract a degree of *Varniſh* that may impoſe on the leſs knowing: Others uſe Sal Armoniac, mix'd with Vinegar; others burnt Paper.

VAS, *Veſſel.* See Vessel.

Vas-*Breve*, q. d. *Short Veſſel*, in Anatomy, a Veſſel at the bottom of the Stomach; thus called from its ſhortneſs. See Stomach.

It ſends divers little Branches from the bottom of the Stomach to the Spleen; or, according to the Uſe the Antients imagin'd it to be of, from the Spleen to the Stomach: For their Notion was, that by means of this Veſſel, the Spleen ſupplied the Stomach with an acid Juice; which acting on the inner nervous Membranes of the Stomach, caus'd the Senſation of *Hunger*; and at the ſame time mixing with the Foods contain'd therein, aſſiſted by its acid quality in the Diſſolution thereof. See Spleen, Hunger, *&c.*

But upon examining the little Branches of this Veſſel more accurately, we find they don't pierce into the Stomach, and that they are no more than Branches of Veins, ſerving to return the Blood into the Splenic Vein; whence it paſſes into the *Vena Porta.* See Splenic, and Porta.

VASA *Adipoſa*, *Præparantia*, &c. See Adiposa, Præparantia, *&c.*

Vasa *Concordiæ*, among Hydraulic Authors, are two Veſſels, ſo constructed, as that one of them, tho full of Wine, won't run a Drop, unleſs the other, being full of Water, do run alſo.

Their Structure and Apparatus may be ſeen in *Wolfius*, *Element. Matheſ.* T. II. Hydraul.

VASCULAR, in Anatomy, is applied to any thing conſiſting of divers Veſſels, Veins, Arteries, *&c.*

Thus, we ſay, The *Vaſcular* and Valvular Texture of the Lungs.

All the Fleſh in an animal Body is found to be *Vaſcular*, none of it Parenchymous, as the Antients imagin'd. See Flesh, Parenchyma, *&c.*

Vascular, Vascularius, in Antiquity, was the Denomination of a kind of Tradeſmen, or Artificers, among the antient *Romans.*

The *Vaſcularii* were properly a kind of Goldſmiths, or Workmen who made Silver and Gold Veſſels without Relievo's, or Figures of different Matter thereon.

Hence, according to *Salmaſius*, it is, that *Cicero* in his VIth Oration againſt *Verres*, diſtinguiſhes *Vaſcularius* from *Cælator.*

In the Art called by the *Greek* 'Εμπαιστικὴ, which was the Art of Superadding Ornaments of precious Stones, or rich Metals, to Vaſes of other Metals; the *Vaſcularii* and *Cælatores* were different; the firſt being thoſe who made the *Vaſe*, the ſecond thoſe who added the Ornaments: But in the Art called Τορευτικὴ, or the Art of cutting Bas Reliefs, or ſtamping other Figures on Metal; the *Vaſcularii* were alſo *Cælatores*, or Engravers: that is, they who made the Vaſe, made alſo the Relievos, or Figures wherewith it was enrich'd.

VASCULIFEROUS *Plants*, are, according to the Botaniſts, ſuch as beſides the common Calyx, have a peculiar Veſſel or Caſe to contain the Seed; which is ſometimes divided into Cells. See Plant.

Theſe have always a Monopetalous Flower; either uniform, or difform. See Monopetalous.

The former, have their Seeds all divided, 1°, into two Partitions, as the *Hyoſcyamus*, *Nicotiana*, *Priapæa*, and the *Gentiana.* 2°, Into three Partitions, as the *Convolvulus*, *Speculum Veneris*, *Trachelium*, *Rapunculus Campanula*, *Rapunculus Corniculatus*, &c. 3°, Into four Partitions; as the *Stramonium.*

Thoſe of the latter Kind, which have a difform Monopetalous Flower, as the *Linaria Pinguicula*, *Antirrhinum*, *Ariſtolochia*, *Scrophularia*, *Digitalis*, *Pedicularis*, *Melampyrum*, *Euphraſia*, &c.

VASE, a Term of equal import with the Latin *Vas*, whence it is form'd; and the Engliſh *Veſſel.*

It is applied to the antient Veſſels, dug from under-ground, or otherwiſe found, and preſerv'd in Cabinets, *&c.* as Veſſels of Sacrifice, Urns, *&c.* and to other more modern Veſſels which are rather of Curioſity and Shew than Uſe; as thoſe of Cryſtal, Porcelain, *&c.*

Vases, in Architecture, are certain Ornaments, plac'd on Corniches, Socles, or Pedeſtals; repreſenting the Veſſels of the Antients; particularly thoſe uſed in Sacrifice, as the *Præfericulum*, *Simpulum*, Incenſe-Pots, and Flower-Pots: all which are occaſionally enrich'd with Baſſo Relievo's.

They are commonly placed there to crown or finiſh Facades, or Frontiſpieces. See Crowning.

They are frequently call'd *Acroteria*; and are uſually inſulate. See Acroteria.

Vitruvius mentions a kind of *Theatrical Vaſes*, made of Braſs, or Earthen Ware, call'd *Echeia*; which they diſpos'd in private Places, under the Steps and Seats of the Theatres, to aid and increaſe the Reflection and Reſonance of the Actors Voices, *&c.* See Theatre.

'Tis ſaid, there are *Vaſes* of this Kind in the Cathedral Church of *Milan.*

Vase is particularly uſed in Architecture, to ſignify the Body of the *Corinthian* and *Compoſite* Capital; call'd alſo the *Tambour*, or *Drum*; and ſometimes the *Campana*, or *Bell.* See Corinthian, and Campana.

Vase is alſo ſometimes uſed among Floriſts, for what they otherwiſe call the *Calyx.*

The *Vaſe*, or rather Calyx of a Tulip, is the Top, or Head of a Tulip; the Leaves whereof form a kind of *Vaſe*, or Cup. See Calyx.

Goldſmiths, Pewterers, *&c.* alſo uſe *Vaſe* for the middle of a Church Candleſtick; which is uſually of a roundiſh Figure, bordering ſomewhat on that of a *Vaſe.*

VASSAL, in our antient Cuſtoms, a Perſon who vow'd Fidelity, and Homage to a Lord, on account of ſome Land, *&c.* which he held of him, in Fee. See Fealty, Homage, Lord, *&c.*

The *Vaſſal*, *Vaſſallus*, was alſo called *Piratus*, *Lord's-man*, and *Fee-man*; but now the Denomination is chang'd into that of *Tenant in Fee.* See Tenant.

They ſometimes alſo uſed the Term *Vaſſour* for *Vaſſal*; whence *Vavaſſour.* See Vavassour.

If a *Vaſſal* offended his Lord gievouſly, either in Perſon, or in Honour, he committed the Crime of Felony; which carry'd with it a Confiſcation of his Fee. See Vassalage.

A *Rear* Vassal, is he who holds of a Lord, who himſelf is *Vaſſal* of another Lord. See Mesne.

Vassal was alſo antiently uſed for *Soldier*; by reaſon Fees, at firſt, were given to none but Military Men. See Fee.

Du Cange will have the Word to come from *Vaſſus*, which antiently ſignify'd a Servant or Domeſtic of a Prince, and ſometimes the *Comites*, or *Aſſeſſores* in publick Trials.

Menage, after *Cujas*, takes *Vaſſal* to have been form'd of *Geſſe*, or *Geſſus*; an antient *Gauliſh* Word, ſignifying Fellow, or Companion in Arms; from *Geſſo*, or *Geſſum*, or *Jeſum*, a kind of Javelin us'd among them.

Voſſius derives *Vaſſal* from *Vas*, *Pledge*; whence alſo he will have it to be, that they are ſometimes called *Fideles.*

VASSALAGE, the State of a *Vaſſal*; or a Servitude and Dependency on a ſuperior Lord. See Vassal.

Antiently, they diſtinguiſh'd between *Liege Vaſſalage* and *Simple Vaſſalage.*

Liege Vaſſalage only belong'd to the King; as carrying with it an Obligation on the ſide of the *Vaſſal*, to ſerve his Lord in War againſt all Perſons whatever.

In all *Simple Vaſſalage*, the Fealty, or *Liege Vaſſalage*, was ſtill reſerv'd to the King.

Some alſo make *Active Vaſſalage*, and *Paſſive*: The firſt is the Right of Fealty reſiding in the Lord; the ſecond, the Service and Duties incumbent on the Tenant.

VASTO, in Law, a Writ that lies for the Heir, againſt the Tenant for Life, or Years, for making waſte; or for him in the Reverſion, or Remainder.

VASTUS, in Anatomy, a Name common to two Muſcles of the Leg, diſtinguiſh'd into *internal*, and *external*; thus call'd from their largeneſs: both of 'em ſerving to extend the Leg.

Vastus *Externus*, ſprings from the Root of the great *Trochanter*, and from the *Linea Aſpera*; outwardly tendinous and inwardly fleſhy; and deſcending obliquely forwards, becomes, *vice verſa*, tendinous inwardly and fleſhy outwardly; till meeting the Tendon of the *Rectus*, it grows quite tendinous, and is inſerted together with it.

Vastus *Internus*, ariſes likewiſe partly tendinous, and partly fleſhy, from the *Linea Aſpera*, immediately below the leſs *Trochanter*, upon the outſide of the *Tibia*; and is continued almoſt to the lower *Apophyſes* thereof, on the inſide: whence it deſcends obliquely, and growing tendinous, is inſerted with the former.

VAT, or Fat, a kind of Veſſel, uſed to hold Wine, Ale, Beer, Syder, or any other Liquor, in the time of its Preparation.

VATICAN, is properly the Name of one of the ſeven Hills whereon *Rome* ſtands: On the Foot hereof is the famous Church of St. *Peter*, hence called the *Vatican*; and a magnificent Palace of the Pope, which has the ſame Denomination.

Hence ariſe divers figurative Expreſſions; as, the *Thunderbolt of the Vatican*, *q. d.* the Pope's Anathema, *&c.*

The Library of the *Vatican* is one of the moſt celebrated in the World: It is particularly remarkable for its Manuſcripts. Towards the beginning of the laſt Century, it was greatly augmented by the addition of that of the Elector *Palatine*. It is open to all the World three or four times a-Week.

In it are ſhewn a *Virgil*, *Terence*, &c. above a thouſand Years old; the Manuſcript whereon the Edition of the Septuagint was made; and abundance of Rabbinical Manuſcripts. See Library.

The Word, according to *Aulus Gellius*, is derived from *Vaticinium*, Prophecy; by reaſon of the Oracles and Predictions which were uſed to be deliver'd there by the Inſpiration of an antient Deity, called *Vaticanus*; who was ſuppoſed to unbind the Organ of Speech in new-born Children; and whom others will have to be no other than *Jupiter*, conſider'd in that Capacity.

VATICINATION, the Act of Prophecying or Divining. See Divination, and Prophecy.

VAVASOR, or Valvasor, or Vavasour, or Valvasour, in our antient Cuſtoms, a Diminutive of *Vaſſal*, or *Vaſſor*; ſignifying a *Vaſſal of a Vaſſal*, or one who held a Fee of another *Vaſſal*. See Vassal.

Yet, *Camden*, and others, hold *Vavaſor* to be a Dignity, next below that of a Baron: He adds, that the Word is form'd of *Vas ſortitum ad Valetudinem*, a Veſſel choſen for Safety, and Health.

Some derive the Word *à valvis, quaſi obligatus ſit adſtare ad valvas Domini, vel dignus ſit eas intrare*; as being a Perſon oblig'd to wait at his Lord's Door, or worthy to enter thereat: But the Etymology is ridiculous enough.

Du Cange ſays, they were call'd *Valvaſores*, and *Valvaſini*; and were of two Kinds: the *great*, called *Valvaſores*, who held of the King; ſuch were Counts and Barons: and the *leſſer*, call'd *Valvaſini*, who held of the former.

VAVASORY, the Quality of the Lands, or Fee held by a *Vavaſor*.

There are *baſe Vavaſories*, and *frank*, or *noble Vavaſories*; according as it hath pleas'd the Lord to make his *Vavaſour*.

Baſe Vavaſories are thoſe for which the Lord of the Fee owes Summage, Light-horſe, Rents, or other Services.

Free Vavaſories are ſuch as are exempt from theſe Services. *Quod dicitur de Baronia non eſt obſervandum in* Vavaſoria, *vel aliis minoribus feodis quam Baronia, quia caput non habent ſicut Baronia.* Bract. Lib. II. cap. 39.

VAUDOIS, or Valdenses, or Waldenses, a Name given to a Sect of Chriſtians, who made their firſt appearance about the Year 1160; or, as others will have it, about the Year 1118.

The Occaſion of their Riſe is thus deliver'd: 'In an Aſſembly of ſeveral of the more conſiderable Citizens of *Lyons*, one of 'em fell down ſuddenly dead in the middle. Upon which, *Pierre Valdo*, who was one of the Number, being ſtruck with the Accident, diſtributed a large Sum of Money among the Poor on the Spot. This drawing a great number of People to follow him, he exhorted them to embrace a voluntary Poverty, after the Example of Jeſus Chriſt and his Apoſtles: And as he was a Man of ſome learning, he expounded to 'em the New Teſtament in the vulgar Tongue.

'The Clergy ſoon began to cry out on him as a raſh Intruder: but he, deſpiſing their Reprimands, ſtill held on; and even went further. For the Accuſations of the Prieſts having exaſperated him, he began to declaim againſt 'em; expos'd their corrupt Lives and Morals; and even, by degrees, came to cenſure ſome of the Corruptions in the Diſcipline and Doctrine of the Church.' And this pav'd one of the way to the Reformation.

The *Vaudois* had their Name from this *Valdo*, whoſe Re-ners they were. They were alſo call'd *Lyoniſts*, and *Sa-tez*, or *Inſabatez*, or *Enſabatez*.

VAULT, *Fornix*, in Architecture, an arch'd Roof, ſo contriv'd, as that the ſeveral *Vouſſoirs*, or *Vault*-Stones whereof it conſiſts, do by their Diſpoſition ſuſtain each other. See Arch.

Vaults are to be prefer'd, on many Occaſions, to Soffits, or flat Cielings, as they give a greater Riſe and Elevation; and beſides, are more firm and durable. See Cieling, Roof, *&c.*

The Antients, *Salmaſius* obſerves, had only three Kinds of *Vaults*: The firſt, the *Fornix*, made Cradle-wiſe; the ſecond, *Teſtudo*, Tortoiſe-wiſe, call'd by the French *Cul de Four*; or Oven-wiſe: The third *Concha*, or Trumpet-wiſe, as growing narrower and narrower.

But the Moderns ſubdivide theſe three Sorts into a great many more, to which they give different Names, according to their Figures and Uſes: Some are *Circular*, others *Elliptical*, &c.

The Sweeps of ſome, again, are larger, others leſs Portions of a Sphere: All above Hemiſpheres are call'd *high*, or *ſurmounted Vaults*; all that are leſs than Hemiſpheres, are *low*, or *ſurbaſed Vaults*, or *Teſtudines*, &c.

In ſome the Height is greater than the Diameter; in others 'tis leſs: There are others, again, quite flat, only made with Haunſes; others Oven-like, or in form of a *Cul de Four*, &c. others growing wider as they lengthen, like a Trumpet.

There are likewiſe *Gothic Vaults, with Ogives, &c.*

Of *Vaults*, again, ſome are *ſingle*, others *double*, *croſs*, *diagonal*, *horizontal*, *aſcending*, *deſcending*, *angular*, *oblique*, *pendent*, &c. See Ogive, Groin, Pendentive, *&c.*

Maſter Vaults, are thoſe which cover the principal Parts of Buildings; in contradiſtinction to the *leſſer*, or ſubordinate *Vaults*, which only cover ſome little Part; as a Paſſage, a Gate, *&c.*

Double Vault, is ſuch a one as being built over another, to make the exterior Decoration range with the interior, leaves a Space between the Convexity of the one, and the Concavity of the other; as in the Dome of St. *Peter's* at *Rome*.

Vaults with Compartments, are ſuch whoſe Sweep, or inner Face, is enrich'd with Pannels of Sculpture, ſeparated by Plat-bands: Theſe Compartments, which are of different Figures, according to the *Vaults*, and uſually gilt, on a white Ground, are made with Stuc, on Brick Walls; as in the Church of St. *Peter's* at *Rome*; and with Plaiſter, on Timber *Vaults*.

Theory of Vaults.

A Semicircular Arch, or *Vault*, ſtanding on two *Piedroits*, or Impoſts, and all the Stones that compoſe them, being cut and placed in ſuch manner, as that their Joints, or Beds, being prolong'd, do all meet in the Centre of the *Vault*; 'tis evident, all the Stones muſt be in form of Wedges, *i. e.* muſt be wider and bigger a-top than at bottom: by virtue of which, they ſuſtain each other, and mutually oppoſe the Effort of their Weight, which determines them to fall.

The Stone in the middle of the *Vault*, which ſtands perpendicular to the Horizon, and is call'd the *Key of the Vault*, is ſuſtain'd on each ſide by two contiguous Stones, juſt as by two inclined Planes: and of conſequence, the Effort it makes to fall, is not equal to its Weight.

But ſtill, that Effort is greater, as the inclined Planes are leſs inclin'd; ſo that, if they were infinitely little inclined, *i. e.* if they were perpendicular to the Horizon, as well as the Key, it wou'd tend to fall with its whole Weight; and wou'd actually fall; but for the Mortar.

The ſecond Stone, which is on the right or left of the Key-Stone, is ſuſtain'd by a third; which, by virtue of the Figure of the *Vault*, is neceſſarily more inclin'd to the ſecond, than the ſecond is to the firſt; and of conſequence, the ſecond, in the Effort it makes to fall, employs a leſs Part of its Weight than the firſt.

For the ſame Reaſon, all the Stones, reckoning from the Key-Stone, employ ſtill a leſs and leſs Part of their Weight, to the laſt; which reſting on a horizontal Plane, employs no part of its Weight; or, which is the ſame thing, makes no effort to fall; as being entirely ſupported by the Impoſt.

Now, in *Vaults*, a great Point to be aim'd at, is, that all the *Vouſſoirs*, or Stones, make an equal effort towards falling: To effect this, it is viſible, that as ſuch (reckoning from the Key to the Impoſt) employ a ſtill leſs and leſs Part of its whole Weight, the firſt, for Inſtance, only employing one half; the ſecond, one third; the third, one fourth, *&c.* there is no other way to make thoſe different Parts equal, but by a proportionable Augmentation of the whole, *i. e.* the ſecond Stone muſt be heavier than the firſt; the third than the ſecond, *&c.* to the laſt; which ſhould be infinitely heavier.

M. *de la Hire* demonſtrates, what that Proportion is, in which the Weights of the Stones of a Semicircular Arch, muſt be increaſed, to be *in Equilibrio*, or to tend with equal Forces to fall; which is the firmeſt Diſpoſition a *Vault* can have.

Before him, the Architects had no certain Rule to conduct themſelves by; but did all at random. Reckoning the Degrees of the Quadrant of the Circle from the Key-Stone to the Impoſt; the Extremity of each Stone will take up ſo much the greater Arch, as it is farther from the Key.

M. *de la Hire*'s Rule is, to augment the Weight of each Stone, above that of the Key-Stone, as much as the Tangent of the Arch of the Stone, exceeds the Tangent of the Arch of half the Key. Now, the Tangent of the laſt Stone, of neceſſity becomes infinite, and of conſequence its Weight ſhould be ſo too: but as Infinity has no place in Practice, the Rule amounts to this, that the laſt Stones be loaded as much as poſſible, that they may the better reſiſt the Effort which the *Vault* makes to ſeparate 'em; which is call'd the *Shoot* or *Drift of the Vault*.

M. *Parent* has ſince determin'd the Curve, or Figure which the *Extrados*, or outſide of a *Vault*, whoſe *Intrados*, or inſide, is ſpherical, muſt have, that all the Stones may be *in Equilibrio*.

Key of a Vault, is a Stone, or Brick, in the middle of the *Vault*, in form of a truncated Cone; ſerving to bind or faſten all the reſt. See Key.

The Reins of a Vault, or the filling up, are the Sides which ſuſtain it.

The Pendentive of a Vault, is the Part ſuſpended, between the Arches or Ogives. See Pendentive.

The Impoſt of a Vault, is the Stone whereon the firſt *Vauſſoir*, or Stone of the *Vault*, is laid. See Impost, *&c.*

Vault, or Volt, in the Manage, an Action of a Horſe, wherein he turns round, or makes a Circle ſide-ways, going round a Centre.

There are ſome *Vaults* wherein the Horſe makes two parallel Circles, the one with his fore Feet, and the other with his hind; and others, wherein the Horſe making Curvets and Capriols, his Haunches follow his Shoulders, and only make one Circle, or Oval, about a Pillar or Centre.

An *inverted*, or *backward Vault*, is that wherein the Horſe, turning likewiſe ſideways, has his Head towards the Centre, and his Tail towards the Circumference: So that the great Circle is form'd by the fore-Feet, and the little one by the hind-Feet.

A *Demi-Vault*, or *Half-Vault*, is when the Horſe only goes half the Circle, and comes back again the ſame way.

Vault is alſo uſed for the Manages practis'd on the wooden Horſe, to learn to mount and unmount with Eaſe and Expedition.

VAUNT-*Lay*, among Hunters, a ſetting of Hounds, or Beagles in a readineſs where the Chace is to paſs; and caſting 'em off before the reſt of the Kennel come in. See Relay.

VAYVODE, or Vaivode. See Waywode.

UBIQUISTS, Ubiquitaries, or Ubiquitarians, a Sect of Hereticks, which roſe and ſpread it ſelf in *Germany*; and whoſe diſtinguiſhing Doctrine was, that the Body of Jeſus Chriſt is every where, or in every Place.

Brentius, one of the earlieſt Reformers, is ſaid to have firſt broach'd this Error, in 1560. *Melanchton* immediately declar'd againſt it; maintaining, that it introduc'd, with the *Eutycheans*, a kind of Confuſion into the two Natures of Jeſus Chriſt; and proteſted that he would oppoſe it as long as he liv'd.

On the other hand, *Andrew* and *Flaccius Illyrius*, *Oſiander*, &c. eſpouſed *Brentius*'s Party; and aſſerted, the Body of Jeſus Chriſt to be every where.

The Univerſities of *Leipſick* and *Wirtenberg*, and the generality of Proteſtants, ſet themſelves againſt this new Hereſy, but in vain: The *Ubiquitarians* grew ſtronger and ſtronger. Six of their Leaders, *Smidelin*, *Selneccer*, *Muſculus*, *Chemnitius*, *Chytræus*, and *Cornerus*, having a Meeting in 1577, in the Monaſtery of *Berg*; they there compoſed a kind of *Credo*, or *Formula* of Faith; wherein the *Ubiquity* was eſtabliſh'd as an Article.

All the *Ubiquiſts*, however, are not agreed: Some of 'em, and among the reſt the *Swedes*, hold that Jeſus Chriſt, even during his Mortal Life, was every where: Others maintain, that 'tis only ſince his Aſcenſion that his Body is every where.

G. Hornius will only allow *Brentius* to be the firſt Propagator of *Ubiquitiſm*; its firſt Inventor, according to him, was *John* of *Weſtphalia*, a Miniſter at *Hambourg*, in 1552.

In the Univerſity of *Paris*, *Ubiquiſt* is a Term applied to ſuch Doctors in Theology as are not reſtrain'd to any particular Houſe; either to that of *Navarre*, or *Sorbonne*.

The *Ubiquiſts* are called ſimply *Doctors in Theology*; whereas the others add, *of the Houſe of Sorbonne*, or *Navarre*, &c. See Sorbonne.

The Word is form'd from the *Latin* Adverb, *ubique*, every where.

UBIQUITY, more properly call'd *Omnipreſence*; an Attribute of the Godhead, whereby he is always, intimately preſent to all Things; gives the *Eſſe* to all Things; knows, preſerves, and works all, in all Things. See God.

For ſince God cannot be ſaid to exiſt in all Places, as plac'd therein, (ſince, then, he would need ſomething to his Exiſtence, *viz.* Place; and would have Extenſion, Parts, *&c.*) he muſt be conceiv'd to be every where, or in all Things, as a firſt, univerſal efficient Cauſe, in all his Effects.

He is preſent, therefore, to all his Creatures, as a pure Act, or an Exerciſe of an active Virtue, which knows, preſerves, governs, *&c.* every thing. Nor are, even finite Minds, preſent otherwiſe than by Operation. See Presence.

UDDER, Uber, in Comparative Anatomy, that Part in Brutes wherein the Milk is prepared; anſwering to the *Mammæ*, or Breaſts, in the human Kind. See Mammæ, and Milk.

VECTIS, in Mechanicks, one of the Powers; more uſually call'd the *Lever*. See Lever.

VECTOR, in Aſtronomy, a Line ſuppos'd to be drawn from any Planet moving round a Centre or the *Focus* of an Ellipſis, to that Centre, or *Focus*.

This, by ſome Writers of the new Aſtronomy, is called *Vector*, becauſe it is that Line by which the Planet ſeems to be carried round its Centre; and with which it deſcribes Areas, proportional to the Times. See Planet.

VEDETTE, in the Military Art, a Sentinel on Horſeback, detach'd from the main Body of the Army, to diſcover and give notice of the Enemy's Deſigns. See Reconnoitre.

VEER, a Sea Term, variouſly uſed. *Veering out a Rope*, denotes the letting it go by hand, or letting it run out of it ſelf: Thus, they ſay, *Veer more Cable*; that is, let more run out: But they do not uſe the Word for the letting out of any running Rope, except the Sheet.

The Word *Veer* is alſo uſed in reference to the Wind; for when it changeth often and ſuddenly, they ſay, *the Wind veereth*.

Alſo, when a Ship, under ſail, hath her Sheet *veered* out, they ſay, *She goes veering*; that is, at large, neither by a Wind, nor directly before it, but between both; which they alſo call *Quartering*. See Wind, and Quartering.

VEGETABLE, in Phyſiology, a Term applied to all Plants, conſider'd as capable of growth, *i. e.* to all natural Bodies which have Parts organically form'd for Generation, and Accretion, but not Senſation. See Plant.

In *Vegetables*, there is ſuppoſed to be a Principle of Life, commonly call'd the *Vegetative Soul*. See Vegetative, and Vegetation.

Boerhaave very ſcientifically defines a *Vegetable* to be a Body generated of the Earth; to which it adheres, or is connected, by Parts called Roots, thro' which it receives the Matter of its Nouriſhment, and Increaſe; and conſiſts of Juices, and Veſſels, ſenſibly diſtinct from each other: Or, a *Vegetable* is an organical Body, compos'd of Veſſels, and Juices, every where diſtinguiſhable from each other; to which grow Roots, or Parts whereby it adheres to ſome other Body, from which it derives the Matter of its Life, and growth.

This Definition furniſhes a juſt and adequate Idea of a *Vegetable*: for by its conſiſting of Veſſels and Juices, it is diſtinguiſh'd from a Foſſil; and by its adhering to another Body, and deriving its Nouriſhment therefrom, it is diſtinguiſh'd from an Animal. See Fossil, and Animal.

A *Vegetable* is defined *an Organical Body*, becauſe conſiſting of different Parts, which jointly concur to the Exerciſe of the ſame Function. See Organical.

Adhering by ſome of its Parts to another Body; for we know of no Plant that is ſo abſolutely vague and fluctuating, but has ſtill a Body it adheres to; tho that Body may be various, *e. g.* Earth, as in our common Plants; Stone, as in Rock Plants; Water, as in Sea Plants; and Air, as in ſome Mucilages. See Rock-*Plant*, *Sea*-Plant, *&c.*

As to thoſe few Plants which appear to float with the Water, their manner of growth is ſomewhat anomalous: M. *Tournefort* has ſhewn, that all Plants do not ariſe ſtrictly from Seeds; but that ſome, inſtead of Semen, depoſite, or let fall a little drop of Juice, which ſinking in the Water, by its Gravity reaches the bottom, or ſome Rock, *&c.* in its way; to which it ſticks, ſtrikes Root, and ſhoots into Branches: Such is the Origin of Coral. See Coral.

Add, that the Root of a Plant may have any Situation at pleaſure, with reſpect to the Body thereof; nor needs it either be loweſt, or higheſt, *&c.* Accordingly, in Aloes, Coral, Moſſes, Fungus's, *&c.* the Root is frequently uppermoſt, and its growth downward.

The vaſcular Structure of *Vegetables*, is render'd very apparent, by an Experiment of Mr. *Willoughby*: Cutting off ſome pretty big Branches of Birch, and making a ſort of Baſon, or Reſervoir on the End thereof with ſome ſoft Wax; upon filling this with Water, and holding the Branch upright, the Water, in a few Minutes, ſunk into the Veſſels of the Wood, and running quite thro' the Length, drop'd out conſiderably faſt; continuing ſo to do, ſo long as the Water was pour'd on.

The ſame ſucceeds in a Sycamore, Walnut, &c. tho the Flux here is not ſo copious. *Phil. Tranſact.* Nº 70.

There are Secrets whereby the Growth of *Vegetables* is ſurprizingly promoted. Mr. *Boyle* mentions a Virtuoſo, who entertain'd his Friends at the End of their Meal with a Sallad of Lettices, which he ſow'd in their preſence, immediately before they ſat down to Table.

The Chymiſts have furniſh'd us with ſome very extraordinary *Vegetables*; as the *Arbor Dianæ*, *Arbor Martis*, &c.

In effect, Gold, Silver, Iron, and Copper, being prepared in Aqua fortis, there riſes out of 'em a kind of Tree, which *vegetates*, or grows, to the naked Eye, and ſpreads into Branches, Leaves, &c. the whole height of the Water; till all the Matter is ſpent therein. See TREE.

This Water the Chymiſts call *Flint-Water*; the Secret whereof has been communicated by *Rhodes Canaſſes*, a *Greek* Chymiſt.

VEGETATION, the Act whereby Plants receive Nouriſhment, and grow. See PLANT, VEGETABLE, &c.

Plants, we learn from the Microſcope, conſiſt of different Parts, Veſſels, &c. analogous to thoſe of Animals: And each kind of Veſſel is ſuppoſed to be the Vehicle of a different Humour, or Juice ſecreted from the Maſs of Sap; which is conſider'd as the Blood, or common Fund of them all. See SAP, and BLOOD.

Dr. *Grew* aſſigns the Offices of the ſeveral Veſſels: Thoſe placed on the inner Verge of the Bark, he calls *Lymphæducts*, and ſuppoſes 'em deſtin'd for the Conveyance of the moſt aqueous or watery Liquor; theſe, Mr. *Bradley* calls, the *new forming Veſſels*, which are annually produced, and help to increaſe the Bulk of the Tree.

Thoſe in the middle of the Bark, Dr. *Grew* calls *Lactiferous*, or *Reſiniferous* Veſſels; their uſe, according to *Bradley*, is to return the ſuperfluous Sap: Theſe Veſſels, *Grew* obſerves, are the principal *Viſcera* of Plants; and adds, that as the *Viſcera* of Animals are but Veſſels conglomerated; ſo the Veſſels of a Plant are *Viſcera* drawn out at length. See VISCERA.

To the Nutrition of Plants, as well as Animals, it ſeems neceſſary that there be a Concurrence of two ſpecifically diſtinct Fluids; and a learned Author maintains an Intermixture of two ſuch Humors in every Part of a Tree, like that which we obſerve in Linſey-woolſey: Every Part of Sap being impregnated with other Tinctures, and continually filter'd from Fibres of one kind to thoſe of another. From this Mixture, many of the Phænomena of the Ripening, Odours, Colours, &c. are accounted for.

Theory of VEGETATION.

The Proceſs of Nature in the *Vegetation* of Plants, is very accurately deliver'd by the excellent *Malpighi*, to the Effect following.

The Egg (or Seed) of the Plant being excluded out of the Ovary, (call'd *Pod*, or *Husk*) and requiring further foſtering and brooding; is committed to the Earth. See SEED, and EGG.

There, that kind Mother having receiv'd it into her Boſom, not only does the Office of Incubation, by her own warm Vapours and Exhalations, join'd with the Heat of the Sun; but, by degrees, ſupplies what the Seed requires for its further growth: as abounding every where with Canals and Sinus's, wherein the Dew, and Rain-Water, impregnated with fertile Salts, glide, like the Chyle and Blood in the Arteries, &c. of Animals.

This Moiſture meeting with the new depoſited Seed, is percolated, or ſtrain'd thro' the Pores or Pipes of the outer Rind, or Huſk (correſponding to the *Secundines* of *Fœtus's*) on the inſide whereof lie one or more, commonly two, thick Seminal Leaves, (anſwering to the *Placenta* in Women, and the *Cotyledons* in Brutes). See SECUNDINE, PLACENTA, &c.

Theſe Seed-Leaves conſiſt of a great Number of little *Veſiculæ*, or Bladders; with a Tube, correſponding to the Navel-ſtring in Animals. See UMBILICUS.

Into theſe *Veſiculæ* is receiv'd the Moiſture of the Earth, ſtrain'd thro' the Rind of the Seed; which makes a ſlight Fermentation with the proper Juice before contain'd therein.

This fermented Liquor is convey'd by the Umbilical Veſſel to the Trunk of the little Plant; and to the Gem or Bud, which is contiguous thereto: upon which, a *Vegetation* and increaſe of the Parts ſucceeds.

Such is the Procedure in the *Vegetation* of Plants; which the illuſtrious Author exemplifies in a Grain of Wheat; as follows:

The firſt Day the Grain is ſown, it grows a little turgid; and the Secundine, or Huſk, gapes a little in ſeveral Places: and the Body of the Plant, being continued by the Umbilical Veſſel to a conglobated Leaf, (which is call'd the Pulp or *Fleſh* of the Seed, and is what conſtitutes the *Flower*) ſwells; by which means, not only the Gem, or Sprout, (which is to be the future Stem) opens, and waxes green; but the Roots begin to bunch out; whence the *Placenta*, or Seed-Leaf, becoming looſe, gapes.

The ſecond Day, the Secundine or Huſk, being broke thro'; the Stem, or Top of the future Straw, appears on the outſide thereof, and grows upwards by degrees: In the mean time, the Seed-Leaf guarding the Roots, becomes turgid with its *Veſiculæ*; and puts forth a white Down. And the Leaf being pull'd away, you ſee the Roots of the Plant bare; the future Bud, Leaves, and reſt of the Stalk, ſtill laying hid. Between the Roots, and the aſcending Stem; the Trunk of the Plant is knit by the Navel-knot to the Flower-Leaf; which is very moiſt, tho it ſtill retains its white Colour, and its natural Taſte.

The third Day, the Pulp of the conglobated or round Leaf, becomes turgid with the Juice which it has receiv'd from the Earth, fermenting with its own.

Thus the Plant increaſes in bigneſs, and its Bud or Stem becoming taller, and from whitiſh, turns greeniſh: The lateral Roots alſo break forth greeniſh, and pyramidal from the gaping Sheath, which adheres cloſely to the Plant; and the lower Root grows longer, and hairy, with many Fibres ſhooting out of the ſame.

Indeed, there are hairy Fibres hanging all along on all the Roots, except on their Tips; and theſe Fibres are ſeen to wind about the ſaline Particles of the Soil, little Lumps of Earth, &c. like Ivy; whence they grow curled. Above the lateral Roots, there now break out two other little ones.

The fourth Day, the Stem mounting upwards, makes a right Angle with the Seminal Leaf: The laſt Roots put forth more; and the other three, growing larger, are clothed with more Hairs, which ſtraitly embrace the Lumps of Earth; and where they meet with any Vacuity, unite into a kind of Net-work. The Conglobate, or Flower-Leaf, is now ſofter; and when bruiſ'd yields a white ſweetiſh Juice, like Barley Cream. By ſtripping it off, the Root and Stem of the Plant are plainly ſeen, with the intermediate Navel-knot, whoſe outer Part is ſolid, like a Bark, and the inner more ſoft, and medullary.

The fifth Day, the Stalk ſtill riſing, puts forth a permanent or ſtable Leaf, which is green, and folded; the Roots grow longer, and there appears a new Tumor of a future Root: The outer, or Sheath-Leaf is looſen'd; and the Seed-Leaf begins to fade.

The ſixth Day, the Stable-Leaf being looſen'd, the Plant mounts upwards; the Sheath-Leaf ſtill cleaving about it like a Bark. The Seed-Leaf is now ſeen ſinuous, or wrinkled, and faded: and this being cut or freed from the Secundine, the Fleſh, or *Pericarpium*, is found of a different Texture; the outer Part, whereby the outſide of the Seed or Grain is heaved up, being more ſolid; but the inſide veſicular, and fill'd with Humor: eſpecially that Part next the Navel-knot. All the Leaves being pull'd off, the Roots torn, and the Flower-Leaf remov'd, the Trunk appears; wherein, not far from the Roots, the Navel-knot bunches out, which is ſolid, and hard to cut: Above, there is the Mark of the Sheath-Leaf, which was pull'd off; and underneath, as in an Arm-pit, the Gem is often hid. The hind Part of the Plant ſhews the breakings forth of the Roots, likewiſe the faded *Placenta*, &c.

After the eleventh Day, the Seed-Leaf, as yet ſticking to the Plant, is crumpled, and almoſt corrupted; within, it is hollow; and about the Secundine, the mucous and white Subſtance of the Seed being continu'd to the Navel-knot, forms a Cavity. All the Roots becoming longer, put forth new Branches out of their Sides: The Seed-Leaf withers, and its Veſicles are empty'd: The Internodes, or Spaces between the Knots, grow longer; new Gems appear; and the middle Root grows ſeveral Inches long.

After a Month, the Roots and Stalk being grown much longer, new Buds break out at the firſt Knot, and little Tumors bunch out, which at length break into Roots.

For other Circumſtances, ſee GENERATION, SAP, SEED, RADICLE, PLUME, PERPENDICULARITY, PARALLELISM, &c.

As to the Vegetable Matter, or the Food whereby Plants grow, there is ſome doubt: The common Opinion, among Naturaliſts, is, that Water is the great *vegetable* Food; which is confirm'd by an eaſy Experiment.

A Sprig of Balm, Mint, or the like Plant, is ſet in a Phial of pure Water, without any Mixture of Earth; yet the Sprig grows, puts forth Roots, Leaves, and Branches.

Agreeable to which, is another fam'd Experiment of *Van Helmont*; who drying 200 Pounds of Earth, and planting a Willow which weigh'd five Pounds therein, he water'd it only with Rain, or diſtill'd Water; and to ſecure it from any other Earth, cover'd it with a perforated tin Cover: At five Years end, weighing the Tree, with all the Leaves it had borne in that time, he found it to weigh 169 Pounds 3 Ounces; yet the Earth was only diminiſh'd two Ounces. See WATER.

To aſcertain this Point, Dr. *Woodward* has made ſome very good Experiments; which, at the ſame time, give light to many other Circumſtances of *Vegetation*. His Experiments are moſt of 'em with Sprigs of Mint, and ſome other

Plants, nicely weigh'd, and incloſ'd in equal glaſs Phials; well cover'd up with Parchment; leaving only room for the Stems to aſcend thro' it; and fill'd with Water: ſome with Spring Water, others with Rain Water, others with *Thames* Water.

At the End of 77 Days he took 'em all out again; weigh'd 'em, as alſo the Water left; and computed the Weight of Water expended on 'em, and the Proportion of the Increaſe of the Plant, to the Expence of the Water.

The next Year, *viz.* *1692*, he made freſh Experiments with the ſame Phials, and the ſame ſort of Plants, weigh'd as before, only ſome were fill'd with *Hyde-Park* Conduit Water alone, others with the ſame Water, and a certain Proportion of Garden-Earth diſſolv'd in it; and others in the ſame Water diſtill'd.

At the End of 56 Days, he weigh'd the Plants, Water, *&c.* and computed what each Plant had gain'd, what Quantity of Water was expended on the Plant, and the Proportion of the Increaſe of the Plant, to the decreaſe of the Water.

The Reſult of all which Experiments, he gives us in the following Obſervations and Reflections:

1°. *In Plants of the ſame Kind, the leſs they are in bulk, the ſmaller Quantity of the fluid Maſs, in which they are ſet, is drawn off*; the Conſumption, where the Maſs is of equal thickneſs, being pretty nearly proportion'd to the Bulk of the Plant.

In effect, the Water ſeems to aſcend up the Veſſels of Plants, in much the ſame manner as up a Filtre: and it is no great wonder that the larger Filtre ſhould draw off more Water than the ſmaller; or that a Plant that hath more and larger Veſſels, ſhould take up a greater Share of the Fluid in which it is ſet, than one that has fewer can: Nor is this noted as a thing very conſiderable in it ſelf, but chiefly with regard to what follows.

2°. *Much the greater Part of the fluid Maſs thus drawn off, and convey'd into the Plant, does not ſettle or abide there; but paſſes thro' their Pores, and exhales up into the Atmoſphere.* That the Water in theſe Experiments aſcended only thro' the Veſſels of the Plants, is certain; ſince ſome Glaſſes, which had no Plants in them, tho diſpoſed in like manner as the reſt, remain'd at the end of the Experiment as at firſt, and without any Diminution of Water: and that the greateſt Part of it flies off from the Plant into the Atmoſphere, is as certain.

The leaſt Proportion of the Water expended, was to the Augment of the Plant, as 46 or 50 to 1; and in ſome 100, 200, nay, in one, as 700 to 1.

This ſo continual an Emiſſion of Water, in ſo great Plenty, from the Parts of the Plant, affords a manifeſt Reaſon, why Countries that abound with Trees, and the larger *Vegetables* eſpecially, ſhould be very obnoxious to Damps, great Humidity in the Air, and more frequent Rains, than others that are more open and free. The great Moiſture in the Air, was a great Inconvenience and Annoyance to thoſe who firſt ſettled in *America*; which, at that time, was overgrown with Woods and Groves: But as theſe were burnt and deſtroy'd, to make way for Habitations, and Culture of the Earth; the Air mended, changing into a Temper much more ſerene and dry than before.

Nor does this Humidity go off pure, and alone, but uſually carries with it many Parts of the ſame Nature with thoſe whereof the Plant, thro' which it paſſes, conſiſts: The Craſſer, indeed, are not ſo eaſily borne up into the Atmoſphere, but are uſually depoſited on the Surface of Leaves, Flowers, and other Parts of the Plants; whence our Mannas, our Honies, and other gummous Exudations of *Vegetables*: But the finer and lighter Parts are with greater eaſe ſent up into the Atmoſphere; thence they are convey'd to our Organs of Smell, by the Air we draw in Reſpiration; and are pleaſant or offenſive, beneficent or injurious to us, according to the Nature of the Plants from whence they ariſe. And ſince theſe owe their Riſe to the Water that aſcends out of the Earth, thro' the Bodies of Plants; we cannot be far to ſeek for the Cauſe why they are more numerous in the Air, and a greater Quantity of Odours is found exhaling from *Vegetables*, in warm humid Seaſons, than in any others.

3°. *A great Part of the terreſtrial Matter that is mix'd with Water, aſcends up into the Plant, as well as the Water.* There was much more terreſtrial Matter, at the End of the Experiment, in the Water of the Glaſſes that had no Plants in them, than in thoſe which had Plants. The Garden-Mold diſſolved in ſome of the Glaſſes, was conſiderably diminiſh'd, and carry'd off; nay, the terreſtrial and vegetable Matter, was borne up in the Tubes filled with Sand, Cotton, *&c.* in that quantity, as to be evident, even to Senſe: and the Bodies in the Cavities of the other Tubes, that had their lower Ends immers'd in Water, wherein Saffron, Cochineal, *&c.* had been infus'd, were ting'd with yellow, purple, *&c.* To look abroad a little towards our Shores, and Parts within the Verge of the Sea, theſe will preſent us with a large Scene of Plants, that along with the Vegetable, take up into them mere Mineral Matter alſo, in great abundance; ſuch as our Sea-Purſlain, the ſeveral ſorts of Algas, of Samphires, and other marine Plants: Thoſe contain common Sea Salts, which are the ſame as the Foſſil, in ſuch plenty, as not only plainly to be diſtinguiſh'd on the Palate, but may be drawn out of them in conſiderable quantity: nay, ſome affirm, There are Plants found that will yield Nitre, and other Mineral Salts.

The *Vegetable* Matter being very fine and light, is ſurprizingly apt, and diſpoſed to attend Water in all its Motions and follow it into each of its Receſſes; as appears not only from the Inſtances above alledg'd, but many others: percolate it with all the Care imaginable, filtre it with never ſo many Filtrations, yet ſome terreſtrial Matter will remain. Dr. *Woodward* has filtred Water thro' ſeveral Sheets of thick Paper, and after that thro' very cloſe fine Cloth, twelve times doubled; and this over and over, and yet a conſiderable Quantity of this Matter diſcover'd it ſelf in the Water after all. Now, if it thus paſſes Interſtices that are ſo very ſmall and fine, along with the Water; it is the leſs ſtrange, it ſhould attend it in its Paſſage thro' the Ducts and Veſſels of Plants: It is true, filtring and diſtilling of Water, intercepts, and makes it quit ſome of the earthy Matter it was before impregnated withal; but then, that which continues with the Water after this, is fine and light, and ſuch, conſequently, as is in a peculiar manner fit for the Growth and Nouriſhment of *Vegetables*. And this is the Caſe of Rain Water: the quantity of terreſtrial Matter it bears up into the Atmoſphere, is not great; but what it doth bear up, is chiefly of that light Kind, or Vegetable Matter, and that, too, perfectly diſſolv'd, and reduc'd to ſingle Corpuſcles, all fit to enter the Tubules and Veſſels of Plants: On which accounts it is, that this Water is ſo very fertile and prolifick.

The Reaſon why all the terreſtrial Matter mixed with the Water, does not aſcend into the Plant, is, that the mineral Matter makes a great deal of it, which is not only groſs and ponderous, but ſcabrous and inflexible; and ſo not diſpoſ'd to enter the Pores of the Roots: Beſides a great many of the ſimple Vegetable Particles, by degrees, unite, and form ſmall Clods, or *Moleculæ*, which ſtick to the Extremities of the Roots of thoſe Plants; and others of them, entangled in a looſer manner, form the *Nubeculæ*, or green Bodies, ſo commonly obſerved in ſtagnant Water: Theſe, when thus conjoin'd, are too big to enter the Pores, or aſcend up the Veſſels of Plants; which ſingly they might have done.

Hence it is, that in Agriculture, be the Earth never ſo rich, good, and fit for the Production of Corn, or other Vegetables; little will come of it, unleſs the Parts of it be ſeparated and looſe: And 'tis on this account, ſuch Pains are beſtow'd in the digging, tilling, ploughing, fallowing, harrowing, and breaking the clodded Lumps of Earth: And 'tis the ſame way that Sea Salt, Nitre, and other Salts, promote *Vegetation*.

Some Authors imagine Nitre eſſential to Plants; and that nothing in the Vegetable Kingdom is tranſacted without it: But the Doctor aſſures us, that by all the Trials he has been able to make, the Thing ſeems to him quite otherwiſe; and when contiguous to the Plant, Nitre rather deſtroys than nouriſhes it. But Nitre, and other Salts, certainly looſen the Earth, and ſeparate the concreted Parts thereof; by that means, fitting and diſpoſing them to be aſſumed by the Water, and carried up into the Seed or Plant for its Formation and Increaſe. 'Tis every body's Obſervation, how apt all ſorts of Salts are to be wrought upon by Moiſture, how eaſily they run with it; and when theſe are drawn off, and have deſerted the Lumps wherewith they were incorporated, thoſe muſt moulder immediately, and fall aſunder of courſe: The hardeſt Stone we meet with, if it happen, as it frequently doth, to have any ſort of Salt intermix'd with the Sand of which it conſiſts, upon its being expos'd to a humid Air, in a ſhort time diſſolves and crumbles all to pieces; and much more will clodded Earth, or Clay, which is not of ſo compact and ſolid a Conſtitution.

The ſame way is Lime likewiſe ſerviceable in this Affair: The Husbandmen ſay, It does not fatten, but only mellows the Ground: by which they mean, it doth not contain any thing in it ſelf that is of the ſame Nature with the Vegetable Mould, or afford any Matter fit for the Formation of Plants, but merely ſoftens, and relaxes the Earth; by that means, rendring it more capable of entring the Seeds and Vegetables ſet in it, in order to their Nouriſhment, than otherwiſe it would have been. The Properties of Lime are well known, and how apt it is to be put in a Ferment and Commotion by Water; nor can ſuch Commotion ever happen when Lime is mixed with Earth, however hard and clodded that may be, without opening and looſening it.

4°. *The Plant is more or leſs nouriſhed, in proportion, as the Water in which it ſtands, contains a greater or ſmaller Quantity of proper terreſtrial Matter in it.* The

Truth of this Propoſition, is diſcernable thro' the whole Proceſs of this Author's Experiments. The Mint in one of his Glaſſes, was of much the ſame Bulk and Weight with that of two or three others: But the Water in which the firſt was, being River Water, which was apparently ſtor'd more copiouſly with terreſtrial Matter, than the Spring or Rain Water wherein the others ſtood, occaſion'd it to arrive at almoſt double the Bulk that either of them had, and with a leſs expence of Water too: So likewiſe the Mint in another Glaſs, in whoſe Water was diſſolv'd a ſmall Quantity of good Garden-Mold; tho it had the Diſadvantage to be leſs, when firſt ſet, than either of the Mints in two other Glaſſes whoſe Water was the very ſame with the firſt, only had none of the Earth mix'd with it; yet, in a ſhort time, the Plant not only overtook, but much outſtrip'd the others.

The Reaſon why the Proportion of the Increaſe of the Plant is limited to the quantity of proper terreſtrial Matter in the Water, is, that all, even Vegetable Matter, is not proper for the Nouriſhment of every Plant: Nor do there want good Indications, that every Kind of Vegetable requires a peculiar and ſpecifick Matter for its Formation and Nouriſhment; yea, each Part of the ſame Vegetable: and that there are very many and different Ingredients to go to the Compoſition of the ſame individual Plant. If, therefore, the Soil wherein any Vegetable or Seed is planted, contains all, or moſt of theſe Ingredients, and thoſe in due quantity; it will grow and thrive there; otherwiſe it will not: If there be not as many ſort of Corpuſcles, as are requiſite for the Conſtitution of the main, and more eſſential Parts of the Plant, it will not proſper at all; if there are theſe, and not in ſufficient plenty, it will never arrive to its natural Stature: or, if there be any the leſs neceſſary and eſſential Corpuſcles wanting, there will be ſome failure in the Plant; it will be defective in Taſte, Smell, Colour, or ſome other way.

Indeed, 'tis inconceivable how one uniform, homogeneous Matter, having its Principles, or original Parts, of the ſame Subſtance, Conſtitution, Magnitude, Figure, and Gravity; ſhould conſtitute Bodies ſo unlike in all thoſe reſpects, as Vegetables of different Kinds are; nay even as the different Parts of the ſame Vegetable: That one ſhould carry a reſinous, another a milky, a third a yellow, a fourth a red Juice in its Veins; one afford a fragrant, another an offenſive Smell; one ſweet to the Taſte, another acid, bitter, acerb, auſtere, *&c.* that one ſhould be nouriſhing, another poiſonous; one purging, another aſtringent. And this Argument makes equally ſtrong againſt thoſe who ſuppoſe mere Water the Matter out of which all Bodies are form'd. A Cataputia in one of the Glaſſes receiv'd but little increaſe, only $3\frac{1}{2}$ Grains all the while it ſtood, tho 2501 Grains of Water were ſpent upon it: But this might poſſibly be owing not to the Water's wanting Matter fit for the Nouriſhment of that particular Plant; but to the Water's being an improper Medium for it to grow in: Too much of that Liquor, in ſome Plants, may probably hurry the terreſtrial Matter thro' the Veſſels, too faſt for them to lay hold of it.

But a farther Proof of this Doctrine, is, That the Soil, once proper for the Production of ſome ſort of Vegetable, does not ever continue to be ſo; but in tract of time loſes its Property; and ſooner in ſome Lands, and later in others: If Wheat, for Example, be ſown upon Land proper for that Grain, the firſt Crop will ſucceed very well, and perhaps the ſecond, and the third, as long as the Ground is in heart, as the Farmers call it; but in a few Years it will produce no more, if ſow'd with that Corn: Some other Grain it may, as Barley; and after this hath been ſown ſo oft, that the Land can bring forth no more of it, it may afterwards yield ſome good Oats; and perhaps Peaſe after them. At length it becomes barren; the Vegetative Matter that at firſt it abounded with, being reduced by the ſucceſſive Crops, and moſt of it borne off: Each ſort of Grain takes forth that peculiar Matter, that is proper for its own Nouriſhment.

It may be brought to bear another Series of the ſame Vegetables; but not till it is ſupplied with a new Fund of Matter, of the like ſort with what it firſt contain'd; either by the Ground's lying fallow for ſome time, till the Rain hath pour'd a freſh Stock upon it; or by the manuring it. That this Supply is of the like ſort, is evident from the ſeveral Manures found beſt to promote the *Vegetation*; which are, chiefly, either Parts of Vegetables, or of Animals: Of Animals, we ſay, which either derive their own Nouriſhment immediately from Vegetable Bodies, or from other Animals that do ſo; in particular, the Blood, Urine, and Excrements of Animals; ſhavings of Horns, and Hoofs; Hair, Wool, Feathers, calcin'd Shells, Lees of Wine and Beer, Aſhes of all ſorts of Vegetable Bodies, Leaves, Straw, Roots, and Stubble, turned into Earth by ploughing, or otherwiſe, to rot and diſſolve there. Theſe are our beſt Manures; and being vegetable Subſtances, when refunded back again into the Earth, ſerve for the Formation of other like Bodies. See MANURE, and COMPOST.

The like is obſervable in Gardens, where the Trees, Shrubs, and Herbs, after their continuing in one Station, till they have derived thence the greater Part of the Matter fit for their increaſe; will decay and degenerate; unleſs either freſh Earth, or ſome fit Manure be applied to them: 'Tis true, they may maintain themſelves there for ſome time, by ſending forth Roots farther and farther, to an Extent all around, to fetch in more Proviſion; but at laſt, they muſt have a freſh Supply brought to them, or they themſelves remov'd or tranſplanted to ſome Place better furniſh'd with Matter for their Subſiſtence. And accordingly, Gardiners obſerve, that Plants that have ſtood a long while in a place, have longer Roots than uſual; part of which they cut off, when they tranſplant to a freſh ſoil, as not now of any farther uſe to them.

All theſe Inſtances point forth a particular Terreſtrial Matter, and not Water, for the Subject to which Plants owe their Increaſe: Were it Water only, there would be no need of Manures, or tranſplanting; the Rain falls in all Places, in this Field and that, indifferently; on one ſide of an Orchard and Garden, as well as another: Nor could there be any Reaſon, why a Tract of Land ſhould yield Wheat one Year, and not the next; ſince the Rain ſhowers down alike on each.

5°. *Vegetables are not formed of Water, but of a certain peculiar terreſtrial Matter.* A little Diſtillation ſhews, that there is a conſiderable Quantity of this Matter, contained both in Rain, Spring, and River Water: and the Experiments above mention'd, ſhew that the much greateſt Part of the fluid Maſs that aſcends up into Plants, does not ſettle or abide there, but paſſes thro' the Pores of them, and exhales into the Atmoſphere; and that a great Part of the terreſtrial Matter, mixed with the Water, paſſes up into the Plant along with it; and that the Plant is more or leſs augmented, in proportion, as the Water contains a greater or ſmaller quantity of that Matter: From all which, we may reaſonably infer, that Earth, and not Water, is the Matter that conſtitutes Vegetables.

One of the Sprigs of Mint drew up into it 2501 Grains of the fluid Maſs, and yet had receiv'd but $3\frac{1}{2}$ Grains of Increaſe from it: A ſecond, tho it had at firſt the Diſadvantage to be much leſs than the third; yet, being ſet in Water wherewith Earth was plentifully mixed, and the other in Water without any ſuch Earth, it had vaſtly outgrown it; weighing at leaſt 145 Grains more than that did: A fourth Plant, tho at firſt a great deal leſs than the fifth, yet being ſet in the foul craſs Water, that was left in the Still, after that in which the laſt was ſet was drawn off, had gained in weight, at the end, above double what that in the finer and thinner Water had. The Proportion of the Augment of that Plant, which throve moſt, was to the fluid Maſs ſpent upon it, but as 1 to 46; in others, as 1 to 60, 100, 200, and in the Cataputia, but as 1 to 714. One of the Sprigs took up 39 Grains of Water a-day, one Day with another; which was much more than the whole Plant originally, and yet it gained not $\frac{1}{4}$ of a Grain a-day in weight: And another took up 253 Grains a-day, which was near twice as much as its original weight; and after all, the daily Increaſe of the Plant was no more than $2\frac{15}{36}$ Grains.

6°. *Spring and Rain Water contain near an equal Charge of Vegetable Matter; River Water more than either of them.* Theſe Proportions hold in the main, but a ſtrict and juſt Compariſon is hardly to be expected; inaſmuch as in all probability, the Water that falls in Rain, contains at ſome times a greater ſhare of terreſtrial Matter, than that which falls at other times; a more powerful and intenſe heat, of neceſſity, hurrying up a larger quantity of that Matter, along with the humid Vapours that form Rain, than one more feeble and remiſs poſſibly can. The Water of one Spring may flow forth with an higher Charge of this Matter than that of another: this depending partly upon the quickneſs of the Ebullition of the Water, and partly upon the quantity of that Matter latent in the *Strata*, thro' which the Fluid paſſes; and the greater or leſs Laxity of thoſe *Strata*: For the ſame Reaſon, the Water of one River may abound with it, more than that of another; nay, the ſame River, when much agitated and in Commotion, muſt bear up more of it, than when it moves with leſs Rapidity and Violence. That there is a great quantity of this Matter in Rivers, and that it contributes vaſtly to the ordinary Fertility of the Earth; we have an illuſtrious Inſtance in the *Nile*, the *Ganges*, and other Rivers, that yearly overflow the neighbouring Plains: their Banks ſhew the faireſt and largeſt Crops of any in the World.

7°. *Water ſerves only for a Vehicle to the terreſtrial Matter which forms Vegetables; and does not it ſelf make any addition to them.* Where the proper terreſtrial Matter is wanting, the Plant is not augmented, tho never ſo much Water aſcend into it: Water, then, is not the Matter that compoſes Vegetable Bodies; it is only the Agent that conveys the Matter to them, that diſtributes it to their ſeveral Parts for their Nouriſhment: That Matter is ſluggiſh and inactive;

inactive, and would lie eternally confin'd to its Beds of Earth, without advancing up into Plants; did not Water, or ſome like Inſtrument, fetch it forth, and carry it into them.

This Fluid is capacitated for the Office here aſſign'd it, ſeveral ways: By the Figure of its Parts, which, as appears from many Experiments, is exactly and mathematically ſpherical; their Surfaces being perfectly polite, and without any the leaſt Irregularities. It is evident, Corpuſcles of ſuch a Figure are eaſily ſuſceptible of Motion, and far above any others whatever; and conſequently the moſt capable of moving and conveying other Matter that is not ſo active: then, the Intervals of Bodies of that Figure, are, with reſpect to their Bulk, of all others, the largeſt, and ſo the moſt fitted to receive and entertain foreign Matter in them; beſides, as far as the Trials hitherto made inform us, the conſtituent Corpuſcles of Water, are each ſingly conſider'd, abſolutely ſolid, and do not yield to the greateſt external Force: This ſecures their Figure againſt any Alteration, and the Intervals of the Corpuſcles muſt be always alike. By the latter, it will be ever diſpoſed to receive Matter into it; and by the former, when once received, to bear it along with it. Water is farther capacitated to be a Vehicle to this Matter, by the Tenuity and Fineneſs of the Corpuſcles of which it conſiſts: We hardly know any Fluid in all Nature, except Fire, whoſe conſtituent Parts are ſo exceeding ſubtile and ſmall, as thoſe of Water are: they will paſs Pores and Interſtices, that neither Air nor any other Fluid will. This enables them to enter the fineſt Tubes and Veſſels of Plants, and to introduce the terreſtrial Matter, conveying it to all Parts of them; whilſt each, by means of Organs it is endu'd with for the purpoſe, intercepts, and aſſumes into it ſelf ſuch Particles as are ſuitable to its own Nature, letting the reſt paſs on thro' the common Ducts.

8°. *Water is not capable of performing this Office to Plants, unleſs aſſiſted by a due quantity of Heat.* This muſt concur, or *Vegetation* will not ſucceed. The Plants ſet in the Glaſſes in *October*, and the following colder Months, had not near the Quantity of Water ſent up into them, or ſo great an additional Increaſe, by much; as thoſe that were ſet in *June*, *July*, and the hotter Months. It is plain, Water has no power of moving it ſelf, or riſing to the vaſt height it doth, in the more tall and lofty Plants; ſo far from it, that it doth not appear from any Diſcovery yet made, that even its own Fluidity conſiſts in the inteſtine Motion of its Parts; whatever the *Carteſians* think. Indeed, we need nothing more to ſolve all the Phænomena of Fluidity, than ſuch a Figure and Diſpoſition of Parts, as Water has: Spherical Corpuſcles muſt ſtand ſo very tickliſh upon each other, as to be ſuſceptible of every Impreſſion; and tho not perpetually in Motion, muſt be always ready and liable to be put into it, by any the ſlighteſt Force imaginable: 'Tis true, the Parts of Fire, or Heat, are not capable of moving themſelves, any more than thoſe of Water; but they are more ſubtile, light, and active, than thoſe are, and ſo more eaſily put into Motion. See FLUIDITY.

That the Concourſe of Heat in this Work is really neceſſary, appears not only from the Experiments before us, but from all Nature; from the Fields and Foreſts, Gardens and Orchards: We ſee in Autumn, as the Sun's Power is gradually leſs and leſs, ſo its Effects on Plants is remitted, and *Vegetation* ſlackens by little and little. Its Failure is firſt diſcernable in Trees; which being raiſed higheſt above the Earth, require a more intenſe heat, to elevate the Water charg'd with Nouriſhment, to their Tops; ſo that for want of freſh Support and Nutriment, they ſhed their Leaves, unleſs ſecured by a very firm and hard Conſtitution indeed, as our Ever-greens are: Next, the Shrubs part with theirs; and then the Herbs, and lower Tribes: the Heat being, at length, not ſufficient to ſupply even theſe, tho ſo near the Earth, the Fund of their Nouriſhment. As the Heat returns the ſucceeding Spring, they all recruit again, and are furniſh'd with freſh Supplies and Verdure: But firſt, thoſe which are loweſt, and neareſt the Earth, and that require a leſſer degree of Heat to raiſe the Water with its earthy Charge into them: then the Shrubs and higher Vegetables, in their turns; and laſtly, the Trees. As the Heat increaſes, it grows too powerful, and hurries the Matter with too great Rapidity, thro' finer and more tender Plants: Theſe, therefore, go off, and decay; and others that are more hardy and vigorous, and require a greater degree of heat, ſucceed in their Order. By which Mechaniſm, provident Nature furniſhes us with a very various and differing Entertainment; and what is beſt ſuited to each Seaſon, all the Year round.

As the Heat of the ſeveral Seaſons affords us a different Face of Things, ſo the ſeveral diſtant Climates ſhew the different Scenes of Nature, and Productions of the Earth. The hotter Countries ordinarily yield the largeſt and talleſt Trees, and thoſe, too, in a much greater Variety than the colder; even thoſe Plants common to both, attain to a much greater Bulk in the Southern, than the Northern Climes: nay, there are ſome Regions ſo cold, that they raiſe no Vegetables at all to a conſiderable ſize; this we learn from *Greenland*, *Iceland*, and other Places of like cold Situation and Condition: In theſe there are no Trees, and the Shrubs are poor, little, and low. Again, in the warmer Climates, and ſuch as do furniſh Trees, and the large Vegetables, if there happen a Remiſſion or Diminution of the uſual Heat, their Productions are impeded in proportion: Our cold Summers give us Proof enough of this; for tho at ſuch times the Heat we have, is ſufficient to raiſe the Vegetative Matter into the lower Plants, our Corns, Wheat, Barley, Peaſe, and the like; and we have plenty of Strawberries, Raſberries, Gooſeberries, Currants, and the Fruits of ſuch Vegetables as are low and near the Earth; and a moderate Store of Cherries, Mulberries, Plums, *&c.* and ſome others that grow at ſomewhat greater height; yet our Apples, Pears, Walnuts, and the Productions of the taller Trees, have been fewer, and thoſe not ſo thoroughly ripen'd, and brought to that Perfection, as they are in more benign and warm Seaſons: and indeed, in Trees of the ſame Kind; thoſe that keep cloſeſt to the Earth, always produce the moſt and beſt Fruit: For which Reaſon it is, that the Gardeners check and reſtrain the Growth of their better Fruit-Trees, and prevent their running up to too great a height. As to our Grapes, Apricots, Peaches, Nectarins, and Figs, they being tranſplanted hither out of hotter Countries, it is the leſs wonder we have a Failure of them in cold Summers. Nor is it the Sun, or the ordinary Emiſſion of the Subterranean Heat only, that promotes *Vegetation*, but any other indifferently according to its Power and Degree; as we find from our Stoves, Hot-Beds, *&c.* See HEAT, COLD, WATER, EARTH, SOIL, TREE, DWARF, PRUNING, *&c.*

VEGETATIVE, a Term applied to that Principle, or Part in Plants, by Virtue whereof they receive Nouriſhment, and *grow*, or *vegetate*. See VEGETATION.

The Philoſophers ſpeak of three Kinds of Souls, the *Vegetative*, *Senſitive*, and *Rational*. See SOUL.

The *Vegetative Soul*, is that Principle whereby Trees and Plants live, grow, produce their Kind, *&c.* See PLANT.

This *Vegetative* Principle is differently ſeated in different Plants: An ingenious Author obſerves, that, generally ſpeaking, its Place is exactly between the Trunk, and Root; at leaſt, this appears to be the Place in moſt of the Seminiferous Tribe; which, if cut down near that Place, rarely ſhoot again.

In other Plants, as the Elm, and many edible Plants, it ſeems to reſide wholly in the Roots; which, if cut into ever ſo many Parts, yet, thoſe being planted in the Ground, ſoon grow. See ROOT, and PLANTING.

In others, as the Willow Kinds, it ſeems to be diffus'd all over, both Root, Trunk, and Branches; inſomuch that if cut into a thouſand Pieces, there is no deſtroying 'em without ſplitting 'em in the middle; and ſcarcely then. See FOECUNDITY.

Laſtly, In others, as the Cereus's, Ficus's, *&c.* it is ſeated in the Body, Branches, and Leaves; any of which being put into the Ground, ſtrike Root immediately, and grow.

The Office of this *Vegetative* Principle, is to concoct the indigeſted Salts which aſcend thro' the Roots; and to aſſimilate 'em to the Nature of the Plant. See VEGETATION.

VEHICLE, in its literal Senſe, ſignifies ſomewhat that carries, or bears a Thing along: Thus, in Anatomy, the Serum is ſaid to be the *Vehicle* that conveys the Globules of the Blood. (See BLOOD.) And in Pharmacy, any Liquid to dilute another with, or to adminiſter it in, to a Patient, is called a *Vehicle*. Water is the *Vehicle* of the nutritious Matter of Vegetables. See VEGETATION.

VEIL, a piece of Stuff, ſerving to hide, or prevent the Sight of any thing.

In this Senſe, we read of a large *Veil*, or Curtain, in the Temple of *Jeruſalem*, miraculouſly rent at the Paſſion of our Saviour. See TEMPLE.

In the *Romiſh* Churches, in time of *Lent*, they have *Veils*, or large Curtains over the Altar, Crucifix, Images of the Saints, *&c.*

The Term *Veil* is alſo uſed for a large piece of Crape, wore on the Head by the Nuns; as the Badge of their Profeſſion: Hence, to *take the Veil*, is to commence Religious.

The Novices wear white *Veils*; and thoſe who have made the Vows, black *Veils*. See NOVICE.

The Prelate before whom the Vows are made, bleſſes the *Veil*, and gives it the Religious. See RELIGIOUS, BENEDICTION, *&c.*

VEIN, VENA, in Anatomy, a Name given to ſeveral Veſſels, or Canals, which receive the Blood from the divers Parts of the Body, to which the Arteries have convey'd it from the Heart; and carry it back to the Heart again. See BLOOD, *&c.*

The *Veins* are only a Continuation of the extreme Capillary Arteries, reflected back again towards the Heart. See CAPILLARY, and ARTERY.

In their Progreſs, uniting their Channels as they approach it, they, at laſt, all form three large *Veins*, or Trunks, *viz.* The *Vena Cava deſcendens*, which brings the Blood back from all the Parts above the Heart. See CAVA.

The *Vena Cava aſcendens*, which brings the Blood from all the Parts below the Heart. See HEART.

And the *Porta* which carries the Blood to the Liver. See PORTA, *&c.*

The *Anaſtomaſis*, or Inoſculation of the *Veins* and Arteries, was firſt ſeen by the Microſcope, in the Feet, Tails, *&c.* of Frogs, and other amphibious Animals, by *Leewenhoeck*; but has ſince been obſerv'd in other Animals, particularly the Omentum of a Cat, by Mr. *Cowper*, &c. See ANASTOMASIS, CIRCULATION, *&c.*

The Coats of the *Veins* are four, the ſame with thoſe of the Arteries; only the muſcular Coat is as thin in all the *Veins*, as it is in the Capillary Arteries; the Preſſure of the Blood againſt the Sides of the *Veins*, being leſs than that againſt the Sides of the Arteries; becauſe the Force of the Heart is much broke in the Capillaries. See PHLEBOTOMY.

In the *Veins* there is no Pulſe, becauſe the Blood is thrown into them with a continued Stream, and becauſe it moves from a narrow Channel to a wider. See PULSE.

But they have a Periſtaltick Motion, which depends on their muſcular Coat. See PERISTALTIC.

The *Capillary Veins* unite with one another, as has been ſaid of the Capillary Arteries; only their Courſe is directly oppoſite: for inſtead of a Trunk diſtributed into Branches and Capillaries, a *Vein* is a Trunk form'd out of a Concourſe of Capillaries. See CAPILLARY.

In all the *Veins* which are perpendicular to the Horizon, excepting thoſe of the *Uterus* and the *Porta*, there are ſmall Membranes, or Valves: ſometimes there is only one, ſometimes there are two, and ſometimes three, placed together, like ſo many half Thimbles ſtuck to the Sides of the *Veins*, with their Mouths towards the Heart.

Theſe, in the Motion of the Blood towards the Heart, are preſs'd cloſe to the Sides of the *Vein*; but ſhut the *Veins*, againſt any re-flux of the Blood that way from the Heart, and thereby ſuſtain the Weight thereof in the great Trunks. See VALVES.

The *Veins* are diſtinguiſh'd, with reſpect to their Situation, into *ſuperior* and *inferior*, *aſcending*, and *deſcending*; *right*, as the *Meſenteria*, and *left*, as the Splenic Branch; *internal*, as the *Baſilica*; and *external*, as the *Humeral*.

Many of them, likewiſe, acquire Denominations from the Parts wherein they are found; as, the *Jugulars*, *Phrenitic*, *Renal*, *Iliac*, *Hypogaſtric*, *Epigaſtric*, *Axillary*, *Crural*, *Umbilical*, *Sural*, *Sciaticæ*, *Saphenæ*, *Medianæ*, *Cephalic*, *Thoracic*, *Subclavian*, *Intercoſtal*, *Coronal*, *Diaphragmatic*, *Cœcal*, *Hemorrhoidal*, *Cervical*, *Thymal*, *Mamillary*, *Gaſtric*, *Stomachic*, *Epiploic*, *Splenic*, &c.

They are alſo diſtinguiſh'd from their particular Offices, into *Spermatic*, *Emulgent*, &c. *all which ſee exhibited in Plate* Anatomy——*and their particular Deſcriptions under their proper Articles*——.

VEIN is alſo apply'd to the Streaks, or Waves of divers Colours, appearing on ſeveral ſorts of Woods, Stones, *&c.* as if they were really painted; and which the Painters frequently imitate in painting Wainſcots, *&c.*

Marble is generally full of ſuch *Veins*. See MARBLE.

Lapis Lazuli has *Veins* like Gold. See LAPIS.

Ovid, ſpeaking of the Metamorphoſes of Stones into Men, ſays,

Quæ modo vena fuit, ſub eodem nomine manſit.

Veins, in Stones, are a Defect, proceeding uſually from an Inequality in their Conſiſtence as to *hard*, and *ſoft*; which makes the Stone crack, and ſhiver in thoſe Parts.

VEIN, is alſo applied, in the ſame Senſe with *Stratum*, to the different Diſpoſitions and Kinds of Earth met withal in digging. See STRATUM.

Thus, we ſay, a *Vein* of Sand, another of Rock, *&c.* a *Vein* of Ocher, Vitriol, Allom, Calamine, Coal, *&c.*

Mineral Waters acquire their different Qualities by paſſing thro' *Veins* of Vitriol, Sulphur, *&c.* See MINERAL.

In the ſame Senſe, we ſay, a *Vein* of Gold, Silver, Quickſilver, *&c.* meaning certain Parts of the Earth, wherein the Oar or Glebe of thoſe Metals is found; and which is diſtributed into divers Branches, like the *Veins* in the Body. See OAR, MINE, *&c.*

Tavernier gives us a Deſcription of the *Veins* in the Diamond Mines in *Golconda*, with the manner of digging them. See DIAMOND.

In digging of Coal-Pits, they meet with a Variety of *Veins*, the Order, *&c.* of which, is different in different Places: In the *Philoſophical Tranſactions*, Nº 360. the *Veins* in thoſe famous Coal-Mines at *Mendip*, in *Somerſetſhire*, are obſerved to be, (below the Turf, or Loam, or Malm, a reddiſh *Fire-ſtone*; the Coal *Clives*, which is a blackiſh Rock;) the *ſtinking Vein*, a hard Coal for mechanic Uſes; five Foot below which, is the *Catſhead Vein*, 22 Foot thick, intermix'd with Lumps of Stone; at a like diſtance below which, is the *three Coal Vein*, divided into three Kinds of Coal, and about three Foot thick.

The *Veins* hitherto mention'd are frequently work'd in the ſame Pit.—The next is *Peaw Vein*, which is intermix'd with Cockle-ſhells and Fern Branches, uſually wrought in a ſeparate Pit: tho its depth below the *three Coal Vein* be only about five Foot, yet the Cliff between is very hard, and liable to Water: This *Vein* is about a Yard thick; and the like diſtance below it, is the *Smith's Coal Vein*: beneath which is the *Shelly Vein*; and under that a *Vein* of ten Inches, little worth, and ſeldom wrought. See COAL.

The ſame *Veins* are found in a Place ſeven or eight Miles apart.—All the *Veins* lie obliquely, or ſhelving, like the ſide of a Houſe: The Obliquity, or *Pitch*, as they term it, is about 22 Inches in a Fathom; which, when it riſes to the Land, is call'd *Crop*, and in ſome Places *Baſſeting*.

In digging to the South-weſt, they oft meet with Ridges, which cauſe the *Vein* to *trap up*; *i. e.* being cut off by the Ridges, they find it over their Heads, when they are thro' the Ridge: On the contrary, working thro' a Ridge to the North-eaſt, they ſay it *traps down*; *i. e.* they find it under their Feet.

VEJOURS, in Law, are thoſe ſent by the Court to take View of any Place in queſtion, for the better Deciſion of the Right. See VIEW.

It is alſo uſed for thoſe ſent to view ſuch as Eſſoign themſelves *De malo lecti*; whether in truth they be ſuch as that they cannot appear, or whether they counterfeit.

VELAMEN, in Surgery, the Bag, Skin, or Bladder of an Impoſthume, or Swelling. See CYSTIS.

VELAMENTUM *Bombycinum*, a Name ſome Anatomiſts give to the velvet Membrane, or Skin of the Inteſtines. See INTESTINE.

VELARIUS, in Antiquity, an Officer in the Court of the *Roman* Emperors.

The *Velarii* were a kind of Uſhers, whoſe Poſt was behind the Curtains, *Vela*, in the Prince's Apartments; as that of the Chancellors was at the Entry of the Baluſtrade, *Cancelli*; and that of the *Oſtiarii* at the Door.

The *Velarii* had a Superior, of the ſame Name, who commanded them; as we find in two Inſcriptions, quoted by *Salmaſius* in his Notes on *Vopiſcus*; and by a third in *Gruter*. The firſt is,

D. M.
TI. CL. HALLUS
PRÆPOSITUS VELARIORUM—
DOMUS AUGUSTANAE
FEC. SIBI ET FILIIS SUIS L. L.
POST. EORUM.

Salmaſius, and others, for HALLUS, which is in the Stone whereon the Inſcription is, at *Rome*, put THALLUS: Tho we find mention of the ſame *Hallus* as a *Samaritan* by Nation, and *Tiberius*'s Freedman, in *Joſephus*; which ſhews that the *Velarii* and their Chief were very antient Officers, and in uſe among the firſt Emperors.

VELITES, in the *Roman* Army, a kind of antient Soldiery, who were arm'd with a Javelin, a Caſk, Cuiraſſe, and Shield.

VELLEITY, in the School Philoſophy, is defined by ſome, to be a languid, cold, and remiſs Will. See WILL.

Others ſay, it implies an Impotency of obtaining what we require: Others will have it a ſlight Deſire for ſomething, which a Perſon does not matter much, or is too indolent to ſeek: as, *Catus amat Piſcem, ſed non vult tangere Lympham.*

VELLICATION, among Phyſicians, the Act of Twitching.

Vellications are particularly uſed for a ſort of ſudden Convulſions that happen to the Fibres of the Muſcles. See FIBRE, and CONVULSION.

VELOCITY, in Mechanicks, *Swiftneſs*; is that Affection of Motion, whereby a Moveable is diſpoſed to run over a certain Space in a certain Time. See MOTION.

It is alſo call'd *Celerity*; and is ſtill proportional to the Space moved. See CELERITY.

The greateſt *Velocity* wherewith a Ball can deſcend, by virtue of its ſpecific Weight, in a reſiſting Medium, is that which the ſame Ball would acquire by falling in an unreſiſting Medium, thro' a Space which is to four thirds of its Diameter, as the Denſity of the Ballto the Denſity of the Fluid. See DESCENT.

Huygens, *Leibnitz*, *Bernoulli*, *Wolfius*, and the foreign Mathematicians, hold that the *Momenta*, or Forces of falling Bodies, at the End of their Falls, are as the Squares of their *Velocities* into the Quantities of Matter; the *Engliſh* Mathematicians, on the contrary, maintain 'em to be as the *Velocities* themſelves into the Quantities of Matter. See MOMENTUM.

Velocity is conceiv'd either as *abſolute*, or *relative*: The *Velocity* we have have hitherto conſider'd, is *ſimple*, or *abſolute*, with reſpect to a certain Space mov'd in a certain Time.

Relative, or *reſpective Velocity*, is that wherewith two diſtant Bodies approach each other, and come to meet in a longer or a leſs time: Whether, only one of 'em moves towards the other at reſt, or whether they both move; which may happen two ways; either by two Bodies mutually approaching each other in the ſame right Line, or by two Bodies moving the ſame way in the ſame Line, only the Foremoſt ſlower than the other; for by this means, this will overtake that. And, as they come to meet in a greater or leſs Time, the *relative Velocity* is greater or leſs.

Thus, if two Bodies come nearer each other by two Foot, in one Second of Time; their reſpective *Velocity* is double that of two others, which only approach one Foot in the ſame Time.

VELOCITIES *of Bodies moving in Curves.*

According to *Galileo*'s Syſtem of the Fall of heavy Bodies, now admitted by all Philoſophers, the *Velocities* of a Body falling vertically, are, each Moment of its Fall, as the Roots of the Heights from whence it has fallen; reckoning from the beginning thereof.

Hence that Author gather'd, that if a Body fall along an inclined Plane, the *Velocities* it has at the different Times, will be in the ſame Ratio: For ſince its *Velocity* is all owing to its Fall, and it only falls as much as there is perpendicular height in the inclined Plane; the *Velocity* ſhould be meaſur'd by that height, as much as if it were vertical.

The ſame Principle likewiſe led him to conclude, That if a Body fall thro' two contiguous inclined Planes, making an Angle between them, much like a Stick when broke, the *Velocity* would be regulated after the ſame manner, by the vertical Height of the two Planes taken together: For 'tis only this height it falls; and from its Fall it has all its *Velocity*.

The Concluſion was univerſally admitted, till the Year 1693, when M. *Varignon* demonſtrated it to be falſe: From his Demonſtration, it ſhould ſeem to follow, that the *Velocities* of a Body falling along the Cavity of a Curve, for inſtance, of a Cycloid; ought not to be as the Roots of the Height; ſince a Curve is only a Series of an Infinity of infinitely little contiguous Planes, inclined towards one another. So that *Galileo*'s Propoſition would ſeem to fail in this Caſe too, and yet it holds good; only with ſome Reſtriction.

All this Mixture of Truths and Errors, ſo near a-kin to each other, ſhew'd that they had not got hold of the firſt Principles; M. *Varignon*, therefore, undertook to clear what related to the *Velocities* of falling Bodies; and to ſet the whole Matter in a new light: He ſtill ſuppoſes *Galileo*'s firſt Syſtem, that the *Velocities* at the different times of a vertical Fall, are as the Roots of the correſpondent Heights. The great Principle he makes uſe of to attain his End, is that of Compound Motion. See COMPOUND *Motion*.

If a Body falls along two contiguous inclined Planes, making an obtuſe Angle, or a kind of Concavity between 'em; M. *Varignon* ſhews, from the Compoſition of thoſe Motions, that the Body, as it meets the ſecond Plane, loſes ſomewhat of its *Velocity*; and of conſequence that it is not the ſame at the end of the Fall, as it would be, had it fell thro' the firſt Plane prolonged: So that the Proportion of the Roots of the Heights aſſerted by *Galileo*, does not here obtain.

The Reaſon of the loſs of *Velocity*, is, that the Motion, which was parallel to the firſt Plane, becomes oblique to the ſecond, ſince they make an Angle: This Motion, which is oblique to the ſecond Plane, being conceived as compounded, that Part perpendicular to the Plane, is loſt by the oppoſition thereof, and part of the *Velocity* along with it: Conſequently, the leſs of the perpendicular there is in the oblique Motion, or, which is the ſame thing, the leſs the two Planes are from being one, *i. e.* the more obtuſe the Angle is, the leſs *Velocity* does the Body loſe.

Now, all the infinitely little, contiguous, inclined Planes, whereof a Curve conſiſts, making infinitely obtuſe Angles among themſelves, a Body falling along the Concavity of a Curve, the loſs of *Velocity* it undergoes each inſtant is infinitely little: But a finite Portion of any Curve, how little ſoever, conſiſting of an Infinity of infinitely little Planes, a Body moving thro' it, loſes an infinite Number of infinitely little Parts of its *Velocity*: and an Infinity of infinitely little Parts, makes an Infinity of a higher Order, *i. e.* an Infinity of infinitely little Parts, makes a finite Magnitude, if they be of the firſt Order, or Kind; and an infinitely little Quantity of the firſt Order, if they be of the ſecond; and ſo *in infinitum*. Therefore, if the Loſſes of *Velocity* of a Body falling along a Curve be of the firſt Order, they will amount to a finite Quantity, in any finite Part of the Curve, &c. See CURVE.

The Nature of every Curve is abundantly determin'd by the Ratio of the Differences of the Ordinates to the correſpondent Portions of the Axis; and the Eſſence of Curves in general, may be conceiv'd as conſiſting in this Ratio, which is variable a thouſand ways. Now this ſame Ratio will be likewiſe that of two ſimple *Velocities*, by whoſe Concurrence a Body will deſcribe any Curve: And of conſequence, the Eſſence of all Curves in the general, is the ſame thing as the Concourſe or Combination of all the Forces, which taken two by two, may move the ſame Body. Thus we have a moſt ſimple and general Equation of all poſſible Curves, and all poſſible *Velocities*. See CURVE.

By means of this Equation, as ſoon as the two ſimple *Velocities* of a Body are known, the Curve reſulting from 'em is immediately determin'd. It is obſervable, that on the Foot of this Equation, an uniform *Velocity*, and a *Velocity* that always varies according to the Roots of the Heights, produce a Parabola, independent of the Angle made by the two projectile Forces that give the *Velocities*: Conſequently, a Cannon Ball, ſhot either horizontally or obliquely to the Horizon, muſt always deſcribe a Parabola. The beſt Mathematicians, till then, had much ado to prove, that oblique Projections form'd Parabolas, as well as horizontal ones. See PROJECTILE, and PARABOLA.

To have ſome meaſure of *Velocity*, the Space is to be divided into as many equal Parts, as the Time is conceiv'd to be divided into: For the quantity of Space correſponding to that Diviſion of Time, is the Meaſure of the *Velocity*.

For an Inſtance; Suppoſe the Moveable A, (Tab. *Mechanicks*, Fig. 45.) travel a Space of 80 Feet in 40 Seconds of Time; dividing 80 by 40, the Quotient 2 ſhews the *Velocity* of the Moveable to be ſuch, as that it paſſes over an Interval of two Feet in one Minute: The *Velocity*, therefore, is rightly expreſs'd by $\frac{40}{80}$; that is, by 2.

Suppoſe, again, another Moveable, B, which in 30 Seconds of Time travels 90 Feet; the Index of its Celerity will be 3. Wherefore, ſince in each Caſe the meaſure of the Space is a Foot, which is ſuppoſed every where of the ſame length; and the meaſure of Time a Second, which is conceiv'd every where of the ſame Duration: the Indices of the *Velocities* 2 and 3, are homogeneal: And therefore, the *Velocity* of A is to the *Velocity* of B, as 2 to 3.

Hence, if the Space be = *ſ*, and the Time = *t*, the *Velocity* may be expreſs'd by *ſ* : *t*; the Space being in a Ratio of the Time and the *Velocity*. See MOTION.

VELOM, a kind of Parchment, finer, evener, and whiter than the common Parchment. See PARCHMENT.

The Word is form'd from the French *Velin*, of the Latin *Vitellinus, belonging to a Calf.*

VELVET, a rich kind of Stuff, all Silk, cover'd on the outſide with a cloſe, ſhort, fine, ſoft Shag; the other ſide being a very ſtrong, cloſe Tiſſue, or Web.

The Nap or Shag, call'd alſo the *Velveting*, of this Stuff, is form'd of part of the Threads of the Warp, which the Workman puts on a long narrow channel'd Ruler, or Needle; and which he afterwards cuts, by drawing a ſharp ſteel Tool along the Channel of the Needle, to the Ends of the Warp.

The principal and beſt Manufactories of *Velvet* are in *France*: there are others in *Italy*, particularly at *Venice*, *Milan*, *Florence*, *Genoa*, and *Lucca*: others in *Holland*, ſet up by the *French* Refugees; whereof that at *Haerlem* is the moſt conſiderable: But they all come ſhort of the Beauty of thoſe of *France*; and accordingly are ſold for 10 or 15 *per Cent*. leſs. There are even ſome brought from *China*, but they are the worſt of all.

The Word *Velvet* is form'd of the French *Velours*, which ſignifies the ſame thing; and which comes from *Velu*, a thing cover'd with Hair.

There are *Velvets* of various Kinds; as, *Plain*, that is, uniform and ſmooth, without either Figures or Stripes: *Figured*, that is, adorn'd and work'd with divers Figures; tho the Ground be the ſame with the Figures; that is, the whole Surface *velveted*. See FIGURED.

Ramage, or branch'd *Velvet*, repreſenting long Rinds, Branches, &c. on a Satin Ground, which is ſometimes of the ſame Colour with the *Velvet*, but more uſually of a different one. Sometimes, inſtead of Satin, they make the Ground of Gold and Silver; whence the Denominations of *Velvets with Gold ground*, &c.

Shorn Velvet, is that wherein the Threads that make the *Velveting*, have been rang'd in the channell'd Ruler, but not cut there.

Strip'd Velvet, is that wherein there are Stripes of divers Colours, running along the Warp; whether thoſe Stripes be partly *Velvet* and partly Satin, or all *velveted*.

Laſtly, *Flower'd Velvet*, is that wherein the Ground is a kind of Taffety, and the Figures *Velvet*.

Velvets are likewiſe diſtinguiſh'd, with regard to their different Degrees of Strength and Goodneſs, into *Velvets* of four Threads, three Threads, two Threads, and a Thread and half: the firſt are thoſe where there are eight Threads of Shag, or *Velveting* to each Tooth of the Reed; the ſecond have only ſix, and the reſt four.

In general, all *Velvets*, both work'd and figur'd, ſhorn and flower'd, are to have their Warp and Shag of Organſin, ſpun and twiſted, or thrown in the Mill; and their Woof of boil'd Silk, not raw; and are of the ſame breadth.

VENA, VEIN, in Anatomy. See VEIN.

VENA *Cava.* } { CAVA.
VENA *Porta*, &c. } See { PORTA, &c.
VENA *Pulmonalis.* } { See PULMONIC.

VENÆ-*Sectio*, the opening of a Vein, call'd alſo *Phlebotomy*; and popularly *Bleeding*. See PHLEBOTOMY, &c.

VENÆ *Lacteæ.* } { LACTEAL.
VENÆ *Lymphaticæ.* } See { LYMPHATIC.
VENÆ *Præputii*,&c. } { PRÆPUTIUM.

VENAL, or VENOUS, among Anatomiſts, ſomething that bears a Relation to a Vein. See VEIN.

The Extremities of the Cava and Pulmonary Veins, where they enter the Auricles of the Heart, are call'd *Venous Sinus's*. See CAVA, and PULMONARY; ſee alſo HEART, and CIRCULATION.

VENAL, VENALIS, is alſo uſed for ſomething bought with Money, or procur'd by Bribes.

Thus, we ſay, *Venal* Bards; Courtezans and Flatterers are *Venal*; Juſtice in *Turks* is *Venal*, it muſt be bought of the Baſhaws.

In *England*, there are ſeveral Offices in the Revenue, Policy, &c. *Venal*: But this *Venality* of Offices is no where ſo conſiderable as in *France*, where all Offices of Judicature are bought of the King, and only municipal Officers are elective. See OFFICE.

Offices in *England* are *venal* only by a kind of Connivance; in *France* it is a thing ſolemn, and authoriz'd.

The *Venality* was firſt introduc'd by *Louis* XII. who, to clear thoſe immenſe Debts contracted by his Predeceſſor *Charles* VIII. without burdening his People with new Taxes, bethought himſelf to ſell the Offices; and, in reality, made a vaſt Sum thereby.

Francis I. made an advantage of the ſame Expedient to get Money, and ſold his Poſts openly: Under the ſame King, it was only accounted a kind of Loan; but that Loan was no more than a Name to diſguiſe a real Sale. The Parliament not being able to reliſh the *Venality* of Offices, always made the Buyer take an Oath that he did not buy his Poſt, either directly or indirectly; but there was a tacit Exception made, of Monies lent the King for being put into them. At length, the Parliament finding its oppoſitions were in vain, and that the Traffick of Offices was publickly authoriz'd, aboliſh'd the Oath in 1597.

The Word is form'd from the Latin *Venalis*, to be ſold.

VENDEE, in Law, the Perſon to whom any thing is ſold; in contradiſtinction to *Vendor*, or the *Seller*.

VENDITIONI *Exponas*, is a Writ Judicial, directed to the Under-Sheriff; commanding him to ſell Goods, which he hath formerly, by Commandment, taken into his Hands; for the ſatisfying a Judgment given in the King's Court.

VENEERING, or VANEERING, a kind of Marquetry, or Inlaying; whereby, ſeveral thin Slices, or Leaves of fine Woods of different kinds, are applied and faſten'd on a Ground of ſome common Wood.

There are two Kinds of Inlaying; the one, which is the more ordinary, goes no further than the making of Compartments of different Woods; the other requires a deal more Art, and repreſents Flowers, Birds, and the like Figures.

The firſt Kind is what we properly call *Veneering*; the latter we have already deſcrib'd, under the Article MARQUETRY.

The Wood intended for *Veneering*, is firſt ſaw'd out into Slices, or Leaves about a Line thick: In order to ſaw 'em, the Blocks or Planks are placed upright, in a kind of Sawing-Preſs; the Deſcription whereof may be ſeen under the Article PRESS.

Theſe Slices are afterwards cut into narrow Slips, and faſhion'd divers ways, according to the Deſign propos'd: Then the Joints being carefully adjuſted, and the Pieces brought down to their proper thickneſs, with ſeveral Planes for the Purpoſe; they are glu'd down on a Ground or Block of dry Wood, with good ſtrong *Engliſh* Glue.

The Pieces thus jointed and glu'd, the Work, if ſmall, is put in a Preſs; if large, 'tis laid on the Bench, cover'd with a Board, and preſs'd down with Poles or Pieces of Wood, one end whereof reaches to the Ceiling of the Room, and the other bears on the Board.

When the Glue is quite dry, they take it out of the Preſs, and finiſh it; firſt with little Planes, then with divers Scrapers; ſome whereof reſemble Raſps, which take off the Dents, &c. left by the Planes.

When ſufficiently ſcrap'd, the Work is poliſh'd with the Skin of a Sea-Dog, Wax, and a Bruſh and Poliſher of Shave-graſs: which is the laſt Preparation. See EBONIST.

VENEREAL, ſomething belonging to *Venus*. See VENUS.

A *Venereal* Perſon, is one addicted to *Venery*, or *Venereal* Pleaſures.

VENEREAL *Diſeaſe*, call'd alſo the *Lues Venerea*, *French Diſeaſe*, *Foul Diſeaſe*, *French Pox*, *Great Pox*, &c. is a contagious Diſeaſe, contracted by ſome impure Humor, generally receiv'd in Coition; and diſcovering it ſelf in Ulcers and Pains, about the Genital and other Parts. See POX.

It is generally ſaid to have made its firſt Appearance in *Europe*, in the Year 1493; tho others will have it much older, and contend for its being known to the Antients, only under other Names.

Mr. *Becket*, particularly, has attempted to ſhew, that it is the ſame with what among our Forefathers was call'd the *Leproſy*; and which in many of our antient *Engliſh* Writings, Charters, &c. is called *Brenning*, or *Burning*.

In order to prove his Point, he has ſearch'd the Records relating to the Stews antiently kept on the *Bankſide*, *Southwark*, under the Juriſdiction of the Biſhop of *Wincheſter*. See STEWS.

Among other Conſtitutions of theſe Stews, dated 1162, it was appointed, *That no Stew-holder ſhould keep any Woman that hath the perillous Infirmity of* BURNING. And in another Vellom Manuſcript, now in the Cuſtody of the Biſhop of *Wincheſter*, dated 1430; it is again order'd, *That no Stew-holder keep no Woman within his Houſe that hath any Sickneſs of* BRENNING, *but that ſhe be putte out, upon the Peyne of making a Fine unto the Lord of a hundred Shillings.* See BURNING, and BRENNING.

To confirm this Account, Mr. *Becket* quotes a Deſcription of the Diſeaſe from a Manuſcript of *John Arden* Eſq; Surgeon to K. *Richard* II. and K. *Henry* IV. *Arden* defines the Diſeaſe called *Brenning*, *Incendium*, to be, *a certain inward Heat and Excoriation of the Urethra*: which Definition, Mr. *Becket* obſerves, gives us a perfect Idea of what we now call a *Clap*; agreeable to the lateſt and moſt exact anatomical Diſcoveries, and free of all the Errors of *Platerus*, *Rondeletius*, *Bartholin*, *Wharton*, and other later Writers on this Diſeaſe. See CLAP.

As to the Leproſy being the ſame with this *Venereal Diſeaſe*, it muſt be own'd, there are a good many Symptoms in the one Diſeaſe, which quadrate well enough with thoſe in the other; but then the Symptoms in each are ſo precarious, that a great deal of Streſs can't be laid hereon. See LEPROSY.

The common Tradition is, that the *Venereal Diſeaſe* firſt broke out in the *French* Army, when it lay encamp'd before *Naples*; and that it was owing to ſome unwholeſom Food: On which account, the *French* call it the *Neapolitan Diſeaſe*; and the *Italians*, the *Mal Franceſe*.

But others go much higher, and ſuppoſe it to be the Ulcer *Job* complain'd of ſo grievouſly: and accordingly, in a Miſſal printed at *Venice* in 1542, there is a Maſs in honour of S. *Job*, to be ſaid by thoſe recover'd of this Diſeaſe; as being ſuppoſed to owe their Deliverance to his Interceſſion.

But the Opinion which prevails moſt among the more knowing of our Phyſicians, is, that the Diſeaſe is of *Indian* Extraction; and that it was brought hither by the *Spaniards* from the *American* Iſlands, where it was very common, before ever the *Spaniards* ſet footing there: Whence the *Spaniards* call it *Sarva des Indias*, or *Las Buvas*: notwithſtanding what *Herrera* ſays, that the *Spaniards* carry'd it to *Mexico*, inſtead of bringing it thence.

Liſter, and others, take it to have had its firſt Riſe from ſome of the Serpentine Kind; either from a Bite thereof, or from ſome of their Fleſh taken as Food: This is pretty certain, that Men bitten or ſtung by Scorpions, are greatly eas'd by Coition; but the Woman, *Pliny* aſſures us, receives a deal of damage thereby: which is no ſlender Argument, of the Diſeaſe's ariſing from ſome Perſon ſo poiſon'd.

He adds, there is no room to doubt, but that the *Lues* aroſe from ſome ſuch Cauſe; for upon any venomous bite, the Penis becomes vehemently extended; and the Patient being ſeiz'd with a *Satyriaſis*, breaths nothing but Rage and Luſt: Nature, in effect, ſeeming to direct him to Coition for a Remedy.

But what proves a Remedy to the wounded Perſon, proves a Diſeaſe to the Woman: And from Women thus infected, other Men, who have to do with 'em, become infected in their turns; and thus has the Diſeaſe been propagated.

The firſt Symptoms generally ariſing after an Affair with an infected Perſon, are a Heat, Swelling, and Inflammation about the Penis or Vulva, with a hotneſs of Urine.

The ſecond or third Day uſually brings on a Gonorrhæa, or Dripping, which denominates it a *Clap*; and which in a few Days more is follow'd by a Cordee. See GONORRHÆA, and CORDEE.

Tho ſometimes there is no Gonorrhæa, or Clap; but the Poiſon rather makes its way thro' the Cutis to the Groin; and there

there ariſes Bubos, with various malignant Puſtles in all Parts of the Body. See BUBO.

Sometimes, alſo, there happen callous Ulcers, call'd *Shankers*, in the *Scrotum* and *Perinæum*; and ſometimes a cancerous and callous Ulcer between the Prepuce and Glans; and in ſome the Teſticles ſwell. See SHANKER.

Add to theſe, violent nocturnal Pains, Nodes, Heats in the Palms of the Hands, and Scals of the Feet; and hence Fiſſures, Excoriations, Condylomata, *&c.* about the *Anus*; falling of the Hair; ruddy, yellow, or livid Spots, Hoarſeneſs, Relaxation and Eroſion of the Uvula, Ulcer of the Palate, Ozæna, tingling of the Ears, Deafneſs, Blindneſs, Itch, Conſumption, *&c.* But 'tis rare all theſe Symptoms happen to the ſame Perſon.

The *Venereal Diſeaſe*, *Sydenham* obſerves, is communicated by Copulation, Lactation, Handling, Saliva, Sweat, the genital Mucus, and the Breath: And in whatever Part it is receiv'd, it there diſcovers it ſelf firſt. When the Infection is receiv'd along with the Milk from the Nurſe, it commonly ſhews it ſelf in Soreneſs and Ulcers of the Mouth.

The Method of Cure is various, according to the various Symptoms and Stages: For the firſt Stage, *viz.* a *Gonorrhæa Virulenta*, or Clap. See CLAP, and GONORRHÆA.

Dr. *Pitcairn*'s Method is this: After two or three Vomits, he directs *Mercurius Dulcis*, for ſome Days, twice a-day; when the Mouth grows ſore, let alone the Mercury for three or four Days, and purge every other Day. As the Mouth grows well again, repeat the uſe of Mercury; and thus alternately, till the Symptoms ceaſe. See MERCURY.

For a confirm'd *Lues*, Mercurial Salivation is generally held the only effectual Cure: Tho Mercurial Frictions, applied in ſuch Quantity, and at ſuch Intervals as not to raiſe a Salivation, is held by ſome to be not only eaſier and ſafer, but even more ſucceſsful, in this Diſeaſe, than Salivation it ſelf. See SALIVATION.

Dr. *Sydenham* tells us, he uſes to ſalivate immediately, without any preliminary Evacuation, or Preparation of the Body at all. His Method is this; He preſcribes an Unguent of ʒii of *Axang. Porcin.* Swines-ſeam, and ℥i of Mercury. With a third Part of this, he orders the Patient to anoint his Arms and Legs, for three Nights ſucceſſively, with his own Hands; ſo as not to touch either the Arm-pits, the Groin, or the Abdomen.—After the third Unction, the Gums uſually ſwell, and a Ptyaliſm comes on.—If it does not come in the time, he exhibits Turbith Mineral gr. viii. in Conſerve of Red Roſes; which occaſioning a Vomiting, raiſes the Ptyaliſm. And if, afterwards, the Salivation abate, ere the Symptoms are quite diſappear'd, he orders it to be promoted with a freſh Doſe of *Mercurius Dulcis.* The Diet and other Regimen, to be the ſame as in a Catharſis.

VENERIS *Oeſtrum, the Tranſport of Love*, expreſſes the utmoſt Ecſtaſy of Deſire, or Enjoyment, in Coition. See OESTRUM.

Some are of Opinion, that infectious Women are the moſt apt to communicate the Poiſon, when they are thus excited with Deſire; whereas, with Indifference, they may admit the ſame Intercourſe without giving the Infection.

VENERIS *Oeſtrum*, in Anatomy, the ſame as CLITORIS.

VENERY, is uſed for the Act of Copulation, or Coition of the two Sexes. See COITION, and GENERATION.

It takes its Name from *Venus*, the ſuppoſed Deity of the Paſſion of Love.

VENERY, is alſo the Art or Exerciſe of hunting wild Beaſts; which are alſo call'd *Beaſts of Venery*, and *Beaſts of Foreſt.* See HUNTING.

Such are the Hare, Hart, Hind, Boar, and Wolf. See BEASTS.

VENIA, among our antient Writers, denotes a kneeling, or low Proſtration on the Ground; uſed by Penitents. *Walſingham*, p. 196. *Rege interim proſtrato in longa* venia.

Per venias *centum verrunt barbis pavimentum.*

VENIAL, a Term in the *Romiſh* Theology, applied to ſlight Sins, and ſuch as eaſily obtain Pardon. See SIN.

In confeſſing to the Prieſt, People are not oblig'd to accuſe themſelves of all their *Venial* Sins.

The thing that gives the greateſt Embarras to the *Romiſh* Caſuiſts, is to diſtinguiſh between *Venial* and *Mortal* Sins. The Reformed reject this Diſtinction of *Venial* and Mortal Sins; and maintain, that all Sins, how grievous ſoever, are *Venial*; and all Sins, how ſlight ſoever, are Mortal: And the Reaſon they urge, is, that all Sins, tho of their own Nature Mortal, yet become *venial*, or pardonable, by virtue of our Saviour's Paſſion, to all ſuch as fulfil the Conditions on which it is offer'd in the Goſpel.

To which the *Romaniſts* anſwer, that one of theſe Conditions is Confeſſion. See CONFESSION.

VENIRE *Facias*, in Law, is a Judicial Writ, lying where two Parties plead, and come to Iſſue: for then, the Party Plaintiff, or Defendant, ſhall have this Writ directed to the Sheriff, to cauſe twelve Men of the ſame Country to ſay the Truth upon the Iſſue taken: And if this Inqueſt come not at the Day of the Writ return'd; then ſhall go an *Habeas Corpus*, and after that a Diſtreſs, until they come.

VENIRE *Facias tot Matronas.* See VENTRE *Inſpiciendo.*

VENISON, or VENAISON, the Fleſh of Beaſts of Game, or of Animals to be caught in the way of Gaming, *i. e.* by Hunting, *&c.* as Deer, Hare, *&c.* See GAME.

The Word is form'd of the Latin *Venatio*, Hunting. See HUNTING.

Beaſts of VENISON. See BEAST.

VENOM. See POISON.

The Terms *Venom* and *Poiſon* only differ from each other in this, that the latter is uſed where the noxious Matter is taken inwardly, as in Foods, Drinks, *&c.* and the former, where it is applied outwardly, as in Stings, and Bites of Serpents, Scorpions, Vipers, Spiders, *&c.*

The Pike is ſaid to have a *venomous* Tooth. All *venomous* Beaſts, in the general, have that Quality in a greater degree, when bred in mountainous and dry Places, than when in wet and marſhy Places; the Southern more than the Northern; thoſe hungry and enraged, than others; and in Summer more than Winter.

VENOUS, *Venoſus.* See VENAL.

VENOUS *Artery*, *Arteria* VENOSA. See ARTERY, LUNGS, CIRCULATION, *&c.*

VENT, VENT-*Hole*, or *Spiracle*, a little Aperture, left in the Tubes or Pipes of Fountains, to facilitate the Wind's eſcape; or, on occaſion, to give them Air; as in froſty Weather, *&c.* for want of which they are apt to burſt. See FOUNTAIN.

A *Vent*, taken in this Senſe, is the End of a Pipe, placed erect, and reaching above ground; being uſually ſolder'd to the Elbows of the Pipes.

The *Vents* of large Pipes, are always as high as the Superficies of the Reſervoir; unleſs there be a Valve in them.

The Word is form'd from the Latin *Ventus*, Wind.

VENT is alſo uſed for a little Hole, pierced in Veſſels of Wine, Beer, *&c.* that are in tap; and which admits Air enough to make the Liquor run, but not ſo much as to corrupt and ſpoil it.

VENT, again, is apply'd to the Covers in Wind-Furnaces, whereby the Air enters, which ſerves them for Bellows; and which are ſtop'd with Regiſters, or Slices, according to the degree of heat requir'd; as in the Furnaces of Glaſs-Houſes, Eſſayors, *&c.* See BELLOWS, FURNACE, *&c.*

Laſtly, the Word VENT is uſed for a Pipe of Lead, or Potter's Ware; one end whereof opens into the Cell of a Neceſſary Houſe, and the other reaches to the Roof of the Houſe; to give room for the corrupt fetid Air to exhale.

There are alſo *Vents*, or Apertures made in the Walls which ſuſtain Terraſſes, to furniſh Air, and give a Paſſage for the Waters.

This kind of *Vent* the *Italians*, and we from 'em, call a *Barbacane.* See BARBACANE.

VENTER, *Belly*, in Anatomy, a Cavity in the Body of an Animal, containing *Viſcera*, or other Organs, neceſſary for the Performance of divers Functions. See VISCERA, *&c.*

Phyſicians divide the human Body into three *Venters*, Regions, or Cavities; the firſt the *Head*, containing the Brain, *&c.* See HEAD.

The ſecond the *Breaſt*, or *Thorax*, as far as the Diaphragm; containing the Organs of Reſpiration. See THORAX.

The third, which is what we commonly call the *Venter*, or *Belly*, is that wherein the Inteſtines and the Organs of Generation, and Digeſtion, are contain'd; called by Anatomiſts the *Abdomen.* See ABDOMEN.

This laſt, call'd alſo the *lower Venter*, is ſubdivided into three Regions; the firſt and higheſt whereof, call'd the *Epigaſtric* Region, reaches from the *Cartilago Xiphoides* near to the Navel; the ſecond, call'd the *Umbilical*, comprehends the Space of three or four Fingers breadth, about the Navel, containing the Reins and Loins; and the third, the *Hypogaſtric*, which reaches to the *Pudenda*, and is what we properly call the *lower Venter: Hippocrates* calls it ἦτρον. See HYPOGASTRIC, EPIGASTRIC, *&c.*

Its two Sides are call'd *Ilia*, the *Flanks*; and its loweſt Extreme the *Groin*; in Latin *Inguen*, and in *Greek* βουβών.

VENTER, or *Belly*, is alſo popularly us'd for the exterior Part of the lower *Venter*: In which Senſe, we ſay, the Navel is in the middle of the *Venter*, &c.

It is alſo uſed for the *Ventricle*, or Stomach; becauſe that Part is encloſed in the Cavity thereof. See VENTRICLE.

In this Senſe it is, that *Jonas* is ſaid in Scripture to have been three Days in the Whale's Belly.

Laſtly, *Venter* is alſo uſed for the Womb, or *Uterus* of Women: And hence the Writ *De Ventre Inſpiciendo.*

Hence, alſo, in the Civil Law, we ſay, *Partus ſequitur Ventrem*, the Child follows the Belly; meaning, that its Condition is either free or ſervile, according to that of its Mother. See MARRIAGE.

They alſo ſay, to *appoint a Curator for the Belly*, with regard to poſthumous Children yet in the Mother's Womb. See POSTHUMOUS.

With regard to Princes, the *Venter* or Belly has been ſometimes crown'd, in form.

VENTER, or *Belly* of a Muſcle, is the fleſhy or body Part thereof; as contradiſtinguiſh'd from the two Tendons, its Extremes; one whereof is call'd the *Head*, and the other the *Tail* of the Muſcle. See MUSCLE.

VENTER *Draconis*, *Dragon's Belly*, in Aſtronomy, the middle of a Planet's Orbit; or that Part moſt remote from the Nodes, *i. e.* from the *Dragon's-Head* and *Tail*; being the Part which has the greateſt Latitude. See ORBIT, and NODE.

The Moon has five Degrees of Latitude, when in the *Dragon's Belly*, and is 90 Degrees diſtant from the Nodes. See LATITUDE.

Of theſe two Points, in each Orbit, that towards the South is alſo call'd the *Southern Limit*, and that towards the North, the *Northern Limit*. See LIMITS.

VENTER *Equinus*, or *Horſe's Belly*, among Chymiſts, is a Dunghil, wherein are encloſed certain Veſſels for particular Operations to be perform'd by means of the gentle heat thereof. See FIRE, and HEAT.

VENTER, in our Cuſtoms, is uſed for a Partition of the Effects of a Father and Mother, among Children born, or accruing from different Marriages.

This Partition is ſo order'd, as that a ſingle Child of one Marriage, or *Venter*, takes as much as ſeveral of another Marriage, or *Venter*: In order to which, the Eſtate is divided into ſo many Parts as there have been *Venters*, or Marriages.

VENTER is alſo uſed for the Children whereof a Woman is deliver'd at one pregnancy.

Thus, two Twins are ſaid to be of the ſame *Venter*.—— Many People take for a Fable what is related of the Counteſs of *Holland*, *viz.* that ſhe had 365 Children at one *Venter*, all living, and baptized: and yet the Story is very gravely related by abundance of Authors; and the Font or Baſon is ſtill ſhewn in the Church where they were baptiz'd; with a kind of Monument of the Fact, thereon. See FOETUS.

VENTIDUCTS, in Building, call'd by the Italians *Ventidotti*, and by the French *Priſons des Vents*, or *Palais d'Eole*; are Spiracles, or ſubterraneous Places, where freſh, cool Winds being kept, are made to communicate, by means of Ducts, Funnels, or Vaults, with the Chambers or other Apartments of a Houſe; to cool them in ſultry Weather.

Theſe are much in uſe in *Italy*, &c. See BUILDING, HOUSE, *&c.*

VENTOSITY, in Medicine. See FLATULENCY.

VENTRE *Inſpiciendo*, a Writ for the ſearch of a Woman that ſays ſhe is with Child, and thereby holds Land from him that is otherwiſe next Heir at Law.

VENTRICLE, *q. d. Little Belly*, in Anatomy, a Diminutive of *Venter*; ſignifying a Cavity ſmaller than what we expreſs by a Venter; or rather, ſignifying a Diviſion of a Venter; or ſome ſmaller Cavity, contain'd in a larger. See VENTER.

There are two Cavities in the Heart, adjoining to the Auricles; and four in the Brain; call'd *Ventricles*; *which ſee explain'd under the Articles* HEART, and BRAIN.

The right Ventricle of the Heart, in relaxing, admits the Blood by the right Auricle from the *Cava*; and contracting, drives it out into the pulmonary Arteries: The *left*, receiving the Blood by the left Auricle, from the Lungs, drives it out into the *Aorta*. See CAVA, AORTA, and LUNGS; ſee alſo SYSTOLE, DIASTOLE, CIRCULATION, *&c.*

VENTRICLE, or VENTRICULUS, by way of Eminence thus call'd, is the ſame thing with the Stomach. See STOMACH.

For the Action of the Ventricle in Vomiting, ſee VOMITING.

VENTRILOQUOUS, VENTRILOQUUS, call'd alſo *Gaſtriloquous*, and *Engaſtrimythus*, a Term applied to Perſons who form their Speech by drawing the Air into the Lungs; ſo that the Voice proceeds out of the Thorax; and, to a By-ſtander, ſeems to come from a diſtance. See ENGASTRIMYTHUS, *&c.*

Such a Perſon we had lately in *London*, a Smith by Profeſſion, who had the Faculty in ſuch Perfection, that he'd make his Voice appear, now, as if it came out of the Cellar, and the next Minute, as if in an upper Room; and no body preſent perceive that he ſpoke at all: Accordingly, he has frequently call'd a Perſon firſt up, then down Stairs; then out of doors, then this way, then that, without ſtirring from his Seat, or appearing to ſpeak at all.

Rolandus, in his *Agloſſoſtomographia*, mentions, that if the *Mediaſtinum*, which is naturally a ſingle Membrane, be divided into two Parts, the Speech will ſeem to come out of the Breaſt; ſo that the By-ſtanders will fancy the Perſon poſſeſs'd. See ENGASTRIMANDER.

The Word is a Compound of *Venter*, and *loquor*, I ſpeak.

VENTURINE, in Natural Hiſtory. See ADVENTURINE.

VENTURINE, or ADVENTURINE, is likewiſe uſed for the fineſt and ſlendereſt Gold Wire, uſed by Embroiderers, *&c.* See *Gold* WIRE.

When reduced into Pouder, as fine as it can be clip'd, or filed, this Pouder may be ſtrew'd on the firſt Layer of pure Varniſh, made uſe of in Japanning, after the Varniſh is dry, in order to lay any Colour over it. See JAPANNING.

VENUE, or VENEW, in Law, a neighbouring or near Place.—*Locus quem vicini habitant.*

Thus, we ſay, Twelve of the Aſſize ought to be of the ſame *Venew* where the Demand is made. See ASSIZE.

——*And alſo return in every ſuch Pannel upon the* Venire Facias, *ſix ſufficient Hundreders*, at the leaſt, *if there be ſo many within the Hundred where the* Venire *lies.* Stat. 25. Hen. VIII. See VISNE.

VENUS, in Aſtronomy, one of the inferior Planets; denoted by the Character ♀. See PLANET.

Venus is eaſily diſtinguiſh'd by her brightneſs, which exceeds that of all the other Planets, and which is ſo conſiderable, that in a very dark Place ſhe projects a ſenſible Shadow. Her Place is between the Earth and Mercury.

She conſtantly attends the Sun, and never departs from him above 47 Degrees: When ſhe goes before the Sun, that is, riſes before him, ſhe is call'd *Phoſphorus*, or *Lucifer*, or the *Morning Star*; and when ſhe follows him, that is, ſets after him, *Heſperus*, or *Veſper*. See PHOSPHORUS, VESPER, *&c.*

The Semidiameter of *Venus*, is to that of the Earth, as 10 to 19; her Diſtance from the Sun is $\frac{723}{1000}$ of the Earth's diſtance from the Sun: her Excentricity 5; the Inclination of her Orbit 3° 23′. See INCLINATION, EXCENTRICITY, *&c.*

Her periodical Courſe round the Sun, is perform'd in 224 Days 17 Hours; and her Motion round her own Axis, in 23 Hours. See PERIOD, and REVOLUTION.

Her greateſt Diſtance from the Earth, according to *Caſſini*, is 38000 Semidiameters of the Earth; and her ſmalleſt 6000. See DISTANCE.

Her Parallax is 3 Minutes. See PARALLAX.

Venus, when view'd thro' a Teleſcope, is rarely ſeen to ſhine with a full Face, but has Phaſes juſt like thoſe of the Moon; being now gibbous, now horned, *&c.* and her illumin'd Part conſtantly turn'd towards the Sun, *i. e.* it looks towards the Eaſt when *Phoſphorus*, and towards the Weſt when *Heſperus*. See PHASES.

De la Hire, in 1700, thro' a Teleſcope of 16 Feet, diſcover'd Mountains in *Venus*; which he found to be larger than thoſe in the Moon. See MOON.

And *Caſſini* and *Campani*, in the Years 1665 and 1666, diſcover'd Spots in her Face: from the Appearances of which, he aſcertain'd her Motion round her Axis. See SPOTS.

Sometimes ſhe is ſeen in the Diſk of the Sun, in form of a dark, round Spot. See TRANSIT.

In 1672, and 1686, *Caſſini*, with a Teleſcope of 34 Feet, thought he ſaw a Satellite moving round this Planet, and diſtant from it about $\frac{3}{5}$ of *Venus*'s Diameter. It had the ſame Phaſes as *Venus*, but without any well defin'd Form; and its Diameter ſcarce exceeded $\frac{1}{4}$ of that of *Venus*.

Dr. *Gregory* thinks it more than probable that this was a Satellite; and ſuppoſes the Reaſon why it is not uſually ſeen, to be the unfitneſs of its Surface to reflect the Rays of the Sun's Light; as is the Caſe of the Spots in the Moon: of which, if the whole Diſk of the Moon were compos'd, he thinks, that the Planet could not be ſeen as far as to *Venus*. See SATELLITE.

The Phænomena of *Venus*, evidently ſhew the Falſity of the *Ptolemaic* Syſtem: For that Syſtem ſuppoſes, that *Venus*'s Orb, or Heaven, encloſes the Earth; paſſing between the Sun and Mercury. And yet all our Obſervations agree, that *Venus* is ſometimes on this ſide the Sun, and ſometimes on that; nor did ever any body ſee the Earth between *Venus* and the Sun: which yet muſt frequently happen, if *Venus* revolved round the Earth in a Heaven below the Sun. See SYSTEM, EARTH, *&c.*

VENUS, in Chymiſtry, is uſed for the Metal *Copper*. See COPPER.

Its Character is ♀; which, ſay the *Adepti*, expreſſes it to be Gold, only join'd with ſome corroſive and arſenical Menſtruum; which removed, Copper would be Gold. See GOLD.

Venus is univerſally allow'd, by the Chymiſts, *&c.* to be one of the moſt powerful Medicines in Nature: Of this, is ſaid to have been compos'd the famous *Butler*'s *Stone*, which cured moſt Diſeaſes by only licking it.——Of this is compos'd that noble Remedy of *Van Helmont*, *viz.* the Sulphur of Vitriol, or *Ens Vitrioli*, fix'd by Calcination, and Cohobation.——Of the *Ens Vitrioli* of *Venus*, is likewiſe compoſed Mr. *Boyle*'s Arcanum, the *Colcothar Vitrioli*. See VITRIOL.

'Tis certain, Copper is a moſt excellent Emetic, and a noble Antidote againſt Poiſons; for it is no ſooner taken than it exerts its force: whereas other Vomitories lie a good while in the Stomach: But one ſingle Grain of Ruſt of *Venus* immediately vomits. See Emetic.

Hence, Syrups that have ſtood over-night in Copper Veſſels, create a vomiting.

It is alſo an excellent Medicine in Chronical Caſes: Hence a famous Phyſician is recorded to have cur'd *Charles* V. of a Dropſy by the Uſe of *Copper*.

Venus is diſſoluble by all the Salts known, both Acid, Alkaline, and Nitrous; nay, even by Water and Air, conſider'd as they contain Salt. See Diſſolution, Salt, *&c.*

'Tis from this common Reception of all Menſtruums, that Copper is called *Venus*, q. d. *meretrix publica*, a common Proſtitute: The others take the Denomination to have been occaſion'd by its turning of a Sea-green Colour, when diſſolved by Acids.

Mount of Venus, *Mons* Veneris, among Anatomiſts, is a little hairy Protuberance, in the middle of the *Pubes* of Women; occaſion'd by the more than ordinary Collection of Fat under the Skin in that Place. See Pubes.

Among Chiromancers, the *Mount of Venus* is a little Eminence in the Palm of the Hand, at the Root of one of the Fingers.

VERB, in Grammar, a Word ſerving to expreſs what we affirm of any Subject, or attribute to it; as the Words *is*, *underſtands*, *hears*, *believes*, &c. See Word.

The *Verb* is thus called of the Latin *Verbum*, Word, by way of Eminence; as being the principal Word of a Sentence. See Sentence.

The common Definition given by Grammarians, is, that a *Verb* is a Word which betokens being, doing, or ſuffering.

To conceive the Origin and Office of *Verbs*, it may be obſerved, that the Judgment we make of any thing, as when I ſay *the Earth is round*, neceſſarily includes three Terms. See Term.

The firſt, called the *Subject*, is the Thing we affirm of, *e. g. Earth*. See Subject.

The ſecond, called the *Attribute*, is the Thing affirm'd, *e. g. round*. See Attribute.

The third, *is*, connects thoſe two Terms together, and expreſſes the Action of the Mind, *affirming* the Attribute of the Subject. This laſt is what we properly call the *Verb*, and which ſome of our later Grammarians, particularly the Port Royaliſts, chuſe to call by a more ſignificant Word, *Affirmation*. See Affirmation.

The Reaſon is, that its principal Uſe is to ſignify *Affirmation*; that is, to ſhew that the Diſcourſe wherein that Word is uſed, is the Diſcourſe of a Man, who does not only conceive Things, but judges and affirms ſomewhat of them.

By this Circumſtance, a *Verb* is diſtinguiſh'd from Nouns which alſo ſignify an Affirmation, as *affirmans affirmatio*; thoſe only ſignify an Affirmation, as that, by a Reflection of the Mind, is render'd an Object of Thought: ſo, that they don't ſhew that the Perſon who uſes 'em *affirms*, but only that he conceives *an Affirmation*.

Tho the principal Uſe of *Verbs* be to ſignify Affirmation; they alſo ſerve to expreſs the other Motions of the Soul: as to deſire, pray, command, *&c.* but this they only do by changing the Mood, or Inflexion; which we ſhall conſider under the Article Mood.

Here, we only conſider the *Verb* in its primary Signification, which is that it has in the *Indicative* Mood.

On this Footing, the *Verb* ſhould have no other uſe, but to mark the Connection which we make in the Mind, between the two Terms of a Propoſition; but the *Verb eſſe*, *to be*, is the only one that has retain'd this Simplicity: nor, in ſtrictneſs, has this retain'd it, but in the third Perſon; as *eſt*, is.

In effect, Men being naturally inclin'd to ſhorten their Expreſſions, to the Affirmation they have almoſt always added other Significations, in the ſame Word: Thus, *e. g.* they add that of ſome Attribute, ſo as that two Words make a Propoſition; as in *Petrus vivit*, *Peter* lives: where *vivit* includes both the Attribute and Affirmation; it being the ſame thing to ſay *Peter lives*, as that *Peter is living*. And hence the great Variety of *Verbs* in every Language.

For, had the People been contented to give the *Verb* its general Signification, without any additional Attribute, each Language would only have needed one *Verb*, *viz.* the *Verb* Subſtantive *eſt*, is.

Again, on ſome Occaſions, they alſo ſuperadd the Subject of the Propoſition, as *Sum homo*, *I'm a Man*; or *vivo*, *I live*: And hence the diverſity of *Perſons* in *Verbs*. See Perſon.

Again, we alſo add to the *Verb*, a Relation to the Time with regard to which we affirm; ſo that one ſingle Word, as *cœnaſti*, ſignifies that I attribute to the Perſon I ſpeak, the Action of Supping, not for the preſent Time, but for the paſt: And hence the great diverſity of *Tenſes* in moſt *Verbs*. See Tenſe.

The diverſity of theſe Significations, or Additions in the ſame Word, has perplex'd and deceiv'd many of our beſt Authors in the Nature of a *Verb*; and led 'em to conſider it, not according to what is eſſential to it, which is *to affirm*; but according to ſome of its accidental Relations.

Thus, *Ariſtotle*, taking up with the third of thoſe additional Significations, defines *Verb* to be *Vox ſignificans cum tempore*; a Word ſignifying ſomething with Time.

Others, as *Buxtorf*, adding the ſecond Relation, define it, *Vox flexilis cum tempore & perſona*; a Word admitting of divers Inflexions, in reſpect of Time and Perſon.

Others, taking up with the firſt of the additional Significations, which is that of the Attribute, and conſidering that the Attributes Men ordinarily add to the Affirmation, were Actions and Paſſions; have ſuppoſed the Eſſence of a *Verb* to conſiſt in ſignifying *Actions, or Paſſions*.

Laſtly, *Scaliger* imagin'd he had made a great Diſcovery in his Book of the *Principles of the* Latin *Tongue*, in ſaying, that the Diſtinction of Things into *Permanentes*, and *Fluentes*, into what remain, and what paſs away, is the proper Source of the Diſtinction between Nouns, and *Verbs*; the firſt being to ſignify what remains, and the ſecond what paſſes.

But from what we have ſaid, 'tis eaſy to perceive, that theſe Definitions are all falſe; and that the only true Definition is, *Vox ſignificans Affirmationem*: This Definition includes all that is eſſential to the *Verb*; but if one would likewiſe include its principal Accidents, one might define it, *Vox ſignificans Affirmationem, cum deſignatione Perſonæ, Numeri, & Temporis*; a Word which ſignifies an Affirmation, with a Deſignation of Perſon, Number, and Tenſe: which is what properly agrees to the *Verb* Subſtantive *eſt*.

For as to other *Verbs*, conſider'd as becoming different by the union of certain Attributes, one may define 'em thus; *Vox ſignificans Affirmationem alicujus attributi, cum deſignatione Perſonæ, Numeri, & Temporis*; a Word which expreſſes the Affirmation of ſome Attribute, with a Deſignation of Perſon, Number, and Time.

Verbs are variouſly divided; with reſpect to the Subject, they are divided into, *Active*, *Paſſive*, *Neuter*, &c. with reſpect to their Inflexions, into *Regular*, and *Irregular*; *Perſonal*, and *Imperſonal*; *Auxiliary*, *Subſtantive*, &c.

Verb *Active*, is a *Verb* which expreſſes an Action that falls on another Subject, or Object. See Active.

Such are *I love*, *I work*, &c. which ſignify the Action of Loving, Working, *&c.*

Of theſe, Grammarians make two Kinds; the one call'd *Tranſitive*, and the other *intranſitive*, or *reciprocal*. See Tranſitive, *&c.*

Verb *Paſſive*, is that which expreſſes a Paſſion; or which receives the Action of ſome Agent; and which is conjugated in the modern Tongues with the Auxiliary *Verb I am*, *je ſuis*, *jo ſo*, &c. See Auxiliary.

Some don't allow of any *Verbs Paſſive* in theſe Languages: The Reaſon is, that what we call *paſſive*, is nothing but the Participle of the *Verb*, join'd with the Auxiliary Verb *to be*; whereas the *Verbs Paſſive* of the *Latin*, &c. have their particular Terminations. See Paſſive.

Verb *Neuter*, is that which ſignifies an Action that has no particular Object whereon to fall; but which of it ſelf takes up the whole Idea of the Action: as, *I ſleep*, *thou yawn'ſt*, *he ſnores*, *we walk*, *you run*, *they ſtand*.

The *Latins* call 'em *Neuters*, by reaſon they are neither Active nor Paſſive; tho they have the Force and Signification of both: as *I languiſh*, ſignifies as much as *I am languiſhing*; *I obey*, as much as *I exerciſe Obedience*, &c. only that they have no Regimen to particularize this Signification.

Of theſe *Verbs* there are ſome which form their Parts by the Auxiliary Verb *to have*; as, *I have ſlept*, *you have run*.

Theſe, Grammarians call *Neuters Active*.

Others there are, which form their compound Parts by the Auxiliary *to be*; as, *to come*, *to arrive*, &c. for we ſay, *I am come*, not *I come*, &c. Theſe are call'd *Neuters Paſſive*.

Verb *Subſtantive*, is that which expreſſes the Being, or Subſtance which the Mind forms to it ſelf, or ſuppoſes in the Object; whether it be there, or not: as, *I am*, *thou art*. See Subſtantive.

Auxiliary, or *Helping* Verbs, are thoſe which ſerve in conjugating Active and Paſſive *Verbs*: ſuch are, *I am*, *I have*, &c. See Auxiliary.

The Abbot *de Dangeau* diſtinguiſhes all *Verbs* into two general Kinds; *Auxiliary Verbs*, and *Verbs* which make uſe of Auxiliaries.

This Diſtinction ſome may tax as not very juſt; in regard, *Auxiliary Verbs* ſometimes make uſe of Auxiliaries themſelves; but this does not deſtroy the Diviſion: it only ſhews, that the *Auxiliary Verb* has two Formalities, or two different Qualities to be conſider'd under; in virtue whereof, it conſtitutes, as it were, two *Verbs*.

The *Verbs* which make uſe of Auxiliaries, he divides into *Active*, *Neuter*, and *Pronominal*.

Verbs Neuter he diſtinguiſhes into *Neuters Active*, and *Neuters Paſſive*. *Pronominals* he diſtinguiſhes into *Identic*, *Reciprocal*, *Neutrized*, and *Paſſived*.—But ſeveral of theſe are peculiar to the *French* Language.

Verbs, in the *Engliſh*, and moſt modern Tongues, do not change their Endings, as in *Latin*, to denote the ſeveral Times, Modes, *&c.* of their being, doing, or ſuffering; but in lieu thereof, make uſe of *Auxiliaries*; as, *have*, *am*, *be*, *do*, *will*, *ſhall*, *may*, *can*, &c.

Regular VERBS, are thoſe which are conjugated after ſome one Manner, Rule, or Analogy. See CONJUGATION.

Irregular, or *Anomalous* VERBS, are thoſe which have ſomething ſingular in the Terminations, or Formations of their Tenſes.

The Irregularities in our *Engliſh Verbs*, lie wholly in the Formation of the Preter Tenſe, and Paſſive Participle.

The firſt, and moſt general Irregularity, took its Riſe from the quickneſs of our Pronunciation, by changing the Conſonant *d* into *t*; the Vowel *e*, in the regular Ending *ed*, being cut off, that the Pronunciation might be more ready: Thus, for *dwelled*, *keeped*, *ſended*, we ſay, *dwelt*, *kept*, *ſent*.

VERBS *Imperſonal*, are thoſe which have only a third Perſon; as, *it behoves*, &c.

There are alſo *Reduplicative Verbs*, as *reſound*, *recall*, &c. *Frequentative Verbs*, &c.

VERBAL, ſomething that belongs to *Verbs*, or even to Words, ſpoke with the Mouth.

Thus, *Verbal* Nouns are thoſe form'd from Verbs. See NOUN.

So, a *Verbal* Contract, is that made merely by Word of Mouth; in oppoſition to that made in Writing. See CONTRACT, *&c.*

VERBERATION, *Smiting*, in Phyſicks, a Term uſed to expreſs the Cauſe of Sound, which ariſes from a *Verberation* of the Air, when ſtruck, in divers manners, by the ſeveral Parts of the ſonorous Body firſt put into a vibratory Motion. See SOUND.

The Word is form'd from the Latin *Verbero*, I ſmite.

VERDEGREASE, VER-DE-GRIS, a kind of Ruſt of Copper, of great uſe among Painters, for a green Colour. See COLOUR.

Verdegreaſe is prepar'd from Copper Plates, and Huſks of Grapes well ſaturated with Wine, put up in earthen Pots; and ranged, *ſtratum ſuper ſtratum*, that is, firſt Huſks, then Copper; and ſo alternately.

When the Pots are fill'd, they are ſet in the Cellar; whence, after ſome time, they are taken out, to gather the *Verdegreaſe*, which is a green Ruſt, covering the Plates all over. See RUST, and COPPER.

Some talk of *Verdegreaſe* made with Vinegar, and other corroſive Salts; but 'tis a Miſtake: the beſt Wine being nothing too good for the purpoſe.

Accordingly, the greateſt Part of the *Verdegreaſe* conſum'd in *Europe*, is made in *Languedoc*, of the Wines of that Country; and is exported in Cakes, about 25 Pounds weight each.

There is but very little quite pure: To be good, it muſt be very dry, of a deep green, and pretty clear of white Spots.

The Word is form'd from the Latin *Viride æris*: 'Tis alſo called *Ærugo*. Others call it the *Flower*, and others the *Vitriolic Salt of Copper*; tho, in reality, it be the proper Subſtance thereof. See VITRIOL.

The Apothecaries uſe to diſſolve *Verdegreaſe* in diſtill'd Vinegar, and then filtrate, and evaporate it in the Cellar; upon which it ſhoots into Cryſtals. Theſe Cryſtals are uſed among Chirurgeons, *&c.* to eat off the fungous Fleſh.

The Painters alſo uſe it for a green Colour; eſpecially in Works of Miniature. See GREEN, *&c.*

VERDERER, or VERDEROR, a Judicial Officer of the King's Foreſt, whoſe Buſineſs is to look to the Vert, and ſee it well maintain'd. See VERT.

He is ſworn to keep the Aſſizes of the Foreſt; as alſo to view, receive, and enroll the Attachments and Preſentments of all manner of Treſpaſſes, relating to Vert and Veniſon therein. See FOREST.

The Word is form'd from the Latin *Viridarius*, which *Ulpian* uſes in the ſame Signification.

VERDETER. See VERDITER.

VERDICT, is the Anſwer of the Jury, made upon any Cauſe, Civil or Criminal, committed by the Court to their Examination. See JURY.

'Tis called *Verdict*, for *Vere dictum*, q. d. *dictum veritatis*, the Dictate of Truth.

A *Verdict* is either *General*, or *Special*.

A General VERDICT, is that which is brought into the Court in like general Terms as the general Iſſue: As in Action of Diſſeiſin, the Defendant pleadeth, No Wrong, no Diſſeiſin. Then the Iſſue is general, whether the Fact be wrong, or not: which being committed to the Jury, they, upon Conſideration of the Evidence, come in and ſay, either for the Plaintiff, That it is a wrong Diſſeiſin; or for the Defendant, That it is no Wrong, no Diſſeiſin.

A Special VERDICT, is, when they ſay at large, that ſuch and ſuch a Thing they found to be done by the Defendant or Tenant; declaring the Courſe of the Fact, as in their Opinion it is proved; and as to the Law, upon the Fact, praying the Judgment of the Court.

This *Special Verdict*, if it contain any ample Declaration of the Cauſe from the beginning to the end, is alſo called a *Verdict at large*.

Item utimur quod Balivi & Coronatores Burgi noſtri uſi fuerint & adhuc utuntur recipere Veredictum *duodecim Juratorum ex quacunque Cauſa, infra Burgum Noſtrum prædictum, ſeu ejus Libertatem emergenti, ſive contingenti, Seneſchalli præſentia, nullo modo expectata.* MS. Cod. & Stat. Burg. Vill. *de Mountgoner*. See JUROR.

VERDITER, VERDETER, or VERDITURE, a Drug, uſed by the Painters, *&c.* for a green Colour. See GREEN.

Verditer is, properly, a native Mineral Subſtance, of a ſtony Conſiſtence, and a blue Colour; but ſpangled with little ſhining Points like Gems; brought from the Mountains of *Hungary* and *Moravia*; called alſo *Lapis Armenius*.

Of this, well ground, and cleans'd by Lotion, ſhould be made the Painter's green called *Verditer*. See COLOUR.

But this Stone is very rare; and the *Verditer* uſed, is not a native but a factitious Subſtance: the proper way of preparing it, we are told, is by caſting Wine or Water upon new Copper, juſt as it comes red hot out of the Furnace, and catching the Steams which riſe from it upon Copper Plates. Others ſay, 'tis prepar'd by diſſolving Copper Plates in Wine; much after the manner of Verdegreaſe. But the Method in practiſe among us, is as follows:

Into an hundred Pounds weight of Whiting, the Refiners pour their Copper Water, and ſtir them together, every Day for ſome Hours, till the Water grows pale: Then they pour that away, and ſet it by for farther uſe; and pour on more of the green Water, and ſo till the *Verditer* be made: which being taken out, is laid on large pieces of Chalk in the Sun, till it be dry, for the Market.

The Water mention'd to be pour'd off from the *Verditer*, (which remains at the bottom of a Tub) is put into a Copper, and boil'd till it come to the thickneſs of Water-Gruel: now, conſiſting principally of Salt-petre reduced, moſt of the Spirit of Vitriol being gone with the Copper into the *Verditer*; and a Diſh full of this being put into the other Materials for Aqua fortis; is re-diſtill'd, and makes what they call a double Water, which is near twice as good as that made without it.

VERDOY, in Heraldry, is applied to a Bordure of a Coat of Arms; charg'd with any Kinds, or Parts of Flowers, Fruits, Seeds, Plants, *&c.*

VERDURE, the Quality of Greenneſs. See GREEN.

The Word is *French*, form'd of *Verd*, green.

VERGE, a Rod, Switch, or Yard; particularly a Stick or Wand, which Perſons are admitted Tenants by holding in their Hands, and ſwearing Fealty to the Lord of the Manor. See INVESTITURE.

On this account, they are call'd *Tenants by the Verge*. See TENANT.

Among Floriſts, a *dented Verge*, is a jagged edge or outſide of a Leaf.

VERGE is alſo the Compaſs or Extent of the King's Court; within which is bounded the Juriſdiction of the Lord Steward of the King's Houſhold, and of the Coroner of the King's Houſe. See COURT, HOUSHOLD, *&c.*

It is thus call'd, from the *Verge*, or Staff which the Marſhal bears.

The Lord Steward, by virtue of his Office, without any Commiſſion, judges of all Tranſgreſſions, as Treaſons, Murders, Felonies, Bloodſhed, *&c.* committed in the Court, or within the *Verge* thereof; which extends every way the Space of twelve Miles from the chief Tunnel of the Court; only *London* by Charter exempted. See *Lord* STEWARD.

This was antiently called *Pax Regis*, or the *King's Peace*. See PEACE.

Court of VERGE, is a Court or Tribunal, in manner of a King's-Bench; which takes cognizance of all Crimes and Miſdemeanors committed within the *Verge*.

It is held in the Compting-Houſe, by the Lord Steward, as Judge thereof, aſſiſted by other Officers of the Houſhold; as, the Treaſurer, Comptroller, Cofferer, Clerks of the Green-Cloth, *&c.* See GREEN-*Cloth*, &c.

VERGE *of Land*. See YARD *Land*.

VERGERS, call'd by *Bracton*, &c. *Vergatores Servientes*, are Officers who carry white Wands before the Juſtices of either Bench; by others call'd *Porters of the Verge*. See PORTER.

VERGERS *of Cathedral or Collegiate Churches*, are inferior Officers, who go before the Biſhop, Dean, *&c.* with a *Verge*, or Rod tip'd with Silver.

VERGILIÆ, Conſtellations, whoſe appearance denote the Approach of the Spring. See SPRING.

According to the Poets, they were the Daughters of *Atlas*; and by the *Greeks* were call'd *Pleiades*: but the *Romans* named them *Vergiliæ*. See PLEIADES.

VERIFICATION, the Act of proving, or making a thing good.

In the *French* Law, *Verifying* is uſed for the recording of the King's Edicts and Decrees by the Parliament.

VERISIMILITUDE. See PROBABILITY.

VERJUICE, a Juice or Liquor, drawn from ſour Grapes, or Apples, unfit for Wine, or Cyder; or from ſweet ones, while yet acid, and unripe. See CYDER.

Its chief uſe is in Sauces, Ragouts, *&c.* tho it is alſo an Ingredient in ſome Medicinal Compoſitions; and is uſed by the Wax-Chandlers to purify their Wax.

It has its Name from a large Grape, call'd *Verjus*, or *Bourdelas*; which is ſaid never to grow perfectly ripe; or rather, which in its utmoſt Maturity is too auſtere and ſour to be us'd in Wine; whence it is commonly turn'd into *Verjuice*.

There is alſo a tolerable *Verjuice* made of Crabs, gather'd, laid in a heap to ſweat, the Stalks, *&c.* ſeparated, then ſtamp'd or ground, and the Crab-maſh put in a hair Bag; the Juice ſqueez'd out in a Preſs, barrell'd up cloſe, and ſet in a warm Place to work for ten or twelve Days.

VERMES, in Medicine, a Diſeaſe popularly call'd *Worms*; ariſing from ſome of thoſe Reptiles being generated, and growing in the Body: whence, frequently, dire Symptoms proceed. See WORMS.

The ordinary Place of the Worms is the Inteſtines: Tho there is ſcarce any Part of the Body but is ſometimes infected with 'em: For beſides the *Vermes Inteſtinales*, there are *Dentales*, *Gingivales*, *Pulmonarii*, *Cardiaci*, *Sanguinarii*, *Urinarii*, *Cutaneous*, *Umbilicales*, Worms *in the Liver*, the *Saliva*, *&c.*

They are all ingender'd from the Eggs of ſome Inſect, depoſited in ſomething that is taken into the Body by way of Food, or ſome other way.

There are three Species of Worms, moſt frequent in the human Body: The *Teretes*, or round and long, moſtly found in the *Duodenum*; the *Latus*, or flat, call'd *Tænia*; and the round and ſhort, found in the *Rectum*, and call'd *Aſcarides*. See ASCARIDES, *&c.*

Sometimes, indeed, there are anomalous Worms expell'd; as horned, hairy, four-footed, two-headed, *&c.*

The Symptoms of the Diſeaſe are, Vomiting, Head-ach, Heart-burn, Sighing, Swooning, feeble Pulſe, heavy Sleep, Deliria, Squinancy, Pleuriſy, canine Hunger, and innumerable others; occaſion'd by the Animal's ſucking, moving, vellicating, gnawing, conſuming the Chyle; irritating the Nerves, wounding the Solids, *&c.*

As to the *Latus*, beſide the other common Symptoms, thoſe affected with this have one peculiar to 'em; which is, that with their Stools they diſcharge ſeveral little Bodies, like Gourd-Seeds.

Dr. *Tyſon*, in the *Philoſophical Tranſactions*, N° 146. gives a curious account of the *flat Worm*, or *Lumbricus latus*; call'd by *Hippocrates* Ταινια, and in *Engliſh*, ordinarily, the *Tape-Worm*, or *Jointed Worm*.

This Worm is always ſingle: It lies variouſly convoluted; being ſometimes as long as all the Guts, and ſometimes vaſtly exceeds that length.

Olaus Borrichius aſſures us, a Patient of his, in a Year's time, voided 800 Foot of this ſort of Worm, tho he had not yet met with the Head: in voiding, the Patient always perceiv'd it to break off.

Dr. *Tyſon* parallels this Caſe with that of a Patient of his, who voided vaſt Quantities of this Worm, for ſeveral Years together: but in various Pieces; ſome two, three, four, ſix, or more Yards long: But all put together, he ſays, would much exceed the length of that of *Borrichius*.

The Joints in this Worm are very numerous: In one of 24 Foot long, Dr. *Tyſon* number'd 507 Joints. Above the middle of the Edges of each Joint, he obſerv'd a protuberant Orifice.—Thoſe Orifices he takes for ſo many *Mouths*; the beſt Microſcopes diſcovering no Mouth in the Head.

The Worm is frequent enough in moſt Kinds of Animals; as Dogs, Oxen, Crabs, Herrings, Pikes, *&c.*

Some Authors aſſert, that it is not one, but many Worms link'd together, and included in a *Spolium* of the Inteſtines; and that this *Spolium* is not animated, but receives its Senſe and Motion from *Vermiculi*, or *Cucurbitini* incloſed in it. This, *Gabucinus*, *de Lumb. Com.* ſays, he has plainly diſcover'd: But Dr. *Tyſon* abundantly evinces the contrary.

VERMICELLI, or VERMICELLY, is, properly, a kind of Meſs, prepar'd of Flower, Cheeſe, the Yolks of Eggs, Sugar, and Saffron; and reduc'd into little long Pieces, or Threads, like Worms, by forcing it with a Piſton thro' a number of little Holes in the end of a Pipe made for the purpoſe.

It was firſt brought from *Italy*, where it is in great vogue. In effect, 'tis the great regale of the *Italians*. Other Nations are hardly brought into the Taſte of it.

It is chiefly uſed in Soupes and Pottages, to provoke Venery.——

The Word, in the original *Italian*, ſignifies *little Worms*: They alſo call it *Tagliarini*, and *Millefanti*.

VERMICULAR, an Epithet given to any thing that bears a relation, or reſemblance to Worms, *Vermiculi*.

Anatomiſts particularly apply it to the Motion of the Inteſtines, and certain Muſcles of the Body. See INTESTINE, *&c.*

The *Vermicular*, or Periſtaltic Motion of the Inteſtines, is perform'd by the Contraction of the Fibres thereof, from above, downwards; as the Antiperiſtaltick Motion is by their Contraction from below, upwards. See PERISTALTIC.

The Contraction happening in the *Periſtaltic*, which others call the *Vermicular* Motion, as reſembling the Motion of Worms, does not affect all the Parts of the Inteſtines at once; but one part after another.

VERMICULAR *Work*, *Opus Vermiculatum*, in Sculpture, a ſort of Ornaments uſed in Ruſtick Work; conſiſting of Frets, or Knobs, cut with Points, repreſenting, in ſome ſort, the Tracks made by Worms. See MOSAIC.

VERMIFORMIS, in Anatomy, a Term applied to various Parts in the human Body; bearing ſome reſemblance to Worms.

Such are the *Proceſſus*, or *Apophyſes Vermiformes*; which are the two Extremities of the *Cerebellum*, ſituate near the fourth Ventricle. See CEREBELLUM.

VERMIFORMES *Muſculi*, are the four Muſcles in each Hand and Foot, which bring the Fingers and Toes towards the Thumbs and great Toes; call'd alſo *Lumbricales*. See LUMBRICALES.

VERMIFUGUS. See WORM-*Pouder*.

VERMILION, a very bright, beautiful, red Colour; in great eſteem among the Antients, under the Denomination *Minium*. See RED, and COLOUR.

There are two Kinds of it; the one *Natural*, the other *Factitious*.

The *Natural* is found in ſome Silver Mines, in form of a ruddy Sand; which they prepare, and purify by ſeveral Lotions and Coctions.

The *Artificial* is made of Mineral Cinnabar, ground up with Aqua vitæ and Urine, and afterwards dry'd.

They alſo make it of Lead burnt and waſh'd; or of Ceruſſe, prepared by Fire: But this is not properly denominated *Vermilion*, but *red Lead*. See LEAD.

'Tis this laſt, however, that ſeems to be the real *Minium* of the Antients; and accordingly, the Apothecaries and Painters ſtill give it the Name, to enhance the Price. See MINIUM.

The antient *Greek* and *Latin* Authors, have given us ſtrange fabulous Accounts of this *Minium*; and ſeveral of the Moderns have adopted their Dreams: *Theophraſtus* attributes the firſt Invention of making it to *Callias* the *Athenian*; who hit upon it, in endeavouring to draw Gold by Fire out of a red Sand found in the Silver Mines, in the Year of *Rome* 249: But *Vitruvius* ſays, it was diſcover'd in the *Cilbian Fields*; where it was drawn from a red Stone, call'd by the Greeks *Anthrax*.

We have two Kinds of *Vermilion* from *Holland*; the one of a deep red, the other pale: But 'tis the ſame Stuff at bottom; the difference of Colour only proceeding from the Cinnabar's being more or leſs ground: when fine ground, the *Vermilion* is pale; and this is prefer'd to the coarſer and redder.

It is of conſiderable uſe among the Painters in Oil, and Miniature; and likewiſe among the Ladies, as a *Fucus*, or Paint, to heighten the Complexion of ſuch as are too pale. See PAINTING, MINIATURE, *&c.*

Among the Antients, the Images of the Gods were painted with *Vermilion* on the Feaſt-Days; and their Generals on the Days of Triumph. See CINNABAR.

Vermilion is ſometimes alſo, tho improperly, uſed for what we otherwiſe call *Kermes*, or *Scarlet* Grain. See KERMES, *&c.*

VERMINATION, the Act of breeding of Worms, and other Vermine; particularly Bots in Cattel.

VERMINATION, is ſometimes alſo uſed among Phyſicians, for a ſort of *Tormina Ventris*, or wringing of the Guts; wherein the Patient is affected, as if Worms were gnawing his Inteſtines. See GRIPES.

VERMINE, a collective Name, including all Kinds of little Animals, or Inſects, which are hurtful or troubleſome to Men, Beaſts, Fruits, *&c.* as Lice, Fleas, Bugs, Caterpillars, Ants, Flies, *&c.* See INSECT, WORM, BLIGHT, *&c.*

VERMIVOROUS *Animals*, are ſuch as feed upon Worms. See ANIMAL.

VERNACULAR, is applied to any thing that is peculiar to ſome one Country.

Whence, Diſeaſes which reign moſt in any particular Nation, Province, or Diſtrict, are called *Vernacular Diſeaſes*. See DISEASE.

Such are the *Plica Polonica*, *Scorbutus*, *Tarantiſm*, &c. See PLICA, SCORBUTUS, TARANTISM, *&c.*

VERNAL, ſomething belonging to the Spring Seaſon. See SPRING.

Hence, *Vernal Leaves*, are thoſe Leaves of Plants which come up in the Spring, *&c.* See LEAVES.

VERNAL *Signs*, are thoſe which the Sun is in during the Spring Seaſon, *viz.* Aries, Taurus, and Gemini. See SIGNS.

VERNAL *Equinox*, is that which happens when the Sun is aſcending from the Equator towards the North Pole. See EQUINOX.

VERONICA, a Term abbreviated from *Vericonica*, of *Veraicon*, q. d. *true Image*; and applied to Portraits or Repreſentations of the Face of our Saviour on Handkerchiefs.

Veronica's are Imitations of that celebrated Original one, preſerv'd with great Veneration at St. *Peter*'s in *Rome*; and imagin'd by ſome to be the Handkerchief laid over our Saviour's Face in the Sepulchre.

The firſt mention we find of that celebrated Relick, is in a Ceremonial compiled in 1143, dedicated to Pope *Celeſtin*, by *Benedict* a Canon of St. *Peter*'s: But there is no mention made of the Time when it was brought to *Rome*. A Feaſt is kept in honour thereof in moſt Churches, on the *Tueſday* in *Quinquageſima* Week.

It is to be obſerv'd, that the Name *Veronica* is only given to ſuch Handkerchiefs as repreſent no more of our Saviour than his Face: For ſuch as repreſent his whole Body, as that of *Beſancon*, which ſhews his Fore-part at length, and that of *Turin*, which repreſents both his fore and hind Part, as having cover'd him all over; were never call'd by this Name.

The Painters ſometimes make the *Veronica* to be held up by an Angel, but moſt commonly by a Woman; which Woman the common People imagine to be a Saint, call'd Saint *Veronica*.

On this Principle, ſome People, towards the Cloſe of the IXth Century, began to fancy there might have been a Woman of that Name in *Jeruſalem*, who had preſented her Handkerchief to our Saviour, as he went to *Calvary*, to wipe his Face withal, beſmear'd, as it was, with Sweat and Blood; and that the Picture of his Face had been miraculouſly impreſs'd thereon.

This was no ſooner imagin'd by ſome, than it was believ'd by others: And accordingly, we find by the Travels of *Bernard de Bredemback* Dean of *Mentz*, to the Holy Land in 1483, printed in 1502, that it was not long ere her very Houſe was found out.

From that time the Fiction gain'd ground, and became a current Legend.

It was at length added, that this ſame Woman, S. *Veronica*, was the Woman troubled with the Flux of Blood in the Goſpel: and accordingly, ſhe was ſoon join'd with S. *Fiacrius*, and invok'd together with him againſt the Hemorrhoids.—And hence the Eſtabliſhment of Feaſts in honour of S. *Veronica*, in the Churches dedicated to S. *Fiacrius*.

In ſome of theſe Churches, particularly at S. *Giles*'s in *Valenciennes*, this Saint is commonly call'd S. *Venice*, by Abreviation from the Genitive *Veronicæ*: And the Women have a Cuſtom at certain times of the Year, to hang linen Swathes, wherewith they had girt themſelves for nine Days, near her Statue.—And 'tis thence, or rather, from our Saviour's Picture expreſs'd on the linen Handkerchief, that the Milleners have taken S. *Veronica*, or, as they call her, S. *Veniſſe*, or S. *Venecia*, or *Veniſa*, for their tutelary Saint.

VERRUCA, in Medicine. See WART.

Hence, *Verrucous* is applied to any Excreſcencies which have a reſemblance to Warts.

VERRY, in Heraldry. See VAIRY.

VERSE, in Poetry, a Line, or Part of a Diſcourſe, conſiſting of a certain Number of long and ſhort Syllables, which run with an agreeable Cadence; the like being reiterated in the Proceſs of the Piece. See POETRY.

This Repetition, according to F. *Boſſu*, is neceſſary to diſtinguiſh the Notion of *Verſe* from that of *Proſe*: for in Proſe, as well as *Verſe*, each Period and Member are Parts of Diſcourſe, conſiſting of a certain Number of long and ſhort Syllables; only, Proſe is continually diverſifying its Meaſures, and Cadences; and *Verſe* repeats 'em. See PROSE.

This Repetition of the Poets, appears even in the manner of Writing; for one *Verſe* being finiſh'd, they return to the beginning of another Line to write the *Verſe* following: and 'tis to this Return, that *Verſe* owes its Name; *Verſus* coming from *Vertere*, to turn, or return.

Accordingly, we find the ſame Name uſed to ſignify any thing that is placed in a certain, regular Order: *Cicero* uſes the Word for a Line in Proſe; *Virgil* for a Row of Trees, and even of Oars in a Galley. But, as the Regularity of *Verſe* carries with it more Charms, and requires a greater degree of Exactneſs, the Word has, in time, become appropriated to Poetry.

To make *Verſe*, 'tis not enough that the Meaſures and Quantities of Syllables be obſerv'd, and ſix juſt Feet put, one after another, in the ſame Line: There are further requir'd certain agreeable Cadences, particular Tenſes, Moods, Regimens, and even ſome Words unknown in Proſe.

But what is chiefly requir'd, is an elevated, bold, figurative Manner of Diction: This Manner, is a thing ſo peculiar to this kind of Writing, that without it, the moſt exact Arrangement of Longs and Shorts, does not conſtitute *Verſe*, ſo much as a kind of meaſur'd Proſe. See VERSIFICATION.

The *Greek* and *Latin Verſes*, conſiſt of a certain Number of Feet, of a certain Quantity. See FOOT.

Some have attempted to make *French* and *Engliſh Verſes* on the ſame Foundation; but without Succeſs. See QUANTITY, and HEXAMETER.

Voſſius is very ſevere on the modern *Verſe*, and makes it altogether unfit for Muſick: Our *Verſes*, ſays he, run all as it were on one Foot; without diſtinction of Members, or Parts, and without regard to the natural Quantities of Syllables. We have no *Rythmus* at all: and we mind nothing but to have a certain Number of Syllables in a *Verſe*, of whatever Nature, and in whatever Order. See RYTHMUS.

But Mr. *Malcolm* vindicates our *Verſe* from this Imputation. 'Tis true, we don't follow the Metrical Compoſition of the Antients; yet we have ſuch a Mixture of ſtrong and ſoft, long and ſhort Syllables, as makes our *Verſes* flow, ſmooth or rumbling, ſlow or rapid, agreeably to the Subject. Inſtances of all which we have in the following Lines:

‘ Soft is the Strain when Zephyr gently blows;
‘ The hoarſe rough *Verſe* ſhould like the Torrent roar:
‘ The Line too labours, and the Words move ſlow,
‘ Flies o'er the unbended Ears, and ſkims along the Main.

By making a ſmall Change, or Tranſpoſition of a Word or Syllable, in any of theſe *Verſes*, any body who has an Ear will find, that we make a great Matter of the Nature and Order of the Syllables.

Voſſius adds, that the antient Odes were ſung, as to the *Rythmus*, in the ſame manner as we ſcan 'em: every *Pes* being a diſtinct Bar or Meaſure, ſeparated by a diſtinct Pauſe: Tho, in reading, that Diſtinction was not accurately obſerv'd.

Laſtly, he obſerves, that their Odes had a regular Return of the ſame kind of *Verſe*; and the ſame Quantity of Syllables in the ſame Place of every *Verſe*: whereas, in the modern Odes, to follow the natural Quantity of our Syllables, every Stanza would be a diſtinct Song. See ODE.

'Tis next to impoſſible to write Proſe, without ſometimes intermixing *Verſe* with it; So that *Vaugelas*'s Rule, which enjoins us to avoid 'em, is next to impracticable. This may be further ſaid, that for ſhort *Verſes*, they are ſo little perceiv'd, that 'tis ſcarce worth while to ſtrain one's ſelf to avoid 'em; and as to long *Verſes*, they are chiefly to be avoided in the Ends of Periods; for in the Middle they are ſcarce felt.

In the general, Rules of this kind muſt be conſider'd as principally regarding numerous *Verſes*, and ſuch as are readily diſtinguiſh'd by their Cadence: Thus, in *Latin*, 'tis ſcarce poſſible to avoid Iambick *Verſes*; but Hexameters muſt by all means be avoided, their Cadence being more ſenſible and more ſtudy'd. See RHIME, *&c.*

The *Greek* and *Latin Verſes*, are *Hexameters*, *Pentameter*, *Iambicks*, *Hendecaſyllabs*, *Trochaicks*, &c. *See each under its proper Article.*

The Moderns have invented *Heroic*, or *Alexandrian Verſes*, which conſiſt of twelve or thirteen Syllables. See ALEXANDRIAN.

The Antients have likewiſe invented various Kinds of *Verſes*, or Poetical Deviſes; as *Centos*; *Echos*; *Minorimes*; *Equivocal Verſes*, where the ſame Words contain'd in two Lines carry a different Senſe. See CENTO, ECHO, and EQUIVOCAL.

Reciprocal Verſes, which read the ſame backwards as forwards. See RETROGRADE.

VERSE, is alſo a part of a Chapter, Section, or Paragraph, ſubdivided into ſeveral little Articles. See CHAPTER.

The whole Bible is divided into Chapters; and the Chapters ſubdivided into *Verſes*. See BIBLE.

The Diſtinction of *Verſes* in the New Teſtament, was only made by *Robert Stephens*: And ſo negligently was it done, that his Son *Henry Stephens* aſſures us, he work'd at it as he travell'd from *Paris* to *Lions*. Many learned Men find a great many Faults with that Diviſion; and yet 'tis every where follow'd.

M. *Simon* obſerves, that the *Greeks* and *Latins* meant by *Verſe*, a Line, containing a certain number of Words. He adds, that the Authors of thoſe Days, to prevent any thing being added or taken away from their Works, uſed to mark at the End the number of *Verſes* they contain'd; but the Books themſelves were wrote all running, without any Diviſions, Points, *&c.*

VERSED *Sine*, of an Arch, is the Segment of the Diameter of a Circle lying between the Foot of the right Sine, and the lower Extremity of the Arch. See ARCH.

Thus, S T, (Tab. *Trigonometry*, Fig. 7.) is the *Verſed Sine* of the Arch R T; and A S the *Verſed Sine* of the Arch A R, the Complement of the former. See Sine.

VERSIFICATION, the Art, or Manner of making *Verſe*; alſo the Tune and Cadence of *Verſe*. See Verse.

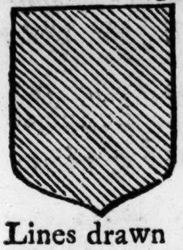
Verſification, is properly applied to what the Poet does more by Labour, Art, and Rule, than by Invention, and the Genius or *Furor Poeticus*.

The Matter of *Verſification* is long and ſhort Syllables, and Feet compoſ'd of them; and its Form, the Arrangment of them in correct, numerous, and harmonious *Verſes*: But this is no more than a mere Tranſlator may pretend to, and which the *Catilinarian* War, put in Verſe, might not merit.

'Tis with Reaſon, therefore, that theſe ſimple Matters are diſtinguiſh'd from the grand Poetry, and call'd by the Name *Verſification*. See Poetry.

In effect, there is much the ſame difference between Grammar and Rhetorick, as between the Art of making of Verſes, and that of inventing Poems.

VERSION, a *Tranſlation* of ſome Book, or Writing, out of one Language into another. See Translation.



VERT, in Heraldry, the Term for a green Colour. See Green, and Colour.

It is called *Vert* in the blazon of the Coats of all under the Degree of Nobles; but in Coats of Nobles, 'tis call'd *Emerauld*; and in thoſe of Kings, *Venus*.

In engraving, 'tis expreſs'd by Diagonals, or Lines drawn a-thwart, beginning at the ſiniſter Corner of the Eſcutcheon; as in the Figure adjoining.

In lieu of *Vert*, the *French* Heralds uſe *Sinople*, or *Synople*. See Sinople.

Vert, or *green Hue*, in Foreſt Law, any thing that grows, and bears a green Leaf within the Foreſt, that may cover a Deer. See Forest, Game, *&c.*

It is either *Over-Vert*, or *Nether-Vert*; Over-*Vert* is the great Woods, which in Law-Books are uſually called *Hault-Bois.*

Nether-*Vert* is the Under-Woods, otherwiſe call'd *Sub-Bois.*

We ſometimes alſo meet with *Special Vert*, which denotes all Trees growing in the King's Wood, within the Foreſt; and thoſe that grow in other Men's Woods, if they are ſuch Trees as bear Fruit to feed the Deer.

VERTEBRALES, in Anatomy, a Pair of Muſcles, ſerving to ſtretch out all the *Vertebræ* of the Back. See Vertebræ.

VERTEBRÆ, a Chain of little Bones, reaching from the Top of the Neck, down the Back, to the *Os Sacrum*; and forming a third Part of the human Skeleton, call'd the *Spina Dorſi*. See Spina.

The *Vertebræ* have their Name *à vertendo*; becauſe 'tis on them the Head and Trunk turn: The *Greeks* call them *Spondyli*, for the ſame Reaſon.

The *Vertebræ* are 24 in Number: Seven of 'em belong to the Neck, twelve to the Back, and five to the Loins. See Neck, Loins, *&c.*

They lie not in a ſtrait Line; thoſe of the Neck bend inwards, and thoſe of the Back outwards, for enlarging the Cavity of the Thorax; and thoſe, again, of the Loins bend inwards, and thoſe of the *Os Sacrum* outwards, to enlarge the Cavity of the Baſon.

The Body of each *Vertebra* is ſpongious and cavernous; having in the middle a large Perforation, thro' which the *Medulla Spinalis* paſſes, and ſeven Apophyſes, or Proceſſes.

The Fore-part of this Body is round and convex; the Hind-part ſomewhat concave: its upper and lower Sides are plain; each cover'd with a Cartilage which is pretty thick forwards, but thin backwards, by means whereof it is, that we bend the Body forwards; the Cartilages yielding to the Preſſure of the Bodies of the *Vertebræ*, which in that Motion come cloſer to one another: Which could not be effected, if the harder Bodies of the *Vertebræ* were cloſe to one another.

The Proceſſes of each *Vertebra* are of three ſorts: Two tranſverſe, or lateral; in each of which there is a Tendon of the *Vertebral* Muſcles inſerted: Four oblique ones; by which the *Vertebræ* are articulated to one another: and one acute, on the hindmoſt Part of the *Vertebra*.

Theſe Proceſſes, which are peculiarly call'd the *Spines*, form, with the hinder or concave Part of the Body of the *Vertebræ*, a large Hole in each *Vertebra*; and all the Holes anſwering one another make a Channel for the Deſcent of the Spinal Marrow, which ſends out its Nerves to the ſeveral Parts of the Body by Pairs, thro' two ſmall Holes, form'd by the jointing of four Notches in the Sides of each ſuperior and inferior *Vertebra*. See Medulla *Spinalis*.

The *Vertebræ* are articulated to one another by Ginglymus: For the two deſcending oblique Proceſſes of each ſuperior *Vertebra* of the Neck and Back, have a little dimple in their Extremities, wherein they receive the Extremities of the two aſcending oblique Proceſſes of the inferior *Vertebræ*; ſo that the two aſcending Proceſſes of each *Vertebra* of the Neck and Back are received, and the two deſcending do receive, except the firſt of the Neck, and laſt of the Back; but the aſcending Proceſſes of each *Vertebra* of the Loins receive, and the two deſcending are received; contrary to thoſe of the Neck and Back.

The *Vertebræ* are all tied together by a hard Membrane, made of ſtrong and large Fibres: It covers the Body of all the *Vertebræ* forwards; reaching from the firſt of the Neck to the *Os Sacrum.*—There is another Membrane, which lines the Canal, made by the large Hole of each *Vertebra*; which alſo ties them all together: beſides, the Bodies of each *Vertebra* are tied to one another by the intervening Cartilages; and the Tendons of the Muſcles, which are inſerted in their Proceſſes, tie them together behind.

This Structure of the Spine is admirable; for had it been all one Bone, we could have had no Motion in our Backs; had it been of two or three Bones articulated for Motion, the *Medulla Spinalis* muſt have been neceſſarily bruis'd at every Angle, or Joint: beſides, the whole would not have been ſo pliable for the ſeveral Poſtures we have occaſion to put our ſelves in: If it had been made of ſeveral Bones, without intervening Cartilages, we ſhould have had no more uſe of it, than if it had been but one Bone. If each *Vertebra* had had its own diſtinct Cartilages, it might have been eaſily diſlocated.——Laſtly, the oblique Proceſſes of each ſuperior and inferior *Vertebra*, keep the middle one, that it can neither be thruſt backwards nor forwards, ſo as to compreſs the *Medulla Spinalis*.

The *Vertebræ* of the Neck differ from the reſt, in that they are ſmaller and harder, their tranſverſe Proceſſes perforated for the Paſſages of the Vertebral Veſſels, and their acute Proceſſes forked and ſtrait: Add, that the firſt and ſecond have ſomething peculiar to themſelves. The firſt, called *Atlas*, is ty'd to the Head; and moves with it upon the ſecond, ſemicircularly. See Atlas.

The ſecond is called *Epiſtrophæus*, or *Vertebra Dentata*: In the middle, between its two oblique aſcending Proceſſes, it has a long and round Proceſs like a *Tooth*, which is receiv'd into a Sinus of the Atlas; and upon it, the Head, with the firſt *Vertebra*, turns half round, as upon an Axis. The Extremity of this Proceſs is knit to the Occiput, by a ſmall but ſtrong Ligament. A Luxation of this Tooth is mortal, becauſe it compreſſes the *Medulla Spinalis*.

The third is call'd *Axis*: The reſt have no particular Names.

The *Vertebræ* of the Back differ from the reſt in this, that they are larger than thoſe of the Neck, and ſmaller than thoſe of the Loins: Their acute Proceſſes ſlope downwards upon one another. They have in each ſide of their Bodies a ſmall Dimple, wherein they receive the round Extremities of the Ribs: The uppermoſt of 'em is ſometimes call'd the *Creſt*; the ſecond the *Axillaris*; and the reſt *Coſtales*.

The *Vertebræ* of the Loins are the broadeſt; and the laſt of them, the largeſt of all the *Vertebræ*.

Tho each *Vertebra* has but a ſmall Motion, yet the Motion of 'em all is conſiderable: The Head, we have obſerved, moves only backwards and forwards on the firſt *Vertebra*, and ſemicircularly on the ſecond.

The Motion of the other *Vertebræ* of the Neck is not ſo manifeſt, yet it is greater than that of the *Vertebræ* of the Back; becauſe their acute Proceſſes are ſhort and ſtrait, and the Cartilages which are between their Bodies, thicker. The *Vertebræ* of the Back have the leaſt Motion of any; becauſe their Cartilages are thin, their acute Proceſſes long, and very near to one another: And they are fixed to the Ribs, which neither move forwards nor backwards. The greateſt Motion of the Back, is perform'd by the *Vertebræ* of the Loins; becauſe their Cartilages are thicker, and their acute Proceſſes are at a greater diſtance from one another: For the thicker the Cartilages are, the more we may bend the Body forwards; and the greater diſtance there is between the acute Proceſſes, the more we may bend backwards.

Such is the Structure and Motion of the *Vertebræ*, when in their natural Poſition: but we frequently find 'em variouſly diſtorted. If the *Vertebræ* of the Back ſtick out, it conſtitutes what we call a *Bunch'd Back*: And in ſuch Caſes the Cartilages between the *Vertebræ* are very thin and hard, forwards, but conſiderably thick backwards where the oblique Proceſſes of the ſuperior and inferior *Vertebræ* are at a conſiderable diſtance from one another, which diſtance is fill'd up with a viſcous Subſtance.

This Inequality of the thickneſs of the Cartilages happens either by a Relaxation, or a Weakneſs of the Ligaments and Muſcles faſten'd to the backſide of the *Vertebræ*: in which Caſes, their Antagoniſts finding no oppoſition, remain in a continual Contraction.

The *Os Sacrum* does alſo conſiſt of *Vertebræ* in Children; which grow ſo cloſe together in Adults, that they make but one large and ſolid Bone, of the Figure of an *Iſoſceles* Triangle, whoſe Baſis is ty'd to the laſt *Vertebra* of the Loins, and the upper Part of its Sides to the *Ilia*, and its Point to the *Os Coccygis*. See Sacrum *Os*.

VERTEX, in Anatomy, the Crown of the Head; or that Part ſituate between the *Sinciput* and *Occiput*. See Head.

Hence, alſo, *Vertex* is figuratively uſed for the Top of other Things.

Thus, the *Vertex* of a Cone, Pyramid, Conic Section, *&c.* is the Point of the upper Extremity of the Axis; or the Top of the Figure. See Cone, Pyramid, *&c.*

Vertex *of an Angle*, is the angular Point; or the Point A, (Tab. *Geometry*, Fig. 1.) wherein the Legs meet. See Angle.

Vertex *of a Figure*, is the *Vertex* of the Angle oppoſite to the Baſe. See Figure.

Such is the Point M, (Tab. *Geometry*, Fig. 19.) oppoſite to the Baſe KL. See Base.

Vertex *of a Curve*, is the Point A, (Tab. *Geom.* Fig. 51.) from which the Diameter is drawn; or the Interſection of the Diameter, and the Curve. See Curve.

Vertex *of a Glaſs*, in Opticks, the ſame with the Pole thereof. See Pole, Optic *Glaſs*, &c.

Vertex is alſo uſed in Aſtronomy, for that Point of Heaven perpendicularly over our Heads; properly call'd the *Zenith*. See Zenith.

VERTICAL *Circle*, in Aſtronomy, is a great Circle of the Sphere, paſſing thro' the Zenith Z, and Nadir N, (Tab. *Aſtronomy*, Fig. 6.) and any other given Point in the Surface of the Sphere. See Circle, and Sphere.

Thus, the Meridian of any Place is a *Vertical Circle*. See Meridian, *&c.*

All the *Vertical Circles* interſect each other in the Zenith and Nadir. See Zenith, and Nadir.

The uſe of the *Vertical Circles*, is to meaſure the Height of the Stars, and their Diſtances from the Zenith, which is reckon'd on theſe Circles; and to find their Eaſtern and Weſtern Amplitude, by obſerving how many degrees the *Vertical* wherein the Star riſes, or ſets, is diſtant from the Meridian. See Altitude, Amplitude, *&c.*

The *Vertical Circles* are alſo called *Azimuths*. See Azimuth.

Prime Vertical, is that *Vertical* Circle, or Azimuth, which paſſes thro' the Poles of the Meridian; or which is perpendicular to the Meridian, and paſſes thro' the Equinoctial Points. See Prime *Vertical*.

Vertical *of the Sun*, is the *Vertical* which paſſes thro' the Centre of the Sun, at any Moment of Time.

Its uſe is in Dialling, to find the Declination of the Plane whereon the Dial is to be drawn; which is done by obſerving how many Degrees that *Vertical* is diſtant from the Meridian, after marking the Point, or Line of the Shadow upon the Plane, at any time. See Declination.

Vertical *Angles*. Two Angles, as *o* and *x*, (Tab. *Geometry*, Fig. 18.) are ſaid to be *Vertical*, if the Legs of one of 'em, AE and EC, be only Continuations of the Legs of the other, DE and BE. See Angle.

Vertical *Plane*, in Perſpective, is a Plane perpendicular to the Geometrical Plane; paſſing thro' the Eye, and cutting the Perſpective Plane at right Angles. See Plane.

Vertical *Plane*, in Conicks, is a Plane paſſing thro' the Vertex of the Cone, and parallel to any Conic Section. See Plane, and Cone.

Vertical *Line*, in Conicks, is a right Line drawn on the *Vertical Plane*, and paſſing thro' the Vertex of the Cone. See Line.

Vertical *Dial*, is a Sun-Dial, drawn on the Plane of a *Vertical* Circle; or perpendicular to the Horizon. See Dial, and Dial-*Plane*.

Theſe are particularly call'd *Oriental*, Eaſt, *Occidental*, Weſt, *Meridional*, South, and *Septentrional*, or North *Verticals*, when oppoſed to one, or other of theſe Cardinal Points of the Horizon. See East, West, *&c.*

When they don't look preciſely to any of them, they are call'd *Decliners*: And when their Plane, or Surface is not perfectly perpendicular, *Recliners*. See Decliner, Recliner, *&c.*

Vertical *Point*, in Aſtronomy, the ſame with Vertex, or Zenith.

Hence, a Star is ſaid to be *Vertical*, when it happens to be in that Point which is juſt over any Place.

Vertical *Line*, in Dialling, is a Line on any Plane perpendicular to the Horizon.

This is beſt found and drawn on an erect and reclining Plane, by holding up a String and heavy Plummet ſteadily, and then marking two Points of the Shadow of the Thread on the Plane, a good diſtance from one another; and drawing a Line thro' thoſe Marks. See Dialling.

VERTICILLATE *Plants*, are ſuch as have their Flowers intermix'd with ſmall Leaves, growing in a kind of Whirls about the Joints of a Stalk; as Penny-royal, Horehound, *&c.* See Plant.

The peculiar Characteriſtick of this Genus of Plants, according to Mr. *Ray*, is, that their Leaves grow by Pairs, one juſt againſt another, on the Stalk: the Flower monopetalous, but uſually hanging down with a kind of Lip, or turned ſomething like the form of an Helmet: Four Seeds after each Flower; to which the Perianthеum of the Flower ſerves inſtead of a *Capſula Seminalis*.

The ſame Author makes two Species of theſe *Verticillate* Plants.

1°. The *Fruticoſæ*, or ſuch whoſe Superficies is Perennial: Theſe, again, have either a plain Flower, as the *Chamædrys Vulgaris*, *Thucrium*, and the *Marum Syriacum*; or a Flower with a Lip, which they call a *Labiated Flower*; or one ſomething in the form of an Helmet, which they call *Galeated*; as the *Sacria Stæchas*, *Hyſſopus*, *Roſmarinus*, *Satureia*, *Marum vulgare*, *Thymum vulgare*, and the *Polium Montanum*.

2°. The *Herbaceæ*, or ſuch whoſe Stalks are not Perennial; theſe are the *Menthæ*, *Verbena*, *Dictamnus Creticus*, *Origanum*, *Majorana*, *Ocimum*, *Horminum*, *Galeopſis*, *Nepeta*, *Betonica*, *Prunella*, *Stachys*, *Clinopodium vulgare*, *Lamium*, *Moluca Hedera Terreſtris*, *Galericulata*, *Calamintha*, *Meliſſa*, *Marrubium Commune*, *nigrum* and *aquaticum*; *Chamæpetys*, *Scarodonia*, *Scordium*, *Bugula*, *Syderitis*, *Cardiaca*.

VERTICITY, is that Property of the Loadſtone, whereby it turns to ſome particular Point. See Magnet.

The Attraction of the Magnet was known long before its *Verticity*. See Compass, Needle, *&c.*

VERTIGO, in Medicine, an Indiſpoſition of the Brain, wherein the Patient ſees the Objects about him as if they turn'd round, and fancies he turns round himſelf; tho all the while at reſt.

Phyſicians diſtinguiſh two Kinds, or rather, two Degrees of *Vertigoes*: The firſt, call'd a *Simple Vertigo*, is when the Body and external Objects appear to turn round, without any great dimneſs of Sight.

The other, call'd *Scotomia*, or *Vertigo Tenebroſa*, is when the Eyes are darken'd, and as it were cover'd with a Miſt. See Scotomia.

Some make a third Stage, *viz.* a *Vertigo Caduca*, wherein the Patient actually falls down: But this ſeems ſcarce to differ from an Epilepſy. See Epilepsy.

Sometimes the *Vertigo* is ſeated in the fore-part of the Head, and ſometimes in the hind-part: whereof, the latter is much the more dangerous.

Bellini accounts for the *Vertigo* very well, from a preternatural Motion in the *Retina*: for 'tis evident, an Object will ſeem to move circularly, if the Images thereof, painted on the *Retina*, fall ſucceſſively on different Parts of the *Retina*. See Retina.

This they may do, either by the Objects moving while the Eye is at reſt, or from the Eye moving while the Objects reſt; or, laſtly, the Object and Eye being both at reſt, the Rays falling on the ſame Place by the Optic Nerve's being alone in Motion. For ſince a right and an oblique Incidence do not excite the ſame Tremors in the Nerves, and the ſame Species of Motion; if the Optic Nerve only be moved, and the Object be at reſt, it will appear to ſhift its Situation, by the Change of Place in which it was repreſented. See Vision.

External Cauſes of *Vertigines*, are a continued turning round of the Body, Drunkenneſs, too long Faſting, immoderate Exerciſe, Surprize, Voracity, much uſe of Pulſe, Onions, Leeks, Raddiſhes, Cabbage, Muſtard, *&c.* and in the general, whatever may preſs, diſtend, or contract the Arteries.

The Word is form'd *à vertendo*, from turning.

The firſt Step in the Cure, is bleeding in the Jugular, or Cupping; then they proceed to an Emetic; then a Veſicatory on the Neck, or a perpetual Bliſter, or Iſſues; with Sternutatories, and the other Medicines that obtain in the Apoplexy. See Apoplexy.

VERTILLAGE, in Agriculture, the *Tilling*, or preparing of Ground to receive the Seed, by turning, ſtirring, or toſſing it. See Tilling.

VERTUE. See Virtue.

VERTUOSO. See Virtuoso.

VERU-MONTANUM, in Anatomy, a Term compounded of the two *Latin* Words, *Veru*, and *Montanum*; ſignifying a kind of little Valve, in the Place where the Ejaculatory Ducts enter the Urethra. See Valve, Urethra, *&c.*

Its uſe is, to prevent the Urine, in paſſing the Urethra, from getting in at thoſe Ducts, and ſo mixing with the Semen. See Urine, *&c.*

VERY *Lord*, and Very *Tenant*, are thoſe that are immediate Lord and Tenant, to one another.

——*And know ye, that in taking of Leaſes ſix things are neceſſary,* viz. Very Lord, *and* Very Tenant; *Service behind; the Day of the taking; Seiſin of the Services, and within his Fee; and that a Man is not* Very Tenant, *until he have atturned to the Lord by ſome Service.* Old Nat. Brev. See Tenant, *&c.*

VESICA, in Anatomy, a *Bladder*; a membranous or ſkinny Part, in which any Humor is contain'd. See BLADDER.

VESICA *Bilaria.* See VESICULA *Fellis.*

VESICA, among Chymiſts, is a large Copper Veſſel, tinn'd on the inſide; uſed in diſtilling Ardent Spirits: ſo called, as reſembling the Figure of a blown Bladder. See DISTILLATION.

VESICATORY, an external Medicine, ſerving to raiſe a Bliſter; whence alſo it is it ſelf, tho improperly, call'd a *Bliſter.* See BLISTER.

Veſicatories are Unguents, Cataplaſms, or Plaiſters made of ſharp, irritating Medicaments, which have a Faculty of drawing the Humours from within, outwards; inflaming and ulcerating the Skin, and raiſing *Veſicæ*, or Bladders; whence the Name of *Veſicatory.*

We have *Veſicatories* made of Cantharides, Euphorbium, Figs, Sublimate of Mercury, *Lapis Infernalis,* Muſtard, Anacardium, Scillæ, Briony, Vinegar, Pepper, Leaven, *&c.* which are incorporated and made up with Honey, Gums, Reſins, *&c.* to bring them to the Conſiſtence requir'd. See CANTHARIDES, *&c.*

Veſicatories are a ſtronger ſort of *Sinapiſms.* See SINAPISM, CAUSTIC, *&c.*

VESICULA, *Veſicle*, a Diminutive of *Veſica*; ſignifying a little Bladder.

The Lungs conſiſt of *Veſiculæ*, or *Lobules* of *Veſiculæ*, admitting Air from the *Bronchiæ*; and not only Air, but alſo of Duſt, *&c.* See LOBULE, and LUNGS.

There are ſeveral Parts in the Body which bear this Appellation; as the,

VESICULA *Fellis*, *Ciſtula Fellis*, or *Gall-Bladder*; which is an oblong, membranous Veſſel, not unlike a Pear both in form and ſize; ſituate in the hollow Part of the Liver. See LIVER.

It adheres to the Liver, not only by its Veſſels, which it receives from it, but likewiſe by its Membranes, whereof, the External is common to both. The lower Part, which hangs out of the Liver, reſts on the *Pylorus* of the Stomach.

Its Trunks, or Membranes, are uſually reckon'd five; an outer, or common one, from the *Peritonæum*; an inner one, on that ſide which adheres to the Liver from the *Capſula* of the *Porta*, and of the *Porus Bilarius.*

And three proper ones: The firſt whereof is Vaſculous; the ſecond Muſcular; and the third Glandulous.

But Dr. *Drake*, viewing a piece of dried Gall-Bladder with a Microſcope, found but little Reaſon for this accurate Diſtinction; the ſeveral Orders of Fibres of the ſeveral Coats appearing to be no other than an infinite Perplexity of Veſſels diverſly ramified.

The Gall-Bladder is uſually diſtinguiſh'd into the *Fundus*, which is the wideſt Part; and the *Collum*, or Neck, which is the narroweſt.

The Neck of the *Veſicula Fellis* being prolong'd, terminates in a Duct, called *Meatus Cyſticus*, or *Bilarius*; which, at about two Inches diſtance from the Gall-Bladder, is join'd to the *Meatus Hepaticus*; theſe, together, form the *Ductus Communis.* See DUCTUS, MEATUS, *&c.*

The uſe of the Gall-Bladder, is to receive the Bile after its being ſecreted in the Glands of the Liver; and to diſcharge it by the common Duct into the *Duodenum.*

The Bile found in this Veſſel is of a brighter yellow, a greater Conſiſtence, and more bitter and acrimonious than that in the *Porus Bilarius.* See BILE.

VESICULÆ *Seminales.* } See { SEMINALES.
VESICULÆ *Adipoſæ.* } { ADIPOSÆ.

VESPER, in Aſtronomy, called alſo *Heſperus*; is the Planet *Venus*, when ſhe is Weſtwards of the Sun. See VENUS.

VESPERS, in the *Romiſh* Church, *Evening Songs*; that Part of the Office which is rehearſed after Noon: anſwering to our Evening-Prayers; except that it differs more from the Office of the Morning, call'd *Mattins.* See MATTINS.

Sicilian VESPERS, is a famous Æra in the *French* Hiſtory; ſignifying a general Maſſacre of all the *French* in *Sicily*, in the Year 1282; to which the firſt Toll that call'd to *Veſpers* was the Signal.

Some will have it to have happen'd on *Eaſter*-Eve: others on the Day of the Annunciation.

It was rais'd by one *Prochites* a Cordelier, at the Time when *Charles* of *Anjou*, Count of *Provence*, was King of *Naples* and *Sicily.*——The Women with Child by *Frenchmen* were not ſpared.

After the like manner, we ſay, the *Mattins of Moſcow*, ſpeaking of the *Muſcovites* aſſaſſinating their Prince *Demetrius*, and all the *Poles* his Adherents at *Moſcow*, the 27th of *May* 1600, under the Conduct of their Duke *Choutsky*, at ſix a-clock in the Morning.

VESPERTILIONUM *Alæ*, q. d. *Bats Wings*, among Anatomiſts, two broad membranous Ligaments, with which the bottom of the Womb is ty'd to the Bones of the Flank; ſo called, from their reſembling the Wings of a Bat. See UTERUS.

VESPERTINE, in Aſtronomy. When a Planet ſets after the Sun, it is ſaid by ſome to be *Veſpertine.*

VESSEL, VAS, VASE, a Thing proper to hold or contain Liquor.

Thus, a Tunn, Hogſhead, *&c.* are *Veſſels* fit to contain Ale, Wine, *&c.*

The Chymiſts uſe a great diverſity of *Veſſels* in their Operations; as Matraſſes, Pelicans, Retorts, Receivers, *&c.* See MATRASS, PELICAN, *&c.*

Among Anatomiſts, *&c.* all the Tubes or Canals wherein the Blood and other Juices or Humours are ſecreted, convey'd, depoſited, *&c.* as the Veins, Arteries, Lymphaticks, Spermaticks, *&c.* are call'd *Veſſels.* See TUBE, CANAL, DUCT, VEIN, VESICULA, *&c.*

Some even extend the Word to the Nerves; as ſuppoſing 'em the Conduits of the Animal Spirits. See NERVE.

Veſſels conſiſt of Membranes variouſly form'd and diſpos'd for the Reception of the Fluids; and theſe Membranes, again, conſiſt of leſſer *Veſicles*, or *Veſiculæ*: And this, for what we know, without end. See MEMBRANE, FLUID, *&c.*

In the new Syſtem of many modern Philoſophers and Phyſicians, *Veſſel* is a Name common to all the ſolid Parts of the Body. See SOLID.

Theſe Authors explain the whole Animal Oeconomy, Functions, *&c.* from the different Liquors diffus'd throughout the Body, and the Tubes, or *Veſſels* which contain thoſe Liquors. In effect, all we know in the human Body, is either *Veſſel*, or Liquor. See DIGESTION.

The Antients, 'tis true, had a Notion, that ſome Parts of the Body, as the Heart, Spleen, *&c.* are mere *Parenchyma's*, *i. e.* a kind of Pulp, or Pith, void of all *Veſſels*; but the Moderns, by the advantage of Microſcopes, Injections, *&c.* find that theſe, and all other Parts of the Body, are mer Congeries, or Maſſes of *Veſſels* interwove. See PARENCHYMA, CARO, *&c.*

Some Philoſophers even extend the modern Syſtem to all Material Beings; owning, only, two Elements, *viz.* a Matter infinitely *liquid*, diffus'd thro' all Nature; and *hard*, or *ſolid* Parts; which are, as it were, the *Veſſels* of that Matter. See ELEMENT, *&c.*

The *Veſſels* have a conſiderable ſhare in the vital Actions; all that is requir'd to the Maintenance of Life, being a due Quantity of a proper Humour, and its continued Motion along the *Veſſels*: This Motion depends, in great meaſure, on the Action of the *Veſſels* themſelves; and the Action of the *Veſſels* depends on the Contraction of the Fibres, whereby, when ſtretch'd and diſtended by the flowing Humour, they ſhorten themſelves again, and diſpoſe themſelves into right Lines, ſtill approaching towards the Axis of their Cavity; and thus, they propel their Contents: So that the Force of the *Veſſels*, is chiefly to be determin'd from their Figure. See FIBRE, ELASTICITY, *&c.*

The Number of *Veſſels*, ſome of our lateſt and beſt Anatomiſts obſerve, is greateſt in Embryo's; and continually decreaſes as Age comes on. See FOETUS.

For, in the Actions whereby Nutrition, *&c.* are effected, the greater *Veſſels* being much diſtended by their Humours, the ſmaller *Veſicles*, whereof the Membranes or Coats of the larger are wove, become compreſs'd and ſtreighten'd, and at length quite dry, and void of Juices; ſo that growing together, the Fibres become the firmer and ſtronger by the loſs of the *Veſicles.* And hence the Strength, Firmneſs, Stiffneſs, *&c.* of the ſolid Parts. See SOLID; ſee alſo DISEASE, and DEATH.

VESSELS, in Navigation, is a common Name for all ſorts of Shipping, *i. e.* all floating Machines, or Vehicles that move in the Water. See SHIP.

Veſſels are frequently diſtinguiſh'd into two general Claſſes, *viz. high-bottom'd*, or *deck'd Veſſels*: which are thoſe that move wholly with wind and Sail, and live in all Seas; as *Pinks*, *Galeons*, *Ships*, &c. See SAILING.

And *flat-bottom'd Veſſels*, which go both by Oars and Sails: Such are *Boats*, *Galleys*, *Praws*, *Wherries*, &c. See OARS, ROWING, *&c.* ſee alſo BOAT, GALLEY, *&c.*

Floating Veſſels, are uſually diſtinguiſh'd into *Boats*, *Lighters*, *Barges*, *Barks*, *Fiſhing Veſſels*, *Ships of Trade*, and *Veſſels of War*; of each whereof there are divers Kinds and Denominations. See BOAT, BARGE, LIGHTER, SHIP, *&c.*

Veſſels of War, are a *three-deck'd Ship*, firſt and ſecond Rate; a *Frigate*, or *two-deck'd Ship*, third, fourth, and fifth Rate; a *one-deck'd Ship*, ſixth Rate; (ſee RATE.) a *Boom-Veſſel*, a *Fireſhip*, a *Ketch*, a *Machine-Veſſel*, a *Smoker.*

A *Veſſel* is ſaid to be *of three or four hundred Tonns*; meaning that it will carry three or four hundred times two thouſand Weight: or, that when immerg'd in Water, it poſſeſſes the Space of three or four hundred Tonn of Water; which is equal to the Weight of the *Veſſel*, and all the Loading it can carry. See TUN, and BURDEN.

A *Veſſel* is ſaid to *draw ten or fifteen Foot of Water*; meaning, that when loaden, it ſinks ſo deep under Water.

The Form of *Veſſels*, is a thing of great importance, with regard to their Motion, Sailing, *&c.* and in the determining what Form is moſt commodious, the new Doctrine of Infinites becomes of apparent Service to Navigation and Commerce.

A Body moving in an immoveable Fluid is obliged to ſever the Parts thereof; and they reſiſt ſuch Separation. Now, ſetting aſide a certain Tenacity, whereby they are glued together; and which is different in different Liquids; the whole Force of the Reſiſtance depends on that of the Shock, or Impulſe: For a Body that is ſtruck, ſtrikes at the ſame time; but a perpendicular Stroke is that a Liquid reſiſts the moſt, as being the greateſt: And for a Body to move freely therein, it muſt be of ſuch Figure, as to preſent it ſelf as obliquely as poſſible. If it were triangular, and moved Point foremoſt; 'tis certain all its Parts would ſtrike the Fluid obliquely, but they would all ſtrike it with the ſame Obliquity; and it were more advantageous, that each ſhould ſtrike more obliquely than its Neighbour.

Now, ſuch a perpetual Augmentation of Obliquity, can no where be had but in a Curve Line; each Point whereof is conſider'd as an infinitely ſmall right Line, always inclined to the other little right Lines contiguous to it.

To find what Curve it is whoſe perpetual Change of Obliquity, or Inclination in all its Parts, renders it of all others the fitteſt to divide the Fluid eaſily; is a Problem much more difficult than it appears to be; and, in effect, only to be ſolved by the new Geometry: The Solution was firſt given by Sir *I. Newton* in his Inveſtigation of the Solid of the leaſt Reſiſtance.

That Author, however, did not publiſh his Analyſis; yet the Marquis *de l'Hopital* hit upon it: And afterwards M. *Fatio* reſolv'd the ſame Problem; tho by a much longer and more perplex'd way. See SOLID *of the leaſt Reſiſtance.*

VEST, and VESTITURE. See INVESTITURE.

VESTALS, in Antiquity, Maids in antient *Rome*, conſecrated to the Service of the Goddeſs *Veſta*; and particularly, to watch the ſacred Fire in her Temple. See VESTALIA.

Numa firſt inſtituted four *Veſtals*; and *Plutarch* tells us, *Servius Tullius* added two more: which number, ſix, laſted as long as the Worſhip of the Goddeſs *Veſta*.——'Tis true, S. *Ambroſe* reckons them ſeven; but without any Foundation.

The *Veſtals* made a Vow of perpetual Virginity: Their Employment was, the Sacrificing to *Veſta*, and keeping up the Holy Fire in her Temple. If they violated their Chaſtity, they were puniſh'd with remarkable Severity; being ſhut up, or buried in a deep Pit, or Cavern, with a lighted Lamp, and a little Water and Milk, and there left to be devour'd by Hunger.——If they let out the Fire, they were whip'd by the *Pontifex Maximus*; and the Fire was re-kindled by the Sun-Beams collected, ſome ſay, in Burning-Glaſſes, and not otherwiſe.

To be ſecure of their Virginity, at their Admiſſion, it was provided, That they ſhould not be above ſix Years old.——They were choſen by Lot, out of twenty Virgins carried by the Pontiff to the *Comitia*, for that purpoſe.

They were only conſecrated for 30 Years; after which time, they were at liberty to go out and be marry'd. If they continu'd in the Houſe after that time, they were only to be aſſiſtant in point of Advice to the other *Veſtals*.

The firſt ten Years they were to employ in learning their Functions; the ten following they were to exerciſe them; and the laſt ten, to teach them to others.

Their Order was very rich; both on account of the Endowments of the Emperor, and of Legacies of other Perſons.

The *Veſtals* had a particular Place allotted them at the Amphitheatres and Games of the Circus.——Their Vehicle was the *Carpentum*, or *Pilentum*. See CARPENTUM, *&c.*

The Veil wherein they ſacrificed, was call'd *Suffibulum*.

At firſt, they were nominated by the Kings; but after the Extinction of Monarchy, by the *Pontifex Maximus*, or High Prieſt. The oldeſt of them was call'd *Maxima*, as the firſt Pontiff was *Maximus*. See PONTIFF.

They had divers Privileges: diſpoſed of their Effects by Teſtament in their Father's Life-time; had the ſame Gratification as a Mother of three Children; and whenever they met a Criminal going to Execution, had a Power to pardon him.

The Fire which the *Veſtals* were to watch, was not on an Altar, or a Hearth; but in little earthen Veſſels with two Handles, call'd *Capeduncula*.

This Fire was held a Pledge of the Empire of the World. If it went out, 'twas held a very unlucky Prognoſtick; and was to be expiated with infinite Ceremonies. Among the *Romans*, *Feſtus* tells us, it was only to be re-kindled by the rubbing a kind of Wood, proper for the Purpoſe. But among the *Greeks*, *Plutarch*, in the Life of *Numa*, obſerves, it was to be re-kindled by expoſing ſome inflammable Matter in the Centre of a concave Veſſel held to the Sun.——For it is to be noted, the *Romans* were not the only People who kept the perpetual Fire of *Veſta*, in imitation of the celeſtial Fires: but the *Greeks* were poſſeſs'd with the ſame Superſtition; particularly the *Delphians*, *Athenians*, *Tenedians*, *Argives*, *Rhodians*, *Cyzicenians*, *Mileſians*, *Epheſians*, &c.

VESTALIA, Feaſts held in honour of the Goddeſs *Veſta*, on the fifth of the Ides of *June*, *i. e.* on the ninth Day of that Month. See FEAST.

On that Day, Banquets were made before the Houſes; and Meats ſent to the *Veſtals*, to be offer'd by them to the Goddeſs.

The Aſſes that turn'd the Mills for grinding of Corn, were on this occaſion led about the City crown'd with Flowers, and Chaplets form'd of pieces of Bread; and the Millſtones were likewiſe deck'd with Garlands and Crowns.

The Ladies went barefooted in Proceſſion to the Temple of *Veſta*; and an Altar was erected to Jupiter *the Baker*, *Jovi Piſtori*, in the Capitol.

The *Veſtalia* had their Name from that of their Goddeſs *Veſta*, whom the *Greeks* call'd Ἑστία, *Fire*, or *Hearth*; whence *Cicero* derives the *Latin* Name.——Accordingly, the Poets frequently uſe *Veſta* for Fire, or Flame; as *Jupiter* for Air, *Ceres* for Corn, *&c.* See GOD, *&c.*

VESTIARIUS, VESTIARY, in Antiquity, a Maſter of a Ward-robe; or an Officer under the *Greek* Empire, who had the Care and Direction of the Emperor's Apparel, Robes, *&c.*

The *Protoveſtiarius*, or *firſt Veſtiary*, was the grand Maſter of the Ward-robe.——But, among the *Romans*, *Veſtiarius* was only a Salesman, or Tailor.

VESTIBLE, VESTIBULUM, in Architecture, a kind of Entry into large Buildings; being an open Place before the Hall, or at bottom of the Staircaſe.

Veſtibles only intended for Magnificence, are uſually between the Court and the Garden: Theſe are ſometimes *ſimple*, that is, have their oppoſite Sides equally enrich'd with Arches; and ſometimes their Plan is not contain'd under four equal Lines, or a circular one, but forms ſeveral Van-corps and Rear-corps, furniſh'd with Pilaſters, *&c.*

The *Romans* had Places call'd *Veſtibles* at the Entrance of their Houſes, to ſhelter People oblig'd to ſtand at the Door, from the Weather: We have ſtill *Veſtibles* of the like kind, in many old Churches, Houſes, *&c.* call'd *Porches*. See PORCH.

Martinius derives the Word from *Veſtæ ſtabulum*; by reaſon the Fore-part of the Houſe was dedicated to *Veſta*. *Daviler* derives it from *Veſtis*, and *ambulo*; by reaſon People there begin to let their Trains fall.

VESTIBLE, in Anatomy, the Fore-part of the Labyrinth of the Ear. See EAR, and LABYRINTH.

The *Veſtible* is a ſmall Cavity, of an irregular Form, placed immediately above the Baſis of the Stapes; between the ſemicircular Channels, and the Cochlea.

In it appear divers *Foramina*; as that of the *Feneſtra Ovalis*; the five *Foramina* of the ſemicircular Canals; that of the Cochlea; and five other very ſmall ones, thro' which ſo many Nerves paſs. See FORAMEN, FENESTRA, *&c.*

VESTIGIA, a *Latin* Term, frequently uſed by *Engliſh* Writers, to ſignify the Traces, or Footſteps any thing has left behind it. See TRACE.

The Word is particularly applied to the Marks remaining of ſomething Antique, gone to Ruin by Time. See RUINS.

VESTRY, VESTIARIA, a Room adjoining to a Church, where the Prieſts Veſtments and ſacred Utenſils are kept. See VESTRY-*Men*.

VESTRY-*Men*, a ſelect Number of the principal Perſons of every Pariſh within the City of *London*, and elſewhere; who yearly chuſe Pariſh-Officers, and take care of its Concernments. See PARISH.

They are thus called, becauſe they uſually meet in the *Veſtry* of the Church. See SECRETARIUM.

VESTRY-*Clerk*, an Officer who keeps the Pariſh Accompts. See PARISH.

VESTURE, VESTMENT, a Garment, or Cloathing.

Sometimes, in our Law-Books, it is uſed metaphorically; as in *Veſtura terræ*, i.e. *Segetes quibus terra Veſtitur*; the Corn wherewith the Earth is clothed, or cover'd.

——*Veſture of an Acre of Land*, is the Profit of it, or the Wood, Corn, *&c.* growing on it.

VESTURE alſo ſignifies a Poſſeſſion, or admittance to a Poſſeſſion: In which Senſe it is borrow'd from the Feudiſts; with whom *Inveſtitura* ſignifies a Delivery of Poſſeſſion by a Spear, or Staff; and *Veſtura*, Poſſeſſion it ſelf. See INVESTITURE.

VETERAN, VETERANUS, in the *Roman* Militia, a Soldier who was grown old in the Service; or who had made a certain number of Campaigns; and on that account was entitled to certain Benefits and Privileges.

Twenty Years Service, were ſufficient to entitle a Man to the Benefits of a *Veteran*.

Theſe Privileges conſiſted in being abſolv'd from the Military Oath; in being exempted from all the Functions of a Soldier; in enjoying a certain Salary, or Appointment, *&c.*

In *France*, the Term *Veteran* is ſtill retain'd to ſuch Officers as have held their Poſts 20 Years; and who enjoy certain of the Honours and Privileges affixed thereto, even after they have laid 'em down.

A *Veteran* Counſellor has a Voice and Seat at Audiences, tho not at Proceſſes by Writing.——A *Veteran* Secretary of the King, acquires the Privileges, *&c.* of Nobility, to himſelf and his Children.

VETERINARIA *Medicina*, is ſometimes uſed for Phyſick or Medicine applied to the Diſeaſes of Cattel. Whence,

VETERINARIUS, a Farrier, or Horſe-Leech.

VETERNUS, is uſed by ſome Phyſicians for a Lethargy, or other drouſy Diſeaſe. See Lethargy, *&c.*

VETITUM *Namium*, in Law, a Phraſe literally importing a *forbidden Diſtreſs*: as, when the Bailiff of a Lord diſtrains Beaſts, or Goods, and the Lord forbids his Bailiff to deliver 'em when the Sheriff comes to replevy them; and to that End, drives 'em to Places unknown: or when, without any Words, they are ſo eſſoign'd, as they cannot be replevied. See Distress.

Divers Lords of Hundreds and Courts-Baron, have Power to hold Plea *de Vetito Namio.——Mathilda de mortuo Mari clamat in Manerio de Mawerdon duos* Law-days, *& Infangentheft & placita de* Namio vetito, *ſine breve domini Regis.* Int. Record. in Theſaur. Scac.

VI *& Armis*, q. d. *by Force and Arms*, a Law-term uſed in an Indictment; to denote the forcible and violent Commiſſion of any Crime. See Trespass, and Indictment.

Vi *Laica Removenda*, a Writ, lying where debate being between two Parſons, or Proviſors for a Church; one of 'em makes a forcible Entry into it, with a number of Laymen, and holds the other out.

Vi *Laica Admovenda*, a Writ which is ſerv'd when a Biſhop has certify'd into the Court of Chancery, that the Parſon of any Church within his Juriſdiction, is kept out of his Church or Glebe by any Lay-Force.

VIA, *Way*. See Road.

Via *Militaris*, in our Law-Books, is uſed for a *Highway; quæ publica dici poterit & ducit ad Mare & ad Portum, & quandoque ad Mercata.* Bracton, Lib. IV. c. 16.

Via *Regia*, in *Leg. Hen.* I. is defined to be that *quæ ſemper aperta, & quam nemo conclaudere poteſt cum minis ſuis, quia ducit in Civitatem vel Burgum vel Portum Regis.* 'That which is always open, and which no body may ſhut 'by any Threats, as leading to a City, Port, or Town.'—Its Breadth the ſame Laws preſcribe to be ſuch, as that two Carts may meet each other, and ſixteen Horſemen arm'd go a-breaſt.

Via *Lactea*, in Aſtronomy, the *Milky Way*, or Galaxy. See Galaxy.

Via *Solis*, the *Sun's Way*, in Aſtronomy, is uſed among ſome Aſtronomers for the Ecliptic Line; ſo called, becauſe the Sun never goes out of it. See Ecliptic.

VIÆ *Primæ*, among Phyſicians, are the Stomach and Guts; including the whole Length of the Alimentary Duct or Canal, from the Mouth to the *Sphincter Ani.* See Duct; ſee alſo Stomach, Intestines, *&c.*

In this Senſe, we ſay, An Obſtruction in the *Primæ Viæ.* —Purging and Emetic Medicines operate chiefly in the *Primæ Viæ.*—Sudorificks, Alteratives, Cardiacks, *&c.* ſuſpend their Action till after they have paſs'd the *Primæ Viæ.* See Medicines, Purgative, Emetic, *&c.*

VIAL, or Phiol, a ſmall thin glaſs Bottle. See Phiol.

VIALES, in Mythology, a Name given, among the *Romans*, to the Gods who had the Care and Guard of the Roads, and Highways; call'd by the Latins *Viæ.* See God.

The *Dii Viales*, according to *Labeo*, were of the Number of thoſe Gods called *Dii Animales*; who were ſuppoſed to be the Souls of Men changed into Gods; and were of two Kinds, *viz.* the *Viales* and *Penates.* See Penates.

The *Viales* were the ſame with thoſe otherwiſe call'd *Lares*; at leaſt, ſome of the *Lares* were denominated *Viales, viz.* ſuch of them as had the more immediate Intendency of the Roads. See Lares.

Hence, the two Names are ſometimes join'd, and thoſe Highway Deities call'd *Lares Viales*: Witneſs that Inſcription in *Gruter.*

FORTUNAE
REDUCI LARI
VIALI ROMAE
AETERNAE
Q. AXIUS AELIA
NUS- - VE. PROC.
AUG.

IONI.

VIATICUM, among the antient *Romans*, was the Allowance or Appointment which the Republick gave to ſuch of its Officers as were ſent into any of the Provinces, to exerciſe any Office, or perform any Service, or Commiſſion; as alſo to the Officers of the Army, and even the Soldiers, *&c.* See Province.

Tacitus makes mention of it, Lib. I. Annal. c. 37. *Viaticum amicorum ipſiuſque Cæſaris*; meaning the Appointments which the Republick paid to *Germanicus*, and his Officers.

This *Viaticum*, however, did not conſiſt altogether in Money: The Ring given the Magiſtrates and Officers ſent into the Provinces, was part of it; ſo were the Clothes, Baggage, Tents, and the reſt of their Equipage.

In the *Romiſh* Church, *Viaticum* is ſtill the Allowance made a Religious, to defray the Expences of a Journey, Miſſion, *&c.* See Mission.

The Term is alſo uſed for the Communion, or Euchariſt, which is given to People in the Pangs of Death; or who are about to make the Voyage of the other World.

The *Viaticum* is not given to Perſons executed in courſe of Juſtice.

VIATOR, in Antiquity, an Officer of Juſtice among the *Romans.*

The Term, originally, had no other Signification than that of a publick Meſſenger, or Servant ſent to advertiſe the Senators and Magiſtrates when Aſſemblies were to be held, where their Preſence was requir'd. And becauſe in the firſt Ages of that Empire, the *Roman* Magiſtrates lived moſtly at their Country-Houſes, theſe Officers being oblig'd to be frequently upon the Road, were called *Viatores*, Travellers; from *Via*, Highway.

In proceſs of Time, the Name *Viator* became a common Name for all Officers of the Magiſtrates; *Lictors, Accenſi, Scribes, Statores,* and *Cryers*: whether it were that theſe Names and Offices were confounded in one; or whether *Viator* was a general Name, and the reſt particular ones, ſpecifying the particular Functions they diſcharg'd, as *A. Gellius* ſeems to inſinuate, when he ſays, that that Member of the Company of *Viatores* who binds a Criminal condemn'd to be whip'd, was called *Lictor.* See Accensi, Scribe, Lictor, *&c.*

Be this as it will, the Names *Lictor* and *Viator* are often uſed indiſcriminately for each other; and we as often meet with, *Send to ſeek, or advertiſe him by a Lictor*, as *by a* Viator.

None but the Conſuls, Pretors, Tribunes, and Ediles, had a right to have *Viatores.*—They were not to be *Roman* Citizens, and yet were requir'd to be free.

VIBEX, is ſometimes uſed by Phyſicians for a black and blue Spot, occaſion'd by a Flux of Blood. See Petechia, *&c.*

VIBRATION, in Mechanicks, a regular, reciprocal Motion of a Body, *e. g.* of a Pendulum; which, being ſuſpended at freedom, ſwings or *vibrates*, firſt this way, then that.

For the Bob being rais'd, falls again by its gravity, and with the Velocity thus acquir'd, riſes to the ſame height on the other ſide: (See Pendulum.) Whence its gravity makes it fall again: And thus its *Vibrations* are continued.

Mechanical Authors, in lieu of *Vibration*, frequently uſe the Term *Oſcillation.* See Oscillation.

The *Vibrations* of the ſame Pendulum are all Iſochronal; that is, perform'd in equal Time, at leaſt in the ſame Climate; for towards the Equator they are found ſomewhat ſlower.

A Pendulum 3 Feet 3 Inches and 2 tenths of an Inch, according to *Huygens*, or 39,25 Inches, according to Sir *J. Moor* and Lord *Brouncker*, *vibrates* Seconds, or makes 3600 *Vibrations* in an Hour. See Second.

The *Vibrations* of a longer Pendulum, take up more time than thoſe of a ſhorter one, in a ſubduple Ratio of the Lengths. Thus, a Pendulum 3 Foot long, will make 10 *Vibrations*; while another 9 Inches long makes 20.—For 10 is the half of 20, and 3 Feet, or 36 Inches, are the Square of 6 Inches; which is double of 3, whoſe Square is 9: ſo that 10 is to 20 in a Subduple Ratio of 36 to 9.

The ſame Thing is meant when we ſay, that the Number of *Vibrations* of Pendulums in a given Time, is in a reciprocal Ratio of their Lengths.

M. *Mouton*, a Prieſt of *Lyons*, wrote an expreſs Treatiſe, to ſhew, that by means of the Number of *Vibrations* of a given Pendulum, in certain time, one might eſtabliſh an univerſal Meaſure throughout the whole World; and fix the ſeveral Meaſures in uſe among us, in ſuch manner as that they might be recover'd again, if at any time they ſhould chance to be loſt, as is the Caſe of moſt of the antient Meaſures, which we now only know by conjecture. See Measure.

The Vibrations *of a ſtretch'd Cord*, or *String*, ariſe from its Elaſticity; which Power being of the ſame kind with that of Gravity, the *Vibrations* of a Cord follow the ſame Laws as thoſe of Pendulums: Conſequently, the *Vibrations* of the ſame Cord equally ſtretch'd, tho they be unequal in length, are equi-diurnal, or perform'd in equal Times; and the Squares of the Times of the *Vibrations* are among themſelves, inverſly, as the Powers whereby they are equally bent and inflected. See Chord, Elasticity, Fibre, *&c.*

The *Vibrations* of a *Spring*, too, are proportional to the Powers whereby it is bent: Theſe follow the ſame Laws as thoſe of the Cord, or Pendulum, and conſequently are equi-diurnal; which is the Foundation of Spring-Watches. See Spring, and Watch.

Vibration is alſo uſed in Phyſicks, *&c.* for divers other regular alternate Motions.

Senſation is ſuppoſed to be perform'd by means of the *vibratory* Motion of the Nerves, begun by external Objects, and propagated to the Brain. See Sensation, Vision, Nerve, *&c.*

The ſeveral ſorts of Rays of Light, Sir *I. Newton* conceives to make *Vibrations* of ſeveral bigneſſes; which, according to thoſe bigneſſes, excite Senſations of ſeveral Colours; much after the ſame manner as *Vibrations* of Air, according to their ſeveral bigneſſes, excite Senſations of ſeveral Sounds. See Colour, Sound, *&c.*

Heat, according to the ſame Author, is only an Accident of Light, occaſion'd by the Rays putting a fine, ſubtil, etherial Medium which pervades all Bodies, into a *vibrative* Motion, which gives us that Senſation. See Medium, and Heat.

From the *Vibrations* or Pulſes of this ſame Medium, he accounts for the alternate Fits of eaſy Reflexion and eaſy Tranſmiſſion of the Rays. See Light, Ray, Reflexion, *&c.*

In the *Philoſophical Tranſactions* it is obſerv'd, that the Butterfly into which the Silkworm is transform'd, makes 130 *Vibrations* or Motions of its Wings in one Coition.

VICAR, Vicarius, a Perſon appointed as Lieutenant of another; to perform his Functions, in his Abſence, and under his Authority. See Lieutenant.

The Pope pretends to be *Vicar* of Jeſus Chriſt on Earth. He has under him a *Grand-Vicar*, who is a Cardinal, and whoſe Juriſdiction extends over all Prieſts, both Secular and Regular; and even over Laymen.

The Word is form'd from *Vicarius, qui alterius vices gerit.*

Among the antient *Romans*, *Vicarius*, *Vicar*, was properly a kind of Lieutenant, ſent into the Provinces where there was no Governour: So that they were properly the Emperor's *Vicars*, not thoſe of Governours. *Cod. de Offic. Vicar.*

Italy, in the Time of the Eaſtern Empire, was govern'd by two *Vicarii*: The one *Vicar of Italy*, who reſided at *Milan*; the other of the City, who reſided at *Rome*.

Cujas obſerves, that the Word *Vicar* was ſometimes, tho rarely, attributed to the Lieutenant-Generals of Proconſuls, or Governours of *Roman* Provinces.

Vicar, in the Canon Law, a Prieſt of a Pariſh the predial Tithes whereof are impropriated, or appropriated; that is, belong either to a Chapter, Religious Houſe, *&c.* or to a Layman, who receives 'em, and only allows the *Vicar* the ſmall Tithes, or a convenient Salary, antiently call'd *Portio congrua*. See Tithe, Appropriation, *&c.*

He is thus called *quaſi vice fungens Rectoris*, as ſerving for, or in lieu of a Rector, who would be intitled to the great Tithes. See Rector.

Theſe *Vicars* were antiently call'd *Perpetui Vicarii*; becauſe not appointed by the Impropriator, and licens'd by the Biſhop to read Service; but preſented by the Patron, and Canonical Inſtitution given 'em by the Hands of the Ordinary; and ſo having conſtant Succeſſion, as Corporations, and never dying.

The Canoniſts mention four Species of *Vicars*: ſome *Perpetual*; others appointed for a certain Time, and on ſome ſpecial Occaſion, call'd *Mercenarii*; others call'd *Speciales*, appointed not for the whole Cure, but for ſome certain Place, Article, or Act: others *Generales*, neither perpetual, nor appointed for any certain Act, but for all Things in the general.

Vicar *General*, was a Title given by King *Henry* VIII. to *Thomas Cromwell* Earl of *Eſſex*; with full Power to overſee the Clergy, and regulate all Matters relating to Church Affairs.

VICE, Vitium, in Ethicks, is ordinarily defin'd an elective Habit, deviating, either in Exceſs, or in Defect, from a juſt Medium wherein Virtue is placed. See Virtue.

'Tis call'd a *Habit*, to diſtinguiſh it from *Sin*, which is only an Act: Hence, a Sin is look'd on as ſomething tranſient; and a *Vice* as ſomething permanent. See Sin, Habit, *&c.*

Authors diſtinguiſh three States of *Vice*; the firſt *Incontinentiæ*, of Incontinence, wherein a Perſon ſees, and approves the Good, but is hurried to Evil by the Violence of his Paſſions: The ſecond, *Intemperantiæ*, of Intemperance; wherein even the Judgment is depraved, and perverted. The third, *Feritatis*, of Obduracy; wherein the Perſon is totally immers'd in *Vice*, without any ſenſe or feeling thereof.

The State of Incontinency is conſider'd as Infirmity, wherein the Perſon feels the ſharpeſt Stings of Conſcience: That of Intemperance, as Malice, wherein the Remorſe is not ſo lively. In that of Obduracy there is none. See Conscience.

Vice, in Smithery, and other Arts employ'd in Metals, is a Machine or Inſtrument, ſerving to hold faſt the Pieces to be filed, bent, riveted, *&c.* See Smithery, *&c.*

To file ſquare, 'tis abſolutely neceſſary the *Vice* be placed perpendicular, with its Chaps parallel to the Work-Bench. See Filing.

The Parts of the *Vice* are, the *Face*, or *Plane*, which is its uppermoſt Part; the *Chaps*, which are cut with a baſtard Cut, and well temper'd; the *Screw-pin*, cut with a ſquare ſtrong Worm; the *Nut*, or *Screw-box*, which has a ſquare Worm, and is brazed into the round Box; the *Spring*, which throws the Chaps open; and the *Foot*, on which the whole is mounted.

Hand-Vice, is a ſmall kind of *Vice*, ſerving to hold the leſſer Works in, that require often turning about.

Of this there are two Kinds, the *Broad chapt Hand-Vice*, which is that commonly us'd; and the *Square-nos'd Hand-Vice*, ſeldom us'd but for filing ſmall round Work.

Vice is alſo a Machine uſed by the Glaziers, to *turn* or draw Lead into flat Rods, with Grooves on each ſide, to receive the Edges of the Glaſs. See Lead.

This Machine conſiſts of two Iron Chaps, or Cheeks, join'd with two croſs Iron Pieces.—In the Space between the Chaps, are two ſteel Wheels, with their Spindles or Axes paſs'd thro' the middle; each of which has its Nut, or Pinion with Teeth, that catch into each other: To the loweſt is fitted a Handle, whereby the Machine is turn'd.

There are ſome of theſe *Vices* double, and that will draw two Leads at once: Theſe have three Wheels. Some Glaziers will turn Lead of different Sizes in the ſame *Vice*; by changing their Cheeks for each Size.

With another Pair of Spindles, whoſe Nuts almoſt meet, they turn Lead for Tiers; which when it comes out of the *Vice* is almoſt cut aſunder, in two thickneſſes eaſy to be parted.

Before the Invention of this *Vice*, which is but a late Thing, they uſed a Plane: Accordingly, in all the antient Windows, we find the Lead planed, and grooved that way. See Glass.

Vice is alſo uſed in the Compoſition of divers Words, to denote the Relation of ſomething which comes inſtead, or in the Place, of another.

In this Senſe, the Word is Latin, *Vice*, ſtead, place, turn, *&c.*

Vice-*Admiral*, is one of the three principal Officers of the Royal Navy; who commands the ſecond Squadron, and has his Flag ſet up in the Fore-top of his Ship. See Admiral, Navy, *&c.*

Vice-*Chamberlain*, call'd alſo in antient Statutes, *Under-Chamberlain*; is a great Officer in the Court, next under the Lord Chamberlain, and in his abſence has command and controll of all Officers belonging to that part of the Houſhold call'd the *Chamber*, or above Stairs. See Chamberlain.

Vice-*Chancellor* of an Univerſity, is an eminent Member, choſe annually, to manage Affairs in the Abſence of the Chancellor. See University.

Vice-*Doge*, is a Counſellor of *Venice*, who repreſents the Doge when ſick, or abſent; that the Seignory may never be without a Chief.

This *Vice-Doge* never takes the Ducal Chair, nor bears the Horn, nor is addreſs'd under the Title of *Sereniſſimo*: yet, the foreign Embaſſadors, ſpeaking to the College, uſe the common Apoſtrophe of *Sereniſſimo Principe*: And he performs all the Offices of Doge; and gives Anſwers to Embaſſadors without moving his Cap. See Doge.

Vice-*Dominus*, a Viſcount, Sheriff, or Vidame. See Vicount, Vidame, *&c.*

Vice-*Dominus Abbatiæ*, or *Eccleſiæ*, in the Civil and Canon Law, an Advocate, or Protector of an Abbey, or Church. See Advocate, and Avouee.

Vice-*Dominus Epiſcopi*, in the Canon Law, is the Official, Commiſſary, or Vicar-General of a Biſhop. See Commissary, *&c.*

Vice-gerent, a Vicar, Deputy, or Lieutenant. See Vicar, Lieutenant, *&c.*

Vice-*Comes*, in Law, *&c.* See Vicount.

Vice-*Legate*, an Officer whom the Pope ſends to *Avignon*, and ſome other Cities, to perform the Office of a Spiritual and Temporal Governour, at a time when there is no Legate or Cardinal to command there.

All the *Gaule Narbonnoiſe*, as *Dauphine*, *Provence*, &c. has recourſe to the *Vice-Legate* of *Avignon*, for all Eccleſiaſtical Diſpatches; in like manner as the other Provinces addreſs themſelves to *Rome*. See Legate.

Vice-*Roy*, a Governour of a Kingdom, who commands therein, in the Name and Stead of a King; with full and ſovereign Authority.

Naples, *Sicily*, *Catalonia*, &c. are govern'd by *Vice-Roys*: See King.

Vice *Verſa*, a *Latin* Phraſe, frequently retain'd in *Engliſh* Writings; ſignifying as much as *on the contrary*.

Thus, As the Sun mounts higher and higher above the Horizon, inſenſible Perſpiration increaſes; and, *vice verſa*, as he deſcends lower, diminiſhes.

VICENNALIS, in Antiquity, ſomething of 20 Years, or that returns after 20 Years.

Among the *Romans*, *Vicennalia* was particularly uſed for the Funeral Feaſts, held on the 20th Day after a Perſon's deceaſe.

Vicennalia, or **Vicennales** *Ludi*, were alſo the Games, Feaſts, and Rejoicings, held every 20th Year of the Reign of a Prince.

On Medals we frequently meet with *Vicennalia Vota*; the Vows put up on that Occaſion, for the Safety of the Emperor, and Inlargement of the Empire.

Theſe are expreſs'd by VOT. X & XX, in the Medals of *Tacitus*, *Gallian*, and *Probus*; VOT. X. M. XX, in thoſe of *Valerius Maximianus*, and *Galerius Maximianus*; VOT. X. MUL. XX, in thoſe of *Conſtantine*, *Valentinian*, and *Valens*; VOT. X. MULT. XX, in thoſe of *Diocleſian*, *Conſtantine*, *Julian*, *Valentinian*, *Theodoſius*, *Arcadius*, *Honorius*; VOTIS X. MULT. XX, in thoſe of *Julian*, *Valentinian*, *Gratian*; VOT. X. SIC. XX, in thoſe of *Valerius Conſtantius*; VOT. XII. FEL. XX, in the younger *Licinius*; VOT. XV. FEL. XX, in *Conſtantine*. See Vows.

VICINAGE, and Vicinetum. See Venue, and Visne.

VICIS & *Venellis Mundandis*, a Writ lying againſt a Mayor, Bailiff, &c. for not taking care that the Streets be well cleans'd.

VICISSITUDE, from the Latin *Viciſſitudo*, a Change or Turn; the ſucceeding of one thing after another. As the *Viciſſitude* of Seaſons, Fortunes, &c.

VICONTIEL. } See { Vicountiel.
Vicontiels. } { Vicountiels.

VICOUNT, or Viscount, or Vice-comes, in our Law-Books, ſignifies the ſame with *Sheriff*; between which two Words, there ſeems to be no other difference, but that the one came from our Conquerors, the *Normans*; the other from our Anceſtors, the *Saxons*. See Sheriff.

Vicount, or Viscount, is alſo uſed for a degree of Nobility next below a Count or Earl, and above a Baron. See Nobility.

Camden obſerves, that this is an antient Name of Office, but a new one of Dignity, never heard of among us till *Henry* VIth's Days, who, in his 18th Year, created in Parliament *John* Lord *Beaumont*, *Viſcount Beaumont*: But it is much more antient in other Countries.

Du Cange, indeed, will have the Dignity to have had its firſt Riſe in *England*; but 'tis much more probable, it was firſt brought over hither by the *Normans*.

The Privileges of a *Vicount*, are, that he may have a Cover of Aſſay held under his Cup when he drinks, and may have Travers in his own Houſe.——And a *Vicounteſs* may have her Gown bore up by a Woman, out of the Preſence of her Superiors; and in their Preſence by a Man. See Coronet, &c.

VICOUNTIELS, Vicontiels, *Vicecomitalia*, in our Law-Books, denotes Things belonging to the *Vice-Comes*, or Sheriff; particularly certain Farms, for which the Sheriff pays a Rent to the King, and makes what Profit he can of them.

Writs Vicountiel, are ſuch as are triable in the County or Sheriff's-Court.

Vicountiels, or Vicontiels *Juriſdiction*, is that Juriſdiction belonging to the Officers of a County; as Sheriffs, Coroners, Eſcheators, &c.

VICTIM, Victima, a bloody Sacrifice, offer'd to ſome Deity, of a living Thing, either a Perſon, or a Beaſt, which is ſlain to appeaſe his Wrath, or to obtain ſome Favour. See Sacrifice.

The *Greeks* offer'd *Iphigenia* at *Aulis*, for a *Victim* to obtain a favourable Wind.

The Gods of the Heathens had each their proper *Victims*: Thus, the Goat was *Bacchus*'s *Victim*; the Horſe *Neptune*'s. See God, and Victimarius.

VICTIMARIUS, was a Miniſter, or Servant of the Prieſts; whoſe Office was to bind the *Victims*, and prepare the Water, Knife, Cake, and other things neceſſary to the Sacrifice. See Sacrifice.

To the *Victimarii* it alſo belonged to knock down and kill the Victims: In order to which, they ſtood cloſe by the Altar, naked to the Waiſt, but crown'd with Laurel; and holding a Hatchet or a Knife up, aſk'd the Prieſt leave to ſtrike; ſaying *Agone*? Shall I ſtrike? Whence they were alſo called *Agones*, and *Cultellarii*.

When the *Victim* was kill'd, they open'd it, and after viewing the Entrails, took them away, waſh'd the Carcaſe, ſprinkled the Floor, &c.

The ſame *Victimarii* lighted the Fire wherein Books were condemn'd to be burnt. See *Livy*, Lib. XV. cap. 29. and *A. Gellius*, L. I. c. I.

VICTORIAN *Period*, in Chronology. See Period.

VICTORY, Victoria, the Overthrow or Defeat of an Enemy, in War, Combat, Duel, or the like. See War, Battle, Combat, Duel, &c.

Among the *Romans*, Crowns, Triumphs, &c. were decreed to their Generals for the *Victories* they gain'd. See Crown, Triumph, &c.

VICTUALLING *Office*, an Office kept on *Tower-Hill*, for the furniſhing his Majeſty's Navy with *Victuals*. See Office.

It is manag'd by ſeven Commiſſioners, who have their inferior Officers; as Secretaries, Clerks, &c. beſide Agents in divers Parts of *Great Britain*, *Ireland*, &c. See Navy.

VICTUS *Ratio*, among Phyſicians, a particular manner of living, for the Preſervation of Health, and Prevention of Diſeaſes. See Diet, Regimen, &c.

VIDAME, q. d. *Vice-Dominus*, was antiently the Biſhop's Deputy in Temporals; as the *Comes* was the King's.

Vidame is ſtill a Title of Seignory, or Lordſhip; attributed to ſeveral Gentlemen in *France*: as the *Vidame* of *Chartres*, of *Amiens*, &c.

The Word, according to *Nicod*, comes from *Vicarius*; and according to *Paſquier*, from *Vice-Dominus*; *dam* ſignifying *Dominus*, or Lord.

The original Inſtitution of *Vidames*, was for defence of the Temporalties of Biſhopricks, while the Biſhops themſelves were taken up in Prayer, and other Spiritual Functions.——They alſo led the Biſhop's Forces, when they were oblig'd to go to War, either to defend their Temporalties, or for the Arrier-Ban.

They alſo manag'd and pleaded their Cauſes in Courts of Juſtice; diſtributed Juſtice among their Tenants; prevented any body's pillaging or damaging the Houſes of deceas'd Biſhops, &c.—In effect, they repreſented the Biſhop, conſider'd as a Temporal Lord. See Bishop.

Paſquier ſays, they were the Biſhop's Temporal Judges; and had the ſame Privileges as the Vicounts.

By degrees, the *Vidames* converted their Office into a Fee; and the Biſhops their *Vidames*, or Judges, into Vaſſals, as Kings did their Counts, Dukes, &c. See Count, Vassal, &c.

Accordingly, the *Vidames* of *Chartres*, &c. ſtill hold Lands of the Biſhops of thoſe Places.

In ſome antient Charters, the *Vidames* are call'd *Advocates*, or *Advowees*. See Advocate.

VIDIMUS, in Law, the ſame with *Innoteſcimus*; being Letters Patent of a Charter of Feoffement, or ſome other Inſtrument not of Record. See Innotescimus.

VIDUITY. See Widowhood.

Viduitatis *Profeſſio*, the making a ſolemn Profeſſion of living a chaſte Widow; a Cuſtom heretofore obſerv'd in *England*, and attended with divers Ceremonies. See Widow, and Widowhood.

VIEW, in Law, the Act of *Veiors*, or *Viewers*. See Viewer.

When a real Action is brought, and the Tenant knows not well what the Land is the Demandant aſks; he may pray the *View*: which is, that he may *ſee* the Land which is claim'd.

This Courſe of proceeding we receiv'd from the *Normans*, as appears by the *Grand Cuſtomary*.—It is uſed in various Caſes; as in Aſſize of Rent-Service, Rent-Charge, Rent-Seck; in a Writ of Nuſance; in a Writ *quo Jure*; in the Writ *de Rationabilibus diviſis*, &c.

View *of Franc-Pledge*, is the Office which the Sheriff in his County-Court, or the Bailiff in his Hundred, performs; in looking to the King's Peace, and ſeeing that every Man be in ſome Pledge. See Franc-*Pledge*.

This is called by *Bracton*, *Res quaſi ſacra quia ſolam perſonam Regis reſpicit, & introducta pro pace, & communi utilitate*.

View, in Matters of Opticks, Perſpective, &c. See Vision, Sight, Perspective, &c.

View, among Hunters, the print of the Feet of a fallow Deer on the Ground.

To View *a Place*, in the Military Art, is to ride about it before the laying of a Siege, in order to obſerve the Strength or Weakneſs of its Situation and Fortification. See Fortification, &c.

VIEWERS, in Law, are Perſons that are ſent by a Court to *view* a Place or Perſon in queſtion; as alſo the Situation of a Place where a Fact was committed; or a Perſon in caſe of Sickneſs, &c.

VIGIL, or Eve, in Church Chronology, the Day before any Feaſt, &c. See Feast, and Eve.

Tho the Civil Day begin at Midnight, yet the Eccleſiaſtical, or Scriptural Day, begins at ſix a-Clock in the Evening, and holds till ſix in the Evening the enſuing Day. See Day.

Hence, the Collect for every Sunday and Holy-Day, by Order of the Church, is to be read at the preceding Evening-Service at ſix a-Clock the Day before; from which time the Religious Day was ſuppoſed to begin.

And this firſt part of the Holy-day, from ſix a-Clock the Day before, was, by the primitive Chriſtians, ſpent in Hymns and other Devotions; and being often continu'd till late in the Night, were call'd *Vigils*.

Theſe *Vigils* came, by degrees, to be ſo enlarg'd, that at laſt all the Day preceeding the Holy-day was call'd by this Name.

VIGILIA, that State of an Animal which is oppoſite to Sleep, and popularly call'd *Waking*, or *Watching*. See SLEEP, and WAKING.

VIGINTIVIRATE, a Dignity among the antient *Romans*, eſtabliſh'd by *Cæſar*.

This Dignity comprehended four others; for of the *Vigintiviri*, or twenty Men which compos'd the Company, there were three who ſat and judg'd of all Criminal Affairs; three others had the Inſpection of the Coins and Coinage; four took Care of the Streets of *Rome*; and the reſt were Judges of Civil Affairs.

VILL. See VILLAGE.

VILLA *Regis*, a Title antiently given to thoſe *Villages* where the Kings of *England* had a Royal Seat, and held the Manor in their own Demeſn.

VILLAGE, VILLA, or VILL, an Aſſemblage of Houſes, inhabited chiefly by Peaſants and Farmers, having uſually a Church, but no Market.

The want of a Market diſtinguiſhes it from a *Town*, as the Church does from a Green, Street, *&c.* See TOWN, *&c.*

The Word is *French*, form'd of *vil*, or *vilis*, low, mean, contemptible.

Among our *Saxon* Anceſtors, *Vill* or *Village* was uſed in the Senſe of the Roman *Villa*; *viz.* for a Country Farm or Seat, furniſh'd with convenient Out-houſes, *&c.* for repoſiting the Fruits thereof.

Afterwards it came to be taken for a *Manor*, then for part of a Pariſh, or the Pariſh it ſelf. See PARISH.

Hence, in ſeveral antient Law-Books, *Vill* and *Pariſh* are the ſame thing: Accordingly, *Forteſcue, de Laudibus Leg. Ang.* writes, That the Boundaries of *Villages*, are not by Houſes, Streets, or Walls, but by a large Circuit of Ground, within which may be divers Hamlets, Waters, Woods, *&c.*

Fleta makes this difference between a *Manſion*, a *Village*, and a *Manor*; that a Manſion may conſiſt of one, or more Houſes; tho it is only to be one Dwelling-place, without any other very near it: for if other Houſes be contiguous, 'tis then a *Village*. A Manor may conſiſt of one or more *Villages*. See MANSION, and MANOR.

For the better Government of *Villages*, the Lord of the Soil has uſually a Power to hold a Court-Baron, every three Weeks. See COURT-*Baron*.

VILLAIN, in our antient Cuſtoms, the ſame with *Bondman*. See BONDMAN.

In Doomſday Book he is call'd *Servus*, Servant, Slave. See SERVANT, SLAVE, *&c.*

A *Villain* was one who held Lands in *Villenage*, or on condition of rendering baſe Services to his Lord. See SERVICE.

There were antiently in *England* two ſorts of *Villains*, viz. *Villains in Groſs*, who were bound immediately to the Perſons of their Lords, and to their Heirs; and *Villains regardant to a Manor*: Theſe the Civilians call *Glebæ Aſcripti*; and they were bound to their Lord, as Members belonging to ſuch a Manor, of which he was owner.

This latter was a pure *Villain*, of whom the Lord took Redemption to marry his Daughter, and to make him free; and he might put him out of his Lands and Tenements at his Will; might beat and chaſtiſe him, but not maim him.

There are not properly any ſuch *Villains* now, tho the Law concerning them ſtands unrepeal'd.

The Lands before held in *Villenage*, are now held in free and common Socage. See TENURE, SOCAGE, *&c.*

They were call'd *Villains* from *Villa*; becauſe they dwelt in *Villages*: The ſame were alſo call'd *Pagenſes*, and *Ruſtici*; and of ſuch ſervile Condition were they, that they were uſually ſold with the Farm to which they reſpectively belong'd.

VILLAIN *Eſtate*, or *Condition*, is contradiſtinguiſh'd to Free Eſtate. See FREE *Eſtate*.

VILLAINOUS *Judgment*, is that which caſts the Reproach and Stain of *Villany* and Shame on him againſt whom it is given. See JUDGMENT.

Such is that againſt a Conſpirator, *&c.*

Lambard calls it *Villainous Puniſhment*; and ſays, it may well be call'd *Villainous*, in regard the Judgment, in ſuch Caſe, ſhall be like the antient Judgment in attaint, *viz.* that the Criminals ſhall not be of any Credit afterwards; nor ſhall it be lawful for them, in Perſon, to approach the King's Court: That their Lands and Goods ſhall be ſeiz'd into the King's Hands, their Trees rooted up, their Bodies impriſon'd, *&c.*

VILLENAGE, or VILLAINAGE, a ſervile kind of Tenure of Lands or Tenements; whereby the Tenant was bound to do all ſuch Service as the Lord commanded, or were fit for a *Villain* to perform. See VILLAIN.

This *Bracton* expreſſes by, *Sciri non poterit veſpere, quale ſervitium fieri debet mane.*

Villenage is divided into that *by Blood*, and that *by Tenure.*

Tenure in *Villenage*, could make no Freeman a Villain, unleſs it were continu'd time out of Mind; nor could free Land make a *Villain* free. See TENURE.

Villenage is alſo divided by *Bracton* into *Pure Villenage*, where the Services to be perform'd were indeterminate and arbitrary, as above expreſs'd; and *Socage Villenage*, which was to carry the Lord's Dung into his Fields, to plough his Ground on certain Days, ſow and reap his Corn, *&c.* and even to empty his Jakes; as the Inhabitants of *Bickton* were bound to do to the Lord of *Clun-Caſtle* in *Shropſhire*: which was afterwards turn'd into a Rent, now call'd *Bickton Silver*; and the *Villainous* Service excus'd.

VILLI, *Coarſe Hair*, in Anatomy, is uſed in the ſame Senſe as Fibres, or *Fibrillæ*. See FIBRE.

In Botany, *Villi* denotes a ſort of *Tomentum*, or Down, like the Grain or Shag of Pluſh; with which, as a kind of Excreſcence, ſome Trees do abound.

VILLOUS, VILLOSA, is particularly apply'd to one of the Coats or Membranes of the Stomach, call'd *Cruſta Villoſa*. See STOMACH, *&c.*

It takes its Name from innumerable *Villi*, or fine *Fibrillæ*, wherewith its inner Surface is cover'd. See CRUSTA *Villoſa*.

VINALIA, in Antiquity, a Name common to two Feaſts among the antient *Romans*; the one in honour of *Jupiter*, and the other of *Venus*. See FEAST.

The firſt was held on the 19th of *Auguſt*, and the ſecond on the 1ſt of *May*.

The *Vinalia* of the 19th of *Auguſt* were call'd *Vinalia Ruſtica*, and were inſtituted on occaſion of the War of the *Latins* againſt *Mezentius*; in the Courſe of which War, that People vow'd a Libation to *Jupiter* of all the Wine of the ſucceeding Vintage.

On the ſame Day likewiſe fell the Dedication of a Temple of *Venus*; whence ſome Authors have fallen into a Miſtake, that theſe *Vinalia* were ſacred to *Venus*. But *Varro*, LLL. V. and *Feſtus*, in *Verbo Ruſtica*, diſtinguiſh between the two Ceremonies; and expreſly aſſert the *Vinalia* to be a Feaſt of *Jupiter*.

VINCULUM, in Fluxions, denotes ſome compound Surd Quantity's being multiply'd into a Fluxion, *&c.*

Thus, in this Expreſſion, $\underline{a x \sqrt{a x}} - o a$, the *Vinculum* is the compound Surd, $\overline{\sqrt{o x - a a}}$, which is x^d into a^x.

VINDEMIATING, the gathering of Grapes, or other ripe Fruits; as Apples, Pears, Cherries, *&c.*

The Word is form'd of the Latin *Vindemia*, Vintage. See VINTAGE.

VINDEMIATRIX, a Fixed Star of the third Magnitude, in the Conſtellation Virgo; whoſe Longitude, Latitude, *&c.* ſee among the reſt of thoſe of VIRGO.

VINDICATION, *Claiming*, in the Civil Law, an Action ariſing from the Property a Perſon has in any thing: or a Permiſſion to take or ſeize a thing as one's own, out of the Hands of a Perſon whom the Law has doom'd not to be the true Proprietor.

VINE, a Noble Plant or Shrub, of the Reptile Kind; famous for its Fruit, or *Grapes*, and for the Liquor they afford. See WINE.

The Kinds of *Vines* are almoſt infinite; denominated, either from the Soil and Place where they grow; as the *Bourguignon*, *Bourdelas*, *Italian*, *Mantua Vine*, &c. or from the Form, Colour, Taſte, *&c.* of their Grapes; as the Acorn, Apricot, Damaſk, Birds-bill, Muſcadine, *&c.* See GRAPE.

Our Gardeners find, that *Vines* are capable of being cultivated in *England*, ſo as to produce large Quantities of Grapes; and thoſe ripen'd to ſuch a degree, as may afford a good ſubſtantial vinous Juice. Witneſs the Vineyards in *Somerſetſhire*; particularly that famous one at *Bath*.

In effect, it does not ſeem ſo much owing to the Inclemency of our *Engliſh* Air, that our Grapes are generally inferior to thoſe of *France*, &c. as to the want of a juſt culture.

Thoſe fitteſt for the *Engliſh* Climate, Mr. *Mortimer* finds to be the ſmall black Grape, the white Muſcadine, Parſley Grape, Muſcadilla, white and red Frontigniac.—Mr. *Bradley* recommends the *July* Grape, the early ſweet Water Grape lately brought from the Canaries; the *Arbois*, or *French* ſweet Water Grape: All which, if well manag'd, and the Weather favourable, are ripe by the middle of *Auguſt*. He alſo recommends the Claret and *Burgundy* Grapes.

The beſt Soil for *Vines*, according to *Mortimer*, is the hotteſt Gravel, Sand, or dry rocky Ground; provided it be well water'd and ſhaded.——At firſt planting, Mr. *Bradley* recommends chalky Hills, as proper for *Vines*.

To mend a Soil that wants thoſe Qualities, 'tis good to throw in the rubbiſh of old Buildings, well mix'd with twice as much Earth and ſifted about the Roots of the *Vines*. See VINEYARD.

Vines are propagated either by Layers, or Cuttings; that is, either by laying down the young Branches as ſoon as the Fruit is gather'd, or by making Plantations of Slips, or Cuttings, at that time. See PROPAGATION.

Mr. *Mortimer* ſays, it may be done any time in the Winter before *January*; tho *Bradley* ſays, he has done it with ſucceſs in *March* and *April*.

For the Pruning of VINES. See PRUNING.
For the Planting of VINES. See VINEYARD.

VINEA, in Fortification. See MANTELET.

VINEGAR, *Acetum*, an agreeable, acid, penetrating Liquor, prepar'd from Wine, Cyder, Beer, and other Liquors; of conſiderable uſe, both as a Medicine, and a Sauce. See ACETUM.

Wine, and other vinous Liquors, are ſaid to gain a grateful ſharpneſs, *i. e.* to become *Vinegar*, by having their Salts exalted by Inſolation, or other means; and their Sulphurs weaken'd and depreſs'd.

Others aſcribe the Converſion of vinous Liquors into *Vinegar*, to the grinding or ſharpening of the longitudinal Particles thereof; by which means, they become more tart and pungent.

The Method of making *Vinegar* has long been kept a Secret among the People of the Profeſſion; who, 'tis ſaid, oblige themſelves to each other by Oath not to reveal it. But notwithſtanding this, the *Philoſophical Tranſactions*, and ſome other later Writings, furniſh us with approved Accounts thereof.

Method of making VINEGAR *of Cyder.*

The Cyder, (the meaneſt of which will ſerve the Purpoſe) is firſt to be drawn off fine into another Veſſel, and a quantity of the Muſt, or Pouz of Apples to be added: The whole is ſet in the Sun, if there be a Conveniency for the Purpoſe, and at a Week or nine Days end it may be drawn off. See CYDER.

Method of making VINEGAR *of Beer.*

Take a middling ſort of Beer, indifferently well Hopp'd; into which, when it has work'd well, and is grown fine, put ſome Rapes, or Huſks of Grapes, uſually brought home for that purpoſe: Maſh them together in a Tub; then letting the Rape ſettle, draw off the liquid Part, put it into a Caſk, and ſet in the Sun as hot as may be; the Bung being only cover'd with a Tile, or Slate-ſtone: and in about thirty or forty Days, it will become a good *Vinegar*, and may paſs in uſe as well as that made of Wine, if it be refined, and kept from turning muſty.

Or thus: To every Gallon of Spring Water, add three Pounds of Malaga Raiſins; which put into an earthen Jar, and place them where they may have the hotteſt Sun from *May* till *Michaelmas:* then preſſing all well, tun the Liquor up in a very ſtrong iron-hoop'd Veſſel, to prevent its burſting: It will appear very thick and muddy when newly preſs'd; but will refine in the Veſſel, and be as clear as Wine. Thus let it remain untouch'd for three Months, before it be drawn off, and it will prove excellent *Vinegar*.

To make VINEGAR *of Wine, or vinous Liquors.*

Any ſort of vinous Liquor, being mixed with its own Fæces, Flowers, or Ferment, and its Tartar, firſt reduced to Pouder; or elſe with the acid and auſtere Stalks of the Vegetable from whence the Wine was obtain'd, which hold a large proportion of Tartar; and the whole being kept frequently ſtirring in a Veſſel which has formerly held *Vinegar*, or ſet in a warm place full of the Steams of the ſame, will begin to ferment anew, conceive heat, grow ſour by degrees, and ſoon after turn into *Vinegar*.

The remote Subjects of acetous Fermentation, are the ſame with thoſe of vinous; but the immediate Subjects of it, are all kinds of vegetable Juices, after they have once undergone that Fermentation which reduces 'em to Wine: for 'tis abſolutely impoſſible to make *Vinegar* of Muſt, the crude Juice of Grapes, or other ripe Fruits, without the aſſiſtance of the vinous Fermentation.

The proper Ferments of this Operation, whereby *Vinegar* is prepar'd, are, 1ſt, The Fæces of all acid Wines: 2d, The Lees of *Vinegar:* 3d, Pulveriz'd Tartar; eſpecially that of Rheniſh Wine, or the Cream or Cryſtals thereof: 4th, *Vinegar* it ſelf: 5th, A wooden Veſſel, well drench'd with *Vinegar*, or one that has long been employ'd to contain it: 6th, Wine that has often been mix'd with its own Fæces: 7th, The Twigs of Vines, and the Stalks of Grapes, Currants, Cherries, or other Vegetables of an acid auſtere Taſte: 8th, Bakers Leaven, after it's turn'd acid: 9th, and laſtly, All manner of Ferments, compounded of thoſe already mention'd.

Vinegar is no Production of Nature, but a Creature of Art: For Verjuice, the Juices of Citrons, Lemons, and the like native Acids, are improperly ſaid to be natural *Vinegars*; becauſe, when diſtill'd, they afford nothing but vapid Water: whereas it is the Property of *Vinegar* to yield an acid Spirit by Diſtillation.

Method of making VINEGAR *in* France.

In *France* they uſe a Method of making *Vinegar* different from that above deſcrib'd.—— They take two very large oaken Veſſels, the larger the better, open at the top; in each whereof they place a wooden Grate, within a Foot of the bottom: upon theſe Grates, they firſt lay Twigs, or Cuttings of Vines, and afterwards the Stalks of the Branches, without the Grapes themſelves, or their Stones; till the whole Pile reaches within a Foot of the brims of the Veſſels: Then they fill one of theſe Veſſels with Wine to the very top, and half fill the other; and with Liquor drawn out of the full Veſſel, fill up that which was only half full before; daily repeating the ſame Operation, and pouring the Liquor back from one Veſſel to the other; ſo that each of them is full, and half full by turns.

When this Proceſs has been continued for two or three Days, a degree of heat will ariſe in the Veſſel which is then but half full, and increaſe for ſeveral Days ſucceſſively, without any appearance of the like in the Veſſel which happens to be full during thoſe Days; the Liquor whereof will ſtill remain cool: and as ſoon as the heat ceaſes in the Veſſel that is half full, the *Vinegar* is prepar'd: Which, in the Summer, happens on the fourteenth or fifteenth Day from the beginning; but in the Winter, the Fermentation proceeds much ſlower; ſo that they are oblig'd to forward it by artificial warmth, or the uſe of Stoves.

When the Weather is exceeding hot, the Liquor ought to be pour'd off from the full Veſſel into the other twice a-day: otherwiſe, the Liquor would be over-heated, and the Fermentation prove too ſtrong; whence the ſpirituous Parts would fly away, and leave a vapid Wine, inſtead of *Vinegar* behind.

The full Veſſel is always to be left open at the top, but the Mouth of the other muſt be cloſed with a Cover of Wood; in order the better to keep down and fix the Spirit in the Body of the Liquor; for otherwiſe, it might eaſily fly off in the heat of Fermentation.—— The Veſſel that is only half full ſeems to grow hot, rather than the other, becauſe it contains a much greater Quantity of the Vine-twigs and Stalks than that, in proportion to the Liquor; above which the Pile riſing to a conſiderable height, conceives heat the more, and ſo conveys it to the Wine below.

VINEGAR *of Antimony*, is an acid Spirit, drawn by Diſtillation from the *Marcaſite* of Antimony. See ANTIMONY.

Its uſe is commended in continued and malignant Fevers. —The Apothecaries likewiſe make a kind of Theriacal *Vinegar* of Dittany, Angelico, Valerian, Cardimums, Oranges, &c. See ACETUM.

The Word *Vinegar* is *French*; form'd from *Vin*, Wine, and *aigre*, ſour. See WINE.

VINEYARD, a Plantation of Vines. See VINE.

The beſt Situation of a *Vineyard*, is on the Declivity of an Hill lying to the South. See EXPOSURE.

The *Vine* is propagated by Slips, Layers, or Suckers, planted in a Nurſery, and thence tranſplanted, about *February*, into the *Vineyard*.

As to the Soil, it is agreed, nothing can be too dry for them: And as to the ſorts of *Vines*, none but the forward ones to be planted in *England*.—Theſe are found to ripen very well in open Borders without Walls.

They are to be planted in Lines running North and South, five or ſix Foot apart; only two *Vines* in each Hole.—The *September* following, the Shoots of that Summer to be prun'd ſhorter, according to their Strength; and the Summer following, the ſtrongeſt will begin to ſhew a little Fruit. They are now to be ſupported with Stakes, &c. ſo as they may run about a Foot above ground: The higher they run, the leſs danger they are in of being ſpoil'd with Wet; but the lower, the ſweeter Grapes, and the ſtronger Wine.

If, notwithſtanding due pruning, they don't ſeem inclinable to bear large Bunches, the Ground to be help'd with a Mixture of Rubbiſh of ſome old Building, with Sea-coal Aſhes, or Drift Sand.—Thus manag'd, a *Vineyard*, in five or ſix Years, will produce good ſtore of Grapes.

The celebrated *Vineyard* at *Bath*, containing about ſix Acres of Ground, planted with White, Muſcadine, and Black cluſter Grapes, Mr. *Bradley* aſſures us, by ſuch Management, four or five Years ago, yielded 60 Hogſheads of Wine at a Vintage: Tho in the Year 1721, it only yielded three Hogſheads.

The ſame Author mentions a little *Vineyard* of a private Gardener at *Rotherhith*; which, tho only conſiſting of 100 Vines, and ſome of them only of the ſecond Year's growth, yielded at a Vintage 95 Gallons of Wine; which, he adds, had the true *Burgundy* Flavour, as being made from that ſort of Grape: and exceeded any made from any *Vineyard* on this ſide *Paris*. See WINE.

VINTAGE, the Crop of Wine, or what is got from the Vines each Seaſon. See WINE.

The Word is alſo uſed for the Time or Seaſon of gathering or preſſing the Grapes.

In *France*, a Decree or Ordonnance of the proper Judge, and a ſolemn Publication thereof, are requir'd, ere the *Vintage* can be begun.

VINOUS, Vinosus, ſomething that relates to Wine; particularly the Taſte, and Smell thereof. See Wine.

All Vegetables, by a due Treatment, afford a *Vinous* Liquor; as Corn, Pulſe, Nuts, Apples, Grapes, *&c.* See Malt, Brewing, *&c.*

And a ſecond Fermentation, duly manag'd, turns any *Vinous* Liquor into an acetous one. See Vinegar.

The proper Character and Effect of Fermentation, is to produce either a *Vinous* or an acetous Quality in the Body fermented. See Fermentation.

Some of our Countrymen, bound on a Voyage to the *Eaſt Indies*, having fill'd ſeveral Caſks with *Thames*-Water, to carry along with 'em; obſerv'd an inteſtine Motion in it, when they came to the Equator; and found it afterwards turn'd into a kind of *Vinous* Liquor, capable of affording an inflammable Spirit by Diſtillation.

This, without diſpute, proceeded from the Flowers, Leaves, Roots, Fruits, and other vegetable Matters, continually falling or waſh'd down into that River.——Such Waters are always found in a State of Putrefaction, ere they put on a *Vinous* Nature. See Putrefaction.

VINUM, a Liquor, or Drink, popularly call'd *Wine*. See Wine.

Vinum, in Medicine, or Vinum *Medicatum*, is particularly applied to ſeveral *medicated Wines, i. e.* Medicinal Preparations, whereof that Liquor is the Baſis; ſuch as the

Vinum Marinum, Sea-Wine; made by caſting Sea-Water on the Grapes in the Vat.

Vinum Cydonites, Quince-Wine; made of Slices of that Fruit, ſteep'd in Muſt, or new Wine.

Vinum Roſatum, Roſe-Wine; made by ſteeping Roſes for three Months in Wine.

Vinum Strobilites, or Pine-Apple Wine:—*Vinum Hyſopites*, Hyſop-Wine.

Vinum Aromaticum, made by infuſing Aromaticks, or Spices, in new Wine or Muſt.

Vinum Picatum, pitch'd Wine; made of Pitch infus'd in Muſt.

Vinum, call'd alſo *Acetum, Scilliticum.* See Scilliticum.

Vinum Abſynthites, or Wormwood-Wine; is made of the great or little *Abſynthium*, by taking the Apices or Tops of the Flowers, putting them in a *Sacculus*, or Bag, and ſuſpending it in the middle of a Veſſel of Wine; which fermenting, extracts the Taſte, Smell, and Virtues of the Wormwood.

Vinum Emeticum, Emetic Wine; is Wine wherein Glaſs, Regulus of Antimony, and Crocus Metallorum have been ſteep'd. See Emetic.

It only takes a certain degree of Efficacy from the Matters; nor is it found any ſtronger at three Months end, than at the end of eight Days.—It purges both upwards and downwards.

Vinum Hippocraticum, or Hippocras; ſo called of *Manica Hippocratis*, or *Hippocrates*'s Sleeve, thro' which it is ſtrained; is a ſort of ſpiced Wine, in which Sugar and Spices have been ſteeped for ſometime. See Claret, *&c.*

VIOL, a Muſical Inſtrument, of the ſame Form with the *Violin*; and ſtruck, like that, with a Bow. See Violin.

There are *Viols* of divers Kinds: The firſt, and the principal, among us, is the *Baſs-Viol*, call'd by the *Italians Viola di Gamba*, or the *Leg-Viol*; becauſe held between the Legs.

'Tis the largeſt of all; and is mounted with ſix Strings, having eight Stops, or Frets, divided by Semi-tones.

Its Sound is very deep, ſoft, and agreeable.—The Tablature, or Muſick for the Baſs-Viol, is laid down on ſix Lines, or Rules.

What the *Italians* call *Alto Viola*, is the Counter-Tenor of this; and their *Tenore Viola* the Tenor. They ſometimes call it ſimply the *Viol*: Some Authors will have it the *Lyra*, others the *Cithara*, others the *Chelis*, and others the *Teſtudo* of the Antients. See Lyra, *&c.*

2°, The *Love-Viol*, which is a kind of Triple *Viol*, or Violin; having ſix braſs or ſteel Strings, like thoſe of the Harpſichord.—It yields a kind of ſilver Sound, which has ſomething in it very agreeable.

3°, A *Large Viol*, with 44 Strings, call'd by the *Italians Viola di Bardone*; but little known among us.

4°, The *Viola Baſtarda*, or *Baſtard Viol*, of the *Italians*; not uſed among us: *Broſſard* takes it to be a kind of *Baſs-Viol*, mounted with ſix or ſeven Strings, and tuned as the common one.

5°, What the *Italians* call *Viola di Braccio*, Arm-*Viol*; or ſimply *Braccio, Arm*; is an Inſtrument anſwering to our Counter-Tenor, Treble, and Fifth Violin.

6°, Their *Viola Prima*, or *Firſt Viol*, is really our Counter-Tenor Violin; at leaſt, they commonly uſe the Cliff of *C ſol ut* on the firſt Line, to denote the Piece intended for this Inſtrument.

7°, Their *Viola Secunda*, is much the ſame with our Tenor Violin; having the Key of *C ſol ut* on the ſecond Line.

8°, Their *Viola Terza*, is nearly our Fifth Violin; the Key *C ſol ut* on the third Line.

9°, Their *Viola Quarta*, or Fourth *Viol*, is not known in *England* or *France*: Tho we frequently find it in the *Italian* Compoſitions; the Key on the fourth Line.

Laſtly, their *Violetta*, or little *Viol*; is, in reality, our Triple *Viol*: Tho Strangers frequently confound the Term with what we have ſaid of the *Viola Prima, Secunda, Terza*, &c.

Viol is alſo a Term uſed among Mariners, when a ſtrand Rope is bound faſt with Nippers to the Cable, and brought to the Jeer-Capſtan, for the better weighing of the Anchor. See Anchor.

VIOLATION, the Act of *Violating, i. e.* forcing a Woman, or committing a Rape upon her. See Rape.

Ammon, David's Son, *violated* his Siſter, who was aveng'd by *Abſalom*: *Tereus* violated his Siſter-in-Law *Philomela*.——To violate the Queen, the King's Eldeſt Daughter, or the Princeſs of *Wales*, is High Treaſon. See Treason.

Violation is alſo uſed in a Moral Senſe for a Breach or Infringment upon a Law, Ordinance, or the like.——Thus, we ſay, A *Violation* of the Law of Nature, of a Treaty of Peace, of one's Oath, *&c.*——The Law of Nations was *violated* in the Inſult offer'd to Mr. *S*—— the King's Embaſſador at *Madrid*.

The Word is alſo uſed for a Profanation.——In this Senſe, we ſay, to *violate* a Church, *&c.* See Profanation.

VIOLENT, in the Schools. A Thing is ſaid to be *violent*, when effected by ſome external Principle; the Body that undergoes it contributing nothing thereto, but ſtruggling againſt it.

The Body, in ſuch Caſe, is ſaid to *ſtruggle*, by reaſon whatever is *Violent*, diſcompoſes and diſtracts a thing from its natural Conſtitution, and tends to deſtroy it.

The Schoolmen all allow, that Man, as being endu'd with Reaſon, is capable of ſuffering ſuch *Violence*; but brute and inanimate Bodies are not: *In Brutum*, &c. Violentum *non cadit*.

VIOLIN, or *Fiddle*, a Muſical Inſtrument, mounted with four Strings, or Guts; and ſtruck, or play'd with a Bow.

The *Violin* conſiſts, like moſt other Inſtruments, of three Parts; the *Neck*, the *Table*, and the *Soundboard*.

At the Sides are two Apertures, and ſometimes a third towards the Top, ſhaped like a Heart.

Its Bridge, which is below the Apertures, bears up the Strings, which are faſten'd to the two Extremes of the Inſtrument; at one of them, by a Screw, which ſtretches, or looſens 'em at pleaſure.

The Style and Sound of the *Violin*, is the gayeſt and moſt ſprightly of all other Inſtruments; and hence it is of all other the fitteſt for dancing. Yet there are ways of touching it, which render it grave, ſoft, languiſhing, and fit for Church or Chamber Muſick.

It generally makes the Treble, or higheſt Part in Conſorts.—Its Harmony is from Fifth to Fifth. Its play is compoſed of Baſs, Counter-Tenor, Tenor, and Treble; to which may be added, a Fifth Part: Each Part has four Fifths, which riſe to a greater Seventeenth.

In Compoſitions of Muſick, *Violin* is expreſs'd by V: two V V denote two *Violins*.

The Word *Violin*, alone, ſtands for *Treble Violin*: When the *Italians* prefix *Alto, Tenore*, or *Baſſo*, it then expreſſes the Counter-Tenor, Tenor, or Baſs *Violin*.

In Compoſitions where there are two, three, or more different *Violins*, they make uſe of *primo, ſecundo, terzo*, or of the Characters I° II° III°, or 1° 2° 3°, *&c.* to denote the difference.

The *Violin* has only four Strings, each of a different thickneſs, the ſmalleſt whereof makes the *E ſi mi* of the higheſt Octave of the Organ; the ſecond, a Fifth below the firſt, makes the *A mi la*; the third, a Fifth below the ſecond, is *D la re*; laſtly, the fourth, a Fifth below the third, is *G re ſol*.

Moſt Nations, ordinarily, uſe the Key *G re ſol* on the ſecond Line, to denote the Muſick for the *Violin*; only in *France*, they uſe the ſame Key as the firſt Line at bottom: The firſt Method is beſt where the Song goes very low, the ſecond where it goes very high.

The *Violoncella* of the *Italians*, is properly our Fifth *Violin*; which is a little Baſs *Violin* with five or ſix Strings.

And their *Violone* is a Double Baſs, almoſt twice as big as the common Baſs *Violin*, and the Strings bigger and longer, in proportion; and conſequently, its Sound an Octave lower than that of our Baſs *Violin*, which has a noble Effect in great Concerto's.

VIPER, in Natural Hiſtory, a kind of Serpent, famed not only for the exceeding Venomouſneſs of its Bite, which is one of the moſt dangerous Poiſons in the Animal Kingdom,

dom, but alſo for the great uſefulneſs of its Fleſh in Medicine: Whence *Vipers* come to make a conſiderable Article in divers Arts.

This remarkable Reptile has the biggeſt and flatteſt Head of all the Serpent-kind. Its uſual length is about half an Ell; and its thickneſs an Inch: Its Snout is not unlike that of an Hog.

It has ſixteen ſmall immoveable Teeth in each Jaw; and, beſides, two other large, ſharp, hooked, hollow, tranſparent, canine Teeth, ſituate at each ſide of the upper Jaw, which are thoſe that do the Miſchief: Theſe are flexible in their Articulation; and are ordinarily laid flat along the Jaw, the Animal never raiſing 'em but when it would bite.

The Roots or Baſes of theſe Teeth are incompaſs'd with a Veſicle, or Bladder, containing the quantity of a large drop of a yellow inſipid ſalivous Juice.

It has only one Row of Teeth; whereas all other Serpents have two: Its Body is not at all fetid; whereas the inner Parts of the Bodies of other Serpents are intolerable. —It creeps very ſlowly, and never leaps like other Serpents; tho 'tis nimble enough to bite when provok'd.

Its Body is of two Colours, aſh-colour'd, or yellow, and the ground ſpeckled with longiſh brown Spots.—The Scales under its Belly are of the Colour of well-poliſh'd Steel.

The Male has two Sets of Genital Inſtruments, and the Female two Matrixes, &c. She brings forth her young living; whereas other Serpents lay Eggs and hatch 'em: On which account, the *Viper* is rank'd among the Viviparous Animals. See VIVIPAROUS.

Her young ones come forth wrap'd up in thin Skins, which break on the third day, and ſet the Animal at liberty.—She brings forth to the Number of 20 young; but only one each Day.

The Antients, particularly *Pliny*, *Galen*, &c. believ'd that the young kill'd their Mother in the Delivery; but this is not the only Miſtake they were guilty of on the Subject of the *Viper*. They held that it eat Cantharides, Scorpions, *&c.* which render'd its Poiſon ſo very dangerous.

Dr. *Mead* obſerves, that the Antients eſteem'd the *Viper* ſacred; and that one of the Kings of the *Eaſt Indies* cauſed Cottages to be built for their Entertainment, and their Killers to be puniſh'd with Death.——On Medals, the *Viper* is frequently repreſented as a Symbol of divine Power; and as ſuch, uſed by way of attribute to the antient Phyſicians.

As to the manner wherein the *Viper* conveys its Poiſon, Authors are a little diſagreed.——*Franciſco Redi*, and *Moiſe Charras*, have each of 'em wrote very curious Pieces on the Subject, but their Reſult is very different.

Redi maintains, that all the Venom of the *Viper* is contain'd in the two *Veſiculæ*, or Bags which cover the Baſe of the two canine Teeth; whence, upon biting, the yellowiſh Liquor is ſqueez'd out into the Wound: where, mixing with the Blood and other Juices, it produces thoſe dreadful Symptoms.

This Hypotheſis he maintains by a good number of Experiments, as of Animals, *viz.* Cocks, *&c.* being bit with *Vipers* after theſe *Veſiculæ* and their Juice had been taken out; without any Signs of Poiſon, or any ill Conſequence at all.

Charras, on the other hand, maintains, that this yellow Liquor is not poiſonous; that he has given it to Pidgeons as Food, without their being at all diſorder'd thereby; that the *Viper*'s bite he has always found mortal to Animals, even after the Bag has been taken clear out, as well as before: And laſtly, that the Poiſon muſt lie in the irritated Spirits of the *Viper*, which it exhales in the Ardor of its biting; and which are ſo cold, that they curdle the Blood, and ſtop the Circulation.

The Controverſy between theſe two ingenious Authors is very extraordinary: Their Syſtems are oppoſite; yet both maintain'd by a great number of well atteſted Experiments. —The Publick, however, generally give into the Sentiment of Sig. *Redi*; as anſwering beſt to the Mechaniſm of the Parts.

Dr. *Mead* ſuppoſes it the true one, in his Eſſay on the Poiſon of the *Viper*; and adds to *Redi*'s Account, that the Poiſon in the *Viper*'s Bag is ſeparated from the Blood by a conglomerated Gland, lying in the lateral anterior part of the *Os Sincipitis*, behind the Orbit of the Eye; from which Gland is a Duct that conveys the Poiſon to the Bags at the Teeth. The Teeth, he adds, are tubulated for the Conveyance and Emiſſion of the Poiſon into the Wound; but their hollowneſs does not reach to the Apex or Tip of the Tooth, but ends in a long Slit below the Point, out of which the Poiſon is emitted.

Theſe Slits, or Perforations of the Teeth, *Galen* ſays, the Mountebanks of his Days uſed to ſtop with ſome kind of Paſte; after which, they would publickly expoſe themſelves to be bitten, without danger.

Account of the Effects of the Bite of the Viper, *from Dr.* Mead.

The Symptoms following the Bite of a *Viper*, are an acute Pain in the Place wounded; Swelling, firſt red, afterwards livid, ſpreading by degrees; great Faintneſs; a quick, low, and ſometimes interrupted Pulſe; Sickneſs at the Stomach; bilious convulſive Vomiting; cold Sweats; ſometimes Pains about the Navel; and Death it ſelf, if the Strength of the Patient, or ſlightneſs of the Bite do not overcome it.

If he do overcome it, the Swelling continues inflam'd for ſome time; and the Symptoms abating, from the Wound runs a ſanious Liquor, little Puſtles are rais'd about it, and the Colour of the Skin is as if the Patient were Icterical.

By the Microſcope, the *Virus* was found to conſiſt of minute Salts in continual Motion; after which, a Number of *Spicula* or Darts appear'd, reſembling, but much finer, a Spider's Web.——This, when mixed with *Syr. Violor.* inclined to red, no ways to green; ſo that the Juice is not alkalious: But Mr. *Boyle* and Dr. *Pitcairn* prove the Blood to be only an Alkaly.

Such a ſmall Quantity of the *Virus* ſeems to have its Effect by wounding the Fibres, and altering the Coheſion of the Globules of Blood, which by the elaſtick Matter thereof proves a nimble Vehicle to carry the Viperine *Spicula* almoſt every where ſuddenly.—They will alſo ſtimulate and fret the ſenſible Membranes; whereupon, a more than uſual Afflux of the Animal Juices will be carried to the Parts.

The Cure ſeems very unſettled: Mr. *Boyle* found a hot Iron held near the Place ſucceſsful; but it proved otherwiſe with Monſieur *Charras*.—Again, the Snake-ſtone from the *Eaſt Indies*, immediately applied to the Place, is much commended: But Signior *Redi* and Monſieur *Charras* found it of no uſe; yet *Baglivi* and Dr. *Havers* give Inſtances of its good Succeſs.

Dr. *Mead* adds, that the ſame Stone directly applied to a Pigeon when bitten, ſaved its Life four Hours; whereas, moſt of the other Pigeons bitten died in half an Hour.

This Stone is not Natural, but Factitious; its Virtue lies in its Poroſity, which is ſuppoſed to imbibe the *Virus*.

The *Viper*-Catchers have a Specifick, in which they can ſo far confide, as not to be afraid of being bitten.——That Specifick is the *Auxungia* of the *Viper* preſently rubb'd into the Wound; which conſiſting of clammy, viſcid, penetrating, and active Parts, ſheaths the Salts of the *Virus*.

The ſame Author, applying it to the Noſtrils of a Dog bitten, found it well the next Day: When this is not timely applied, and the *Virus* has inſinuated into the Blood, the *Sal Viper.* is excellent, given and repeated till Sweats be produced. This ſucceeded well with Monſieur *Charras*; and Dr. *Mead* relates, that it recover'd one, after the *Virus* had induc'd an univerſal Icterus.

Vipers make a conſiderable Article in Medicine.—Moſt Authors agree, that there is no Part, Humour, or Excrement, not even the Gall it ſelf, of a *Viper*, but may be ſwallow'd without much harm.—Accordingly, the Antients, and, as ſeveral Authors aſſure us, the *Indians* at this day, both of the Eaſt and Weſt, eat 'em as we do Eels.

Caro Viperina, *Viper*'s Fleſh, either roaſted or boil'd, the Phyſicians unanimouſly preſcribe as an excellent Reſtorative; particularly in the Elephantiaſis, incurable Conſumptions, Leproſy, *&c.* and Dr. *Mead* thinks they might be leſs ſparing in the Quantity than they are; inſtead of a little *Viper*'s Fleſh, he recommends the Broth or Gelly of *Vipers*; or, as the Antients did, to boil and eat them as Fiſh, or at leaſt to drink *Vinum Viperinum*, *i. e.* Wine wherein they have been long infus'd.

Viper's *Fleſh* is an Ingredient in ſeveral of our beſt Antidotes; as the *Theriaca Andromach.* &c. See THERIACA.

The Apothecaries alſo ſell the *Pulvis Viperinus*, which is only dried *Vipers* pulveriz'd, Heart Liver and all, and paſs'd thro' a Sieve.—This, to heighten the Price we ſuppoſe, they call *Animal Bezoard*. See BEZOARD.

The *Salts of Vipers*, whether volatile or fix'd, alſo their Fat or *Axungia*, and their *Oil*, chymically drawn, are Drugs in good repute.

VIRAGO, a Maid, or Woman of extraordinary Stature; and who, with the Mien and Air of a Man, performs the Actions and Exerciſes thereof. See AMAZON.

Such were *Semiramis* and *Pentheſilea*, among the Antients, *&c.* *Jeanne à Pucelle*, commonly call'd *the Maid of Orleans* among the Moderns.

In the Vulgate Verſion of the Bible, *Eve* is called *Virago*, becauſe made of the Rib of the Man.—The *Latin* Translator, by this, aim'd to preſerve the Etymology which is in the *Hebrew*, and of *Vir*, form'd *Virago*; as *Adam*, in the *Hebrew* Text, call'd Eve *Ichad*, of *Iſch*, Man.

The Word is pure *Latin*, and ſeldom uſed but in the way of Deriſion.

VIRGA. See YARD.

VIRGA, is particularly uſed in Law, for a Verge, or Rod, ſuch as Sheriffs and Bailiffs carry as a Badge of their Office. See VERGE.

—*Ranſ. ap Howel, præpoſitus de Lantiffin, amerciatus pro eo quod habuit in manu ſua coram Juſticiariis hic* virgam *nigram & inhoneſtam, ubi habere debuiſſet* virgam *albam & honeſtam certæ longitudinis, prout decet.* In ſeſſ. Itin. de *Cardiff.* 7 *Hen.* VI.

VIRGÆ, in Phyſiology, a Meteor, call'd alſo *Columellæ*, and *Funes Tentorii*; being an Aſſemblage of ſeveral Streams of Light, repreſenting a Bundle of Rods, or Ropes. See METEOR.

It is ſuppoſed owing to the Streaming of the Sun-beams thro' certain *Rimulæ* or Chinks, at leaſt thro' the more lax and open Parts of a watry Cloud; happening chiefly in the Morning and Evening.

There is alſo another Kind, conſiſting, not of Streams of mere white Light; but, as it were, painted, of various Colours; like thoſe of the Rainbow. See RAIN-BOW.

VIRGATA *Terræ*, or VIRGA *Terræ*, a Yard Land. See YARD *Land*.

Virgata Terræ *ex 24 conſtat acris; quatuor* Virgatæ *Hidam faciunt, quinque Hidæ feodum Militis.* See HIDE, and KNIGHT's *Fee*.

VIRGATORES *Servientes*, in *Fleta*, are Virgers or Tipſtaves that attend the Judges. See VERGER, and SERJEANT *at Arms*.

VIRGIN, a Female who has had no commerce with Man; or, more properly, who has ſtill the *Flos Virginis*, or Maiden-hood. See VIRGINITY.

In the *Roman Breviary*, there is a particular Office for *Virgins* departed, anſwering to thoſe for Saints, Martyrs, and Confeſſors. See OFFICE.

Criticks and Antiquaries are much divided about a Feaſt held in that Church, in honour of S. *Urſula* and her Companions, who are ſaid in the Ritual, Legend, *&c.* to have been eleven thouſand *Virgins*.

Some imagine there has been a Miſtake in reading the antient Rituals, wherein XI. M. V. which was only an Abbreviation of *Eleven Virgin Martyrs*, was read according to the Numeral Letters, *Eleven thouſand Virgins*. F. *Sirmond* conjectures, that in the antient Liſts of Martyrs, there were found *S. S. Urſula* and *Undecimilla* V. M. and that in lieu of *Undecimilla*, which is the Name of a *Virgin* Martyr, the Copiſts had made *Undecimillia*, which is Eleven Thouſand.

By the *Moſaic* Law, the Prieſts are enjoin'd to take none to Wife but thoſe that are *Virgins*: The Widow, the Divorced, and the Harlot are to be refrain'd from.

VIRGIN is alſo applied, by way of Eminence, to *Mary* the Mother of our Saviour; as conceiving and bringing him forth, without any Breach of her Chaſtity.

Neſtorius and his Adherents, maintain'd, That the *Virgin* could not with any Propriety be called the *Mother* of God; as being really no more than the *Hoſteſs* of God: For that the eternal Word could not be conceiv'd and born of the Womb of a *Virgin*. See NESTORIANS.

This Hereſy was condemn'd at the Council of *Epheſus*; yet has it been lately reviv'd in *Holland*, chiefly by a Refugee Monk, one *Renoult*.

VIRGIN is alſo uſed, figuratively, for ſeveral Things that retain their abſolute Purity, and have never been made uſe of.

Thus, *Virgin Wax*, is that which has never been wrought, but remains as it came out of the Hive. See WAX.

Virgin Oil, is what oozes ſpontaneouſly from the Olive, *&c.* without preſſing. See OIL.

Virgin Gold, is that Metal ſuch as it is got out of the Ore, without any Mixture or Alloy; in which State it is ſo ſoft, that it will take the Impreſſion of a Seal. See GOLD.

Virgin Copper, is that which has never been melted down. See COPPER.

Virgin Mercury, is that found perfectly form'd, and fluid, in the Veins of Mines; or at leaſt, is got from the Mineral Earth, by mere Lotion, without Fire. See MERCURY.

Virgin Parchment, is, properly, that made of a kind of Cap, or Caul, which Children bring into the World on their Heads.—But the Word is alſo uſed for that made of the Skin of an abortive Lamb, or Calf. See PARCHMENT, and VELOM.

Virgin's Milk. See LAC *Virginale*.

VIRGIN's *Thread*, is a ſort of Dew, that flies in the Air, like ſmall untwiſted Silk; and which falling upon the Ground, or upon Plants, changes it ſelf into a Form like a Spider's Web. See METEOR.

The Matter of it is ſuppoſed to be of an earthy ſlimy Nature. In theſe Northern Climates, it is moſt frequent in Summer; the Days being then temperately warm, the Earth not exceeding dry, nor yet over-charg'd with Moiſture.

VIRGINALE *Clauſtrum*, in Anatomy, the ſame as *Hymen*. See HYMEN.

VIRGINEUS *Morbus*, the *Virgin*'s Diſeaſe; the Green-Sickneſs, or *Chloroſis*. See CHLOROSIS.

VIRGINITY, the Character or Criterion of a *Virgin*; or that which entitles her to the Denomination. See VIRGIN.

In the firſt Ages of the Chriſtian Church, *Virginity* grew into great Honour and Eſteem; inſomuch, that the Women were admitted to make ſolemn Vows thereof in publick.—Yet was it held infamous among the *Jews*, for a Woman to die a *Maid*.

The Veſtals, among the Antients, and the Nuns or Religious among the Moderns, found guilty of a Breach of the Vow of *Virginity*, are allotted a ſevere Puniſhment; the firſt to be buried alive, the latter to be immur'd. See VESTAL, *&c.*

The Phyſicians, both antient and modern, are exceedingly divided upon the Subject of *Virginity*: Some holding that there are no certain Marks, or Teſtimonies thereof, and others that there are.

Solomon ſays expreſly, there are four Things too wonderful for him to know: 'The way of an Eagle in the Air; 'of a Serpent on the Rock; of a Ship in the midſt of the 'Sea; and *the way of a Man in a Maid*;' which our Tranſlators have render'd, leſs juſtly, *the way of a Man with a Maid*.

Yet *Moſes* eſtabliſh'd a Teſt, which was to be concluſive among the *Jews*.—The Nuptial Sheets, it ſeems, were to be view'd by the Relations on both Sides; and the Maid's Parents were to preſerve them as a Token of her *Virginity*; to be produced, in caſe her Husband ſhould ever reproach her on that ſcore.

In caſe the Tokens of *Virginity* were not found thereon, ſhe was to be ſtoned to Death at her Father's Door.

This Teſt of *Virginity* has occaſion'd abundance of Speculation about the Parts concern'd; but the niceſt Inquiries cannot ſettle any thing certain about 'em.—Dr. *Drake* ſays expreſly, that whatever might be expected among the *Jews*, there is not the ſame Reaſon to expect thoſe Tokens of *Virginity* in theſe Countries: For, beſides that the *Hebrews* marry'd extremely young, as is the Cuſtom in all the Eaſtern Countries; there are ſeveral Circumſtances which may here fruſtrate ſuch Expectations, even in Virgins not vitiated either by any Male Contact, or any Wantonneſs of their own.

In effect, in theſe Northern Climates, the inclemency of the Air expoſes the Sex to ſuch Checks of Perſpiration, as gives a great turn to the Courſe of the Humours, and drives ſo much Humidity thro' the Parts, as may extraordinarily ſupple and relax thoſe Membranes from which the Reſiſtance is expected; and from which, in hotter Countries, it might more reaſonably be depended on.

What moſt commonly paſſes among us for a Teſt of *Virginity*, is the *Hymen*: And yet the moſt curious among the Anatomiſts are greatly divided, not only about the Figure, Subſtance, Place, and Perforations of this famous Membrane, but even about the Exiſtence thereof; ſome poſitively affirming, and others as flatly denying it. See HYMEN.

As nice a Point as that of *Virginity* is among Anatomiſts, the Midwives and Matrons treat it with leſs diffidence.—In the Statutes of the ſworn Matrons of *Paris*, containing likewiſe divers *Formula*'s of Reports and Depoſitions made in Court upon their being call'd to viſit Girls that made their Complaint of being deflower'd, they lay down fourteen Marks, whereon to form a Judgment.

Laur. Jobert, a famous Phyſician of *Montpellier*, has tranſcrib'd three of theſe Reports: one made to the Provoſt of *Paris*; another in *Languedoc*; and a third in *Bearn*.—Theſe Reports are very conſiſtent with each other; and contain fourteen Marks of *Virginity*, expreſs'd in their proper Terms; ſuch as were receiv'd among the Women of that Profeſſion, and authoriz'd in Court.

Monſieur *Jobert* does not explain thoſe Terms; nor do we find any Explanation of them any where, but in another Report of the 23d of *October*, 1672, inſerted in the *Picture of Love* of *Venette* a Phyſician of *Rochel*; a Copy of which, we ſhall here give in *Engliſh*.

" We, *Mary Miran*, *Chriſtophlette Reine*, aud *Jeanne*
" *Porte Poulet*, Sworn Matrons of the City of *Paris*, cer-
" tify to all thoſe whom it may concern, that on the 22d of
" *October*, in this preſent Year, at the Appointment of
" Monſieur the Provoſt of *Paris*, we went into the Street
" *de Pompierre*, to a Houſe next the Sign of the Silver Key;
" to view and viſit *Olive Tiſſerand* of the Age of 30 Years,
" on a Complaint made by her in Court againſt *James Mudont*,
" Citizen of *Roche ſur Mer*; for forcing and violating her
" the ſaid *Olive*: And having view'd and examin'd the
" whole with the Eye and Finger, we find,

" *Les Toutons devoyez*, that is, the Breaſts looſe and flac-
" cid, *Mammæ marcidæ & flaccidæ*: *Les Barres froiſſees*,
" *i. e.* the *Os Pubis* bruis'd, *Os Pubis colliſum*: *Le Lippion*
" *recoquille*, *i. e.* the Hair curl'd up, *Pubes in Orbem ſinu-*
" *ata*: *L'Entrepet ridé*, *i. e.* the *Perinæum* or Seam wrin-
" kled, *Perinæum corrugatum*: *Le Pouvant debiſſee*, *i. e.*
" the *Vulva* or *Pudendum* tumbled and diſorder'd, *Vulva*
" *diſſoluta & marceſcens*: *Les Balunaux pendants*, *i. e.* the
" *Labia* hanging down, *Labia pendentia*: *Le lippendis pile*,

" *i. e.*

“ *i. e.* the Edge of the *Labia* bared of Hair, *Labiorum*
“ *Ora Pilis defectæ : les Baboles abbatues, i. e.* the *Nymphæ*
“ beat down, *Nymphæ depreſſæ : Les Halerons demis, i. e.*
“ the *Carunculæ* undone, or open'd, *Carunculæ diſſolutæ :*
“ *l'Entrechenat retourné, i. e.* the Membranes which con-
“ nect the Caruncles inverted : *Membrana connectens in-*
“ *verſa : le Barbidau ecorché*, that is, the *Clitoris* excori-
“ ated, *Clitoris excoriata : le Guilboquet fendu, i. e.* the
“ Neck of the Womb torn, *Collum uteri dilaceratum : le*
“ *Guillenard elargi, i. e.* the *Vagina* ſtretch'd, or widen'd:
“ *Vagina dilatata : la Dame du Milieu retireé, i. e.* the
“ *Hymen* broke and gone, *Hymen deductum : l'arriere foſſe*
“ *ouverte, i. e.* the inner Orifice of the Womb open'd, *Os*
“ *Internum Matricis apertum.——Le tout veu et viſite*
“ *feuillet par feuillet nous avons trouve qu' il, y avoit trace*
“ *de*——The Whole view'd and examin'd Part by Part, we
“ find plainly the Track or Foot-ſtep of——*Omnibus ſi-*
“ *gillatim perſpectis & perſcrutatis*, &c.—— Accordingly
“ we, the ſaid Matrons, do certify it to be true, to you,
“ Monſieur *le Prevoſt*, on the Oath we have taken. Done
“ at *Paris* the 23d of *October*, 1672.”

In *Peru*, and ſeveral other Provinces of *South America*, we are aſſured by *Pedro de Cieca*, the Hiſtory of the *Incas*, &c. that the Men never marry but on Condition that the next Relation, or Friend of the Maid's, ſhall undertake to enjoy her before him, and take away her Virginity. And our Countryman *Lawſon*, relates the like of ſome of the *Indian* Nations of *Carolina* : So little is the *Flos Virginis*, prized ſo much among us, valued by them.

VIRGO, in Aſtronomy, one of the Southern Signs, or Conſtellations of the Zodiac, into which the Sun enters in the beginning of *Auguſt*. See SIGN, and CONSTELLATION.

The Stars in the Conſtellation *Virgo*, in *Ptolemy*'s Catalogue, are 32 ; In *Tycho*'s, 39 ; in *Flamſted*'s, 89. The Longitudes, Latitudes, Magnitudes, *&c.* whereof, are as follows :

Stars in the Conſtellation VIRGO.

Names and Situations of the Stars.	Signs.	Longitude.			Latitude.			Magn.
		°	′	″	°	′	″	
That preced. *Virgo*'s Head	♍	17	30	05	5	19	13	6
North, in the Top of the Head		19	00	29	6	06	21	5
South		19	49	35	4	35	39	5
Subſeq. and leſs in the top of the Head		19	37	15	6	21	33	6
In the bend of the South Wing		22	46	14	0	40	47	3
5								
		21	09	47	7	14	53	6
		24	12	31	3	20	31	5 6
South, in the Face		23	13	29	6	8	52	5
North		23	23	06	8	31	29	5
		27	08	22	2	42	52	6
10								
		25	39	56	6	19	31	6
		24	38	13	10	44	24	6 7
	♎	0	16	44	1	8	8	6
Preced. in the South Wing		3	39	31	6	16	20	7
		0	30	52	1	22	1	4 3
15								
That in the Neck	♍	29	2	17	5	4	22	5
		28	44	8	7	7	4	6
		29	7	52	12	43	22	6
	♎	7	9	52	5	19	47	6
In the South Arm		6	29	0	1	42	25	6
20								
Firſt of 3 under South Arm	♎	7	50	38	3	27	23	5
		1	3	5	13	41	37	6
		8	15	49	2	44	25	6
Second of the South Wing		5	52	11	2	48	53	3
Preced. of 3 in the North Wing		1	10	33	13	32	49	5
25								
		2	36	19	10	24	41	6
South of the North Wing		3	6	26	11	34	19	5 6
		2	28	51	13	22	45	6 7
		1	42	23	15	38	52	6
		1	10	31	17	47	57	6
30								
		6	20	45	7	55	15	7
		11	31	30	3	3	16	6
Middle under the South Arm		11	52	25	3	25	22	5
		3	3	20	16	43	39	6
In the North Side, againſt the Girdle		7	9	54	8	38	27	3
35								
Third of the South Wing		10	52	55	2	21	50	6
		10	55	41	2	51	56	7
Upper of North Wing, *Vindemiatrix*		5	37	40	16	12	34	3
		11	47	47	2	55	7	7
Third under the South Arm		25	25	09	3	15	3	5
40								
		14	44	20	1	26	51	6
		15	41	28	2	42	31	6
Fourth and laſt of the South Wing		13	54	23	1	45	29	4
Firſt of three under *Spica*		18	25	56	7	53	20	4 5
		19	46	20	10	12	6	6
45								
		20	30	30	11	6	24	6
That follow. *Vindemiatrix*	♎	9	41	24	16	13	6	7
That follow. North Wing		11	27	17	12	39	30	5
Middle under *Spica*		20	43	10	9	9	50	4 5
		21	29	8	8	19	33	5 5
50								
		13	52	05	9	58	50	7
		12	39	6	12	48	11	6
In South Hand		19	31	22	2	1	59	1
Underneath *Spica*		20	26	48	3	18	24	6
Laſt, and North of 3 under *Spica*		21	49	15	6	17	54	5 6
55								
		10	38	12	21	24	25	6
		12	4	17	18	42	49	6
North of preced. in ſquare of Thigh		18	39	18	2	47	25	6
		23	52	19	8	26	42	5
Second		19	16	27	3	8	55	6
60								
		22	48	30	5	14	34	6
South of preced. in ſquare of Thigh		20	55	51	0	24	7	6
		19	44	11	2	55	30	7
Another follow. North Wing		16	3	48	12	33	1	6
Under the Girdle, as in the Hip		17	49	50	8	39	9	3
65								
Third in ſquare of Thigh		19	46	12	4	15	21	6
		21	10	4	2	9	18	6
North of thoſe follow. in ſquare of (Thigh		22	23	31	1	43	45	6
That over the Girdle		18	15	4	13	16	45	6
		25	44	18	4	59	33	7
70								
		25	50	19	4	30	31	6
In South Knee		24	43	6	1	21	46	5
		26	39	34	6	18	29	6
		23	16	7	4	4	4	6
		27	39	20	6	21	27	5 6
75								
In North Thigh		22	52	22	9	37	22	6
		22	21	36	12	9	45	6
That over the North Thigh		23	24	56	13	4	50	5
		28	10	30	3	41	47	6
		28	25	25	3	19	59	6
80								
South of 3 in the Border of Garment	♍	0	10	40	2	55	40	4
Middle in the Border	♎	29	27	27	7	15	37	4
In Extrem. of South Foot	♍	2	38	13	0	31	4	4
North of three in the Garment }	♎	29	4	41	11	3	1	5
		29	33	5	11	30	3	5
85								
A bright one follow. theſe	♍	1	8	14	11	47	25	4
In Extrem. of the North Foot		5	47	23	9	43	8	4
		4	22	44	15	56	52	6
		4	10	50	17	7	21	4
89								

VIRGULA *Divina*, or *Bacculus Divinatorius*, a forked Branch in form of a Y, cut off a Hazle-tree ; by means whereof People have pretended to diſcover Mines, Springs, *&c.* under Ground. See MINE, *&c.*

The Method of uſing it is this : The Perſon who bears it walking very ſlowly over the Places where he ſuſpects Mines or Springs may be, the Effluvia exhaling from the Metals or the Water, impregnating the Wood, makes it dip or incline ; which is the Sign of a Diſcovery.

We find no mention made of this *Virgula* in any Author before the eleventh Century : but from that time it has been in Uſe ; Divers fine Names have been invented for it, ſome calling it *Caduceus*, others, *Aaron*'s *Rod*, &c.

Some diſpute the matter of fact, and deny it to be poſſible ; others, convinc'd with the great number of Experiments alledg'd in its behalf, look out for the natural Cauſes thereof.—The Corpuſcles, ſay theſe Authors, riſing from the Springs, or Minerals, entring the Rod, determine it to bow down, in order to render it parallel to the vertical Lines which the Effluvia deſcribe in their riſe.

In Effect, the mineral, or watery Particles are ſuppoſed to be emitted by means of the ſubterraneous Heat, or of the Fermentations in the Entrails thereof : Now the *Virgula* being of a light, porous Wood, gives an eaſy Paſſage to thoſe Particles, which, withal, are very fine and ſubtile ; the Effluvia then driven forwards by thoſe that follow them, and oppreſs'd at the ſame time by the Atmoſphere incumbent on them, are forced to enter the little Interſtices between the Fibres of the Wood, and by that Effort oblige it to incline, or dip down perpendicularly, to become parallel with the little Columns which thoſe Vapours form in their riſe.

VIRGULA, in Grammar, a Term which the *Latin*, *French*, and many other Authors, uſe for a Point in Writing, uſually call'd by us *Comma*. See COMMA.

Virgula's, *Fa. Simon* obſerves, are an Invention of the modern Grammarians, to give the greater Clearneſs to Diſcourſe.—The Uſe thereof was unknown to the antient *Greeks* and *Romans*, who wrote all without taking off the Pen, ſo that their Books lie all together without any Diſtinction of Points and *Virgula's*. See Pointus.

VIRGULTUM, in our antient Law-books, is uſed for an Holt, or Plantation of Twigs, or Oziers.

Sometimes alſo for a Coppice of young Wood: *Et præterea concedo* Virgultum *meum & totam communiam Dominii mei.* Mon. Angl.

In another place of the ſame Work, it may be taken for *Virgata*, viz.—*Dedit prædictæ Eccleſiæ unam Virgultam Terræ in Manerio de Cumptone.*

VIRIDARIO *eligendo*, a Writ that lies for the Choice of a Verderor in the Foreſt. See Verderor.

VIRIDE *Æris*, the ſame as *Ærugo*, or *Verdegreaſe*. See Verdegrease.

VIRILE, ſomething that belongs or is peculiar to Man.

Thus *Virile* Member, *Membrum Virile*, is frequently uſed for the Penis. See Penis.

The *Virile* Age, *Ætas Virilis*, is the Strength and Vigour of a Man's Age, *viz.* from thirty to forty-five Years, which is an Age wherein we are equally remov'd from the Extremes of Youth and old Age. See Age.

The Civil Lawyers only make one Age of Youth and Virility; and yet their different Temperatures ſeem to require a Diſtinction; for which Reaſon ſome compare Youth to Summer, and Virility to Autumn. See Puberty.

At *Rome*, the Youth quitted the *Prætexta* at fourteen or fifteen Years of Age, and took the *Virile* Gown, *Toga virilis*, to ſhew, it ſeems, that they then entred on a ſerious Age. See Prætexta and Toga.

M. Dacier will have it, the Children did not take the *Prætexta* till thirteen Years of Age, nor quit it for the *Toga Virilis*, till ſeventeen.

VIRILIA, a Man's privy Members, including the *Penis* and *Teſtes*. See Penis, &c.

The cutting off the *Virilia*, according to *Bracton*, was Felony by Common Law, and that whether the Party were conſenting or not. See Eunuch.

—*Henricus Hall & A. Uxor ejus capti & detenti in priſona de Evincheſter, eo quod rectati fuerunt quod ipſi abſciderunt* Virilia *Johannis Monachi, quem idem Henricus deprehendit cum prædicta A. Uxore ejus.* Rot. Clauſe 13 Hen. III. See Caſtration.

Virsungianus *Ductus*, or *Ductus Virtſungii*, in Anatomy, a Canal, more uſually call'd, *Ductus Pancreaticus.* See Pancreaticus. It took its Name, *Vertſungianus*, from the Inventor, *Vertſung*.

VIRTUAL, *Potential*, ſomething that has a Power or Vertue of acting or doing. See Virtually.

The Term is chiefly underſtood of ſomething that acts by a ſecret inviſible Cauſe; in Oppoſition to actual, and ſenſible. See Potential.

Virtual *Focus*, in Opticks, is a Point from which Rays, before converging, begin to diverge, or divaricate. See Focus.

Hence it is alſo call'd, *Point of Diſperſion*, or *Divergenee*; in Oppoſition to the *Focus*, which is call'd the *Point of Concurrence*. See Point, Dispersion, Divergent, &c.

Suppoſe, *e. g.* the Concavity of a Glaſs to be *a b c* (Tab. *Opticks* Fig. 11.) and its Axis *d e*; let *f g* be a Ray of Light falling on the Glaſs parallel to the Axis *de*, and let *d* be the Centre of the Ark *a b c*.

This Ray *f g*, after it has paſſed the Glaſs, at its Emerſion at *g*, will not proceed directly to *h*, but be refracted from the Perpendicular *d g*, and become the Ray *g k*.

Draw then directly *g k*, ſo that it may croſs the Axis in *e*.—The Point *e* ſo found, Mr. *Molyneux* calls the *Virtual Focus*, or *Point of Divergence.* Diopt. Nov.

VIRTUALITY, Virtualitas, in the Schools, is ſome Mode or Analogy in a Object, which in reality is the ſame with ſome other Mode; but out of regard to contradictory Predicates, is look'd on as if really diſtinct therefrom.

Thus the divine Nature, and the Perſon of the Word, are two *Virtualities*; for tho in reality they be the ſame, yet are they conſider'd as things different.—For the Perſon of the Word is ſaid to have been begotten, and his Nature is ſaid not to be begotten: now begotten, and not-begotten, are contradictory Predicates.

And hence ariſe what we call *virtual Diſtinctions*, whereby one *Virtuality* is diſtinguiſh'd from another, not one Thing from another.

Thus it is the divine Nature is diſtinguiſh'd from the divine Perſon, and the divine Underſtanding from the divine Will. See Trinity.

VIRTUALLY, Virtualiter, in the Schools, is applied to a Mode of Exiſtence.—Thus a thing is ſaid to be *Virtually* any where, when it is deem'd to be there by ſome *Virtue*, *Influence*, or other Effect produc'd by it.

As the Sun is *Virtually* on Earth, *i. e.* by his Light, Heat, &c.

A thing is alſo ſaid to be *Virtually* preſent when the Virtues or Properties belonging to it, and iſſuing from it, remain.—In which Senſe the Forms of the Elements are held to be *Virtually* in mix'd Bodies.

A thing is alſo ſaid to be a Cauſe *Virtually*, or a *Virtual Cauſe*, and that two Ways: the firſt, when there is no real Diſtinction between it, and the Effect attributed to it; and yet it is conceived by us as if it were really the Cauſe thereof:—Thus, Immutability in God, is the Cauſe of Eternity.

Secondly, when an Effect is not of the ſame kind with the Cauſe, and yet the Cauſe has the *Power*, or *Virtue* of producing the Effect: thus the Sun is not *formally*, but *Virtually* hot; and Fire is not contain'd *formally*, but *Virtually* in Heat.

VIRTUE, Virtus, a Term uſed in various ſignifications.

In the General, it denotes *Power*, or *Perfection* of any Thing, whether Natural or Super-natural, Animate or Inanimate, Eſſential or Acceſſary: hence the *Virtues* of God, Angels, Men, Plants, Elements, &c. See Power, and Faculty.

In its more proper and reſtrain'd Senſe, *Virtue* ſignifies a Habit, which improves and perfects the Haver or Poſſeſſor, and his Actions. See Habit, Perfection, &c.

In this Senſe, *Virtue* is a Principle of acting, or doing well and readily; and that, either infuſed from above, ſuch as are the *Theological Virtues*; or acquired by our own Application, as the *Intellectual* and *Moral Virtues*.

For, as there are two Things in Man from which all his Actions proceed, *viz.* the Underſtanding, and the Will; ſo the *Virtue* by which he is perfected, or whereby he is diſpoſed to do all Things rightly, and to live happily, muſt be two-fold: the one, of the Underſtanding; the other, of the Will.

That which improves the Underſtanding is call'd *Intellectual* or *Dianoetic*; and that, the Will, *Moral* or *Ethic*.

For, ſince there are two Things requir'd in order to live a-right, *viz.* to know what ſhould be done; and, when known, readily to perform it: And ſince Man is apt to err various Ways in each reſpect, unleſs regulated by Diſcipline, &c. he alone can deport himſelf rightly in his whole Courſe of Life, whoſe Underſtanding and Will have attain'd their utmoſt Perfection.

An *Intellectual* Virtue, then, according to *Ariſtotle*, is a Habit of the reaſonable Soul, whereby it conceives, or ſpeaks the Truth; either in affirming, or denying. See Truth.

The *Virtues* which come under this Claſs, are divided into *Speculative*; which are thoſe converſant about neceſſary Things, that can only be known, or contemplated; and *Practical*, which are converſant about contingent Things, that may likewiſe be practiſed.

Ariſtotle has another Diviſion of *Intellectual Virtue*, fetch'd from the Subject; as ſome of 'em are ſeated in the ἐπιϛημονικῆ, or *Contemplative Part*, viz. thoſe converſant about neceſſary things, as *Science*, *Wiſdom*, *Intelligence.* See Science, Understanding, &c.

And others, in the λογιϛικῷ, or *Practical Part*; ſuch as thoſe converſant about contingent Things, as *Prudence*, *Art*, &c. See Art, &c.

Moral Virtue is defined by *Ariſtotle* to be an elective Habit, placed in a Mediocrity, determin'd by Reaſon, and as a prudent Man would determine.

The *Scotiſts* maintain every moral Habit to be indifferent as to good or evil, and capable of becoming, ſucceſſively, either *Virtue* or *Vice*: Virtue, if it have a relation of conformity with right Reaſon; and Vice, if it have not. See Vice.

According to them, therefore, *Virtue* is a Habit ſubjectively, but not entitatively, good: as it is only a relation of Conformity, &c. which is ſeparable from the Entity of the Habit.

The *Thomiſts*, on the contrary, aſſert *Virtue* to be a Habit eſſentially good; nor capable of miniſtring any thing to any Act poſitively bad.—And they philoſophize thus: Every Habit eſſentially good, inclines to Acts like thoſe whereby it was acquired; thus, by doing juſtly we become juſt; and, by abſtaining from forbidden Pleaſures, we become temperate. But *Moral Virtue* is produced, or acquired by Acts eſſentially good; good, we mean, both in reſpect of our Duty, and of the Motive and End: therefore *Moral Virtue* inclines only to good Acts.

Others diſallow the *Peripatetic* Notion of *Virtue* as placed in a Habit; for a Habit, or Hability, ſay they, includes two Things; a Cuſtom, and Facility; the firſt as a Cauſe, and the ſecond as an Effect: ſo that a Habit is nothing but a Facility acquired by Cuſtom.—They therefore who make *Virtue* a Habit of doing well, muſt of neceſſity aſcribe it to a frequent Exerciſe of good Actions.—But this can't be; for the *Virtue* muſt be before the good Actions; and the Habit, after 'em.—Indeed, whence ſhou'd the Actions proceed but from *Virtue*? *Virtue* therefore is before the good Actions, and certainly before a Habit reſulting from a frequency of good Actions.

Hence, they define *Virtue* to be a firm Purpoſe or Reſolution of doing whatever right Reaſon demands to be done. For tho a Cuſtom of doing well be requir'd to make a Perſon eſteem'd good among Men; yet it does not follow, that that Cuſtom or Habit is the formal Cauſe of that Denomination, or the Goodneſs it ſelf.

Moraliſts uſually diſtinguiſh four *Principal*, or, as they are vulgarly call'd, *Cardinal Virtues*, viz. *Prudence*, *Juſtice*, *Fortitude*, and *Temperance*: The Reaſon of which Diviſion is founded in this, That for a Man to live *virtuouſly* and honeſtly, 'tis neceſſary he know what is fit to be done; which is the Buſineſs of *Prudence*.

That he have a conſtant and firm Will to do what he judges beſt; which will perfect the Man, either as it reſtrains too violent Perturbations, the Office of *Temperance*.

Or, as it ſpurs and urges on thoſe that are to ſlow and languid, which is the Buſineſs of *Fortitude*.

Or, laſtly, comparatively, and with regard to human Society; which is the Object of *Juſtice*.

To theſe four all the other *Virtues* are refer'd, either as Parts, or as Concomitants.

VIRTUES, in the Hierarchy, the third Rank, or Choir of Angels; being that in order between *Dominations* and *Powers*. See Hierarchy.

To theſe is attributed the Power of working Miracles, and of ſtrengthning and reinforcing the inferior Angels in the Exerciſe of their Functions. See Angel.

VIRTUOSO, an *Italian* Term, lately introduced into *Engliſh*; ſignifying a Man of Curioſity and Learning; or one who loves and promotes the Arts and Sciences.

In *Italy*, *Virtuoſi* are properly ſuch as apply themſelves to the polite Arts of Painting, Sculpture, Turning, Mathematicks, &c.——A Perſon who makes Profeſſion thereof, is call'd *Virtuoſo, queſta è un Virtuoſo.*

Among us, the Term ſeems affected to thoſe who apply themſelves to ſome curious and quaint, rather than immediately uſeful Art or Study: As Antiquaries, Collectors of Rarities of any kind, Microſcopical Obſervers, &c.

VIRULENT, a Term apply'd to any thing that yields a *Virus*; that is, a corroſive or contagious Pus. See Pus.

The *Gonorrhæa Virulenta*, is what we popularly call a *Clap*. See Gonorrhæa.

VIS, a *Latin* Word, ſignifying *Force*, or *Power*; adopted by phyſical Writers, to expreſs divers Kinds of Natural Powers: as the

Vis *Inertiæ*, or *Power of Inactivity*, which is defin'd by Sir *I. Newton* to be a Power implanted in all Matter, whereby it reſiſts any Change endeavour'd to be made in its State, *i. e.* whereby it becomes difficult to alter its State, either of Reſt, or Motion. See Inertia.

This Power, then, coincides with the *Vis reſiſtendi*, Power of reſiſting, whereby every Body endeavours, as much as it can, to perſevere in its own State whether of Reſt, or uniform rectilinear Motion: Which Power is ſtill proportional to the Body, and only differs from the *Vis Inertiæ* of the Maſs in the manner of conceiving it.

Bodies only exert this Power in Changes brought on their State by ſome *Vis Impreſſa*, Force impreſs'd on 'em. And the Exerciſe of this Power, is, in different reſpects, both *Reſiſtance*, and *Impetus*: Reſiſtance, as the Body oppoſes a Force impreſs'd on it to change its State; and *Impetus*, as the ſame Body endeavours to change the State of the reſiſting Obſtacle.——*Phil. Nat. Princ. Math.* Lib. I. See Reaction.

The *Vis Inertiæ*, the ſame great Author elſewhere obſerves, is a paſſive Principle, by which Bodies perſiſt in their Motion or Reſt; receive Motion, in proportion to the Force impreſſing it, and reſiſt as much as they are reſiſted. See Motion.

For the Effect of the Vis Inertiæ *in reſiſting and retarding the Motion of Bodies*, &c. see Resistance, and Retardation.

Vis *Impreſſa*, is defined by Sir *I. Newton* to be the Action exercis'd on any Body, to change its State, either of reſting, or moving uniformly in a right Line.

This Force conſiſts altogether in the Action; and has no place in the Body after the Action is ceaſed.—For the Body perſeveres in every new State by the *Vis Inertiæ* alone.

This *Vis Impreſſa* may ariſe from divers Cauſes, as from the Percuſſion, Preſſion, and Centripetal Force. See Percussion, &c.

Vis *Centripeta*.	See	Centripetal *Force*.
Vis *Centrifuga*.		Centrifugal *Force*.
Vis *Motrix*.		Motion.
Vis *Stimulans*.		Stimulant.

VISCERA, in Anatomy, a Term of equal Import with *Entrails*, or Bowels; including the Heart, Liver, Lungs, Spleen, Inteſtines, and other inward Parts of the Body. See Body.

The Word is alſo frequently uſed ſingularly, *Viſcus*, to expreſs ſome particular part of the Entrails; by reaſon the Word *Entrails* has no Singular.

The Term *Viſcus* is pure *Latin*, being form'd of *Veſci*, to feed; by reaſon, the Foods, call'd in Latin *Veſca*, undergo divers Preparations in the *Viſcera*.

VISCIDITY, or Viscosity, the Quality of ſomething that is *viſcid*, or *viſcous*, *i. e.* glutinous, or ſticky; like Birdlime, which the *Latins* call by the Name *Viſcus*. See Birdlime.

Viſcid Bodies, are thoſe which conſiſt of Parts ſo implicated within each other, that they reſiſt a long time a compleat Separation, and rather give way to the Violence done them by ſtretching or extending each way. See Particle, and Cohesion.

The too great *Viſcidity* of Foods has very ill Effects: Thus, Meals, or *Farinæ* not fermented, Gellies, &c. of Animals, tough Cheeſe, or Curd too much preſs'd, produce a Weight or Oppreſſion in the Ventricle; Winds, Yawnings, Crudities, Obſtructions of the minuter Veſſels in the Inteſtines, &c. Hence, an Inactivity of the Inteſtines themſelves, a Swelling of the Abdomen; and, hence, a *Viſcidity* of the Blood, from the re-union of the *viſcid* Particles; Obſtructions of the Glands; Paleneſs, Coldneſs, Tremors, &c.

VISCOUNT. See Vicount.

VISCUS, Viscous, Viscosity, in Anatomy. See Viscera, and Viscidity.

Viscus, in Natural Hiſtory, &c. See Misletoe.

VISIBLE, ſomething that is an Object of Sight, or *Viſion*; or ſomething whereby the Eye is affected, ſo as to produce a Senſation. See Vision.

The School Philoſophers make two Kinds of *Viſibles*, or *Viſible* Objects: the one *proper*, or *adequate*; which are ſuch as are no other way perceivable, but by Sight alone: The other *common*; which are ſubject to divers Senſes, as the Sight, Hearing, Feeling, &c.

Again, the firſt, or *proper Object of Viſion*, is of two Kinds, *viz. Light*, and *Colour*; for theſe two are only ſenſible by Sight.——The firſt and primary, *viz. Light*, they make the *formal*, and *Colour* the *material* Object. See Object.

The *Carteſians* think they philoſophize better, when they ſay, That Light alone is the proper Object of Viſion; whether it flow from a luminous Body thro' a tranſparent Medium, and retain its firſt Name, *Light*: or whether it be reflected from opake Bodies, under a certain new Modification, or Habitude, and exhibit their Images: or, laſtly, whether in being reflected, it is likewiſe refracted after this or that manner; and affects the Eye with the Appearance of *Colour*.

But, agreeably to Sir *I. Newton*'s Sentiments, Colour alone is the proper Object of Sight: Colour being that Property of Light, whereby the Light it ſelf is *viſible*; and whereby the Images of opake Objects are painted on the *Retina*. See Light, and Colour.

Ariſtotle, *de Anima*, Lib. II. enumerates five Kinds of common *Viſibles*, which are uſually received for ſuch in the Schools, *viz. Motion*, *Reſt*, *Number*, *Figure*, and *Magnitude*: Others maintain nine, as in the Verſes,

> *Sunt objecta novem* Viſus *communia*: Quantum,
> *Inde* Figura, Locus, *ſequitur* diſtantia, ſitus,
> Continuumque & Diſcretum, motuſque, quieſque.

Authors reaſon very variouſly as to theſe common Objects of Viſion: There are two principal Opinions among the Schoolmen.—The Adherents to the firſt, hold, That the common *Viſibles* produce proper Repreſentations of themſelves, by ſome peculiar Species or Image whereby they are formally perceiv'd independently of the proper *Viſibles*.

But the ſecond Opinion prevails moſt, which maintains, That the common *Viſibles* have not any ſuch formal peculiar Species to become *viſible* by; but that the proper Objects are ſufficient to ſhew themſelves in this or that Place or Situation; and in this or that Diſtance, Figure, Magnitude, &c. by the Circumſtances of their conveyance to the Senſory.

In effect, ſince theſe common *Viſibles* cannot be repreſented alone, (for who ever ſaw Place, Diſtance, Figure, Situation, &c. of it ſelf) but are always convey'd along with the Images of Light and Colour to the Organ; what neceſſity is there to conceive any ſuch proper Images, whereby the common *Viſibles* ſhould be formally perceiv'd by the Soul? 'Tis much more probable, that from the peculiar manner wherein the Senſitive Faculty perceives a proper Object, it is appriz'd of its being in this or that Situation, or Place; in this or that Figure, Magnitude, &c. How this is effected, may be conceiv'd from what follows.

I. *The Situation and Place of* viſible *Objects, are perceiv'd without any intentional Species thereof, merely by the Impulſe being made from a certain Place and Situation, either above or below, on the right or left, before or behind; whereby the Rays of the proper* Viſibles *are thrown upon the* Retina, *and their Impreſſion convey'd to the Senſory.*

For ſince an Object is ſeen by thoſe Rays which carry its Image to the *Retina*, and in that Place to which the *viſive* Power is directed by the Rays it receives; as it perceives the Impulſe of the Rays to come from any Place, &c. it is abundantly admoniſh'd of the Object's being in that Place and Situation. See PLACE.

From this Principle, ſeveral remarkable Phænomena of Viſion are accountable for; as,

1°, That if the Diſtance between two *viſible* Objects, be ſeen under an Angle that is inſenſible; the diſtant Bodies will appear as if contiguous: Whence, a continuous Body being the Reſult of ſeveral contiguous ones; the Diſtances of ſeveral *Viſibles* appearing under an inſenſible Angle, they will appear one continuous Body: which gives a pretty Illuſtration of the Notion of a *Continuum*. See CONTINUITY.

2°, If the Eye be placed above a horizontal Plane, the remoter Parts will appear as if higher and higher, till the laſt be ſeen in a level with the Eye. Whence it is, that the Sea, to Perſons ſtanding a-ſhore, ſeems to riſe higher and higher the further they look.

3°, If any number of Objects be placed below the Eye; the moſt remote will appear the higheſt: If they be above the Eye, the moſt remote will appear the loweſt.

4°, The upper Parts of high Objects, appear to ſtoop, or incline forwards; as the Fronts of Churches, Towers, &c. And Statues a-top of Buildings, to appear upright, muſt recline, or bend backwards. See further under the Article HOROPTER, &c.

II. *The Mind perceives the* Diſtance *of* Viſible *Objects, from the different Configuration of the Eye, and the manner wherein the Rays ſtrike the Eye and the Image is impreſs'd thereon.*

For the Eye diſpoſes it ſelf differently, according to the different Diſtances it is to ſee, *viz.* for remote Objects, the Pupil is dilated, and the Cryſtalline brought nearer the *Retina*, and the whole Eye made more globous: on the contrary, for near Objects, the Pupil is contracted, the Cryſtalline thruſt forwards, and the Eye lengthen'd. See PUPIL, CRYSTALLINE, &c.

The Diſtance, again, is judg'd of by the Angle the Object makes, from the diſtinct or confuſed Repreſentation of the Object; and the Briſkneſs or Feebleneſs, the Rarity or Spiſſitude of the Rays.

To this it is owing, 1°, that Objects which appear obſcure or confuſed, are judg'd to be the more remote: a Principle which the Painters uſe, to make ſome of their Figures appear farther diſtant than others on the ſame Plane. See PERSPECTIVE, &c.

To this it is likewiſe owing, that Rooms whoſe Walls are whiten'd, appear the ſmaller: That Fields cover'd with Snow, or white Flowers, ſhow leſs than when clothed with Graſs: That Mountains cover'd with Snow, in the Night-time, appear the nearer: That opake Bodies, appear the more remote in the Twilight, &c. See DISTANCE.

III. *The* Magnitude *or* Quantity *of* Viſible *Objects, is known chiefly by the Angle comprehended between two Rays drawn from the two Extremes of the Object, to the Centre of the Eye.* See OPTIC *Angle*.

An Object appears *ſo* big *as* is the Angle it ſubtends; or Bodies ſeen under a greater Angle appear greater; and thoſe under a leſs, leſs, &c.—Hence, the ſame thing appears now bigger, and now leſs, as it is leſs or more diſtant from the Eye.

This we call *Apparent Magnitude*. See MAGNITUDE.

Now, to judge of the real Magnitude of an Object, we conſider the diſtance: For ſince a near and a remote Object may appear under equal Angles, the Diſtance muſt neceſſarily be eſtimated; that if it be great, and the Optic Angle ſmall, the remote Object may be judg'd great, and *vice verſa*.

The Magnitude of *Viſible* Objects, is brought under certain Laws, demonſtrated by the Mathematicians: as,

1°, That the apparent Magnitudes of a remote Object, are as the Diſtances, reciprocally.

2°, That the Co-tangents of half the apparent Magnitudes of the ſame Objects, are as the Diſtances: Hence, the apparent Magnitude and Diſtance being given, we have a Method of determining the true Magnitude: The Canon is this, As the whole Sine is to the Tangent of half the apparent Magnitude; ſo is the given Diſtance to half the real Magnitude.—The ſame Canon, inverted, will from the Diſtance and true Magnitude given, determine the apparent one.

3°, Objects ſeen under the ſame Angle, have their Magnitudes proportional to their Diſtances.

4°, The Subtenſe AB, (Tab. *Opticks*, Fig. 51.) of any Arch of a Circle, apppears of equal Magnitude in all the Points DCEG; tho one Point be vaſtly nearer than another: and the Diameter DG, appears of the ſame Magnitude in all the Points of the Periphery of the Circle.—Hence we take a pretty Hint for the moſt commodious Form of Theatres. See THEATRE.

5°, If the Eye be fix'd in A, (Fig. 52.) and the right Line BC be moved in ſuch manner, as that the Extremes thereof always fall on the Periphery; it will always appear of the ſame Magnitude.—Hence, the Eye being placed in any Angle of a regular Polygon, the Sides will appear equal.

6°, If the Magnitude of an Object directly oppoſite to the Eye, be equal to its diſtance from the Eye; the whole Object will be taken in by the Eye, but nothing more. Whence, the nearer you approach an Object, the leſs part you ſee of it. See FLAME.

IV. *The* Figure *of* Viſible *Objects is eſtimated chiefly from our Opinion of the Situation of the ſeveral Parts thereof.*

This Opinion of the Situation, &c. enables the Mind to apprehend an external Object under this or that Figure, more juſtly than any Similitude of the Image in the *Retina* with the Object can; the Images being frequently elliptical, oblong, &c. when the Objects they exhibit to the Mind are Circles, Squares, &c.

The Laws of Viſion, with regard to the Figures of the *Viſible* Objects, are,

1°, That if the Centre of the Pupil be exactly againſt, or in the Direction of a right Line; the Line will appear as one Point.

2°, If the Eye be placed in the Direction of a Surface, ſo that only one Line of the Perimeter can radiate upon it; it will appear as a Line.

3°, If a Body be oppoſed directly towards the Eye, ſo as only one Plane of the Surface can radiate on it; it will appear as a Surface.

4°, A remote Arch, view'd by an Eye in the ſame Plane, will appear as a right Line.

5°, A Sphere, view'd at a diſtance, appears a Circle.

6°, Angular Figures at a diſtance appear round.

7°, If the Eye look obliquely on the Centre of a regular Figure, or a Circle, the true Figure will not be ſeen; but the Circle will appear Oval, &c. See FIGURE.

V. *The* Number *of* Viſible *Objects is perceiv'd, not only by one or more Images form'd in the Fund of the Eye; but alſo by ſuch a Poſition of thoſe Parts of the Brain, whence the Optic Nerves ſpring, as the Mind has been uſed to, in attending to a certain Place, and that either ſingle, or manifold.*

Accordingly, when either of the Eyes, with the contiguous Part of the Brain, are forced out of their juſt Paralleliſm with the other, *v. g.* by preſſing it with the Finger, &c. all Things appear double: But when they are in their requiſite Paralleliſm, tho there be two Images in the Fund of the two Eyes; yet the Object will appear ſingle.—Again, one thing may appear double, or even manifold, not only with both Eyes, but even with only one of them open: By reaſon, the common Concourſe of the Cones of Rays reflected from the Object to the Eye, either falls ſhort of the *Retina*, or goes much beyond it. See NUMBER.

VI. Motion *and Reſt are ſeen, when the Images of the Objects repreſented in the Eye, and propagated to the Brain, are either moved, or at reſt: And the Mind perceives theſe Images either moving or at reſt, by comparing the moved Image to another, with reſpect to which it changes place; or, by the Situation of the Eye to the Object being continually chang'd*

So that Motion is only perceiv'd, in perceiving the Images to be in different Places and Situations: Nor are theſe Situations perceiv'd, unleſs effected in time. So that to perceive Motion, a ſenſible Time is requir'd.——But Reſt is perceiv'd by the viſive Faculty, from the Perception of the Image in the ſame Place of the *Retina*, and the ſame Situation for ſome ſenſible Time.

Hence, the Reaſon why Bodies moving exceedingly faſt, appear at reſt: Thus, a live Coal, ſwung briſkly round, appears a continued Circle of Fire; the Motion not being commenſurate with *viſible* Time, but much ſwifter than the ſame: So that in the Time the Soul requires to judge of any Change of Situation of the Image on the *Retina*, or that it is moved from this Place to that, the Thing it ſelf performs its whole Circuit, and is in its former Place again.

The Laws of Viſion, with regard to the Motion of the Viſibles, *are,*

1°, That if two Objects unequally diſtant from the Eye, move from it with equal Velocity; the more remote one will appear the ſlower: Or, if their Celerities be proportionable to their Diſtances, they will appear to move equally ſwift.

2°, If two Objects, unequally diſtant from the Eye, move with unequal Velocities in the ſame Direction; their apparent Velocities are in a Ratio compounded of the direct Ratios of their true Velocities, and the reciprocal one of their Diſtances from the Eye.

3°, A *viſible* Object moving with any Velocity, appears to be at reſt, if the Space deſcribed in the Interval of one Second, be imperceptible at the diſtance of the Eye.—Hence it is, that a near Object moving very ſlowly, as the Index of a Clock; or a remote one very ſwiftly, as a Star; ſeem at reſt.

4°, An Object moving with any degree of Velocity, will appear to reſt, if the Space it runs over in a Second of Time be to its diſtance from the Eye, as 1 to 1400: Nay, in fact, if it be as 1 to 1300.

5°, The Eye proceeding ſtrait, from one Place to another; a lateral Object, either on the right or left, will ſeem to move the contrary way.

6°, If the Eye and the Object move both the ſame way, only the Eye much ſwifter than the Object, that laſt will appear to go backwards.

7°, If two or more Objects move with the ſame Velocity, and a third remain at reſt; the Moveables will appear fix'd, and the quieſcent in motion the contrary way.—Thus, Clouds moving very ſwiftly, their Parts ſeem to preſerve their Situation, and the Moon moves the contrary way.

If the Eye be moved with a great Velocity, lateral Objects at reſt, appear to move the contrary way.—Thus, to a Perſon ſitting in a Coach, and riding briſkly thro' a Wood, the Trees ſeem to retire the contrary way; and to People in a Ship, &c. the Shores ſeem to recede.

VISIBLE *Species*. See SPECIES.

VISION, the Act of *Seeing*; or of perceiving external Objects by the Organ of Sight. See SEEING, and SIGHT.

Viſion is well defin'd to be a Senſation, whereby, from a certain Motion of the Optic Nerve, made in the bottom of the Eye, by the Rays of Light emitted, or reflected from Objects, and hence convey'd to the common Senſory in the Brain; the Mind perceives the luminous Object, its Quantity, Quality, Figure, &c. See VISIBLE.

The Phænomena of *Viſion*, the Cauſes thereof, and the Manner wherein it is effected, make one of the greateſt and moſt important Articles in the whole Syſtem of Natural Knowledge.—Indeed, a great Part of the Phyſical, Mathematical, and Anatomical Diſcoveries and Improvements of the Moderns terminate here; and only tend to ſet the Buſineſs of *Viſion* in a clearer Light.

Hitherto, refer what Sir *I. Newton* and others have diſcover'd of the Nature of Light, and Colours; the Laws of Inflexion, Reflexion, and Refraction of the Rays; the Structure of the Eye, particularly the *Retina*, and Optic Nerves, &c.

It is not neceſſary we ſhould here give a minute Detail of the Proceſs of *Viſion* from its firſt Principles: The greateſt Part is already deliver'd under the reſpective Articles.——The *Eye*, the Organ of *Viſion*, we have deſcrib'd under the Article EYE; and its ſeveral Parts, Tunics, Humours, &c. under their proper Heads, CORNEA, CRYSTALLINE, &c.

The immediate and principal Organ of *Viſion*, *viz.* the *Retina*, according to ſome, and the *Choroides*, according to others, are diſtinctly conſider'd: as alſo, the Structure of the *Optic Nerve*, which conveys the Impreſſion to the Brain; and the Texture and Diſpoſition of the *Brain* it ſelf, which receives them, and repreſents 'em to the Soul. See RETINA, CHOROIDES, OPTIC *Nerve*, BRAIN, SENSORY, &c.

Again, the Nature of *Light*, which is the Medium, or Vehicle whereby Objects are carried to the Eye, is laid down at large under the Article LIGHT, and COLOURS; and the chief Properties thereof concern'd in *Viſion*, under REFLEXION, REFRACTION, &c. And many of its Circumſtances under RAY, MEDIUM, &c.——What remains for this Article, therefore, is only to give a general Idea of the whole Proceſs; in which all the ſeveral Parts are concern'd.

Opinions or Syſtems of VISION.

The *Platoniſts* and *Stoicks* held *Viſion* to be effected by the Emiſſion of Rays out of the Eyes; conceiving, that there was a ſort of Light thus darted out, which with the Light of the external Air, taking, as it were, hold of the Objects, render'd 'em viſible; and thus returning back again to the Eye alter'd and new modify'd by the Contact of the Object, made an Impreſſion on the Pupil, which gave the Senſation of the Object.

The Reaſons whereby they maintain their Opinion, are fetch'd, 1°, from the Brightneſs and Luſtre of the Eye: 2°, From our ſeeing a remote Cloud, without ſeeing one which we are incompaſs'd withal; (the Rays being ſuppoſed too briſk and penetrating to be ſtop'd by the near Cloud, but growing languid at a greater diſtance, are return'd to the Eye:) 3°, From our not ſeeing an Object laid on the Pupil: 4°, From the Eye's being weary with ſeeing, *i. e.* by emitting great Quantities of Rays: And laſtly, from Animals which ſee in the Night; as Cats, Lions, Moles, Owls, and ſome Men.

The *Epicureans* held *Viſion* to be perform'd by the Emanation of corporeal Species, or Images from Objects; or, a ſort of Atomical Effluvia, continually flying off from the intimate Parts of Objects to the Eye.

Their chief Reaſons are, 1°, That the Object muſt neceſſarily be united to the viſive Faculty; and ſince it is not united by it ſelf, it muſt be ſo by ſome Species that repreſents it, and that is continually flowing from Bodies: 2°, That it frequently happens, that old Men ſee remote Objects better than near ones; the diſtance making the Species thinner, and more commenſurate to the Debility of their Organ.

The *Peripateticks* hold, with *Epicurus*, that *Viſion* is perform'd by the Reception of Species; but differ from him in the Circumſtances: For they will have the Species, (which they call *Intentionales)* to be incorporeal.

'Tis true, *Ariſtotle*'s Doctrine of *Viſion*, deliver'd in his Chapter *de Aſpectu*, amounts to no more than this; That Objects muſt move ſome intermediate Body, that by this they may move the Organ of Sight: To which he adds, in another Place, That when we perceive Bodies, 'tis their Species, not their Matter, that we receive: as a Seal makes an Impreſſion on Wax, without the Wax's retaining any thing of the Seal.

But this vague and obſcure Account, the *Peripateticks* have thought fit to improve.—Accordingly, what their Maſter call'd *Species*, the Diſciples underſtanding of real proper Species, aſſert, That every viſible Object expreſſes a perfect Image of it ſelf, in the Air contiguous to it; and this Image another, ſomewhat leſs, in the next Air; and the third another, &c. till the laſt Image arrives at the Cryſtalline, which they hold for the chief Organ of Sight, or that which immediately moves the Soul.—Theſe Images they call'd *Intentional Species*. See SPECIES.

The modern Philoſophers, as the *Carteſians* and *Newtonians*, give a better account of *Viſion*.—They all agree, that it is perform'd by Rays of Light reflected from the ſeveral Points of Objects, received in at the Pupil, refracted and collected in their paſſage thro' the Coats and Humours, to the *Retina*; and thus ſtriking, or making an Impreſſion on ſo many Points thereof: which Impreſſion is convey'd by the correſpondent Capillaments of the Optic Nerve to the Brain, &c.

As for the *Peripatetick* Series or Chain of Images, 'tis a mere Chimera, and *Ariſtotle*'s meaning is better underſtood without than with 'em.—In effect, ſetting theſe aſide, the *Ariſtotelian*, *Carteſian*, and *Newtonian* Doctrines of *Viſion* are very conſiſtent: For Sir *I. Newton* imagines, that *Viſion* is perform'd chiefly by the Vibrations of a fine Medium which penetrates all Bodies, excited in the bottom of the Eye by the Rays of Light; and propagated thro' the Capillaments of the Optic Nerves, to the *Senſorium*. And *Des Cartes* maintains, that the Sun preſſing the *Materia Subtilis*, wherewith the World is fill'd, every way; the Vibrations or Pulſes of that Matter reflected from Objects, are communicated to the Eye, and thence to the Senſory: So that the Action or Vibration of a Medium is equally ſuppoſed in all. See MEDIUM.

Modern Theory of VISION.

In order to *Viſion*, we are certain, it is required that the Rays of Light be ſent from the viſible Objects to the Eye.—What befals them in the Eye, will be conceiv'd from what follows.

Suppoſe, *e. g.* Z the Eye, and A B C the Object, (Tab. *Opticks*, Fig. 53.) Now, tho every Point of an Object be a radiant Point, that is, tho there be Rays reflected from every Point of the Object to every Point of the circumambient Space; each carrying with it its reſpective Colour, (which we falſly imagine to be thoſe of the Object;) yet, as only thoſe Rays which paſs thro' the Pupil of the Eye affect the Senſe, we ſhall here conſider none elſe.

And, again, tho there be a great number of Rays paſſing from one radiant Point, as B, thro' the Pupil, yet we ſhall only conſider the Action of a few of 'em; as BD, BE, BF.

Now then, the Ray BD, falling perpendicularly on the Surface E D F, will paſs out of the Air into the aqueous Humour, without any Refraction, and proceed right to H; where falling perpendicularly on the Surface of the cryſtalline Humour, it will go on without any Refraction to M; where, again, falling perpendicularly on the Surface of the vitreous Humour, it will proceed ſtrait to the Point O, in the Fund or bottom of the Eye.

Again, the Ray B E paſſing obliquely out of Air upon the Surface of the watery Humour E D F, will be refracted, and approach towards the perpendicular E P: Thus, proceeding to the Point G, in the Surface of the Cryſtalline, it will be there refracted ſtill nearer to the Perpendicular.—So alſo E G, falling obliquely out of Air into a harder Body, will be refracted towards the Perpendicular G R; and falling on the Point L of the Surface of the vitreous Humour, it will ſtill be brought nearer to M.

Laſtly, G L, falling obliquely out of a denſer, upon the Surface of a rarer Body L M N, will be refracted, and recede from the Perpendicular L T; in receding from which, it is evident it approaches towards the Ray B D O, and may be ſo refracted, as to meet the other in O.——In like manner, the Ray B F being refracted in B, will turn to I, and thence to N, and thence to the others in O.——But the Rays between BE and BF, being ſomewhat leſs refracted, will not meet preciſely in the ſame Point O.

Thus will the radiant Point B affect the Fund of the Eye, in the ſame manner as if the Pupil had had no breadth, or as if the Radiant it ſelf had only emitted one ſingle Ray, ſuch as were equal in Power to all thoſe between BE and BF.

In like manner, the Rays proceeding from the Point A, will be ſo refracted in paſſing thro' the Humours of the Eye, as to meet near the Point X: And the Rays from any intermediate Point between A and B, will nearly meet in ſome other Point in the Fund of the Eye, between X and O.

Upon the whole, it may be aſſerted univerſally, that every Point of an Object affects only one Point in the Fund of the Eye; and on the contrary, that every Point in the Fund of the Eye, only receives Rays from one Point of the Object.—Tho this is not to be underſtood in the utmoſt rigour. See RADIANT.

Now, if the Object recede from the Eye, in ſuch manner as that the radiant Point B does not decline from the Line BD; the Rays which would proceed from B not enough divaricated, would be ſo refracted in paſſing the three Surfaces, as that they would meet ere they reach'd the Point O: On the contrary, if the Object ſhould be brought nearer the Eye, the Rays paſſing from the Point B to the Pupil, too much divaricated, would be refracted ſo, as not to meet till beyond the Point O. Nay, the Object may be ſo near, that the Rays proceeding from any Point may be ſo divaricated, as that they ſhall never meet at all.—In all which Caſes, there would be no Point of the Object but would move a pretty large Portion of the Fund of the Eye; and thus the Action of each Point would be confounded with that of the contiguous one.

And this would commonly be the Caſe, but that Nature has provided againſt it; either by contriving the Eye ſo as its Bulb may be lengthen'd, or ſhorten'd, as Objects may be more or leſs diſtant; or, as others will have it, ſo as that the Cryſtalline may be made more convex or more flat; or, according to others, ſo as that the diſtance between the Cryſtalline and the *Retina* may be lengthen'd or ſhorten'd.

The firſt Expedient is the moſt probable; on the footing of which, when we direct our Eyes to an Object ſo remote as that it can't be diſtinctly view'd by the Eye in its accuſtom'd Figure, the Eye is drawn back into a flatter Figure, by the Contraction of four Muſcles; by which means, the *Retina* becoming nearer the cryſtalline Humour, receives the Rays ſooner: and when we view an Object too near, the Eye being compreſs'd by the two oblique Muſcles, is render'd more globular; by which means, the *Retina* being ſet further off from the Cryſtalline, does not receive the Rays of any Point before they meet.

It may be here added, that this acceſs and receſs of the Cryſtalline, is ſo neceſſary to *Viſion*, that whereas in ſome Birds the Coats of the Eye are of ſuch a bony conſiſtence, that Muſcles would not have been able to contract and diſtend 'em; Nature has taken other means, by binding the Cryſtalline down to the *Retina*, with a kind of blackiſh Threads, not found in the Eyes of other Animals.—Nor muſt it be omitted, that of the three Refractions above mention'd, the firſt is wanting in Fiſhes; and that to remedy this, their Cryſtalline is not lenticular, as in other Animals, but globular. Laſtly, ſince the Eyes of old People are generally worn flatter than thoſe of young ones; ſo that the Rays from any Point fall on the *Retina* ere they become collected into one; they muſt exhibit the Object ſomewhat confuſedly: nor can ſuch Eyes ſee any but remote Objects diſtinctly. See PRESBYTÆ.

In others, whoſe Eyes are too globular, the Caſe is juſt the reverſe. See MYOPES.

From what has been ſhewn, that every Point of an Object moves only one Point of the bottom of the Eye; and, on the contrary, that every Point in the Fund of the Eye, only receives Rays from one Point of the Object; 'tis eaſy to conceive, that the whole Object moves a certain Part of the *Retina*; that in this part there is a diſtinct and vivid Collection of all the Rays receiv'd in at the Pupil; and that as each Ray carries its proper Colour along with it, there are as many Points painted in the Fund of the Eye, as there were Points viſible in the Object.—Thus is there a Species or Picture on the *Retina*, exactly like the Object; all the difference between 'em, is, that a Body is here repreſented by a Surface; a Surface frequently by a Line, and a Line by a Point: that the Image is inverted, the right hand anſwering to the left of the Object, *&c.* and that 'tis exceedingly ſmall, and ſtill the more ſo, as the Object is more remote. See VISIBLE.

What we have ſhewn under other Articles, of the Nature of Light, and Colours, readily accounts for this painting of the Object on the *Retina*.—The matter of Fact is proved by an eaſy Experiment, firſt try'd by *Des Cartes*; thus: The Windows of a Chamber being ſhut, and Light only admitted at one little Aperture; to that Aperture apply the Eye of ſome Animal newly kill'd, having firſt dextrouſly pull'd off the Membranes that cover the bottom of the vitreous Humour, *viz.* the hind Part of the *Sclerotica*, *Choroides*, and even part of the *Retina*; then will the Images of all the Objects without Doors be ſeen diſtinctly painted on any white Body, as on an Egg-ſhell, that the Eye is laid upon.—The ſame thing is better ſhewn by an Artificial Eye, or a *Camera Obſcura*. See EYE, and CAMERA *Obſcura*.

The Images of Objects, then, are repreſented on the *Retina*; which is only an Expanſion of the fine Capillaments of the Optic Nerve, and from which the Optic Nerve is continu'd into the Brain.——Now, any Motion or Vibration impreſs'd on one extreme of the Nerve, will be propagated to the other: Hence, the Impulſe of the ſeveral Rays ſent from the ſeveral Points of the Object, will be propagated as they are on the *Retina*, (*i. e.* in their proper Colours, *&c.* or in particular Vibrations or manners of Preſſure, correſponding thereto) to the Place where thoſe Capillaments are interwoven into the Subſtance of the Brain.—And thus is *Viſion* brought to the common Caſe of Senſation.

For ſuch, we know, is the Law of the Union between the Soul and Body; that certain Perceptions of the firſt, do neceſſarily follow certain Motions of the laſt: But the different Parts of the Object do ſeparately move different Parts of the Fund of the Eye; and thoſe Motions are propagated to the Senſory: it follows, therefore, that there muſt ariſe ſo many diſtinct Senſations at the ſame time. See SENSATION.

Hence, 1°, we eaſily conceive, that the Perception, or Image in the Mind, muſt be the clearer, and more vivid, the more Rays the Eye receives from the Object: Conſequently, the largeneſs of the Pupil will have ſome ſhare in the clearneſs of *Viſion*. See PUPIL.

2°, Conſidering only one radiant Point of an Object, we may ſay, that that Point would move the Senſe more weakly, or be ſeen more obſcurely, as it is more remote; by reaſon the Rays coming from any Point, like all Qualities propagated *in Orbem*, are always diverging; and therefore the more remote, the fewer of 'em will be receiv'd in at the Pupil.—But, as 'tis not a ſingle Point of an Object, but all of them together, that affect the Organ of Senſe; and as the Image of the Object ſtill poſſeſſes a leſs part of the *Retina* as 'tis more remote; therefore, tho the Rays that flow from any Point of an Object two Miles off, into the Pupil, be rarer or fewer by half than thoſe flowing from the ſame Point at a Mile's diſtance; yet the ſame Capillament of the Optic Nerve, which in the latter Caſe would only be mov'd by that one Point, in the former, will be affected with the joint Action of the neighbouring Points; and therefore the Image be as clear as in the other Caſe.—Add, that the Pupil dilating it ſelf more, as the Object is more remote, takes in more Rays than it would otherwiſe do.

3°, The Diſtinctneſs of *Viſion* is ſomewhat concern'd in the Size of the Image exhibited in the Fund of the Eye.—For there ſhould be, at leaſt, as many Extremes of Capillaments, or Fibres of the Optic Nerve in the Space that Image poſſeſſes, as there are Particles in the Object that ſends Rays into the Pupil: otherwiſe, every Particle will not move its ſeparate Capillament: And if the Rays from two Points fall on the ſame Capillament, 'twill be the ſame as if only one Point had fell there; ſince the ſame Capillament cannot be differently moved at the ſame time.—And hence it is, that the Images of very remote Objects being very ſmall, they appear confus'd, ſeveral Points of the Image affecting each Capillament: And hence alſo, if the Object be of different Colours, ſeveral Particles affecting the ſame Capillament at the ſame time, only the brighteſt and moſt lucid will be perceiv'd: Thus, a Field furniſh'd with a good number of white Flowers among a much greater quantity of green Graſs, *&c.* at a diſtance appears all white.

Our *ſeeing* of Objects *ſingle*, tho with two Eyes, in each of which is a ſeveral Image, or Picture; and our *ſeeing* of 'em *erect*, whereas the Picture is inverted; are two great Phænomena in *Viſion*: *which ſee conſider'd under the Article* SIGHT.

For the Manner of ſeeing and judging of the Diſtance *and* Magnitude *of Objects.* See DISTANCE, and MAGNITUDE.

VISION, in Opticks.—The Laws of *Viſion*, brought under Mathematical Demonſtrations, make the Subject of *Opticks*, taken in the greateſt Latitude of that Word: For among the Writers of Mathematicks, Opticks is generally taken, in a more reſtrain'd Signification, for the Doctrine of *Direct Viſion*; *Catoptricks*, for the Doctrine of *Reflected Viſion*; and *Dioptricks*, for that of *Refracted Viſion*. See OPTICKS, CATOPTRICKS, and DIOPTRICKS.

Direct, or *Simple* VISION, is that perform'd by means of direct Rays; that is, of Rays paſſing directly, or in right Lines, from the radiant Point to the Eye. See DIRECT.

Such is that explain'd in the preceding Article VISION; ſee alſo RAY.

Reflected VISION, is that perform'd by Rays reflected from *Specula*, or Mirrors. See REFLEXION.

The Laws hereof, ſee under Reflexion, and Mirror.

Refracted Vision, is that perform'd by means of Rays *refracted*, or turn'd out of their way, by paſſing thro' Mediums of different denſity; chiefly thro' Glaſſes and Lenſes.

The Laws of this, ſee under the Articles Refraction, Lens, &c.

Vision, among Divines, is uſed for an Appearance which God occaſionally ſent his Prophets and Saints; either by way of Dream, or in reality. See Prophecy, Revelation, &c.

Such were the *Viſions* of *Ezekiel*, *Amos*, &c. the *Viſion* of St. *Paul*, lifted up to the third Heaven, &c. of *Joſeph*, by which he was aſſur'd of the Purity of the Virgin, &c.

Many among the *Romiſh* Saints ſtill pretend to *Viſions*: the *Revelations of S.* Bridget are ſo many *Viſions*.

Hence the Word has come into diſrepute, and become a common Name for all Chimeras, or Spectres, which either our own Folly or Fear poſſeſſes us with: And hence, a Perſon that frames to himſelf wild romantic Notions, is called a *Viſionary*.

Quevedo's *Viſions*, are Deſcriptions of what paſs'd in the Imagination of that Author.

The *Beatific Viſion*, is the Act whereby the Angels and bleſſed Spirits ſee God in Paradiſe. See Beatific.

VISIR, or Visier, or Vizer, an Officer or Dignitary in the *Ottoman* Empire.

There are two Kinds of *Viſirs*, the firſt called by the *Turks*, *Viſir Azem*, that is *Grand Viſir*; firſt created in 1370, by *Amurath* I. in order to eaſe himſelf of the chief and weightier Affairs of the Government.

The *Grand* or *Prime Viſir*, is the firſt Miniſter of State in the whole Empire.——He commands the Army in chief, and preſides at the Divan, or great Council.——Renegado Chriſtians, have been frequently rais'd to the *Viſirate*: Such were *Khairedain*, *Ulug Ali*, &c.

Next to the Grand *Viſir* are ſix other ſubordinate *Viſirs*, call'd *Viſirs of the Bench*, who officiate as Counſellors or Aſſeſſors in the Divan. See Divan.

VISITATION, an Act of Juriſdiction, whereby a Superior, or proper Officer, *viſits* ſome Corporation, College, Church, or other publick or private Houſe, to ſee that the Regulations thereof be duly obſerv'd.

Among us, the Biſhop of each Dioceſe is oblig'd to hold a *Viſitation* every three Year, and the Archdeacon every Year; to ſee that the Diſcipline be well obſerv'd, the People well inſtructed, and take care that neither the Church, nor the Paſtors thereof receive any detriment. See Bishop, Archdeacon, &c.

Antiently, the *Regarder*'s Office was expreſs'd to be the *Viſitation of Manners*. See Regarder.

The Lawyers hold it a Branch of the King's Prerogative, to *viſit* the Univerſities; to inquire into the Statutes, and Obſervation of them; to expel Delinquents, &c. But ſome of the Colleges diſallow this Privilege; and plead themſelves, by Royal Charters, exempt from all Civil and Royal *Viſitations*. See University.

Among the *Romaniſts*, the General of each Religious Order, is oblig'd to *viſit* the ſeveral Monaſteries of the Order. See General, and Order.

In Abbies that are Chiefs of their Orders, there are particular Officers, call'd *Viſitors*; who are diſpatch'd into all the Houſes and Congregations depending on them, to ſee that the regular Diſcipline is obſerv'd.

In *Spain*, there is a *Viſitor* and *Inquiſitor General*.——The *Viſitation* of the Cloiſter belongs to the Ordinary.——At *Paris*, the Parliament *viſit* the ſeveral Priſons and Priſoners four times a Year.

In a Moral and Religious Senſe, *Viſitation* is alſo uſed for the Afflictions that befal Mankind; as coming from the Hand of God, to try or prove them.—In this Senſe, the laſt Plague among us is frequently call'd the *Viſitation*.

VISIVE, in the School Philoſophy, a Term applied to the Power of *Seeing*. See Seeing.

Authors are exceedingly divided about the Place where the *Viſive Faculty* reſides: Some will have it in the *Retina*; others in the *Choroeides*; others in the Optic Nerve; others, as Sir *I. Newton*, in the Place where the Optic Nerves meet, before they come to the Brain; and others in the Brain it ſelf. See Sight, and Sensory.

VISNE, in Law, a neighbouring Place, or Place near at hand. See Venew.

VISUAL, ſomething belonging to the Sight, or Seeing. See Sight, and Seeing.

Visual *Rays*, are Lines of Light, imagin'd to come from the Object to the Eye. See Ray.

All the Obſervations of Aſtronomers and Geometers, are perform'd by means of the *Viſual* Rays, receiv'd in at the Sights, or *Pinnulæ* of Alhidades. See Observation, Sight, Quadrant, Levelling, &c.

Visual *Point*, in Perſpective, is a Point in the horizontal Line, wherein the ocular Rays unite. See Point.

Thus, a Perſon ſtanding in a ſtrait long Gallery, and looking forwards, the Sides, Floor, and Ceiling ſeem to meet, and touch one another in a Point, or common Centre.

VITA, *Life*, is a very ambiguous Term: For both God and Man, and a Soul, and an Animal, and a Plant, are ſaid *to live*: yet there is not any thing common to *all* theſe, beſide a kind of active Exiſtence, which, however, is very different. See Animal, Vegetable, &c.

Life, then, in the general, expreſſes a kind of active, operative Exiſtence; and is therefore conceiv'd to conſiſt in Motion.——But, particularly,

Vita *Corporis, the Life of a Body*, conſiſts in an uninterrupted Motion therein.—A Body, therefore, ſaid to be *living*, muſt conſiſt of various Parts or Members, both internal and external, ſo framed and put together, as to conſtitute one Whole. And theſe Members muſt be moved and warm'd by ſome fluid Subſtance, permeating the whole Frame; by which Heat and Motion, the vital Functions are to be perform'd.—Such are Nutrition, Generation, Local Motion, &c. See Blood, Circulation, &c.

Vita *Mentis, the Life of a Mind*, is held by the *Carteſians* to conſiſt in a perpetual Cogitation, or uninterrupted Courſe of Thinking; which ſeems likewiſe to have been *Ariſtotle*'s meaning, when he call'd the Soul ἐντελεχεια; which his Interpreters call *Actus*: Thinking being the only proper Act of the Mind. See Entelecheia.

But Mr. *Lock* endeavours to refute this Principle. See Thinking.

Vita *Hominis, Life of a Man*, conſiſts in a continued Communication of Body and Mind; or in Operations to which both the Motions of the Body, and Ideas of the Mind, contribute.

Thus, *e.g.* the Mind now thinking of ſomething, on occaſion of that Thought, there ariſes a certain Motion in the Body: And now, again, the Body moves firſt, which Motion is follow'd by ſome Thought of the Mind.

In ſuch alternate or reciprocal Operation does the Life of Man conſiſt; conſider'd as he is a Compound of Body and Mind. See Sensation, Motion, &c.

VITAL, in Anatomy, ſomething that miniſters principally to the conſtituting or maintaining of Life in the Bodies of Animals.

Thus, the Heart, Lungs, and Brain, are called *Vital* Parts. See Part.

Vital *Functions*, or *Actions*, are thoſe Actions of the *Vital* Parts, whereby Life is effected; ſo as that it can't ſubſiſt without 'em.—Such are the muſculous Action of the Heart; the ſecretory Action of the *Cerebellum*; the reſpiratory Action of the Lungs; the Circulation of the Blood and Spirits, thro' the Arteries, Veins, and Nerves. See Function.

Vital *Spirits*, are the fineſt and moſt volatile Parts of the Blood. See Spirits.

VITELLIANI, in Antiquity, a kind of Tablet or Pocket-Book, wherein People antiently uſed to write down their ingenious, humourous, and wanton Fancies and Impertinencies: The ſame as what in *Engliſh* we may call a *Trifle-Book*. See *Martial*, Lib. XIV. Epig. viii.

Some will have them to take their Name from *Vitellus*, a Yolk of an Egg; by reaſon, the Leaves were rubb'd therewith: Others derive it from one *Vitellius* their Inventor.

VITRIFICATION, or Vitrifaction, the Act of converting a Body into Glaſs, by Fire. See Glass.

Of all Bodies, Fern-Aſhes, Sand, Bricks, and Pebbles, *vitrify* the moſt eaſily. Accordingly, it is of the firſt of theſe that Glaſs is principally made.

Gold, held by M. *Homberg* near the *Focus* of the Duke of *Orleans*'s large, burning, concave Mirror, at firſt ſmoak'd, then changed, all of it that did not go off in Fumes, into Glaſs, of a deep violet Colour.—The Glaſs of Gold weighs leſs than Gold. *Memoirs of the* French *Academy*, 1702. See Gold.

All Metals, and even almoſt all Natural Bodies, ſufficiently heated, *vitrify*: And this *Vitrification* is the laſt Effect of the Fire; after which the moſt intenſe heat of the largeſt Burning-Glaſs, will make no further Alteration. See Burning-Glass, Mirror, and Fire.

Vitrification, ſome Authors will have to be chiefly effected by the Salts uniting and incorporating with the metalline Particles. See Calcination.

But, according to M. *Homberg*, all *Vitrification* reſults from the Earth, which being expoſed to a violent Fire, and intimately penetrated by ſome other Diſſolvent, commences Glaſs.——Thus, ſuppoſing the Principle of Gold to be Mercury, a metallick Sulphur, and an Earth; the *Vitrification* of Gold is eaſily conceived: the Mercury, being volatile, exhales in Smoke, and leaves behind it the Earth, and Sulphur, which are fix'd; the Sulphur diſſolves the Earth and *vitrifies* it.

VITRIOL, in Natural Hiſtory, a kind of Foſſil, or mineral Salt, chiefly found in Copper-Mines. See Salt, and Copper.

Vitriol is more properly rank'd among the Claſs of *Semi-metals*, as having a metallic Matter mixt or combin'd with its Salt. See SEMI-METAL.

Vitriol is defined by *Boerhaave*, a ſaline, metallic, tranſparent Glebe; diſſoluble in Water, and fuſible and calcinable by Fire.

It acquires different Names, according to the different Places where it is dug: and the *Vitriols* of thoſe alſo, differ from each other in Denomination and Colour, ſome being *White*, others *Blue*, and others *Green*.

Roman Vitriol, for Inſtance, is White; that of *Cyprus*, Blue; and that of *Piſa* and *Germany*, greeniſh.

White Vitriol partakes but little of any Metal, *Blue* partakes of Copper, and *Green* of Iron. See IRON, *&c.*

Monſieur *Geoffroy*, the elder, obſerves, that they all conſiſt of an acid Salt, like that found in Alum and Sulphur; excepting that in Alum, the Acid is mixt with an abſorbent Earth, or Calx: in Sulphur it is united with certain fat, bituminous Parts; and in *Vitriols*, with metallic Parts.

According to *Boerhaave*, *Vitriols* conſiſt of a metallic Part with a Sulphur adhering, a menſtruous Acid, and Water.

In *Blue Vitriol*, the Metal, wherewith the Acid, *&c.* is join'd, is Copper. See VENUS.

In *White Vitriol*, commonly call'd *White Copperas*, it is mixt with *Lapis Calaminaris*, or ſome ferruginous Earth, intermix'd with Lead or Tin. See COPPERAS.

In *Green Vitriol*, the Acid is join'd with Iron. See MARS.

The Antients give the Name *Chalcitis*, or *Chalcite*, to *native Vitriol*; or that which acquires its full Perfection in the Entrails of the Earth, and which is a kind of mineral Stone, of a reddiſh Colour.—Of this they obſerv'd three different States, or Tranſformations: *Chalcitis*, in its firſt State, they call'd *Miſi*; this afterwards turn'd into *Melanteria*, and that into *Sori*. See CHALCITIS.

The Moderns take this *Chalcitis* to be the ſame with the *Colcothar* brought from *Sweden* and *Germany*, the beſt whereof is of a browniſh-Red Colour, and a *vitriolic* Taſte, and diſſolves eaſily in Water; and, when broke, is of the Colour of ſhining Copper. See COLCOTHAR.

All the other *Vitriols* above-named, are really factitious, being only a kind of Cryſtals, drawn, by means of Water, from a ſort of Marcaſite ordinarily found in Mines, and call'd, by Naturaliſts, *Pyrites*, or *Quis*. See PYRITES.

Roman Vitriol is made by expoſing theſe *Pyrites* to the Air, till ſuch time as they calcine, and change into a greeniſh, acid, *vitriolic* Calx, or Duſt; in ſuch State they are thrown into the Water, and are afterwards, by boiling and evaporation, reduced into that kind of Cryſtals ſent us from *Italy*.

All the other *Vitriols* are made after the ſame manner, that is, much after the ſame manner as Alumn is made in *England*, or Salt-petre in *France*. See ALUM, and SALTPETRE.

For *Green Vitriol*, they add a great number of pieces of Iron to the Liquor in the boiling; theſe raiſe a great Ebullition. As ſoon as the Iron is diſſolved, they evaporate the Diſſolution to a certain Degree; and ſo let it cryſtalize.—The Cryſtals being form'd, there remains a thick, reddiſh, unctuous Styptic, and aſtringent Liquor, which Monſieur *Geoffroy* calls *Eau-mere de Vitriol*, as containing all the Principles of the Mineral, tho diſ-united.

The Powder of this *Vitriol* is exceeding ſtyptic, and excellent for the cure of Wounds, and the ſtopping of Blood.—Its Effects this Way, have been raiſ'd by the knavery of ſome, and the credulity of others, to a kind of Miracle; it being this that makes the Baſis of the famous *Sympathetic Powder*. See SYMPATHETIC.

The medicinal Virtues of *Vitriol* are very great; but all owing to the Iron, or other metallic Parts mixt with it, and therefore follow the kind of Metal.

Thus, thoſe of *Green Vitriol* depend on the ſtypticity or aſtringency of Iron, or *Mars*. See MARS, *&c.*

The *Eau-mere* drawn from *Green Vitriol*, Monſieur *Geoffroy* obſerves, does not differ any way, eſſentially, from a great Number of Preparations which the Chymiſts have given us of *Vitriol*, *Iron*, and the *Lapis Hæmatites*: As the *fix'd* and *anodyne Sulphurs of Vitriol* or *Mars*; Arcana, and Magiſteries of *Vitriol*; Tinctures, *&c.* of *Vitriol*, *Mars*, &c. The common Baſis of all which is Iron exceedingly ſubtilized and attenuated. See IRON.

A Solution of *Vitriol* mix'd with a Tincture of Galls, becomes inſtantly exceeding Black: and 'tis this is the common Writing-Ink. See INK.

Monſieur *Lemery*, the younger, has a pretty Hypotheſis to account for this Blackneſs: he imagines, that as the *Vitriol* whereof Ink is made, is Iron diſſolved by an Acid, and intimately mix'd therewith; and as Gall is an Alkali, or Abſorbent, this Alkali meeting the Acids which hold the Iron diſſolved, unites with them, and makes them let the Iron looſe, which thereupon revivifies, and reſumes its natural Blackneſs. So that in ſtrictneſs, 'tis Iron we write withal.

This Syſtem is confirm'd hence: that of the five ſorts of *Vitriol*, that of *Cyprus* or *Hungary* is the only one whoſe Baſe is Copper; that of the reſt is Iron: and accordingly they all ſerve to make Ink withal, excepting that.

Vitriol alſo enters the Compoſition of *Aquafortis*. See AQUAFORTIS.

What we call *Calcanthum* is only *Vitriol* rubified, and is not the ſame with *Colcothar*, as ſome have imagined. See CALCANTHUM.

Some take the Word *Vitriolum* to be uſed, *quaſi vitri oleum*, becauſe of its ſhining Colour; but *Menage* rather derives its Name, *à vitreo colore*: the *Latins* call it, *Atramentum*; and the *Greeks*, *Calcanthus*.

Some Naturaliſts hold *Vitriol* to be the Root, or Matrix of Copper; becauſe in the Copper-Mines they never dig deeper than the Glebe out of which the *Vitriol* is drawn.

Vitriol affords ſeveral Chymical Preparations, as——*Spirit of Vitriol*, procured by firſt Calcining, then Diſtilling it.——*Oil of Vitriol*, which comes out after the *Spirit*, by heightning the Fire wherewith that had been raiſ'd.——What remains after both, is the *Colcothar of Vitriol*.——*Tartar of Vitriol* is had by mixing *Oil of Vitriol* with *Oil of Tartar per deliquium*; a Salt precipitating to the bottom, which being ſet to exhale and cryſtalize, is the *Tartar of Vitriol*. See TARTAR.

From the *Colcothar of Vitriol* is prepared the *Ens Veneris*. See ENS VENERIS.

Metallic VITRIOLS: All Metals, it is to be obſerved, may be converted into *Vitriols*, by diſſolving 'em with acid Spirits, and letting 'em ſtand; tho 'tis very difficult to obtain *Vitriol* of Gold or Silver, by reaſon theſe Metals are not eaſily diſſolved by the Spirit; but *Vitriols* of Iron and Copper are eaſily had.

VITRIOL *of Mars*, is a Preparation made by diſſolving Iron, or Steel, in a proper acid Menſtruum, then evaporating or drawing off the Moiſture, and bringing the Matter to cryſtalize, *viz.* by ſetting it in a cool place. See MARS.

It is alſo call'd *Salt of Steel*. See STEEL.

VITRIOL *of Luna*, or *the Moon*, is the Body of Silver chymically opened, and reduced into the Form of Salt by the ſharp Points of *Spirit of Nitre*. See LUNA, and SILVER.

VITRIOL *of Venus*, is a Preparation made by a ſolution of Copper in the *Spirit of Nitre*, evaporated and cryſtallized, to gain the Salt; call'd alſo *Vitriol of Copper*. See COPPER, *&c.*

Theſe factitious *Vitriols* being only Metals diſſolved and cryſtallized in ſaline Menſtruums, are frequently call'd, by way of diſtinction, *Metallic Vitriols*, and *Metallic Salts*.

VITRIOLATED, among Chemiſts, turned into *Vitriol*, or having *Vitriol* infuſed in it.

Tartar Vitriolated. See TARTARUM *Vitriolatum*.

VITRIOLIC, ſomething that has the Quality of *Vitriol*, or partakes of the Nature of *Vitriol*.

In this Senſe we ſay, a *Vitriolic Spring*, *Vitriolic Stone*, *Vitriolic Spirits*, &c.

If Iron be thrown into a *Vitriolic Water*, and the red Ruſt ariſing on the Surface of the Iron be melted down, it will be found real Copper; which is an Inſtance of the Tranſmutation of one Body into another. See TRANSMUTATION.

VITRIOUS *Humour*, in Anatomy, is the third Humour of the Eye, call'd *Vitrious*, *i. e.* glaſſy, from its reſemblance to melted Glaſs. See HUMOUR.

It lies under the Cryſtalline; by the Impreſſion of which, its fore-part is rendred concave. See CRYSTALLINE, and EYE.

For the Office of the *Vitrious Humour*, ſee VISION.

Some Authors call the Coats or Membranes that contain this Humour, the *Vitrious Tunics*.

VITTA, among Anatomiſts, a *Fillet* or *Head-band*; is uſed for that part of the *Amnion* which ſticks to the Infant's Head when it is juſt born. See AMNION.

VITUS's *Dance*, in Medicine. See CHOREA *Sancti Viti*.

VIVA *Pecunia*, was antiently uſed for live Cattle. See PECUNIA.

VIVA *Voce*, *q. d.* by Word of Mouth. See DEPOSITION.

VIVARY, in our Law-Books, is ſometimes uſed for a Park, Warren, or Fiſh-pond, wherein living Creatures are kept, *&c.* See PARK, WARREN.

VIVIFICATION, in Medicine, the Art of *Vivifying*, that is, of contributing to the Action that gives Life, or maintains Life. See LIFE.

The Chymiſts alſo uſe the Word in ſpeaking of the new Force, Vigour, and Luſtre which by this Art they give to natural Bodies, particularly to Mercury; which after having been fix'd or amalgamated, they reſtore to its firſt State. See REVIVIFICATION.

VIVIPAROUS, in Natural Hiſtory, an Epithet applied to ſuch Animals as bring forth their Young alive, and perfect: in contradiſtinction to ſuch as lay Eggs; which are call'd, *Oviparous Animals*. See ANIMAL, OVIPAROUS, and EGG.

Vipers are diſtinguiſhed from Snakes, in that the latter lay Eggs in Dunghills, to be hatch'd by the Warmth thereof; but the former are *Viviparous*, that is, lay their Eggs within their Bellies, and bring forth live Vipers. See Viper.

In the *Philoſophical Tranſact.* we have an Account of a *Viviparous Fly*, of the *Oeſtrum* or Gad kind.——Dr. *Liſter* tells us he open'd ſeveral Females of this Claſs, and found, in each, two Bags of live white Worms. The like is hinted by *Aldrovandus*.

Dr. *Liſter* ſuſpects, that all of this Tribe are, in ſome meaſure, *Viviparous*. See Insects.

VIVO, in Architecture, the Shaft, or Fuſt of a Column. See Shaft, and Column.

The Term is alſo uſed in a more particular Senſe, for the Naked of a Column, or other Part. See Naked.

VIZARD, or Vizor. See Mask.

VIZOR, or Vizard, in Heraldry. See Gardeviſure.

ULCER, Ulcus, in Medicine, a Solution or Diſcontinuity of Texture, or a loſs of Subſtance in the fleſhy Parts of the Body, proceeding from an internal Cauſe. See Solution.

Galen defines it an inveterate Eroſion of the ſoft Parts of the Body, by which, inſtead of Blood, they are brought to yield a kind of *Pus*, or *Sanies*; which prevents the Conſolidation.

Etmuller defines an *Ulcer*, a Solution of Continuity from ſome coroſive Sharpneſs or Acidity, that takes away from the Parts, and turns the proper Nouriſhment of the Body into a ſanious Matter.—A like Solution of Continuity happening in a bony Part, is call'd a *Caries*. See Caries.

Galen commonly uſes the Words *Ulcer* and Wound, indifferently; but the *Arabs*, and the Moderns after them, diſtinguiſh between the two. See Wound.

Spontaneous *Ulcers*, are generally ſuppoſed to proceed from Acrimony, or a corroſive Diſpoſition of the Humours of the Body, whether brought on by Poiſons, the venereal Taint, or other Cauſes.

Ulcers are divided into *ſimple*, and *complicated*: They are again divided, with regard to their Circumſtances, into *Putrid*, or *Sordid*, wherein the Fleſh all around is corrupted and fetid; *Verminous*, where the Matter being thick, does not flow away, but generates Worms, *&c.* *Virulent*, which inſtead of Pus, or Sanies, yield a malignant *Virus*, &c.

They are again diſtinguiſh'd, with regard to their Form, into *Sinuous*, *Fiſtulous*, *Varicous*, *Carious*, &c.

When an *Ulcer* happens in a good Conſtitution, and proves eaſy of Cure, 'tis ſaid to be *Simple*.

When attended with other concurring Symptoms, as a Cacochymic Habit, which greatly retards or obſtructs the Cure, it is called a *Compound Ulcer*.

A *Simple Ulcer* is attended with no other Sign than that of Eroſion; but *Compound Ulcers*, happening in a Scorbutic, Dropſical, or Scrophulous Conſtitution, may be attended with Pain, a Fever, Convulſions, a large and emaciating Diſcharge of Matter, Inflammation and Swelling of the Part, Calloſity of the Lips, a Caries of the Bones, *&c.*

A Putrid or *Sordid Ulcer*, is that whoſe Sides are lined with a tough, viſcous Humour, and is alſo attended with Heat, Pain, Inflammation, and a large Flux of Humours to the Part: With time the *Sordes* increaſe and change Colour, the *Ulcer* corrupts, its Matter grows fetid, and ſometimes the Part gangrenates.—Putrid Fevers often give riſe to this kind of *Ulcer*.

A Phagedænic Ulcer, is an *Ulcer* of a corroſive Nature, eating away the adjacent Parts all a-round; the Lips thereof remaining tumefied. When this kind of *Ulcer* eats deep, and ſpreads wide, without being attended with a Tumour, but putrifies and grows foul and fetid, 'tis call'd *Noma*; and both, on account of the Difficulty wherewith they heal, are alſo termed *Dyſepulota*.

Varicous Ulcers, are ſuch as being ſeated in the Veins, and becoming painful and inflammatory, ſwell up the Part they poſſeſs.——Theſe, when recent, being occaſion'd by the Uſe of Corroſives, or proceeding from a ruptured Varix, are often attended with an Hæmorrhage.—The Veins adjacent to the *Ulcers* are, in this caſe præter-naturally diſtended, and may ſometimes be felt interwoven together, like network, about the Part.

Sinuous Ulcers, are ſuch as run a-ſlant or ſide-ways from their Orifice, and may be known either by ſearching with the Probe, Wax-Candle, *&c.* or the Quantity of Matter they diſcharge in proportion to their apparent magnitude.—Theſe ſometimes lie deep, and have ſeveral Turnings: they are diſtinguiſhed from *Fiſtulas* only by their want of Calloſity, except in the very Orifice.

Fiſtulous Ulcers, are ſuch as are ſinuous, or winding, and attended with great Calloſity, and diſcharge a thin, ſerous, and fetid Matter.

Old *Ulcers* are rarely cured without the Uſe of Internals, which are to be ſuch as abſorb and deſtroy the Acidity; Sudorificks eſpecially, Decoctions of the Woods, Antimonials, Viperines, and Volatiles; but above all things Vomitories often repeated: In the moſt obſtinate *Ulcers*, mercurial Salivation is often required; Old *Ulcers* are frequently incurable without making an Iſſue in the oppoſite Part.

The Cure of ſimple, ſhallow *Ulcers*, is commonly affected by applying a Pledget armed with *Liniment. arcæi*, or *Baſilic. flav.* to the Part, a Plaiſter of *Diachyl. ſimp.* or *de Minio*, being laid over it, and repeating the dreſſing once a-day, or ſeldomer.

If only the Cuticula be loſt or eat away, nothing more than a little *Unguent. de Siccativ. Rub.* or *Diapomphol.* &c. ſpread thin upon Linen, need be applied.

If ſpongy Fleſh ſhould grow up, in either caſe it may be kept down with a little *Roman Vitriol*, &c. as in caſe of healing up the *Simple Ulcers* made by the breaking of the common Tumors.

Evacuations are indiſpenſibly neceſſary in the Cure of *Ulcers* of the compound kind, where the Conſtitution will admit thereof.

If the *Ulcer* be fiſtulous, ſinuous, cancerous, *&c.* and the Matter fetid, thin, or ſanious, it is found proper to join Calomel with the Purgatives, or to give it in ſmall Doſes, between the Repetitions thereof, ſo as not to ſalivate.

Beſides the Uſe of evacuating Medicines, it will here alſo be proper to order a Courſe of Diet-drink, made with the Sudorifick Woods, eſpecially where the Ulcer is ſuſpected to be Venereal.——In the mean time proper Dreſſings are to be uſed.

When the *Ulcer* obſtinately reſiſts this Treatment, a Salivation is generally propoſed, and ſeldom fails to promote the Cure, tho all other Remedies ſhould have been tried in vain. If the Patient be too weak to undergo the Fatigue of a thorough Salivation, it may be moderated, and kept up the longer, in Proportion to his Strength. See Salivation.

External Medicines for *Ulcers*, are Digeſtives, Cleanſers, Sarcoticks, and Epuloticks.—— Monſieur *Belloſte* gives us a Medicine of ſingular Efficacy in the Cure of *Ulcers*; and it is no more than a Decoction of Walnut Leaves in Water, with a little Sugar; in which a Linen Cloth being dipp'd, is to be laid on the *Ulcer*, and this to be repeated every ſecond or third Day. This ſimple and vulgar Medicine he finds ſuppurates, deterges, incarnates, reſiſts Putrefaction, *&c.* more than any other Medicine known.

An *Ulcer* in the Lungs makes what we call a *Phthiſis*. See Phthisis.

The *Venereal Diſeaſe* is a grand Source of *Ulcers*; particularly in the Præpuce and Glans, in Men; the Vagina, *&c.* in Women; and in the Mouth and Palate in both. See Venereal *Diſeaſe*.

Venereal Ulcers are of various kinds; thoſe that grow callous and cancrous, are call'd *Shankers*. See Shanker.

ULCERATION, a little Aperture, or Hole in the Skin, cauſed by an *Ulcer*.

Cauſtic Medicines ſometimes occaſion *Ulcerations* in the Skin. See Caustics.

Arſenic always *Ulcerates* the Parts it ſticks to.—A Flux at the Mouth *Ulcerates* the Tongue and Palate. See Salivation.

ULIGINOUS, Uliginosus, implies as much as moiſt, mooriſh, fenny. See Fen, Bog, Morass, *&c.*

ULLAGE *of a Cask*, is ſo much as a Veſſel wants of being full.

ULNA, in Anatomy, a long, hard Bone in the Arm, with a Cavity in the Middle; call'd alſo *Focile Majus*, and *Cubitus*. See Arm, and Cubitus.

The *Ulna* lies on the inſide of the Fore-Arm, reaching from the Elbow to the Wriſt; is big at its upper-end, and grows ſmaller to its lower-end.

At its upper it has two Proceſſes, which are received into the fore and hind *Sinus's* of the Extremity of the *Humerus*. The foremoſt Proceſs is ſmall and ſhort; the hindmoſt, called 'Ολέκρανον, is bigger and longer: it ſtays the Fore-Arm, when it comes to a ſtrait Line with the Arm. See Olecranon.

Betwixt theſe Proceſſes it has a ſemi-circular *Sinus*, which receives the inner Protuberance of the lower-end of the *Humerus*, upon which we bend and extend our Fore-Arm; and along the middle of that there runs a ſmall Ridge, by which this Bone is articulated to the *Humerus* by *Ginglymus*.—Had the Articulation here been an *Arthrodia*, the Joint muſt have been much weaker; but the Hand could have received no more Motion from it than it has now from the Shoulder.

The inſide of this upper-end has a ſmall *Sinus*, which receives the Circumference of the round Head of the *Radius*. Its lower Extremity, which is round and ſmall, is received into a *Sinus*, in the lower-end of the *Radius*; and upon this Extremity, it has a ſhort and ſmall Proceſs, from which the Ligaments which tie it to the Bones of the Wriſt ariſe: this Proceſs ſerves to keep the Bones of the Wriſt in their place.

Ulna, an *Ell* in meaſure. See Ell, and Measure.

Ulna *Ferrea*, is an old Law-word for the Standard Iron-Ell, kept in the *Exchequer*. See Standard.

ULNAGE. See Alnage.

ULNARIS *Extenſor*, in Anatomy, a Muſcle, call'd alſo *Extenſor Carpi*. See Extensor.

Ulnaris *Flexor*. See Flexor *Carpi*.

ULTERIOR, in Geography, is apply'd to ſome part of a Country, or Province, which, with regard to the reſt of that Country, is ſituate on the farther Side of a River, Mountain, or other Boundary which divides the Country into two Parts.

Thus, *Africa*, with regard to *Europe*, is divided by Mount *Atlas*, into *Citerior*, and *Ulterior*, *i. e.* into two Portions, the one on this ſide Mount *Atlas*, and the other on that.

The Word is pure *Latin*.

ULTIMA *Baſia*, q. d. *laſt Kiſſes*, is a Phraſe uſed among ſome Painters, for the laſt finiſhing Touches with the Pencil. See Painting.

ULTRAMARINE, a beautiful blue Colour, uſed by the Painters, prepared from *Lapis Lazuli*. See Blue, and Lapis.

This Blue is one of the richeſt and moſt valuable Colours uſed in Painting.—The Preparation conſiſts in firſt calcining the *Lapis* in an Iron Mortar, then grinding it very fine on a Porphyry Stone; then mixing it up with a Paſte made of Wax, Pitch, and Oil; and at laſt waſhing the Paſte well in clear Water, to ſeparate the colouring Part from the reſt, which precipitates to the bottom, in form of a ſubtile, beautiful, blue Pouder.

The Water is then pour'd off; and the Pouder at bottom dried in the Sun: which is the true *Ultramarine*.

Thoſe who prepare this Colour, have uſually four Kinds, which they get by ſo many different Lotions: The firſt is ſtill the beſt; and the reſt worſe and worſe, to the laſt.

There is *Ultramarine* of the firſt Kind, ſold for 11 *l.* Sterling *per* Ounce; and of the laſt, for about 12 or 15 *s.*

Some derive its Name, *Ultramarine*, q. d. *beyond Sea*, from its being firſt brought into *Europe* out of *India* and *Perſia*: Others ſay, 'tis becauſe its Colour is deeper than that of the Sea.

The common Opinion is, that the Method of making it was firſt diſcover'd in *England*; and that a Member of the *Eaſt India* Company, having a Quarrel with his Aſſociates, to be reveng'd of them, made the Secret publick.

Ultramarine muſt be choſen of a high Colour, and well ground which is known by putting it between the Teeth, where, if it feel gritty, 'tis a Sign the Triture is not ſufficient.

To know whether it be pure and unmix'd, put a little of it in a Crucible, and heating it red hot, if the Pouder han't chang'd its Colour after this Trial, 'tis certainly pure: On the contrary, if you perceive any change, or any black Specks in it, 'tis falſify'd.

Beſide this, there is another Kind, call'd *Common* or *Dutch Ultramarine*; which is only *Lapis* or *Smalt* well ground, and pulveriz'd; the Colour whereof, when uſed by the Painters, is much like that of the true *Ultramarine*, tho much leſs valued.

ULTRAMONTANE, ſomething beyond the Mountains.

The Term is principally uſed in relation to *Italy* and *France*, which are ſeparated by the Mountains of the *Alps*.

In *France*, the Opinions of the *Ultramontane* Canoniſts, *i. e.* of thoſe of *Italy*, are not receiv'd.

The Painters, particularly thoſe of *Italy*, call all thoſe that are not of that Country, *Ultramontanes*; or, ſimply, *Tramontanes*. *Pouſſin* is the only *Tramontane* Painter that the *Italians* ſeem to envy. See Tramontane.

ULTRAMUNDANE, *Ultramundanus*, q. d. *beyond the World*; is that Part of the Univerſe, ſuppoſed to be without, or beyond the Limits of our World, or Syſtem. See Universe, World, *&c.*

UMBELICUS. } See { Umbilicus.
UMBELICAL. } See { Umbilical.

UMBELLA, or Umbrella. See Parasol.

UMBELLÆ, among Botaniſts, *&c.* is applied to the round Tufts or Heads of certain Plants, ſet thick together, and all of the ſame height.—But *ſparſed* or *thin Umbellæ*, is when they ſtand at a diſtance from one another, yet all of an equal height. See Umbelliferous.

UMBELLIFEROUS *Plants*, are ſuch as have their Tops branched, and ſpread out like an *Umbrella*; on each little Subdiviſion of which, there is growing a ſmall Flower; ſuch are Fennel, Dill, *&c.* See Plant.

This Flower is always *Pentapetalous*; and is ſucceeded by two naked Seeds adjoining to each other, which are the true Characteriſticks that diſtinguiſh theſe Plants from others.

The *Umbelliferous* are a very large Genus of Plants, and are diſtinguiſh'd by Mr. *Ray* as follows:

1°, Such as have a compounded Leaf, of a triangular and pinnate Form.—The Seeds of theſe are either broad, flat, and plain, almoſt like Leaves; as the *Sphondylium*, *Paſtinaca Latifolia*, *Panax Heracleum Tordylium*, *Orcoſelinum*, *Thyſſelinum*, *Apium Cicutæ foliis*, *Daucus Alſaticus carvifolia*, *Anethum*, *Pucedanum*, *Thapſia*, *Ferula*, &c. Or with a Seed more tumid, and leſs compreſſed and flat than the former; as the *Cachrys*, *Laſerpitium*, *Cicutaria vulgaris*, *Scandix*, *Cerefolium*, *Myrrhis Sativa Angelica*, *Leviſticum*, *Siler Montanum*, *Bulbocaſtunum*, *Siſarum*, *Oenanthe*, *Sium*, *Pimpinella*, *Apium*, *Cicuta*, *Viſnaga*, *Saxifraga*, *Crithmum*, *Fœniculum*, *Daucus vulgaris*, *Aniſum*, *Caucalci*, *Coriandrum*, *Paſtinaca Marina*, &c.

2°, Such as have a ſimple, or undivided Leaf, or at leaſt one only a little jagged; as the *Perfoliata*, *Buplerum*, *Aſtrantia nigra*, *Sanicula*, and the *Seſeli Æthiopicum*.

UMBER, among Painters, *&c.* a kind of Earth, which, diluted with Water, ſerves to make a dark brown Colour.

It is called *Umber* from *Umbra*, Shadow; as ſerving chiefly for the Shadowings of Objects. See Shadow.

UMBILICAL, Umbilicalis, or Umbelical, in Anatomy, ſomething that relates to the *Umbilicus*, or Navel. See Umbilicus, *&c.*

Umbilical *Veſſels*, are a Set or Aſſemblage of Veſſels belonging to a *Fœtus*; conſtituting what we call the *Funiculus Umbilicalis*, or Navel-ſtring. See Foetus, and Umbilicalis.

Theſe *Veſſels* are two Arteries, a Vein, and the *Urachus*.

The *Umbilical Arteries* ariſe from the Iliacks, near their Diviſion into external and internal; and paſs thence on each ſide of the Bladder, thro' the Navel, to the *Placenta*.

By the Number of Contortions, or Convolutions of theſe Arteries in the Navel-ſtring, our Midwives ſuperſtitiouſly reckon the Number of Children the Woman is to have.

The *Umbilical Vein*, from innumerable Capillaries united into one Trunk, deſcends from the *Placenta* to the Liver of the *Fœtus*; where it is partly diſtributed into the *Porta*, and partly into the *Cava*.

The *Urachus* is only plainly found in Brutes; tho there is no doubt but it has place likewiſe in Mankind. See Urachus.

The Uſe of theſe *Veſſels*, is to maintain a Continuity and Communication between the Mother and the *Fœtus*.—Some Authors will even have it, that the *Fœtus* receives its Food and Increaſe this way; and that it grows, like a Vegetable, from the Mother as the Root, of which the *Umbilical Veſſels* are the Stem; and the Child the Head or Fruit of this Plant-Animal. See Circulation, Nutrition, Foetus, *&c.*

Umbilical *Region*, is that Part of the Abdomen lying round about the *Umbilicus*, or Navel. See Abdomen, and Region.

Funiculus Umbilicalis, popularly call'd the Navel-ſtring, is a kind of String, form'd of the *Umbilical* Veſſels; which being ty'd up in a common Coat, or Membrane, traverſe the Secundines, and are inſerted at one end into the *Placenta* of the Mother, and at the other into the Abdomen of the *Fœtus*. See Umbilical *Veſſels*.

The Navel-ſtring is membranous, wreathed, and unequal; ariſing out of the middle of the Abdomen, and reaching to the *Placenta Uterina*: 'Tis uſually half an Ell in length, and as thick as one's Finger.—It was neceſſary it ſhould be ſo long and lax, that when the *Fœtus* in the Womb grows ſtrong, it might not break it by its ſprawling and tumbling about; and that after it is born, the Secundine, or After-Birth, might be drawn out the better by it.

The way that it paſſes from the Navel to the *Placenta*, is very unconſtant; for ſometimes it goes upon the right Hand to the Neck, which having incompaſs'd, it deſcends to the *Placenta*; and ſometimes it goes on the left Hand up to the Neck, *&c.* Sometimes it comes not to the Neck at all, but goes firſt a little up towards its Breaſt, and then turns round its Back, and from thence paſſes to the *Placenta*.

This Part, at the Birth, is either broke, or cut away to the Navel; ſo that its *Veſſels*, *viz.* two Arteries, a Vein, and *Urachus*, become perfectly uſeleſs, as *Veſſels*; and drying up, become impervious, and ſerve only as Ligaments to ſuſpend the Liver.

Umbilical *Points*, in Mathematicks, the ſame with *Foci*. See Focus.

UMBILICUS, the *Navel*, in Anatomy, the middle of the Mid-part of the lower Venter, or Belly; being the Place thro' which the *Umbilical* Veſſels paſs out of the *Fœtus* to the *Placenta* of the Mother.

The Word is pure *Latin*, form'd of *Umbo*, the little bunch in the middle of a Buckler; by reaſon of its reſemblance to the Navel. See Umbilical *Veſſels*.

Umbilicus, in Mathematicks, the ſame with *Focus*. See Focus.

UMBONE, or *Horn*, among Floriſts, ſignifies any pointed Style, or Piſtil, in the middle of a Flower. See Pistil.

There is alſo an *Umbone* call'd *doubly-pointed*, or *by-parted*, as in the Peony; and ſometimes the *Umbone* has four ſharp Points, in which Caſe it is termed, an *Umbone* divided into ſo many Heads, or cut into three or four Parts.

UMBRELLO. See Umbella.

UMPIRE, a third Perſon, choſen to decide a Controverſy left to an Arbitration, in caſe the Arbitrators ſhould not agree. See Arbitrator.

This, ſome call a *Sur-Arbitrator*.

Minſhew ſuppoſes the Word form'd of the French *un pere*, a Father.

UNCASING, among Hunters, the cutting up, or fleaing of a Fox.

UNCIA, a Term generally us'd for the twelfth Part of a Thing.——In this Senſe, the Word occurs in *Latin* Writers, both for a Weight, call'd an *Ounce*; and a Meaſure, call'd an *Inch*. See OUNCE, and INCH; ſee alſo WEIGHT, and MEASURE.

UNCIA *Terræ*, or *Agri*, is a Phraſe frequently met withal in the antient Charters of the *Britiſh* Kings; but what the Quantity of Ground was, is a little obſcure.—All that we know for certain, is, that it ſignify'd a large Quantity, as much as 12 *Modii*. See MODIUS *Terræ*.

UNCIÆ, in Algebra, are the Numbers prefix'd to the Letters of the Members of any Power, produced from a Binomial, Reſidual, or Multinomial Root. See ROOT.

Thus, in the fourth Power of $a+b$, that is, $aaaa+4aaab+6aabb+4abbb+bbbb$, the *Unciæ* are 4, 6, 4. See POWER, *&c.*

Sir *I. Newton* gives a Rule for finding the *Unciæ* of any Power ariſing from a Binomial Root. Thus:

Let the Index of the Power be called m; then will the *Unciæ* ariſe from ſuch a continual Multiplication as this, *viz.* $1\times\frac{m-0}{1}\times\frac{m-1}{2}\times\frac{m-2}{3}\times\frac{m-3}{4}\times\frac{m-4}{5}$, *&c.* Thus, if the *Unciæ* of the Biquadrate, or fourth Power, were requir'd; the Rule is, $1\times\frac{4-0}{1}(=4)\times\frac{4-1}{2}(=6)\times\frac{4-2}{3}(=4)\times\frac{4-3}{4}(=1)$; which ſhews, that the *Unciæ* are 1,4,6,4,1. See POLYGONAL *Number*.

Or thus: The Terms of any Powers are compounded of certain literal *Factums*, with Numbers call'd *Unciæ*, prefix'd; and the *Factums* are found, by making two Geometrical Progreſſions; the firſt of them beginning from the requir'd Power of the firſt Part of the Root, and ending in Unity; and the ſecond beginning with Unity, and ending in the requir'd Power of the ſecond Part: Thus, for a ſixth Power of $a+b$;

$a^6\ a^5\ a^4\ a^3\ a^2\ a^1$ firſt Series,
$1\ b\ b^2\ b^3\ b^4\ b^5\ b^6$ ſecond Series,

and multiplying the Terms of the ſame Order in either Series into one another: as, $a^6+a^5b+a^4b^2+a^3b^3+a^2b^4+ab^5+b^6$, out of which the ſixth Power of $a+b$ is compounded.

The *Unciæ*, then, are found by writing the Exponents of the Powers of the ſecond Series, *i.e.* of b, under the Exponents of the Powers of the firſt Series, *i.e.* of a; and taking the firſt Figure of the upper Series for the Numerator, and the firſt of the lower for the Denominator of a Fraction, which is equal to the *Uncia* of the ſecond Power; and ſo for the reſt. Thus, for the ſixth Power we have,

$$\begin{array}{cccccc}6&5&4&3&2&1\\1&2&3&4&5&6\end{array}$$

Accordingly, $\frac{6}{1}=6$ is the *Uncia* of the ſecond Term of the ſixth Power; $\frac{6.5}{1.2}=\frac{30}{2}=15$, the *Uncia* of the third Term; $\frac{6.5.4}{1\,2\,3}=\frac{120}{6}=20$, the *Uncia* of the fourth Term; $\frac{6.5.4.3}{1\,2\,3\,4}=\frac{6.5}{1.2}=\frac{30}{2}=15$, the *Uncia* of the fifth Term; $\frac{6.5.4.3.2}{1.2.3.4.5}=\frac{6}{1}=6$, the *Uncia* of the ſixth Term; $\frac{6\,5\,4\,3\,2\,1}{1\,2\,3\,4\,5\,6}=1$, the *Uncia* of the laſt Power. See PYRAMIDAL *Numbers*.

UNCIAL, UNCIALIS, an Epithet which the Antiquaries give to certain large-ſiz'd Letters, or Characters, antiently us'd in Inſcriptions and Epitaphs. See LETTER, CAPITAL, *&c.*

The Word is form'd from the Latin *Uncia*, the twelfth Part of any thing; and which in geometrical Meaſure ſignify'd the twelfth Part of a Foot, *viz.* an Inch; which was ſuppoſed the Thickneſs of one of theſe Letters.

UNCORE, or UNQUES *Priſt*, q. d. *ſtill ready*, in Law, a Plea for the Defendant, being ſued for a Debt due on a Day paſt, to ſave the Forfeiture of his Bond, *&c.* by affirming, that he tender'd the Debt at the Time and Place, and that there was none to receive it; and that he is *yet* alſo *ready* to pay the ſame.

UNCTION, the Act of anointing, or ſmeering with Oil, or other fatty Matter.

Mercurial *Unction*, properly applied brings on a Salivation. See SALIVATION.

The Surgeons cure divers Wounds, Ulcers, *&c.* by repeated *Unctions* with Oils, Unguents, Cerats, *&c.* See OIL, UNGUENT, LINIMENT, *&c.*

UNCTION, in Matters of Religion, is uſed for the Character confer'd on ſacred Things, by anointing 'em with Oil.

Such is the *Unction* of Kings, Prophets, Prieſts, *&c.*—The *Unction* of Kings is ſuppos'd to be a Ceremony introduc'd very late among Chriſtian Princes: *Onuphrius* ſays, none of the Emperors were ever anointed before *Juſtinian* or *Juſtin*: The Emperors of *Germany* took up the Practice from thoſe of the Eaſtern Empire.—King *Pepin* of *France* was the firſt King who receiv'd the *Unction*. See CORONATION.

In the *Romiſh* Church, beſides an *Unction* at Baptiſm, on the Forehead, and at Confirmation, on the Head; they have an *Extreme Unction*, given to People in the Pangs of Death, on the Parts where the five Senſes reſide, being the Parts by which the Perſon might have ſinn'd. See EXTREME *Unction*.

UNCUTH, q. d. *unknown*, is uſed in the antient *Saxon* Laws, for him that comes to an Inn, Gueſt-wiſe, and lies there but one Night: In which Caſe, his Hoſt was not bound to anſwer for any Offence he committed, whereof he was guiltleſs himſelf.

——*Prima nocte poteſt dici* Uncuth, *ſecundo vero*, Gueſt, *tertia nocte* Hoghenehine. *Bracton*, Lib. III. See THIRD *Night awn Hine*.

UNDECAGON, is a regular Polygon of eleven Sides. See POLYGON.

UNDECIMVIR, by the *Greeks* call'd ΟΙΕΝΔΕΚΑ, and by *Jul. Pollux*, *Eparcha*; a Magiſtrate among the antient *Athenians*, who had ten other Collegues, or Fellows in the ſame Poſt.

The Functions of the *Undecimviri* at *Athens*, were much the ſame as thoſe of the *Prevots de Marechauſſee* in *France*. They took care of the apprehending of Criminals; ſecur'd 'em in the Hands of Juſtice; and when they were condemn'd, took 'em again into Cuſtody, that the Sentence might be executed againſt 'em.

They were choſe by the Tribes; each Tribe naming its own: And as the Number of Tribes after *Calliſthenes* was but ten, which made but ten *Eparchæ*, a Scribe or Notary was added, which made the Number eleven: Whence their Name ΟΙΕΝΔΕΚΑ, or *Undecimviri*, as *Cornelius Nepos* calls 'em in the Life of *Phocion*.

UNDEE, or UNDY, in Heraldry. See WAVY.

UNDER *the Sea*, in the Sea Language.—A Ship is ſaid to be ſo when ſhe lies ſtill, or waits for ſome other Ships, with her Helm laſhed, or ty'd up a-Lee.

UNDER-*Currents*—Diſtinct from the *upper*, or *apparent Currents* of the Seas. Some Naturaliſts conclude, there are in divers Places *Under-Currents*, which ſet or drive a contrary way. See CURRENT.

Dr. *Smith*, in the *Philoſophical Tranſactions*, brings the Hypotheſis of *Under-Currents* to ſolve that remarkable Phænomenon, the Sea's ſetting ſtrongly thro' the *Streights* into the *Mediterranean*, with a conſtant Current 20 Leagues broad.—What ſhould become of the vaſt Quantity of Water pour'd in this way; as alſo, of that running from the *Euxine*, thro' the *Boſphorus* into the *Helleſpont*, and thence into the *Archipelago*; is a Speculation that has long employ'd the Philoſophers.

This Author's Conjecture is, That there is an *Under-Current*, whereby as great a Quantity of Water is carried out as comes in.

To confirm this, he obſerves, that between the North and South Foreland, it is either high or low Water upon the Shore three Hours before it is ſo off at Sea: A certain Sign, that tho the Tide of Flood runs aloft, yet the Tide of Ebb runs under-foot, or cloſe by the Ground.

He adds an Account from an able Sailor in the *Baltick* Sound; that going with their Pinnace into the middle Stream, they were carry'd violently away by the Current: But that ſinking a Bucket with a large Cannon Bullet to a certain Depth of Water, it gave check to the Boat's Motion; and ſinking it ſtill lower, the Boat was driven a-head to the Windward, againſt the upper Current, which was not above four or five Fathom deep.

Dr. *Halley* ſolves the Current's ſetting in at the *Streights*, without overflowing the Banks, from the great Evaporations; without ſuppoſing any *Under-Current*. See VAPOUR, and EVAPORATION.

UNDER-*Wood*, is Coppice, or any Wood that is not accounted Timber. See COPPICE, and TIMBER.

UNDER-*Chamberlain of the Exchequer*, is an Officer there that cleaves the Tallies, and reads the ſame; ſo that the Clerk of the Pell, and the Comptrollers thereof, may ſee that the Entries are true. See EXCHEQUER, TALLY, PELLS, *&c.*

He alſo makes Searches for all Records in the Treaſury, and hath the Cuſtody of the Doomſday Book.—There are two Officers of this Name.

UNDER-*Treaſurer of* England, *Vice-Theſaurarius Angliæ*, an Officer mention'd in the Stat. 39 *Eliz.* and whom ſeveral other Statutes confound with Treaſurer of the Exchequer. See EXCHEQUER.

In the Vacancy of the Lord Treaſurer's Office, he did every thing in the Receit, that the Lord Treaſurer himſelf does. He alſo cheſted up the King's Treaſure at the End of every Term, and noted the Content of Money in each Cheſt, and ſaw it carried to the King's Treaſury in the *Tower*, for the eaſe of the Lord Treaſurer, *&c.* See TREASURER.

Under-*Sheriff, Sub vice comes.* See Sheriff.

Under-*Setter*, is an *Inmate.* See Inmate.

Under-takers, were antiently ſuch Perſons as were employ'd by the King's Purveyors, and acted as their Deputies. See Purveyors.

At preſent, the Name is chiefly uſed for *Upholders*, or Perſons who furniſh out Funerals: And for ſuch as *undertake* any great Work, as the draining of Fens, *&c.* Stat. 43 *Eliz.*

UNDER-MINING. See Sapping.

UNDERSTANDING, or *Intellect*, is defined, by the Peripateticks, to be a Faculty of the reaſonable Soul, converſant about intelligible Things, conſider'd as intelligible. See Faculty and Soul.

They alſo make it twofold, *viz. Active* and *Paſſive.*

Active Underſtanding, they hold, that Faculty of the Soul by which the Species and Images of intelligible Things are framed, on occaſion of the preſence of Phantaſms or Appearances thereof.—For maintaining the Intellect to be Immaterial, they hold it impoſſible it ſhould be diſpoſed to think by any diſproportionate Phantaſms of mere Body, and therefore is obliged to frame other proportionate Species of it ſelf; and hence its Denomination *active.*

Paſſive Underſtanding, is that which receiving the Species framed by the *Active Underſtanding*, breaks forth into actual Knowledge. See Knowledge.

The Moderns ſet aſide the *Peripatetic* Notion of an *active Underſtanding.*—The *Carteſians* then define the *Underſtanding* to be that Faculty, whereby the Mind converſing with, and as it were intent on, itſelf, evidently knows what is true in any thing not exceeding its Capacity. See Judgment.

The *Corpuſcular* Philoſophers define the *Underſtanding* to be a Faculty, expreſſive of Things which ſtrike on the external Senſes, either by their Images, or their Effects, and ſo enter the Mind.—Their great Doctrine is, *Nihil eſſe in Intellectu quod non prius fuerit in ſenſu*; and to this Doctrine our famous Mr. *Locke*, and moſt of our lateſt *Engliſh* Philoſophers ſubſcribe.

The *Carteſians* cry out aloud againſt it, between whom and the *Corpuſcularians* there is this farther Difference, that the latter make the Judgment to belong to the *Underſtanding*; but the former to the Will. See Will.

Hence, according to the moſt approved Opinion of the *Corpuſcularians*, the *Underſtanding* has two Offices, *viz. Perception* and *Judgment*; according to the *Carteſians* only one, *viz. Perception.* See Perception.

Underſtanding is alſo uſed for the Act, Exerciſe, or Exertion of this Faculty; or the Action whereby the Mind knows Things, or repreſents 'em in Idea to itſelf.

UNDULATION, in Phyſicks, a kind of tremulous Motion, or Vibration, obſervable in a Liquid; or a ſort of wavy Motion, whereby a Liquid alternately riſes and falls, like the Waves of the Sea.

And hence it is that this Term takes its riſe, *Unda* ſignifying *Wave.* See Wave.

This *Undulatory* Motion, if the Liquid be ſmooth and at reſt, is propagated in Concentrick Circles, as moſt People have obſerved upon throwing a Stone or other matter upon the Surface of a ſtagnant Water, or even upon touching the Surface of the Water lightly with the Finger, or the like.

The Reaſon of theſe circular Undulations is, that by touching the Surface with the Finger there is produced a Depreſſion of the Water in the place of Contact. By this Depreſſion the ſubjacent Parts are moved ſucceſſively out of their place, and the other adjacent Part thruſt upwards, which lying ſucceſſively on the deſcending Liquid, follow it; and thus the Parts of the Liquid are alternately rais'd and depreſs'd, and that circularly.

When a Stone is thrown into the Liquid, the reciprocal Vibrations are more conſpicuous: Here the Water in the Place of Immerſion, riſing higher, by means of the Impulſe or Rebound, till it comes to fall again, gives an Impulſe to the adjoining Liquid, by which means that is likewiſe rais'd about the place of the Stone, as about a Centre, and forms the firſt undulous Circle; which falling again, gives another Impulſe to the Fluid next to it further from the Centre, which likewiſe riſes in a Circle; and thus, ſucceſſively, greater and greater Circles are produced.

Undulatory Motion, is likewiſe applied to a Motion in the Air, whereby its Parts are agitated after the like manner as Waves in the Sea; as is ſuppoſed to be the Caſe when the String of a muſical Inſtrument is ſtruck. See Chord.

This *Undulatory* Motion of the Air, is ſuppoſed the Matter or Cauſe of Sound. See Sound.

Inſtead of the *Undulatory*, ſome Authors chuſe to call this a *vibratory Motion.* See Vibration.

Undulation is alſo uſed, in Chirurgery, for a Motion enſuing in the Matter contain'd in an Abſceſs, upon ſqueezing it.—A Tumor is ſaid to be in a condition for opening, when one perceives the *Undulation.* See Tumor.

UNGELD, in our antient Cuſtoms, *ſi Frithman*, i. e. *Homo pacis, fugiet & repugnet, & ſe nolit indicare*; *ſi occidatur jaceat* Ungeld, *i. e.* no pecuniary Compenſation ſhall be made for his Death, Skinner.—*Ungilda Aker*, mention'd in *Brompton*, has much the ſame Signification, *viz.* where any Man was kill'd attempting any Felony, he was to lie in the Field unburied, and no pecuniary Compenſation to be made for his Death. From the *Saxon*, *an*, without, *gilda ſolutio*, & *acera*, *ager*, Field.

UNGUENT, Unguentum, in Chirurgery, a topical Remedy, or Compoſition, uſed in the dreſſing of Wounds and Ulcers. See Wound, *&c.*

Unguents, Liniments, and Cerats, are external Forms applied on divers Parts of the Body, both to cure, and to eaſe and relieve 'em.—They only differ from each other in Conſiſtence, with regard to which Unguents hold the Medium; being ſtiffer than *Liniments*, but ſofter than *Cerats.* See Liniment, and Cerat.

Oils are ordinarily the Baſes of all three; to which are added Wax, *Axungia*, and ſeveral Parts of Plants, Animals, and Minerals, both in reſpect of the Virtues they furniſh, and to give a Conſiſtence to the Oils, and to keep 'em longer on the Part, that they may have more time to act.

The Principal *Unguents* are *Unguentum Roſatum*, *Unguentum Album*, or white Unguent of Ceruſs; the *Populeum* made of the Buds of the Poplar Tree; the *Unguentum Apoſtolorum*, ſo call'd from the twelve Drugs it conſiſts of, a Cleanſer; the *Unguentum Baſilicum*, a Suppurative; the *Unguentum Egyptiacum*, Cauſtic; the *Unguentum Aureum*, Incarnative and Cicatrizing; the *Unguent. de Apio*, Mundicative; the *Unguent. Agrippæ*, ſaid to be diſcover'd by King *Agrippa.* See each under their proper Articles, Populeum, Egyptiacum, Apostolorum, *&c.*

Pomatums are alſo rank'd in the Number of *Unguents.* See Pomatum.

UNGUIS, a *Latin* Term, ſignifying a Nail of the Hand or Foot. See Nail.

Unguis, in Medicine, a Diſeaſe of the Eye, occaſion'd by a nervous Excreſcence on the *Conjunctiva*, beginning at the great *Canthus* and ſpreading inſenſibly till it reach the *Pupil*, and at laſt quite cover it. See Conjunctiva.

The ordinary Cauſe of the *Unguis* is an exceſſive Acrimony in the Tears, which corrode the *Conjunctiva*, as is often the Caſe in an *Opthalmia*, or after the Small Pox.

The *Greeks* call it πτερύγιον. See Pterygium.

Unguis, in Anatomy, is applied to two Bones of the Noſe, being as thin as Scales, and reſembling the Nail; whence their Name. See Nose.

The *Ungues* are the ſmalleſt Bones in the upper Jaw, and are ſituate cloſe to the great *Canthus* of the Eyes. See Maxilla.

Some Authors call them *Oſſa Lachrymalia*, but improperly; there being no *Glandula Lachrymalis* in the *Canthus.* Others call 'em *Orbitaria Oſſa.*

They are contiguous to four other Bones, *viz.* the Coronal, that of the Noſe, the Maxillary, and that part of the *Ethmoides* which forms the Orbit.

Unguis, or *Unguiculus*, among Botaniſts and Floriſts, is a little Speck, of a different Colour from the reſt of the *Petala*, or Leaves of Flowers. See Petala.

It has the figure of a Nail of the Hand: Its place is at the Origin, or Root of thoſe Leaves; as we ſee in the Roſe, Poppy flowers, and divers others.

In preparing of Medicines, the *Ungues*, or *Unguiculi*, are pull'd off the Flowers that enter the ſame.

Unguis *Odoratus.* See Blatta *Bizantia.*

UNGULA, in Geometry, is the Section of a Cylinder cut off by a Plane paſſing obliquely thro' the Plane of the Baſe, and part of the cylindrick Surface. See Motion.

Ungula, in Natural Hiſtory, the Claw, or Hoof of a Quadruped. See Hoof.

Ungula *Alcis*, the Elk's Claw. See Elk.

Ungula, among Surgeons, a ſort of hooked Inſtrument where withal to extract a dead Fœtus out of the Womb.

UNICORN, in Natural Hiſtory, an Animal famous among the *Greek* Authors, under the Name of Μονοκέρος, and among the *Latins*, *Engliſh*, *French*, &c. under thoſe of *Unicornis*, *Unicorn*, *Licorne*, &c.

All theſe Names it takes from its diſtinguiſhing Characteriſtic, the having one Horn only, which is repreſented as five Palms long, growing in the middle of the Forehead.

This Animal claims a place here, not only as it makes a curious Article in Natural Hiſtory, but alſo as it furniſhes ſomething to Medicine, Commerce, and Heraldry.

The popular Account is, that it is about the ſize of a Horſe, its Hair ſhort and of a dark-brown colour; very timerous, and therefore keeping moſtly in the Woods; and that its true Place is the Province of *Agoas* in the Kingdom of *Damotes*, in *Ethiopia.*

And. Marin, a learned Phyſician of *Venice*, has wrote an expreſs Treatiſe on the *Falſe Opinion of the Unicorn.*

The firſt Author, according to *Pliny*, who wrote of the *Unicorn*, was one *Creſius*, whom *Ariſtotle* mentions as a very ſuſpicious Author. *Ælian* only ſpeaks of it in very doubtful Terms. The other Authors on the Subject are *Philoſtratus*, and *Solinus*; *Æneas Sylvius*, who is Pope *Pius* II. *Marcus Paulus*, *Aloeſius*, *Geſner*, *Garcias ab Horto*, &c. Of theſe, ſome ſay it reſembles a Horſe, others an Aſs, others a Goat, by its Beard; others an Elephant, others a Rhinoceros, others a Grey-hound, *&c.*

Munſter and *Thevet* will have it an amphibious Animal, and its Horn to be moveable at pleaſure. Others make all its Strength to conſiſt in its Horn, and add, that when purſued by the Hunters it precipitates its ſelf from the tops of the higheſt Rocks, and pitches upon its Horn, which ſuſtains the whole Effort of its Fall ſo that it receives no damage thereby. In effect, the ſeveral Authors do all give ſeveral Accounts of the Figure and Colour, both of the Animal and of its Horn, and all its Parts.——And hence the more knowing among the Moderns do unanimouſly hold it a fabulous Animal.

The Legend adds, that it is wonderful fond of chaſte Perſons; and therefore, in order to take it, a Virgin is placed in its way, whom when the *Unicorn* ſpies, he lies down by her, and lays his Head on her Lap, and ſo falls a-ſleep; upon which the Virgin making a Signal, the Hunters come in and take the Beaſt; which could never be caught any other way, becauſe it would either caſt it ſelf head long from a Rock, or die.

What ordinarily paſſes among us for *Unicorn's Horn*, and is ſhewn for ſuch in the Collections of Curioſities, and uſed for ſuch by ſeveral Phyſicians, we are aſſured by *Pereyra*, in his Account of *Greenland*, to be the Tooth of a large Fiſh of the Whale Kind, call'd by the Iſlanders *Narwal*; and, in other Places, *Walrus* and *Robart*; frequent enough in the icy Sea.

This Tooth, or Horn, turn'd, channel'd, and terminating in a Point, as it is, ſprings out of the middle of the fore-part of the upper-Jaw, where it has a Root a Foot long, as thick as the Horn itſelf: 'tis the only Tooth the Animal has in the upper-Jaw; and ſerves it as a Weapon of Defence, wherewith it dares to attack the largeſt Whale.——It can ſtrike it with ſuch violence as even to pierce the Side of a ſtrong built Ship.

There is a fine Horn of this kind preſerv'd in the Repoſitory of St. *Denis* at *Paris*, given by *And. Thevet*, and pretended to have been a Preſent to him from the King of *Monomotapa*, who carried him to hunt the *Unicorn*; which is frequent in that Country: This Horn ſome have ſuſpected to be an Elephant's Tooth, carved in that manner. At *Strasbourg* there is another, between ſeven and eight Foot long. In the Repoſitory at *Venice*, there is a good Number; all different from each other.

The Antients held the *Unicorn's Horn* to be a Counterpoiſon; and, that the Animal uſed to dip it in the Water, to purify and ſweeten it ere it wou'd drink: 'Tis added, that for the ſame reaſon other Beaſts wait to ſee it drink before 'em. Thence, as alſo from the Rarity of the Thing, People have taken Occaſion to attribute divers medicinal Vertues thereto.

But *Amb. Paré* has proved it a mere piece of Charletanery, and all the Virtues attributed to it to be falſe; and yet the Price it has bore is almoſt incredible: *Andrea Racci*, a Phyſician of *Florence*, affirms, the Pound of 16 Ounces, to have been ſold in the Apothecaries Shops for 1536 Crowns, when the ſame weight of Gold was only worth 148 Crowns.

Unicorn, in Heraldry, is repreſented *paſſant*, and ſometimes *rampant*: When in this laſt Action, as in the *Engliſh* Arms, it is properly ſaid to be *ſaillant*, Argent: an *Unicorn* ſeiant ſable, armed and unguled, Or. Borne by the Name of *Harding*.

The *Unicorn* is one of the Supporters of the Arms of *England*. See Supporter.

UNIFORM, Uniformis, denotes a thing to be ſimilar, or conſiſtent either with another thing or itſelf, in reſpect of Figure, Structure, Proportion, and the like.—In which ſenſe it ſtands oppoſed to *Difform*. See Similitude.

Uniform, or *Equable Motion*. See Motion.

Uniform *Flowers of Plants*, are ſuch as are of the ſame Figure all a-round, having their fore and back-parts, as alſo their right and left-parts exactly a like. See Flower.

When they are otherwiſe, they are term'd *difform Flowers*. See Difform.

UNIFORMITY, *Regularity*, a Similitude or Reſemblance between the Parts of a Whole.——Such is that we meet withal in Figures of many Sides and Angles reſpectively equal and anſwerable to each other. See Regular.

A late Ingenious Author makes Beauty to conſiſt in Uniformity, join'd or combined with Variety. See Beauty.

Where the Uniformity is equal in two Objects, the Beauty, he contends, is as the Variety; and where the Variety is equal, the Beauty is as the *Uniformity*. See Deformity.

Uniformity, is particularly uſed for one and the ſame Form of Public Prayers, and Adminiſtration of Sacraments, and other Rites, *&c.* of the Church of *England*, preſcribed by the famous Stat. 1 *Eliz.* and 14 *Car.* II. call'd *the Act of Conformity*.

UNION, a Junction, Coalition, or Aſſemblage of ſeveral Things in one.

Philoſophers are exceedingly to ſeek about the manner of the *Union* of Soul and Body, or by what Medium it is that two ſuch heterogeneous Beings are kept ſo cloſely together.—'Tis one of the great Laws of this *Union*, that ſuch and ſuch an Impreſſion on the Brain be follow'd by ſuch and ſuch a Senſation, or Perception in the Soul. See Soul, Sensation, Motion, *&c.*

Union, in an Eccleſiaſtical Senſe, is a combining or conſolidating of two Churches into one. See Church, Benefice, Consolidation, *&c.*

This is not done without the Conſent both of the Biſhop, the Patron, and the Incumbent. See Patron, *&c.*

The Canoniſts diſtinguiſh three kinds of *Union*, that of *Acceſſion*, that of *Confuſion*, and that of *Equality*.

The *Union* of *Acceſſion* is the moſt uſual: by this the united Benefice becomes a Member, and acceſſory of the Principal.

The *Union* by *Confuſion*, is that where the two Titles are ſuppreſs'd, and a new one created including both.

In the *Union* of *Equality* the two Titles ſubſiſt; but equal, and independent.

By Stat. 37 *Hen.* VIII. it is enacted, That an *Union*, or Conſolidation of two Churches may be admitted, provided the annual Value of one of them, in the King's Books, don't exceed 6 *l.* and the diſtance between them, be not above one Mile.——And by another, Stat. 17 *Car.* II. it is enacted, That the *Union* of two Churches or Chapels in any City or Town, ſhall be valid, unleſs the Value of the Churches, ſo united, exceed 100 *l.*

Union, or *the Union* by way of Eminence, is particularly uſed, among us, to expreſs the Act whereby the two ſeparate Kingdoms of *England* and *Scotland* were incorporated into one, under the Title of *the Kingdom of* Great Britain.

This *happy Union*, in vain attempted by King *James* I. was at length effected in the Year 1707, by the general Conſent of the Queen, and the Eſtates of each Realm.

The Act, or Treaty of *Union*, conſiſts of Twenty-five Articles; which eleven *Engliſh* Commiſſioners and eleven *Scotiſh* ones, examin'd, approved, and ſign'd on the 3d of *Auguſt*, 1706. The Parliament of *Scotland* approved it on the 4th of *February*, 1707; and the Parliament of *England*, the 10th of *March* in the ſame Year.—On the 17th following, the Queen went to Parliament, where ſhe approved the ſame Treaty, with the Act of Ratification.

Since that time, there is only one Privy-Council and one Parliament for the two Kingdoms: The *Scotiſh* Parliament is ſuppreſs'd, or, rather ſuper-added to the *Engliſh*, both of them only conſtituting one, under the Title of the Parliament of *Great Britain*.

The Number of Members which by the Articles of the *Union* the *Scots* are to ſend into the Houſe of Commons, to repreſent the Commons of that Country, are 45; and the Number of Peers whereby their Peerage is to be repreſented, is 16.

The great Officers of the Crown of *Scotland*, before the *Union*, were the Lord High Chancellor, Lord High Theſaurer or Treaſurer, Lord Privy-Seal, and Lord Regiſter. Their leſſer Officers of State were, the Lord Regiſter, Lord Advocate, Lord Theſaurer Depute, and Lord Juſtice-Clerk.

The four firſt Officers are diſſolv'd by the *Union*, and inſtead thereof new Officers are erected, ſerving for both Countries under that Title of *Lord High Chancellor of* Great Britain, *&c.* See Chancellor, Treasurer, *&c.*

The four latter Offices ſtill ſubſiſt. See Advocate, Register, *&c.*

Union, in a philoſophic Senſe, is uſed, by Dr. *Grew*, for one of the three ways of Mixture; being the Joining tother of Atoms or inſenſible Particles ſo as to touch in a Plane, as is ſuppoſed to be the Caſe in the Cryſtallizations of Salts, and the like Bodies. See Mixture, Crystallization, *&c.*

Union-*Pearls*, are ſuch Pearls as grow in the Couples; the beſt ſort of Pearls. See Pearl.

Union, in Architecture, is particularly uſed for a Harmony between the Colours in the Materials of a Building.

Union, among Painters, expreſſes a Symmetry and Agreement between the ſeveral Parts of a Painting; when, *e.g.* there is a deal of Relation and Connexion between them, both as to the Figures, and the Colouring: ſo that they apparently conſpire to form one thing. See Symmetry.

When this *Union* is finely manag'd, ſome call it *Suavity*.

UNISON, in Muſick, is the Effect of two Sounds, which are equal in degree of Tune, or in point of Gravity and Acuteneſs. See Tune.

Or, *Uniſon* may be defined a Conſonance of two Sounds, produced by two Bodies of the ſame Matter, Length, Thickneſs, Tenſion, equally ſtruck, and at the ſame time; ſo that they yield the ſame Tone, or Note. See NOTE.

Or, it is the *Union* of two Sounds, ſo like each other, that the Ear perceiving no difference, receives them as one and the ſame Sound. See SOUND.

What conſtitutes *Uniſonance*, is the Equality of the Number of Vibrations of the two ſonorous Bodies in equal Times: Where there is an Inequality in that reſpect, and of conſequence an Inequality in degree of Time; the unequal Sounds conſtitute an *Interval.* See INTERVAL, and VIBRATION.

Uniſon is the firſt and greateſt of Concords; and the Foundation, or, as ſome call it, the *Mother* of all the reſt: Yet ſome deny it to be any Concord at all; maintaining it to be only that in Sounds, which Unity is in Numbers. See UNITY.

Others reſtrain the Word *Concord* to Intervals, and make it include a difference of Tune; but this is precarious: for as the Word *Concord* ſignifies an Agreement of Sounds, 'tis certainly applicable to *Uniſons* in the firſt degree.

But tho *Uniſonance*, or an Equality of Tune, makes the moſt perfect Agreement of Sound; it is not true that the nearer any two Sounds come to an Equality of Tune, they are the more agreeable.—The Mind is delighted with Variety; and the Reaſon of the Agreeableneſs or Diſagreeableneſs of two Sounds, muſt be aſcrib'd to ſome other Cauſe than the Equality or Inequality of the Number of their Vibrations. See CONCORD.

'Tis a fam'd Phænomenon in Muſick, that an intenſe Sound being rais'd, either with the Voice or a ſonorous Body, another ſonorous Body near it, whoſe Tune is either *Uniſon* or Octave above that Sound, will ſound its proper Note *Uniſon* or Octave to the given Note.——The Experiment is eaſily try'd by the Strings of two Inſtruments, or by a Voice and a Harpſichord, or a Bell, or even a drinking Glaſs.

This our Philoſophers account for thus: One String being ſtruck, and the Air put in Motion thereby; every other String within the reach of that Motion, will receive ſome Impreſſion therefrom: But each String can only move with a determinate Velocity of Recourſes, or Vibrations; and all *Uniſons* proceed from equal or equidiurnal Vibrations; and other Concords from other Proportions. The *Uniſon* String, then, keeping equal pace with the ſounded String, as having the ſame Meaſure of Vibrations, muſt have its Motion continued and ſtill improv'd, till its Motion become ſenſible, and it give a diſtinct Sound. Other concording Strings have their Motions propagated in different Degrees, according to the frequency of the Coincidence of their Vibrations with thoſe of the ſounded String: The Octave, therefore, moſt ſenſibly; then the fifth: after which, the croſſing of the Motions prevents any effect.

This they illuſtrate by the Pendulum; which being ſet a-moving, the Motion may be continu'd and augmented by making frequent, light, coincident Impulſes; as blowing on it when the Vibration is juſt finiſh'd: But if it be touch'd by any croſs or oppoſite Motion, and this, too, frequently; the Motion will be interrupted, and ceaſe altogether.—So, of two *Uniſon* Strings, if the one be forcibly ſtruck, it communicates Motion by the Air to the other: and being equidiurnal in their Vibrations, that is, finiſhing them preciſely together, the Motion of that other will be improv'd and heighten'd, by the frequent Impulſes receiv'd from the Vibrations of the firſt; becauſe given preciſely when that other has finiſh'd its Vibration, and is ready to return: But if the Vibrations of the Chords be unequal in Duration, there will be a croſſing of Motions, leſs or more, according to the Proportion of the Inequality; by which the Motion of the untouch'd String will be ſo check'd, as never to be ſenſible. And this we find is the Caſe in all Conſonances, except *Uniſon*, Octave, and the Fifth. See CHORD.

UNITARIANS, a Name aſſumed by the new Antitrinitarians; as making Profeſſion to preſerve the Glory and Attribute of Divinity to the *One*, only great and ſupreme God, and Father of our Lord Jeſus Chriſt. See ARIANS, SOCINIANS, *&c.*

UNIT, UNITE, in Arithmetick, the Number *One*; or one ſingle, individual Part of diſcrete Quantity. See NUMBER.

If a Number conſiſt of four or five Places, that which is outermoſt towards the right hand, is called the Place of *Unites.* See NUMERATION.

Number, in general, is by *Euclid* defin'd to be *μονάδων ποσότης*, a Multitude, or Aggregate of *Unites*; in which Senſe *Unity* is not a Number. See UNITY.

UNITY, the Abſtract or Quality, which conſtitutes or denominates a Thing *unum*, or one.

The School Philoſophers generally define *Unity*, by a Thing's being undivided in it ſelf, and divided from every thing elſe.—Others, more accurately, define it, a Mode of Being, whereby it agrees to any particular being, once; and make two Kinds of *Unity*, viz. *Unity of Simplicity*, which is both undivided and indiviſible; ſuch as is that of God, Angels, and human Souls: The other *Union of Compoſition*; which, tho undivided, is diviſible in the Being, as conſiſting of divers Parts: ſuch is that of Man, *&c.*

Hence, *Unity* is alſo divided into that *per ſe*, which agrees to any Being whoſe Parts are collected into one *Subſtratum*; and *Unity per accidens*, whoſe Parts are not united into one *Subſtratum*; as that of a Flock of Sheep, *&c.*

Some alſo make a *Singular*, or *Numerical Unity*, and an *Univerſal Unity*; a *Real*, and an *Imaginary Unity*, &c.

'Tis diſputed among Mathematicians, whether or no *Unity* be a *Number.*—The generality of Authors hold the Negative; and make *Unity* to be only inceptive of Number, or the Principle thereof; as a Point is of Magnitude, and *Uniſon* of Concord.

Stevinus is very angry with the Maintainers of this Opinion: and yet, if Number be defin'd a Multitude of *Unites* join'd together, as many Authors define it, 'tis evident *Unity* is not a Number. See NUMBER.

UNITY, among Divines.—The *Romaniſts* and the Reform'd diſpute whether or no the Church be one ſingle Body, all the Members whereof are join'd together, either really, or in Inclination; ſo that whatever does not appertain to that Body, is no part of the Church: Which is what they call the *Unity of the Church*; and which the *Romaniſts* maintain is reſtrain'd to one ſingle Society, or one Communion, under one viſible Head; and out of which the Proteſtants are excluded.

Theſe laſt, on the contrary, hold, That the *Unity* of the Church may ſtill ſubſiſt, without being united under any one viſible Head; it being ſufficient that all Chriſtians be united by the Bonds of mutual Love, and Charity; and that they be agreed in the Fundamental Points of Religion.

All the difficulty is to fix what thoſe Fundamentals are; ſome inclining to make the Door of the Church wider than others. See TOLERATION.

UNITY, in Poetry.—In the *Drama* there are three *Unities* to be obſerv'd; *the Unity of Action*, that of *Time*, and that of *Place.* See DRAMA.

In the Epic Poem, the great and almoſt only *Unity*, is that of the Action.—Some regard, indeed, ought to be had to that of Time: That of Place there is no room for. The *Unity* of Character is not reckon'd among the *Unities.* See CHARACTER.

The *Unity* of the Dramatic Action, conſiſts in the *Unity* of the Intrigue in Comedy, and that of the Danger in Tragedy; and this, not only in the Plan of the Fable, but alſo in the Fable extended and fill'd with Epiſodes. See ACTION.

The Epiſodes are to be work'd in, without corrupting the *Unity*, or forming a double Action; and the ſeveral Members are to be ſo connected together, as to be conſiſtent with that Continuity of Action ſo neceſſary to the Body; and which *Horace* preſcribes, when he ſays, ——*ſit quodvis ſimplex duntaxat & unum.* See EPISODE.

The *Unity of the Epic Action*, M. *Dacier* obſerves, does not conſiſt in the *Unity* of the Hero, or in the *Unity* of his Character, and Manners; tho thoſe be Circumſtances neceſſary thereto. The *Unity of Action*, requires that there be but one principal Action, of which all the reſt are to be Incidents or Dependencies. See HERO, MANNERS, *&c.*

F. *Boſſu* aſſigns three Things requiſite thereto: The firſt, That no Epiſode be uſed but what is fetch'd from the Plan, and Ground of the Action, and which is a natural Member of that Body: The ſecond, that theſe Epiſodes and Members be well connected with each other: The third is, Not to finiſh any Epiſode, ſo as it may appear a whole Action; but to let each be always ſeen in its quality of Member of the Body, and an unfiniſh'd Part.

The ſame excellent Critick examines the *Æneid*, *Iliad*, and *Odyſſee*, with reſpect to theſe Rules, and finds 'em ſtrictly obſerv'd.—Indeed, it was from the Conduct of thoſe divine Poems, that he took the Hint of the Rules themſelves. Inſtances wherein theſe Rules are all neglected, he gives us in *Statius's Thebaid.*

To the *Unity of Time* it is requir'd, in the Drama, that the Action be included in the Space of a Day.

Ariſtotle ſays expreſly, It muſt not exceed the Time the Sun is making one Revolution, which is a Natural Day, under pain of Irregularity: Some Criticks will even have it included in the Space of twelve Hours, or an Artificial Day.

Indeed, the antient Tragic Poets ſometimes diſpens'd with this Rule; and the modern *Engliſh* ones many of 'em diſallow it: few of 'em practiſe it.

In the Epic Poem, the *Unity of Time* is ſtill leſs eſtabliſh'd: In effect, there is no fixing the Time of its Duration; in regard, the warmer and more violent it is, the leſs muſt be its Continuance: Whence it is that the *Iliad*, repreſenting the Anger of *Achilles*, only contains forty ſeven Days at moſt; whereas the Action of the *Odyſſee* holds eight

Years and an half, and that of the *Æneid* almoſt ſeven Years.

But the length of the Poem *Ariſtotle* gives us a Rule for; which is that it be ſuch as it may be read over in one Day: pretending, that if it exceeds that compaſs, the Sight will be bewilder'd in it, and that one can't ſee the End, without having loſt the Idea of the Beginning.

As to the *Unity of Place* and *Scene*, neither *Horace* nor *Ariſtotle* give us any Rules relating thereto.—It were to be wiſh'd, indeed, that what is preſented to the Audience on the ſame Stage, which is never ſhifted, might be ſuppoſed to have paſs'd in the ſame Houſe, and the ſame Apartment. But as ſuch a Conſtraint would cramp the Poet too much; and as ſuch an Uniformity would ſuit very ill with abundance of Subjects; it has been agreed that what paſſes any where in the ſame Town or City, ſhall be allow'd for *Unity of Place.*—At leaſt, if two different Places be unavoidable; yet the Place is never to be chang'd in the ſame Act. See SCENE.

UNITY *of Poſſeſſion*, in Law, ſignifies a joint Poſſeſſion of two Rights, by ſeveral Titles: Thus, if I take a Leaſe of Land upon a certain Rent, and afterwards buy the Fee Simple; this is an *Unity of Poſſeſſion*, whereby the Leaſe is extinguiſh'd: by reaſon I, who before had only the Occupation for my Rent, am now become Lord of the ſame, and am to pay Rent to none but my ſelf.

Unity of Poſſeſſion, in the Civil Law, is the ſame with *Conſolidation.* See CONSOLIDATION.

UNIVERSAL, ſomething that is common to many Things, or it is one Thing belonging to many.

The Word is compounded of *unum verſus alia.*

The *Romaniſts* are divided among themſelves about the Title of *Univerſal Biſhop*, which the Popes have arrogated to themſelves; tho others of 'em have declined it.—*Baronius* holds the Appellation to belong to the Pope *Jure Divino*; and yet S. *Gregory*, oppoſing the ſame Quality given by a Council in 586 to *John* Patriarch of *Conſtantinople*, aſſerted expreſly, that it did not belong to any Biſhop; and that the Biſhops of *Rome* could not nor ought not to take it. Accordingly, S. *Leo* refuſed to accept it, when offer'd him by the Council of *Chalcedon*; for fear, leſt giving ſomething particular to one Biſhop, they ſhould take from all; ſince there could not be an *Univerſal Biſhop*, but the Authority of the reſt muſt be diminiſh'd. See BISHOP, OECUMENICAL, &c.

An UNIVERSAL *Dial*, is that whereby the Hour may be found by the Sun all over the Earth; or under any Elevation of the Pole. See DIAL.

There are alſo *Univerſal Inſtruments*, for meaſuring all kinds of Diſtances, as Heights, Lengths, &c. call'd alſo *Pantometers*, and *Holometers*. See PANTOMETER.

Several learned Authors have had it in view to eſtabliſh an *Univerſal Character*; by which the different Nations might underſtand each others Writings, without learning their Language. See CHARACTER.

UNIVERSAL, UNIVERSALE, in Logick, is either *Complex* or *Incomplex.*—A *Complex Univerſal*, *Univerſale Complexum*, is either an *univerſal* Propoſition, as, *Every Whole is greater than its Part*; or whatever raiſes a manifold Conception in the Mind; as the Definition of a reaſonable Animal.

An *Incomplex Univerſal*, *Univerſale Incomplexum*, is what produces one only Conception in the Mind, and is a ſimple thing reſpecting many; as Human Nature, which relates to every Individual wherein it is found.

According to the various Order and Reſpect this Univerſe has to many; there are ſeven Modes thereof aſſign'd: *viz.*

Univerſals in cauſing, ſuch are the common efficient Cauſes of divers Effects; as *God*, the *Sun*, &c. See CAUSE, &c.

Univerſals in diſtributing, ſuch are common or *univerſal* Signs; as *all*, *none*, &c.

Univerſals in knowing, which know all things; as the Underſtanding, &c.

Univerſals in repreſenting, ſuch are Images, or Ideas of *univerſal* Things; as the Idea of a Houſe, of a Man, &c.

Univerſals in ſignifying, ſuch are common Words, ſignifying many things; as Animal, Stone, &c.

Univerſals in being, or *exiſting*, are Natures exiſting in ſeveral; as Humanity in *Peter*, *Paul*, &c. And,

Univerſals in predicating, which exiſting in many things, are ſeparately predicated of 'em all; as, *ens*, and *unum*: Theſe are alſo call'd *Logical Univerſals.*

All theſe Kinds of *Univerſals*, the two laſt only excepted, are not *Univerſals* in themſelves, but only with reſpect to their Objects *cauſed*, *repreſented*, &c. So that what we chiefly conſider as *Univerſals*, are the *Univerſalia in eſſendo*, and *prædicando.*

Now in an *Univerſal*, they diſtinguiſh two things, the *Matter*, called the *Material Univerſal*, *Univerſale Materiale*, which is the one Nature multipliable in many; as Humanity in *Peter*, *Paul*, &c. and the *Form*, call'd the *Formal Univerſal*, which is the Unity of that Nature.

Wherefore, to conſtitute an *Univerſal*, 'tis requiſite the Nature be one, yet multipliable: But what ſuch a Nature is, has proved Matter of great Controverſy, both among the antient and modern Philoſophers.

The *Platoniſts* will have *Univerſals* to be nothing but divine Ideas.——Now by Idea they mean the Pattern or Form which the Artificer has in view, when he makes any thing: But as this is twofold, *internal*, which is a ſort of Image of the Thing to be done, which the Artificer frames in himſelf; and *external*, which is ſomething out of himſelf, which the Artificer imitates: the Philoſophers have been infinitely perplex'd, to find which of the two *Plato* meant.—The *Peripateticks* inſiſt he meant the *External*; but the *Platoniſts*, and moſt of the Chriſtian Divines, hold for the *Internal.*

The *Stoicks* and *Nominaliſts* hold this in common with the *Platoniſts*, That *Univerſals* are not in the Things themſelves, but out of 'em: The *Stoicks*, particularly, for *Univerſals*, put a kind of formal Conceptions, or Acts of knowing; by reaſon they repreſent many things at the ſame time: *e. g.* Knowledge, repreſenting all Men, is, according to the *Stoicks*, an *Univerſal.*

The *Nominaliſts* make Words *Univerſals*; by reaſon the ſame Word repreſents many things, as the Word *Man* repreſents all Men: But both *Stoicks* and *Nominaliſts* make *Univerſals* to be ſomething extrinſick to Things themſelves; by reaſon whatever exiſts, or is produced, is ſingular: ſo that there is no *Univerſal* really in Things.

The *Peripateticks*, however, contend that there are *Univerſal* and *Common* Natures in Things themſelves; or that Things and Natures, like each other, form a Material *Univerſal.*—But as to the Manner wherein they are *univerſal*, or whence they derive their *Univerſality*, that is, their Unity and Aptitude of being in many, whether from Nature, or from our Underſtanding, is matter of diſpute among 'em.—If they derive that Unity, wherein their *univerſal* Form is placed, from Nature; then, there is an *Univerſal à parte Rei*; which is the Opinion of the *Scotiſts.* See SCOTISTS.

If they don't derive it from Nature, but only from our Minds or Underſtandings, then the Doctrine of the *Thomiſts* is allow'd; who contend that a formal *Univerſal* has no other Exiſtence, but by an Act of the Intellect. See THOMISTS.

UNIVERSALISTS, in Polemical Divinity, an Appellation given to ſuch as hold *univerſal* Grace: In like manner as *Particulariſts* is given to thoſe who hold *particular* and *efficacious* Grace. See GRACE, &c.

The *Arminians* are particularly denominated *Univerſaliſts.* See ARMINIAN, and REMONSTRANT.

UNIVERSALITY, the Quality that denominates a thing *Univerſal.*

The Catholicks aſſert the *Univerſality* of their Church, both as to Time, and Perſons; and maintain this to be a Mark of the true Church; which diſtinguiſhes it from all other Societies that pretend to the Name. See UNIVERSAL.

UNIVERSALITY, in the Schools.—Logicians make two Kinds of *Univerſality*; the one Metaphyſical, the other Moral.

Metaphyſical Univerſality, is that which excepts nothing; as this Propoſition, *Every Man is mortal.*

Moral Univerſality, is that which admits of ſome Exception; as, *All old Men praiſe the Times paſt.* In ſuch-like Propoſitions, 'tis enough the Thing be ordinarily ſo; it not being ſtrictly requir'd that every old Man ſhould be of that Sentiment.

UNIVERSE, a collective Name, ſignifying *the whole World*, or the Aſſemblage of all Bodies; call'd by the *Greeks* τὸ πᾶν; and by the *Latins*, *Mundus*, and *Univerſum*; as being no other than an Univerſity of Bodies. See WORLD.

The Antients, and after them the *Carteſians*, imagin'd the *Univerſe* to be infinite.——The Reaſon they give, is, That it implies a Contradiction to ſuppoſe it finite, or bounded; ſince it is impoſſible not to conceive Space beyond any Limits that can be aſſign'd it: Which Space, according to the *Carteſians*, is Body; and conſequently part of the *Univerſe.* See SPACE.

But that the *Univerſe* is finire, appears from the two following Conſiderations—1ſt, That whatever conſiſts of Parts, cannot be infinite; ſince the Parts that compoſe it, muſt be finite either in Number or Magnitude; which if they be, what they compoſe muſt be ſo too: Or, 2dly, they muſt be infinite in Number or Magnitude; but an infinite Number is a Contradiction; and to ſuppoſe the Parts infinitely big, is to ſuppoſe ſeveral Infinites, one bigger than another; which, tho it may paſs among Mathematicians, who only argue about Infinites *in poſſe*, or in Imagination, will not be allow'd in Philoſophy.

UNIVERSITY, a collective Term, applied to an Aſſemblage of ſeveral Colleges eſtabliſh'd in a City, wherein are Profeſſors in the ſeveral Sciences, appointed to teach them to Students; and where Degrees, or Certificates of

Study in the divers Faculties are taken up. See ART, and SCIENCE.

In each *Univerſity*, four Faculties are uſually taught; Theology, Medicine, Law, and the Arts and Sciences. See FACULTY.

They are call'd *Univerſities*, or *Univerſal Schools*, by reaſon the four Faculties are ſuppoſed to make the World or *Univerſe* of Study.

In the Eye of the Law, an *Univerſity* is held a mere Lay Body, or Community; tho, in reality, it be a mix'd Body, compoſ'd partly of Laymen, and partly of Eccleſiaſticks. See COMMUNITY, COMPANY, &c.

Univerſities had their firſt Riſe in the XIIth and XIIIth Centuries.—Thoſe of *Paris* and *Boulogne* pretend to be the firſt that were ſet on foot; but then they were on a different Footing from the *Univerſities* among us. See SEMINARY, and SCHOOL.

The *Univerſity* of *Paris* is ſaid to have commenced under *Charlemaign*, and to owe its Riſe to four *Engliſhmen*, Diſciples of Venerable *Bede*; who going to that City, made a Propoſal to ſet up and ſell Learning; and accordingly held their firſt Lectures in Places aſſign'd 'em by that Prince: Such is the Account given by *Gaguin*, *Gilles*, *de Beauvais*, &c. Tho the Authors who wrote in thoſe Days, as *Eginard*, *Acmon*, *Rheginon*, *Sigebert*, &c. make not the leaſt mention thereof.

Add, that *Paſquier*, *du Tillet*, &c. declare openly againſt the Opinion; and aſſert, that its firſt Foundations were not laid till *Louis* the Young, and *Philip Auguſte*, in the XIIth Century.——The earlieſt mention we find made of it, is in *Regordus*, who lived in that Age; and who was Cotemporary with *Peter Lombard*, the Maſter of the Sentences, the great Glory of that *Univerſity*; in Memory of whom, an Anniverſary is to this Day obſerv'd by that Body, in the Church of S. *Marcel*, where he lies buried.

But 'tis certain it was not eſtabliſh'd all at once: It appears to have been at firſt no other than a publick School in the Cathedral Church; from which it grew, by little and little, under the Favour and Protection of the Kings, into a regular Body.

In effect, our own *Univerſities*, *Oxford* and *Cambridge*, ſeem intitled to the greateſt Antiquity of any in the World; and *Univerſity*, *Baliol*, and *Merton* Colleges in *Oxford*, and St. *Peter*'s in *Cambridge*, all made Colleges in the XIIIth Century, may be ſaid to be the firſt regular Endowments of this kind in *Europe*.

For tho *Univerſity* College in *Cambridge* had been a Place for Students ever ſince the Year 872; yet this, like many of the other antient Colleges beyond Sea, and *Leyden* to this Day, was no proper College; but the Students, without any Diſtinction of Habit, liv'd in Citizens Houſes; having only Meeting-Places to hear Lectures, and diſpute.

In After-times, there were Houſes built for the Students to live in Society; only each to be at his own Charge, as in the Inns of Court. See INN.

Theſe, at firſt, were call'd *Inns*; but now *Halls*. See HALL.

At laſt, plentiful Revenues were ſettled on ſeveral of theſe Halls, to maintain the Students in Diet, Apparel, &c. and theſe were call'd *Colleges*. See COLLEGE.

The *Univerſities* of *Oxford* and *Cambridge* are govern'd, next under the King, by a *Chancellor*, who is to take care of the Government of the whole *Univerſity*, to maintain the Liberties thereof, &c. See CHANCELLOR.

Under him is the *High Steward*, whoſe Office is to aſſiſt the Chancellor and other Officers, when requir'd, in the Execution of their Offices; and to hear and determine capital Cauſes, according to the Laws of the Land, and the Privileges of the *Univerſity*.

The next Officer is the *Vice-Chancellor*, who officiates for the Chancellor in his abſence.—There are alſo two *Proctors*, who aſſiſt in the Government of the *Univerſity*; particularly in the Buſineſs of School-Exerciſe, taking up Degrees, puniſhing Violaters of the Statutes, &c. See PROCTOR.

Add, a *publick Orator*, *Keeper of Records*, *Regiſter*, *Beadles*, and *Virger*.

For the Degrees taken up in each Faculty, with the Exerciſes, &c. requiſite thereto, ſee DEGREE; ſee alſo DOCTOR, BATCHELOR, &c.

UNIVOCAL, in the Schools, is applied to two or more Name or Terms, that have but one Signification. In Oppoſition to *Equivocal*; which is, where one Term has two or more Significations.

Or, *Univocal Terms*, are ſuch whoſe Name, as well as Nature, is the ſame; in oppoſition to *Equivocals*, whoſe Names are the ſame, but their Natures very different. See EQUIVOCAL.

For a thing to be predicated *univocally* of any others, it is to be attributed to all of them alike, and in the ſame proper Senſe. See PREDICATE, and PREDICABLE.

UNIVOCAL *Generation*—The Doctrine of the Antients with reſpect to Propagation, was, That all perfect Animals were produced by *Univocal Generation*, that is, by the ſole Union or Copulation of a Male and Female of the ſame Species or Denomination: and, that Inſects were produced by *Equivocal Generation*, without any Seed, and merely of the Corruption of the Earth exalted, and as it were impregnated by the Sun's Rays. See EQUIVOCAL, INSECT, &c.

Some Philoſophers make a kind of *Intermediate Generation*, between *Equivocal* and *Univocal*, which they call *Analogous Generation*. See GENERATION.

UNIVOCALS, call'd by the *Greeks*, *Syonyma's*, are defined by *Ariſtotle* to be thoſe Things whoſe Name is common, and the Reaſon correſponding to the Name, that is, the Definition of the Idea affix'd to it, the ſame.

Thus, under the Name and Definition of *Animal*, Man and Brute are equally included; and Circle and Square in the Reaſon or Definition of a *Figure*.

Here, the word, as *Figure*, they uſe to call *Univocum univocans*, or *univocating Univocal*; and the Things included under the univocal Name, *Univoca univocata*, *univocated Univocals*.

UNIVOCATION, in Logicks and Metaphyſicks.—The School-men have long diſputed about the *Univocation* of Being, *i. e.* whether the general Idea of *Being* agree in the ſame manner, and in the ſame ſenſe, to the Subſtance and the Accident; to God, and the Creature.

UNLAWFUL, *Illegal*, ſomething prohibited by, or contrary to, the Terms of a Law, either divine or human. See LAW.

UNLAWFUL *Aſſembly*, is particularly uſed for the meeting of three or more Perſons together by Force, to commit ſome unlawful Act; as to aſſault any Perſon, to enter his Houſe, or Land, &c. and thus abiding together, tho not attempting the Execution thereof. See ASSEMBLY, RIOT, &c.

By the Stat. 16 *Car.* II. if five Perſons, or more, ſhall be aſſembled together, above thoſe of the Family, at any Conventicle or Meeting, under colour of any exerciſe of Religion, it is *unlawful*, and puniſhable by Fines, and otherwiſe, as in that Statute is provided.

UNLIKE *Quantities*, and Signs in Algebra. See LIKE *Signs and Quantities*; ſee alſo SIGN, and QUANTITY.

UNLIMITED or *Indeterminate Problem*, is ſuch a one as is capable of infinite Solutions.—As, to divide a Triangle given into two equal Parts, to make a Circle paſs thro' two Points aſſign'd, &c. See PROBLEM.

UNLUTING, in Chymiſtry, the taking away of the Lute, Loam, or Clay, where-with a Veſſel is cloſed, join'd to another, or the like. See LUTE.

UNMOOR, a Term uſed at Sea, when a Veſſel that before rid, or was held by two Anchors, is begun to get them up, and prepared to weigh. See ANCHOR and MOOR.

UNQUES *Priſt*, a Plea in Law-ſuit, by which a Man profeſſes himſelf always ready to perform what the Demandant requires.

UNREEVING *a Rope*. See REEVE.

UNRIGGING *of a Ship*, is the taking away the Rigging or Cordage. See RIGGING.

UNSEELING, in Falconry, a taking away the Thread that runs thro' the Hawk's Eye-lids and hinders her Sight. See HAWK, and FALCONRY.

Drawing the Strings of the Hood, to be in Readineſs to pull off, is call'd, *Unſtriking the Hood*.

VOCABULARY, in Grammar, a Term ſignifying, a Collection of the Words of a Language, with their Significations; otherwiſe call'd a *Dictionary*, *Lexicon*, or *Nomenclature*. See WORD.

The *Vocabulary* is, properly, a leſſer kind of Dictionary, which does not enter ſo minutely into the Origins and different Acceptations of Words. See DICTIONARY.

The *Italian Vocabulary* of the Academy *de la Cruſca*, was forty Years in compiling.

The Word is *French*, form'd of the obſolete term *Vocable*; of the *Latin*, *Vocabulum*, word.

VOCAL, ſomething that relates to the Voice. See VOICE.

Thus, *Vocal Prayer* is that ſpoke out, or delivered in words: In contra-diſtinction to *mental Prayer*. See PRAYER.

In our antient Cuſtoms, *Vocalis* is frequently uſed for *ſo call'd*—*Poſt hæc Morganus de tribu Walenſium, & alter nomine Madocus* vocalis *princeps eorum*. Matt. Paris.

The Term is ſometimes alſo uſed ſubſtantively, in ſpeaking of Matters of Election, to ſignify a Perſon who has a right to vote.—A Man muſt have been a Religious a certain number of Years, to be a *Vocal*. See VOTE.

VOCAL *Muſic*, is Muſic ſet to Words, eſpecially Verſes; and to be perform'd with the Voice. In contra-diſtinction to *Inſtrumental Muſic*, compoſed only for Inſtruments, without Singing. See MUSIC.

Poetry then makes a neceſſary Part of *Vocal Muſick*; and this appears to have been the chief, if not the only Practice of the Antients, from the Definitions which they gave us of Muſic. See HARMONY, &c.

Their *Vocal Muſic* ſeems to have had ſome Advantage over ours, in that the *Greek* and *Latin* Languages were better contrived to pleaſe the Ear than the modern ones.——In effect, *Voſſius* taxes all the later Languages as unfit for Muſic, and ſays, ' We ſhall never have any good *Vocal Muſic* till ' our Poets learn to make Verſes on the Model of the Antients,' *i. e.* till the antient metrical Feet and Quantities are reſtored. See VERSE, and QUANTITY.

But it is to be obſerv'd, that the *Rythmus* of their *Vocal Muſic*, was only that of their Poetry; and had no other Forms and Mutations than what the metrical Art afforded. See MUTATION.

Their Changes were no other than from one kind of *Metrum* or Verſe, to another; as from *Iambic*, to *Choraic*. See MEASURE, and RYTHMUS.

Their *Vocal Muſick*, then, conſiſted of Verſes ſet to muſical Tunes, and ſung by one or more Voices, in Chorus, or alternately; ſometimes with, and ſometimes without the Accompanyments of Inſtruments. See SYMPHONY.

For Inſtrumental Muſick, in the manner we have defin'd it, 'tis not very clear they ever had any. See SYNAULIA, *&c.*

VOCATION, or *Calling*, among Divines, the Grace or Favour which God does any one in calling him out of the way of Death, and putting him into the way of Salvation.

In this Senſe, we ſay, the *Vocation* of the *Jews*; *Vocation* of the *Gentiles*, &c.

There are two Kinds of *Vocation*; the one *external*, the other *internal*.

The firſt conſiſts in a ſimple and naked propoſing of Objects to the Will.——The ſecond is that which renders the firſt effectual, by diſpoſing our Faculties to receive thoſe Objects.

VOCATION is alſo uſed for a Deſtination to any State or Profeſſion.—'Tis a Rule, that none are to enter the Eccleſiaſtick or Monaſtick State, without a particular *Vocation*, or Call. See ORDERS, ORDINATION, *&c.*

The *Romaniſts* hold the *Vocation* of the Reformed Divines null and invalid.—Among our ſelves, ſome hold an uninterrupted Succeſſion neceſſary for the Validity of the *Vocation* of a Prieſt.

VOCATIVE, in Grammar, the fifth Caſe, or State of Nouns. See CASE.

When we name the Perſon we are ſpeaking to, or addreſs our ſelves to the Thing we are ſpeaking of, as if it were a Perſon; the Noun or Name acquires a new Relation, which the *Latins* and *Greeks* expreſs by a new Termination, call'd the *Vocative*.

Thus, of *Dominus*, Lord, in the Nominative, the *Latins* have made *Domine*, O Lord, in the *Vocative*; of *Antonius*, *Antoni*, &c.—But as this was a thing not abſolutely neceſſary, and as the Nominative Caſe might ſerve on ſuch Occaſions; this new Caſe, or Termination, was not univerſal: in the Plural, for Inſtance, it was the ſame with the Nominative; and even in the Singular, it was only practis'd in the ſecond Declenſion among the *Latins*; and in *Greek*, where it is the moſt common, it is frequently neglected, and the Nominative uſed inſtead of it: as in that Paſſage in the *Greek* Pſalms, quoted by St. *Paul* to prove the Divinity of Jeſus Chriſt, θρόνος σου, ὁ θεός, *thy Throne, O God*.

In *Engliſh*, and moſt of the modern Tongues, this Caſe is ordinarily expreſs'd in Nouns that have an Article in the Nominative, by ſuppreſſing that Article: as, *The Lord is my hope*—*Lord, thou art my hope*: Tho on many Occaſions we uſe an Interjection.

VOCIFERATIO, in our old Law-Books, the ſame with HUE *and Cry*.

——*Qui furem plegiatum dimiſerit, qui ei obviaverit & gratis ſine* Vociferatione *dimiſerit*, &c. Leg. *Hen.* I.

VOICE, *Vox*, a Sound produced in the Throat and Mouth of an Animal, by an Apparatus of Inſtruments for that purpoſe. See SOUND.

Voices are either *Articulate*, or *Inarticulate*.

Articulate Voices, are thoſe whereof ſeveral conſpire together to form ſome Aſſemblage, or little Syſtem of Sounds: ſuch are the *Voices* expreſſing the *Letters* of an Alphabet, numbers of which join'd together form *Words*. See LETTER, and WORD.

Inarticulate Voices, are ſuch as are not organiz'd, or aſſembled into Words: Such is the barking of Dogs, the braying of Aſſes, the hiſſing of Serpents, the ſinging of Birds, *&c.*

The Formation of the *human Voice*, with all the Varieties thereof obſerv'd in Speech, Muſick, *&c.* make a very curious Article of Inquiry; and the Apparatus and Organiſm of the Parts miniſtring thereto, is ſomething exceedingly ſurprizing.

Thoſe Parts are, the *Trachea*, or Wind-pipe, thro' which the Air paſſes and repaſſes into the Lungs; the *Larynx*, which is a ſhort cylindric Canal, at the Head of the Trachea; and the *Glottis*, which is a little oval Cleft or Chink, left between two ſemicircular Membranes, ſtretch'd horizontally withinſide the Larynx; which Membranes, tho capable of joining cloſe together, do generally leave an Interval, either greater or leſs, between 'em, call'd the *Glottis*.——*See particular Deſcriptions of each of theſe Parts, under the Articles* TRACHEA, LARYNX, and GLOTTIS.

The long Canal of the Trachea, terminated a-top with the Glottis, appears ſo like a Flute, that the Antients made no doubt but the Trachea contributed the ſame to the *Voice*, as the Body of the Flute does to the Sound of that Inſtrument.—*Galen* himſelf fell, in ſome meaſure, into the Miſtake: He perceived, indeed, that the principal Organ of *Voice* was the Glottis; but he ſtill allow'd the Trachea a conſiderable ſhare in the Production of Sound.

Galen's Opinion was follow'd by all the Antients after him; and even by all the Moderns, before M. *Dodart*.—But that Author, obſerving that we don't either ſpeak or ſing, when we inſpire, or take in the Air, but only when we expire, or expel it; and this the Air coming out of the Lungs, paſſes always out of the minuter Veſicles of that Part into larger; and at laſt into the Trachea it ſelf, which is the largeſt of all: that thu its Paſſage becoming ſtill more free and eaſy, and this more than ever in the Trachea, it can never undergo ſuch a Violence, and acquire ſuch a Velocity in that Canal, as is requir'd to the Production of Sound.—But that, as the Aperture of the Glottis is very ſmall, in compariſon with the Width of the Trachea, the Air can never get out of the Trachea by the Glottis, without a vaſt Compreſſion and Augmentation of its Velocity; and that by this means, in paſſing, it communicates a briſk Agitation to the minute Parts of the two Lips of the Glottis, gives 'em a kind of Spring, and occaſions 'em to make Vibrations; which communicated to the paſſing Air, occaſions the Sound. See VIBRATION.

This Sound, thus form'd, proceeds into the Cavity of the Mouth and Noſtrils; where 'tis reflected, and reſounds: And on this Reſonance, M. *Dodart* ſhews, it is, that the Agreeableneſs of the Voice entirely depends.—The different Conſiſtences, Forms, *&c.* of the divers Parts of the Mouth, contribute to the Reſonance, each in their way; and from this Mixture of ſo many different Reſonances in their due Proportion, reſults a Harmony in the human *Voice*, inimitable by any Muſician.

Hence it is, that when any of theſe Parts is diſorder'd, *e. g.* the Noſe ſtop'd, the *Voice* becomes diſpleaſing.

This Reſonance of the Cavity of the Mouth, does not ſeem to conſiſt in a ſimple Reflexion, ſuch as that of a Vault, *&c.* but in a Reſonance proportionate to the Tones of the Sound ſent into the Mouth from the Glottis; and accordingly, we find this Cavity to lengthen and ſhorten it ſelf, according to the Depth or Acuteneſs of the Tone.

Now, for the Trachea to effect this Reſonance, as it was the common Opinion it did; it would be requir'd, that the Air, after its being modify'd and turn'd into Sound by the Glottis, inſtead of continuing its Courſe from within outwards, ſhould return from without inwards, and thus ſtrike on the Sides of the Trachea: Which can never happen, except in thoſe who have a violent Cough, and in ventriloquous Perſons. Indeed, in moſt River-Fowl, which have a very ſtrong *Voice*, the Trachea does reſound; but the reaſon is, that the Glottis is placed at the bottom of the Trachea, and not at the top, as in Men.

That Canal, then, which at firſt paſs'd for the principal Organ of *Voice*, is found not to be ſo much as the ſecondary one, *i. e.* not that which occaſions the Reſonance.—It does not ſerve the Glottis, as the Body of a Flute does its Plug; but inſtead of that, the *Mouth* ſerves the Glottis as the Body of ſome other Wind-Inſtrument not yet known in Muſick.——In effect, the Office of the Trachea, is no other than that of the Port-Vent in an Organ, *viz.* to furniſh Wind.

For the Cauſe of the different Tones of *Voice*—As the Organs that form the *Voice* make a kind of Wind-Inſtrument, one might expect to find ſome Proviſion therein, anſwerable to that which produces the difference of Tones in ſome other Wind-Inſtruments. But in the divers Kinds of Wind-Inſtruments, the Hautboy, Organ, Clarion, *&c.* there is none.—The Tone, therefore, muſt be attributed either to the Mouth and Noſtrils, which occaſion the Reſonance, or to the Glottis, which produces the Sound: And as all the different Tones are produced in Man by the ſame Inſtrument; it follows, that the Part which produces 'em muſt be capable of Changes anſwerable thereto.

Now, for a grave Tone, we know, there is more Air requir'd than for an acute one.—The Trachea, therefore, to let this greater quantity paſs, muſt dilate and ſhorten it ſelf; by which ſhortening, the External Canal, that is, the Canal of the Mouth and Noſe, reckon'd from the Glottis to the Lips, or Noſtrils, is lengthen'd.—For, the ſhortening of the internal Canal, *i. e.* of the Trachea, brings the Larynx and Glottis lower down; and of conſequence makes its diſtance from the Mouth, *&c.* greater: And there is a Change in the length of each Canal, for every change of Tone, and Semitone.—Accordingly, 'tis eaſy to obſerve, that the Knot of the Larynx alternately riſes and falls in all Quaverings, or Shakings of *Voice*, how ſmall ſoever the difference of Tone may be.

Hence, as the Depth of the Tone of a Hautboy is anſwerable to the Length of the Inſtrument; the longeſt Fibres of the Wood, whoſe Vibrations make the Reſonance, making always the ſloweſt Vibrations, and conſequently the deepeſt Tone: It may appear probable, that the Concavity of the Mouth, by its lengthening for grave Tones, and ſhortening for acute ones, might ſerve very well for the Production of the divers Tones: but M. *Dodart* obſerves, that in that play of the Organ call'd the *human Voice*, the longeſt Pipe is ſix Inches, and yet with all that length it does not make any difference of Tone, but the Tone of the Pipe is preciſely that of the Plug; whereas the Concavity of the Mouth of a Man of the graveſt *Voice*, not being above ſix Inches deep; 'tis evident that can't modify, vary, and give the Tone. See TUNE.

'Tis the Glottis, then, that forms the Tone, as well as the Sound; and the manner of forming the various Tones, is by varying its Aperture.—A piece of Mechaniſm too admirable not to be here particularly inquir'd into.

The human Glottis, then, repreſented in Tab. *Nat. Hiſtory*, Fig. 11. is only capable of one proper Motion, *viz.* that of an Approach of its Lips, A D B and A B D.—Accordingly, the dotted Lines A E B, A F B, A G B, exhibit three different degrees of Approach.——Theſe different Apertures of the Glottis, Anatomiſts uſually attribute to the Action of the Muſcles of the Larynx; but M. *Dodart* ſhews, from their Poſition, Direction, *&c.* that they have other Uſes; and that the opening and ſhutting of the Glottis is effected by other means, *viz.* by two tendinous Cords, or Strings, incloſed in the two Lips of that Aperture.

In effect, each of the two ſemicircular Membranes, whoſe Interſtice forms the Glottis, is doubled back upon it ſelf; and within each Duplicature is a Chord or String, which is faſten'd at one End to the fore-part of the Larynx, and to the hind-part at the other.——'Tis true, they appear more like Ligaments than Muſcles; as conſiſting of white and membranous Fibres, not of red and fleſhy ones: But the vaſt Number of minute Changes in this Aperture, neceſſary to form the vaſt Variety of Tones, make an extraordinary kind of Muſcle, by whoſe Contraction they ſhould be effected, abſolutely neceſſary. Common fleſhy Fibres, wherein the Blood is receiv'd in large quantity, had been infinitely too coarſe for ſuch delicate Motions.

Theſe Strings, which in their State of Relaxation make each a little Arch of an Ellipſis; as they contract more and more, become longer, but leſs and leſs curve; and at laſt, with the greateſt Contraction they are capable of, degenerate into two right Lines applied cloſe to each other; ſo cloſe and ſo firm, that an Atom of Air can't eſcape out of the Lungs, how full ſoever they may be, and how great an Effort ſoever all the Muſcles of the lower Venter may make againſt the Diaphragm, and by the Diaphragm againſt theſe two little Muſcles.

The different Apertures of the Lips of the Glottis, then, produce all the different Tones in the ſix Parts of Muſick, viz. *Baſs*, *Common pitch*, *Tenor*, *Counter-tenor*, *Treble-Baſs*, and *Treble*; and the Manner is thus:

The *Voice*, we have ſhewn, can only be form'd by the Glottis; but the Tones of the *Voice* are Modifications of the *Voice*; and can only be produced by the Modifications of the Glottis.—Now the Glottis is only capable of one Modification, which is, the mutual Approach or Receſs of its Lips: 'Tis this, therefore, produces the different Tones.—Now that Modification includes two Circumſtances: the firſt, and principal, is, that the Lips are ſtretch'd more and more, from the loweſt Tone to the higheſt; the ſecond is, that the more they are ſtretch'd, the nearer they approach.

From the firſt it follows, that their Vibrations will be ſo much the quicker, as they come nearer their higheſt Tone; and that the *Voice* will be juſt when the two Lips are equally ſtretch'd, and falſe when unequally; which agrees perfectly well with the Nature of String Inſtruments.

From the ſecond it follows, that the higher the Tones are, the nearer will they approach each other; which agrees perfectly well with Wind Inſtruments, govern'd by Reeds, or Plugs.

The Degrees of Tenſion of the Lips, are the firſt and principal Cauſe of Tones; but their Differences are inſenſible.—The degrees of Approach, are only Conſequences of that Tenſion; but their Differences are more eaſily aſſign'd.

To give a preciſe Idea of the thing, therefore, we had beſt keep to that; and ſay, that this Modification conſiſts in a Tenſion, from whence reſults a very numerous Subdiviſion of a very ſmall Interval; which yet, ſmall as it is, is capable, phyſically ſpeaking, of being ſubdivided infinitely. See DIVISIBILITY.

This Doctrine is confirm'd from the different Apertures found in diſſecting Perſons of different Ages of both Sexes.—The Aperture is leſs, and the exterior Canal always ſhallower in the Sex and Ages fitteſt to ſing Treble.—Add, that the Reed of a Hautboy, ſeparated from the Body of the Inſtrument, being a little preſs'd between the Lips, will yield a Tone ſomewhat higher than its natural one; and if preſs'd ſtill more, will yield another ſtill higher: And thus an able Muſician may run ſucceſſively thro' all the Tones and Semitones of an Octave.

'Tis different Apertures, then, that produce, or at leaſt accompany different Tones, both in Natural Wind Inſtruments, and Artificial ones; and the Diminution of the Aperture, raiſes the Tones both of the Glottis and the Reed.

The Reaſon why leſſening the Aperture heightens the Tone, is, that the Wind paſſes thro' it with the greater Velocity; and from the ſame Cauſe it is, that if any Reed, or Plug of an Inſtrument be too weakly blown, its Tone will be lower than ordinary.

Indeed, the Contractions and Dilatations of the Glottis, muſt be infinitely delicate: By an exact Calculation of the ingenious Author abovemention'd, it appears, that to perform all the Tones and Semitones of a common *Voice*, which is computed to reach to 12 Tones to perform all the Particles and Subdiviſions of thoſe Tones, into Commas and other minuter tho ſtill ſenſible Parts; to perform all the Shades, or the Differences in a Tone when ſounded more or leſs ſtrong, without changing the Tone: the little Diameter of the Glottis, which does not exceed $\frac{1}{10}$ of an Inch, but which varies within that Extent at every Change, muſt be actually divided into 9632 Parts; which Parts are yet very unequal, and therefore many of 'em much leſs than the $\frac{1}{963200}$ Part of an Inch.—A Delicacy ſcarce to be match'd by any thing but a good Ear, which has ſo juſt a Senſe of Sounds, as, naked, to perceive Differences in all theſe Tones; even thoſe whoſe Origin is much leſs than the 963200th Part of an Inch. See HEARING.

VOICE, in Grammar, is a Circumſtance in Verbs, whereby they come to be conſider'd as either *active* or *paſſive*, *i. e.* either as expreſſing an Action impreſs'd on another Subject, as *I beat*; or receiving it from another, as *I am beaten*. See VERB; ſee alſo ACTIVE, and PASSIVE.

VOICE, in Matters of Elections, denotes a *Vote*, or *Suffrage*. See VOTE, *&c.*

In this Senſe, a Man is ſaid to have a *deliberate Voice*, when he has a Right to give his Advice and Opinion in a Matter of debate, and his Suffrage is taken——An *active Voice*, when he gives his Vote for the Election of any one; and a *paſſive Voice*, when the Suffrages may fall on him to be elected—An *excitative Voice*, when he may act to procure another to be elected—A *conſultative Voice*, when he can only offer Reaſons and Remonſtrances, whereon the Chief or Head determines at his own Diſcretion: Such the Cardinals have, with regard to the Pope; the Maſters of Chancery, with regard to the Lord Chancellor, *&c.*

VOID *Space*, in Phyſicks. See VACUUM.

VOID, in Common Law. See ANNULLING.

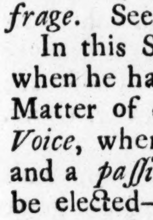
VOIDANCE, VACANCY, in the Canon Law, a Want of an Incumbent upon a Benefice. See VACANCY, *&c.*

This is twofold, either *in Law*, *de Jure*; as when one holds ſeveral Benefices that are incompatible: or *de Facto*, *in Deed*; as when the Incumbent is dead, or actually depriv'd.

VOIDED, UUIDE, in Heraldry, is underſtood of an Ordinary whoſe inner or middle Part is cut out; leaving nothing but its Edges to ſhow its Form; ſo that the Field appears thro' it.

Hence it is needleſs to expreſs the Colour or Metal of the *voided* Part; becauſe it muſt of courſe be that of the Field.

Thus, the *Croſs voided* differs from the Croſs fimbriated, in that this latter does not ſhew the Field thro' it, as the other does.—And the ſame is uſed in other Ordinaries.



VOIDER, in Heraldry, one of the Ordinaries, whoſe Figure is much like that of the Flaſque, or Flanch; only that it doth not bend ſo much. See FLANCH.

This Armoury, they ſay, is properly the Reward of a Gentlewoman that has well ſerved her Prince.—It is always born by Pairs.

VOIDING, in Medicine. See EVACUATION.

In the *Philoſophical Tranſactions*, we have an account of one *Matt. Milford*, who *voided* a Worm by Urine, ſuppoſed to have come from the Kidneys. See WORMS.

Dr. *Liſter* mentions true Caterpillars *voided* by a Boy of nine Years old.—Mr. *Jeſſop* ſaw Hexapods vomited up by a Girl.

Catherina Geilaria, who dy'd in 1662, in the Hoſpital of *Altenburg*, for 20 Years *voided* by Vomit and Stool, Toads, and Lizards. *Ephem. German.* T. I. Obſ. 103.

In the ſame *Ephem.* is an Inſtance of a Kitten, bred in the Stomach, and vomited up.——Of Whelps, Frogs, *Lacertæ Aquaticæ*, and other Animals, bred the like way.—*Bartholine* gives us an Inſtance of a Worm, bred in the Brain, and *voided* by the Noſe of *O. W.* See VERMES.

VOIR *Dire*, in Law—When, upon a Trial at Law, it is prayed that a Witneſs may be ſworn upon a *Voir dire*;

the meaning is, he ſhall upon his Oath ſpeak or declare the Truth, whether he ſhall get or loſe by the Matter in Controverſy.—If he be unconcern'd, his Teſtimony, is allow'd; otherwiſe, not. See OATH, WITNESS, &c.

VOL, among the *French* Heralds, ſignifies the two Wings of a Fowl born in Armoury as being the whole that makes the Flight: Accordingly, a *Demivol* is a ſingle Wing.

VOLA, the Palm of the Hand. See HAND.

VOLANT, in Heraldry, is when a Bird in a Coat of Arms is drawn flying, or having its Wings ſpread out.

VOLATILE, in Phyſicks, is commonly uſed to denote a mix'd Body whoſe integral Parts are eaſily diſſipated by Fire, or other heat; but is more properly uſed for Bodies whoſe Elements, or firſt component Parts, are eaſily ſeparated from each other, and diſpers'd in Air. See BODY, COHESION, ELEMENT, &c.

For, as any mix'd Body is ſaid to be fix'd in a double Senſe; ſo may it be ſaid to be *Volatile* two ways: whence the ſame Body, *e. g.* Mercury, is both *volatile* and fix'd at the ſame time.

Since, as its integral Parts, or thoſe which ſtill retain the Nature of Mercury, are eaſily ſeparable by Fire, and readily fly away; it is ſaid to be *Volatile:* And yet as 'tis very difficult to deſtroy its Contexture, and reſolve it by Fire, or any other Menſtruum, into its firſt Elements, it is ſaid to be *fix'd.*—The ſame may be ſaid of Sulphur, Antimony, &c.

Minerals, for the generality, are leſs *volatile* than Vegetables, and Vegetables leſs than Animals. See FIX'D.

The Chymiſts diſtinguiſh between *Volatile* Salts, and Fix'd Salts. See SALTS.

The Capitals of Alembicks ſtop and collect the *Volatile Parts* of Subſtances in Sublimation; and make what we call *Flowers.* See FLOWERS.

'The Particles of Fluids which do not cohere very ſtrongly together, and are of ſuch Smallneſs, as renders them moſt ſuſceptible of thoſe Agitations which keep Liquors in a Fluor, are eaſily rarify'd into Vapour; and, in the Language of the Chymiſts, are *Volatile.*——Thoſe which are groſſer, and ſo leſs ſuſceptible of Alterations; or cohere by a ſtronger Attraction, do not evaporate without a ſtronger Heat, or perhaps not without Fermentation: Theſe are what the Chymiſts call *Fix'd Bodies.*' *Newton. Optic.* p. 371.

VOLATILE, in Chymiſtry—When the Fire decompounds any mix'd Body, the Parts moſt diſpoſed to receive a great Motion, are ſooneſt looſen'd, and riſe up in the Order which the differences of that Diſpoſition give them; the reſt remaining immoveable at the bottom of the Veſſel. See ANALYSIS, FIRE, &c.

Thoſe that riſe firſt, are called *Volatile Parts*; ſuch are *Phlegm, Oil, Spirits,* and *Salts,* both urinous and alkalious. See SPIRIT, PHLEGM, and SALT.

The Parts remaining, *viz. Earth,* and *Lixivial Salts,* are call'd *Fix'd.* See EARTH, and VOLATILISATION.

For the making of Fix'd Salts volatile; ſee VOLATILISATION.

VOLATILISATION, the Act of rendering Fix'd Bodies *Volatile*; or of reſolving 'em by Fire into a fine, ſubtile Vapour, or Spirit, which eaſily diſſipates, and flies away. See VOLATILE.

All Bodies, even the moſt fix'd, as Gold may be *volatiliz'd*; either of themſelves, or with the Admixture of ſome *volatile* Subſtance, or Spirit; by Diſtillation, or Sublimation. See DISTILLATION, and SUBLIMATION; ſee alſo GOLD, BURNING-GLASS, &c.

In the *Memoirs of the* French *Academy,* we have a Diſcourſe on the *Volatiliſation of the fix'd Salts of Plants,* by M. *Homberg.*—That admirable Chymiſt, it ſeems, by an odd Accident, found fix'd Salts ſpontaneouſly *volatiliz'd* in Soap: Now Soap, we know, is a Compoſition of Oil, and the alkalous lixivial Salts of the Plant *Kali.*—Upon this, M. *Homberg* conjectur'd, that the Oil from which the volatile Salts ſeem to derive their Volatility, being intimately mix'd with the fix'd Salts of the Kali in the Soap, had render'd them *Volatile:* So that they ceaſe to be Alkalious, by reaſon their Pores are now fill'd with the Oil which they have abſorb'd.—Oil, in effect, has always ſomewhat of an Acid in it; which Acid, being join'd to the Alkali, the whole is render'd a kind of intermediate Salt; which yet, as the Acid and Alkali were only join'd by means of the Oil, is ſtill oily or ſulphureous.

In conſequence of this View, he made divers chymical Operations, whereby he found, that to diſpoſe the fix'd Salts of Plants to *volatiliſe,* the Proceſs is to be begun by making them into a Sapa, and letting that Sapa ſhoot out little ſaline Points, or Cryſtals on its Surface; which Cryſtals are no other than fix'd Salts already *volatiliz'd.*—Then, the Remainder of the Matter is to be ſet over the Fire, after being well imbib'd and penetrated by ſome new Liquor, proper to aſſiſt in a new Sublimation of more fix'd Salts to be *volatiliz'd:* and this to be repeated till no more Salts will riſe.

The Choice of the Liquor wherewith the Sapa is to be ſaturated, is not indifferent—Water is, of all other, the leaſt fit for the Effect: Oil does well; yet diſtill'd Oil better than that drawn from Expreſſion: and Spirit of Wine beſt of all.

By ſuch means, M. *Homberg volatiliz'd* almoſt half a Quantity of Salt of Tartar, which is a fix'd Vegetable Salt. See TARTAR.

VOLATILITY. See SUBLIMATION.

VOLCANO, or VULCANO, in Natural Hiſtory, a Name given to Mountains that belch, or vomit Fire, Flame, Aſhes, Cinders, Stones, &c. See MOUNTAIN.

Such are Mount *Ætna* in *Sicily,* Mount *Veſuvius* near *Naples,* &c. See ERUPTION.

Near *Guatimala* in *South America,* are two Mountains, the one call'd *Volcano of Fire*; the other *of Water.*—Out of the firſt, huge pieces of Rocks are frequently hurl'd with as much vehemence as Balls out of a Canon; and a written Letter may be read by the Light of its Flames, at the diſtance of three Miles.

Out of the other, vaſt Quantities of Water are continually ſpued up. See EARTHQUAKE.

Volcanos and Ignivomous Mountains, tho ſome of the moſt terrible Phænomena in Nature, have their Uſes; being a kind of Spiracles, or Tunnels, whereby to vent the Fire and Vapour, that would otherwiſe make a more dreadful Havock by Convulſions and Earthquakes.

Nay, if the Hypotheſis of a central Fire and Waters, be admitted; theſe Outlets muſt be abſolutely neceſſary to the Peace and Quiet of the terraqueous Globe.—Accordingly, Dr. *Woodward* obſerves, there is ſcarce any Country much annoy'd with Earthquakes, but has one of theſe fiery Vents; which are conſtantly obſerved to be all in Flames, whenever an Earthquake happens; by which means, they diſgorge that Fire, which while it was underneath, was the Cauſe of the Diſaſter.—He adds, that were it not for theſe *Diverticula,* whereby the central Fire has an Exit, 'twould rage in the Bowels of the Earth much more furiouſly, and make much greater Havock than it does; and that there are not wanting Inſtances of Countries that have been wholly freed from Earthquakes, by the Eruption of a new *Volcano* there, See EARTHQUAKE.

VOLERY, a great Bird-Cage, ſo large, that the Birds have room to fly up and down in it. See AVIARY.

VOLITION, the Act of Willing. See WILL.

VOLLEY, a military Salute, made by diſcharging a great number of Fire-Arms at the ſame time.

In the *Philoſophical Tranſactions,* Mr. *Robert Clarke* gives us an Account of a very remarkable Effect of firing ſome *Volleys* of ſmall Shot: 'Upon proclaiming the Peace in *1697,* two Troops of Horſe were drawn in a Line, the Centre whereof was againſt a Butcher's Door, who kept a very large, courageous Maſtiff Dog, the biggeſt in the Town.

'Upon firing of the firſt *Volley,* the Dog, who before lay a-ſleep by the Fire, ſtarted up, ran into an upper Room, and hid himſelf under the Bed.——The Servant being about to beat him down, (as he had never uſed to go up Stairs) a ſecond *Volley* came; which made the Dog riſe, run ſeveral times about the Chamber, with violent Tremblings, and ſtrange Agonies.——But immediately a third *Volley* came; upon which the Dog run once or twice about, fell down, and died immediately; throwing out Blood at Mouth and Noſe.'

VOLO, in Antiquity, a Name which the *Romans* gave the Slaves, who, in the ſecond *Punic* War, offer'd themſelves to ſerve in the Army; upon a want of a ſufficient Number of Citizens. See SLAVE.

The Names *Volo, Volones,* they are ſaid to have had from their offering themſelves *voluntarily.*

Feſtus ſays, 'twas after the Battle of *Cannæ* that this happen'd: *Macrobius, Sat.* Lib. I. cap. ii. places it before that Battle.

Capitolinus tells us, that *Marcus Aurelius* form'd Troops or Legions of Slaves, which he call'd *Voluntarii*; and that the like Forces in the ſecond *Punic* War had been call'd *Volones.*—But before *M. Aurelius, Auguſtus* had given the Name *Voluntarii* to Forces which he had raiſed out of *Liberti,* or Freedmen; as we are aſſur'd by *Macrobius, Sat.* Lib. I. cap. ii.

VOLUME, VOLUMN, VOLUMEN, a Book, or Writing, of a juſt bulk to be bound by it ſelf.

The Library of *Ptolemy* King of *Egypt,* contain'd, according to *Aulus Gellius,* three hundred thouſand *Volumes*; and according to *Sabellicus,* ſeven hundred thouſand. See LIBRARY.

Raymond Lully wrote above four thouſand *Volumes*; whereof we have divers Catalogues extant.—'Tis held, that *Triſmegiſtus* wrote ſix thouſand five hundred twenty five *Volumes*; others ſay, thirty ſix thouſand five hundred twenty nine: But 'tis much more rational to ſuppoſe, with *la Croix,* that it was the Cuſtom of the *Egyptians* to put all the Books they compos'd under the Name of *Triſmegiſtus*.

The Word had its riſe *à volvendo*; the antient way of making up Books being in Rolls of Bark, or Parchment. See Roll.

This manner laſted till *Cicero*'s Time, and long after that Paper was invented, and Books wrote thereon—The ſeveral Sheets were glued, or paſted End to End, wrote only on one ſide; and at the bottom a Stick faſten'd, call'd *Umbilicus*; and at the other end a piece of Parchment, whereon was the Title of the Book in Letters of Gold.

And yet, we are aſſured, King *Attilus* had, long before, done up ſome of his Books in the ſquare form; as having found the Secret of Parchment, which would bear writing on both ſides. See Parchment.

At preſent, *Volume* is chiefly uſed in the ſame Senſe with *Tome*, for a Part or Diviſion of a Work, bound ſeparately.——In this Senſe, we ſay, the *Councils* are printed at the *Louvre* in 37 *Volumes*. See Tome.

The Volume *of a Body*, is ſometimes alſo uſed among Philoſophers, for its *Bulk*, or the Space incloſed within its Superficies.

VOLT, in the Manage, ſignifies a round or circular Motion, conſiſting of a Gate of two Treads, made by an Horſe going ſideways round a Centre; the two Treads marking parallel Tracks, one by the Fore-feet, larger; and the other by the Hind-feet, ſmaller: the Shoulders bearing outwards, and the Croup approaching towards the Centre.

Demi-Volt, is a Round of one Tread, or two, made by the Horſe at one of the Angles or Corners of the *Volt*, or at the End of the Line of the Paſſade; ſo as when he is near the End of this Line, or near one of the Corners of the *Volt*, he changes Hands, to return by a Semicircle.

A Renverſed Volt, is a Track of two Treads, which the Horſe makes with his Head to the Centre, and his Croup out; going ſideways upon a Walk, Trot, or Gallop, and tracing out a larger Circumference with his Shoulders, and a ſmaller with his Croup.

VOLUMUS, in Law, the firſt Word of a Clauſe in the King's Writs of Protection, and Letters Patent. See Protection.

VOLUNT, in Law, is when the Tenant holds Lands, &c. at the Will of the Leſſor, or Lord of the Manor. See Tenant, Vassal, &c.

VOLUNTARY, in the Schools—The generality of Philoſophers uſe *Voluntary* in the ſame Senſe with *Spontaneous*; and apply it to any thing ariſing from an internal Principle, attended with a due Knowledge thereof.—In which Senſe, they ſay, a Dog moves *Voluntarily* when he runs to the Pot. See Spontaneous.

Ariſtotle and his Followers, reſtrain the Term *Voluntary* to thoſe Actions that proceed from an inward Principle which knows all the Circumſtances of the Action.

There are two Things, therefore requir'd to the *Voluntarineſs* of an Action: The firſt, that it proceed from an inward Principle; thus, walking for pleaſure-ſake is a *Voluntary* Action; as ariſing from the Will commanding, and the moving Faculty obeying, which are both internal.—On the contrary, the Motion of a Man drag'd to Priſon is not *Voluntary*.

The ſecond, that the Action be perform'd with a perfect Intelligence of the End, and Circumſtances thereof: In which Senſe, the Actions of Brutes, Children, ſleeping People, &c. are not properly *Voluntary*. See Will.

Anatomiſts diſtinguiſh between the *Voluntary*, and Natural, or *Involuntary Motions* in the Body: Of the firſt Kind are thoſe of the Heart, Lungs, Pulſe, &c. See Muscular *Motion*.

VOLUTE, Voluta, in Architecture, a kind of Scrowl, or ſpiral Contortion, uſed in the *Ionic* and *Compoſite* Capitals; whereof it is the principal Character and Ornament. See Capital.

Some call it the *Ram's-Horn*, from its Figure, which bears a near reſemblance thereto.

Moſt Architects ſuppoſe, that the Antients intended it to repreſent the Bark or Rind of a Tree, laid under the Abacus, and twiſted thus at each Extreme where it is at Liberty: Others will have it a ſort of Pillow, or Bolſter laid between the Abacus and Echinus, to prevent the latter being broke by the Weight of the former, and the Entablature over it; and accordingly call it *Pulvinus*.

Others, after *Vitruvius*, will have it to repreſent the Curls or Treſſes of a Woman's Hair. See Ionic *Order*.

There are alſo eight angular *Volutes* in the *Corinthian* Capital, accompany'd with eight other ſmaller ones, called *Helices*.

There are ſeveral Diverſities in the *Volute*.—In ſome, the Liſt or Edge, throughout all the Circumvolutions, is in the ſame Line, or Plane: ſuch are the antique *Ionic Volutes*, and thoſe of *Vignola*.—In others, the Spires or Circumvolutions fall back; in others project, or ſtand out.—Again, in ſome the Circumvolutions are oval; in others, the Canal of one Circumvolution is detach'd from the Liſt of another, by a Vacuity or Aperture.—In others, the Round is parallel to the Abacus, and ſprings out from behind the Flower thereof.—In others, it ſeems to ſpring out of the Vaſe, from behind the Ovum, and riſes to the Abacus, as in moſt of the fine *Compoſite* Capitals.

Conſoles, Modillions, and other ſorts of Ornaments, have likewiſe their *Volutes*. See Console, &c.

The *Volute* is a Part of great Imporance to the Beauty of the Column.—Hence Architects have invented divers ways of delineating it.——The principal are that of *Vitruvius*, which was long loſt, and at laſt reſtor'd by *Gouldman*; and that of *Palladio*.—*Daviler* prefers the former as the eaſier.—The manner thereof is as follows.

Divide the Altitude A B, (Tab. *Architect.* Fig. 12 *Volute*) into eight equal Parts, and aſſuming the Fifth Q P, for a Diameter, from the Centre G, with half the Diameter G P, deſcribe a Circle for the Eye of the *Volute*.—Biſſect the Radii G P and G Q in 1 and 4, and ſubdivide the half Parts G 1 and G 4 each into three equal Parts: Then, upon the right Line 1 4, conſtruct a Square 1, 2, 3, 4; one of whoſe Sides 2, 3, continue on to D; another 3, 4, to E; and the third 1, 2, to C. From G draw right Lines, G 2 and G 3; which divide into three equal Parts.—Then, thro' 6 and 10, draw 6 L and 10 N, parallel to 2 D. And thro' 11 and 7 draw 11 O and 7 K, parallel to 3 E; and thro' 5 and 9 draw 5 H, and 9 M, parallel to 1 C.——Laſtly, from 12, 11, 10, 9, 8, &c. ſtrike the Quadrants P O, O N, N M, M L, L K, &c. which will form the *Volute*.

VOLVULUS, in Medicine, a *Latin* Name, which ſome Authors have given to a Diſeaſe otherwiſe call'd the *Iliac Paſſion*; and by others the *Miſerere mei*. See Iliac Passion, &c.

'Tis a kind of Cholic, wherein the Patient voids his Excrements by the Mouth, inſtead of the *Anus*; by reaſon the Membranes of the Inteſtine *Ileon* are drawn within one another, and form Knots, which prevent the ordinary Courſe of the *Fæces*. See Cholic.

VOMER, in Anatomy, a *Latin* Name, ſignifying, literally, a *Ploughſhare*; uſed by Authors to denote the eleventh Bone of the upper Jaw: by reaſon of the Reſemblance it bears to that Utenſil. See Maxilla.

The *Vomer*, or *Vomer Aratri*, is a thin Bone, placed in the middle of the Noſe, over the Palate, ſerving to part the two Noſtrils from each other. See Nostril.

'Tis ſmall, but hard, and is join'd to the *Sphenoides* and *Ethmoides*, which have each of them little Eminences that are received into the Cavities of the *Vomer*; by which means it is faſten'd in its Place. See Nose.

VOMICA, in Medicine, a Collection of Pus in any Part of the Body. See Pus.

When this Maſs or Collection is in the Lungs, 'tis called *Vomica Pulmonum*—When in the Kidneys, *Vomica Renum*, &c. See Lungs.

The *Vomica* of the Lungs differs from an *Empyema*, which is a Collection of Pus in the Cavity of the Thorax. See Empyema.

Nux Vomica, *Vomiting Nut*, is a little round, flat, woolly Fruit, half the bigneſs of a Farthing; hard as Horn, of a Mouſe-colour without, but of various Colours within: ſometimes yellow, ſometimes white, and ſometimes brown.

'Tis not known what the Plant is that bears it.—'Tis a Poiſon for Dogs, and divers Quadrupeds, which it kills preſently, thro' exceſſive *Vomiting*. See Poison.

VOMITING, Vomitus, the Act of caſting up, or evacuating by the Mouth what is contain'd in the Stomach. See Evacuation.

This Action has been generally allow'd to be owing principally, to the Contraction of the Fibres of the Stomach, when irritated by the acrimonious Quality, or oppreſs'd with the Quantity, of its Contents. See Stomach.

But M. *Chirac*, and after him M. *du Verney*, and others, ſet aſide the Fibres of the Stomach; and advance, That *Vomiting* is produced wholly by the extraordinary Motions of the Diaphragm, and the Muſcles of the lower Venter.—So that the Stomach is here ſuppoſed deſtitute of all Action, and caſts back its Contents only by its being compreſs'd and flatted, from ſome foreign and accidental Cauſes.

However, *Boerhaave*, and moſt of our lateſt Writers, allow both the Stomach, the Diaphragm, and the Muſcles of the Abdomen, to have their ſhare in the Action of *Vomiting*: Accordingly, that excellent Author makes *Vomiting* to conſiſt in a convulſive and retrograde Motion of the muſcular Fibres of the Gullet, Stomach, and Inteſtines; as well as thoſe of the Abdomen, and the *Septum Tranſverſum*; which, when in a leſs degree, produce a *Nauſea*, and in a greater a *Vomiting*. See Nausea.

By the Contraction of ſo many Parts, the Stomach comes to be ſqueez'd, as in a Preſs; whence it is obliged to give up what is contain'd in its Cavity, and the neighbouring Parts; juſt as Water is in a Bladder or Sponge, when ſqueez'd between the Hands.

The Evacuation, too, muſt be upwards, rather than downwards; by reaſon the Paſſage is more open and eaſy that way, and that the Inteſtines are preſs'd by the Diaphragm, and the Muſcles of the lower Venter.

The primary Cauſe of *Vomiting*, uſes to be the too great Quantity, or too much Acrimony of the Contents, ariſing from Poiſons, Contuſions, Compreſſions, Inflammations, and Wounds in the Brain, Inflammations of the Diaphragm, Stomach, Inteſtines, Spleen, Liver, Kidneys, Panchreas, and Meſentery; unuſual Agitations in Coaches, at Sea, *&c.* and *vomitive* or *emetic* Medicines. See Emetics.

VOMITIVE, or *Vomiting Medicines.* See Emetics.

VOPISCUS, a *Latin* Term, uſed in reſpect of Twins in the Womb, for that which comes to the perfect Birth. See Twins.

VORTEX, *Whirlwind*, in Meteorology, a ſudden, rapid, violent Motion of the Air, in Gyres or Circles. See Whirlwind.

Vortex, *Vorago*, is alſo uſed for an Eddey, or *Whirlpool*; or a Body of Water in certain Seas and Rivers, which runs rapidly around, forming a ſort of Cavity in the middle.

The ordinary Cauſe of theſe *Vortices*, is a Gulph, or Outlet, whereby the Water of the Sea, *&c.* is abſorbed, or precipitates itſelf into ſome other Receptacle; ſometimes to ſome other communicant Sea, and ſometimes, perhaps, into the vaſt Abyſs of central Water. See Whirlpool, and Abyss.

An *artificial Vortex*, expreſſive of the Phænomena of the natural ones, may be made with a cylindric Veſſel, placed, immoveable, on a horizontal Plane, and fill'd to a certain height with Water.—In this Water a Stick being plunged, and turn'd round as briſkly as may be, the Water is neceſſarily put into a pretty rapid circular Motion, and riſes to the very Edge of the Veſſel, and when there arrived, ceaſes to be further agitated.

The Water thus rais'd forms a Cavity in the Middle, whoſe Figure is that of a truncated Cone; its Baſe is the ſame with the upper Cavity of the Veſſel, and its *Vertex* in the Axis of the Cylinder.

What raiſes the Water at the ſide of the Veſſel, which occaſions the Cavity in the Middle, is its centrifugal Force.—For the Motion of the Water being circular, it reſpects a Centre taken in the Axis of the Veſſel, or, which is the ſame, in the Axis of the *Vortex* form'd by the Water; the ſame Velocity, then, being impreſs'd on all the Water, the Circumference of a ſmaller Circle of Water, or a Circle leſs remote from the Axis, has a greater centrifugal Force than another that is greater, or more remote from the Axis. The ſmaller Circle therefore drives the greater towards the ſide of the Veſſel, and from this Preſſion or Impulſion which all the Circles receive from the ſmaller ones that precede them, and convey to the greater which follow them, ariſes that Elevation of the Water along the Edge of the Veſſel to the very top, where we ſuppoſe the Motion to ceaſe.

With a *Vortex* thus form'd, M. *Saulmon*, of the Royal Academy of Sciences, made divers Experiments by putting ſeveral ſolid Bodies therein, to acquire the ſame circular Motion; with Intent to diſcover which of them, in making their Revolutions round the Axis of the *Vortex*, approach towards, or recede from it, and with what Velocity.—The Reſult was, that the heavier the Body, ſtill the greater was its Receſs from the Axis.

M. *Saulmon*'s View in this Attempt, was to ſhew how the Laws of Mechanicks produce the cœleſtial Motions; and that it is probably to thoſe Motions that the *Gravity* or Weight of Bodies is owing.—But, unhappily, the Experiments ſhew juſt the contrary of what they ſhould do, to confirm the *Carteſian* Doctrine of *Gravity*. See Gravity.

Vortex, in the *Carteſian* Philoſophy, is a Syſtem or Collection of Particles of Matter moving the ſame way, and round the ſame Axis.

Such *Vortices* are the Grand Machines whereby theſe Philoſophers ſolve moſt of the Motions and other Phænomena of the heavenly Bodies.—Accordingly, the Doctrine of theſe *Vortices* makes a great part of the *Carteſian* Philoſophy. See Cartesianism.

The Matter of the World, they hold to have been divided at the Beginning into innumerable little equal Particles, each endow'd with an equal Degree of Motion, both about its own Centre and ſeparately, ſo as to conſtitute a Fluid. See Fluid.

Several Syſtems, or Collections of this Matter, they further hold to have been endow'd with a Motion about certain Points, as common Centres, placed at equal Diſtances; and that the Matters moving, round theſe, compos'd ſo many *Vortices.*

Then, the primitive Particles of Matter they ſuppoſe, by theſe inteſtine Motions, to be as it were ground into ſpherical Figures, and ſo to compoſe Globules of divers Magnitudes; which they call *the Matter of the Second Element*: and the Particles rubb'd or ground off them, to bring them to that Form, they call *the Matter of the Firſt Element.* See Element.

And ſince there would be more of this *Firſt Element* than would ſuffice to fill all the Vacuities between the Globules of the *Second*, they ſuppoſe the remaining Part to be driven towards the Centre of the *Vortex*, by the circular Motion of the Globules; and that being there amaſs'd into a Sphere, it would produce a Body like the Sun. See Sun.

This Sun being thus form'd, and moving about its own Axis with the common Matter of the *Vortex*, would neceſſarily throw out ſome Parts of its Matter, thro' the Vacuities of the Globules of the *Second* Element conſtituting the *Vortex*; and this eſpecially at ſuch Places as are fartheſt from its Poles; receiving, at the ſame time, in by theſe Poles, as much as it loſes in its equatorial Parts. And by this means it would be able to carry round with it thoſe Globules that are neareſt, with the greater Velocity, and the remoter, with leſs. And by this means thoſe Globules which are neareſt the Centre of the Sun muſt be leaſt; becauſe were they greater, or equal, they would, by reaſon of their Velocity, have a greater centrifugal Force, and recede from the Centre. See Light.

If it ſhould happen that any of theſe Sun-like Bodies in the Centres of the ſeveral *Vortices*, ſhould be ſo incruſtated and weakened, as to be carried about in the *Vortex* of the true Sun; if it were of leſs Solidity, or had leſs Motion than the Globules towards the Extremity of the *Solar Vortex*; then it would deſcend towards the Sun, till it met with Globules of the ſame Solidity, and capable of the ſame Degree of Motion with itſelf; and thus, being fix'd there, it would be for ever after carried about by the Motion of the *Vortex*, without either approaching any nearer to, or receding from the Sun; and ſo become a *Planet.* See Planet.

Suppoſing then all this, we are next to imagine that our Syſtem was at firſt divided into ſeveral *Vortices*, in the Centre of each of which was a lucid ſpherical Body; and that ſome of theſe being gradually incruſtated, were ſwallowed up by others which were larger and more powerful, till at laſt they were all deſtroy'd and ſwallow'd up by the biggeſt *Solar Vortex*, except ſome few which were thrown off in right Lines from one *Vortex* to another, and ſo became *Comets.* See Comet.

But this Doctrine of *Vortices*, is at beſt merely hypothetical.—It does not pretend to ſhew by what Laws and Means the cœleſtial Motions are really effected, ſo much as by what Means they poſſibly might, in caſe it ſhould have ſo pleas'd the Creator.——But we have another Principle which accounts for the ſame Phænomena as well, nay better than that of *Vortices*; and which we plainly find has an actual Exiſtence in the Nature of Things: And this is *Gravity*, or the weight of Bodies. See Gravity.

The *Vortices*, then, ſhould be caſt out of Philoſophy, were it only that two different adequate Cauſes of the ſame Phænomena are inconſiſtent. See Newtonian *Philoſophy.*

But we have other Objections againſt it.—For 1°, If the Bodies of the Planets and Comets be carried round the Sun in *Vortices*, the Bodies of the Parts of the *Vortex* immediately inveſting 'em, muſt move with the ſame Velocity, and in the ſame Direction; and beſides, muſt have the ſame Denſity, or the ſame *vis Inertiæ.*——But it is evident, that the Planets and Comets move in the very ſame Parts of the Heavens with different Velocities, and in different Directions. It follows, therefore, that thoſe Parts of the *Vortex* muſt revolve at the ſame time in different Directions, and with different Velocities; ſince one Velocity and Direction will be required for the Paſſage of the *Planets*, and another for that of the *Comets.*

2°, If it were granted, that ſeveral *Vortices* are contain'd in the ſame Space, do penetrate each other, and revolve with divers Motions; ſince thoſe Motions muſt be conformable to thoſe of the Bodies, which are perfectly regular, and perform'd in Conic Sections; it may be aſk'd, How they ſhould have been preſerv'd entire ſo many Ages, and not diſturb'd and confounded by the adverſe Actions and Shocks of ſo much Matter as they meet withal?

3°, The Number of *Comets* is very great, and their Motions perfectly regular, obſerving the ſame Laws with the *Planets*, and moving in conical Orbits, that are exceedingly excentric. Accordingly they move every Way, and to all Parts of the Heavens, freely pervading the planetary Regions, and going frequently contrary to the Order of the Signs; which were impoſſible, unleſs theſe *Vortices* were away.

4°, If the *Planets* moved round the Sun in *Vortices*, thoſe Parts of the *Vortices* next the *Planets*, we have already obſerved, would be equally denſe with the *Planets* themſelves: Conſequently the vortical Matter contiguous to the Perimeter of the Earth's Orbit, would be as denſe as the Earth itſelf: And that between the Orbits of the Earth and *Saturn*, muſt be as denſe, or denſer.—For a *Vortex* cannot maintain itſelf, unleſs the more denſe Parts be in the Centre, and the leſs denſe towards the Circumference: And ſince the periodical times of the Planets are in a ſeſquialterate Ratio of their Diſtances from the Sun, the Parts of the *Vortex* muſt be in the ſame Ratio. Whence it follows, that the centrifugal Forces of the Parts will be reciprocally as the Squares of the Diſtances.——Such, therefore, as are at a greater diſtance from the Centre, will endeavour to recede therefrom

from with the leſs Force. Accordingly, if they be leſs denſe, they muſt give way to the greater Force, whereby the Parts nearer the Centre endeavour to riſe. Thus, the more denſe will riſe, and the leſs denſe deſcend; and thus there will be a change of places, till the whole fluid Matter of the *Vortex* be ſo adjuſted, as it may reſt in *æquilibrio*.

Thus will the greateſt part of the *Vortex* without the Earth's Orbit, have a Degree of Denſity and Inactivity not leſs than that of the Earth itſelf.—Whence the *Comets* muſt meet with a very great reſiſtance; contrary to all Appearances. *Coteſ. præſ. ad Newt. princip.* See COMET, RESISTANCE, MEDIUM, &c.

The Doctrine of *Vortices*, Sir *I. Newton* obſerves, labours under many Difficulties: For a *Planet* to deſcribe Areas proportional to the Times, the periodical Times of the *Vortex* ſhould be in a duplicate Ratio of their Diſtances from the Sun; and for the periodical Times of the *Planets* to be in a ſeſquiplicate Proportion of their Diſtances from the Sun, the periodical Times of the Parts of the *Vortex* ſhould be in the ſame Proportion of their Diſtances; and, laſtly, for the leſſer *Vortices* about *Jupiter*, *Saturn*, and the other *Planets*, to be preſerved and ſwim ſecurely in the Sun's *Vortex*, the periodical Times of the Parts of the Sun's *Vortex* ſhould be equal.—— None of which Proportions are found to obtain in the Revolutions of the Sun and Planets a-round their Axes. *Phil. Nat. prin. Math. apud Schol. Gen. in Calce.*

Beſides, the *Planets*, according to this Hypotheſis, being carried about the Sun in Ellipſes, and having the Sun in the *Umbilicus* of each Figure, by Lines drawn from themſelves to the Sun, do always deſcribe Areas proportionable to the Times of their Revolutions; which that Author ſhews the Parts of no *Vortex* can do. *Schol. Prop. ult. lib.* 2. *Princip.*

Again, Dr. *Keil* proves in his *Examination of* Burnet's *Theory*, That if the Earth were carried in a *Vortex*, it would move faſter in the Proportion of 3 to 2, when it is in *Virgo*, than when it is in *Piſces*; which all Experience proves to be falſe.

VOTE, or *Voice*. See SUFFRAGE, and VOICE.

—In the Houſe of Peers they give their *Votes* or Suffrages, beginning at the Puiſne or loweſt Baron, and ſo to the reſt ſeriatim, every one anſwering, a-part, *Content* or *not Content*; and if the Affirmatives and Negatives are equal, *ſemper præſumitur pro negante*; the Speaker having no *caſting Vote* unleſs he be a Peer.

In the Houſe of Commons they Vote by *Yea's* and *No's*, promiſcuouſly. See PARLIAMENT.

VOTUM, in our antient Law-books, is uſed for *Nuptiæ*; ſo *Dies votorum*, is the Wedding-day, *Fleta*, lib. 4. cap. 2. par. 16. *Si donatorius ad alia vota convolaverit*, &c.

VOTUM, or *Vow*. See VOW.

VOUCH,—A Perſon is ſaid to *Vouch for another*, when he undertakes to maintain or warrant him in a thing, or paſſes his Word in his behalf.

In Law, to *Vouch*, is to call ſuch Perſon or *Vouchee* into Court, to make good his Warrant. See WARRANT.

VOUCHEE, a Perſon who is to warranty, or *Vouch* for another, who in reſpect hereof is call'd *Voucher*. See VOUCHER.

VOUCHER, in Law, the Tenant who calls another Perſon into Court, bound to warranty him, and either to defend the Right againſt the Demandant, or to yield him other Lands, &c. to the value. See WARRANT.

This ſeems in ſome meaſure to agree to the Contract, in Civil Law, whereby the Vendee binds the Vendor, ſometimes in the Simple Value of the Things bought, ſometimes in the Double; to warrant the ſecure enjoying of the Thing bought.

Yet there is this Difference between the Civil and Common Law in this Point, That the Civil Law binds every Man to warrant the Security of that which he ſelleth; which the Common Law doth not, unleſs it be ſpecially covenanted.

The Proceſs whereby the Vouchee is call'd, is a *Summoneas ad Warrantiſandum*; and if the Sheriff return upon that Writ, that the Party hath nothing whereby he may be ſummon'd, then goes out anothor Writ call'd, *Sequentur ſub ſuo periculo*.

A Recovery with a *ſingle Voucher*, is when there is but one *Voucher*; and with a *double Voucher*, is when the Vouchee voucheth over; and ſo a *treble Voucher*. See RECOVERY.

There is alſo a *foreign Voucher*, when the Tenant is impleaded in a particular Juriſdiction of that Court; more pertinently call'd a *Voucher of a Foreigner*.

VOUCHER, alſo ſignifies a Leiger-book, or Book of Accompts, wherein are enter'd the Warrants for the Accomptant's Diſcharge. See BOOK-KEEPING.

VOUSSOIR, *Vault-ſtone*, in Architecture, a Stone proper to form the ſweep of an Arch, being cut ſomewhat in manner of a truncated Cone, whoſe Sides, were they prolong'd, would terminate in a Centre, to which all the Stones of the Vault are directed. See VAULT.

VOW, VOTUM, a ſolemn Promiſe or Offering of a Man's ſelf to God. See OATH.

A Perſon is conſtituted a Religious by taking three *Vows*, that of Poverty, that of Chaſtity, and that of Obedience. See RELIGIOUS.

Authors are divided as to the Antiquity of theſe *Vows*. ——'Tis agreed, the antient Anchorites, and Hermits of the *Thebaide* made none; they did not conſecrate themſelves to God by an indiſſolvable Obligation, but were at liberty to quit their Retirement, and return into the World, whenever the Fervor that drove 'em out of it, came to abate. See ANCHORITE, &c.

Vows were not introduced till long after; and that, to fix the too frequent Inconſtancy of ſuch as, after retiring from the World, repented themſelves too ſoon, or too ſlightly; and by that means ſcandaliz'd the Church, and diſturb'd the Quiet of Families by their Return.

Eraſmus will have it, that ſolemn *Vows* were not introduced till the thirteenth Century, under the Pontificate of *Boniface* VIII.——Others hold 'em as antient as the Council of *Chalcedon*: But the Truth is, before *Boniface* VIII. there were none but ſimple *Vows*, and ſuch as might be diſpenſed withal.——Their *Vows*, till that time, were not deem'd eternal Chains; they were not indiſſoluble. 'Tis true, they were obligatory Promiſes, as to Conſcience, and the Inconſtancy of ſuch as violated them was held an odious Deſertion: But as to Law, the Perſons were not held to be civilly dead, ſo as, upon their Return, to render 'em incapable of all Acts of civil Society.

The moſt common *Vow* was that of Poverty, but this only regarded the Convent, on account of which every Perſon diveſted himſelf of all Property; but the making of *Vows* did not at all exclude 'em from the Rights of Blood, or render 'em incapable of Inheriting.

No Religious, 'tis true, acquired the Property of the Effects that fell to him; they all belong'd to the Monaſtery, in favour of which he had diveſted himſelf of every thing; and the Monaſtery only left him the Uſufruit and Direction of them.—The Popes have frequently confirm'd this Privilege to divers Orders, and permitted the Monks to inherit as much as if they were Seculars, and had made no *Vows*.

At preſent, the civil Death of a Religious is dated from the Day he makes the *Vows*; and from that time he is utterly incapable of inheriting.—A Religious may reclaim, or proteſt againſt his *Vows* within five Years; but, after that, 'tis no longer admitted.—The Failures in the Profeſſion are eſteem'd to be purged by his Silence and Perſeverance for five Years.—Indeed, to be reliev'd from his *Vows*, 'tis not enough the Party reclaim within the five Years; but he muſt likewiſe prove, he was forced to take the Habit.

VOWS, *Vota*, among the *Romans*, ſignify the Sacrifices, Offerings, Preſents, and Prayers, made for the Emperors and *Cæſars*, particularly for their Proſperity, and the Laſtingneſs of their Empire.

Theſe were, at firſt, made every five Years, then every fifteen, and then every thirty, call'd *Quinquennalia*, *Decennalia*, and *Vicennalia*.

In divers antique Medals and Inſcriptions, we read, *Vot.* X. *Vot.* XX. *Vot. mult.* ſignifying *Votis Decennalibus*, *Vicenalibus*, *Multis*, &c.

VOTIVE *Medals*, are thoſe whereon the Vows of the People for the Emperors or Empereſſes are expreſs'd. See MEDAL.

The Public Vows, made every five, ten, or twenty Years, are more often found round the Edges of the Medal, than on the Faces thereof, at leaſt in the Weſtern Empire; for in the Eaſtern the Caſe is different; witneſs the Medal of *M. Aurelius* the younger, where the Reverſe repreſents the Vows made at the time of his Marriage, VOTA PUBLICA. And on *Greek* Medals, ΔΗΜΟΥ ΕΥΧΑΙ, which they ſometimes expreſs by the two initial Letters, Δ. Ε. according to *F. Hardouin*'s Conjecture, which may be admitted, in certain Medals, where the ΔΕΜ. ΕΞ. that is, ΔΕΜΑΡΧΙΚΗΣ ΕΞΟΥΣΙΑΣ, does not well agree. Witneſs alſo the Medal of *Antoninus*, VOTA SUSCEPTA DECENNALIA.

The Origin of *Vows*, and *Votive Medals*, is given by *M. du Cange*, thus:—*Auguſtus* feigning himſelf willing to quit the Empire, and having twice, at the Prayers of the Senate, condeſcended to hold it for ten Years longer, it grew into a Cuſtom, to make freſh Public Prayers, Sacrifices, and Games, for his continuing it, at the ten Years end; and theſe they call *Decennalia*, or *Vota Decennalia*.

Under the Eaſtern Emperors, theſe Vows were repeated every five Years: Hence it is that, after *Diocleſian*'s Time, we find on Medals VOTIS V. XV. &c. which Practice continued till the Time of *Theodoſius*, when Chriſtianity being well eſtabliſh'd, a Ceremony that had ſome Remains of Heatheniſm in it, was ſet aſide. So that the VOTIS MULTIS, on a Medal of *Majorianus*, muſt be a very different Thing; and no other, doubtleſs, than a kind of Acclamation, like that, PLURA NATALIA FAELICITER.

VOWEL, in Grammar, a Letter which affords a complete Sound of it ſelf; or a Letter ſo ſimple as only to need a bare opening of the Mouth to make it heard, and to form a diſtinct Voice. See LETTER.

Such are *a*, *e*, *i*, *o*, *u*; which are call'd *Vocales*, *Vowels*, in contradiſtinction to certain other Letters, which depending on a particular Application of ſome part of the Mouth, as the Teeth, Lips, or Palate, can make no perfect Sound without an opening of the Mouth, that is, without the addition of a *Vowel*; and are therefore call'd *Conſonants*. See CONSONANT.

Tho we ordinarily only reckon five *Vowels*, yet, beſides that each of theſe may be either long or ſhort, which occaſions a conſiderable Variety in the Sound: To conſider only their Differences reſulting from the different Apertures of the Mouth, one might add four or five more *Vowels* to the Number.—For the *e* open, and the *e* cloſe, are different enough to make two *Vowels*, as in *Sea*, and *Depth*; ſo alſo the *o* open, and *o* cloſe, in *Hoſt*, and *Organ*.—Add that the *u* pronounced *ou*, as the *Latins* did, and as the *Italians* and *Spaniards* ſtill do, has a very different Sound from the *u*, as pronounced by the *Greeks*, and as at this Day by the *Engliſh* and *French*.—Again, *eo*, in *People*, make but one ſimple Sound, tho we write it with two *Vowels*.

Laſtly, the *e* mute is originally no more than a Surd join'd to a Conſonant when that is to be pronounced without a *Vowel*, as when it is immediately follow'd by other Conſonants, as in the Word *Scamnum*.—This is what the *Hebrews* call *Scheva*, eſpecially when it begins the Syllable: And this *Scheva* is found in all Languages, tho over-look'd in many of them, particularly the *Engliſh*, *Latin*, &c. by reaſon it has no proper Character to deſign it; tho in ſome of the Vulgar Tongues, particularly *French* and *High-Dutch*, it is expreſs'd by the *Vowel e* adding its Sound to the reſt.

Thus, without regarding the Differences of the ſame Sound or *Vowel* as to length or ſhortneſs, one may diſtinguiſh ten ſeveral Sounds or *Vowels*, expreſs'd by the following Characters, *a*, *e*, *é*, *i*, *o*, *ô*, *eu*, *ou*, *u*, *e*, mute. See ALPHABET.

VOX, in Law—*Vocem non habere*, is a Phraſe uſed by *Bracton* and *Fleta*, for an infamous Perſon; one who is not admitted to be a Witneſs.

UP-LAND, is high Ground, or, as ſome call it, *Terra firma*; oppoſite to ſuch as is mooriſh, marſhy, or low: or it is Paſture-land, which lies ſo high as not to be overflow'd with Rivers, or Land-floods.

UPRIGHT, in Architecture, a Repreſentation or Draught of the Front of a Building; call'd alſo, an *Elevation*. See ELEVATION.

UPRIGHT, in Heraldry, is uſed in reſpect of Shell-Fiſhes, as Crevices, &c. when ſtanding upright in a Coat.—Inaſmuch as they want Fins, they cannot according to *Gullim*, be properly ſaid to be *Hauriant*; that being a Term appropriated to ſcaly Fiſhes.

URACHUS, in Anatomy, a membranous Canal in a *Fœtus*, proceeding from the Bottom of the urinary Bladder, thro' the Navel to the *Placenta*, along with the umbilical Veſſels, whereof it is eſteem'd one. See UMBILICAL *Veſſels*.

The Termination of the *Urachus* in the *Placenta*, forms a little oval *Veſica*, or Bladder, which ſerves to receive the Urine ſecreted in the Kidneys of the *Fœtus*, and that could not make its way thro' the *Urethra*, by reaſon of the reſiſtance of the *Sphincter* of the Bladder, which is not to be overcome but by Inſpiration.

The Humour found in the *Veſica* of the *Urachus*, is ſtill in the greater Quantity, the higher colour'd, and the more like Urine; as the *Fœtus* is nearer the time of the Birth.

The *Urachus* is not plainly found any where but in Brutes; but there is no diſpute but that it exiſts in an Human *Fœtus*. See FOETUS.

M. *Drelincourt*, a celebrated Profeſſor of Anatomy at *Leiden*, and ſome others after him, deny the *Urachus* to be hollow: On which Suppoſition it would not be eaſy to aſſign its Uſe, unleſs to keep the Bladder ſuſpended to the Navel. But the former Opinion ſeems the beſt warranted. See URINE.

URANIBOURG, a Term often heard among Aſtronomers, being the Name of a celebrated Obſervatory, in a Caſtle on the little Iſland *Veena*, or *Huena*, in the *Sound*; built by that noble *Dane*, *Tycho Brahe*, and furniſh'd with Inſtruments for obſerving the Courſe and Motions of the heavenly Bodies. See OBSERVATORY.

This famed Obſervatory, finiſh'd about the Year 1580, did not ſubſiſt above ſeventeen Years; when *Tycho*, who little thought to have erected an Edifice of ſo ſhort a Duration, and who had even publiſh'd the Figure and Poſition of the Heavens which he had choſe for the Moment to lay the firſt Stone in, was obliged to abandon his Country.

Soon after this, thoſe to whom the Property of the Iſland *Huena* was given, made it their Buſineſs to demoliſh *Uranibourgh*: Part of the Ruins were diſpers'd into divers Places, the reſt ſerved to build *Tycho* a handſom Seat upon his antient Eſtate, which to this Day bears the Name of *Uranibourgh*.—For as to the antient *Uranibourg*, there is now no Footſteps remaining. 'Twas here *Tycho* compoſed his Catalogue of the Stars. See CATALOGUE.

M. *Picart*, making a Voyage to *Uranibourgh*, found *Tycho*'s Meridian-Line drawn thereon, to deviate from the Meridian of the World; which confirms the Conjecture of ſome, That the Poſition of the Meridian-Line may vary. See MERIDIAN.

URBICARY *Provinces*. See SUBURBICARY.

URDEE, in Heraldry.—A *Croſs urdee*, ſeems to be the ſame with what we otherwiſe call *clechee*. See CLECHEE.

UREDO, the Blaſting or Blighting of Trees or Herbs. See BLAST and BLIGHT.

UREDO, is ſometimes uſed by Phyſicians for an Itching or Burning in the Skin. See ITCH.

URENTIA, are ſometimes uſed for Medicines of a hot or burning Quality. See CAUSTIC.

URETERS, in Anatomy, two long and ſmall Canals, which come from the Baſon of the Kidneys, one on each ſide, and terminate in the Bladder; ſerving to convey the Urine, ſecreted in the Glands of the Kidneys, into the Bladder. See KIDNEY, and BLADDER.

They lie between the doubling of the *Peritonæum*; and deſcending in the form of an S, pierce the Bladder near its Neck, where they run, firſt, ſome ſpace betwixt its Coats, and then open into its Cavity.

They are compoſed of three Coats.—The firſt is from the *Peritonæum*; the ſecond is made of ſmall oblique muſcular Fibres; and the third, which is very ſenſible, has ſeveral ſmall Glands, which ſeparate a ſlimy Liquor, to defend it againſt the Acrimony of the Urine.

The neighbouring Parts furniſh them with Blood-Veſſels; and they have Nerves from the Intercoſtals and the *Vertebræ* of the Loins.—Their Cavity is ſometimes contracted in three or four places, eſpecially towards the Bladder.

Such as are ſubject to the Gravel, and given to exceſſive drinking, have them ſometimes ſo much dilated, that one may put the End of ones little Finger into them. See STONE and GRAVEL.

Their Obſtruction cauſes a Suppreſſion of the Urine. See URINE.

The Word is form'd from the *Greek* οὐρεῖν, *meiere*, to make Water.

URETHRA, in Anatomy, call'd alſo *Meatus Urinarius*, a Tube or Canal ariſing from the Neck of the Bladder, and continued to the *Pudendum*; ſerving to diſcharge or carry off the Urine out of the Bladder. See URINE.

Some will have it to be only a Production of the Neck of the Bladder itſelf.——Its length is very different in the two Sexes.—In Man it terminates in the Extremity of the Glans, and is ordinarily a Foot long.——In Woman, 'tis but two Fingers breadth long, and terminates in the *Vulva*; but it is much wider, and more eaſily dilated here than in the other Sex.

Mr. *Cowper* gives us an Inſtance of a Woman, wherein the *Hymen* was ſo firm and impervious, that her Husband finding no Paſſage thro' it, had open'd himſelf another thro' the *Urethra*. See HYMEN.

The *Urethra* is compoſed of two Membranes, and a little ſpongy Subſtance like that of the *Corpora Cavernoſa*, except at the End which joins the Neck of the Bladder, where the diſtance between the Membranes is ſmall, and fill'd up with a thin and red glandulous Subſtance, whoſe excretory Ducts piercing the inner Membrane, pour into a Pipe a mucilaginous Liquor which lines and lubricates its Cavity, and prevents the Salts of the Urine from galling it; as having a farther Office in the Male Sex, *viz.* the Emiſſion of the Seed. See PENIS, and SEED.

URIGO, a burning with a Cauſtic or Cautery. See CAUSTIC, and CAUTERY.

URIM *and Thummim*, אורים ותמים, q. d. *Lights and Perfections*, the Name of a kind of Ornament belonging to the Habit of the High-Prieſt, in vertue whereof he gave oracular Anſwers to the People. See PROPHECY, &c.

The High-Prieſts of the *Jews*, we are told, conſulted God in the moſt important Affairs of their Common-wealth, and received Anſwers by the *Urim and Thummim*.—What theſe were is diſputed among the Criticks: Some take them to be the twelve precious Stones in the Breaſt-Plate of the High-Prieſt, which ſhone like a Flame of Fire. See PECTORAL.

Others will have them, the antient *Teraphim*, or little human Figures carried by the Prieſt, hid in the Fold of his Robe or Gown, and by which he anſwer'd the Queſtions of the *Jews*. See TERAPHIM.

Diodorus Siculus relates, that there was a like Ceremony in uſe among the *Egyptians*, whoſe principal Miniſter of Juſtice carried an Image of precious Stones about his Neck, which was call'd *Truth*.

URINAL, in Medicine, a Veſſel fit to receive and hold *Urines*; and uſed accordingly, for the conveniency of ſick Perſons.

'Tis uſually of Glaſs, and crooked; and ſometimes fill'd with Milk, to aſſwage the Pain of the Gravel.

URINARIA *Fiſtula*, is the ſame as *Urethra*; ſo call'd from its Office, to convey the *Urine*. See URETHRA.

URINARY *Paſſage.* *Meatus* URINARIUS. } See { URETHRA.

URINARY *Bladder.* *Veſica* URINARIA. } See { BLADDER.

URINE, a liquid Excrement, or Humour, ſeparated from the Blood in the Kidneys, convey'd thence into the Bladder, and diſcharg'd by the *Urethra*. See EXCREMENT.

The *Urine* is ſecreted from the Arterial Blood in the Glands of the *Kidneys*; from which ariſe numerous little pellucid Pipes, and Veins, which receiving the ſecreted *Urine*, at length join into twelve *Papillæ*; out of which the *Urine* oozes into a Cavity call'd the *Pelvis*, from whence it runs into the *Ureters* of either ſide, and thro' them into the *Bladder*; and from that, at length, thro' the *Urethra*, out of the Body. See KIDNEYS, PAPILLÆ, PELVIS, URETER, BLADDER, and URETHRA.

The Secretion of the *Urine*, then, is not perform'd by any Attraction, as ſome will have it; or by any Emulſion, as others; or any Fermentation, as others; or any Precipitation, as others: but by the Force of the Heart, and Arteries, whereby the Blood is driven thro' innumerable Turnings and Windings of the Veſſels; attenuated by Reſiſtances, oppoſite Motions, violent Concuſſions, and various Mixtures, till the more liquid and ſerous Part thereof, is forc'd thro' Canals ſmaller than the Blood-Veſſels, and ſo collected and diſcharg'd. See SECRETION.

The Word *Urine* is form'd from the *Greek* οὖρον, which ſignifies the ſame thing.

'Tis more than probable, that the Blood of the Emulgent Artery, convey'd thro' all the little Branches that ſpread thro' the exterior Membranes of the *Veſiculæ* whereof the Kidneys are compos'd, being by this means exceedingly divided, and as it were attenuated, enters the *Veſiculæ* themſelves, and gives them their red Colour; that it is there filtrated, and the ſerous or *urinous* Parts ſecreted; and that this Filtration is promoted by the alternate Contractions and Dilatations of the fleſhy Fibres that incloſe the little Veſicles; and that after the Filtrations, the Parts that remain Blood are reſum'd by the Capillary Branches of the Veins; the reſt entering the excretory Ducts of the *Veſiculæ*, which are the firſt Receptacle of the *Urine*. *Hiſt. Acad. de Sciences*, An. 1705.

Monſieur *Morin*, in the *Memoirs of the* French *Academy*, marks out a new Rout or Courſe for the *Urine*.—The *ordinary* one, which is the Paſſage of any Liquor we drink thro' the Stomach, into the Inteſtines, thence into the Lacteals, thence into the Receptacle of the Chyle, thence into the Subclavian Vein, thence into the *Cava*, thence into the right Ventricle of the Heart, thence into the Lungs, and thence into the left Ventricle of the Heart; thence into the *Aorta*, thence into the Emulgent Artery, thence into the Kidneys, thence into the Ureters, and at laſt into the Bladder; ſeems too long and circuitous; conſidering how readily Mineral Waters paſs, and what a ſpeedy effect Aſparagus is found to have.—Beſides, that on this Principle, the Liquors we drink mixing with ſo many other Liquors in their way, ſhould be greatly alter'd thereby; whereas we frequently find a Tincture of Caſſia, render'd by *Urine* almoſt as black as when firſt taken: and the like is obſerv'd of divers other Liquors.

M. *Morin*, therefore, maintains, that a good part of the Liquor we drink, oozes thro' the Membranes of the Stomach, and falls into the Pelvis; where it enters the Bladder thro' the Pores thereof, without getting into the Inteſtines, which are lined with too thick and viſcid a Humour to allow it Ingreſs.

This Syſtem is confirm'd hence, That both the Stomach and Bladder, even of a dead Animal, are found eaſily permeable to Water.

Accordingly, Dr. *Morgan* aſſures us, that if the Contents of the Abdomen be taken out of an animal Body, after it is juſt open'd; and the Stomach be fill'd with warm Water, while the Parts are yet reaking; the Liquor will paſs into the Bladder, which will viſibly receive it, and be fill'd in proportion as the Stomach empties.

The ſame Author adds, that if a Ligature be made upon the Ureters, while the Animal is yet living, and the Blood continues to circulate; tho this muſt cut off all Communication from the Kidneys to the Bladder; yet any Liquor with which the Stomach is fill'd will paſs into the Bladder.

From the whole, tho ſome of our beſt Anatomiſts hold that a Circulation of the whole Maſs of Blood is effected in five Minutes, and others in two; which might account for the quick Paſſage of the *Urine*; 'tis hard to conceive, but that part of it muſt go immediately from the Stomach into the Bladder.

The general Deſign of Nature in this new *Urinary* Drain, is ſuppoſed to be to prevent any ſudden Plethora, or immoderate Diſtenſion of the Veſſels upon drinking.

As a neceſſary Conſequence of this Syſtem, the Author eſtabliſhes two kinds of *Urines*; the one filtrated immediately out of the Stomach into the Bladder; the other making the long Courſe of the Circulation.

In the *Philoſophical Tranſactions*, we have an Inſtance given us, by Mr. *Young*, of a Boy ſix Years old, that piſs'd off almoſt all his *Urine* by his Navel.

In the ſame *Tranſactions*, Dr. *Richardſon* gives an Account of a Boy at *North Bierly* in *Yorkſhire*, who liv'd to ſeventeen Years of Age without ever making Water; yet was in perfect Health.—He had conſtantly a Diarrhæa on him, but without much uneaſineſs.—The Obſtruction, that Author obſerves, muſt have been in his Kidneys; for he had never any Inclination to make Water.

Urines are of various Kinds and Properties.—After drinking plentifully of any aqueous Fluid, the *Urine* is crude, inſipid, void of Smell, and eaſily retain'd.—That yielded by Chyle well concocted, is ſharper; more ſaline, leſs copious, ſomewhat fetid, and more ſtimulating.—That from Chyle already converted into Serum, is redder, ſharper, ſalter, and more fetid and ſtimulating.—And that ſecern'd after long Abſtinence, from Humours well concocted and wore off the ſolid Parts, is the leaſt copious, ſharpeſt, ſalteſt, reddeſt, moſt fetid, almoſt putrify'd, and of all others the hardeſt to retain.

The *Urine*, therefore, contains the watery Part of the Blood, its ſharpeſt, ſubtileſt, and moſt volatile Salt, and that neareſt to the alkaline Kind; its ſharpeſt, ſmalleſt, and moſt volatile Oil, and that neareſt to Putrefaction; and its ſmalleſt moſt volatile Earth. See BLOOD.

The Sal Armoniac of the Antients was prepar'd from Camels *Urine*. See ARMONIAC.

And the *Phoſphorus*, in uſe among us, from human *Urine*. See PHOSPHORUS.

Salt-petre is likewiſe prepar'd from the *Urine*, and other Excrements of Animals. See SALT-PETRE.

The *Indians* ſcarce uſe any other Medicine but Cows *Urine*.—The *Spaniards* make great uſe of *Urine* to clean their Teeth withal: So did the *Celtiberians* of old.

Urine is alſo uſed in Dying, to ferment and warm the Woad.—Old *Urine*, tinges Silver with a fine gold Colour.

The *Diſorders in the Urine* are various. See STRANGURY, RETENTION, DIABETES, STONE, NUBECULA, &c.

URINE, in Medicine.——The *Urine* affords one of the principal Criterions, or Signs whereby Phyſicians judge of the State of the Patient, and the Courſe of the Diſeaſe. See SIGN, SYMPTOM, DISEASE, &c.

In *caſting*, or examining *Urine*, the Things to be conſider'd, are, its *Quantity*, *Colour*, *Smell*, *Taſte*, *Fluidity*, and the Matters ſwimming therein.

An abundance of Urine, indicates a Looſeneſs of the Renal Pipes; a Diminution of Perſpiration; Sweat; Saliva; an imperfect Mixture of the Blood, whereby the watery Parts ſeparate eaſily from the reſt; a nervous Indiſpoſition; a copious drinking of ſome aqueous Liqiud, or ſome Diuretic taken.—Such *Urine* preſages a Thickneſs of what is left behind, and its Acrimony; Thirſt, Anxiety, Obſtructions, and their Effects, a dry, thirſty, hot Conſumption.

A contrary State of the *Urine* indicates the Contraries; and preſages future Repletions, Heavineſs, Drouſineſs, Convulſive Tremors, &c.

A thin, limpid, inſipid, colourleſs, taſtleſs Urine, denotes a great Conſtriction of the Renal Veſſels, and at the ſame time, a briſk Agitation of the Humours; a ſtrong Coheſion of the Oil, Salt, and Earth in the Blood it ſelf, and an imperfect Mixture of the aqueous Parts therewith; ſome grievous Indiſpoſition of the Mind, a hyſteric or hypochondriac Fit; a Debility of the *Viſcera*; Crudity, Pituita, Obſtructions of the Veſſels; and, in acute Diſeaſes, a want of a Coction and Criſis.—Such *Urine* portends much the ſame as a too copious *Urine*; and in acute inflammatory Diſeaſes, a bad Condition of the *Viſcera*, Deliria, Phrenſies, Convulſions, Death.

Ruddy Urine, without any Sediment, in acute Diſeaſes, indicates a violent Motion and Attrition among the Parts that conſtitute the Humours, and between the Veſſels and the Humours; a cloſe intimate Mixture of the Oil, Salt, Earth and Water in the Humours: and hence a great Crudity of the Diſeaſe, and its long Duration, and great Danger.—Such *Urine* preſages gangrenous Deſtructions of the fineſt Veſſels; chiefly thoſe of the Brain and *Cerebel*, and thence Death: a difficult Coction; a ſlow, doubtful Criſis: And all theſe the worſe, as the *Urine* is redder, and freer of Sediment. If there be a heavy copious Sediment, it ſhews a ſtrong antecedent Attrition; looſe Veſſels; ſharp, ſaline, colliquated Blood, unfit for Nutrition; intermitting Fevers, and Scurvy.

The Preſages are, the Durableneſs of the Diſeaſe, wearing of the Veſſels, Weakneſs, colliquative Sweats, Saliva, &c. Atrophy, and Dropſy.—If the Sediment in ſuch *Urine* be branny, ſcaly, filmy, &c. it preſages the like, only worſe.

A yellow Urine, with a Sediment as before, denotes a Jaundice, and the Symptoms thereof in the Cutis, Stools, Hypochondriums, &c.

A green Urine, with a thick Sediment, denotes an atrabilary Temperature, and that the Matter thereof is reſolved, and now excreted: conſequently Anxieties about the *Præcordia*, Perturbations of Stool, Iliac and Colic Pains.

Black Urine, denotes the ſame with green, only in a greater and worſe degree.

Blood, Pus, Caruncles, Filaments, Hairs, Anguillæ, Grumæ, Sand, Parts of Stone, and a Mucus at the bottom of the *Urine*, denote ſome Diſorder in the Kidneys, Ureters, Bladder, Teſticles, Seminal Veſicles, *Proſtatæ*, and Urethra.

Fatty Urine, generally breeds ſmall Sands, adhering to ſome viſcid Matter, and thus produces a ſort of oily Membrane, or Pellicle, which denotes an abundance of Earth, and a heavy Salt in the Blood, and preſages the Scurvy, Stone, &c.

A Fœtid Urine, denotes the Salts and Oils to be attenuated, diſſolv'd, and almoſt putrify'd; whence very great danger, both in chronic and acute Diſeaſes.

Urine which when ſhook, retains its Froth long, denotes a Tenacity of the Mixture, and thence a difficulty of Criſis; and pulmonick Diſeaſes, or Catarrhs in the Head.

But the *Urine* is chiefly conſulted in acute Fevers, where 'tis a very ſure Sign: For, 1°, *Urine* with a white, light, equable, turbinated, inodorous Sediment, thro' the whole Courſe of the Diſeaſe to the Criſis, is a very good Preſage. 2°, Copious, white, ſtrangurious *Urine*, with much white Sediment, emitted, at the Time of the Criſis, cures and takes away Abſceſſes. 3°, A thin, ruddy *Urine*, that does not ſubſide; a white, thin, watery *Urine*; a thin, equable, yellow *Urine*; a turbid *Urine* that does not ſubſide, denotes, in very acute Diſeaſes, a great Crudity, a difficult Criſis, and a durable dangerous Diſeaſe.

URINE, in Agriculture, is of excellent Uſe as a Manure. See MANURE.

The knowing in Agriculture and Gardening, prefer *Urine* for Land, Trees, &c. before Dung; as penetrating better to the Roots; and removing divers Infirmities of Plants.

The Decay of the antient *Kentiſh* Pippins, is a thing much complain'd of; and Mr. *Mortimer* obſerves, they will be quite loſt, unleſs ſome Perſons ſet themſelves to the antient way of Culture; which, as all antient Graziers and Gardeners know, was by waſhing the moſſy, worm-eaten, canker'd, and unſound Trees, two or three times in the Month of *March*, with the *Urine* of Oxen, &c. gather'd in earthen Veſſels, plac'd under the Planks of the Stalls wherein they were fatted.

In *Holland*, and in divers other Parts, they preſerve the *Urine* of their Beaſts, &c. with as much Care as their Dung.

Mr. *Hartlib*, Sir *Hugh Plat*, Mr. *Mortimer*, &c. make a common Complaint, that ſo great an Improver of Land, and ſo remarkable a Strengthner of Manure, ſhould be ſo much diſregarded among us.

URINOUS *Salts*, are the ſame with what we otherwiſe call *Alcali Salts*, or *Alkalies*. See ALKALI.

There are two Kinds of *Urinous Salts*, the one *fix'd*; the other *volatile*.——The fix'd prevail in Plants, and the volatile in Animals. See SALT.

They are called *Urinous*, in reſpect of their Taſte and Smell, which bear ſome reſemblance to thoſe of Urine.

URN, URNA, a kind of Vaſe, of a roundiſh form, but biggeſt in the middle, like the common Pitchers; now ſeldom uſed, but as Ornaments over Chimney-pieces, in Buffets, &c. or by way of Acroters, a-top of Buildings, Funeral Monuments, &c. See VASE, and ACROTER.

The great uſe of *Urns* among the Antients, was to preſerve the Aſhes of the Dead, after they were burnt: For which Reaſon they were call'd *Cineraria*, and *Urnæ Cinerariæ*; and were placed ſometimes under the Tomb-ſtone, whereon the Epitaph was cut; and ſometimes preſerved in Vaults in their own Houſes. See SEPULCHRE, TOMB, and FUNERAL.

Urns were alſo uſed at their Sacrifices, to put liquid things in. See SACRIFICE.

They were alſo of uſe in the *Sortes Præneſtinæ*, or Caſting of Lots. See SORTES.

At *Rome*, too, the Cuſtom was to abſolve or condemn the Accuſed, by the Suffrages, or *Calculi*, which the Judges caſt into the *Judicatory Urn*. See ABSOLUTION, &c.

Virgil repreſents *Minos* the Judge of Hell, ſhaking the *Urn*, to decide the Lots of Mankind—*Quæſitor Minos* urnam *movet*.

The *Urn* is ſtill the attribute of *Rivers*, which are painted leaning on *Urns*, repreſenting their Sources by the Water flowing therefrom.——We find them repreſented in the ſame manner on antique Medals, and Relievo's. See RIVER, and ATTRIBUTE.

URN, URNA, was alſo a *Roman* Meaſure, for liquid Things; containing about three Gallons and a half of our Meaſure. See MEASURE.

UROCRITERIUM, a *Caſting of Water*; a giving Judgment of Diſeaſes by the Sight of the Urine. See URINE.

The Word is compounded of οὖρον, *Urine*, and κριτήριον, *Criterion*, *Mark*, *Sign*.—Hence alſo the Words *Uromancy*, *Uroſcopy*, &c.

URSA, in Aſtronomy, *the Bear*, *Triones*, a Name common to two Conſtellations of the Northern Hemiſphere, near the Pole; diſtinguiſh'd by *Major*, and *Minor*. See CONSTELLATION.

URSA *Major*, or *the Great Bear*, according to *Ptolemy's* Catalogue, conſiſts of 35 Stars; according to *Tycho's* of 56; but in the *Britannic Catalogue* we have 215: The Longitudes, Latitudes, Magnitudes, &c. whereof, are as follow.

Stars in the Conſtellation URSA *Major*.

Names and Situations of the Stars.	Sign.	Longitude			Latitude. North.			Magn.
		°	′	″	°	′	″	
Inform. between *Perſeus* and the Head of the great Bear	♊	10	41	11	31	34	4	6
		11	57	29	30	56	54	5 6
		11	52	15	30	33	50	5
		13	54	32	34	1	38	6
A Star of *Urſa Minor* in *Tycho*		16	38	38	43	23	17	4 5
5								
		14	49	45	32	23	17	6
		14	58	14	30	50	59	5
Of *Urſa Minor*		16	59	57	37	23	19	4 5
Of *Urſa Minor*		17	12	5	35	53	15	5 6
		16	20	4	28	33	30	5
10								
		17	10	6	30	35	42	6
Inform. between the Pole and *Auriga*		19	12	3	34	52	27	6
Preced. the great Bear.		19	47	39	34	15	39	6
		21	13	55	33	52	0	5 6
		22	28	51	40	44	23	6
15								
		22	47	57	38	30	25	6 7
		23	20	0	38	1	8	6
		22	54	41	33	8	33	6
		23	27	45	32	39	56	5 6
	♊	23	33	43	33	27	40	6 7
20								
	♊	24	29	32	35	29	38	6
		24	56	5	36	24	34	5
		25	39	24	31	51	2	6
		27	31	56	42	15	18	5 6
		27	17	9	35	28	5	5 6
25								
		27	26	38	35	42	25	6 7
37th of *Caſſiopeia* in *Tycho*		28	10	15	45	52	52	4 5
		28	9	27	36	33	18	6 7
		28	26	36	38	4	30	5 6
Perhaps, 32d of *Caſſiopeia* in *Tycho*		28	40	56	35	34	58	4 5
30								
		29	3	43	38	20	59	6
		29	11	0	35	57	43	5 6
		29	44	35	35	3	3	7
		29	51	0	35	13	1	6 7
		29	59	35	35	2	30	6
35								
	♋	0	30	30	34	50	33	7
		1	27	12	38	13	19	5 6
		1	33	53	38	12	16	6
		1	51	12	33	34	54	6
		2	57	37	36	15	26	5 6
40								
35th of *Caſſiopeia*		2	31	17	44	23	21	4 5
36th		2	39	13	45	43	33	4 5
33d		3	28	17	34	0	47	6
34th		4	2	18	36	21	17	5 6
		4	50	22	35	24	22	4 5
45								
		6	35	11	22	9	27	4 5
		6	0	2	36	54	46	5 6
		6	23	32	37	57	49	6
		7	34	35	36	58	2	5
		8	7	50	36	17	15	6 7
50								
		8	30	23	37	20	15	6
		9	58	58	26	58	23	5 6
		9	31	29	32	47	55	6
		11	18	5	26	53	54	5
Inform. following *Auriga*, between the Head of *Urſa Major* and *Gemini*		11	19	26	37	25	55	6
55								
		12	3	53	35	1	55	5 6
		12	1	5	36	41	20	4 5
		11	24	1	40	48	30	5 6
		14	46	52	34	56	45	6
		16	42	59	25	58	1	6
60								
		16	42	47	26	9	39	5 6
		14	27	40	38	40	0	5 6
		16	2	49	33	56	31	6
		12	54	8	36	58	28	5 6
		16	37	18	39	21	2	6
65								

Names and Situations of the Stars.	Sign.	Longitude.			Latitude. North.			Magn.
		°	′	″	°	′	″	
		17	11	39	38	38	24	5 6
		16	18	8	41	30	16	6 7
		18	13	48	36	58	19	5 6
		17	33	11	39	50	13	6 7
Inform. between *Gemini* and the fore-foot of the Bear	♋	23	6	54	23	2	58	4 5
70								
In the Tip of the Noſe	♋	18	39	28	40	12	47	4 3
Preced. of 2 againſt the Eyes		17	19	32	44	33	1	4 5
		18	0	47	44	35	29	6
Subſeq. of the ſame		18	29	23	43	59	38	4
		27	25	19	17	6	52	6
75								
Againſt the Jaw		21	36	0	42	17	49	5
		20	41	31	44	53	29	6
		28	37	48	25	2	44	5 6
Preced. of 2 in the Forehead		19	39	10	47	54	43	4
North. in the preced. anterior Foot		28	30	18	29	34	29	3
80								
North. of the *Informes* under the anterior Feet	♌	0	58	20	23	41	53	4 5
	♋	20	53	39	47	28	38	6
South. of the preced. Foot		29	37	3	28	57	11	3
Poſterior in the Forehead		20	58	41	47	48	5	5
Preced. in the Triangle of the Neck		23	15	30	44	33	3	4
85								
Second of the *Informes*	♌	3	12	10	20	51	27	5
That under the preced. Knee	♋	28	47	53	33	25	55	4 5
South. in the Triangle of the Neck		24	57	27	42	47	58	5
		27	39	29	38	85	45	5 6
	♌	2	57	59	25	49	20	5 6
90								
That over the preced. Knee	♋	28	58	12	36	4	34	5
Nor. of the brighter among 5 *Informes*	♌	6	13	2	20	4	22	4
South. of the ſame		7	31	1	17	55	58	3 4
		0	34	53	36	36	21	6 7
	♋	20	4	2	53	16	39	7
95								
In Extrem. of the Ear		22	0	38	51	13	2	4 5
Poſter. in the Triangle of the Neck		26	29	5	45	7	19	4 3
	♌	0	26	16	38	26	25	6
		4	51	16	28	58	26	6
In the 2d anterior Knee		3	0	30	34	56	30	3 4
100								
A leſs over this		3	6	16	35	20	16	4 5
	♋	20	54	4	53	39	16	6
Laſt of 5 *Informes* under the anterior Feet	♌	9	27	57	20	42	32	4 5
		10	1	37	20	17	29	6
		8	48	39	24	40	0	6
105								
	♋	28	8	57	46	25	7	5
	♌	9	44	48	24	24	4	6 7
	♋	28	38	28	46	9	35	5
	♌	2	21	49	40	39	18	6
North. of 2 in the Breaſt		1	56	55	42	39	11	4 3
110								
South. of the ſame		5	0	20	38	14	10	4
		7	52	11	34	37	7	6
		4	41	45	41	11	33	6
		12	18	14	26	43	16	5 6
		16	42	35	18	32	33	5 6
115								
Preced. of *Informes* under the poſterior Feet		16	40	51	22	4	14	4 5
		1	28	23	49	27	46	5
North. in the preced. poſter. Foot		15	13	22	29	52	27	4 3
		1	53	10	50	11	42	5
South. and poſter. in the ſame Foot	♌	16	54	2	28	57	46	4 3
120								
	♌	2	34	45	50	35	12	6
2d of the *Informes* under the poſt. Feet		21	5	21	22	13	20	5 4
3d and North. of the ſame		20	13	16	25	3	44	4 5
		10	16	5	42	30	35	5
		10	13	49	43	45	37	6
125								
		19	33	52	28	51	47	5
		4	5	57	51	23	45	5 6
Prec. in the Baſe of an Oxygonous △ of *Informes*, under the Bear's Feet		24	31	37	21	36	55	4 3
		11	31	51	44	28	41	6
		18	21	58	34	49	14	5
130								
		12	5	54	44	23	38	6
		11	49	42	44	49	12	6
Subſeq. in the Baſe of the Oxygon		26	35	38	21	3	23	4
		11	5	14	46	48	33	6
		13	11	35	44	29	4	6
135								
		15	1	41	42	57	58	5 6
In the Apex of the Oxygonous Triang.		26	31	49	24	56	4	4
In the preced. poſter. Leg		22	10	5	33	3	5	5 4
		26	59	12	24	54	27	6
		27	23	30	24	29	35	6
140								
		24	46	14	31	3	16	6
South in □ of preced. or in the Side		15	4	12	45	6	16	2
		25	39	15	30	4	51	6 5
North. of preced. in the Back		10	49	58	49	40	5	2
		26	53	23	29	31	30	6
145								

Names and Situations of the Stars.	Sign.	Longitude			Latitude. North.			Sign.
		°	′	″	°	′	″	
In the preced. poſter. Knee		24	29	32	35	31	46	4 3
South. in the ſubſeq. poſter. Knee	♍	3	0	37	24	46	5	4
North. in the ſame Knee		2	20	15	26	9	3	4
	♌	29	52	42	30	46	34	5
		27	38	30	35	46	45	6
150								
	♍	1	16	32	32	41	24	5
	♌	29	21	41	36	12	0	6
		15	44	57	31	14	49	6
	♍	0	36	32	37	17	9	6
	♌	28	33	40	40	4	3	6
155								
		20	1	48	49	27	1	6
	♍	6	30	15	29	15	46	6
	♌	10	43	46	56	11	51	6 7
	♍	7	54	52	27	6	16	6
South. in the Thigh	♌	29	21	15	41	32	23	4 5
160								
		23	14	2	48	6	52	6
Bright Star in the Thigh; the South. of the following in Square		26	6	35	47	7	26	2
		23	43	54	49	34	37	6 7
	♍	1	51	41	41	10	22	6 7
		5	44	25	38	58	35	5
165								
	♌	25	35	54	51	6	44	7
	♍	0	5	37	48	46	41	7
In the Root of the Tail; North. of Square of the following	♌	26	40	40	51	39	36	3 2
	♍	10	52	24	38	34	36	6
In the South. Hip		4	51	53	45	37	34	5 6
170								
	♌	26	34	28	52	41	36	6 7
	♍	10	28	30	40	35	50	6
North. in the Hip		3	29	14	48	6	48	5 4
	♌	28	27	25	52	13	50	7
	♍	13	13	35	37	46	0	5
175								
	♌	29	59	48	51	38	32	6 7
		27	30	45	53	53	12	6
	♍	4	40	31	48	40	22	6
That prec. the *Inform.* under the Tail		13	26	26	40	33	13	4 5
		14	45	13	40	37	42	7
180								
	♌	23	53	31	57	57	46	6
	♍	17	12	4	39	51	39	6
	♌	18	30	28	61	3	41	6
	♍	19	27	18	38	51	12	6
1ſt of the Tail		4	31	25	54	20	16	2
185								
Bright Star under the Tail *Informis*		20	14	22	40	7	53	2 3
	♌	21	43	1	60	52	51	6
	♍	25	45	10	33	57	20	4 5
That following the 1ſt of the Tail		5	16	3	55	14	19	5 6
		24	1	51	38	54	37	5
190								
		23	7	8	41	39	50	7
Inform. prec. *Bootes* between the Tail of the Bear, and *Coma Berenices*		23	4	4	41	51	18	7
		23	13	27	41	40	11	6
		21	42	23	43	40	31	7
		22	54	28	43	27	29	5 6
195								
		22	48	7	44	14	22	7
1ſt of the 2 preceding the laſt of the Tail		23	28	15	44	12	28	6
		15	54	8	51	47	4	5
		24	23	21	44	6	33	6
Middle of 3 bright ones in the Tail		11	18	59	56	23	14	2
200								
That reſting, as it were, on the former		11	29	36	56	33	28	5
		5	22	51	60	22	20	5
That preced. the laſt of the Tail		20	0	55	52	52	3	5
		12	48	0	57	41	5	7
Prec. in △ over the laſt of the Tail		16	53	28	56	26	27	6
205								
North. in the ſame Triangle		14	55	49	57	51	10	6
	♎	1	38	22	45	17	23	7
		1	47	34	45	23	40	6
		6	58	9	39	6	27	6
	♍	16	25	24	58	14	26	6
210								
Laſt of the Tail		22	34	24	54	24	0	2
	♎	5	20	16	42	31	4	7
Informes towards *Bootes*'s Belt		5	25	42	42	25	12	7
		5	43	42	42	18	3	6
Laſt of the Triangle over the Tail	♍	18	51	20	58	25	13	6
215								

URSA *Minor, the little Bear*, call'd alſo *Charles's Wain*, and by the *Greeks*, *Cynoſura*; by its neighbourhood to the North Pole, gives the Denomination ἄρκτος, *Bear*, thereto. See POLE, ARCTIC, *&c.*

Ptolemy and *Tycho* make it to conſiſt of 8 Stars; but Mr. *Flamſtead* of 14: The Longitudes, Latitudes, Magnitudes, *&c.* whereof, as laid down in the *Britannic Catalogue*, follow.

Stars in the Conſtellation URSA Minor.

Names and Situations of the Stars.	Sign.	Longitude			Latitude North.			Mag.
		°	′	″	°	′	″	
A ſmall one contiguous to the *Polar*	♊	23	26	40	66	08	04	7
That over the *Polar*		17	06	32	65	16	00	6
The laſt of the Tail; the *Pole-Star*		22	14	41	66	04	11	2
Præced. of two before the Shoulder	♋	28	26	51	70	18	17	5
Subſeq. and more South 5		04	00	09	71	25	04	5
Bright one in Shoulder, præced. of □		08	54	40	72	58	10	2
In the Breaſt, the moſt South of the □		17	11	56	75	13	15	3
Præced. of two in the Loins		25	45	45	74	41	52	6
Subſeq. of the ſame, North of the □		23	02	10	75	05	45	4 5
Præced. of two in the Side 10		26	27	42	77	24	10	5 6
Brighter in the Side, ſubſeq. of the □		25	56	25	77	49	28	4 5
In the Root of the Tail		04	45	05	73	53	36	4
Laſt but one of the Tail	♊	26	50	39	69	54	37	4
Another follow. this, nearer the *Pole* 14		26	45	00	69	31	27	7

URSULINES, an Order of Nuns, which obſerve the Rule of St. *Auguſtin*; and are chiefly noted for taking on them the Education and Inſtruction of young Maids. See ORDER, and RELIGIOUS.

They take their Name from their Inſtitutreſs St. *Urſula*; and are cloth'd in White and Black.

The *Urſulines* have ſpread exceedingly in *France*, &c. within theſe few Years.——Few Maids but are put out to School to them.

USAGE, in Law. } See { PRESCRIPTION.
USAGE, in Language. } See { LANGUAGE.

USANCE, in Commerce, in *Italian*, *Uſo*, is a determinate time for the Payment of Bills of Exchange, reckon'd either from the Day of the Bills being accepted, or from the Day of their date; and thus call'd, becauſe regulated by the Uſage and Cuſtom of the Places whereon they are drawn. See BILL, and EXCHANGE.

Bills of Exchange are drawn at one or more *Uſances*, either from ſight or from date.—The *Italians* ſay *Uſo doppio*, for *double Uſance*, or *two Uſances*.

This Term is longer or ſhorter, according to the different Countries.—In *France*, *Uſance* is fix'd at thirty Days.—At *London*, *Uſance* is a Calendar Month; and *double Uſance*, two Months.—In *Spain*, *Uſance* is two Months.—At *Venice*, *Genoa*, and *Leghorn*, three Months.

At *Hamburgh*, *Uſance* of Bills drawn from *England*, *France*, and *Venice*, is two Months after date.—From *Antwerp* and *Nurenberg*, fifteen Days after ſight.

At *Venice*, *Uſance* of Bills drawn at *Ferrara*, *Boulogne*, *Florence*, *Lucca*, and *Leghorn*, is five Days after ſight.—From *Naples*, *Augsbourg*, *Genoa*, and *Vienna*, fifteen Days after ſight.—From *Mantua*, *Modena*, and *Milan*, twenty Days after date.—From *Amſterdam*, *Antwerp*, and *Hamburgh*, two Months after date; and from *London*, three Months after date.

At *Milan*, *Uſance* of Bills drawn from *Genoa*, is eight Days after ſight.—From *Rome*, ten Days after ſight. And from *Venice*, twenty Days after Date.

At *Florence*, *Uſance* of Bills drawn from *Boulogne*, is three Days after ſight.—From *Rome* ten Days after ſight.—From *Venice* and *Naples*, twenty Days after Date.

At *Rome*, *Uſance* of Bills of Exchange drawn in *Italy*, was, originally, ten Days after ſight; but by an Abuſe this Term has been extended to fifteen.

At *Leghorn*, *Uſance* of Bills drawn from *Genoa*, is eight Days after ſight: From *Rome*, ten Days: From *Naples*, three Weeks: From *Venice*, twenty Days after date: From *London*, three Weeks; and from *Amſterdam*, forty Days.

At *Amſterdam*, *Uſance* of Bills drawn from *England* and *France*, is a Month after date: From *Venice*, *Madrid*, *Cadix*, and *Sevil*, two Months.

At *Genoa*, *Uſance* of Bills from *Milan*, *Florence*, *Leghorn*, and *Lucca*, is eight Days after ſight: From *Venice*, *Rome*, and *Boulogne*, fifteen Days: From *Naples*, twenty two Days: From *Sicily* a Month after ſight, or two Months after date: From *Sardinia*, a Month after ſight: From *Antwerp*, *Amſterdam*, and other Places in the *Low Countries*, three Months after date.

USE, in Law, the Profit of Lands and Tenements.

A Deed conſiſts of two principal Parts.——The *Premiſes*, which includes all that comes before the *Habendum*, or Limitation of the Eſtate; and the *Conſequent*, which is the *Habendum* itſelf; wherein are two Limitations.——The one of the *Eſtate*, or Property the Party ſhall receive by the Deed. The other of the *Uſe*, expreſſing to, or for what *Uſe* and Benefit he ſhall have the ſame. See DEED.

The *Uſes* were invented upon the Stat. of *Weſtminſ. quia Emptores terrarum*; before which Statute, no ſuch *Uſes* were known.——And becauſe, in courſe of time, many Deceits were invented by ſettling the Poſſeſſion in one Man, and the *Uſe* in another, it was enacted, *Anno* 27 *Hen.* VIII. That the *Uſe* and Poſſeſſion of Lands ſhould always ſtand united.

USE, and *Cuſtom*, in the antient Law-Books, is the ordinary Method of acting or proceeding in any Caſe, which by length of Time has obtain'd the force of Law. See CUSTOM, PRESCRIPTION, LAW, *&c.*

USER *de Action*, in Law, is the purſuing, or bringing an Action. See ACTION, and PROSECUTION.

USES *and Cuſtoms of the Sea*, are certain Maxims, Rules, or *Uſages*, which make the Baſe or Ground-work of the Maritime *Juriſprudence*; by which the Policy of Navigation, and Commerce of the Sea, are regulated. See NAVIGATION, COMMERCE, *&c.*

Theſe *Uſes* and Cuſtoms conſiſt in three kinds of Regulations:

The firſt, call'd *Laws* or *Judgments of Oleron*, were made by order of Queen *Eleanor*, Dutcheſs of *Guienne*, at her return from the Holy War; and that chiefly from Memoirs which ſhe had gather'd in the *Levant*, where Commerce was at that time in a very flouriſhing Condition.

She call'd them *Rolls of Oleron*, by reaſon ſhe then reſided in an Iſland of that Name in the Bay of *Aquitaine*.—They were much augmented about the Year 1266, by her Son *Richard*, King or *England*, on his return from the *Holy Land*.

The ſecond Regulations were made by the Merchants of *Visbuy*, a City in the Iſland of *Gothland* in the *Baltic*, antiently much famed for Commerce, moſt of the Nations of *Europe* having their Quarters, Magazines, and Shops therein.

Theſe were compiled in the *Teutonic* Language, and are ſtill the Rule in the Northern Countries. Their Date does not appear; but 'tis probable they were made ſince the Year 1288, that the City of *Visbuy* was deſtroy'd the firſt time, afterwards reſtored by *Magnus*, King of *Sweden*.

The third Regulations were made at *Lubeck*, about the Year 1597, by the Deputies of the *Hans Towns*. See HANS.

USHER, *Oſtearius*, from the *French*, *Huiſſier*; ſignifies an Officer, or Servant, who has the Care and Direction of the Door of a Court, Hall, Chamber, or the like.

In the King's Houſhold there are four *Gentlemen-Uſhers* of the Privy-Chamber, appointed to attend the Door, give Entrance, *&c.* to Perſons that have admittance thither.—Four *Gentlemen-Uſhers*, Waiters; and an Aſſiſtant *Gentleman-Uſher*.——Eight *Gentlemen-Uſhers*, Quarter-Waiters in Ordinary. See CHAMBER.

In the *French* Court there are two *Uſhers* of the Anti-Chamber, or Hall where the King dines in publick.—They wait Sword by ſide, all the Year, and open the Door to ſuch as are to come in.——There are above ſixteen *Uſhers* of the Chamber, two of the Cabinet, and one of the *Order of the Holy Ghoſt*.

The *Uſhers* of the *Inquiſition* in *Spain* and *Portugal*, are Perſons of the prime Quality, who think themſelves highly honour'd by only looking to the Doors of the ſacred Tribunal. See INQUISITION.

USHER is alſo uſed for an Officer in the Exchequer; of which ſort three or four do attend the chief Officers and Barons, at the Court at *Weſtminſter*, and Juries, Sheriffs, and other Accomptants; at the pleaſure of the Court. See EXCHEQUER.

USHER *of the Black-Rod*, is an Officer conſtituted by the Founder of the *Order of the Garter*. See GARTER.

In a Chapter held at *White-hall*, 13 *Car.* II. it was ordain'd, that it ſhould be fix'd to one of the *Gentlemen-Uſhers*, daily Waters at Court; the eldeſt of which always holds the Place; and is call'd *Gentleman-Uſher*, and *Black-Rod*.

In relation to the *Order of the Garter*, he is appointed to carry the Rod at the Feaſt of St. *George*, and other Solemnities, which he makes uſe of as an Authority to attach Delinquents, who have offended againſt the Statutes of the Order, which he frequently doth by touching them therewith.——He wears a Gold Badge, embelliſhed with the Enſigns of the Order.——He has an Houſe in *Windſor-Caſtle*, and other Privileges. See BLACK-*Rod*.

USNEA, in Natural Hiſtory, a ſort of Plant of the Moſs Kind, growing on the Oak, Cedar, and divers other Trees. See MOSS.

USNEA *Humana*, is a ſmall greeniſh Moſs, growing on human Skulls, that have lain a long time expoſed to the Air.

'Tis very aſtringent, and held proper to ſtop Hemorrhages.——It is alſo an Ingredient in the *Weapon-Salve* of *Paracelſus*, and *Crollius*.

USQUEBAUGH, a ſtrong, rich, compound Liquor, chiefly taken by way of Dram; its Baſis being Brandy, or rectified Spirit of Wine.

The Proceſs is ſomewhat various, and the Ingredients numerous.——We ſhall give one much commended formerly, as a Specimen.

To two Gallons of Brandy, or Spirits, put a Pound of *Spaniſh* Liquorice, half a Pound of Raiſins of the Sun, four Ounces of Currants; three of Dates ſliced; Tops of Thyme, Balm, Savory, and Mint, and Tops or Flowers of Roſemary, of each two Ounces; Cinnamon and Mace, bruiſed, Nutmegs, Anis Seeds and Coriander Seeds, bruiſed likewiſe, of each four Ounces; Citron, or Lemon and Orange Peel, ſcraped, of each an Ounce.

All theſe to be left to infuſe 48 Hours in a warm place, often ſhaking them together: Then ſet them in a cool place, for a Week; after which the clear Liquor is to be decanted off, and to it an equal Quantity of neat white Port-Wine, and a Gallon of Canary are to be added—The whole to be ſweetned with a proper Quantity of double refined Sugar.

USTION, in Pharmacy, the preparing of certain Subſtances by burning them. See BURNING.

The Antients made uſe of the *Uſtion* of Horns, Nails, Feathers, and other Parts of Animals, for divers Remedies: And the Moderns ſtill uſe *Æs Uſtum*, which is burnt Copper, or Copper that has undergone the *Uſtion*, with Sulphur. See ÆS USTUM.

The *Uſtion* of Minerals, is a more imperfect kind of Calcination. See CALCINATION.

The Word is form'd from the Latin *urere*, to burn.

USUCAPTION, USUCAPTIO, in the Civil Law, is an Acquiſition of the Property of a Thing by a Poſſeſſion and Enjoyment thereof for a certain term of Years preſcribed by Law. See POSSESSION.

Some make a Difference between *Preſcription* and *Uſucaption*, maintaining that the latter is only uſed with regard to Moveables, and the former with regard to Immoveables.—But there is no eſſential Difference between 'em, and accordingly, *Preſcription* and *Uſucaption*, are generally held Synonyma's. See PRESCRIPTION.

USUFRUIT, USUS-FRUCTUS, in the Civil Law, the Enjoyment or Poſſeſſion of any Effect; or the right of receiving the Fruits and Profits of an Inheritance, or other Thing, without a Faculty of alienating or damaging the Property thereof. See POSSESSION, &c.

When the *Uſufructuary* dies, the *Uſufruit* returns to the Proprietor.

The Dowry or Jointure of a Widow is only an *Uſufructuary* due, that is, ſhe only enjoys the *Uſufruit* thereof, and cannot diſpoſe of the Principal. See DOWER.

All mutual Preſents between Man and Wife, only import the *Vſufruit* of the Goods of the firſt that dies, to the Profit of the Survivor.

The Incumbents of Benefices are only *Uſufructuary*. See BENEFICE.

An *Uſufructuary* has full Right over the Coppice; but can't fell Timber-Trees.

USURER, a Perſon charged with a Habit or Act of *Uſury*. See USURY.

The Laws of our antient *Saxon* and *Norman* Kings, are very ſevere upon *Uſurers*, or Letters-out of Money upon Intereſt.——*Uſurarios quoque defendit Rex* Edvardus (Confeſſor,) *ne remaneret aliquis in toto regno ſuo; & ſi quis inde convictus eſſet, quod fœnus exigerat, omni ſubſtantia propria careret & poſtea pro exlege habeatur, quoniam* Uſura *radix omnium malorum*. Leg. Edv. Confeſſ. cap. 37.

They were indeed allowed to diſpoſe of their Goods before Conviction, and whilſt they were living; but after their Death they were confiſcate, if it could be proved they lent Money to *Uſe* within a Year before their death. *Matt. Paris.*

If a Clergyman were an *Vſurer*, his Goods were not to be confiſcated; but to be diſtributed to pious Uſes.

In thoſe Days *Uſury* was thus defin'd:

> *Eſt* Uſura *ſuos quiſquis tradit mihi nummos*
> *Spe lucri, fœnus duplex* Uſura *vocatur.*

USURIOUS *Contract*, is any Bargain or Contract, whereby a Man is obliged to pay more Intereſt for Money than the Statute allows. See INTEREST and USURY.

USURPATION, in Law, the Enjoyment of a thing for continuance of time, or receiving the Profits thereof. See USUCAPTION.

USURY, USURA, in the general, is an Intereſt, Gain, or Profit which a Perſon makes of his Money or Effects, by lending the ſame; or it is an Increaſe of the Principal, exacted for the Loan thereof; or the Price a Borrower gives for the *Vſe* of a Sum credited to him by the Lender; call'd alſo *Uſe* and *Intereſt*, and in ſome antient Statutes, *dry Exchange*. See INTEREST, and EXCHANGE.

The Word *Uſury* is uſually taken in an evil Senſe, *viz.* for an unlawful Profit which a Perſon makes of his Money; in which Senſe it is, that *Uſury* is forbidden by the Civil and Eccleſiaſtical Law, and even by the Law of Nature: In this Senſe it alſo is, that it is held *Uſury* to lend Money on Pawns, to exact Intereſt for Money without ſurrendering the Principal, and to ſtipulate Intereſt for Money which is not employ'd in Trade, nor brings any Profit to the Perſon who receives it: But as the *Latin* Word *Vſura*, at leaſt the Plural thereof *Uſuræ*, may be underſtood of a lawful Intereſt, we don't ſee why *Vſury* mayn't be uſed in *Engliſh*, in the ſame harmleſs Senſe.

By the antient *Roman* Law, People were allow'd to lend out their Money at one *per Cent*, *per* Month; which was 12 *per Cent. per Annum.*—If they received more, they incurr'd the Note of Infamy, and the Overplus was charged on the Principal.

This Rate of *Vſury* was allow'd of as low as the Time of *Juſtinian*, who moderated it a little by the 26th Law in the Code *de Uſuris*. And not long after, the Canon Law forbid all ſort of *Vſury* whatever.—In compliance with which Prohibition, the cuſtomary Laws don't allow any Intereſt to be exacted for Money lent on a ſimple Promiſe or Obligation; but only by Contract, and upon Alienating the Principal, which the Debtor is to reimburſe at Pleaſure: Which is a kind of buying an annual Revenue.

So that in Propriety, *unlawful Uſury* conſiſts in extorting an exceſſive Rate for one's Money, beyond what is preſcribed by Law.

Du Moulin indeed makes *Vſury*, taken in the ill Senſe, to be *a Profit exacted for a Loan made to a Perſon in want*; intimating, That it is unlawful to extort Gain from the Aſſiſtance given to the Unhappy, or to convert an Office of Humanity into a mercenary one.—The Reaſon is, that Money is a barren and fruitleſs Thing in the Hands of a Perſon whom Neceſſity obliges to borrow; and that being lent him to be ſpent, he can make no Advantage of it: Whereas the principal Pretext for requiring lawful Intereſt, is, that the Perſon who lends, may ſhare in the Profits thereof with the Perſon to whom it is lent.

Notwithſtanding, moſt of the antient Canoniſts inſiſt on a rigorous Obſervation of that Precept in *Deuteronomy*, *Non fœneraberis fratri tuo*, Thou ſhalt not lend Money to thy Brother, on *Vſury*: And plead that nothing be required further than the Principal.

However, in Life, we call nothing *Vſury* but what exceeds the Bounds preſcribed by the Laws: So that when a Perſon does not alienate his Principal, or takes Intereſt beyond what is limited by Statute, theſe alone are *Uſury*.

By the Stat. 12 *Car.* I. no Man is allow'd to take above ſix Pounds for the Forbearance of one hundred Pounds for one Year, under certain Penalties therein enjoin'd.——And by a later Stat. 1° *Georgii*, no Man muſt take above five Pounds for the like Occaſion.

UT, a *Latin* Term ſignifying, literally, *as*; much uſed in the Stating of Ratios and Proportions. See RATIO, and PROPORTION.

Sir *I. Newton* aſſigns its Uſe thus: If indeterminate Quantities of divers kinds be compared together, and one of 'em be ſaid to be *Ut*, *as*, any other directly or inverſely; the meaning is, that the firſt is increas'd or diminiſh'd in the ſame Ratio as the latter.—And if one of 'em be ſaid to be, *ut*, *as*, two or more others directly, or inverſely, the meaning is, that the firſt is increaſed or diminiſhed in a Ratio compounded of the Ratios in which the others are increaſed or diminiſhed.

Thus, if A be ſaid to be *as* B directly, and *as* C directly, and as D inverſely, the Meaning is 'tis increaſed or diminiſhed in the ſame Ratio with $B \times C \times \frac{1}{D}$, that is, A and $\frac{BC}{D}$, are to each other in a given Ratio. *Phil. Nat. Princ. Math.*

UT, in Muſic, the firſt of the muſical Votes. See NOTE.

Ut, *re*, *mi*, *fa*; the Clef of *G*, *re*, *ſol*, *ut*; of *C*, *ſol*, *ut*, &c.

This Note, with the reſt, were taken out of the Hymn of St. *John Baptiſt*. *Vt queant laxis*, &c. See MUSIC.

UT *fang thef*, an antient Royalty, or Privilege, granted to the Lord of a Manor by the King, giving him a Power to puniſh a Thief dwelling, and committing Theft out of his Liberty; if he be taken within the Lord's Fee.—*Ut fang thef dicitur extraneus Latro veniens aliunde de terra aliena, & qui captus fuit in terra ipſius qui tales habet libertates.* Bracton.

UTENSIL, a little domeſtic Moveable, belonging principally to the Kitchen.——Such are Pots, Pans, Plates, &c.

Vtenſil is particularly uſed in War for the Moveables which the Hoſt is obliged to furniſh the Soldiers quarter'd with him; which are, a Bed with Bed-clothes, a Pot and a Spoon.—— They are likewiſe to have a place at their Hoſt's Fire, and Candle.

Vtenſils are ſometimes furniſh'd in Money, and ſometimes in Kind. The Word is form'd from the Latin *Utenſile*, which ſignifies the ſame thing.

UTERINE, UTERINUS, ſomething belonging to the *Vterus*, or Womb of Women. See UTERUS.

Thus *Vterine* Brothers or Siſters, are thoſe born of the ſame Mother, but different Fathers. See BROTHER, &c.

Furor UTERINUS, in Medicine, is a kind of Madneſs, attended with laſcivious Speeches and Geſtures, and an invincible Inclination to Venery.

The *Furor Vterinus*, is a Complication of hyſterical Symptoms, ariſing from a Turgeſcency or Inflation of the *Vterine Veſſels*. See HYSTERIC.

It is uſually ſuppoſed to conſiſt in ſome irregular Motion of the Spirits, occaſion'd by a hot, luſtful Temperament, the Converſation of debauch'd Perſons, or the reading of wanton Books, hot Foods, the Abundance and Acrimony of the ſerous Matter which moiſtens the *Pudendum*, Suppreſſion of the Menſes, large Doſes of Cantharides, *&c.*

It has been frequently found, that Maids that were held to be poſſeſs'd, were only ſeiz'd with the *Uterine Fury*.

Before the Paroxyſm, the Patient often appears ſilent and ſorrowful, with a Fluſhing in the Face, and a Reſpiration and Pulſe frequently intermitting, and ſuddenly varying.—— During the Paroxyſm they burſt ſometimes into Laughter, and then into a Fit of Tears, *&c.*

Bleeding, fætid Suffiments, and other hyſterical Medicines, are proper during the Fit.

Men are ſubject to the Diſeaſe as well as Women; ſo that it might with more Propriety be call'd, the *Furor Venereus*, or *Venereal Fury*.

It had its Name *Furor Uterinus*, from an Opinion, that it proceeded from Vapours riſing from the Womb to the Brain.

UTERUS, in Anatomy, the *Matrix* or *Womb* of a Woman; or that Organ of Generation wherein the Buſineſs of Conception is perform'd, and wherein the Embryo or *Fœtus* is lodg'd, fed, and grows, during the time of Geſtation, or till its Delivery.——*Its Deſcription ſee under the Article* MATRIX.

Its Office, &c. *under* GENERATION, CONCEPTION, GESTATION, FOETUS, *&c.*

Vagina UTERI. See VAGINA.

UTILE, a *Latin* Term ſignifying profitable or uſeful; ſometimes uſed by *Engliſh* Authors in the ſame Senſe.

The *Utile* and the *Dulce*, Profit and Delight, are both to be aim'd at in Poetry; but it is diſputed which of them is to be aim'd at in the firſt place.——*Corneille* ſays expreſly, *Dans la Tragedie l'utile n'entre que ſous la forme du delectable.* See POETRY.

In the Language of the Philoſophers, there is nothing *Utile* but what is juſt and honeſt: *Nihil bonum niſi honeſtum: nihil malum niſi turpe.* Cic. de Fin. lib. 2.

UTLAGATIO, in Law-Term, an Out-lawry. See OUTLAWRY.

UTLAGATO *capiendo, quando utlagatus in uno comitatu poſtea fugit in Alium*, a Writ for the apprehending a Man who is outlaw'd in one Country, and flies into another. See OUTLAWRY.

UTLAGH, UTLAGHUS. See OUTLAW.

UTLAND. See INLAND.

UTLARY, or UTLAWRY. See OUTLAWRY.

UTRUM. See ASSISE.

UTTER, or *Outer Barriſters*, are ſuch Candidates as, in regard of their long Study and great Induſtry beſtow'd upon the Knowledge of the Common Law, are call'd out of their Contemplation to Practice, and in the View of the World to take upon 'em the Protection and Defence of Clients. See BARRISTER.

In moſt other Countries they are call'd *Licentiates*. See LICENTIATE.

They have their Name *Utter Barriſters*, q. d. Pleaders *ouſter the Bar*, to diſtinguiſh 'em from Benchers, who have been *Readers*, and are ſometimes admitted to plead within the Bar; as the King's Council are. See BENCHER, *&c.*

UVEA, in Anatomy, the third Tunic, or Membrane of the Eye; thus call'd, as reſembling a Grape-ſtone. See EYE.

The hind-part of this Coat, or that next the Orbit of the Eye on each ſide, is call'd the *Choroides*; and is derived from the *Pia Mater*. See CHOROIDES.

The fore-part is, like the former, tranſparent, but thinner; and is by Authors reckon'd as a different Tunic, and call'd *Uvea*.

Of the Duplicature of this Part, is form'd that ſtriped, variegated Circle, call'd the *Iris*. See IRIS.

And in its middle is a Perforation, thro' which appears a little black Speck, which is the Sight, or *Pupil* of the Eye; and about which the Iris forms a Ring. See PUPIL.

From the inſide of this Membrane, ſpring certain Fibres, which ſpread themſelves round the cryſtalline Humour; ſerving to contract or dilate the Sight at pleaſure; and call'd the *Ligamentum Ciliare*. See CILIARE, and CRYSTALLINE.

VULVA, a Name ſome Phyſicians give to the *Uterus*, or Womb.

The Word *Vulva*, is Latin, thus call'd, *quaſi Valva*, a Door. See UTERUS.

Vulva is ſometimes alſo, tho leſs properly, uſed for the *Pudendum Muliebre*. See PUDENDUM.

VULVA *Cerebri*, is an oblong Furrow in the Brain; ſo called from its likeneſs, in Figure, to a Female *Vulva*.

VULCANO, among Naturaliſts. See VOLCANO.

VULGAR *Fractions*. See FRACTION.

VULGATE, a very antient *Latin* Tranſlation of the Bible; and the only one the Church of *Rome* acknowledges authentick. See BIBLE.

The antient *Vulgate of the Old Teſtament*, was tranſlated almoſt Word for Word, from the *Greek* of the Seventy. The Author of the Verſion is not known, nor ſo much as gueſs'd at. See SEPTUAGINT.

It was a long time known by the Name of the *Italic*, or *Old Verſion*; as being of very great Antiquity in the *Latin* Church.—It was the common, or *vulgar* Verſion before S. *Jerom* made a new one; whence its Name *Vulgate*.

Nobilius in 1588, and F. *Morin* in 1628, gave new Editions of it; pretending to have reſtored, and recollated it from the Antients who had cited it.—The *Vulgate* was held by S. *Auguſtine* to be preferable to all the other *Latin* Verſions then extant; as rendering the Words and Senſe of the ſacred Text, more cloſely and juſtly than any of the reſt. It has ſince been re-touch'd from the Corrections of S. *Jerom*; and 'tis this Mixture of the antient *Italic* Verſion and ſome Corrections of S. *Jerom*, that is now called the *Vulgate*, and which the Council of *Trent* has declar'd to be authentick.

'Tis this *Vulgate* alone is uſed in the *Romiſh* Church, excepting for ſome Paſſages of the antient *Vulgate* left in the Miſſal, and the Pſalms; which are ſtill ſung according to the old *Italic* Verſion. See BIBLE.

Vulgate of the New Teſtament.—This the *Romaniſts* generally hold preferable to the common *Greek* Text; in regard 'tis this alone, and not the *Greek* Text, that the Council of *Trent* has declar'd authentick: Accordingly, that Church has, as it were, adopted this Edition. The Prieſts read no other at the Altar, the Preachers quote no other in the Chair, nor the Divines in the Schools.

Yet ſome of their beſt Authors, F. *Bouhours* for inſtance, own, that among the Differences that are found between the common *Greek* and the *Vulgate*, there are ſome wherein the *Greek* reading appears the more clear and natural than that of the *Latin*; ſo that the ſecond might be corrected from the firſt, if the Holy See ſhould think fit.—But thoſe Differences, for the generality, only conſiſt in a few Syllables or Words: They rarely touch the Senſe. Beſides, in ſome of the moſt conſiderable, the *Vulgate* is authoriz'd by ſeveral antient Manuſcripts.

Bouhours ſpent the laſt Years of his Life, in giving a *French* Tranſlation of the New Teſtament, according to the *Vulgate*.

In 1675, a new Edition of the *Greek* Teſtament was publiſh'd by the *Univerſity of Oxford*; and great Care taken therein, to compare the common *Greek* Text with all the moſt antient Manuſcripts in *England*, *France*, *Spain*, and *Italy*; and to note the Differences obſerv'd therein.

In the Preface to this Work, the Editors ſpeaking of the divers Verſions of the Bible in the vulgar Tongues, obſerve of the *Vulgate*, that there is no Verſion in any Language to be compar'd with it.—And this they juſtify, by comparing Paſſages that occur in the moſt celebrated *Greek* Manuſcripts, with the ſame Paſſages in the *Vulgate*, where there is any difference between that and the common printed *Greek* Copy.

In effect, 'tis probable, that at the Time the antient *Italic*, or *Vulgate* Verſion of the New Teſtament was made, and at the Time it was afterwards compar'd with the *Greek* Manuſcripts by S. *Jerom*; as they were then nearer the Times of the Apoſtles, they had juſter *Greek* Copies, and thoſe better kept than any of thoſe uſed when Printing was firſt ſet on foot, two Centuries ago.

M. *Simon* calls the *Greek* Verſion of the Seventy, before it was reviſ'd and reformed by *Origen*, *The antient* Vulgate *Greek.*—*Origen*'s Correction got the upper hand of the antient *Greek*, and joſtled it out of uſe; ſo that we have now ſcarce any Copies thereof. See SEPTUAGINT.

VULNERARY, in Medicine, an Epithet given to Remedies proper for the Cure of Wounds, and Ulcers. See WOUND, and ULCER.

There are divers *Vulnerary* Herbs; as *Ariſtolochia*, or Birthwort; *Sanicle*, or Self-heal; *Plantain*, *Mouſe-Ear*, *Veronica*, or *Fluellin*, *Agrimony*, *Vervein*, or Holy Herb, *&c.*

There are alſo *Vulnerary Potions*, compoſed of various Simples.—*Vulnerary* Balms, Unguents, Plaiſters, *&c.* See BALM, *&c.*

The Word is form'd from the Latin *Vulnus*, Wound.

VULTUS *de Luca*. See VERONICA.

UVULA, in Anatomy, a round, ſoft, ſpongeous Body, like the End of a Child's Finger; ſuſpended from the Palate, near the *Foramina* of the Noſtrils, perpendicularly over the Glottis.

Its uſe is to break the Force of the cold Air, and prevent its entering too precipitately into the Lungs. See RESPIRATION, *&c.*

It's form'd of a Duplicature of the Membrane of the Palate; and is called by ſome Authors *Columella*, and by others *Gurgulio*.

It is moved by two Pair of Muſcles, and ſuſpended by as many Ligaments.—The Muſcles are, the *External*, called the *Sphenoſtaphilinus*, which draws the *Uvula* upwards and backwards; and hinders the maſticated Aliment from paſſing into the *Foramina* of the Noſtrils in Deglutition. See SPHENOSTAPHILINUS.

And the *Internal*, call'd the *Pterygoſtaphilinus*; which draws the *Uvula* upwards and forwards. See PTERYGOSTAPHILINUS.

Both Muſcles move the *Uvula* upwards, to give room for ſwallowing; and ſerve to raiſe it, when relax'd and fallen down.—In which Caſe, 'tis uſual to promote its riſing, by applying a little beaten Pepper on the End of a Spoon to it. See DEGLUTITION.

Bartholin ſays, that ſuch as have no *Uvula* are ſubject to the Phthiſic, and uſually die thereof; by reaſon the cold Air, entering the Lungs too haſtily, corrupts 'em.

UXORIUM, in Antiquity, a Fine or Forfeit paid by the *Romans* for not marrying. See MARRIAGE, POLITICAL *Arithmetic*, &c.

UZIFUR, in Chymiſtry, a Name ſome Authors give to Cinnabar. See CINNABAR.

W, A Letter peculiar to the Northern Languages, and People; as the *Engliſh*, *Dutch*, *Poliſh*, and others of *Teutonic* and *Sclavonic* Original. See LETTER, and ALPHABET.

The *W* is alſo admitted into the *French*, *Italian*, &c. in proper Names, and other Terms borrow'd from the Languages where it is us'd.

In *Engliſh*, the *W* is uſually a Conſonant; and as ſuch, may go before all the Vowels, except *u*; as in *Want*, *Weapon*, *Winter*, *World*, &c. See CONSONANT.

It is ſometimes alſo a Vowel; and as ſuch, follows any of the Vowels *a*, *e*, *o*, and unites with them into a kind of double Vowel, or Dipthong; as in *Law*, *Ewe*, *Sow*, &c.

The *Engliſh w* is ſounded as the *Latin u*, in *quantum*, *ſuadeo*, *lingua*.—Its Sound is alſo commonly like the groſs, or full *V* rapidly pronounc'd.——In *French*, the Sound of the *W*, does not differ from that of the ſingle V.

WADDING, in Gunnery, a Stopple of Paper, Hay, Straw, old Clouts, &c. forc'd into a Gun upon the Pouder, to keep it cloſe in the Chamber; or put up cloſe to the Shot, to keep it from rolling out. See CHARGE.

WAFT.—*To waft a Ship*, is to convoy her ſafe, as Men of War do by Merchant Ships. See CONVOY.

To make a Waft, is to hang out ſome Coat, Sea-Gown, or the like, in the main Shrouds of the Ship; as a Sign for the Men to come on board, &c. Such *Waft* is alſo frequently intended to ſhew that a Ship is in diſtreſs by a Leak, &c. and therefore wants help from the Shore, or from other Ships.

WAFTORS.—King *Edward* IV. conſtituted a triumvirate of Officers with Naval Power, whom the Patent ſtyles *Cuſtodes*, *Conductores*, and *Waftores*; whoſe buſineſs chiefly was to guard our Fiſhermen on the Coaſts of *Norfolk*, and *Suffolk*.

WAGA, or VAGA. See WEIGH.

WAGE, in Law, *Vadiare*, from the French *Gager*, *dare pignus*, to pledge; ſignifies, the giving Security for the Performance of any thing. See PLEDGE.——Thus, to *wage* Law, is to put in Security that you will make Law, at the Day aſſign'd; and to make Law, is to take an Oath, that a Man owes not a Debt which is claimed of him, and alſo to bring with him ſo many Men as the Court ſhall aſſign, who ſhall avow upon their Oaths that they believe he ſwears truly.

WAGGON, a kind of Vehicle, or Carriage in common uſe.

There are divers Forms of *Waggons* accommodated to the divers Uſes they are intended for.

The common *Waggon* conſiſts of the *Shafts*, or *Rads*, which are the two Pieces the hind Horſe bears up; the *Welds*; the *Slotes*, which are the croſs Pieces that hold the Shafts together; the *Bolſter*, being that Part on which the fore Wheels and Axletree turn, in wheeling the *Waggon* a-croſs the Road; the *Cheſt*, or *Body* of the *Waggon*, having the Staves or Rails fix'd thereon; the *Balls*, or *Hoops* which compoſe the Top; the *Tilt*, the Place cover'd with Cloth at the End of the *Waggon*: beſides the *Wheels*, *Axletree*, &c.

The greater the Wheels of the *Waggon*, and their circumference; the eaſier the Motion; and the leſs, the heavier, and more uneaſy and jogging they go.—The only Reaſon why the fore Wheels of *Waggons*, &c. are made leſs than the hind Wheels, is for the Conveniency of turning. See WHEEL.

But ſtill, the higher a *Waggon*, &c. is ſet, the apter it is to over-turn.

The more upright or ſquare the Spokes of the Wheels are from the Box, or Centre, the weaker they are when they come to bear on either ſide: on which account, as alſo to ſecure a Wheel from breaking in a fall, they are made concave, or diſhing.

WAGGONER, in Aſtronomy, a kind of Conſtellation; call'd alſo *Charles's Wain*. See CHARLES's *Wain*.

WAGGONER is alſo uſed for a Routter, or Book of Charts, deſcribing the Seas, their Coaſts, &c. See CHART, and ROUTTER.

WAIF, or WAFE, a Term primarily applied to ſtolen Goods, which a Thief, being purſu'd or overburden'd, flies, and leaves behind him.

The King's Officer, or the Bailiff of the Lord within whoſe Juriſdiction ſuch *Waifs* or *Waif* Goods were left, (who by Grant, or Preſcription, hath the Franchiſe of *Waif*) may ſeize the Goods to his Lord's uſe; except the Owner come with freſh Suit after the Felon, and ſue an Appeal within a Year and a Day, or give in Evidence againſt him, and he be attainted.——In which Caſes, the Owner ſhall have his Goods again.

Tho *Waif* be properly ſpoken of Things ſtolen, yet it may alſo be underſtood of Goods not ſtolen: As, if a Man be purſu'd with Hue and Cry, as a Felon, and he flies and leaves his own Goods; theſe ſhall be forfeit as Goods ſtolen; and are properly call'd *Fugitive Goods*. See FUGITIVE.

Waifs, *Things loſt*, and *Eſtrays*, are ſaid to be *Pecus vagrans*; and are *nullius in bonis ubi non apparet dominus*. And therefore belong to the Lord of the Franchiſe where they are found; who muſt cauſe them to be cried and publiſh'd in the Markets and Churches near about: elſe the Year and Day does not run to the prejudice of him that loſt them.

WAINSCOT, in Building, the Timber-Work ſerving to line the Walls of a Room; being uſually in Pannels, and painted, to ſerve in lieu of Hangings. See WALL, &c.

Even in Halls, 'tis common to have *Wainſcot* breaſt high; by reaſon of the natural Humidity of Walls. See HALL.

Some Joiners put Charcoal behind the Pannels of the *Wainſcot*, to prevent the Sweating of Stone and Brick-Walls from ungluing the Joints of the Pannels.—Others uſe Wool for the ſame purpoſe.—But neither the one nor the other is ſufficient in ſome Houſes: The only ſure way, is by priming over the back-ſides of the Joints with White Lead, Spaniſh Brown, and Linſeed Oil.

Wainſcotting with Norway *Oak*, the Workman finding Stuff, is valu'd at ſix or ſeven Shillings *per* Yard ſquare.—*Plain ſquare Wainſcotting*, the Workman finding Deal, is valu'd at three Shillings, or three Shillings ſix Pence *per* Yard.—*Large biſection Wainſcotting*, with *Dantzick* Stuff, is valued at ſix or ſeven Shillings *per* Yard; and *ordinary Biſection* Work at three Shillings ſix Pence *per* Yard.

Note, In taking Dimenſions, they uſe a String, which they preſs into all the Mouldings; it being a Rule that they are to be paid for all where the Plane goes.

WAIVE, in Law, a Woman that is outlaw'd. See OUTLAW.

She is called *Waive*, as being forſaken of the Law: and not *Outlaw*, as a Man is; by reaſon Women cannot be of the *Decenna*, are not ſworn in Leets to the King, nor to the Law, as Men are; who therefore are within the Law: whereas Women are not; and ſo cannot be outlaw'd, ſince they never were within it.

In this Senſe, we read, *Waviaria Mulieris*, as of the ſame Import with *Utlegatio Viri*.

WAKE *of a Ship*, is the ſmooth Water that runs from a Ship's Stern, when ſhe is under ſail.

By this, a good Gueſs may be made of the Speed ſhe makes. See RECKONING.

They alſo judge from this, whether the Ship goes as ſhe looks; that is, whether ſhe makes her way right a-head, as ſhe lies; as ſhe doth when her *Wake* is right a-ſtern: But if this *Wake* be a Point or two to Leeward, they judge that ſhe falls to the Leeward of her Courſe.

When, in a Ship's ſtaying, ſhe is too quick; they ſay ſhe does not fall to the Leeward upon a Tack, but when tack'd, her *Wake* is to the Leeward; which is a Sign ſhe feels her Helm well, and is nimble of Steerage.

Alſo, when one Ship giving chaſe to another, is got as far into the Wind as ſhe, and ſails directly after her; they ſay, ſhe is got into her *Wake*.

WAKEFULNESS, Watchfulness, *Inſomnia*; a Diſorder whereby a Perſon is diſabled from going to ſleep. See Sleep.

It is occaſion'd by a continual and exceſſive Motion of the Animal Spirits in the Organs of the Body, whereby thoſe Organs are prepared to receive, readily, any Impreſſions from external Objects, which they propagate to the Brain; and furniſh the Soul with divers Occaſions of Thinking. See Spirit.

This extraordinary Flux of Spirits may have two Cauſes: For, 1°, the ſenſible Objects may ſtrike the Organ with too much Force. In which Caſe, the Animal Spirits being violently agitated, and thoſe Agitations continued by the Nerves to the Brain, they give a like Motion to the Brain it ſelf; the neceſſary Conſequence of which, is, that the Animal muſt wake. See Vigilia.

Thus, a loud Shriek, Pains, Headach, Gripes, Coughing, *&c.* cauſe *waking*. Add, that the Soul's being oppreſs'd with Cares, or deeply engag'd in Thinking, contributes to the ſame: Since, as it acts by the miniſtry of the Spirits, any Cares or Meditations that keep thoſe in motion, muſt produce *Watchfulneſs*.—Of this Kind are thoſe inveterate *Wakings* of melancholick Perſons; ſome of whom have been known to paſs three or four Weeks without a wink of Sleep. See Melancholy.

2°, The other Cauſe is in the Spirits themſelves; which have ſome extraordinary Diſpoſition to receive Motion, or to perſiſt in it: As, from their too great heat, or that of the Brain in burning Fevers, *&c.* Hence it is, that the Diſorder is moſt frequent in Summer, in the heat of Youth, *&c.* Long Faſting has the ſame Effect; the want of Food ſubtilizing the Spirits, and drying the Brain.—The ſame is likewiſe an ordinary Symptom in old Age, by reaſon the Pores of the Brain and the Nerves, having been much widen'd by the continual Paſſage of Spirits, for a great number of Years; the Spirits now paſs and repaſs thro' 'em with too much eaſe; and need not any extraordinary Motion to keep the Mind awake. See Habitude.

There are Inſtances of *waking* for 45 Nights ſucceſſively: And we even read of a melancholy Perſon, who never ſlept once in 14 Months.—Such Watchings uſually degenerate into Madneſs. See Narcotics, and Opiate.

WAKES, Vigils, or *Country*-Wakes, are certain antient Anniverſary Feaſts, in the ſeveral Pariſhes; wherein the People were to be awake at the ſeveral Vigils, or Hours to go to prayer. See Vigil.

They are uſually obſerved in the Country, on the Sunday next after the Saint's Day to whom the Pariſh-Church is dedicated.

Cowel, who derives the Word from the Saxon *Wac, temulentia*; defines 'em to be the Vigils in the Dedications of Churches, where Men ſat drinking in the Choir all Night. See Dedication.

WALKERS, a ſort of Foreſt-Officers, appointed by the King to *walk* about a certain ſpace of Ground, committed to their Care and Inſpection. See Forest.

Walkers are the ſame with what we otherwiſe call *Foreſters*. See Forester.

WALKS, in Gardening. See Alleys.

To keep the Weeds from growing upon *Walks*, Mr. *Switzer* directs, that the Bottoms thereof be fill'd with Lime-Rubbiſh, or coarſe Gravel, Flint-ſtones, or other rocky Stuff, eight or ten Inches deep; over which may be laid a like depth of Gravel, not too fine.

To keep 'em the drier, they are to be made round, or convex.—The uſual Proportion is, that a *Walk* 20 Foot wide, be four Inches higher in the Middle, than at the Sides; a *Walk* 25 Foot wide, 5 Inches, *&c.*

After laying a *Walk*, it is to be roll'd, both lengthwiſe, and croſs-wiſe; and to lay it the firmer, it muſt have three or four Water-Rollings; that is, when it rains ſo very faſt, that the *Walk* ſwims with Water: which, when dry Weather comes, will bind as hard as Terrace.

To make the Gravel bind the better, ſome mix a little Lime with it; which being apt to ſtick to the Heels of the Shoes in wet Weather, others grind or pound Sea-ſhells, and lay a thin Coat thereof on the Gravel; which being roll'd, incorporates with the Gravel, and hinders its hanging to the Shoes. Others beat Smiths Cinders to Duſt, and others Bricks; ſtrewing the Duſt on the *Walks*, which dries up the Moiſture, and gives 'em a Colour.

For Terraſs-Walks. See Terrass.

WALL, in Architecture, *&c.* a Work of Stone, Brick, Wood, or the like; making the principal Part of a Building; as ſerving both to incloſe it, and to ſupport the Roof, Floors, *&c.* See Building, House, *&c.*

Walls, tho built very thick and ſtrong, and their Foundations laid deep, yet, if carried on ſtrait in a Line, are inclined to lean, or fall; and ſuch as are built crooked, tho thin and weak, are much more laſting. A *Wall* rais'd over a River, on Arches of Pillars, ſtands as firm as others, whoſe Foundation is entire.

Hence it appears, that a *Wall* built much thinner than uſual, by only having at every 20 Foot's diſtance an Angle ſet out about two Foot, or more, in proportion to the Height of the *Wall*; or by having at the like diſtance, a Column or Pilaſter erected along with it, ſix or eight Inches on each ſide over and above the thickneſs of the reſt of the *Wall*: Such *Wall* will be much ſtronger than if five times the quantity of Materials were uſed in a ſtrait Wall.

Walls are diſtinguiſh'd into divers Kinds, from the Matter whereof they conſiſt; as *Plaiſter'd*, or *Mud-Walls*, *Brick-Walls*, *Stone-Walls*, *Flint* or *Boulder-Walls*, and *Boarded Walls*.—In all which, theſe general Rules are to be regarded.

1ſt, That they be built exactly perpendicular to the Ground-work.

2d, That the maſſieſt and heavieſt Materials be the loweſt; as fitter to bear than be borne.

3d, That the *Walls*, as they riſe, diminiſh proportionally in Thickneſs, for eaſe both of Weight and Expences.

4th, That certain Burſes, or Lodges, of more ſtrength than the reſt, be interlaid, like Bows, to ſtrengthen the whole Fabrick.

Mud and *Plaiſter'd-Walls* are chiefly in ordinary Timber Buildings.—Theſe *Walls*, being quarter'd and lath'd between the Timber, or ſometimes lath'd over all, are plaiſter'd with Lome, (ſee Lome;) which being almoſt dry, is plaiſter'd over again with white Mortar. See Mortar.

Brick-Walls, are the moſt important and uſual among us.—In theſe, particular Care is to be taken about the laying of the Bricks, *viz.* That in Summer they be laid as wet, and in Winter as dry as poſſible; to make them bind the better with the Mortar: That in Summer, as faſt as they are laid, they be cover'd up, to prevent the Mortar, *&c.* from drying too faſt: that in Winter they be cover'd well to protect them from Rain, Snow, and Froſt, which are all Enemies to the Mortar: That they be laid Point and Joint in the middle of *Walls*, as ſeldom as may be; but, good Bond made there, as well as on the outſides.—Care is likewiſe to be taken, that the Angles be firmly bound: In order to which, in working up the *Walls* of a Building, 'tis not adviſable to raiſe any *Wall* above three Foot high, ere the next adjoining *Wall* be wrought up to it; that good Bond may be made in the progreſs of the Work.

Laſtly, in Building a Houſe in the City of *London*, the *Walls* are to be of ſuch thickneſſes as are enjoined by the Act of Parliament for rebuilding that City. See House.

Flint, or *Boulder-Walls*, are frequently uſed in divers Parts for Fence-*Walls* round Courts, Gardens, *&c.* and even for *Walls* of Out-houſes.—Sir *Henry Wotton* obſerves, that the building of *Walls* of Flint, is a thing utterly unknown to the Antients; who obſerving in that Material a kind of metallic Nature, at leaſt a Fuſibility, reſerv'd it for nobler Uſes.

Theſe *Walls* are uſually rais'd by a right and left-handed Man, who have a Hod of Mortar pour'd down on the Work, which they part betwixt them; each ſpreading it towards himſelf, and ſo they lay in the Flints.—The Mortar for this Work is to be very ſtiff.

Board-Walls. See Weather-*Boarding*.
Stone-Walls. See Stone.
Party-Walls. See Partition.
Fence-Walls. See Fence.

Wall, in Fortification, *&c.* See Rampart.

Walls, in Gardening, *&c.*—The Poſition, Matter, and Form of *Walls* for Fruit-Trees, are found to have a great Influence on the Fruit: Tho Authors differ as to the Preference. See Garden, Orchard, *&c.*

The Rev^d. Mr. *Lawrence* directs, that the *Walls* of a Garden be not built directly to face the four Cardinal Points, but rather between 'em, *viz.* South-Eaſt, South-Weſt, North-Eaſt, and North-Weſt: In which, the two former will be good enough for the beſt Fruit, and the two latter for Plums, Cherries, and baking Pears.

Mr. *Langford*, and ſome others, propoſe Garden-*Walls* to conſiſt chiefly of Semicircles; each about ſix or eight Yards in Front, and including two Trees; and between every two Semicircles, a Space of two Foot of *plain Wall*.—By ſuch a Proviſion, every Part of a *Wall* will enjoy a ſhare of the Sun, one time with another; beſides that the Warmth will be increas'd, by the collecting and reflecting of the Rays in the Semicircles; and the Trees within be ſkreen'd from injurious Winds.

As to the Materials of *Walls* for Fruit-Trees, Brick, according to Mr. *Switzer*, is the beſt; as being the warmeſt, and kindeſt for the ripening of Fruit, and affording the beſt conveniency for nailing.

Mr. *Lawrence*, however, affirms, on his own Experience, that *Mud-Walls*, made of Earth and Straw temper'd together, are better for the ripening of Fruit than either Brick or Stone *Walls*: He adds, that the Coping of Straw laid on ſuch *Walls*, is of great advantage to the Fruit, in ſheltering 'em from perpendicular Rains, *&c.*

M. *Fatio*, in a particular Treatiſe on the Subject, inſtead of the common perpendicular *Walls*, propoſes to have the *Walls* built ſloping, or reclining from the Sun; that what is planted againſt 'em may lie more expos'd to his perpendicular Rays; which muſt contribute greatly to the ripening of Fruit in our cold Climate.

The Angle of Reclination is to be that of the Latitude of the Place; that when the Sun is in the Meridian at the Equinoxes, his Rays may ſtrike juſt perpendicularly. See HEAT.

Yet ſome others prefer perpendicular *Walls*, and even inclining ones, or ſuch as hang forwards to the Sun; as ſuch receive the Sun's Rays perpendicularly when he is low; as in Spring and Autumn, or in the Evening and Morning: which they imagine of more ſervice than the greateſt Heats of the Sun at Midſummer, upon reclining *Walls*.

Add, that in Autumn the Sun is moſt wanted to ripen Winter Pears; in order to which, they ſhould be kept dry; which againſt ſloping *Walls* cannot be; the Dews, *&c.* lying much longer thereon, than on thoſe that are perpendicular.

One great advantage, however, of M. *Fatio*'s ſloping *Walls*, is, that Fruit-Trees, as Vines, *&c.* being planted againſt 'em, Melon-Glaſſes may be ſet on the Fruit; which will much forward its ripening.

Sea-Walls, See WATERGAGE.

WALOON, or WALLOON, a kind of old *French*; being the Language ſpoke by the *Walloons*, or the Inhabitants of a conſiderable Part of the *Spaniſh Low-Countries*, *viz.* thoſe of *Artois*, *Hainault*, *Namur*, *Luxemburg*, and part of *Flanders*, and *Brabant*.

The *Walloon* is held to be the Language of the antient *Gauls*. See GAULISH.

The *Romans* having ſubdu'd ſeveral Provinces in *Gaul*, eſtabliſh'd Prætors or Proconſuls, *&c.* to adminiſter Juſtice in the *Latin* Tongue.—On this Occaſion, the Natives were brought to apply themſelves to learn the Language of the Conquerors; and thus introduc'd abundance of the *Roman* Words and Phraſes into their own Tongue.

Of this Mixture of *Gauliſh* and *Latin* was form'd a new Language, call'd *Roman*; in contradiſtinction to the antient unadulterated *Gauliſh*, which was called *Wallon*, or *Walloon*.

This Diſtinction is kept up to this Day; for the Inhabitants of ſeveral of the Low-Country Provinces, ſay, that in *France* they ſpeak *Roman*; whereas they ſpeak the *Waloon*, which comes much nearer the Simplicity of the antient *Gauliſh*. See ROMAN, and FRENCH.

WANLASS, in Hunting.—Driving the *Wanlaſs*, is the driving of Deer to a ſtand. See HUNTING.

WAPENTAKE, or WEAPENTAKE, a Diviſion of certain Counties, particularly *Nottingham*, and thoſe beyond the *Trent*; anſwering to what in other Places is call'd a *Hundred*, or *Cantred*. See HUNDRED.

Authors differ as to the Origin of the Word.—*Hoveden* brings it from the Saxon *Weapen*, and *teaken*, to take; by reaſon the Tenants antiently deliver'd their Arms to every new Lord, as a Token of their Homage.

Sir *Thomas Smith* gives a different Account.——He ſays, that antiently Muſters were taken of the Armour and Weapons of the ſeveral Inhabitants of every *Wapentake*; and that from ſuch as could not find ſufficient Pledges for their good abearing, their Weapons were taken away, and deliver'd to others.

Others ſuppoſe the Word of *Daniſh* Original; and give a different account of its Riſe, *viz.* That when firſt the Kingdom was divided into *Wapentakes*; he who was the Chief of the Diviſion, and whom we now call *High-Conſtable*, as ſoon as he enter'd upon his Office, appear'd in the Field, on a certain Day, on Horſe-back, with a Pike in his Hand, and all the chief Men of the Hundred met him with their Lances; who alighting, touch'd his Pike with their Lances, as a Signal they were firmly united to each other, by the touching their Weapons: The Saxon *Weapen* ſignifying *Weapon*, and *tac*, *touching*.

WAR, *Bellum*, a Conteſt, or Difference between Princes, States, or large Bodies of People; which not being determinable by the ordinary Meaſures of Juſtice and Equity, is refer'd to the Deciſion of the Sword.

Hobbes's great Principle, is, That the Natural State of Man is a State of *Warfare*; moſt other Politicians hold *War* to be a preternatural and extraordinary State.

Civil, or *Inteſtine* WAR, is that between Subjects of the ſame Realm; or between Parties in the ſame State.—In this Senſe, we ſay, The *Civil Wars* of the *Romans* deſtroy'd the Republick: The *Civil Wars* of *Granada* ruin'd the Power of the *Moors* in *Spain*: The *Civil Wars* in *England* begun in 1641, ended in the King's Death, 1649.

King's WAR, *Bellum Regis*.—At the Time when particular Lords were allow'd to make *War* with one another, to revenge Injuries, inſtead of proſecuting them in the ordinary Courts of Juſtice; the Appellation *King's War* was given to ſuch as the King declared againſt any other Prince, or State; on which Occaſion, the Lords were not allow'd to make *private War* againſt each other; as being oblig'd to ſerve the King, with all their Vaſſals. See VASSAL, *&c.*

Religious WAR, is a *War* maintain'd in a State, on account of Religion; one of the Parties refuſing to tolerate the other.

The *Holy War*, is that antiently maintain'd by Leagues and Croiſades, for the Recovery of the Holy Land. See CROISADE.

Council of WAR, is an Aſſembly of great Officers, call'd by a General or Commander, to deliberate with him on Enterprizes, and Attempts to be made. See COUNCIL.

On ſome Occaſions, *Council of War* is alſo underſtood of an Aſſembly of Captains, ſitting in Judgment on delinquent Soldiers, Deſerters, Coward-Officers, *&c.*

Place of WAR, is a Place fortified on purpoſe to cover and defend a Country, and ſtop the Incurſion of an Enemy's Army: Or, it is a Place, wherein are diſpos'd the Proviſions of *War*, for an Army incamp'd in the Neighbourhood; or whither an Army retires into Winter Quarters. See PLACE.

Art of WAR. } See { MILITARY *Art*.
Man of WAR. } { SHIP.

WARBLING *of the Wings*, in Falconry, is when a Hawk, after having mantled herſelf, croſſes her Wings over her Back. See HAWK, and FALCON.

WARD, a Word uſed in our Law-Books in divers Significations.—Thus, a *Ward*, in *London*, is a part of the City, committed to the ſpecial Charge of one of the Aldermen of the City.—There are 26 *Wards* in *London*, which are as Hundreds, and the Pariſhes thereof as Towns. See ALDERMAN, HUNDRED, *&c.*

A Foreſt is alſo divided into *Wards*. See FOREST, and HOSPITAL.

A Priſon is alſo called a *Ward*. See PRISON, and GOAL.

The Heir of the King's Tenant, who held by Knights-Service or *in Capite*, was alſo called a *Ward* during his Nonage. But this laſt is taken away by the Statute, 12 *Car.* II. cap. 24. See GUARD, and GUARDIAN.

WARD-*Hook*, in Gunnery, a Rod, or Staff, with an Iron-end turned Serpent-wiſe, or like a Screw, to draw the Wads or Ockam out of a Gun, when it is to be unloaded.

WARD, or WARDA, call'd alſo WARDAGIUM, is uſed in our antient Writers for the Cuſtody of a Town or Caſtle, which the Tenants and Inhabitants were bound to keep at their own charge. See WARDAGE.

WARDA *Eccleſiarum*, denotes the Guardianſhip of Churches; which is in the King during the Vacancy, by reaſon of the *Regalia*, or Temporalties. See REGALIA, and TEMPORALTIES.

WARDAGE, WARDAGIUM, is ſometimes uſed in our antient Law-Writers, in the ſame Senſe with *Wardpenny*. See WARDPENNY.

Sometimes it alſo ſeems to denote a being free from *Wardſhip*.

WARDECORNE, among our antient Writers, a Duty incumbent on the Tenants, to guard the Caſtle, by ſounding a Horn upon the approach of an Enemy; call'd alſo *Cornage*. See CORNAGE.

WARDEN, one who has the Charge or Keeping of any Perſon or Thing, by Office.—Such is the *Warden of the Fleet*, the Keeper of the Fleet Priſon; who has the Charge of the Priſoners there; eſpecially ſuch as are committed from the Court of Chancery for Contempt. See FLEET.

Such alſo are, the *Warden* of the Fellowſhips, *Warden* of the Marches, *Wardens* of Peace, *Warden* of the Weſt Marches, *Warden* of the Foreſt, *Warden* of the Alnage, *Warden* of the King's Wardrobe, *&c.* See GUARDIAN; ſee alſo JUSTICE, MARCH, WARDROBE, *&c.*

WARDEN, in an Univerſity, is the Head of a College; anſwering to what in other Colleges we call the *Maſter* thereof. See COLLEGE.

WARDEN, or *Lord* WARDEN *of the Cinque-Ports*, is the Governour of thoſe noted Havens; who has the Authority of an Admiral, and ſends out Writs in his own Name. See CINQUE-*Ports*.

WARDEN *of the Mint*, is an Officer whoſe Buſineſs is to receive the Gold and Silver Bullion brought in by the Merchants; to pay them for it, and overſee the other Officers. See MINT.

He is alſo call'd Keeper of the Exchange and Mint.

WARDER.—The *Yeomen Warders of the Tower*, are Officers, forty in Number, who are accounted the King's domeſtick Servants, and are ſworn by the Lord Chamberlain: Their Duty is to attend Priſoners of State, and wait at the Gates. See TOWER.

Ten of ’em are uſually upon the Day’s-wait, to take an account of all Perſons who come into the Tower; to enter their Names, and the Names of the Perſons they go to, in a Book to be peruſed by the Conſtable or Lieutenant.

WARDFEOH, or WARDFEGH, of the Saxon *Weard, a Ward*, and *feoh, Fee*; denotes the Value of a *Ward*, or Heir under Age; or the Money paid to the Lord of the Fee for his Redemption.

WARDMOTE, in *London*, is a Court ſo call’d, which is kept in every *Ward* of the City. See MOTE.

WARD-PENNY, WARPEN, WARTHPENNY, was formerly a cuſtomary Due, antiently paid to the Sheriff, and other Officers, for maintaining Watch and *Ward*. See PENNY.

It was payable at the Feaſt of St. *Martin*; and is ſtill paid within the Manor of *Sutton Colfield* in *Warwickſhire*; and with ſome very ſingular Ceremonies.

WARDROBE, a Cloſet, or little Room, adjoining to a Bed-Chamber; ſerving to diſpoſe and keep a Perſon’s Apparel in; or for a Servant to lodge in, to be at hand to wait, &c.

WARDROBE, in a Prince’s Court, is an Apartment wherein his Robes, wearing Apparel, and other Neceſſaries, are preſerv’d; under the Care and Direction of proper Officers.

His Majeſty has a *Great Wardrobe*; a *Removing Wardrobe*; and divers *Standing Wardrobes*, belonging to his Bedchambers in each of his Palaces, *viz.* at *Whitehall*, *Kenſington*, *Windſor*, *Hampton-Court*, and the *Tower*; each under its reſpective Keeper.

The *Removing Wardrobe* always attends on the King’s Perſon; as alſo on Embaſſadors, at Chriſtenings, Maſques, Plays, &c.—It is under the Command of the Lord Chamberlain: The under-Officers are, a Yeoman, two Grooms, and three Pages.

The *Great Wardrobe*, is of great Antiquity—Antiently, it was kept near *Puddle-Wharf*, in a Houſe purchas’d for that purpoſe by King *Edward* III. but ſince the Fire of *London*, it has been kept in *York-Buildings*.

The Maſter or Keeper thereof, is an Officer of great Dignity: high Privileges were confer’d on him by *Henry* VI. King *James* I. enlarg’d the ſame, and erected the Office into a Corporation.

The Officers are, the *Maſter* or *Keeper*, his *Deputy*, and his *Clerk*; beſide ſeveral under-Officers; and above ſixty Tradeſmen, all ſworn Servants to the King.

This Office is to provide for Coronations, Marriages, and Funerals of the Royal Family; to furniſh the Court with Beds, Hangings, Carpets, &c. to furniſh Houſes for Embaſſadors, at their firſt arrival here; Preſents for foreign Princes and Embaſſadors; Furniture for the Lord Lieutenant of *Ireland*, and our Embaſſadors abroad; Robes for the Knights and Officers of the Garter, Herald, Purſuivants, Miniſters of State, Liveries for the Officers of the Bedchamber, and other Servants; Liveries for the Lord Chief Juſtices, and Barons of the Exchequer; and other Officers in thoſe Courts: As alſo Yeomen, Warders, Trumpets, Kettledrums, Meſſengers, Coachmen, Grooms, &c. with Coaches, Harneſſes, Saddles, &c. The Watermen, Game-keepers; Linen and Lace for the King’s Perſon; Tilts, &c. for his Barges, &c.

WARDS *and Liveries*, a Court firſt erected by King *Henry* VIII. and after augmented by him with the Office of *Liveries*: But it is now abſolutely taken away and aboliſh’d, by a Statute made 12 *Car.* II. cap. 24. See LIVERY.

WARD-STAFF.—The Manor of *Lambourn* in *Eſſex*, is held by Service of the *Ward-ſtaff*, *viz.* the carrying a Load of Straw in a Cart with ſix Horſes, two Ropes, two Men in Harneſs, to watch the ſaid *Ward-ſtaff*, when it is brought to the Town of *Aibridge*, &c. *Cam.* tit. *Eſſex*.

WARD-WITE, is defined by *Fleta*, as ſignifying a being exempted from the Duty of Watching.—Others rather take it for a Duty paid towards the Charge thereof.

The Word is compounded of the Saxon *Weard*, *Vigilia*, Watch; and *Wite*, Mulct.

WARECTUM, and *Terra* WARECTA, in antient Writers, ſignifies Land that has lain long neglected, and untill’d.

In antient Records we meet with *Tempus Warecti*, for the Time wherein Land lies fallow, the following Year; or elſe the Seaſon of Fallowing. See FALLOW.

WAREN. See WARREN.

WARMTH. See HEAT.

WARN, in Law, to ſummon a Perſon to appear in a Court of Juſtice. See SUMMONS.

WARNING *Wheel*, in a Clock, is the third or fourth, according to its diſtance from the firſt Wheel. See CLOCK.

WARP, in the Manufactures, is the Threads, whether of Silk, Wool, Linen, Hemp, Cotton, or the like, that are extended lengthwiſe on the Weaver’s Loom; and acroſs which the Workman, by means of his Shuttle, paſſes the Threads of the Woof, to form a Cloth, Ribband, Fuſtian, or other Matter. See WEAVING.

For a woollen Stuff, &c. to have the neceſſary Qualities, ’tis requir’d that the Threads of the *Warp* be of the ſame kind of Wool, and of the ſame Fineneſs throughout; that they be ſized with *Flanders* or Parchment Size, well prepar’d; and that they be in ſufficient Number, with regard to the Breadth of the Stuff to be wrought. See WOOF, CLOTH, &c.

To WARP *a Ship*, is to hale her to a Place, when the Wind is wanting, by means of a Hawſer, a Cable, and an Anchor fix’d thereto.

WARRANT, an Act, Inſtrument, or Obligation, whereby a Perſon authorizes another to do ſomething, which he had not otherwiſe a right to do. See WARRANTY, and GUARANTY; ſee alſo VOUCHER.

WARRANT *of Attorney*, is that whereby a Man appoints another to do ſomething in his Name, and *warrants* his Action. See ATTORNEY.

It ſeems to differ from a *Letter of Attorney*, which paſſes under Hand and Seal of him that makes it, before creditable Witneſſes; whereas *Warrant of Attorney*, in perſonal, mix’d, and ſome real Actions, is put in of courſe by the Attornies for the Plaintiffs, or Defendants.

Tho, a *Warrant of Attorney*, to ſuffer a common Recovery by the Tenant or Vouchee, is acknowledg’d before ſuch Perſons, as a Commiſſion for the doing thereof directs. See RECOVERY, &c.

In the Court of Common Pleas there is a *Clerk of the Warrants*, who enters all *Warrants of Attorney* for Plaintiff and Defendant. See CLERK.

WARRANTY, WARRANTIA, a Promiſe, or Covenant by Deed, made by the Bargainer for himſelf and his Heirs, to *warrant* and ſecure the other Party and his Heirs, againſt all Men, for the enjoying of the Thing agreed on between them.

This *Warranty* paſſeth from the Seller to the Buyer; from the Feoffer to the Feoffee; from him that releaſeth, to him that is releaſed from an Action real.

The form of it is thus: *Et ego vero præfatus A. & hæredes mei prædictas quinque acras terræ cum pertinentiis ſuis præfato B. hæredibus & aſſignatis ſuis contra omnes gentes* Warrantizabamus, *in perpetuum per præſentes*.

Note, under *Hæredes*, Heirs, are compris’d all ſuch as the firſt *Warranter*’s Lands come to, whether by Deſcent, Purchaſe, or the like.

Warranty is either *Real*, or *Perſonal*.—*Real*, when it is annex’d to Lands and Tenements granted for Life, &c. which, again, is either *in Deed*, or *in Law*. See FACTO, &c.

Perſonal, either reſpects the Property of the Thing ſold, or the Quality of it. See PERSONAL, &c.

Real Warranty, again, in reſpect of the Eſtate, is either *Lineal*, *Collateral*, or *commencing by Diſſeiſin*.

WARRANTIA *Chartæ*, a Writ that lies for a Perſon who is infeoffed in Lands and Tenements, with Clauſe of *Warranty*; and is impleaded in an Aſſize, or Writ of Entry, wherein he cannot Vouch, or call to *Warranty*.

WARRANTIA *Diei*, a Writ which lies in Caſe where a Man having a Day aſſign’d perſonally to appear in Court to an Action wherein he is ſued, is, in the mean time, by Commandment employ’d in the King’s Service; ſo that he cannot come at the Day aſſign’d.

WARREN, or WAREN, a Franchiſe or Place privileg’d, either by Preſcription, or Grant from the King, to keep Beaſts and Fowl of *Warren* in; as *Rabbits*, *Hares*, *Partridges*, *Pheaſants*, &c. See BEAST, GAME, HUNTING, &c.

By a Statute 21 *Edw.* III. a *Warren* may lie open, and there is no need of cloſing it in; as there is of a Park. See PARK, &c.

If any Perſon be found an Offender in any ſuch Fee-*Warren*, he is puniſhable for the ſame at Common Law.

Beaſts of WARREN. See BEASTS *of Warren*.

WART, *Verruca*, a little round, hard Excreſcence, ariſing on the Fleſh, like a Pea.

Warts are more frequent on the Hands than any other Part.—There are divers ſorts: The moſt uſual are call’d *Porraceæ*; as having Heads like Leeks, and conſiſting of little Threads, reſembling the Roots thereof.

Another ſort is called *Myrmecia*, which is a little round, callous Eminence on the Hands of young Children; riſing ſuddenly, and diſappearing again.

Some Phyſicians alſo rank the Corns growing on the Toes under the Claſs of *Warts*: which the *Latins* call *Clavi*; becauſe occaſioning ſhooting Pains, as if one were pricked with the Point of a Nail. See CLAVUS.

Warts, if only rooted in the Cutis, are eaſily taken away; but if they ariſe from the Tendons underneath, there is ſcarce any extirpating ’em without great danger.—The Juice of *Chelidon. Maſ.* or *Eſula*, or *Dens Leonis*, or *Tithymal*, frequently applied, takes off *Warts*.

Borelli commends Water wherein Sal Armoniac has been diſſolv’d; which Dr. *Mapletoft*, late Profeſſor of Phyſick at *Greſham College*, makes no ſcruple to ſay, is the only ſure Remedy he knows of in all Medicine.

WASHING. See Lotion, Ablution, &c.

The Waſhing of the Feet was a common piece of Civility among the *Jews*, practiſ'd upon Strangers, Viſitors, &c. at their arrival.

The *Waſhing* of the Feet of twelve poor People, is an anniverſary Ceremony, perform'd both by the Kings of *England* and *France*; in commemoration of our Saviour's *waſhing* the Feet of his Apoſtles.

Arnobius, adv. Gentes, Lib. VII. mentions a Feaſt in uſe among the Antients, call'd *Lavatio Matris Deûm*, the *Waſhing* of the Mother of the Gods, held on the 30th of *March*.

Washing *of a Ship*, in the Sea Language, is when all the Guns are brought to one ſide, and the Men, getting up on the Yards, *waſh* her other ſide, and ſcrape her as far as they can reach.

Washing, in Painting, is when a Deſign drawn with a Pen, or Crayon, has ſome one Colour laid over it with a Pencil, as Indian Ink, Biſtre, or the like; to make it appear the more natural, by adding the Shadows of Prominences, Apertures, &c. and by imitating the particular Matters whereof the Thing is ſuppoſed to conſiſt.

Thus, they *waſh* with a pale red to imitate Brick and Tyle; with a pale Indian blue to imitate Water and Slate; with green for Trees and Meadows; with Saffron or *French* Berries, for Gold and Braſs; and with ſeveral Colours for Marbles.

Theſe *Waſhes* are uſually given in equal Teints, or Degrees, throughout; which are afterwards brought down and ſoften'd over the Lights with fair Water, and ſtrengthen'd with deeper Colours for the Shadows. See Light, and Shadow.

Washings, or Washes, among Goldſmiths, Coiners, &c. are the Lotions whereby they draw the Particles of Gold and Silver out of the Aſhes, Earths, Sweepings, &c.

This is either perform'd by ſimply *waſhing* 'em again and again, or by putting 'em in the *Waſhing Mill*.

To make one of theſe *Waſhes*, they not only gather together the Aſhes of the Furnaces, and the Sweepings of the Places where the Works are; but they alſo break and pound the old earthen Crucibles, and the very Bricks whereof the Furnaces are built: little Particles of Gold, &c. being found to ſtick to 'em by the crackling natural to thoſe Metals, when in their laſt degree of heat.

Theſe Matters being all well ground, and mix'd together, are put in large wooden Baſons, where they are waſh'd ſeveral times and in ſeveral Waters, which run off, by Inclination, into Troughs underneath; carrying with 'em the Earth, and the inſenſible Particles of the Metals, and only leaving behind 'em the larger and more conſiderable ones, which are viſible to the Eye, and taken out with the Hand; without more trouble.

To get out the finer Parts, gone off with the Earth, they uſe Quickſilver, and a *Waſhing* Mill.—This Mill conſiſts of a large wooden Trough, at bottom of which are two metalline Parts, ſerving as Mill-ſtones; the lower being convex, and the upper, which is in form of a Croſs, concave.

A-top is a Winch, placed horizontally, which turns the upper piece round; and at bottom a Bung, to let out the Water and Earth when ſufficiently ground.

To have a *Waſh*, then, the Trough is fill'd with common Water, into which they caſt thirty or forty Pounds of Quickſilver, and two or three Gallons of the Matter remaining from the firſt Lotion.—Then turning the Winch, they give Motion to the upper Mill-ſtone; which grinding the Matter and the Quickſilver violently together, the Particles of Gold and Silver become the more eaſily amalgamated therewith: This Work they continue for two Hours; when opening the Bung, the Water and Earths run out, and a freſh quantity is put in.

The Earths are uſually paſs'd thus thro' the Mill three times; and the ſame quantity of Mercury uſually ſerves all the three times.—When there is nothing left in the Mill but the Mercury, united with the Gold or Silver which it has amalgamated; they take it out, and *waſhing* it in divers Waters, they put it in a Ticken Bag, and lay it in a Preſs, to ſqueeze out the Water and the looſe Quickſilver: the remaining Quickſilver they evaporate by Fire, in a Retort, &c. See Gold, and Silver; ſee alſo Lavadere.

WASSAILE, or Wassel, a Feſtival Song, ſung heretofore from door to door, about the Time of *Epiphany*. See Wassel-*Bowl*.

WASSEL-*Bowl*, was a large Cup or Bowl, of Silver or Wood, wherein the *Saxons* at their publick Entertainments drank a Health to one another, in the Phraſe *Was-heal*; that is, *Health be to you.*

This *Waſſel-Bowl*, ſeems plainly to be meant by the Word *Vaſtellum*, in the Lives of the Abbots of *St. Albans*, by *Matt. Paris*; where he ſaith, *Abbas ſolus prandebat ſupremus in Refectorio habens* Vaſtellum: ‘ He had ſet by him ‘ the *Waſſel-Bowl*, to drink an Health to the Fraternity; or ‘ the *Poculum Charitatis.*

And hence the Cuſtom of going a *Waſſeling*, ſtill uſed in *Suſſex* and ſome other Places, ſeems to have taken its Name.

WAST, or Waste, in Law, has divers Significations.—1ſt, It is uſed for a Spoil, made either in Houſes, Woods, Lands, &c. by the Tenants for Life, or for Years, to the prejudice of the Heir, or of him in Reverſion.—Upon this, the Writ of *Waſte* is brought for recovery of the Thing *waſted*, and treble Damages.

Waſte of the Foreſt, is, properly, where a Man cuts down his own Woods within the Foreſt, without Licence of the King, or Lord-Chief-Juſtice in Eyre. See Forest, and Purlieu.

Waste is alſo taken for thoſe Lands which are not in any Man's Occupation; but lie common. See Common.

They ſeem to be ſo called, becauſe the Lord cannot make ſuch Profit of them as of his other Lands; by reaſon of the uſe others have thereof, for paſſing to and fro.—Upon this none may build, cut down Trees, dig, &c. without the Lord's Licence.

Year, Day, and Waste, is alſo a Puniſhment or Forfeiture belonging to Petit Treaſon, or Felony. See Year, Day, &c.

Waste *of a Ship*, is that Part of her between the two Maſts; that is, between the Main-maſt, and the Fore-maſt. See Ship, and Mast.

Waste-*Boards*, are Boards ſometime ſet upon the ſide of a Boat, to keep the Sea from breaking into her.

WATCH, a ſmall portable Movement, or Machine, for the meaſuring of Time; having its Motion regulated by a Spiral Spring. See Watch-work.

Watches, ſtrictly taken, are all ſuch Movements as ſhew the Parts of Time; as Clocks are ſuch as publiſh it, by ſtriking on a Bell, &c. But commonly, the Name *Watch* is appropriated to ſuch as are carried in the Pocket; and *Clock* to the larger Movements, whether they ſtrike the Hour or not. See Clock.

Spring, or *Pendulum Watches*, ſtand pretty much on the ſame Principle with Pendulum Clocks; whence their Denomination.—If a Pendulum, deſcribing little Arches of a Circle, makes Vibrations of unequal Lengths in equal Times; 'tis by reaſon it deſcribes the greater with a greater Velocity. For the ſame Reaſon, a Spring put in Motion, and making greater or leſs Vibrations, as it is more or leſs ſtiff, and as it has a greater or leſs degree of Motion given it; performs them nearly in equal Times. Hence, as the Vibrations of the Pendulum had been applied to large Clocks, to rectify the Inequality of their Motions; ſo, to correct the unequal Motions of the Balance of *Watches*, a Spring is added; by the Iſochroniſm of whoſe Vibrations, the Correction is to be effected. See Pendulum.

The Spring is uſually wound into a Spiral; that, in the little compaſs allotted it, it may be as long as poſſible; and may have Strength enough, not to be maſter'd and drag'd about by the Inequalities of the Balance it is to regulate.

The Vibrations of the two Parts, *viz.* the Spring and Balance, ſhould be of the ſame length; only ſo adjuſted, as that the Spring, being the more regular in the length of its Vibrations than the Balance, may, on occaſion, communicate its Regularity thereto. See Spring.

The Invention of Spring or *Pocket-Watches*, is owing to the Felicity of the preſent Age.—'Tis true, we find mention made of a *Watch* preſented to *Charles* V. in the Hiſtory of that Prince: But this, in all probability, was no more than a kind of Clock to be ſet on a Table; ſome Footſteps whereof, we have ſtill remaining in the antient Pieces made before the Year 1670.

In effect, 'tis between Dr. *Hook* and Mr. *Huygens*, that the Glory of this excellent Invention lies: but to which of them it properly belongs, is greatly diſputed: The *Engliſh* aſcribing it to the former; and the *French*, *Dutch*, &c. to the latter.

Mr. *Derham*, in his *Artificial Clockmaker*, ſays roundly, that Dr. *Hook* was the Inventor; and adds, that he contriv'd various ways of Regulation.—One way was with a Loadſtone.—Another with a tender ſtrait Spring, one end whereof play'd backwards and forwards with the Balance; ſo that the Balance was to the Spring, as the Bob to a Pendulum; and the Spring as the Rod thereof.—A third Method was with two Balances, of which there were divers ſorts; ſome having a Spiral Spring to the Balance for a Regulator, and others without.

But the way that prevail'd, and which continues in Mode, was with one Balance, and one Spring running round the upper Part of the Verge thereof. Tho this has a Diſadvantage, which thoſe with two Springs, &c. were free from; in that a ſudden jerk, or confuſed ſhake, will alter its Vibrations, and put it in an unuſual hurry.

The Time of theſe Inventions was about the Year 1658; as appears, among other Evidences, from an Inſcription on one of the double Balance *Watches*, preſented to K. *Charles* II. viz. *Rob. Hook Inven.* 1658. *T. Tompion fecit*, 1675.—The

Invention preſently got into Reputation both at home and abroad; and two of 'em were ſent for by the Dauphin of *France.*

Soon after this, Mr. *Huygens*'s *Watch* with a Spiral Spring got abroad, and made a great a noiſe in *England*, as if the Longitude could be found by it.—'Tis certain, however, that his Invention was later than the Year 1673, when his Book *de Horol. Oſcillat.* was publiſh'd; wherein he has not one word of this, tho he has of ſeveral other Contrivances in the ſame way.

One of theſe the Lord *Brounker* ſent for out of *France*, where Mr. *Huygens* had got a Patent for 'em.—This *Watch* agreed with Dr. *Hook*'s in the Application of the Spring to the Balance; only Mr. *Huygens*'s had a longer Spiral Spring, and the Pulſes and Beats were much ſlower. The Balance, inſtead of turning quite round, as Dr. *Hook*'s, turns ſeveral rounds every Vibration.

Mr. *Derham* ſuggeſts, that he has reaſon to doubt Mr. *Huygens*'s Fancy was firſt ſet to work by ſome intelligence he might have of Dr. *Hook*'s Invention, from Mr. *Oldenburg*, or ſome other of his Correſpondents in *England*: tho Mr. *Oldenburg* vindicates himſelf againſt that Charge, in *Philoſophical Tranſactions*, N° 118. and 129.

Huygens invented divers other Kinds of *Watches*, ſome of them without any String or Chain at all; which he call'd particularly *Pendulum Watches.*

As it was in *England* that *Watches* had their firſt riſe; ſo 'tis there, too, they have arriv'd at their greateſt Perfection.—Witneſs that exceeding Value put on an *Engliſh Watch* in all foreign Countries, and that vaſt Demand made for 'em.

Monſieur *Savary*, in his *Diction. de Commerce*, pretends to match the *French* Watchmakers againſt the *Engliſh*.—He aſſerts, "That if the *Engliſh* be in any Condition to "diſpute it with 'em, they owe it entirely to the great "Number of *French* Workmen, who took ſhelter here upon "the Revocation of the Edict of *Nants.*" He adds, "That "three fourths of the *Watches* made in *England*, are the "Work of *Frenchmen.*" From what Authorities he ſays this, we know not: But it need not be told *Engliſhmen* that it is falſe; there not being one *French* Name, that we know of, among all our fam'd *Watchmakers*: nor, in the Body of *Watchmakers*, is there one eighth part *French.*

'Tis certain the *French* People prefer our *Watches* vaſtly to their own; inſomuch, that to have 'em with the more eaſe, a number of *Engliſh* Workmen were invited over in 1719, and eſtabliſh'd with great countenance at *Verſailles*, under the Direction of the famous Mr. *Law*.—But the Eſtabliſhment, tho every thing promis'd well for it, and the *French* Watch and Clockmakers ſeem'd undone by it, fell to the Ground in leſs than a Year's time.—M. *Savary* imputes its Fall, intirely, to that ſtrong Prejudice of the *French* People in behalf of the *Engliſh* Workmen, and to the Opinion that *the Watches did not come from* England. But the Truth is, the Workmen ſent over being moſt of 'em Men of looſe Characters, grew diſſolute, quarrell'd with the Prieſts, inſulted the Magiſtrates, and were diſmiſs'd, of neceſſity.

Striking WATCHES, are ſuch, as beſides the proper *Watch*-part, for meaſuring of Time, have a Clock-part, for ſtriking the Hours, *&c.*

Theſe are real Clocks; only moved by a Spring inſtead of a Weight.—Properly ſpeaking, they are call'd *Pocket-Clocks.* See CLOCK.

Repeating WATCHES, are ſuch as by pulling a String, *&c.* do *repeat* the Hour, Quarter, or Minute, at any time of the Day or Night.

This Repetition was the Invention of Mr. *Barlow*, and firſt put in practice by him in larger Movements, or Clocks, about the Year 1676.—The Contrivance ſtrait ſet the other Artiſts to work, who ſoon contriv'd divers ways of effecting the ſame. But its application in Pocket *Watches* was not known before King *James* the Second's Reign; when the ingenious Inventor abovemention'd, having directed Mr. *Thompſon* to make a *Repeating Watch*, was ſoliciting a Patent for the ſame.

The Talk of a Patent engag'd Mr. *Quare* to reſume the Thoughts of a like Contrivance, which he had had in view ſome Years before: He now effected it; and being preſs'd to endeavour to prevent Mr. *Barlow*'s Patent, a *Watch* of each kind was produc'd before the King and Council; upon Trial of which, the Preference was given to Mr. *Quare*'s.

The Difference between 'em was, that *Barlow*'s was made to Repeat by puſhing in two pieces on each ſide the *Watch*-Box; one of which repeated the Hour, and the other the Quarter: Whereas *Quare*'s was made to repeat by a Pin that ſtuck out near the Pendant; which being thruſt in, (as now 'tis done by thruſting in the Pendant it ſelf) repeated both the Hour and Quarter with the ſame thruſt.

WATCH-WORK, is that Part of the Movement of a Clock or *Watch*, which is deſigned to meaſure, and exhibit the Time on a Dial-Plate; in contradiſtinction to that Part which contributes to the ſtriking of the Hour, *&c.* which is call'd *Clock-work.* See WATCH.

The ſeveral Members of the *Watch*-part, are, 1°, The *Balance*, conſiſting of the *Rim*, which is its circular Part; and the *Verge*, which is its Spindle; to which belong the two *Pallets* or *Leves*, that play in the Teeth of the Crown-Wheel.

2°, The *Potence*, or *Pottance*, which is the ſtrong Stud in Pocket-*Watches*, wherein the lower Pivot of the Verge plays, and in the middle of which, one Pivot of the Balance-Wheel plays; the bottom of the Pottance is the *Foot*, the middle part the *Noſe*, and the upper part the *Shoulder.*

3°, The *Cock*, which is the piece covering the Balance.

4°, The *Regulator*, or *Pendulum Spring*, which is the ſmall Spring in the new Pocket-*Watches*, underneath the Balance.

5°, The *Pendulum*; whoſe Parts are, the *Verge*, *Pallets*, *Cocks*, and the *Bob.*

6°, The *Wheels*; which are, the *Crown-Wheel*, in Pocket Pieces, and the *Swing-Wheel* in Pendulums; ſerving to drive the Balance or Pendulum.

8°, The *Contrate Wheel*, which is that next the Crown-Wheel, *&c.* and whoſe Teeth and Hoop lie contrary to thoſe of other Wheels; whence the Name.

9°, The *great*, or *firſt Wheel*; which is that the Fuſy, *&c.* immediately drives: after which are the *ſecond Wheel*, *third Wheel*, &c.

Laſtly, between the Frame and Dial-Plate, are, the *Pinion of Report*, which is that fix'd on the Arbor of the great Wheel; and ſerves to drive the *Dial-Wheel*, as that ſerves to carry the *Hand.*

Theory, and Calculation of WATCH-WORK.

Preliminaries neceſſary to the calculating the *Watch*-part of a Movement, are laid down nnder the Articles MOVEMENT and CLOCK-WORK.

Preliminary Rules common to the Calculation of all Movements, the *Clock* as well as the *Watch*-parts; ſee under the Article MOVEMENT.

Particular Rules for the *Striking-part*; ſee under the Article CLOCK-WORK.

Thoſe for the *Watch-part* we have from the Rev. Mr. *Derham*, as follow.

1°, The ſame Motion, 'tis evident, may be perform'd either with one Wheel and one Pinion, or many Wheels and many Pinions; provided the Number of Turns of all the Wheels bear the Proportion to all the Pinions, which that one Wheel bears to its Pinion: or, which is the ſame thing, If the Number produced by multiplying all the Wheels together, be to the Number produc'd by multiplying all the Pinions together, as that one Wheel to to that one Pinion.—Thus, ſuppoſe you had occaſion for a Wheel of 1440 Teeth, with a Pinion of 28 Leaves; you may make it into three Wheels and Pinions, *viz.* 4) 36, 7) 8, 1) 5. For the three Wheels, 36, 8, and 5, multiply'd together, give 1440 for the Wheels; and the three Pinions 4, 7, and 1, multiplied together, give 28 for the Pinions.—Add, That it matters not in what order the Wheels and Pinions are ſet, or which Pinion runs in which Wheel; only for Contrivance-ſake, the biggeſt Numbers are commonly put to drive the reſt.

2°, Two Wheels and Pinions of different Numbers may perform the ſame Motion.—Thus, a Wheel of 36 drives a Pinion of 4, the ſame as a Wheel of 45 a Pinion of 5; or a Wheel of 90 a Pinion of 10.—The Turns of each being 9.

3°, If in breaking the Train into Parcels, any of the Quotients ſhould not be liked; or if any other two Numbers to be multiplied together, are deſir'd to be varied; it may be done by this Rule.—Divide the two Numbers by any other two Numbers which will meaſure them; multiply the Quotients by the alternate Diviſors; the Product of theſe two laſt Numbers found, will be equal to the Product of the two Numbers firſt given.—Thus, if you would vary 36 times 8, divide theſe by any two Numbers which will evenly meaſure them: So, 36 by 4, gives 9; and 8 by 1, gives 8: now, by the Rule, 9 times 1 is 9, and 8 times 4, 32; ſo that for 36×8, you have 32×9; each equal to 288. If you divide 36 by 6, and 8 by 2, and multiply as before, you have $24 \times 12 = 36 \times 8 = 288$.

4°, If a Wheel and Pinion fall out with croſs Numbers, too big to be cut in Wheels, and yet not to be alter'd by theſe Rules; in ſeeking for the Pinion of Report, find two Numbers of the ſame, or a near Proportion, by this Rule: As either of the two given Numbers is to the other; ſo is 360 to a fourth. Divide that fourth Number, as alſo 360, by 4, 5, 6, 8, 9, 10, 12, 15, (each of which Numbers exactly meaſures 360) or by any of thoſe Numbers that brings a Quotient neareſt an Integer.—As ſuppoſe you had 147 for the Wheel, and 170 for the Pinion; which are too great to be cut into ſmall Wheels, and yet cannot be reduc'd into leſs, as having no other common meaſure but Unity: ſay, as 170 : 147 :: 360 : 311. Or, as 147 : 170 :: 360 : 416. Divide the fourth Number, and 360 by one of the foregoing Numbers; as 311 and 360 by 6, it gives 52 and 60; divide them by 8, you have 39 and 45: and, if you divide 360 and

416 by 8, you have 45 and 52 exactly. Wherefore, inſtead of the two Numbers 147 and 170, you may take 52 and 60, or 39 and 45, or 45 and 52, &c.

5°, To come to Practice in calculating a piece of *Watch-work*, firſt pitch on the Train or Beats of the Balance in an Hour; as whether a ſwift one, of about 20000 Beats, (the uſual Train of a common 30 hour Pocket-*Watch*) or a ſlower of about 16000, (the Train of the new Pendulum Pocket-*Watches*) or any other Train.—Next reſolve on the Number of Turns the Fuſy is intended to have, and the Number of Hours the Piece is to go: Suppoſe, *e. g.* 12 Turns, and to go 30 Hours, or 192 Hours, (*i. e.* 8 Days) &c. Proceed now to find the Beats of the Balance or Pendulum in one Turn of the Fuſy, by the Direction given under the Word BEAT.—Thus in Numbers; 12 : 16 :: 20000 : 26666. Wherefore, 26666 are the Beats in one Turn of the Fuſy, or great Wheel, and are equal to the Quotients of all the Wheels into the Balance multiplied together. Now this Number is to be broken into a convenient parcel of Quotients; which is to be done thus: Firſt, halve the Number of Beats, *viz.* 26666, and you have 13333; then pitch on the Number of the Crown-Wheel, ſuppoſe 17: Divide 13333 by 17, and you have 784 for the Quotient (or Turns) of the reſt of the Wheels and Pinions; which being too big for one or two Quotients, may be beſt broken into three. Chuſe therefore three Numbers, which when multiplied all together continually, will come neareſt 784: As ſuppoſe 10, 9, and 9, multiplied continually, gives 810, which is ſomewhat too much; therefore try again other Numbers, 11, 9, and 8: theſe drawn one into another continually, produce 792; which is as near as can be, and convenient Quotients.—Having thus contrived the Piece from the great Wheel to the Balance; but the Numbers not falling out exactly, as you firſt propoſed; correct the Work thus: Firſt, (by the Direction given under the Word BEATS) multiply 792, the Product of all the Quotients pitch'd upon, by 17, (the Notches of the Crown-Wheel) the Product is 13464, which is half the Number of Beats in one Turn of the Fuſy; then, (by a Rule given under the Word BEAT) find the true Number of Beats in an Hour. Thus, 16 : 12 :: 13464 : 10098; which is half the Beats in an Hour. Then find what Quotient is to be laid upon the Pinion of Report, (by the Rule given under that Word.) Thus, 16 : 12 :: 12 : 9, the Quotient of the Pinion of Report.—Having thus found your Quotients, 'tis eaſy to determine what Numbers the Pinions ſhall have; for, chuſing what Numbers the Wheels ſhall have, and multiplying the Pinion by their Quotients, the Produce is the Number for the Wheels. Thus, the Number of the Pinion of Report is 4, and its Quotient 9; therefore the Number for the Dial-Wheel muſt be 4 × 9, or 36: ſo the next Pinion being 5, its Quotient 11, therefore the great Wheel muſt be 5 × 11 = 55, and ſo of the reſt.

4) 36 (9
5) 55 (11
5) 45 (9
5) 40 (8
17

Such is the Method of calculating the Numbers of a 16 hour *Watch*.—Which *Watch* may be made to go longer, by leſſening the Train, and altering the Pinion of Report. Suppoſe you would conveniently ſlacken the Train to 16000; then by the Rule given under the Word BEAT, ſay, As $\frac{1}{2}$ 16000, or 8000 : 13464 :: 12 : 20. So that this *Watch* will go 20 Hours. Then for the Pinion of Report, ſay, (by the Rule given under that Word) As 20 : 12 :: 12 : 7. So that 7 is the Quotient of the Pinion of Report. And as to the Numbers, the Operation is the ſame as before; only the Dial-Wheel is but 28, for its Quotient is alter'd to 7.—If you would give Numbers to a *Watch* of about 10000 Beats in an Hour, to have 12 Turns of the Fuſy, to go 170 Hours, and 17 Notches in the Crown-Wheel: The Work is the ſame, in a manner, as in the laſt Example; and conſequently thus: As 12 : 170 :: 10000 : 141666, which fourth Number is the Beats in one Turn of the Fuſy; its half, 70833, being divided by 17, gives 1467 for the Quotients: And becauſe this Number is too big for three Quotients, therefore chuſe four, as 10, 8, 8, $6\frac{3}{5}$; whoſe Product into 17 makes 71808, nearly equal to half the true Beats in one Turn of the Fuſy.—Then ſay, As 170 : 12 :: 71808 : 5069, which is half the true Train of your *Watch*. And again, 170 : 12 :: 12 : $\frac{144}{170}$, (or 170) 144, which expreſſes the Pinion of Report, and the Number of the Dial-Wheel. But theſe Numbers being too big to be cut in ſmall Wheels, they muſt be varied by the fourth Rule, above, thus;

4) 28 (7
5) 55 (11
5) 45 (9
5) 48 (8
17

As 144 : 170 :: 360 : 425.
Or 170 : 144 :: 360 : 305.

Then dividing 360, and either of theſe two fourth Proportionals, (as directed by the Rule) ſuppoſe by 15, you'll have $\frac{24}{28}$ or $\frac{20}{24}$; then the Numbers of the whole Movement will ſtand as in the Margin.

24) 20 ($\frac{20}{24}$
6) 60 (10
6) 48 (8
5) 40 (8
5) 33 ($6\frac{3}{5}$
17

Such is the Calculation of ordinary *Watches* to ſhew the Hour of the Day: *In ſuch as ſhew Minutes and Seconds, the Proceſs is thus.*

1°, Having reſolved on the Beats in an Hour; by dividing the deſigned Train by 60, find the Beats in a Minute; and accordingly, find proper Numbers for the Crown-Wheel and Quotients, ſo as that the Minute-Wheel ſhall go round once in an Hour, and the Second-Wheel once a Minute.—

Suppoſe, *e. g.* you ſhould chuſe a Pendulum of ſix Inches to go eight Days, with 16 Turns of the Fuſy; a Pendulum of 6 Inches vibrates 9368 in an Hour; and conſequently, dividing it by 60, gives 156, the Beats in a Minute. Half theſe Sums are 4684 and 78. Now the firſt work is to break this 78 into a good proportion which will fall into one Quotient, and the Crown-Wheel. Let the Crown-Wheel have 15 Notches, then 78 divided by 15, gives 5; ſo a Crown-Wheel of 15, and a Wheel and Pinion, whoſe Quotient is 5, will go round in a Minute to carry a Hand to ſhew Seconds.—For a Hand to go round in an Hour to ſhew Minutes; becauſe there are 60 Minutes in an Hour, 'tis but breaking 60 into good Quotients, (ſuppoſe 10 and 6, or 8 and 7, &c.) and 'tis done. Thus 4684 is broken, as near as can be, into proper Numbers. But ſince it don't fall out exactly into the abovemention'd Numbers, you muſt correct, (as before directed) and find the true Number of Beats in an Hour, by multiplying 15 by 5, which makes 75; and 75 by 60, makes 4500, which is half the true Train. Then find the Beats in one Turn of the Fuſy; thus, 16 : 192 :: 4500 : 54000; which laſt are half the Beats in one Turn of the Fuſy. This 54000 being divided by 4500, (the true Numbers already pitch'd on) the Quotient will be 12; which not being too big for a ſingle Quotient, needs not be divided into more; and the Work will ſtand as in the Margin.——As to the Hour-hand, the great Wheel which performs only one Revolution in 12 Turns of the Minute-Wheel will ſhew the Hour: or it may be done by the Minute-Wheel.

8) 40 (5
15

8) 64 (8
8) 60 ($7\frac{1}{2}$
8) 42 (5
15

9) 108 (12
8) 64 (8
8) 60 ($7\frac{1}{2}$
8) 40 (5
15

WATCH, at Sea, ſignifies a meaſure or ſpace of four Hours; becauſe half the Ship's Crew *watch* and do Duty in their turns ſo long at a time.

The Ship's Company is divided into two Parts, the *Larboard Watch*, and the *Starboard Watch*.—The Maſter of the Ship commands the latter, and the chief Mate the former.

Sometimes, when a Ship is in Harbour, they *watch* but a *Quarter-watch*, as they call it; that is, but a quarter of the Company *watch* at a Time.

The *Watch-Glaſs* being four Hours, is uſed at Sea to ſhift or change their *Watches*.—There are alſo *Half-watch* Hour-Glaſſes; Minute and Half-minute Glaſſes; by which laſt they count the Knots when they heave the Log, in order to find the Ship's Way. See LOG-*Line*.

WATER, *Aqua*, in Phyſicks, a ſimple, fluid, and liquid Body; reputed the third of the four vulgar Elements. See ELEMENT.

Sir *I. Newton* defines *Water* to be a fluid Salt; volatile, and void of Taſte: But this Definition *Boerhaave* ſets aſide, inaſmuch as *Water* is a Menſtruum or Diſſolvent of Salts and ſaline Bodies, which does not agree with the Notion of its being a Salt it ſelf; inaſmuch as, we don't know of any Salt that diſſolves another. See SALT.

Whether Water *be originally fluid*?——Tho *Water* be defin'd a *Fluid*, 'tis a Point controverted among Philoſophers, whether Fluidity be its Natural State, or the Effect of Violence: We ſometimes find it appear in a fluid, and ſometimes in a ſolid form; and as the former in our warmer Climate is the more uſual, we conclude it the proper one, and aſcribe the other to the extraneous Action of Cold. —*Boerhaave*, however, aſſerts the contrary, and maintains *Water* to be of the Cryſtalline Kind; ſince, wherever a certain degree of Fire is wanting to keep it in fuſion, it readily grows into a hard Glebe, under the Denomination of *Ice*. See ICE.

Mr. *Boyle* is much of the ſame Sentiment.—Ice, he obſerves, is commonly reputed to be *Water* brought into a preternatural State by Cold: But, with regard to the Nature of Things, and ſetting aſide our arbitrary Ideas, it might as juſtly be ſaid, That *Water* is Ice, preternaturally thawed by Heat. If it be urg'd that Ice, left to it ſelf, will, upon the Removal of the freezing Agents, return to *Water*: It may be anſwer'd, that, not to mention the Snow and Ice which lie all Summer long on the *Alps* and other high Mountains, even in the Torrid Zone, we have been aſſur'd, that in ſome Parts of *Siberia*, the Surface of the Ground continues more Months of the Year frozen by the natural Temperature of the Climate, than thaw'd by the Heat of the Sun; and a little below the Surface of the Ground, the *Water* which chances to be lodg'd in the Cavities there, continues in a ſtate of Ice all the Year round: So that when in the heat of Summer the Fields are cover'd with Corn, if you dig a Foot or two deep, you ſhall find Ice, and a frozen Soil.

No pure Water *in all Nature.*——*Water*, if it could be had alone, and pure, *Boerhaave* argues, would have all the requiſites of an Element, and be as ſimple as Fire; but there is no expedient hitherto diſcover'd for making it ſuch. Rain-*Water*, which ſeems the pureſt of all thoſe we know of, is replete with infinite Exhalations of all kinds, which it imbibes from the Air: So that filter'd and diſtill'd a thouſand times, there ſtill remains Fæces.—Further, the Rain-*Water* gather'd from the Roofs of Houſes, is a Lixivium of Tyles, Slate, or the like, impregnated with the Dungs and Fæces of the Animals, Birds, *&c.* depoſited thereon; and the Exhalations of numerous other Things.—Add, that all the Rain-*Water* gather'd in Cities, muſt at laſt be ſaturated with the Smoke of a thouſand Chimnies, and the various Effluvia of Numbers of Perſons, *&c.* Beſide that there is Fire contained in all *Water*; as appears from its Fluidity, which is owing to Fire alone. See Fire.

As what is in the Air neceſſarily mixes it ſelf with *Water*, it hence appears impoſſible to have ſuch a thing as pure *Water*.—If you percolate it thro' Sand, or ſqueeze it thro' Pumice, or paſs it thro' any other Body of the like kind, you will always have Salt remaining.—Nor can Diſtillation render it pure; ſince it leaves the Air therein, which abounds in Corpuſcles of all ſorts. See Air.

The pureſt of all *Waters* we can any way arrive at, is that diſtill'd from Snow, gather'd in a clear, ſtill, pinching Night, in ſome very high Place; taking none but juſt the outer or ſuperficial Part thereof.—By a Number of repeated Diſtillations hereof, the greateſt part of the Earth and other Fæces, may be ſeparated herefrom: And this is what we muſt be contented to call *pure Water*.

Mr. *Boyle*, indeed, relates, that a Friend of his, by diſtilling a quantity of *Water* an hundred times, found at length that he had got ſix tenths of the firſt Quantity in Earth: Whence he concludes, that the whole *Water*, by further proſecuting the Operation, might be converted into Earth. See Earth.

But it ſhould be conſider'd, that the *Water* cannot be removed, or poured into a Veſſel, without the Mixture of ſome Duſt therewith; ſo, neither can the Luting of the Veſſel be diſtill'd, without loſing ſomething every time. *Boerhaave*, therefore, rather concludes, that the *Water* thus often diſtill'd, might acquire ſtill new Earth from the Duſt floating in the Air, and the Inſtruments employ'd in the Operation.

That Author aſſures us, that after diſtilling ſome very pure *Water*, by a gentle Fire, the ſpace of four Months, it appear'd perfectly pure; and yet leaving it to reſt in Veſſels exactly cloſed, it would conceive a ſlender kind of weedy Matter, ſomewhat like the *Stamina* of Plants, or the little Tufts of a Mucilage: and yet, *Schottus* ſaw *Water*, in *Kircher*'s *Muſæum*, that had been kept in a Veſſel hermetically ſeal'd, upwards of fifty Years, yet ſtill remained clear and pure, and ſtood to the ſame height in the Veſſel as at firſt, without the leaſt Sign of Sediment.

Boerhaave adds, that he is convinced no body ever ſaw a Drop of pure *Water*; that the utmoſt of its purity known, only amounts to its being free of this or that ſort of Matter: and that it can never, for inſtance, be quite deprived of Salt; ſince Air will always accompany it, and Air has always Salt. See Air.

Water *in all Places and Bodies.*—*Water* ſeems to be diffuſed every where, and to be preſent in all Space where there is Matter.—Not a Body in all Nature but will yield *Water:* 'Tis even aſſerted that Fire it ſelf is not without *Water*. A ſingle Grain of the moſt fiery Salt, which in a Moment's Time will penetrate thro' a Man's Hand, readily imbibes half its weight of *Water*, and melts, even in the drieſt Air imaginable.—Thus, Salt of Tartar, placed near the hotteſt Fire, will attract or imbibe *Water*; and by that means, increaſe conſiderably its weight in a ſmall time: So in the drieſt Summer's-Day, a pewter Veſſel with Ice in it, brought up from ſome cold ſubterraneous Place into the hotteſt Room, will immediately be cover'd over with little Drops of *Water*, gather'd from the contiguous Air, and condens'd by the Coldneſs of the Ice.

'Tis ſurprizing to conſider the plenteous Stock of *Water* which even dry Bodies afford.—Oil of Vitriol, being expoſed a long time to a violent Fire, to ſeparate all the *Water*, as much as poſſible, from the ſame; will afterwards, by only ſtanding a few Minutes in the Air, contract freſh *Water* ſo faſt, as ſoon to afford it as plenteouſly as at firſt.——Hartſhorn, kept forty Years, and turn'd as hard and dry as any Metal; ſo, that if ſtruck againſt a Flint, it will yield Sparks of Fire; yet, being put into a glaſs Veſſel, and diſtill'd, will afford one eighth of its Quantity of *Water*. Bones dead and dried twenty five Years, and thus become almoſt as hard as Iron; yet, by Diſtillation, have afforded half their weight of *Water*. And the hardeſt Stones, ground and diſtill'd, do always diſcover a Portion thereof.

Eels, by Diſtillation, yielded Mr. *Boyle* ſome Oil, Spirit, and Volatile Salt, beſides the *Caput Mortuum*; yet all theſe were ſo diſproportionate to the *Water*, that they ſeemed to have been nothing but that coagulated: The ſame ſtrangely abounds in Vipers, tho eſteemed very hot in operation; and will, in a convenient Air, ſurvive for ſome Days the loſs of their Heads and Hearts. Human Blood it ſelf, as ſpirituous and elaborate a Liquor as it is reputed, ſo abounds in *Water*, that out of ſeven Ounces and an half, the ſame Author, by Diſtillation, drew near ſix of Phlegm; before ever any of the other Principles began to riſe. See Phlegm.

Whether Water *be the common Matter of all Bodies?*—From Conſiderations of this kind, *Thales*, and ſome other Philoſophers, have been led to hold, That all Things were made of *Water:* Which Opinion, probably, had its riſe from the Writings of *Moſes*, where he ſpeaks of the Spirit of God moving upon the Face of the *Waters*.—But Mr. *Boyle* does not conceive the *Water* here mention'd by *Moſes* as the Univerſal Matter, to be our Elementary *Water:* we need only ſuppoſe it an agitated Congeries of a great Variety of ſeminal Principles, and of other Corpuſcles fit to be ſubdu'd and faſhion'd by them; and it may yet be a Body fluid like *Water*, in caſe the Corpuſcles it was made up of, were, by their Creator, made ſmall enough, and put into ſuch an actual Motion, as might make them roll, and glide eaſily over one another.—However, *Baſil Valentine*, *Paracelſus*, *Van Helmont*, *Centivoglio*, and others, have maintained the ſame Principle, *viz.* That *Water* is the Elemental Matter or *Stamen* of all things, and ſuffices alone for the Production of all the viſible Creation.—Thus, Sir *I. Newton*, 'All Birds, 'Beaſts, and Fiſhes, Inſects, Trees, and Vegetables, with 'their ſeveral Parts, do grow out of *Water*, and *watery* 'Tinctures, and Salts; and by Putrefaction return again into '*watery* Subſtances.'

Helmont endeavours to prove this Doctrine from an Experiment; wherein, burning a quantity of Earth, till all the Oil was conſum'd, and then mixing it up with *Water*, to draw out all the Salt; and putting this Earth, thus prepared, into an earthen Pot, which nothing but Rain-*Water* could enter; yet a Willow, planted therein, grew up to a conſiderable height and bulk, without any ſenſible Diminution of the Earth: Whence he concluded, that the *Water* was the only Nutriment of the Vegetable Kind, as Vegetables are of the Animal. The ſame thing is infer'd by Mr. *Boyle* from a parallel Experiment: And the whole is countenanc'd by Sir *I. Newton*, who obſerves, that *Water*, ſtanding a few Days in the open Air, yields a Tincture, which, like that of Malt, by ſtanding longer, yields a Sediment, and a Spirit; but before Putrefaction, is fit Nouriſhment for Animals and Vegetables.

But Dr. *Woodward* endeavours to ſhew the whole a Miſtake: *Water* containing extraneous Corpuſcles, ſome of theſe, he ſhews, are the proper Matter of Nutrition; the *Water* being ſtill found to afford ſo much the leſs Nouriſhment, the more it is purify'd by Diſtillation. Thus, a Plant in diſtill'd *Water* will not grow ſo faſt as in *Water* not diſtill'd; and if the *Water* be diſtill'd three or four times over, the Plant will ſcarce grow at all, or receive any Nouriſhment from it. So that *Water*, as ſuch, does not ſeem the proper Nutriment of Vegetables; but only the Vehicle thereof, which contains the nutritious Particles, and carries them along with it, thro' all the Parts of the Plant. See Vegetation.

Hence, a Water-Plant, *e. g.* a *Naſturtium*, brought up in a Veſſel of *Water*, will be found to contain the more Salt and Oil, the muddier the *Water* is: In effect, *Water* nouriſhes the leſs, the more it is purged of its ſaponaceous Salts; in its pure State, it may ſuffice to extend or ſwell the Parts, but affords no new Vegetable Matter. See Vegetable, Nutrition, *&c.*

Helmont, however, carries his Syſtem ſtill further, and imagines, that all Bodies may be re-converted into *Water*. His Alkaheſt, he affirms, adequately reſolves Plants, Animals, and Minerals, into one Liquor, or more, according to their ſeveral internal Differences of Parts: And the Alkaheſt, being abſtracted from theſe Liquors, in the ſame Weight and with the ſame Virtues as when it diſſolv'd them; the Liquors may, by frequent Cohobations from Chalk, or ſome other proper Matter, be totally depriv'd of their ſeminal Endowments, and return at laſt to their firſt Matter, inſipid *Water*.

Thus much is confeſs'd, that mix'd Bodies do all reſolve by Fire, into Phlegm or *Water*, Oil, Spirit, Salt, and Earth; each of which is found to contain *Water*.

Spirits, for inſtance, cannot be better repreſented than by Spirit of Wine, which of all others ſeems freeſt from *Water:* yet, *Helmont* affirms, it may be ſo united with *Water*, as to become *Water* it ſelf. He adds, that 'tis materially *Water*; only under a ſulphurous Diſguiſe.—According to him, in making *Paracelſus's Balſamus-ſamech*, which is nothing but *Sal Tartari* dulcify'd by diſtilling Spirit of Wine from it till the Salt be ſufficiently ſaturated with its Sulphur, and till it ſuffers the Liquor to be drawn off as ſtrong as it was poured on; when the Salt of Tartar, from which it is diſtill'd, hath retained, or deprived it of the ſulphurous Parts of the Spirit of Wine, the reſt, which is incomparably the greateſt Part of the Liquor, will turn to Phlegm. In effect, corroſive Spirits, according to Mr. *Boyle*'s Obſervation, abound in *Water*; which may be obſerved, by entangling, and ſo fixing their ſaline Parts, as to make them corrode ſome proper Body; or elſe by mortifying them with ſome contrary Salt: which will turn them into Phlegm.

And as to Salts; Salt of Tartar well calcin'd, being laid to liquify in the Air, will depoſite an Earth; and if it be then committed to Diſtillation, will yield a conſiderable Quantity of inſipid *Water*; inſomuch, that if it be urg'd with a vehement Fire, the Salt will almoſt all vaniſh, and nothing ſaline remain, either in the *Water*, or the Earth.—Whence *Helmont* concludes, that all Salts might be converted into *Water*. Add, that Sea Salt, recover'd from its own acid Spirit and Oil of Tartar, melts into *Water*, as much as into Oil of Tartar.

Laſtly, Oils run, in great meaſure, into *Water*; and 'tis probable, might be converted wholly into the ſame. See OIL, SULPHUR, *&c.*

No Standard for the Weight and Purity of Water.——*Water* ſcarce ever continues two Moments exactly of the ſame weight, being always varying, by reaſon of the Air and Fire contained therein. Thus, a piece of pure limpid Ice, laid in a nice balance, never continues *in Æquilibrio*.—In effect, the Expanſion of *Water* in boiling, ſhews what effect the different degree of Fire has on the Gravity of *Water*.—This makes it difficult to fix the ſpecifick Gravity of *Water*, in order to ſettle its degree of Purity; but this we may ſay in the general, That the pureſt *Water* we can procure, is that which is 880 times as heavy as Air. However, neither have we any tolerable Standard in Air; for *Water* being ſo much heavier than Air, the more *Water* is contain'd in the Air, the heavier of courſe muſt it be: As, in effect, the principal Part of the Weight of the Atmoſphere, ſeems to ariſe from the *Water*. See AIR, and ATMOSPHERE.

Properties and Effects of Water.

1°, *Water* is found the moſt *penetrative* of all Bodies, after Fire, and the moſt difficult to confine; ſo that a Veſſel thro' which *Water* cannot paſs, may retain any thing. Nor is it any Objection, that Syrups and Oils will ſometimes paſs thro' Bodies which will hold *Water*; this not being owing to the greater Subtilty and Penetration of their Particles, but to the Reſin wherewith the Wood of ſuch Veſſels abounds, to which Oils and Syrups are as Menſtruums; ſo that diſſolving the Reſin, they make their way thro' the Spaces left thereby; whereas *Water*, not acting on Reſins, is retained. See RESIN.

And yet, *Water* gradually makes its way, even thro' all Woods, and is only retainable in Glaſs and Metals; nay, it was found by Experiment at *Florence*, that when ſhut up in a ſpherical Veſſel of Gold, and then preſs'd with a huge force, it made its way thro' the Pores even of the Gold; ſo that the moſt ſolid Body in Nature is permeable to *Water*. See GOLD.

Water is even found more fluid than Air; a Body being reputed more fluid than another, when its Parts will find way thro' ſmaller Pores: now Air, 'tis known, will not paſs thro' Leather, as is evident in the Caſe of an exhauſted Receiver cover'd therewith; whereas *Water* paſſes with eaſe.—Again, Air may be retain'd in a Bladder, but *Water* oozes thro'. In effect, 'tis found, that *Water* will paſs thro' Pores ten times ſmaller than Air will. See PORE.

It muſt not be omitted, however, that M. *Homberg* accounts for this paſſage of *Water* thro' the narrow Pores of animal Subſtances which will not admit the Air, on another Principle, *viz.* its moiſtening and diſſolving the glutinous Matter of the fine Fibres of the Membranes, and rendering them more pliable and diſtractile; which are things that the Air, for want of a wetting Property, cannot do.—As a Proof of this Doctrine, he filled a Bladder, and compreſs'd it with a Stone, and found no Air to come out; but placing the Bladder thus compreſs'd in *Water*, the Air eaſily eſcap'd. *Hiſt. de l'Acad.* Ann. 1700. p. 45.

2°, *Water*, then, may even hence, *viz.* from its penetrative Power, be argu'd to enter *the Compoſition of all Bodies*, both Vegetable, Animal, and Foſſil; with this peculiar Circumſtance, That it is eaſily, and with a gentle heat, ſeparable again from Bodies it had united with; which cannot be ſaid of any other Body.—Fire, indeed, will penetrate more than *Water*; but 'tis difficult to procure it again from the Bodies it is once fixed in, as is evident in Red Lead, *&c.* See MINIUM, *&c.*

This Property of *Water*, join'd with its Smoothneſs and Lubricity, fits it to ſerve as a Vehicle, for the commodious and eaſy Conveyance of the Nutritious Matter of all Bodies: being ſo fluid, and paſſing and repaſſing ſo readily, it never ſtops up the Pores, but leaves room for the following *Water*, to bring on a new Supply of nutritious Matter. See NUTRITION.

3°, And yet the ſame *Water*, as little coheſive as it is, and as eaſily ſeparated from moſt Bodies, will *cohere firmly with ſome others*, and bind them together into the moſt ſolid Maſſes: Tho it appears wonderful, that *Water*, which will be ſhewn an almoſt univerſal Diſſolvent, ſhould withal be a great Coagulator.

Water, we ſee, mixed up with Earth or Aſhes, gives them the utmoſt Firmneſs and Fixity.—The Aſhes, *e.g.* of an Animal, incorporated with pure *Water* into a Paſte, and bak'd by a vehement Fire, grow into a Coppel; which is a Body remarkable for this, that it will bear the utmoſt Effort of a Refiner's Furnace.—'Tis, in effect, upon the glutinous Nature of *Water* alone that our Houſes ſtand; for take but this out of Wood, and it becomes Aſhes; or out of Tyles, and they become Duſt.

Thus, a little Clay dry'd in the Sun, becomes a Pouder, which mix'd with *Water* ſticks together again, and may be faſhion'd at pleaſure; and this dried again by a gentle Fire, or in the Sun, and then baked in a Potter's Oven, by an intenſe Fire, becomes little other than a Stone.—So the *Chineſe* or *Japan* Earth, whereof our Porcelain Veſſels are made, which hold all Liquors, and even melted Lead it ſelf, is diluted and wrought up with *Water*. See PORCELAIN.

To ſay no more, all the Stability and Firmneſs ſeen in the Univerſe is owing to *Water* alone.—Thus, Stone would be an incoherent Sand, did not *Water* bind it together; and thus, again, of a fat gravelly Earth, wrought up with *Water* and baked or burnt, we make Bricks, Tyles, and earthen Veſſels, of ſuch exceeding Hardneſs and Cloſeneſs, that *Water* it ſelf cannot paſs thro' them. And theſe Bodies, tho to appearance perfectly dry, and deſtitute of *Water*, yet, being pulveriz'd and put in a Retort, and diſtill'd, yield an incredible quantity of *Water*.

The ſame holds of Metal; for the Parings or Filings of Lead, Tin, Antimony, *&c.* by Diſtillation, yield *Water* plentifully; and the hardeſt Stones, Sea Salt, Nitre, Vitriol, Sulphur, *&c.* are found to conſiſt chiefly of *Water*, into which they reſolve by force of Fire.

The *Lapis Calcarius*, or Lime-ſtone, being expos'd to the Fire, affords a prodigious Quantity of pure *Water*; and the more of this *Water* is expreſs'd, the more friable does it become, till at length it commences a dry Calx or Lime; wherein, in lieu of the *Water* ſo expell'd, the Fire, in the Courſe of Calcination, enters; which is expell'd again, in its turn, by pouring on cold *Water*. Yet, the ſame *Water* and Calx, temper'd together, produce a Maſs, ſcarce inferior, in point of Solidity, to the primitive Lime-ſtone. See HEAT.

4°, That *Water* is *not elaſtick*, is evident hence, that it is incompreſſible, or incapable, by any Force, of being reduced into leſs compaſs: This eaſily follows from that famous Experiment abovemention'd, made by order of the great Duke of *Tuſcany*.—The *Water*, being incapable of Condenſation, rather than yield, tranſuded thro' the Pores of the Metal, ſo that the Ball was found wet all over the outſide; till at length, making a Cleft in the Gold, it ſpun out with great vehemence.——From this laſt Circumſtance, indeed, ſome have weakly concluded it was elaſtick. For the *Impetus* wherewith the *Water* darted forth, was more probably owing to the Elaſticity of the Gold, which communicated that Impreſſion to the *Water*.

And hence we ſee the Reaſon why Blocks of Marble ſometimes burſt in cold weather; and why a Veſſel fill'd with *Water*, and afterwards, by any means, reduced to a leſs compaſs, burſts the Veſſel, tho ever ſo ſtrong.—This is obſervable in a piece of braſs Canon, which being filled with *Water*, and the Mouth exactly ſtop'd, ſo as to prevent all egreſs of *Water*; if a cold Night happens, ſufficient to contract and conſtipate Bodies; the metallick Matter undergoing the common Fate, and the *Water* refuſing to give way, the Cannon is burſt aſunder with incredible violence.

Some bring an Argument for the Elaſticity of *Water* hence, that hot *Water* takes up more room than cold; but no legitimate Concluſion can be form'd from hence: for in the hot *Water* there is a good quantity of Fire contain'd, which interpoſing between the Particles of the *Water*, makes it extend to a greater Space, without any Expanſion of Parts from its own Elaſticity. This is evident hence, that if *Water* be once heated, there is no reducing it to its former Dimenſions, but by letting it cool again: which plainly ſhews, that the Expanſion depends not on the Elaſticity of Parts, but on the Preſence of Fire.—*Water*, then, tho incapable of Compreſſion or Condenſation, may yet be rarefied by Heat, and contracted by Cold. See RAREFACTION, *&c.*

It may be added, that a further degree of Cold, that is, ſuch a one as congeals *Water*, or turns it into Ice, does expand it.—There are other ways to manifeſt this Expanſion of *Water* by Freezing.—Mr. *Boyle* having poured a proper quantity of *Water* into a ſtrong cylindrical earthen Veſſel, expoſed it, uncover'd, both to the open Air in froſty Nights, and the Operation of Snow and Salt; and found, that the Ice produced in both Caſes, reach'd higher than the *Water* before 'twas froze. Add, that it has been found, that the Rain ſoaking into Marble, and violent Froſts coming on, have burſt the Stones: And even Implements made of Bell-Metal, careleſly expos'd to the wet, have been broken and ſpoiled by the *Water*; which entering at little Cavities of the Metal, was there afterwards froze, and expanded into Ice.

From the whole, we may be enabled to ſettle ſomething as to the Nature of the component Particles of *Water*; and, 1°, That they are, as to our Senſes, infinitely ſmall; whence their penetrative Power: 2°, Exceeding ſmooth and ſlippery, void of any ſenſible Aſperities; witneſs their Fluidity, and their being ſo eaſily ſeparable from other Bodies which they adhere to: 3°, Extremely ſolid: 4°, Perfectly tranſparent, and as ſuch inviſible; which we gather hence, that pure *Water*, inclos'd in a Veſſel hermetically ſeal'd, projects no Shadow; ſo that the Eye ſhall not be able to diſcover whether the Veſſel have *Water* in it or not; and in that the Cryſtals of Salts, when the *Water* is ſeparated from them, loſe their Tranſparency.—5°, Hard, rigid, and inflexible; as appears from their not being compreſſible.——If it be aſk'd, How a Body ſo light, fluid, and volatile, and which ſo eaſy a Fire ſuffices to rarefy, ſhould be ſo ſtubborn and incompreſſible? We ſee no other Cauſe to aſſign, but the Homogeneity of its Parts. If *Water* be conſider'd as conſiſting of ſpherical or cubical Particles, hollow withinſide, and of a firm Texture; here will be enough to account for the whole: Its Firmneſs and Similarity will make it reſiſt ſufficiently; and its Vacuity render it light enough, *&c.*—The little Contact between Spherules, will account for the Weakneſs of its Coheſion, *&c.* See Particle, Cohesion, *&c.*

Salt melted in *Water*, does not fill the Veſſel in proportion to its own bulk: Whence it follows, that there are little Spaces between its Particles, to admit thoſe of the Salt.—And hence, again, we gather, that the *watry* Particles are extremely ſolid, and inflexible; ſince, tho they have intermediate Spaces, no force or weight can compreſs, or crowd them nearer. See Salt.

5°, *Water* is the moſt *inſipid* of all Bodies; the Taſte we ſometimes obſerve therein, ariſing not from the mere *Water*; but from Salt, Vitriol, or other Bodies mixed therewith: And accordingly, all the ſapid *Waters* recommended for Medicinal Uſes, are found to depoſite a Quantity of ſome of thoſe Foſſils.

6°, *Water* is perfectly *inodorous*, or void of the leaſt Smell.——*Water*, then, neither affects Sight, Taſte, nor Smell, provided it be pure; and conſequently might remain for ever imperceptible to us, but for the Senſe of Feeling.

Whether Water *be convertible into Air?*

It has been diſputed, whether or no *Water* be convertible into Air; there being numerous Inſtances of, at leaſt, an apparent Tranſmutation.—In the Vapours daily raiſed, we find *Water* rarefy'd to ſuch a degree, as to take place in the Atmoſphere, and help to compoſe a conſiderable part of what we call *Air*; and even to contribute to many of the Effects aſcribed to the Air. See Vapour, Air, and Atmosphere.——But ſuch a Vapour-Air has not the Characters of true permanent Air, being eaſily reducible into *Water* again. So, in Digeſtions and Diſtillations, tho *Water* may be rarefied into Vapours, yet it is not really changed into Air, but only divided by Heat, and diffuſed into very minute Parts; which meeting together, preſently return to ſuch *Water* as they conſtituted before.

Yet, *Water* rarefy'd into Vapour in an Æolipyle, will, for a while, have an elaſtick Power, the great and laſt Characteriſtick of true Air, and ſtream out perfectly like a Blaſt of Air: The elaſtick Power of this Stream, is manifeſtly owing to nothing elſe but the Heat, that expands and agitates the aqueous Particles thereof; and when the Heat is gone, the Elaſticity and other aerial Properties diſappear likewiſe. See Elasticity.

Rapid Winds thus made, ſeem to be no more than mere *Water*, broke into little Parts, and put into motion; ſince, by holding a ſolid, ſmooth, and cold Body againſt it, the Vapours condenſing thereon, will preſently cover the Body with *Water*.—Indeed, tho no heat intervenes, Motion alone, if vehement, may perhaps ſuffice to break *Water* into minute Parts, and make them aſcend upwards, in form of Air.—Mr. *Boyle* obſerves, that between *Lyons* and *Geneva*, where the *Rhone* is ſuddenly ſtraiten'd by two Rocks very near each other, that rapid Stream, daſhing with great impetuoſity againſt them, breaks part of its *Water* into minute Corpuſcles, and gives it ſuch a Motion, that a Miſt may be obſerv'd at a conſiderable diſtance, ariſing from the Place, and aſcending high into the Air.

WATER, in Geography, Hydrography, *&c.* is a common, or general Name applied to all liquid tranſparent Bodies, gliding or flowing on the Earth. See Fluid, Liquid, *&c.*

In this Senſe, *Water* and Earth are ſaid to conſtitute one terraqueous Globe. See Earth.

Some Authors have raſhly and injuriouſly taxed the Diſtribution of *Water* and Earth in our Globe as unartful, and not well proportion'd: Suppoſing that the *Water* takes up too much room. See Terraqueous.

An Inundation, or Overflowing of the *Waters*, makes a *Deluge.* See Deluge.

Various Kinds of WATERS.

Water is diſtinguiſh'd, with regard to the Places where it is found, into *Marina*, *Sea-Water*; *Pluvialis*, *Rain-Water*; *Fluviatilis*, *River-Water*; *Fontana*, *Spring-Water*; *Putealis*, *Well-Water*; *Ciſternina*, thoſe of *Ciſterns*; *Palluſtris*, that of *Lakes*, *Moraſſes*, &c.

Theſe ſorts of *Water* are each more impure, and heterogeneous than other.

Sea-Water. See Sea, and Ocean.

Sea-Water, is an Aſſemblage of Bodies, wherein *Water* can ſcarce be ſaid to have the principal Part: 'Tis an univerſal Colluvies of all the Bodies in Nature, ſuſtain'd and kept ſwimming in *Water*, as a Vehicle.——Dr. *Liſter* conſiders it as the Fund or Source, out of which all Bodies ariſe. He gives, in ſome meaſure, into the Opinion of *Thales* and *Van Helmont*; and imagines the *Sea-Water* to have been the only Element created at the Beginning, before any Animal, or Vegetable; or even before the Sun himſelf.—*Freſh-Water*, he ſuppoſes to have aroſe accidentally after the Creation of theſe; and to owe its Origin to the Vapours of Plants, the Breath of Animals, and the Exhalations raiſed from the Sun. *De Font. Med. Ang.*——Dr. *Halley* is of another Opinion—He takes it for granted, that the Saltneſs of the Sea, ariſes from the ſaline Matter diſſolved and imbib'd by the Rivers in their progreſs, and diſcharg'd, with their *Waters*, into the Ocean; and conſequently, that the degree of Saltneſs is continually and gradually increaſing.—On this Hypotheſis, he even propoſes a Method for determining the Age of the World: For two Experiments of the degree of Saltneſs, made at a large Interval of Time, will, by the Rule of Proportion, give the Time wherein it has been acquiring its preſent degree. *Philoſ. Tranſact.* N° 344.

The *Water* of the Sea is liable to ſeveral periodical Changes. See Tides.

High-Water. }
Low-Water. } See Flux, Ebb, *&c.*
Ebb-Water. }

Rain-Water. See Rain.

Rain-Water, is the *Water* of the Sea, purified by a ſort of Diſtillation: or rather, it is the *watery* Vehicle, ſeparated from the ſaline, and other Matters reſiding therein, by Evaporation. See Evaporation.

The *Water* which deſcends in Rain, is, of all others, the pureſt, in a cold Seaſon, and a ſtill Sky; and this we muſt be contented to take for *Elementary Water.*

The *Rain Water* in Summer, or when the Atmoſphere is in Commotion, 'tis certain, muſt contain infinite Kinds of heterogeneous Matter: Thus, gathering the *Water* that falls after a Thunder-Clap, in a ſultry Summer Day, and letting it ſettle, a real Salt is found ſticking at the bottom.—But in Winter, eſpecially when it freezes, the Exhalations are but few, ſo that the Rain falls without much Adulteration: and hence, what is thus gather'd in the Morning-time, is found of good uſe for taking away Spots in the Face; and that gathered from Snow, againſt Inflammations of the Eyes. See Snow.

Yet this *Rain-Water*, with all its purity, may be filter'd and diſtill'd a thouſand times, and it will ſtill leave ſome Fæces behind it.

Spring-Water. See Spring.

The *Water* of Springs is the next, in point of Purity.—This, according to Dr. *Halley*, is collected from the Air itſelf; which being ſaturated with *Water*, and coming to be condenſed by the Evening's Cold, is driven againſt the cold Tops of the Mountains; where being further condenſed and collected, it gleets down, or diſtills, much as in an Alembic.

This *Water*, which before floated in the Atmoſphere in form of a Vapour, being thus brought together, at firſt forms little Streams; ſeveral of which meeting together, form Rivulets; and theſe, at length, Rivers.

River-Water. See River.

This, on ſome occaſions, is to be eſteem'd purer than that of Springs.—If the Stream, in deſcending from its Spring, chance to flow over *Strata*, or Beds, wherein there is Salt, Sulphur, Vitriol, Iron, or the like, it diſſolves and imbibes part thereof.—Otherwiſe, Spring-*Water* becomes purer and better; for while the River drives on its *Waters* in an uninterrupted Stream, all its Salts, with the Vegetable and Animal Matters drained into it either from Exhalations, or from the Ground it waſhes, gradually either ſink to the bottom, or are driven to the Shore: And hence the antient Poets and Painters repreſent the Deities of Springs and Rivers, as combing and carding their *Waters*.

With regard to the Qualities of *Water*, it is further diſtinguiſh'd into *Salina*, Salt-*Water*; *Dulcis*, Freſh-*Water*, &c.

Salt WATER, or *Sea*-WATER. See SALT, and *Sea*-WATER.

Freſh-WATER.—It is generally granted that thoſe *Waters*, *cæteris paribus*, are the beſt, as well for wholeſomneſs, as other various œconomical Uſes, *&c.* that are freeſt from Saltneſs; which is an adventitious, and in moſt Caſes a hurtful Quality in *Waters*.—Mr. *Boyle* therefore contrived a very extraordinary Method of examining the Freſhneſs and Saltneſs of *Waters*, by a Precipitant, which could diſcover one Part of Salt in 1000, nay 2 or 3000 Parts of *Water*. See FRESH *Water*.

The thaw'd Ice of Sea-*Water* is often uſed in *Amſterdam* for brewing; and *Bartholine*, in his Book *de Nivis Uſu*, confirms the Relation: ' 'Tis certain, ſays he, that if the Ice of the Sea-*Water* be thawed, it loſes its Saltneſs; as has been lately tried by a Profeſſor in our Univerſity.

Uſes of Water.

The Uſes of *Water* are infinite; in Food, in Medicine, in Agriculture, in Navigation, in divers of the Arts, *&c.*

As a *Food*, 'tis one of the moſt univerſal Drinks in the World; and if we may credit many of our lateſt and beſt Phyſicians, one of the beſt too.—For this Uſe, that which is pureſt, lighteſt, moſt tranſparent, ſimple, colourleſs, void of Taſte and Smell, and which warms and cools faſteſt, and wherein Herbs and Pulſe infuſe and boil the ſooneſt, is beſt. See DRINK.

Hippocrates, in his Treatiſe *de Aere, Aquis & Locis*, ſpeaks much in behalf of light *Water*.—*Herodotus* relates, That among the Antients, ſome Nations drank a *Water* ſo very light, that all Woods readily ſunk therein. And Mr. *Boyle* mentions ſome *Water* brought out of *Africa* into *England*, which was ſpecifically lighter than ours, by four Ounces in a Pint, *i. e.* by one third. See WATERPOISE.

'Tis eſteem'd a good Quality in *Water*, to bear Soap, and make a Lather therewith. This our River-*Waters* readily do, but the Pump and Spring-*Waters* are found too hard for it; yet may theſe be remedy'd, by barely letting 'em ſtand for four or five Days.

As a *Medicine*, 'tis found, internally, a powerful *Febrifuge*; excellent againſt Colds, Coughs, Stone, Scurvy, *&c.* See FEBRIFUGE, *&c.*

Externally, its Effects are no leſs conſiderable. See BATH, and BATHING.

In *Agriculture* and Gardening, *Water* is allow'd abſolutely neceſſary to Vegetation; whence *Varro* places it in the Number of the Divinities he invokes in his firſt Book *de Re Ruſtica*: *Etiam*, ſays he, *precor Lympha, quoniam ſine aqua omnis miſera eſt agricultura.* See WATERING.

The Changes *Water* is liable to, and the different Forms it appears under, are numerous.—Sometimes as *Ice*, then as *Vapour*, then as a *Cloud*, *Shower*, *Snow*, *Hail*, *Fog*, &c. See ICE, VAPOUR, CLOUD, SHOWER, SNOW, HAIL, FOG, *&c.* ſee alſo FREEZING, THAWING, *&c.*

Many Naturaliſts have even maintain'd *Water* to be the Vegetable Matter, or the only proper Food of Plants; but Dr. *Woodward* has overturn'd that Opinion, and ſhewn, that the Office of *Water* in Vegetation, is only to be a Vehicle to a terreſtrial Matter, whereof Vegetables are form'd; and does not it ſelf make any Addition to 'em.—All *Water*, he allows, contains more or leſs of this terreſtrial Matter; Spring and Rain-*Water* near an equal quantity, and River-*Water* more than either of 'em. See VEGETATION.

Water is of the laſt Uſe in Chymiſtry; being one of the great Inſtruments by means whereof its Operations are all perform'd. See CHYMISTRY, and OPERATION.

It acts in various Manners and Capacities, as a Menſtruum, a Ferment, a Putrefacient, a Vehicle, a Medium, *&c.*

1°, As a *Menſtruum*, it diſſolves all Kinds of *Salts*. See SALT, *&c.*

Air alſo ſeems to diſſolve Salts; but 'tis only in virtue of the *Water* it contains.—Nor has any other Body the Power of diſſolving Salts, further than as it ſhares of this Fluid. See AIR, *&c.*

The Particles of Salts, we have obſerved, inſinuate themſelves into the Interſtices between the Particles of *Water*; but when thoſe Interſtices are once filled, the ſame *Water* will not any longer diſſolve the ſame Salt; but it will diſſolve a Salt of another Kind, by reaſon of the different Figure of the Particles, which enter and occupy the Vacancies left by the former: And thus it will diſſolve a third, or fourth Salt, *&c.*—So, when *Water* has imbib'd its fill of common Salt, it will ſtill diſſolve Nitre; and when ſaturated with Nitre, it will diſſolve Sal Ammoniac, and ſo on.

Water alſo diſſolves all *ſaline* Bodies, it being the conſtituent Character of this Claſs of Bodies, that they are uninflammable and diſſoluble in *Water*.—Hence, *Water* may diſſolve all Bodies, even the heavieſt and moſt compact, as Metals; inaſmuch as thoſe are capable of being reduced into a ſaline form: in which State they may be ſo intimately diſſolved by *Water*, as to be ſuſtained therein.

Water diſſolves all *ſaponaceous* Bodies, *i. e.* all alkalious Salts and Oils blended together: Tho Oil it ſelf be not diſſoluble in *Water*, the Admixture of Salt herewith, rendering it ſaline, brings it under the Power of *Water*.

Now, all the Humours in the human Body are apparently ſaline, tho none of them are Salt it ſelf; and the ſame may be ſaid of the Juices of all Vegetables, excepting the Oils; and accordingly, they all diſſolve in *Water*.

Water diſſolves *Glaſs* it ſelf.——This being melted with Salt of Tartar, becomes ſoluble in *Water*. See GLASS.

It diſſolves all *Gums* and *gummous* Bodies; it being a Characteriſtick of a Gum, that it diſſolves in *Water*; in contradiſtinction from a Reſin. See GUM, *&c.*

Yet, *Water* mix'd with alcali Salts, diſſolves Oils and oily Bodies.—Thus, tho mere *Water* pour'd on greaſy Wool, be repelled thereby; yet a ſtrong Lixivium, or alcali Salt being mix'd with the *Water*, it readily diſſolves and abſorbs all that was greaſy and oleaginous; and thus it is that woollen Cloths are ſcour'd.

Again, *Water* does not diſſolve Reſins; as we conceive a Reſin to be no other than an inſpiſſated, or concentrated Oil. See RESIN.

Oils and Sulphurs *Water* leaves untouch'd; and what is more extraordinary, it repels them; and by repelling, drives the oily Particles into Eddies.—Add, that it ſeems to repel all oleaginous, ſulphurous, fatty, and adipous Bodies, wherein Oil predominates; and hence alſo it is, that the fatty Parts in our Bodies eſcape being diſſolved by *Water*.—And 'tis, in all probability, by this means, that Fat is collected in the adipoſe Cells of all Animals. See FAT.

Nor does it diſſolve *terrene* or earthy Bodies, but rather unites and conſolidates them; as we ſee in Tyles, *&c.* See EARTH.

After diſſolving a Body, the *Water* unites and hardens together with it; and, if the Body be of the ſaline Kind, forms Cryſtals, and retains the Salts in that form. See CRYSTAL.

Salts, while thus join'd with *Water*, aſſume various Figures; the Cryſtals of Sea-Salt, *e. g.* are pyramidal; thoſe of Nitre, priſmatical; thoſe of *Sal Gemmæ*, cubical, *&c.* But, that *Water* is the Cauſe of theſe Salts being in Cryſtals, is evident hence, That upon ſeparating the *Water*, the Cryſtals are no more; their Form is loſt, and their Tranſparency ceaſes. See CRYSTALLIZATION.

2°, Without *Water* there can no Fermentation be rais'd.—Thus, if you grind a Plant into a Duſt or *Farina*, it will never ferment; even tho you add Yeaſt or Spirit of Wine thereto: but *Water* being pour'd on it, the Fermentation readily ariſes. See FERMENTATION.

3°, All *Putrefactions*, both of Animal and Vegetable Bodies, are likewiſe perform'd by means of *Water* alone; and without it there would be no ſuch Effect in all Nature. See PUTREFACTION.

4°, *Water* is indiſpenſibly requir'd to *Efferveſcence*; which is an inteſtine Motion, ariſing between contrary Salts: for no ſuch Motion can ariſe from a Mixture of contrary Salts, unleſs there be *Water* to diſſolve and keep 'em in Solution.

5°, A farther Uſe is in the making *Separations* of oily from ſaline Parts, which is a thing of the laſt Service: Thus, any oleaginous Subſtance, incorporated with Salt, being ſhook ſometime in a proper quantity of *Water*; the Salts diſſolving, will be extracted from the Oil, and imbib'd by the *Water*; and thus is the Body dulcify'd.—So Butter, by a continued Lotion in fair *Water*, becomes inſipid; and aromatick Oils, agitated a long time in warm *Water*, lay aſide their ſaline ſpirituous Parts, and become inert and inodorous.

Spirit of Wine, mix'd with Oil, makes one Body therewith; but if you pour *Water* thereon, it will repel the Oil, and draw all the Spirit to it ſelf; nay, frequently, what the Spirit had diſſolved in other Bodies, *Water* will ſeparate from 'em, by attenuating the Spirit, and letting the other Matters precipitate.

6°, *Water* is of great ſervice in directing and determining the Degree of Fire, or Heat.—This was firſt diſcover'd by M. *Amontons*, from an Obſervation that *Water* over the Fire grows gradually more and more hot, till it comes to boil; but then ceaſes to increaſe, and only maintains its preſent degree of heat, even tho the Fire were ever ſo much enlarg'd, or were continu'd ever ſo long.—This, therefore, affords a Standard or fixed Degree of Heat all over the World; boiling *Water*, provided it be equally pure, being of the ſame Heat in *Greenland* as under the Equator.

By means hereof, they make *Baths* of divers Degrees of Heat, accommodated to the various Occaſions. See BATH, FIRE, HEAT, *&c.*

Water is of the utmoſt Uſe in divers of the *Mechanical Arts* and Occaſions of Life; as, in the Motion of Mills, Clocks, and other Machines—And the Laws, Properties, *&c.* of this Fluid with reſpect thereto; as its *Motion*, *Gravitation*, *Preſſion*, *Elevation*, *Action*, &c. And the Conſtruction of divers Engines ſubſervient thereto, or founded thereon; as *Syphons*, *Pumps*, &c. make the Subject of *Hydraulicks* and *Hydroſtaticks*. See HYDRAULICKS; ſee alſo FLUID, ASCENT, *&c.*

The Quantity of *Water* on this ſide our Globe, Dr. *Cheyne* ſuſpects to be daily decreaſing; 'ſome part thereof being 'continually turned into Animal, Vegetable, Metalline, or 'Mineral Subſtances; which are not eaſily diſſolv'd again 'into their component Parts.—Thus, if you ſeparate a few 'Particles of any Fluid, and faſten them to a ſolid Body, or 'keep them aſunder one from another, they are no more 'fluid; to produce Fluidity, a conſiderable Number of ſuch 'Particles is requir'd.' See FLUIDITY.

'Moſt of the Fluids or Liquors we know of, are form'd 'by the Coheſion of Particles of different Figures, Magni'tudes, Gravities, and attractive Powers, ſwimming in pure '*Water*, or an aqueous Fluid; which ſeems to be the com'mon Baſis of all. Wine is only *Water* impregnated with 'Particles of Grapes; and Beer with Particles of Barley: 'All Spirits ſeem to be nothing but *Water*, ſaturated with 'ſaline or ſulphurous Particles: and all Liquors are more 'or leſs fluid, according to the greater or ſmaller Coheſion 'of the Particles, which ſwim in the aqueous Fluid. And 'there is hardly any Fluid without this Coheſion of Parti'cles: not even pure *Water* it ſelf; as is apparent from the 'Bubbles which ſometimes will ſtand on its Surface, as well 'as on that of Spirits and other Liquors.' *Philoſ. Princip. of Relig.*

Aſcent of WATER. See ASCENT, and CAPILLARY.

WATER-*Clock*.	See	CLEPSYDRA.
WATER-*Level*.		LEVEL.
WATER-*Organ*.		ORGAN.
WATER-*Mill*.		MILL.
WATER-*Spout*.		SPOUT.
WATER-*Bearer*.		AQUARIUS.
WATER-*Microſcope*.		MICROSCOPE.

WATER, in Natural Hiſtory, *&c.* is diſtinguiſh'd into *Pure*, call'd alſo *Elemental*; *Mineral*; and *Artificial*, or *Factitious*.

As to the *Pure*, we have already obſerv'd, that there is, perhaps, none abſolutely ſo; all *Water* being found to contain more or leſs Particles, ſuch as are in terreſtrial Bodies; not earthy Particles, we mean, but Oils, Salts, *&c.*

Mineral WATERS, are thoſe which contain ſuch and ſo many Particles of different Nature from *Water*, as thence to derive ſome notable Property beyond what common *Water* has: Or, *Mineral Waters* are thoſe which have contracted ſome Virtue extraordinary, by paſſing thro' Beds of Minerals, as Alumn, Vitriol, Sulphur, *&c.* or by receiving the Fumes thereof. See MINERAL.

The Kinds of *Mineral Waters* are various, as are the Kinds of Compoſitions of the Minerals they are impregnated withal. See FOSSIL.

Some are *Simple*, as only containing mineral Particles of one ſort; others *Mix'd*, of two, three, four, or more ſorts.

Hence, we have, 1°, *Metallick Waters*, *viz.* in different Parts, *Golden*, *Silver*, *Copper*, *Tin*, *Leaden*, and *Iron Waters*. See METAL, FERRUGINOUS, CHALYBEAT, *&c.*

2°, *Saline Waters*, viz. *Nitrous*, *Aluminous*, *Vitriolate*, and thoſe of common Salt. See SALT.

3°, *Bituminous*, *Sulphurous*, *Antimonial*, *Carbonaceous*, and *Amber Waters*. See BITUMEN, *&c.*

4°, *Earthy* and *Stony Waters*, viz. *Lime*, *Chalk*, *Oker*, *Cinnabar*, *Marble*, and *Alabaſter Waters*.

5°, *Mercurial Waters*. See MERCURY, QUICKSILVER, *&c.*

This Diviſion of *Mineral Waters* is taken from their Eſſences; that is, from the Mineral Particles they contain: but the moſt uſual and celebrated Diviſion, is borrow'd from the manner wherein they affect our Senſes; with regard to which there are ten Kinds; viz. *acid*, *bitter*, *hot*, *very cold*, *oily* and *fat*, *poiſonous*, *colour'd*, *boiling*, *petrifying*, *incruſting*, and *ſaline*.

Acid Waters, called alſo *Acidulæ*, ariſe from the Admixture of Vitriol, Nitre, Alumn, and Salt.—Theſe are cold, and very frequent, there being not reckon'd leſs than 1000 in *Germany* alone: Some of which are ſower as Vinegar, and uſed inſtead thereof; others vinous, and ſerving for Wine; others aſtringent, *&c.* See ACIDULÆ.

Hot Waters, called *Thermæ*, ariſe from the Admixture of ſulphurous Particles and Fumes.—Of theſe, the hotteſt is that in *Japan*, which no Fire can bring *Water* to equal; and which keeps hot thrice as long as our boil'd *Water*. See THERMÆ, *&c.*

Oily and *Fat Waters*, ariſe from a bituminous and ſulphureous Matter; as Amber, Petroleum, Pitch, Naphtha, *&c.* See NAPHTHA, PETROL, *&c.*

Bitter Waters are produced from an impure Sulphur, Bitumen, Nitre, and Copper.—Such is the *Lacus Aſphaltites*.

Very cold Waters, have their riſe from a Mixture of Nitre and Alumn; or of Mercury, Iron, *&c.* The Depth of the Source or Spring too, has ſome effect.

Waters which change the Nature of Bodies.—Of theſe there is great Variety.

1°, Near *Armagh* in *Ireland*, is a Lake, wherein a Staff being fix'd ſome Months, the Part that ſtuck in the Mud will be turn'd into Iron; and that Part incompaſs'd with the *Water* into Hone; the reſt remaining as before.—Thus *Gyraldus*, and *Maginus*; but *Brietius* denies it.

2°, In the Northern Part of *Ulſter* is a Spring, which in the Space of ſeven Years petrifies Wood, or converts it into Stone.—The like are found in divers other Parts, as in *Hungary*, *Burgundy*, &c. *Vitruvius* mentions a Lake in *Cappadocia*, which converts Wood into Stone in one Day. See PETRIFACTION.

3°, There are *Waters* ſuppoſed to tranſmute or turn Iron into Copper. See TRANSMUTATION.

4°, Others are ſaid to change the Colour of the Hair.—*Gyraldus* mentions a Spring in *Ireland*, wherein if a Perſon were waſh'd he inſtantly became grey.

Poiſonous Waters are occaſion'd by their creeping thro' Arſenical, Antimonial, and Mercurial Earths, or being impregnated by their Fumes.—Such is the *Lacus Aſphaltites*, and divers others about the *Alps*, &c. which immediately kill thoſe who drink: But theſe are moſt of 'em fill'd up with Stones; which is one Reaſon ſo few are known.

Saline Waters are generated two ways; either they are deriv'd from the Sea, by ſome ſubterraneous Paſſage; or are generated from Mineral Salts, which they meet withal in their paſſage ere they arrive at their Springs. See SEA, and SALT.

Boiling or *Bubbling Waters*, are produced either by a ſulphureous, or a nitrous Spirit, mix'd with the *Water* in the Earth: If it be ſulphurous, the *Water* is hot; if nitrous, cold. For all the *Waters* that boil as if hot are not ſo, but ſome few are cold: We read both of *Thermæ* and *Acidulæ* that boil.

There are divers other *Waters* that have very ſingular Properties, not reducible to any of theſe Claſſes: Such, 1°, is that Spring in *Portugal*, which abſorbs all Bodies caſt into it, tho the lighteſt: And not far from it there was antiently another, in which no Bodies, not the heavieſt, could ſink.—2°, In *Andaluſia*, we are aſſur'd by *Euſeb. Nierembergenſis*, there is a Lake which foretels approaching Storms, by making a terrible bellowing, that may be heard 18 or 20 Miles diſtance.—3°, In *Granada* is a Well whoſe *Water* diſſolves Stones.—4°, We read of a Spring in *Arcadia*, which render'd thoſe who drank of it abſtemious.—5°, In the Iſland of *Chio* is a Spring, which converts thoſe who drink of it into Fools.—6°, There are Springs in divers Parts of *England*, *Wales*, *Spain*, &c. which ebb and flow daily with the Flux and Reflux of the Sea; and ſome are even ſaid to ebb and flow againſt the Tide.—Add, 7°, *Stalactical Waters*. See STALACTICAL.

Bath-WATER.	See	BATH, and BATHING.
Spaw-WATER.		SPAW.
Petrifying-WATER.		PETRIFYING.

WATER, in Chymiſtry, by the Chymiſts called more uſually *Phlegm*; is the fourth of the five chymical Principles, and one of the paſſive ones. See PRINCIPLE, and PHLEGM.

It is never drawn pure and unmix'd; which, Dr. *Quincy* obſerves, makes it uſually a little more deterſive than common *Water*.

This Principle, probably, contributes much to the Growth of Bodies, in that it both renders and keeps the active Principles fluid; ſo that they are capable of being convey'd by Circulation into the Pores of the mixed: and alſo becauſe it tempers their exorbitant Motion, and keeps them together; ſo that they are not ſo eaſily and ſoon diſſipated.

In all ſuch Bodies whoſe active Subſtances are join'd and united pretty cloſely together, as in common Salt, Tartar, all Plants that are not odoriferous, and in many animal Bodies; this Principle is the firſt that comes in Diſtillation: But when *Water* is mixed with volatile Salts, or with Spirit of Wine, or is in any odoriferous Mixture; then the volatile Particles will riſe and come away firſt. See PRINCIPLE, ELEMENT, *&c.*

WATERS, in Medicine, Pharmacy, Chymiſtry, *&c.* call'd alſo *Artificial*, *Medicinal*, &c. *Waters*; are a Kind of Liquors, procured or prepared by Art from divers Bodies, principally of the Vegetable Tribe; having various Properties, and ſerving various Purpoſes.

Theſe *Waters* are either *Simple*, or *Compound*.

Simple WATERS, are thoſe procur'd from ſome one Vegetable Body. See VEGETABLE.

A *Simple Water*, is not ſuppoſed to be the mere *Water* or Phlegm of the Body it is drawn from, as is evident from the Taſte and Smell thereof.—The Intention of making ſuch *Water*, is to draw out the Virtues of the Herb, Seed, Flower, Root, or the like, ſo as it may be more conveniently given in that form than any other. But the Phlegm, or *watery* Parts of any Medicinal Simple, is no better than common *Water* undiſtill'd: So that all thoſe Ingredients which in Diſtillation raiſe nothing but Phlegm, as may be diſcover'd from the Scent and Taſte of what comes over, are not fit for the Still.—On this Principle, a great part of the *Waters* retained in the Diſpenſatories will appear good for nothing, at leaſt not worth diſtilling.

The Means whereby this Separation is effected, are either *Evaporation*, *Infuſion*, *Decoction*, or *Diſtillation*.

The firſt is perform'd by expoſing the Vegetable in a cold Still to a gentle Heat, like that of a Summer's Sun; and catching the Effluvia which exhale from it. See HEAT, EVAPORATION, *&c.*

The Effect of this Operation, is a *Water*, or fluid Matter, which is the moſt volatile, fragrant, and aromatick Part of the Plant; and that wherein its ſpecifick Virtue reſided.

And thus is it that the aromatick or odoriferous *Waters* of Vegetables are procured. See AROMATICK, and ODORIFEROUS.

The ſecond Means, *viz. Infuſion*, is perform'd by putting the Vegetable in hot Rain-*Water*, below the degree of boiling; keeping it to this degree by an equable heat, for the ſpace of half an Hour; and then ſtraining or pouring it off. See INFUSION.

The only *Waters* procured this way in much uſe in the modern Practice, are thoſe of Frog-ſpawn, and Oak-buds.

The third Means, *viz. Decoction*, only differs from the ſecond in this, that the *Water* is kept to the degree of boiling. See DECOCTION.

The fourth Means, *viz. Diſtillation*, is perform'd by infuſing the Subject in an Alembick, by a gentle warmth, for ſome time, and then increaſing the Heat ſo as to make it boil; and laſtly, catching and condenſing the Steam or Vapour ariſing therefrom. See DISTILLATION.

This Proceſs furniſhes what we call the *Diſtill'd Waters*, of ſo much uſe in Medicine, *&c.*

The Vegetable Subjects beſt fitted for it, are the ſapid and odorous, or thoſe of the aromatick Tribe; as Angelica, Aniſeed, Baum, Carraway, Coriander, Cumin, Dittany, Fennel, Hyſſop, Marjoram, Mint, Roſes, Roſemary, Saffron, Sage, Scurvygraſs, Thyme, Cinnamon, Citron, Juniper, Lime, Myrtle, Orange, Peach, *&c.*

The Medicinal Virtues of *Waters* prepared after this manner, are the ſame as thoſe of the reſpective Plants, *&c.* they are drawn from.—Thus, the diſtill'd *Water* of Mint is Stomachic; that of Wormwood, Vermifugous, *&c.*

The *Materia Medica*, it may be obſerv'd, affords no Remedies in this way, but for the Intentions either of Cordials, Diureticks, or Diaphoreticks.—Were it practicable to raiſe a Balſamick, Cathartick, or Opiate in this way, yet would thoſe Properties be much more conveniently brought forth by other Proceſſes; ſo that nothing is to be look'd for in a diſtill'd *Water*, but ſuch ſubtile and light Parts of a Medicinal Simple, as may fall in with the forementioned Intentions: Indeed, very little comes over under that Diviſion, weighty enough to affect even the urinary Secretions.

The *Simple Waters* of chief Virtue are the following ones, *viz.* Dill-*Water*, *Aqua Anethi*; Baum-*Water*, *Aqua Meliſſæ*; Angelica-*Water*, *Aqua Angelicæ*; Mint-*Water*, *Aqua Minthæ*; Roſemary-*Water*, *Aqua Anthos*; Orange-Flower-*Water*, *Aqua Naphæ*; Black-Cherry-*Water*, *Aqua Ceraſor. nig.*; Parſly-*Water*, *Aqua Petroſelini*; Camomile, *Chamom.* Pennyroyal, *Pulegii*; Fennel-*Water*, *Aqua Fœniculi*; Damaſk-Roſe-*Water*, *Aqua Roſarum dam.*; Hyſſop-*Water*, *Aqua Hyſſopi*; Rue-*Water*, *Aqua Rutæ*; Juniper-*Water*, *Aqua Juniperi bac.*; Eldar-*Water*, *Aqua Sambuci flor.*; Lovage-*Water*, *Aqua Leviſtici*; Carminative-*Water*, *Aqua Carminativa*, &c.

It may be here proper to note, That whatever Properties any Simple has from the Groſſneſs or Solidity of its Parts, which make it act as an Emetick, Cathartick, or Aſtringent; the Reſidue left after Diſtillation will remain in full poſſeſſion thereof.—Thus, the purging Syrup of Roſes, is as well made after the Damaſk-Roſe-*Water* is drawn off, as if the Flowers were juiced, or put into Infuſion; becauſe nothing of a Cathartick Quality riſes with the *Water*.

Sometimes, the Subject is fermented by the Addition of Yeaſt, Honey, or the like Ferment, to the hot *Water*, before the Diſtillation begin: In which Caſe, if the Ferment added were in ſufficient quantity to effect a thorough Fermentation, the Liquid afterwards exhal'd and drawn off would be thin and inflammable; which makes what we call a *Spirit*; otherwiſe, thick, white, ſapid, *&c.* and call'd a *Water*. See FERMENTATION, SPIRIT, *&c.*

The *Waters* procured in this manner, contain the Oil of the Plant in great Perfection; which makes 'em of conſiderable uſe in Medicine, further than thoſe rais'd without Fermentation; beſide that they keep better and longer; the Spirit in 'em preventing their corrupting or growing mothery.

The Compound WATERS, or thoſe wherein ſeveral Ingredients are uſed, are very numerous, and make a large Article in Commerce; ſome prepared by the Apothecaries, according to the Diſpenſatory Preſcripts, for medicinal Uſes; others by the Diſtillers, to be drank by way of Dram, *&c.* and others by the Perfumers, *&c.*

They are diſtinguiſh'd by different Epithets, taken from the *Latin*, *Greek*, *Arabick*, *Engliſh*, &c. in reſpect either of the ſpecifick Virtues of the *Waters*; or the Parts of the Body for the Cure whereof they are intended; or the Diſeaſes they are good againſt; or the Ingredients they are compounded of; or their different Uſes, *&c.*

The moſt conſiderable among the Claſs of *Compound Waters*, we ſhall here enumerate.—The manner of making 'em, 'tis true, is not always the ſame; eſpecially thoſe intended for drinking; for which, every one gives his own Method as the beſt.—Thoſe we here deliver, are taken from ſuch as have the greateſt Reputation in preparing theſe things; or from thoſe who have wrote beſt of 'em.

We have only three general Remarks to add, with regard to thoſe intended for drinking: 1°, That ſuch wherein any thing is infuſed, as broken Fruits, pounded Herbs, or ground Spices, are always paſs'd thro' a Strainer, to make 'em finer and purer.—2°, That thoſe made with Brandy or Spirit of Wine, are uſually diſtill'd after the mixing of their Ingredients; which renders thoſe Liquors exceeding ſtrong and dangerous, and confirms the Proverb; *Plures occidit Gula quam Gladius.* In effect, ſome of 'em are ſo penetrating, that they burn the Tongue when taken.—3°, That the *Waters* that take their Name from any particular thing, as *Cinnamon*, &c. have always ſome other Ingredients joined with 'em, according to the Taſte or Smell requir'd.

Alexipharmachic, or *Alexiterial* WATERS, are *Waters* that reſiſt Poiſons and the Plague.—Such are thoſe of Angelica, Scorzonera, Citron, Orange, Scordium, Rue, *&c.* See ALEXIPHARMACHIC.

Such alſo are Treacle-*Water*, Plague-*Water*, Milk-*Water*, Poppy-*Water*, &c.

Alumn WATER, is a vulnerary *Water*, thus call'd, by reaſon the Baſis or principal Ingredient thereof is Alumn. See ALUMN, and VULNERARY.

Angelica WATER, is uſually prepar'd of Brandy, Angelica-Roots and Seeds, Carduus, Baum, Fennel-Seed, *&c.* the whole beat together in a Mortar; infuſed for a Night, and then diſtill'd.—It is reputed a good carminative, and Cordial, as alſo a Cephalic, *&c.*

Aniſeed-WATER.—To eight Parts of Eſſence of Anis-ſeed diſtill'd, put three Parts of Brandy, with one of *Water* boil'd; mix the whole together: and if you require it ſugar'd, add half a Pint of clarify'd Sugar; but many prefer it without: and ſtrain the whole.

Apricot WATER.—To a Quart of *Water* put ſix or eight Apricots, ſliced; boil the whole, to extract the Taſte; and when cold, add four or five Ounces of Sugar.—When that is diſſolved ſtrain it.

Aromatick WATERS, we have already ſpoke of among the *Simple Waters*.

Arthritic WATERS, are *Waters* good againſt the Gout, Palſy, Tremors, Pains in the Joints, *&c.*—Such are thoſe of Piony, Chamæpetis, Betony, Roſemary, *&c.* See ARTHRITIC.

Bryony WATER, is one of the *Compound Waters* preſcrib'd in the College Diſpenſatory; prepared from Bryony-Roots, Rue, Mugwort, Savin, Feverfew, Dittany, *&c.*—It is a good Hyſteric, opens Menſtrual Obſtructions, *&c.*

Carduus WATER, is made from *Carduus Benedictus* pounded in a Mortar, and put in an Alembick.—Then, a ſufficient quantity of the Juice of the ſame ſort of Plant, drawn by Expreſſion, is pour'd into the Alembick, that the Herbs ſwimming in the Juice may be in no danger of ſticking to the bottom of the Cucurbit in Diſtillation. Laſtly, fitting on a Capital, and luting the Joints, diſtil half as much Juice as you put in.—This *Water* is ſudorifick; and good againſt the Plague, Malignant Fevers, *&c.* See CARDUUS.

WATER *of Separation*, or *Depart*, is only *Aqua fortis*; thus called, becauſe ſerving to ſeparate Gold from Silver. See DEPART. It is alſo called

Cauſtic, *Burning*, or *Strong* WATER, and is prepared of a Mixture of Spirits of Nitre and Vitriol, drawn by force of Fire; to which are ſometimes added Alumn and Arſenic.

It diſſolves all Metals, Gold only excepted.—The Invention of Aqua fortis, is uſually refer'd to the XIIIth Century: Tho ſome hold it to have been known in the Time of *Moſes*. See AQUA *Fortis*, AURUM *Potabile*, &c.

Cephalic WATERS, are *Waters* proper to ſtrengthen and comfort the Brain.—Such are thoſe of Roſemary, Marjoram, Sage, Pyony, Bettony, Baum, *&c.* See CEPHALIC.

Chalybeat WATER, is a *Water* wherein red-hot Steel has been quenched.—It is aſtringent, and good, like Ferruginous or Iron-*Waters*, for Diarrhæas, *&c.* See CHALYBEAT, and MARTIAL.

Cherry WATER.—In a Quart of *Water* cruſh half a pound of Cherries, with four or five Ounces of Sugar. Strain the whole thro' a Cloth, till it be very clear.

Cinnamon WATER.—In a Quart of *Water* boil half an Ounce of broken Cinnamon; and taking it off the Fire, add a quarter of a Pound of Sugar: Let it cool, and ſtrain it.—*Or thus:* Take a Pound of Cinnamon, three Pounds of Roſe-Water, and as much White-wine: bruiſe the Cinnamon, infuſe it fourteen Days, then diſtil it.—The firſt *Water* that riſes is the beſt; then the ſecond; then the third. See CINNAMON.

Clary WATER, is compoſed of Brandy, Sugar, and Cinnamon, with a little Ambergreaſe diſſolved in it.—It helps Digeſtion, and is Cardiack.—This *Water* is render'd either purgative or emetick, by adding Reſins of Jallap and Scammony, or *Crocus Metallorum.*—Some make *Clary Water* of Brandy, Juice of Cherries, Strawberries and Gooſeberries, Sugar, Cloves, White Pepper, and Coriander-Seeds; infuſed, ſugar'd, and ſtrain'd.

Clove WATER, is prepared of Brandy, and Cloves bruis'd therein, and diſtill'd. See CLOVE.

Cordial or *Cardiac* WATERS, are *Waters* proper to ſtrengthen, and comfort the Heart.—Such are thoſe of Endive, Chicory, Bugloſs, Burridge, Marigolds, *&c.* See CARDIAC, and CORDIAL.

Coſmetic WATERS, are *Waters* proper to cleanſe, ſmoothen and beautify the Skin. See COSMETIC.

Fennel WATER.—Infuſe a Handful of Fennel in a Pint of cold Water, for an Hour or an Hour and an half: add three or four Ounces of Sugar. Strain it, and drink it.

Gentian WATER.—Take four Pounds of Gentian Roots, either green or dry'd; mince them ſmall, infuſe them in White-wine, or only ſprinkle them therewith; then diſtil them, with the Addition of a little Centaury the leſſer. See GENTIAN.

It is frequently uſed as a Stomachic, and is alſo commended for a Deterger; ſerving in Dropſies, Jaundice, Obſtructions of the *Viſcera*, &c.

Gum WATER, is that made by letting Gum-Arabick, inclos'd in a linen Rag, infuſe in common *Water.*—The Ladies alſo make *Water* to gum their Hair, of Quince-Kernels ſteep'd in *Water.* See GUM.

Hepatic WATERS, are thoſe uſed to cleanſe, ſtrengthen, and refreſh the Liver.—Such are thoſe of Chicory, Capillaries, Purſlain, Agremony, Fumitory, *&c.* See HEPATIC.

Honey WATER, is a *Water* prepar'd in Places where much Honey is made, by waſhing out the Honey-Combs, and the Veſſels they have been in, in common *Water.*—This gives it a Honey-Taſte, and it afterwards becomes very clear, and the People uſe it as their common Drink. See HONEY.

Horſe-raddiſh WATER, *Aqua Raphani*, is prepar'd of the Juices of Scurvygraſs, Brook-Lime, Water-Creſſes, White-wine, Lemon-Juice. Bryony-Root, Horſe-raddiſh, Winter's Bark and Nutmeg, digeſted and diſtill'd.—It is a good Diuretic; cleanſing, and removing Obſtructions of the *Viſcera*, promoting Perſpiration, *&c.*

Hungary WATER, is a Liquor diſtill'd *in Balneo Mariæ*, from Roſemary-Flowers, and Spirit of Wine well rectify'd.—It has its Name from the wonderful Effects it is ſaid to have had on a Queen of *Hungary*, at the Age of 72 Years.—'Tis good againſt Faintings, Palſies, Lethargies, Apoplexies, and hyſterical Diſorders.—There are divers ways of preparing it. See HUNGARY.

Hyſteric WATERS, are thoſe proper to ſtrengthen the Matrix, or Womb, and remedy the Diſorders that befal it.—Such are thoſe of Bryony, Matricary or Motherwort, Hyſſop, Fennel, Baum, Mugwort, Smallage, *&c.* See HYSTERIC.

Iced, or *Frozen* WATERS, are certain agreeable and wholeſom *Waters*, as Orange *Water*, or the like, artificially froze in Summer-time, particularly in hot Countries, to be uſed in Collations, *&c.* as Coolers.—The way of making 'em is thus: The Veſſels containing the Liquors deſign'd to be froze, are firſt ſet in a Pail, in ſuch manner as not to touch each other; then cover'd up, and the void Space in the Pail fill'd with common Ice, beaten, and mix'd with Salt.—Every half Hour they clear out what Water the thawing Ice ſends to the bottom of the Pail, by means of a Hole at bottom; and at the ſame time ſtir up the Liquors with a Spoon, that they may freeze into Snow: For were they to ſhoot in form of Ice, or Icicles, they would have no Taſte.—Then, covering the Veſſels again, they fill up the Pail with more beaten Ice, and Salt, in lieu of that diſſolved and evacuated. The more expeditious the Freezing is requir'd to be, the more Salt to be mix'd with the Ice. See FREEZING.

Imperial WATER, *Aqua Imperialis*, is a *Water* diſtill'd from Cinnamon, Nutmeg, Citron-Bark, Cloves, *Calamus Aromaticus*, Santal, and divers other Simples, infus'd in White-wine and Baum-*Water.*—It is a pleaſant Cordial-Dram, good againſt Diſeaſes of the Brain, Stomach, and Womb.

Juniper WATER, is a Compound *Water*, made of Brandy, and Juniper-Berries beaten therein, and diſtill'd. See BRANDY, and GENEVA.

Lime WATER, is common Water, wherein Quick-lime has been ſlak'd; and afterwards filter'd. See LIME.

Milk WATER, *Aqua Lactis*, is prepared of Mint, Wormwood, Carduus Benedictus, Goats-Rue, and Meadow-ſweet, bruis'd, infuſed in Milk, and drawn off by Infuſion.—It is held Alexipharmic and Cephalic.

Aqua Mirabilis, or *the Wonderful* WATER, is prepared of Cloves, Galangals, Cubebs, Mace, Cardomums, Nutmeg, Ginger, and Spirit of Wine, digeſted 24 Hours, then diſtill'd.——It is a good and agreeable Cordial; Carminative, *&c.*

Nephritic WATERS, are ſuch as ſtrengthen the Reins, and help 'em to diſcharge by Urine any Impurities therein.——Such are thoſe of the Honeyſuckle, Pellitory, Raddiſh, Beans, Mallows, *&c.* See NEPHRITIC.

The *Nephritic Water* of Dr. *Radcliff*, popularly called Dr. *Radcliff*'s *Water*, is taken into the laſt Edition of the College Diſpenſatory. It is prepar'd from the Kernels of Black Cherries, Peaches, and Bitter Almonds, beaten in a Mortar into a Paſte, with Rheniſh Wine; and Seeds of Smallage, Treacle, Muſtard, Gromwel and Parſley, beaten likewiſe, and added thereto: To the Mixture are put Juniper-Berries, Garlick, Onions, Leeks, Pimpernel, Horſe-raddiſh, Calamus Aromaticus, Cinnamon, Wall-Rue, Mace, and Nutmegs: the whole macerated in Rheniſh, Spirit of Black Cherries, *&c.* and thus diſtill'd.——It is one of the moſt powerful Detergers and Cleanſers known; good in the Dropſy, Jaundice, Aſthma, Pleuriſy, *&c.*

Ophthalmic, or *Eye* WATERS, are ſuch as are good in Diſorders of the Eyes.——Such are thoſe of Eyebright, Fennel, Vervain, Plantain, Celandine, Cyanus, *&c.* See OPHTHALMIC.

Orange-Flower WATER, is made of common Water, Sugar, and Orange-Flowers, infuſed for about two Hours.——After the like manner, one may make *Waters* of divers other Flowers; as *Violets*, *Jonquils*, *Jeſſamins*, *Tuberoſes*, &c.

Peach WATER, is made after the ſame manner as *Apricot Water*; only with Peaches.

Phagædenic WATER, is Lime-*Water*, to every Pound whereof is added twenty or thirty Grains of Corroſive Sublimate, in Pouder.—It ſerves to cleanſe old Ulcers, to eat off fungous Fleſh, *&c.* See PHAGÆDENIC.

Plague WATER, *Aqua Epidemica*, is prepar'd from the Roots of Maſterwort, Angelica, Pyony, and Butter-bur; Viper-Graſs, *Virginia* Snakeroot, Rue, Roſemary, Baum, Carduus, Water Germander, Marigolds, Dragons, Goats-Rue, and Mint; the whole infus'd in Spirit of Wine and diſtill'd.—It is of frequent Uſe as an Alexipharmachic: It revives the Spirits, and promotes a Diaphoreſis. It is the Baſis of moſt Juleps now preſcrib'd, eſpecially in feveriſh Caſes.

Poppy WATER, is prepared from the Flowers of wild Poppies, infus'd in White-wine, or Brandy, and drawn off in a cold Still.—It is a Cordial, good againſt the Colic, and by ſome call'd *Red Plague-Water.*

Pyony WATER, is made of Pyony and Lime-Flowers, Lilly of the Valley ſteep'd in Canary, and diſtill'd: To the *Water* thus procured, are added the Root of Male Pyony, White Dittany, Birthwort, Miſletoe, Rue, Caſtor, Cubebs, Cinnamon, Betony, *&c.*—It is a good Cordial, and much uſed in nervous Caſes.

Roſe WATER.—Take of Roſes three Parts, and of Fennel and Rue each, one Part; chop 'em ſmall, and mix 'em well together; then diſtil 'em.—This *Water* is excellent for the Eyes, *&c.*

Scordium WATER, is prepared from the Juices of Goats-Rue, Sorrel, Scordium, Citrons and Treacle, digeſted and diſtill'd.—It is an Alexipharmachic.

Second WATER. See SECUNDA *Aqua.*

Specific WATERS, are ſuch as have ſome peculiar Virtue, appropriate to certain Diſeaſes.—Thus Purſlain *Water*, wherein Mercury has been infuſed, is a Specific againſt Worms in young Children. See SPECIFIC.

Splenetic WATERS, are thoſe proper againſt Diſeaſes of the Spleen.—Such are thoſe of the Tamariſk, Cuſcuta, Hartſ-tongue, Hops, *&c.* See SPLEEN.

Stephens's WATER, *Aqua Stephani*, is made from Cinnamon, Ginger, Galangals, Cloves, Nutmegs, Paradiſe Grains, Anis-ſeeds, Sweet Fennel, Carraway, Thyme, Mint, Sage, Pennyroyal, Pellitory, Roſemary, Red Roſes, Camomile, Origany and Lavender, ſteep'd in *Gaſcoign* Wine, or Spirit of Wine, diſtill'd.—It is a good Cephalic and Cardiac, and is alſo reputed Hyſterical.

Stomachic WATERS, are ſuch as have the Virtue to cleanſe, ſtrengthen, and confirm the Stomach.——As Red Roſe-*Water*, Mint-*Water*, Aniſeed-*Water*, &c. See STOMACH.

Stygian WATER. See AQUA *Regalis*.

Styptic WATER, is a Diſſolution of red Vitriol, or the Colcothar remaining in the Retort after the Spirit has been extracted; with burnt Alumn and Sugar-candy.—With thirty Grains of each of theſe three Drugs, they mix half an Ounce of Urine of a young Man, as much Roſe-*Water*, and two Ounces of Plantain-*Water*.—Its uſe is to ſtop Bleeding. See STYPTIC.

Treacle WATER, *Aqua Theriacalis*, is directed by the College Diſpenſatory to be made of green Walnuts, Rue, Carduus, Marigold, Baum, Butter-bur-Roots, Burdock, Angelica, Maſterwort, Water-Germander, Venice Treacle, Mithridate, Canary, Vinegar, and Lemon-Juice, ſteep'd and diſtill'd.—It is the moſt uſed of any in the Shops; tho Dr. *Quincy* decries it as one of the worſt concerted of all. Its Intention is to be an Alexipharmachic and Sudorific.

Other Diſpenſatories give a more ſimple *Treacle-Water*, made from Treacle, with an equal quantity of Brandy and Vinegar.—It is good for Ulcers, and Eroſions of the Mouth; eſpecially if a little *Armenian* Bole be diſſolv'd therein. See TREACLE.

Vulnerary WATER, is a *Water* proper for the healing of Wounds, prepared from the Juice of Vulnerary Plants. See VULNERARY.

WATER, in Anatomy, &c. is applied to divers Liquors or Humours in the human Body. See HUMOUR.

Such is the *Aqua Phlegmatica*, Phlegmatic *Water*; which is a ſoft ſerous Humour, contained in the *Pericardium*, and wherein the Heart ſwims. See PERICARDIUM.

Anatomiſts are divided about it: Some will not have it natural, but ſuppoſe it ſeparated forcibly during the Pangs of Death: Their Reaſon is, the difficulty they meet withal in tracing its Paſſage, or how it is carried off.—The lateſt Anatomiſts, however, ſeem to agree to its being a natural and neceſſary Humour: and one Reaſon is, that it is found even in the Pericardiums of *Fœtus*'s.

It has likewiſe been diſputed whence it ſhould be ſeparated.—The freſheſt Opinion is, that it is ſecreted by ſome Glands about the Baſis of the Heart; and that it diſtils thence drop by drop, into the Cavity of the Pericardium, in ſuch Quantity, as juſt to ſupply what is expended daily by the Motion and Warmth of the Heart; and ſo needs no Evacuation. Its Uſe is, to moiſten, lubricate, and cool the Heart, and prevent any Inflammation that might ariſe from the dry Friction of the Heart and Pericardium. So that it does the ſame Office to the Heart, that the *Water* does wherein the *Fœtus* ſwims; which without it would not have liberty to move at all. See HEART.

WATER is alſo uſed in divers Ceremonies, both Civil and Religious.—Such is the *Baptiſmal Water*, *Holy Water*, &c. See BAPTISM, &c.

Holy WATER, is a *Water* prepared every Sunday in the *Romiſh* Church, with divers Prayers, Exorciſms, &c. uſed by the People to croſs themſelves withal at their entrance, and going out of Church; and pretended to have the Virtue of waſhing away venial Sins, driving away Devils, preſerving from Thunder, diſſolving Charms, ſecuring from, or curing Diſeaſes, &c.

The Uſe of *Holy Water* appears to be of a pretty antient ſtanding in the Church: witneſs S. *Jerom*, in his Life of S. *Hilarion*, and *Gretſer de Benedict*. Cap. x, &c.

M. *Godeau* attributes its Original to Pope *Alexander*, a Martyr under the Emperor *Adrian*.

Many of the Reformed take the Uſe of *Holy Water* to have been borrow'd from the *Luſtral Water* of the antient *Romans*. See LUSTRALIS.——Tho it might as well be borrow'd from the Sprinklings in uſe among the *Jews*. See *Numbers* xix. 17.

Urban Godfrey Siber, a *German*, has a Diſſertation printed at *Leipſic*, to ſhew, by Proofs brought from Church-Hiſtory, that one may give *Holy Water* to drink to Brutes.

Bitter WATERS *of Jealouſy*.—In the *Levitical* Law, we find mention made of a *Water*, which ſerv'd to prove whether or no a Woman were an Adultreſs.——The *Formula* was this: The Prieſt, offering her the Holy *Water*, denounced,—"If thou haſt gone aſide to another, inſtead of thy Huſband, and if thou be defiled, &c. the Lord make thee a Curſe and an Oath among thy People, by making thy Thigh to rot, and thy Belly to ſwell: And this *Water* ſhall go into thy Bowels, to make thy Belly to ſwell, and thy Thigh to rot." And the Woman ſhall ſay, *Amen*.——"Theſe Curſes the Prieſt ſhall write in a Book, and blot 'em out with the *bitter Water*."——"When he hath made her drink the *Water*, it ſhall come to paſs, that if ſhe be defiled, the *Water* ſhall enter into her and become bitter, and her Belly ſhall ſwell, &c."——"If ſhe be not defiled, ſhe ſhall be free, and conceive Seed." *Numbers* ch. v.

WATER *Ordeal*, or *Trial* was of two Kinds; by hot, or by cold *Water*.

Trial or Purgation by boiling, or hot Water.——Among our Anceſtors, there was a way of proving Crimes, by immerging the Body or the Arm in hot *Water*, with divers Religious Ceremonies. See TRIAL, PURGATION, &c.

In the Judgment by *boiling Water*, the Accuſed, or he who perſonated the Accuſed, was oblig'd to put his naked Arm into a Cauldron full of boiling *Water*; and to draw out a Stone thence, placed at a greater or leſs depth according to the Quality of the Crime.——This done, the Arm was wrap'd up, and the Judge ſet his Seal on the Cloth; and at the end of three Days they returned to view it; when, if it were found without any Scald, the Accuſed was declared Innocent.

The Nobles and great Perſons purg'd themſelves thus by *hot Water*; and the Populace by *cold Water*.

F. *Mabillon* will have this Ceremony introduced by Pope *Eugenius* II. in lieu of making Oath with the Hand laid on the Relicks of ſome Saint; which having been abuſed, was prohibited by *Innocent* III. at the Council of the *Lateran*.

"*Theotberge*, Wife of *Lothaire* of *France*, having been accuſed of Inceſt, committed before Marriage with her Brother Duke *Hubert*; as ſhe could not be convicted by any Witneſſes, certain of the Biſhops were conſulted as to the manner wherein the Judges ſhould proceed in an Affair where the Crime, tho very dubious, did diſhonour to the King.——The Biſhops were of Opinion they ſhould have recourſe to the *Proof by boiling Water*; which conſiſted in this, That the Accuſed, to prove her Innocence, ſhould plunge her Hand into a Baſon of boiling *Water*, and take out a Ring put therein. Sometimes, indeed, they ſubſtituted another Perſon to make the Trial, in the room of the Accuſed: Accordingly, the Rank and Quality of *Theotberge* excuſing her from making the Proof her ſelf, ſhe choſe a Man to do it for her; who either out of Zeal for the Life and Honour of the Princeſs, or for Money, ſtood the Teſt, and drew out his Hand and the Ring, without harm." F. *Daniel's Hiſt. of* France.

Trial or Purgation by cold Water.—After certain Prayers, and other Ceremonies, the Accuſed was ſwaddled, or ty'd up all in a Pelotoon or Lump; and thus caſt into a River, Lake, or Veſſel of *cold Water*; where, if he ſunk, he was held criminal; if he floated, innocent. See JUDICIUM, PURGATION, PROOF, ORDEAL, COMBAT, &c.

WATER, among Jewelers, is properly the Colour or Luſtre of Diamonds, and Pearls; thus call'd, by reaſon theſe were antiently ſuppoſed to be form'd, or concreted, of *Water*. See GEM, &c.

Thus, they ſay, ſuch a Pearl is of a fine *Water*. See PEARL.—The *Water* of ſuch a Diamond is muddy. See DIAMOND.

The Term is ſometimes alſo uſed, tho leſs properly, for the Colour or Hue of other precious Stones. See PRECIOUS *Stone*.

WATER-*Bailiff*, is an Officer antiently eſtabliſh'd in all Port-Towns, for the ſearching of Ships; as appears from 28 *Hen.* VI. cap. v.

There is ſuch an Officer ſtill on foot in the City of *London*, who ſuperviſes and ſearches all Fiſh brought thither; and gathers the Toll ariſing from the River of *Thames*.—He attends alſo on the Lord-Mayor, and hath the principal Care of marſhalling the Gueſts at the Table.

He alſo arreſts Men for Debt, or other Perſonal or Criminal Matters, on the River of *Thames*, by Warrant of his Superiors, &c.

WATER *Born*, in the Sea Language.—A Ship is ſaid to be *Water born*, when ſhe is where there is no more *Water* than will barely bear her from Ground; or when lying even with the Ground, ſhe firſt begins to float or ſwim.

WATER-*Colours*, in Painting, are ſuch Colours as are only diluted and mix'd up with Gum-*Water*.—In contradiſtinction to *Oil Colours*. See COLOUR.

The Uſe of *Water-Colours*, makes what we call *Limning*; as that of Oil Colours does *Painting* properly ſo called. See LIMNING, and PAINTING.

Dead-WATER, in the Sea Language, is the Eddy *Water* that follows the Stern of the Ship; not paſſing away ſo faſt as that which ſlides by her Sides.

WATER-*Farcin*. See FARCIN.

WATER *Gage*, an Inſtrument to meaſure the Depth or Quantity of any *Water*. See GAGE, SOUNDING, &c.

WATER-*Gang*, from the Saxon *Watergang*, a Courſe or Trench, to convey a Stream of *Water*. See CANAL, TRENCH, &c.

WATER-*Line*, of a Ship, is that Line which diſtinguiſhes that part of her under *Water*, from that above; when ſhe is duly laden.

WATER-*Meaſure*.——Salt, Sea-Coal, *&c.* while aboard Veſſels in the Pool, or River, are meaſur'd with the Corn-Buſhel heap'd up; or elſe five ſtriked Pecks are allow'd to the Buſhel.—This is called *Water-Meaſure*; and exceeds *Wincheſter*-Meaſure by about three Gallons in the Buſhel. See MEASURE, CHALDRON, *&c.*

WATER-*Poiſe*, See HYDROMETER.

Dr. *Hook* has contrived a *Water-poiſe*, which may be of good ſervice in examining the Purity, *&c.* of *Water*. It conſiſts of a round glaſs Ball, like a Bolt-head, about three Inches in Diameter, with a narrow Stem or Neck, $\frac{1}{24}$ of an Inch; which being poiſed with red Lead, ſo as to make it but little heavier than pure ſweet *Water*, and thus fitted to one end of a fine Balance, with a Counterpoiſe at the other; upon the leaſt Addition of even $\frac{1}{2000}$th Part of Salt to a quantity of *Water*, half an Inch of the Neck will immerge above the *Water*, more than did before. *Philoſoph. Tranſact.* N° 197.

WATER-*Scape*, of the Saxon *Waterſchap*, denotes an Aqueduct. See AQUEDUCT.

WATER-*Shoot*, a young Sprig, which ſprings out of the Root or Stock of a Tree. See SHOOT, STOCK, *&c.*

WATER-*Shot*, in the Sea Language, a ſort of riding at Anchor; when a Ship is moored neither croſs the Tide, nor right up and down; but quarter'd betwixt both.

WATER-*Table*, in Architecture, is a ſort of Ledge, left in Stone or Brick Walls, about 18 or 20 Inches from the Ground: from which Place, the Thickneſs of the Wall begins to abate. See WALL.

WATER-*Way*, in a Ship, is a ſmall Ledge of Timber, lying on the Deck, cloſe by the Sides; to keep the *Water* from running down there.

WATER-*Wheel*, an Engine for raiſing *Water* in great quantity out of a deep Well. See PERSIAN *Wheel*.

WATERING, in Gardening, *&c.* the Application of *Water* to the Soil of Plants, *&c.* when not ſufficiently moiſten'd with Rain, Dew, *&c.* See SOIL, VEGETATION, *&c.*

After ſowing Seed of any kind, tho the Ground be ever ſo dry, they ſhould never be *water'd* till they have been 48 Hours in the Ground; and the Ground is a little ſettled about 'em; otherwiſe, a too great glut of Nouriſhment at firſt will be apt to burſt 'em. See SEED, and SOWING.

Care is to be taken, that the Leaves of young and tender Plants ben't *water'd* at all while the Weather is cold; only the Ground to be wet about 'em.

For hardy Plants and Seeds, if the Nights be cold, *water* in the Forenoon; otherwiſe in the Evening.

Water that comes out of deep Pits, or Wells, ſhould ſtand a Day in an open Veſſel, ere it be applied to tender Plants in the Spring. Dung of Sheep, Pidgeons, or Hens, or Aſhes, Lime, *&c.* infuſed in the *Water*, will forward the Growth of Plants. See MANURE.

WATERING, in the Manufactures.—To *Water a Stuff*, is to give it a Luſtre, by wetting it lightly, and then paſſing it thro' the Preſs, or the Calendar, whether hot or cold. See CALENDAR, TABBY, PRESSING, *&c.*

WATTLES, among Huſbandmen, Grates or Hurdles, or Folds for Sheep. See PARK.

The Word is alſo uſed for the Gills of a Cock: and the naked red Fleſh that hangs under a Turkey's Neck.

WAVE, *Unda*, in Phyſicks, *&c.* a Cavity in the Surface of Water or other Fluid, with an Elevation aſide thereof. See FLUID, and WATER.

The Origin of *Waves* may be thus conceived.—The Surface of a ſtanding Water being naturally Plain, and parallel to the Horizon; if by any means it be render'd hollow, as at A, (Tab. *Hydroſtatics*, Fig. 30.) its Cavity will be ſurrounded with an Elevation B B; this raiſed Water will deſcend by its Gravity, and with the Celerity acquir'd in deſcending, form a new Cavity; by which Motions, the Water will aſcend at the Sides of this Cavity, and fill the Cavity A, while there is a new Elevation towards C; and when this laſt is depreſs'd, the Water riſes anew towards the ſame Part. Thus ariſes a ſucceſſive Motion in the Surface of the Water; and a Cavity, which carries an Elevation before it, is moved along from A towards C. This Cavity, with the Elevation next it, is called a *Wave*; and the Space taken up by the *Wave* on the Surface of the Water, and meaſur'd according to the Direction of the *Wave*'s Motion, is called the *Breadth of the Wave*. See RIVER, and UNDULATION.

The Motion of Waves, makes an Article in the New Philoſophy; and the Laws thereof being now pretty well determin'd, we ſhall give the Reader the Subſtance of what is taught thereon.

1°, Then, the Cavity, as A, is incompaſs'd every way with an Elevation; and the Motion abovemention'd expands it ſelf every way; therefore the *Waves* are moved circularly.

2°, Suppoſe, now, A B, (Fig. 31.) an Obſtacle, againſt which the *Wave*, whoſe beginning is at C, ſtrikes; and we are to examine what Change the *Wave* ſuffers in any Point, as E, when it is come to the Obſtacle in that Point. In all Places thro' which the *Wave* paſſes in its whole Breadth, the *Wave* is raiſed; then a Cavity is form'd, which is again fill'd up; which Change, while the Surface of the Water undergoes, its Particles go and return thro' a ſmall Space: The Direction of this Motion is along C E, and the Celerity may be repreſented by that Line.—Let this Motion be conceived to be reſolved into two other Motions, along G E and D E, whoſe Celerities are reſpectively repreſented by thoſe Lines. By the Motion along D E, the Particles do not act againſt the Obſtacle; but after the Stroke, continue their Motion in that Direction with the ſame Celerity; and this Motion is here repreſented by E F, ſuppoſing E F and E D to be equal to one another: But by the Motion along G E, the Particles ſtrike directly againſt the Obſtacle, and this Motion is deſtroy'd; for tho the Particles are elaſtick; yet, as in the Motion of the *Waves* they run thro' but a ſmall Space, going backward and forward, they proceed ſo ſlowly, that the Figure of the Particles cannot be changed by the Blow; and ſo are ſubject to the Laws of Percuſſion of Bodies perfectly hard. See PERCUSSION.

But there is a Reflexion of the Particles, from another Cauſe: The Water which cannot go forward beyond the Obſtacle, and is puſh'd on by that which follows it, gives way where there is the leaſt Reſiſtance; that is, aſcends: And this Elevation, which is greater in ſome than other Places, is cauſed by the Motion along G E; becauſe it is by that Motion alone that the Particles come againſt the Obſtacle.—The Water, by its Deſcent, acquires the ſame Velocity with which it was raiſed; and the Particles of Water are repell'd from the Obſtacle, with the ſame Force in the Direction E G, as that with which they ſtruck againſt the Obſtacle.—— From this Motion, and the Motion abovemention'd along E F, ariſes a Motion along E H, whoſe Celerity is expreſs'd by the Line E H, which is equal to the Line C E; and by the Reflection, the Celerity of the *Wave* is not changed; but it returns along E H, in the ſame manner, as if taking away the Obſtacle, it had moved along E *h*.

If from the Point C, C D be drawn perpendicular to the Obſtacle, and then produced, ſo that D *e* ſhall be equal to C D; the Line H *e* continued, will go thorow *c*: And as this Demonſtration holds good in all Points of the Obſtacle; it follows, that the reflected *Wave* has the ſame Figure on that ſide of the Obſtacle, as it would have had beyond the Line A B, if it had not ſtruck againſt the Obſtacle.—If the Obſtacle be inclined to the Horizon, the Water riſes and deſcends upon it, and ſuffers a Friction, whereby the Reflection of the *Wave* is diſturb'd, and often wholly deſtroy'd: And this is the Reaſon why very often the Banks of Rivers do not reflect the *Waves*.

If there be a Hole, as I, in the Obſtacle B L, the Part of the *Wave* which goes thro' the Hole, continues its Motion directly, and expands it ſelf towards Q Q; and there is a *new Wave* formed, which moves in a Semicircle whoſe Centre is the Hole. For, the raiſed Part of the *Wave*, which firſt goes thro' the Hole, immediately flows down a little at the Sides; and by deſcending, makes a Cavity, which is ſurrounded with an Elevation on every Part beyond the Hole, which moves every way in the ſame manner as was laid down in the Generation of the firſt *Wave*.

In the ſame manner, a *Wave* to which an Obſtacle, as A O, is oppoſed, continues to move between O N; but expands it ſelf towards R, in a Part of a Circle, whoſe Centre is not very far from O.——Hence we may eaſily deduce, what muſt be the Motion of a *Wave* behind an Obſtacle, as M N.

Waves are often produced by the Motion of a tremulous Body, which alſo expand themſelves circularly, tho the Body goes and returns in a right Line; for the Water which is raiſed by the Agitation, deſcending, forms a Cavity, which is every where ſurrounded with a Riſing.

Different *Waves* do not diſturb one another, when they move according to different Directions.——The Reaſon is, that whatever Figure the Surface of the Water has acquir'd by the Motion of the *Waves*, there may in that be an Elevation and Depreſſion; as alſo ſuch a Motion as is requir'd in the Motion of a *Wave*.

To determine the Celerity of the *Waves*, another Motion, analogous to theirs muſt be examin'd.——Let there be a Liquid in the recurve cylindric Tube E H, (Fig. 32.) and let the Liquid in the Leg E F, be higher than in the other Leg, by the Diſtance *l* E; which difference is to be divided into two equal Parts at *i*. The Liquid by its Gravity deſcends in the Leg E F, while it aſcends equally in the Leg E H: ſo that when the Surface of the Liquid is arrived at *i*, it is at the ſame height in both Legs; which is the only Poſition wherein the Liquid can be at reſt: But by the Celerity acquir'd in deſcending, it continues its Motion, and aſcends higher in the Tube G H; and in E F is depreſs'd quite to *l*, except ſo much as it is hinder'd by the Friction againſt the Sides of the Tube. The Liquid in the Tube G H, which is higher, alſo deſcends by its Gravity, and ſo the Liquid in the Tube riſes and falls, till it has loſt all its Motion by the Friction.

The Quantity of Matter to be moved, is the whole Liquid in the Tube; the moving Force, is the Weight of the Column *l* E, whoſe weight is always double the Diſtance E *i*; which diſtance, therefore, increaſes and diminiſhes in the ſame Ratio with the moving Force.—But the Diſtance E *i* is the Space to be run thro' by the Liquid, in order to its moving from the Poſition E H, to the Poſition of Reſt; which Space, therefore, is always as the Force continually acting upon the Liquid: But it is demonſtrated, that it is on this account that all the Vibrations of a Pendulum, oſcillating in a Cycloid, are Iſochronal; and therefore, here alſo, whatever be the Inequality of the Agitations, the Liquid always goes and returns in the ſame Time. The Time in which a Liquid thus agitated aſcends or deſcends, is the Time in which a Pendulum vibrates, whoſe length is equal to half the Length of Liquid in the Tube, or to half the Sum of the Lines E F, F G, G H. This length is to be meaſur'd in the Axis of the Tube. See PENDULUM.

From theſe Principles, to determine the Celerity of the *Waves*, we muſt conſider ſeveral equal *Waves* following one another immediately; as A, B, C, D, E, F, (Fig. 33.) which move from A towards F: The *Wave* A has run its breadth, when the Cavity A is come to C; which cannot be, unleſs the Water at C aſcend to the height of the Top of the *Wave*, and again deſcends to the depth C; in which Motion, the Water is not agitated ſenſibly below the Line *h i*: Therefore this Motion agrees with the Motion in the Tube abovemention'd, and the Water aſcends and deſcends, that is, the *Wave* goes thro' its Breadth, while a Pendulum of the Length of half B C performs two Oſcillations, or whilſt a Pendulum of the Length B C D, that is, four times as long as the firſt, performs one Vibration. Therefore, the Celerity of the *Wave* depends upon the Length of the Line B C D; which is greater, as the Breadth of the *Wave* is greater, and as the Water deſcends deeper in the Motion of the *Waves*.—In the broadeſt *Waves*, which do not riſe high, ſuch a Line as B C D, does not much differ from the Breadth of the *Wave*; and in that Caſe, a *Wave* moves its breadth, while a Pendulum equal to that *Wave* oſcillates once. See OSCILLATION.

In every equable Motion, the Space gone thro' increaſes with the Time and the Celerity; wherefore, multiplying the Time by the Celerity, you have the Space gone thro': whence it follows, that the Celerity of the *Waves* are as the ſquare Roots of their Breadth: For as the Times in which they go thro' their Breadths are in that Ratio, the ſame Ratio is requir'd in their Celerities, that the Products of the Times by their Celerities may be as the Breadth of the *Waves*, which are the Spaces gone thro'.

WAVED, or WAVY, a Term in Heraldry, when a Bordure, or any Ordinary or Charge in a Coat of Arms, has its Out-lines indented, in manner of the riſing and falling of *Waves*.

This is alſo called *Undy*. See UNDY.

To WAVE, is alſo uſed in the Sea Language, for the making Signs for a Veſſel to come near, or keep off. See SIGNAL.

WAVESON, in the Admiralty Law, a Term uſed for ſuch Goods, as after Shipwreck do appear ſwimming on the *Waves*. See FLOTSON, JETSON, *&c.*

WAX, *Cera*, a ſoft yellowiſh Matter, whereof the Bees form Cells to receive their Honey. See CELL.

Wax is not the Excrement of this laborious Inſect, as the Antients, and after them many of the Moderns, have imagin'd.

'Tis properly a Juice, exuding out of the Leaves of Plants, and adhering to the Surface thereof; from which it is ſcrap'd off by the Bees with their rough Thighs, to build their Combs withal.—It is chiefly afforded by Lavender and Roſemary; from which laſt, any body may gather *Wax*; and, with the aſſiſtance of the Microſcope, the *Wax* may be plainly ſeen ſticking on the Leaves of the Plant.—So that *Wax* is not an Animal, but a Vegetable Subſtance.

Naturaliſts have generally imagin'd the *Wax* to be gather'd from the Flower, ſome from the Petala, and others from the Apices; but *Boerhaave* affirms it a Juice peculiar to the Leaves, and not afforded by the Flowers, which only yield Honey. See HONEY.

The Honey is form'd of a liquid Matter ſuck'd into the Body; and only ſeems to arrive at its Perfection in the Entrails of the little Animal: Whereas the *Wax*, being a hard Subſtance, is gather'd only with the fore Legs and Chaps; convey'd thence to the middle Legs, and thence to the middle Joint of the hind Legs, where there is a ſmall Cavity, like the bowl of a Spoon, to receive it; and where it is collected into Heaps, of the ſhape and ſize of Lentils.

The Bee arrived at the Hive with its Load of *Wax*, finds ſome difficulty in unburdening himſelf of ſo tenacious a Matter.—Frequently, being unable to lay it down himſelf, he calls for Aſſiſtance, by a particular Motion of the Legs and Wings; upon which, a number of his Companions ſtrait run to his ſuccour, and each with his Jaws takes off a ſmall quantity of the *Wax*; others ſucceeding; till their laden Fellow be quite disburden'd. See HONEY-COMB.

Wax makes a very conſiderable Article in Commerce; the Conſumption thereof, throughout the ſeveral Parts of *Europe*, being incredible.—There are two Kinds, *white*, and *yellow*; the yellow is the native *Wax* juſt as it comes out of the Hive, after expreſſing the Honey, *&c.* the white is the ſame *Wax*, only purify'd, waſh'd, and expos'd to the Air. The Preparation of each follows.

Yellow WAX.

To procure the *Wax* from the Combs for uſe; after ſeparating the Honey from them, in the manner deſcrib'd under the Article HONEY; they put all the Matter remaining in a large Kettle, with a ſufficient quantity of Water; where, with a moderate Fire, they melt it, and then ſtrain it thro' a linen Cloth, by a Preſs: ere cold, they ſcum it with a Tyle, or a piece of wet Wood, and caſt it, while yet warm, in wooden, earthen, or metalline Molds; having firſt anointed 'em with Honey, Oil, or Water, to prevent the *Wax* from ſticking.—Some, to purify it, make uſe of *Roman* Vitriol, or Copperas; but the true Secret is to melt, ſcum it, *&c.* properly, without any Ingredients at all.

The beſt is that of a high Colour, an agreeable Smell, brittle, and that does not ſtick to the Teeth when chew'd. 'Tis often ſophiſticated with Roſin, or Pitch colour'd with Rocou, or Turmeric.

By Chymiſtry, *Wax* yields a white thick Oil, reſembling Butter; whence the Chymiſts call it *Butter of Wax*.——From this Oil is drawn a ſecond, as clear as Water: Both the one and the other are excellent for Chilblains.—The Fæces remaining in the Bag after expreſſing the *Wax*, is uſed both by Farriers and Surgeons, with ſucceſs againſt Strains.

White WAX.

The whitening or blanching of *Wax*, is perform'd by reducing the *yellow* ſort, firſt, into little bits or grains, by melting it, and throwing it, while hot, into cold Water; or elſe by ſpreading it into very thin Leaves, or Skins. This *Wax*, thus granulated, or flatted, is expoſed to the Air on linen Cloths; where it reſts Night and Day, having equally need of Sun and Dew. Then they melt and granulate it over again ſeveral times; ſtill laying it out to the Air in the Intervals between the Meltings.

When the Sun and Dew have at length perfectly blanch'd it, they melt it for the laſt time in a large Kettle; out of which they caſt it with a Ladle, upon a Table cover'd over with little round Dents or Cavities, of the form of the Cakes of *white Wax* ſold by the Apothecaries, *&c.* having firſt wet thoſe Molds with cold Water, that the *Wax* may be the eaſier got out. Laſtly, they lay out theſe Cakes to the Air for two Days and two Nights, to render it more tranſparent and drier.

This *Wax* is uſed in the making of Torches, Tapers, Flambeaux, Figures, and other *Wax*-works. See TAPER, TORCH, *&c.*

It is alſo an Ingredient in Plaiſters, Cerats, and divers Pomatums and Unguents for the Complexion. See CERAT, *&c.*

Yellow *Wax* is made ſoft with Turpentine, yet retains its natural Colour.—Red *Wax*, is only the white melted with Turpentine and redden'd with Vermilion or Orcanette.——Verdegreaſe makes it green; and burnt Paper or Lampblack, black.——Some Travallers tell us of a natural black *Wax*; aſſuring us there are Bees, both in the *Eaſt* and *Weſt-Indies*, that make an excellent Honey, included in black Cells. Of this *Wax* it is that the *Indians* make thoſe little Vaſes, wherein they gather their Balſam of *Tolu*.

Virgin WAX, or *Propolis*, is a ſort of reddiſh *Wax*, uſed by the Bees to ſtop up the Clefts or Holes of the Hive: 'Tis applied juſt as taken out of the Hive, without any Art, or Preparation of boiling, *&c.*—'Tis the moſt tenacious of any, and is held good for the Nerves. See PROPOLIS.

Sealing WAX, or *Spaniſh* WAX, is a Compoſition of Gum Lacca, melted and prepar'd with Roſin and Chalk, and colour'd red with ground Cinnabar. See LACCA.

WAX-*Candles*. See CANDLE.

WAX-WORK.—Here we muſt not forget that pretty Invention of M. *Benoiſt*, a Man famous at *Paris* for his Figures of *Wax*.—Being by Profeſſion a Painter, he found the Secret of forming Molds on the Faces of living Perſons, even the faireſt and moſt delicate, without any danger either to Health or Complexion: In which Molds he caſt Maſks of *Wax*; to which by his Colours, and glaſs Eyes imitated from Nature, he gave a ſort of Life: inſomuch, as when cloth'd in proper Habits, they bore ſuch a reſemblance, that it was difficult diſtinguiſhing between the Copy and the Original.

Grafting WAX, is a Compoſition ſerving to bind or fix the Bud or Graft in the Cleft of the Stock. See GRAFTING.

Inſtead of *Grafting Wax*, the Country Gardeners, *&c.* only uſe Clay, which they lay over a piece of linen Cloth, and ſo keep it moiſt; and to prevent its cracking with the heat of the Sun, tie Moſs over it. But the *Wax* ordinarily uſed, is a Compoſt of one Pound and an half of Pitch, a quarter of a Pound of *Wax*, and an Ounce of Oil of Almonds, melted and mix'd together; with the Addition, in Spring or Autumn, of a moderate quantity of Turpentine.

For Cleſt-Grafting, Whip-Grafting, and Grafting by Approach, Mr. *Mortimer* recommends temper'd Clay, or ſoft *Wax*; but for Rind-Grafting, Clay and Horſe-dung.

WAX SCOT, or WAX-SHOT, *Ceragium*, in our antient Cuſtoms, Money paid twice a Year towards the Charge of maintaining Lights, or Candles in the Church. See LUMINARY.

WAY, *Via*. See ROAD, and VIA.

Roman Ways, are divided into *Conſulares*, *Prætorias*, *Militares*, and *Publicas*. See MILITARY, *&c.*

We have four notable ones in *England*; antiently call'd *Chimini quatuor*, and entitled to the Privileges of *Pax Regis*.

The firſt, *Watling-ſtreet*, or *Warlam-ſtreet*, leading from *Dover* to *London*, *Dunſtable*, *Toweeſter*, *Atterſton*, and the *Severn*, near the *Wrekin* in *Shropſhire*, extending as far as *Angleſea* in *Wales*.

The ſecond call'd *Ikenild-ſtreet*, ſtretches from *Southampton* over the River *Iſis* at *Newbridge*, thence by *Cambden* and *Litchfield*, then paſſes the *Derwent* near *Derby*, ſo to *Bolſover Caſtle*, and ends at *Tinmouth*.

The third, call'd *Foſſe-Way*, becauſe in ſome Places it was never perfected but lies as a large Ditch; leads from *Cornwal* thro' *Devonſhire*, by *Tetbury* near *Stow in the Wolds*; and beſide *Coventry* to *Leiceſter*, *Newark*, ſo to *Lincoln*, &c.

The fourth, call'd *Ermin* or *Erminage-ſtreet*, ſtretches from *S. David*'s in *Weſt Wales*, to *Southampton*.

Milky WAY. See GALAXY.

WAY *of a Ship*, is ſometimes uſed for the ſame with the Rake, or Run of her forward and aftward on. See RAKE.

But the Term is more commonly underſtood in reſpect of her ſailing.—When ſhe goes apace, they ſay, ſhe hath a *good Way*; and they call the Account how faſt ſhe ſails by the Log, *Keeping an Account of her Way*. See LOG.

And becauſe moſt Ships are apt to fall a little to the Leeward of their true Courſe, they always, in caſting up the Log-board, allow ſomething for her *Leeward Way*; which is one Point, or more, according to her *Way* of ſailing. See RECKONING.

WAY *of the Rounds*, in Fortification, is a Space left for the Paſſage of the Rounds, between the Rampart, and the Wall of a fortify'd Town. See ROUND.

This is not now much in uſe; becauſe the Parapet not being above a Foot thick, it is ſoon overthrown by the Enemy's Cannon.

WAY-WISER, an Inſtrument for meaſuring of the Road, or Diſtance gone; call'd alſo *Perambulator*, and *Pedometer*. See PERAMBULATOR, and PEDOMETER.

WAYWODE, is properly a Title given the Governours of the chief Places in the Dominions of the Czar of *Muſcovy*.

The *Palatines*, or Goverours of Provinces in *Poland*, alſo bear the Quality of *Waywodes*, or *Waiwodes*. See PALATINE.

The *Poles* likewiſe call the Princes of *Walachia* and *Moldavia*, *Waywodes*; as eſteeming them no other than on the Foot of Governours: Pretending that *Walachia* and *Moldavia* are Provinces of *Poland*; which have withdrawn themſelves from the Obedience of the Republick.

Every where elſe they are call'd *Hoſpodars*. See HOSPODAR.

Du Cange ſays, that the Name *Waywode* is uſed in *Dalmatia*, *Croatia*, and *Hungary*, for a *General of an Army*: And *Leunclavius*, in his *Pandects of Turkey* tells us, it uſually ſignifies *Captain*.

WEALD, or WELD, the woody Part of a Country; as the *Weald of Kent*.—It is miſ-printed in ſome Books and Maps, the *Wilds of Kent*, *Suſſex*, and *Surry*.

WEANEL, a Country Word, for a young Beaſt newly *weaned*, or taken from ſucking its Dam.

WEANING, *Ablactation*. See ABLACTATION.

WEAPONS. See ARMS, and ARMOUR.

WEAPON-*Salve*, a kind of Unguent, ſuppoſed to cure Wounds ſympathetically, by being applied, not to the Wound, but to the *Weapon* that made it. See SYMPATHETIC *Pouder*, TRANSPLANTATION, *&c.*

WEAR, or WARE, a great Stank, or Dam in a River; fitted for the taking of Fiſh, or for conveying the Stream to a Mill. See FISHING.

WEATHER, the State or Diſpoſition of the Atmoſphere, with regard to Moiſture or Drought, Heat or Cold, Wind or Calm, Rain, Hail, Froſt, Snow, Fog, *&c.* See ATMOSPHERE, RAIN, HEAT, WIND, HAIL, FROST, *&c.*

As 'tis in the Atmoſphere that all Plants and Animals live and breathe, and as that appears to be the great Principle of moſt Animal and Vegetable Productions, Alterations, *&c.* (See AIR.)——There does not ſeem any thing in all Philoſophy of more immediate Concernment to us, than the State of the *Weather*.—In effect, all living Things are only Aſſemblages or Bundles of Veſſels, whoſe Juices are kept moving by the Preſſure of the Atmoſphere; and which, by that Motion, maintain Life. So that any Alterations in the Rarity or Denſity, the Heat, Purity, *&c.* of that, muſt neceſſarily be attended with proportionable ones in theſe.

What vaſt, yet regular Alterations, a little Turn of *Weather* makes in a Tube fill'd with Mercury, or Spirit of Wine, or in a piece of String, *&c.* Every body knows, in the common Inſtance of Barometers, Thermometers, Hygrometers, *&c.* and it is owing partly to our Inattention, and partly to our unequal, intemperate Courſe of living, that we don't feel as great and as regular ones in the Tubes, Chords, and Fibres of our own Bodies.

'Tis certain, a great part of the Brute Creation have a Senſibility, and Sagacity this way beyond Mankind; and yet, without any Means or Diſpoſition thereto more than we; except that their Veſſels, Fibres, *&c.* being in other reſpects in one equable Habitude; the ſame, or a proportionable Cauſe from without, has always a like, or proportionable Effect on them: that is, their Veſſels are regular Barometers, *&c.* affected only from one external Principle, *viz.* the Diſpoſition of the Atmoſphere; whereas, ours are acted on by divers from within, as well as without; ſome of which check, impede, and prevent the Action of others. See BAROMETER, THERMOMETER, HYGROMETER, *&c.*

We know of nothing more wanting than a juſt Theory of the *Weather* on Mechanical Principles.—But in order to that, a compleat Hiſtory of the *Weather* will be requir'd.

Were Regiſters carefully kept in divers Parts of the Globe, for a good Series of Years, we ſhould be inabled to determine the Directions, Breadth, and Bounds of the Winds, and of the *Weather* they bring with them; the Correſpondence between the *Weather* of divers Places, and the Dependence between one ſort and another at the ſame Place.—In time, no doubt, we might learn to foretel divers great Emergencies; as, extraordinary Heats, Rains, Froſts, Droughts, Dearths, Plagues, and other epidemical Diſeaſes, *&c.*

The Members of our *Royal Society*, the *French Academy of Sciences*, and divers other Authors of note, have made ſome Eſſays this way; but the Dryneſs and Quaintneſs of the Subject, induc'd them all to drop it.

Eraſ. Bartholin, for inſtance, has Obſervations of the *Weather* of every Day throughout the Year 1671: Mr. *W. Merle* made the like at *Oxford*, for ſeven Years, *viz.* the Years 1337, 1338, 1339, 1340, 1341, 1342, 1343. Dr. *Plot* did the ſame at the ſame Place, for the Year 1684; Mr. *Hillier*, at *Cape Corſe*, for the Years 1686, 1687; Mr. *Hunt*, &c. at *Greſham College*, for the Years 1695, 1696; Mr. *Derham*, at *Upminſter* in *Eſſex*, for the Years 1691, 1692, 1697, 1698, 1699, 1703, 1704, 1705; Mr. *Townley* in *Lancaſhire*, 1697, 1698; Mr. *Cunningham*, at *Emin* in *China*, for the Years 1698, 1699, 1700, 1701; Mr. *Locke* at *Oats* in *Eſſex*, 1692; Dr. *Scheuchzer* at *Zurich*, in 1708; and Dr. *Tilly* at *Piſa*, the ſame Year. See the *Philoſoph. Tranſact.*

The Form of Mr. *Derham*'s Obſervations, we give as a Specimen of a Journal of this kind; obſerving that he notes the Strength of the Winds by 0, 1, 2, 3, *&c.* and the Quantity of Rain, as it fell thro' a Tunnel, in Pounds and Centeſimals.

Phænomena of the Weather, October 1697.

Day.	Hour.	Weather.	Wind.		Barometer.		Rain	
27	7	Fair	S. W.	2	29	37	1	52
	12	Rain	S.W.b.W.	5	29	34		
	9	Stormy		0	29	88	0	21

As a Specimen of the Uſe of ſuch Hiſtories, we ſhall add ſome general Remarks drawn from them by Mr. *Derham*; and,—1°, That *Foggy Weather* makes the Mercury riſe in the Barometer, as well as the North Wind.—The Cauſe, he ſuggeſts, probably enough, to be the Acceſſion of the Load of Vapour to the former Weight of the Atmoſphere. See FOG.

Miſling Weather, he likewiſe obſerves to have the like Effect. See BAROMETER.

2°, The Colds and Heats in *England* and *Switzerland*, begin and end nearly about the ſame time: Nay, and any remarkable *Weather*, eſpecially if it continue any while, affects one Place as well as t'other. See HEAT.

3°, That the remarkably cold Days in *June*, *Anno* 1708, were found in *Switzerland* to precede ours, commonly by about five Days or more; and that the remarkable Heats in the following Months, began to abate in both Places about the ſame time; only ſomewhat ſooner here than there. See COLD.

4°, That tho the Winds in both Places frequently agree, yet they oftner differ. See WIND.

5°, That the Barometer is always lower at *Zurich* than at *Upminſter*, by ſometimes one, and ſometimes above two *Engliſh* Inches; but the common difference is about half an Inch. Which may be ſolved either by ſuppoſing *Zurich* ſituate one fourth of a Mile higher above the Level of the Sea, than *Upminſter*; or elſe, by ſuppoſing that Part of the terraqueous Globe, as lying nearer the Line, to be higher, and more diſtant from the Centre than ours is, which lies nearer the Pole. See EARTH, MOUNTAIN, &c.

6°, That the Barometer generally riſes and falls together at far diſtant Places: Tho this Agreement of the Barometer is not ſo conſtant between *Zurich* and *Upminſter*, as in Places nearer home, *viz.* at *London* and *Paris*; where, again, the Agreement is not ſo great as between *Upminſter* and *Lancaſhire*.

7°, That the Variations of the Barometer are greateſt, as the Places are neareſt the Pole.—Thus, *e. g.* the Mercury at *London* has a greater Range by two or three Lines than at *Paris*; and at *Paris* a greater than at *Zurich*. In ſome Places near the Equinoctial, there is ſcarce any Variation at all. See BAROMETER.

8°, That the Rain in *Switzerland* and *Italy* is much greater in Quantity, throughout the Year, than that in *Eſſex*; yet the Rains are more frequent, *i. e.* there are more rainy Days in *Eſſex*, than at either of thoſe Places.——The Proportion of the annual Rains that fall in the ſeveral Places we have any good Obſervations of ſtand thus: At *Zurich* the Depth of the annual Rain, at a Medium, is about $32\frac{1}{2}$ *Engliſh* Inches; at *Piſa* $43\frac{1}{4}$; at *Paris* 23; at *Liſle* in *Flanders* $23\frac{1}{2}$ Inches; at *Townley* in *Lancaſhire* $42\frac{1}{2}$; at *Upminſter* $19\frac{1}{4}$. See RAIN.

9°, That Cold contributes greatly to Rain; and that, apparently, by condenſing the ſuſpended Vapours, and making 'em deſcend.—Thus, very cold Months or Seaſons are generally follow'd immediately by very rainy ones; and cold Summers are always wet ones. See COLD, and VAPOUR.

10°, That high ridges of Mountains, as the *Alps*, and the Snows they are cover'd withal, not only affect the neighbouring Places by the Colds, Rains, Vapours, &c. they produce; but even diſtant Countries, as *England*, often partake of their Effects.—Thus, the extraordinary Colds *Decemb.* 1708, and the Relaxations thereof, were felt at *Italy* and *Switzerland*, ſeveral Days ere they reach'd us: An Indication, Mr. *Derham* thinks, that they were derived from them to us.

Indications or Prognoſticks of the Weather.

We don't here mean to obtrude the idle, arbitrary Obſervations of fanciful People upon our Reader.—That Cloud of popular Predictions from the Brute World, which partly the Sagacity, and partly the Credulity of our Countrymen have eſtabliſh'd, we ſet aſide, as not flowing from any natural, neceſſary Relations, that we know of, in the Things themſelves.—Such is the foretelling of Rain and Wind from Water-Fowls flocking to Land, or Land-Fowls to the Water; from Birds pruning their Feathers, Geeſe gaggling, Crows cawing loud, and flying in Companies, Swallows chattering and flying low, Peacocks crying much, Aſſes braying, Deer fighting, Foxes and Wolves howling, Fiſhes playing, Ants and Bees keeping within Doors, Moles caſting up Earth, Earth-Worms creeping out, &c.—We ſhall offer nothing on this Head, but what has ſome viſible Foundation in the Nature of Things; and which lets ſome Light into the Cauſe and Reaſon of *Weather* it ſelf, or diſcovers ſome notable Effects thereof.

1°, Then, *a thick dark Sky*, ſudum cœlum, *laſting for ſome time, without either Sun or Rain, always becomes firſt fair, then foul, i. e.* changes to a fair clear Sky, ere it turns to Rain.—This, the Rev. Mr. *Clarke*, who kept a Regiſter of the *Weather* for 30 Years, ſince put into Mr. *Derham*'s Hands by his Grandſon the learned Dr. *Sam. Clarke*; this, he ſays, he ſcarce ever knew to fail: at leaſt, when the Wind was in any of the Eaſterly Points: But Mr. *Derham* has obſerv'd the Rule to hold good, be the Wind where it will. And the Cauſe is obvious.—The Atmoſphere is replete with Vapours, which, tho ſufficient to reflect and intercept the Sun's Rays from us, yet want Denſity to deſcend; and while the Vapours continue in the ſame State, the *Weather* will do ſo too. Accordingly, ſuch *Weather* is generally attended with moderate warmth, and with little or no Wind to diſturb the Vapours, and an heavy Atmoſphere to ſuſtain 'em; the Barometer being commonly high.—But when the Cold approaches, and by condenſing drives the Vapours into Clouds or Drops, then, way is made for the Sun-beams; till the ſame Vapours, being by further Condenſation form'd into Rain, fall down into Drops.

2°, *A Change in the Warmth of the* Weather, *is generally follow'd by a Change in the Wind.*—Thus, the Northerly and Southerly Winds, commonly eſteem'd the Cauſes of cold and warm *Weather*, are really the Effects of the Cold or Warmth of the Atmoſphere: Of which, Mr. *Derham* aſſures us he has had ſo many Confirmations, that he makes no doubt of it. Thus, it is common to ſee a warm Southerly Wind ſuddenly chang'd to the North, by the fall of Snow or Hail; or to ſee the Wind in a cold froſty Morning, North, when the Sun has well warm'd the Earth and Air, wheel towards the South; and again turn Northerly or Eaſterly in the cold Evening.

3°, *Moſt Vegetables expand their Flowers and Down in Sunſhiny* Weather, *and towards the Evening; and againſt Rain, cloſe 'em again*; eſpecially at the beginning of their flowering; when their Seeds are tender and ſenſible.—This is viſible enough in the Down of Dandelion, and other Downs: and eminently in the Flowers of Pimpernel; the opening and ſhutting of which, *Gerard* obſerves, are the Countryman's *Weatherwiſer*, whereby he foretels the *Weather* of the following Day.—The Rule is, if the Flowers be cloſe ſhut up, it betokens Rain and foul *Weather*: if they be ſpread abroad, fair *Weather*. *Ger. Herb.* Lib. II.

Eſt & alia [arbor in Tylis] *ſimilis, folioſior tamen, roſeique floris; quam noctu comprimens, aperire incipit ſolis exortu, meridie expandit. Incolæ dormire eam dicunt.* Plin. Nat. Hiſt. Lib. II. cap. 11.

The Stalk of Trefoil, my Lord *Bacon* obſerves, ſwells againſt Rain, and grows more upright: and the like may be obſerv'd, tho not ſo ſenſibly, in the Stalks of moſt other Plants.—He adds, that in the Stubble Fields there is found a ſmall red Flower, call'd by the Country-People *Wincopipe*; which opening in a Morning, is a ſure Indication of a fine Day.

That Vegetables ſhould be affected by the ſame Cauſes that affect the *Weather*, is very conceivable; if we conſider them as ſo many Hygrometers and Thermometers, conſiſting of an infinite Number of *Tracheæ*, or Air-Veſſels; by which they have an immediate Communication with the Air, and partake of its Moiſture, Heat, &c. Theſe *Tracheæ* are very viſible in the Leaf of the Scabioſe, Vine, &c. See PLANT, VEGETABLE, &c.

Hence it is, that all Wood, even the hardeſt and moſt ſolid, ſwells in moiſt Weather; the Vapours eaſily inſinuating into the Pores thereof; eſpecially of that which is lighteſt and dryeſt.—And hence we derive a very extraordinary uſe of Wood, *viz.* for breaking Rocks and Mill-ſtones. See WOOD.

Their Method at the Quarries is this.—Having cut a Rock into a Cylinder, they divide that into ſeveral leſſer Cylinders, by making Holes at proper diſtances round the great one: Theſe Holes they fill with ſo many pieces of ſallow Wood, dried in an Oven; which, in moiſt *Weather*, becoming impregnated with the humid Corpuſcles of the Air, ſwell, and, like Wedges, break or cleave the Rock into ſeveral Stones.

Indications and Predictions of the Weather *from the Barometer.* See BAROMETER.

WEATHER-*Cock*, or WEATHER-*Vane*, a moveable Vane, in form of a Cock, or other ſhape; placed on high, to be turn'd round according to the Direction of the Wind, and point out what Quarter the Wind blows from. See WIND.

WEATHER-*Glaſſes*, are Inſtruments contriv'd to indicate the State, or Diſpoſition of the Atmoſphere, as to Heat, Cold, Gravity, Moiſture, &c. to meaſure the Changes befalling in thoſe reſpects; and by thoſe means to predict the Alteration of *Weather*, as Rains, Winds, Snow, &c.

Under the Claſs of *Weather-Glaſſes*, are comprehended *Barometers*, *Thermometers*, *Hygrometers*, *Manometers*, and *Anemometers*, of each whereof there are divers Kinds: See their Theories, Conſtructions, Uſes, Kinds, &c. under the reſpective Articles, BAROMETER, THERMOMETER, HYGROMETER, &c.

WEATHER-*Board*, in the Sea Language, that ſide of a Ship which is to the Windward.

WEATHER-*Gage*, at Sea.—A Ship is ſaid to have the *Weather-Gage* of another, when ſhe is to the Windward of her. See GAGE.

WEATHERING, a Doubling, or getting to the Windward of a Point or Place.

The WEATHERING *of a Hawk*, among Falconers, is the ſetting her abroad to take the Air. See HAWK, and HAWKING.

WEAVING, the Art or Act of working a Web of Cloth, Silk, Linen, or other Stuff, on a Loom, with a Shuttle. See LOOM, SHUTTLE, STUFF, &c.

'Tis difficult to ſay, with any Aſſurance, who it is we owe this admirable Invention to, unleſs we chuſe to aſcribe it to the Spider, that poiſonous, but ingenious little Inſect, which draws certain infinitely fine Threads from its own Subſtance thro' its *Anus*. See *Spider's*-WEB.

WEAVING *of Cloth.*	See	CLOTH.
WEAVING *of Tapeſtry*, &c.		TAPESTRY, &c.
Stocking-WEAVING.		STOCKINGS.

WEB, a ſort of Tiſſue, or Texture, form'd of Threads interwove with each other; ſome whereof are extended in length, and called the *Warp*; and others drawn a-croſs them, call'd the *Woof*. See TEXTURE, WOOF, WARP, *&c.*

Spider's-WEB, or *Cob*-WEB, is a very delicate and wonderful Tiſſue, which that Inſect ſpins out of its own Bowels; ſerving it as a ſort of Toil, or Net to catch Flies, *&c.* withal.

For the manner wherein the Spider ſpins his Web; *the admirable Mechaniſm of the Parts ſubſervient thereto, and the Uſes thereof*; ſee SILK.

Dr. *Liſter* tells us, that attending nearly to a Spider weaving a Net, he obſerv'd it ſuddenly to deſiſt in the midwork, and turning its Tail to the Wind, darted out a Thread, with the violence and ſtream we ſee Water ſpout out of a Jet: This Thread, taken up by the Wind, was immediately emitted ſome Fathoms long; ſtill iſſuing out of the Belly of the Animal.—By and by the Spider leap'd into the Air; and the Thread mounted her up ſwiftly.—After this Diſcovery, he made the like Obſervation in near thirty different ſorts of Spiders; and found the Air fill'd with young and old, ſailing on their Threads, and doubtleſs ſeizing Gnats and other Inſects in their paſſage: there being often, manifeſt Signs of Slaughter, Legs and Wings of Flies, *&c.* on theſe Threads, as well as in their *Webs* below.

Dr. *Hulſe* diſcover'd the ſame thing about the ſame time.—In a Letter of Dr. *Liſter* to Mr. *Ray*, he thinks there is a fair Hint of the darting of Spiders in *Ariſtotle*, *Hiſt. An.* Lib. IX. cap. 39. and in *Pliny*, Lib. II. cap. 24. But for their ſailing, the Antients are ſilent, and thinks it was firſt ſeen by him.—In another Letter to Mr. *Ray*, dated *Jan.* 1670, ſpeaking of the Height Spiders are apt to fly to, he ſays, "Laſt *October*, &c. I took notice that the Air was "very full of *Webs*; I forthwith mounted to the Top of "the higheſt Steeple on the *Minſter*, [in *York*] and could "there diſcern 'em yet exceeding high above me."

WEDGE, *Cuneus*, in Mechanicks, the laſt of the five Powers or ſimple Machines. See MECHANICAL *Power*.

The *Wedge* is a triangular Priſm, whoſe Baſes are equilateral acute-angled Triangles. See PRISM.

Authors are divided about the Principle whence the *Wedge* derives its Power.—*Ariſtotle* conſiders it as two Levers of the firſt kind, inclined toward each other, and acting oppoſite ways.—*Guido Ubaldus*, *Merſennus*, &c. will have 'em Levers of the ſecond kind.—But *Fr. de Lanis* ſhews, it cannot be reduced to any Lever at all. See LEVER.

Others refer the *Wedge* to the inclined Plane.——Others, again, with *de Stair*, deny the *Wedge* to have ſcarce any Force at all; and aſcribe much the greateſt Part to the Mallet that drives it.

But the lateſt Authors agree to refer the Effect of the *Wedge* to the *Cochlea*, or *Screw*. See SCREW.

Its Doctrine is contain'd in this Propoſition.——*If a Power be applied to a* Wedge, *in ſuch manner as that the Line of Direction* C D, (Tab. *Mechanicks*, Fig. 53.) *perpendicular to* A B, *is to the Reſiſtance to be overcome, as* A B *to* C D; *the Power will be equal to the Reſiſtance.*

Or thus: *If the Power directly applied to the Head of the* Wedge, *be to the Reſiſtance to be overcome by the* Wedge, *as the Thickneſs of the* Wedge *is to its Height; then the Power will be equivalent to its Reſiſtance; and if increaſed, will overcome it.*

For the Firmneſs whereby the Parts of the Obſtacle, ſuppoſe Wood, adhere to one another, is the Reſiſtance to be overcome by the *Wedge*. See FIRMNESS, and RESISTANCE.

Now, it is evident, that while the *Wedge* is drove into the Wood, the Way or Length it has gone is B A, (Fig. 54.) and D C is the Way or Length gone in the ſame time by the Impediment; that is, the Parts C and D of the Wood, are ſo far divided aſunder: and according as the *Wedge* is drove down farther and farther along its Height; ſo the Parts C and D of the Wood, are divided more and more along the Thickneſs of the *Wedge*.

Hence, if the Thickneſs of the *Wedge* (that is, the Way of the Impediment, and conſequently its Velocity) be to the Height of the *Wedge*, (that is, the Way, and conſequently the Velocity of the Power) as the Power to the Impediment or Reſiſtance; then the Momentum of the Power and the Impediment, will be equal the one to the other; and conſequently, the Power, being increaſed, will overcome the Reſiſtance.

Hence, 1°, As the Power equivalent to half the Reſiſtance, is to it as *ab* to A *b*, that is, as the whole Sine to the Tangent of half the Angle of the *Wedge*, *a* A *b*.—And, 2°, as the Tangent of a leſs Angle is leſs than that of a greater, the Power muſt have a greater Proportion to half the Reſiſtance if the Angle be greater, than if leſs.—Conſequently, the acuter the *Wedge* is, the more does it increaſe the Power.

To the *Wedge* may be refer'd all Edge-Tools, and Inſtruments which have a ſharp Point, in order to cut, cleave, ſlit, chop, pierce, bore, or the like; as *Knives*, *Hatchets*, *Swords*, *Bodkins*, &c.

WEDLOCK. See MARRIAGE, WIFE, HUSBAND, *&c.*

WEDNESDAY. See MONTH, DAY, *&c.*

Aſh-WEDNESDAY. See ASH-*Wedneſday*.

WEED, a common Name for all rank and wild Herbs, that grow of themſelves, to the Detriment of other uſeful Herbs they grow among. See PLANT, HERB, *&c.*

Fuller's-WEED. See THISTLE, or TEAZLE.

WEED, in the Miners Language, is the Degeneracy of a Load or Vein of fine Metal, into an uſeleſs Marcaſite. See VEIN, MINE, METAL, MARCASITE, *&c.*

WEEDS, are alſo a peculiar Habit, wore by the Relicts of Perſons deceas'd, by way of Mourning. See MOURNING.

WEEK, *Septimana*, *Hebdomada*, in Chronology, a Diviſion of Time, compriſing ſeven Days. See TIME, and DAY.

The Origin of this Diviſion of *Weeks*, or of computing Time by Sevenths, is greatly controverted.—Some will have it to take its riſe from the four Quarters or Intervals of the Moon, between her Change of Phaſes, which being about ſeven Days diſtant, gave occaſion to the Diviſion. See MOON, QUARTER, *&c.*

Be this as it will, the Diviſion is certainly very antient.—The *Syrians*, *Egyptians*, and moſt of the Oriental Nations, appear to have uſed it from all Antiquity: tho it did not get Footing in the Weſt, till Chriſtianity brought it in: The *Romans* reckoning their Days, not by Sevenths, but by Ninths; and the antient *Greeks* by Decads, or Tenths.

Indeed, the *Jews* divided their Time by *Weeks*, but it was upon a different Principle from the other Eaſtern Nations. God himſelf having appointed 'em to work ſix Days, and to reſt the Seventh; in order to keep up the Senſe and Remembrance of the Creation, which being effected in ſix Days, he reſted the ſeventh. See SABBATH.

Some Authors will even have the uſe of *Weeks* among the other Eaſtern Nations, to have proceeded from the *Jews*; but with little Appearance of Probability.—'Tis with better Reaſon that others ſuppoſe the Uſe of *Weeks* among the Heathens of the Eaſt, to be a Remain of the Tradition of the Creation, which they had ſtill retain'd with divers others.

This is the Opinion of *Grotius*, *De Veritat. Relig. Chriſt.* Lib. I. who likewiſe proves, that not only thro'-out the Eaſt, but even among the *Greeks*, *Italians*, *Celtæ*, *Sclavi*, and even the *Romans* themſelves, the Days were divided into *Weeks*; and that the ſeventh Day was in extraordinary Veneration.—This appears from *Joſeph. adv. Appionem* II. *Philo de Creatione*, *Clem. Alexand. Strom.* Lib. V.——Tho *Helmoldus*, Lib. I. cap. 84. *Philoſtratus*, Lib. III. cap. 13. *Dion.* Lib. XXXVIII. *Tibullus*, *Lucian*, *Homer*, *Callimachus*, *Suetonius*, *Herodotus*, &c. who mention the Cuſtom as very antient, ſuppoſe it to have been deriv'd from the *Egyptians*.

The *Days of the Week* were denominated by the *Jews* from the Order of their Succeſſion from the Sabbath.——Thus, the Day next after the Sabbath they call'd the *firſt* of the Sabbath, the next the *ſecond* of the Sabbath, and ſo of the reſt; except the ſixth, which they call'd *Paraſceve* or Preparation of the Sabbath. See PARASCEVE.

The like Method is ſtill kept up by the Chriſtian *Arabs*, *Perſians*, *Ethiopians*, &c.—The antient Heathens denominated the Days of the *Week* from the ſeven Planets; which Names are ſtill generally retain'd among the Chriſtians of the Weſt.—Thus, the firſt Day was call'd *Sun-day*, *Dies Solis*; the ſecond *Mon-day*, *Dies Lunæ*, &c. a Practice the more natural on *Dion*'s Principle, who ſays, The *Egyptians* took the Diviſion of the *Week* it ſelf from the ſeven Planets.

In effect, the true Reaſon of theſe Denominations is founded in Aſtrology.—For the Aſtrologers, diſtributing the Government and Direction of all the Hours in the *Week* among the ſeven Planets, ♄ ♃ ♂ ☉ ♀ ☿ and ☽; ſo as that the Government of the firſt Hour of the firſt Day fell to *Saturn*, that of the ſecond to *Jupiter*, &c. They gave each Day the Name of the Planet which preſided over the firſt Hour thereof: and that, according to the Order ſpecify'd above; and which is included in the following Technical Verſe.

Poſt S I M S U M *ſequitur*, *pallida* L*una ſubeſt.*

Wherein, the Capital Letters, S I M S U M and L, are the initial Letters of the Planets.—Thus, the Order of the Planets in the *Week*, has little Relation to the Order in which they follow in the Heavens: The former being founded on an imaginary Power each Planet has in its turn on the firſt Hour of each Day. See PLANET, HOUR, HOUSE, ASCENDENT, HOROSCOPE, *&c.*

Dion. Caſſius gives another Reaſon of the Denomination, fetch'd from the celeſtial Harmony.—For it being obſerv'd that the Harmony of the Diateſſaron, which conſiſts in the Ratio of 4 to 3, is of great force and effect in Muſick; it was judg'd meet to proceed directly from *Saturn* to the *Sun*; becauſe there are three Planets between *Saturn* and the *Sun*, and four from the *Sun* to the *Moon*. See DIATESSARON, HARMONY *of the Spheres*, &c.

To find the Accompliſhment of *Daniel's* Propheſy of the Meſſiah, the Deſtruction, Rebuilding, *&c.* of the Temple, *C.* IX. *v.* 24, *&c.* the Criticks generally agree to underſtand *Weeks of Years*, inſtead of *Weeks of Days*. See PROPHECY, YEAR, *&c.*

Paſſion WEEK, or *the Holy* WEEK, is the laſt *Week* in *Lent*, wherein the Church celebrates the Myſtery of our Saviour's Death and Paſſion. See LENT, and PASSION.

It is ſometimes alſo called *the great Week*.

Its Inſtitution is generally refer'd, both by Proteſtants and Papiſts, to the Times of the Apoſtles.—All the Days of that *Week* were held as Faſts: no Work was done on 'em; no Juſtice diſtributed; but the Priſoners were ordinarily ſet at liberty, *&c.* even Pleaſures otherwiſe allowed, were now prohibited.

The *Oſculum Charitatis* was now forborn; and divers Mortifications practis'd by all ſorts of People, and even the Emperors themſelves.

WEEK, or WIECK *of a Candle*, &c. the Cotton Match in a Candle, or Lamp. See CANDLE, LAMP, *&c.*

WEEPING. See TEARS.

WEFT, a kind of Web, or Thing woven; as a *Weſt* or Treſs of Hair. See WEB, HAIR, TRESS, *&c.*

WEIF. See WAIF.

WEIGH, WEY, WAGA, a Weight of Cheeſe, Wool, *&c.* containing 256 Pounds Averdupois——of Corn, the *Weigh* contains 40 Buſhels; of Barley or Malt, ſix Quarters. In ſome Places, the Weigh of *Cheeſe* is 300 Pounds. See MEASURE.

——*Et decimam caſei ſui de Herting, præter unam peiſam quæ pertinet ad Eccleſiam de A.* Mon. Angl. where *peiſa* ſeems to be uſed for a *Weigh*.

Coke mentions eighty *Weighs* of Bay-Salt. See WAGA.

WEIGHER, an Officer in divers Cities, appointed to *weigh* the Commodities bought or ſold, in a publick Balance, *&c.*

Theſe *Weighers* are generally oblig'd by Oath to do Juſtice to both Parties; and to keep a Regiſter of the Things they weigh.—In *Amſterdam* there are twelve *Weighers* eſtabliſh'd into a kind of Office.

As it was formerly allow'd 'em to touch the Strings of the Balance in *weighing*, it was eaſy for 'em to favour either the Buyer or Seller, according as the one gave 'em more Money than the other.—To prevent which Abuſe, it was charg'd on 'em, by an Ordonnance of the Bourguemaiſters in 1719, not to touch the Balance in any manner whatever.

WEIGHING, the Act of examining a Body in the Balance, to find its *weight*. See BALANCE, and WEIGHT.

The Diſtillers in *London* weigh their Veſſels when full; and for half a Hogſhead, which is 31 Gallons and an half, allow 200 one quarter and 11 Pounds for the Caſk and Liquor.—For a Puncheon, they allow 600 one quarter and two Pounds: For a Canary Pipe 800 a half and 17 Pounds.

WEIGHING-*Chair*, a Machine contriv'd by *Sanctorius*, to determine the Quantity of Food taken at a Meal; and to warn the Feeder when he had eat his *Quantum*.

That ingenious Author having obſerved, with many others, that a great part of our Diſorders ariſe from the Exceſs in the Quantity of our Foods, more than in the Quality thereof; as alſo how much a fix'd Portion, once well adjuſted, would, if kept regularly, contribute to Health; bethought himſelf of an Expedient to that purpoſe.—The Reſult was the *Weighing-Chair*: which was a Chair fix'd at one Arm of a ſort of Balance, wherein a Perſon being ſeated at meat, as ſoon as he had eat his Allowance, the increaſe of *Weight* made his Seat preponderate: So that deſcending to the Ground, he left his Table, Victuals, and all out of reach. See PERSPIRATION.

WEIGHING *of the Air*. See WEIGHT *of Air*.

WEIGHING *Anchor*, in the Sea Language, is the drawing up the Anchor out of the Ground it had been caſt into; in order to ſet ſail, or quit a Port, Road, or the like. See ANCHOR.

The Anchor is *weigh'd* or recover'd, by means of the Capſtan. See CAPSTAN.

WEIGHT, *Gravity*, *Pondus*, in Phyſicks, a Quality in Natural Bodies, whereby they tend downwards, towards the Centre of the Earth. See BODY, DESCENT, EARTH, *&c.*

Or, *Weight* may be defined, in a leſs limited manner, to be a Power inherent in all Bodies, whereby they tend to ſome common Point, call'd the Centre of *Weight*, or Gravity; and that with a greater or leſs Velocity, as they are more or leſs *denſe*, or as the Medium they paſs thro' is more or leſs *rare*. See CENTRE, DENSITY, *&c.*

In the common Uſe of Language, *Weight* and *Gravity* are conſider'd as one and the ſame thing.—Some Authors, however, make a difference between 'em; and hold *Gravity* only to expreſs a *Niſus*, or endeavour to deſcend; but *Weight* an actual Deſcent.

But there is room for a better Diſtinction.—In effect, one may conceive Gravity to be the Quality, as inherent in the Body; and *Weight* the ſame Quality exerting it ſelf, either againſt an Obſtacle, or otherwiſe. See QUALITY, *&c.*

Hence *Weight* may be diſtinguiſh'd, like Gravity, into *Abſolute*, and *Specific*. See GRAVITY.

Sir *I. Newton* demonſtrates, that the *Weights* of all Bodies, at equal diſtances from the Centre of the Earth, are proportionable to the Quantity of Matter each contains.—Whence it follows, that the *Weights* of Bodies have not any dependance on their Forms, or Textures; and that all Spaces are not equally full of Matter. See VACUUM.

Hence alſo it follows, that the *Weight* of the ſame Body is different, on the Surface of different Parts of the Earth; by reaſon its Figure is not a Sphere, but a Spheroid. See SPHEROID.

The Law of this Difference, the ſame Author gives in the following Theorem.—'The Increaſe of *Weight*, as you 'proceed from the Equator to the Poles, is, nearly, as the 'Verſed Sine of double the Latitude; or, which amounts 'to the ſame, As the Square of the right Sine of the Latitude.

Therefore, ſince the Latitude of *Paris* is 48° 50′, that of a Place under the Equator 00° 00′; and that of a Place under the Pole 90° 00′; and the Verſed Sines of the double Latitudes are 11334,00000 and 20000, the Radius being 10000; and the *Weight* at the Pole is to the *Weight* at the Equator as 230 to 229; and the Exceſs of *Weight* at the Pole to that at the Equator, as 1 to 229: The Exceſs of Gravity in the Latitude of *Paris*, to that under the Equator, will be as $1 \times \frac{11334}{20000}$ to 229, or 5667 to 2290000; and therefore, the whole *Weights* in thoſe Places, will be to each other as 2295667 to 2290000.

Hence, alſo, as the Lengths of Pendulums that perform their Vibrations in equal Times, are as their *Weights*; and the Length of a Pendulum which in the Latitude of *Paris* vibrates Seconds, is three *Paris* Feet and eight Lines: The Length of a Pendulum that vibrates Seconds under the Equator, will be ſhort of a Synchronous Pendulum at *Paris*, by one Line and an 87000th Part of a Line. *Phil. Nat. Princ. Math.* Lib. III. p. 382, *&c.* See PENDULUM.

A Body immerg'd in a Fluid ſpecifically lighter than it ſelf, loſes ſo much of its *Weight*, as is equal to the *Weight* of a Quantity of the Fluid of the ſame Bulk with it ſelf. See FLUID.

Hence, a Body loſes more of its *Weight* in a heavier than in a lighter Fluid; and therefore weighs more in a lighter than a heavier Fluid. See SPECIFIC *Gravity*.

To find the Weight *of any Quantity of a Fluid, e. g.* of the Wine contain'd in a Hogſhead.—Find the Bulk or Quantity of the Liquor by the Rules of Gauging. See GAUGING.

Suſpend a cubick Inch of Lead therein by a Horſe-hair; and by a Balance note the *Weight* loſt.—This will be the *Weight* of a cubic Inch of the Fluid.

Wherefore, ſince in a homogeneous Fluid the *Weight* is proportionable to the Bulk; the *Weight* of the Fluid will be found by the Rule of Three.—Thus, if the Capacity of the Hogſhead be 88 cubic Feet, and the cubic Foot of Wine 68 Pounds; the whole *Weight* of the Wine will be 88 : 68 : : 1 : 5984.

The *Weight* of a cubic Foot of Water, has been determin'd by ſeveral; but as in different Springs, *&c.* the *Weight* of the Water is different, and there is even a difference in the ſame Water at different times; 'tis no wonder the Obſervations of the ſeveral Authors ſhould be found very different.—Sir *Sam. Morland*, by repeated Experiments, found a cubic Inch of Water to weigh 70 Pounds 2 Ounces. See WATER.

WEIGHT, *Pondus*, in Mechanicks, is any thing to be rais'd, ſuſtain'd, or mov'd by a Machine; or any thing that in any manner reſiſts the Motion to be produc'd. See MOTION, *&c.*

In all Machines, there is a natural Ratio between the *Weight* and the moving Power.—If the *Weight* be increaſed, the Power muſt be ſo too; that is, the Wheels, *&c.* are to be multiplied, and ſo the Time increas'd, or the Velocity diminiſh'd. See POWER, and MACHINE.

The Centre of Gravity F, (Tab. *Mechanicks*, Fig. 55.) *of a Body* I H, *together with the* Weight *of a Body, being given; to determine the Point* M, *in which, lying on an horizontal Plane, a given* Weight G, *hung in* L, *cannot remove the Body* I H *out of its horizontal Situation.*

Conceive a *Weight* hung in the Centre of Gravity F, equal to the *Weight* of the whole Body I H, and find the common Centre of Gravity M, of that and the given *Weight* G. If the Point M be laid on the horizontal Plane; the *Weight* G will not be able to move the Body H I out of its Place.

Suppoſe, *e.g.* F the Centre of Gravity of the Staff, which is diſtant from its Extremity by the Space I F 20 Inches; the Bucket of Water to weigh 24 Pounds, and the *Weight* of the Staff to be 2 L F = 18 Inches: We ſhall find L M = L F. F. (G + F) = 18. 2 : 22 : : 18 : 11 = $16\frac{4}{11}$; ſo that 'tis no wonder the Bucket hung on the Staff I H, laid on the Table, does not fall.

The Centre of Gravity C, (Fig. 56.) *of a Body* A B, *together with its* Weight G, *being given; to determine the Points* L *and* M, *wherein Props* M, N, *are to be placed, that each may bear any given Proportion of the* Weight.

In the horizontal Line A E, paſſing thro' the Centre of Gravity C, aſſume the right Lines M C and C L in the given Ratio.—Props, then, M, N, placed in theſe Points, will be preſs'd in the given Ratio.

Hence, if in the Points M, L, in lieu of Props, you place the Shoulders, or Arms of Porters, *&c.* They will be able to bear the Burden alike; if their Shares be proportion'd to their Strengths.—Thus we have a way of diſtributing a Burden in any given Ratio.

Weight, in Commerce, *&c.* is a Body of a known *Weight*, appointed to be put in the Balance againſt other Bodies, whoſe *Weight* is requir'd. See Weighing, Balance, *&c.*

Theſe *Weights* are uſually of Lead, Iron, or Braſs; tho in divers Parts of the *Eaſt-Indies* they are common Flints, and in ſome Places a ſort of little Beans.

The Security of Commerce depending, in good meaſure, on the Juſtneſs of theſe *Weights*; there is ſcarce any Nation but has taken proper Meaſures to prevent the Falſification thereof.—The ſureſt Means are the ſtamping, or marking 'em by proper Officers, from ſome Original or Standard, depoſited where recourſe may be had to 'em.

This expedient is very antient; and many Authors are of Opinion, that what among the *Jews* was called *Shekel of the Sanctuary*, was not any particular Kind of *Weight*, different from the common one; but a Standard or original *Weight*, preſerv'd by the Prieſts in the Sanctuary, See Shekel, and Sanctuary.

Thus, alſo, in *England*, the Standard of *Weights* is kept in the Exchequer by a particular Officer, call'd the *Clerk* or *Comptroller of the Market.*—In *France*, the Standard *Weight* is kept under ſeveral Keys in the Cabinet of the *Cour des Monnoyes.* See Standard.

Moſt Nations, wherein there is any thing of Commerce flouriſhing, have their particular *Weights*; and even ſometimes different *Weights* in the different Provinces, and for the different Kinds of Commodities.

This Diverſity of *Weights*, makes one of the moſt perplexing Articles in Commerce; but it is irremediable.—The reducing the *Weights* of different Nations to one, is not only impracticable; but even the Reduction of thoſe of the ſame Nation: Witneſs thoſe vain Attempts made for the reducing the *Weights* in *France*, by ſo many of their Kings, *Charlemaign*, *Philip* the Long, *Louis* XI. *Francis* I. *Henry* II. *Charles* IX. *Henry* III. *Louis* XIV.

Weights may be diſtinguiſh'd into *Antient* and *Modern*, *Foreign*, and *Domeſtic*.

Modern WEIGHTS.

Weights *uſed in the ſeveral Parts of* Europe *and the* Levant.

Engliſh Weights.——By the XXVIIth Chapter of *Magna Charta*, the *Weights* are to be the ſame all over *England*, but for different Commodities there are two different ſorts, *viz.* *Troy Weight*, and *Averdupois Weight.*

The Origin from which they are both raiſ'd, is the Grain of Wheat, gather'd in the middle of the Ear. See Grain.

In *Troy Weight*, 24 of theſe *Grains* make a *Penny-weight* Sterling; 20 Penny-weight make an *Ounce*; and 12 Ounces a *Pound.* See Ounce, Pound, *&c.*

By this *Weight* we weigh Gold, Silver, Jewels, Grains, and Liquors. See Troy.

The Apothecaries alſo uſe the Troy Pound, Ounce, and Grain; but they differ from the reſt, in the intermediate Diviſions.——They divide the Ounce into 8 *Drachms*; the Drachm into 3 *Scruples*; and the Scruple into 20 *Grains.* See Drachm, Scruple, *&c.*

In *Averdupois Weight*, the *Pound* contains 16 *Ounces*; but the Ounce is leſs by near $\frac{1}{12}$ than the Troy Ounce; this latter containing 490 Grains, and the former only 448.—The Ounce contains 16 *Drachms*—80 Ounces Averdupois, are only equal to 73 Ounces Troy; and 17 Pounds Troy, equal to 14 Pounds Averdupois. See Pound.

By Averdupois *Weight*, are weigh'd Mercery and Grocery Wares, baſe Metals, Wool, Tallow, Hemp, Drugs, Bread, *&c.* See Averdupois.

Table of Troy Weight, *as uſed by the*

Goldſmiths, *&c.*

Grains.			
24	Penny-weight.		
480	20	Ounce.	
5760	240	12	Pound.

Apothecaries.

Grains.				
20	Scruple.			
60	3	Drachm.		
480	24	8	Ounce.	
5700	288	96	12	Pound.

Table of Averdupois Weight.

Scruple.					
3	Drachm.				
24	8	Ounce.			
384	128	16	Pound.		
43008	14336	1792	112	Quintal, or Hundred.	
860160	286720	35840	2240	20	Tun.

The Moneyers, Jewellers, *&c.* have a particular Claſs of *Weights* for Gold and Precious Stones, *viz.* *Caract*, *Penny-weight*, and *Grain*; and for Silver the *Penny-weight* and *Grain.* See Caract; ſee alſo Gold, and Silver.

The Moneyers have alſo a peculiar Subdiviſion of the *Grain* Troy: Thus;

The	*Grain*	into	20 *Mites.*
	Mite		24 *Droites.*
	Droit		20 *Perits.*
	Perit		24 *Blanks.*

The Dealers in Wool have likewiſe a particular Set of *Weights*, *viz.* the *Sack*, *Weigh*, *Tod*, *Stone*, and *Clove.* See Weigh, *&c.*

The Proportion of theſe, ſee under the Article Wool.

French Weights.——Their common or *Paris Pound*, is 16 *Ounces*; which they divide two ways: The firſt Diviſion is into two *Marcs*, the Marc into eight *Ounces*; the Ounce into eight *Gros*; the Gros into three *Penny-weights*; the Penny weight into 24 *Grains*; the Grain equivalent to a Grain of Wheat.—The ſecond Diviſion of the Pound, is into two *Half-pounds*; the Half-pound into two *Quarters*; the Quarter into two *Half-quarters*; the Half-quarter into two *Ounces*; and the Ounce into two *Half-ounces.*

The *Weights* of the firſt Diviſion are uſed to weigh Gold, Silver, and the richer Commodities: and the *Weights* of the ſecond Diviſion for Commodities of leſs Value.

Grains.					
24	Penny-weight.				
72	3	Gros.			
576	24	8	Ounce.		
1008	192	64	8	Marc.	
9216	384	128	16	2	Pound.

Half-ounce.						
2	Ounce.					
4	2	Half-quart. Pound.				
8	4	2	Quarter Pound.			
16	8	4	2	Half Pound.		
32	16	8	4	2	Pound.	
3200	1600	800	400	200	100	Quintal.

But the Pound is not the ſame throughout *France.*—At *Lyons*, *e. g.* the City Pound is only 14 Ounces: So that 100 *Lyons* Pounds make only 88 *Paris* Pounds.—But beſide the City Pound, they have another at *Lyons* for Silk, containing 15 Ounces.——At *Tholouſe*, and throughout the *Upper Languedoc*, the Pound is 13 Ounces and $\frac{1}{2}$ of *Paris Weight.*—At *Marſeilles*, and throughout *Provence*, the Pound is 13 Ounces of *Paris Weight.*—At *Rouen*, beſide the common *Paris* Pound and Marc, they have the *Weight* of the *Vicomte*; which is 16 Ounces and $\frac{1}{2}$ and $\frac{5}{6}$, to the *Paris* Pound.

The *Weights* enumerated under the two Articles of *Engliſh* and *French Weights*, are the ſame that are uſed thro' out the greateſt Part of *Europe*; only under ſomewhat different Names, Diviſions, and Proportions. See Pound, Gros, Marc, Penny-weight, *&c.*

Particular Nations, however, have alſo certain *Weights* peculiar to themſelves: Thus, *Spain* has its *Arobas*, containing 25 *Spaniſh* Pounds, or $\frac{1}{4}$ of the common Quintal: Its *Quintal Macho*, containing 150 Pounds, or $1\frac{1}{2}$ common Quintal, or 6 *Arobas*: Its *Adarme*, containing $\frac{1}{18}$ of its Ounce.—And for Gold, it has its *Caſtillan*, or $\frac{1}{100}$ of a Pound.—Its *Tomin*, containing 12 Grains, or $\frac{1}{8}$ of a Caſtillan.—The ſame are in uſe in the *Spaniſh Weſt-Indies.*

Portugal has its *Arata*, or *Aroba*, containing 32 *Lisbon* Pounds: Its *Faratelle*, containing two *Lisbon* Pounds: Its *Rottoli*, containing about 12 Pounds. And for Gold, its *Chego*, containing four *Carats*.—The ſame are uſed in the *Portugueze Eaſt-Indies*.

Italy, and particularly *Venice*, have their *Migliaro*, containing four Mirzes; the *Mirze* containing 30 *Venice* Pounds: The *Saggio*, containing a ſixth Part of an Ounce.——*Genoa* has five Kinds of *Weights, viz. Large Weights*, whereby all Merchandizes are weigh'd at the Cuſtom-houſe: *Caſh-Weights*, for Piaſtres and other Species: The *Cantara*, or Quintal, for the coarſeſt Commodities: The *Large* Balance, for raw Silks; and the *Small* Balance for the finer Commodities.—*Sicily* has its *Rottolo*, 32 and a half Pounds of *Meſſina*.

Germany, *Flanders*, *Holland*, the *Hans Towns*, *Sweden*, *Denmark*, *Poland*, &c. have their *Schippondt*, which at *Antwerp* and *Hamburgh* is 300 Pounds, at *Lubeck* 320; and at *Coningsberg* 400 Pounds.—In *Sweden*, the *Schippondt* for Copper is 320 Pounds; and the *Schippondt* for Proviſions 400 Pounds. At *Riga* and *Revel*, the *Schippondt* is 400 Pounds; and at *Dantzic* 340 Pounds: In *Norway* 300 Pounds: At *Amſterdam* 300; containing 20 *Lyſpondts*, each weighing 15 Pounds.

In *Muſcovy*, they weigh their large Commodities by the *Bercheroct*, or *Berkewits*, containing 400 of their Pounds.—They have alſo the *Poet*, or *Pode*, containing 40 Pounds, or $\frac{1}{10}$ of the *Bercheroct*.

In *Turky*, at *Smirna*, &c. they uſe the *Batman*, or *Battemant*, containing ſix Ocquos; the *Ocquo* weighing 3 Pounds $\frac{4}{5}$ *Engliſh*.—They have another *Batman*, much leſs, conſiſting as the former of ſix Ocquos, but the Ocquo only containing 15 Ounces *Engliſh*: 44 Ocquos of the firſt Kind, make the *Turkiſh Quintal*.—At *Cairo*, *Alexandretta*, *Aleppo*, and *Alexandria*, they uſe the *Rotte*, *Rotton*, or *Rottoli*. The Rotoli at *Cairo*, and other Parts of *Egypt*, is 144 Drachms; being ſomewhat over an *Engliſh* Pound.—At *Aleppo* there are three ſorts of Rottos; the firſt 720 Drachms, making about ſeven Pounds *Engliſh*, and ſerving to weigh Cottons, Galls, and other large Commodities: The ſecond is 624 Drachms, uſed for all Silks but white ones, which are weigh'd by the third Rotte of 700 Drachms. At *Seyda* the Rotto is 600 Drachms.

The other Ports of the *Levant*, not named here, uſe ſome of theſe *Weights*; particularly the *Occo*, or *Ocqua*, the *Rotoli* and *Rotte*.

To ſhew the Proportion of theſe ſeveral *Weights* to one another, we ſhall add a Reduction of the divers *Pounds* uſed throughout *Europe*, by which the other *Weights* are eſtimated, to one Standard Pound, *viz.* the Pound of *Amſterdam*, *Paris*, and *Bourdeaux*; as calculated with great Accuracy by Monſieur *Ricard*, and publiſh'd in the new Edition of his excellent *Traite de Commerce*, in 1722.

Alphabetical Table of the Proportion of the Weights *of the chief Cities in* Europe, *to thoſe of* Amſterdam.

An hundred Pounds of *Amſterdam*, are equal to

108 Pounds of *Alicant*.
105 *l.* of *Antwerp*.
120 *l.* of *Archangel*, or 3 *Poedes*.
105 *l.* of *Arſchot*.
120 *l.* of *Avignon*.
98 *l.* of *Baſil* in *Switzerland*.
100 *l.* of *Bayonne* in *France*.
166 *l.* of *Bergamo*.
97 *l.* of *Berg ap Som*.
95 *l.* $\frac{1}{4}$ of *Bergen* in *Norway*.
111 *l.* of *Bern*.
100 *l.* of *Beſancon*.
100 *l.* of *Bilboa*.
105 *l.* of *Bois le duc*.
151 *l.* of *Boulogne*.
100 *l.* of *Bourdeaux*.
104 *l.* of *Bourg en Breſſe*.
103 *l.* of *Bremen*.
125 *l.* of *Breſlaw*.
105 *l.* of *Bruges*.
105 *l.* of *Bruſſels*.
105 *l.* of *Cadiz*.
105 *l.* of *Cologne*.
125 *l.* of *Coningsberg*.
107 *l.* and $\frac{1}{2}$ of *Copenhagen*.
87 Rottes of *Conſtantinople*.
113 *l.* and $\frac{1}{2}$ of *Dantzic*.
100 *l.* of *Dort*.
97 *l.* of *Dublin*.
97 *l.* of *Edenburgh*.
143 *l.* of *Florence*.
98 *l.* of *Francfort*, on the *Maine*.
105 *l.* of *Ghent*.
89 *l.* of *Geneva*.

163 *l.* of *Genoa*, *Caſh-Weight*.
102 *l.* of *Hamburg*.
106 *l.* of *Leiden*.
105 *l.* of *Leipſic*.
105 *l.* and $\frac{1}{2}$ of *Liege*.
114 *l.* of *Liſle*.
116 *l.* of *Lyons*, *City-Weight*.
106 *l.* and $\frac{1}{2}$ of *Lisbon*.
143 *l.* of *Leghorn*.
109 *l.* of *London*, *Averdupois-Weight*.
105 *l.* of *Lovaine*.
105 *l.* of *Lubec*.
$141\frac{1}{2}$ *l.* of *Lucca*, *Light-Weight*.
114 *l.* of *Madrid*.
105 *l.* of *Malines*.
123 *l.* and $\frac{1}{2}$ of *Marſeilles*.
154 *l.* of *Meſſina*, *Light-Weight*.
168 *l.* of *Milan*.
120 *l.* of *Montpellier*.
125 Bercherocts of *Muſcovy*.
100 *l.* of *Nantes*.
106 *l.* of *Nancy*.
169 *l.* of *Naples*.
98 *l.* of *Nuremberg*.
100 *l.* of *Paris*.
112 *l.* and $\frac{1}{7}$ of *Revel*.
109 *l.* of *Riga*.
100 *l.* of *Rochel*.
146 *l.* of *Rome*.
100 *l.* of *Rotterdam*.
96 *l.* of *Rouen*, *Vicounty-Weight*.
100 *l.* of *S. Malo*.
100 *l.* of *S. Sebaſtian*.

An hundred Pounds of *Amſterdam* is equal to

158 *l.* and $\frac{1}{7}$ of *Saragoſa*.
106 *l.* of *Seville*.
114 *l.* of *Smirna*.
110 *l.* of *Stetin*.
81 *l.* of *Stockholm*.

118 *l.* of *Tholouſe* and *Upper Languedoc*.
151 *l.* of *Turin*.
158 *l.* and $\frac{1}{2}$ of *Valencia*.
182 *l.* of *Venice*, *Small-Weight*.

WEIGHTS *uſed in the ſeveral Parts of the* Eaſt-Indies, China, Perſia, *&c.*

The *Chineſe* WEIGHTS, are—The *Pic* for large Commodities; it is divided into 100 Catis, or Cattis, tho ſome ſay into 125: the *Cati* into 16 Taels; each *Tael* equivalent to $1\frac{1}{3}$ of an Ounce *Engliſh*, or the *Weight* of one Rial and $\frac{1}{17}$, and containing 10 Mas, or Maſſes; and each *Mas* 10 *Condorins*. So that the *Chineſe* Pic amounts to 137 Pounds *Eng.* Averdupois, and the Cati to 1 Pound 8 Ounces.——The *Picol*, for Silk, containing 66 Catis and $\frac{3}{4}$: The *Bahar*, *Bakaire*, or *Barre*, containing 300 Catis.

Tunquin has all the ſame *Weights*, Meaſures, *&c.* as *China*.

Japan has only one *Weight*, *viz.* the *Catti*; which, however, is different from that of *China*, as containing 20 Taels.—At *Surat*, *Agra*, and throughout the States of the Great *Mogul*, they uſe the *Man*, or *Mein*, whereof they have two Kinds; the *King's Man*, or *King's Weight*; and the *Man* ſimply: The firſt uſed for the weighing of common Proviſions, containing 40 *Sers*, or *Serres*; and each Ser a juſt *Paris* Pound. Tho *Tavernier* will have the *Ser* near a Seventh leſs than the *Paris* Pound.——The common *Man*, uſed in the weighing of Merchandize, conſiſts likewiſe of 40 Serres, but each Serre is only eſtimated at 12 *Paris* Ounces, or $\frac{3}{4}$ of the other Ser.

The *Man* may be look'd on as the common *Weight* of the *Eaſt Indies*, tho under ſome difference of Name, or rather of Pronunciation; it being call'd *Mao* at *Cambaya*, and in other Places *Mein*.—The *Ser* is properly the *Indian* Pound, and of univerſal uſe: The like may be ſaid of the *Bahar*, *Tael*, and *Catti* abovemention'd.

The *Weights* of *Siam*, are the *Pic*, containing 2 *Schans* or *Catis*; but the *Siameſe* Cati is only half the *Japoneſe*, the latter containing 20 Taels and the former only 10: Tho ſome make the *Chineſe* Cati only 16 Taels, and the *Siameſe* 8.—The *Tael* contains 4 *Baats* or *Ticals*; each about a *Paris* Ounce: The *Baat* 4 *Selings*, or Mayons: The *Mayon* 2 Fouangs: The *Fouang* 4 Payes: The *Paye* 2 Clams: The *Sompaye*, half a Fouang.

It is to be obſerved, that theſe are the Names of their Coins, as well as *Weights*; Silver and Gold being, there, Commodities, ſold, as other things, by their *Weights*. See COIN, *&c.*

In the Iſle of *Java*, and particularly at *Bantam*, they uſe the *Gantan*, which amounts to near 3 *Dutch* Pounds.——In *Golconda*, at *Viſapour* and *Goa*, they have the *Furatelle*; containing 1 Pound 14 Ounces *Engliſh*: The *Mangalis*, or *Mangelin*, for weighing Diamonds and Precious Stones; weighing at *Goa* 5 Grains, at *Golconda*, &c. $5\frac{1}{2}$ Grains.—They have alſo the *Rotolo*, containing $14\frac{1}{7}$ Ounces *Engliſh*: The *Metricol*, containing the ſixth Part of an Ounce: The *Val*, for Piaſtres and Ducats; containing the 73d Part of a Real.

In *Perſia*, they uſe two Kinds of *Batmans* or *Mans*; the one called *Cahi* or *Cheray*, which is the King's *Weight*, and the other *Batman of Tauris*, from the Name of one of the chief Cities of *Perſia*.—The firſt weighs, according to *Tavernier*, 13 Pounds 10 Ounces *Engliſh*; the ſecond, 6 Pound $\frac{3}{4}$. According to Sir *J. Chardin*, the *King's Batman* is 13 Pounds 14 Ounces, and the *Batman of Tauris* 6 Pounds $\frac{1}{2}$.—Its Diviſions are, the *Ratel*, or a 16th; the *Derhem*, or Drachm, which is the 50th; the *Meſcal*, which is half the Derhem; the *Dung*, which is the 6th Part of the Meſchal; being equivalent to 6 Carat-Grains; and laſtly the *Grain*, which is the 4th Part of the Dung.—They have alſo the *Vakie*, which exceeds, a little, our Ounce: The *Sah-cheray*, equal to the 1170th Part of the Derhem: And the *Toman*, uſed to weigh out large Payments of Money, without telling: its *Weight* is that of 50 *Abaſſis*. See TOMAN.

African and American WEIGHTS.

We have little to ſay as to the *Weights* of *America*: The ſeveral *European* Colonies there, making uſe of the *Weights* of the States or Kingdoms of *Europe* they belong to. For as to the *Aroue* of *Peru*, which weighs 27 Pounds, 'tis evidently no other than the *Spaniſh Aroba*, with a little difference in the Name.

As to the *Weights* of *Africa*; there are few Places have any, except *Egypt* and the Coaſts of *Africa*, whoſe *Weights* are enumerated among thoſe of the Ports of the *Levant*, &c.

As to the Coaſts beyond *Cape Verde*, viz. *Guinea*, *Congo*, to *Soffola*, *Moſambica*, &c. they have no *Weights*; only, the *Engliſh*, *French*, *Dutch*, *Portugueze* and *Danes*, have introduc'd their own *Weights* in their reſpective Settlements.

The Iſle of *Madagaſcar*, indeed, has its particular *Weights*; but it has none that exceed the Drachm, nor are they uſ'd for any thing but Gold and Silver.—Other Commodities they never weigh.

Antient WEIGHTS.

Jewiſh WEIGHTS *reduc'd to* Engliſh *Troy* Weights.

			l.	*oz.*	*pwt.*	*gr.*
Shekel			00	00	09	$02\frac{4}{7}$
100	Maneh		03	09	10	$17\frac{1}{7}$
5000	50	Talent	180	08	15	$17\frac{1}{7}$

Note, In reckoning Money, 60 *Shekels* made a *Maneh*, but in weight 100 *Shekels*.

Grecian *and* Roman WEIGHTS *reduc'd to* Engliſh *Troy Weight*.

										l:	*oz.*	*pwt.*	*gr.*
Lentes										0	00	00	$00\frac{85}{112}$
4	Siliquæ									0	00	00	$03\frac{1}{28}$
12	3	Obolus								0	00	00	$09\frac{3}{28}$
24	6	2	Scriptulum							0	00	00	$18\frac{3}{14}$
72	18	6	3	Drachma						0	00	02	$06\frac{9}{14}$
96	24	8	4	$1\frac{1}{3}$	Sextula					0	00	03	$00\frac{6}{7}$
144	36	12	6	2	$1\frac{1}{2}$	Sicilicus				0	00	04	$13\frac{2}{7}$
192	48	16	8	$2\frac{2}{3}$	2	$1\frac{1}{3}$	Duella			0	00	06	$01\frac{5}{7}$
576	144	48	24	8	6	4	3	Uncia		0	00	18	$05\frac{1}{7}$
6912	1728	576	288	96	72	48	36	12	Libra	0	10	18	$13\frac{5}{7}$

The Subdiviſions of the Roman *As*, *Libra*, or Pound.

		Unciæ, or Ounces.
1	As, Libra, &c. contain'd	12
$\frac{11}{12}$	Deunx	11
$\frac{5}{6}$	Dextans	10
$\frac{3}{4}$	Dodrans	9
$\frac{2}{3}$	Bes	8
$\frac{7}{12}$	Septunx	7
$\frac{1}{2}$	Semis	6
$\frac{5}{12}$	Quincunx	5
$\frac{1}{3}$	Triens	4
$\frac{1}{4}$	Quadrans	3
$\frac{1}{6}$	Sextans	2
$\frac{1}{12}$	Uncia	1

The *Roman Ounce* is the *Engliſh* Averdupoiſe Ounce, which they divided into 7 *Denarii*, as well as 8 *Drachms*; and ſince they reckon'd their *Denarius* equal to the *Attic Drachm*, this will make the *Attic* Weights $\frac{1}{8}$ heavier than the correſpondent *Roman* Weights.

Note, The *Grecians* divided their *Obolus* into *Chalci* and λεπτα. Some, as *Diodorus* and *Suidas*, divided the *Obolus* into 6 *Chalci*, and every *Chalcus* into 7 λεπτα. Others divided the *Obolus* into 8 *Chalci*, and every *Chalcus* into 8 λεπτα, or *Minuta*.

Weight *of Air*, is equal to the Elaſticity thereof. See Air, and Elasticity.

To find the Weight *of a Cubic Inch of Air.*—Weigh a round glaſs Veſſel full of common Air, very accurately: exhauſt the Air out of it: weigh the exhauſted Veſſel, and ſubtract the latter *Weight* from the former; the Remainder is the *Weight* of the Air exhauſted.

Find, then, the Content of the Veſſel by the Laws of Meaſuring, (ſee Sphere;) and the Ratio of the remaining Air to the primitive Air. See Air-*Pump*.

This done, the Bulk of the remaining Air is found by the Rule of Three; which being ſubtracted from the Capacity of the Veſſel, the Remainder will be the Bulk of Air extracted.—Or, if the Air-Pump be very tight, and the Exhauſtion continu'd as long as any Air is got out; the remaining Air will be ſo ſmall, that it may be ſafely neglected, and the Content of the Veſſel taken for the Bulk of the exhauſted Air.

Having, therefore, the *Weight* and Bulk of the whole exhauſted Air, the *Weight* of one Cubic Inch is eaſily had by the Rule of Three.

This Method was firſt uſed by *Otto Gueric*, and afterwards by *Burcheras de Volder*; who gives us the following Particulars in his Experiment.—1°, That the *Weight* of the Glaſs ſpherical Veſſel he made uſe of, full of common Air, was 7 Pounds 1 Ounce 2 Drams 48 Grains; when exhauſted of Air, 7 *l.* 1 *oz.* 1 *dr.* 31 *gr.* and when full of Water, 16 *l.* 12*oz.* 7*dr.* 14 *gr.* The *Weight* of the Air, therefore, was 1 *dr.* 12 *gr.* or 77 *gr.* the *Weight* of the Water 9*l.* 11 *oz.* 5*dr.* 43 *gr.* or 74743 *gr.* Conſequently, the Ratio of the ſpecifick Gravity between Water and Air, is $74743 : 77 :: 970\frac{53}{77} : 1$. Now, *Volderus*, having found a Cubic Foot of Water to weigh 64 Pound; by inferring, as 970 is to 1, So is 64 Pounds to a fourth Proportional; which found by the Rule of Three, is the *Weight* of a Cubic Foot of Air, *viz.* 1 Ounce, 27 Gr. or 507 Grains. See Air.

The *Weight* of Sea Water is different in different Climates. Mr. *Boyle* having furniſh'd a learned Phyſician, going on a Voyage to *America*, with a Hydroſtatical Balance; and recommended him to obſerve, from time to time, the difference of *Weight* he might meet withal; this Account was return'd him: That the Sea Water increas'd, in *Weight* the nearer he came to the Line, till he arrived at a certain degree of Latitude, as he remembers, about the 30th; beyond which, it retain'd the ſame ſpecific *Weight*, till he came to *Barbadoes*. *Philoſoph. Tranſact.* N° 18.

Weights *of Auncel*. See Auncel *Weight*.

WELDING *Heat*, a degree of Heat which Smiths give their Iron in the Forge, when there is occaſion to double up the Iron, and to *weld* a Work in the Doublings; ſo that the Iron ſhall grow into a Lump thick enough for the Purpoſe. See Iron, Forging, &c.

It is alſo uſed when two Bars of Iron are to be joined together at the Ends, to make a Length. See Heat.

WELL, a Hole dug under Ground, below the Level or Surface of the Water collected in the Strata. See Strata, and Water.

It is uſually of a cylindrical Figure, wall'd with Stone, and lined with Mortar. See Spring.

M. *Blondel* informs the *French* Academy of a Device they uſe in the lower *Auſtria*, which is incompaſs'd with the Mountains of *Stiria*, to fill their *Wells* with Water, *viz.* That they dig in the Earth to the depth of 20 or 25 Feet, till they come to a clammy Earth, which they bore thro', till the Waters break forcibly out: Which Water, in all probability, comes from the neighbouring Mountains, in ſubterraneous Channels.—*Caſſini* obſerves, that in many Places of *Modena* and *Boulogne*, they make themſelves *Wells* by the ſame Artifice.—Mr. *Derham* adds, that the like has been ſometimes found in *England*, particularly in *Eſſex*.

In the *Philoſophical Tranſactions*, we are inform'd by Mr. *Norwood*, that in *Bermudas*, *Wells* of freſh Water are dug within 20 Yards of the Sea, and even leſs, which riſe and fall with the Tides, as the Sea it ſelf does.—He adds, that in digging *Wells* in that Iſland, they dig till they come almoſt to a Level with the Surface of the Sea; and then they certainly find either Freſh Water or Salt: If it prove Freſh, yet by digging two or three Foot deeper, they always come at Salt Water. If it be ſandy Ground, they uſually find Freſh Water; but if hard Lime-ſtone Rock, ſalt or brackiſh. See Fresh *Water*, &c.

In the Dioceſe of *Paderborn* in *Weſtphalia*, is a *Well* which loſes it ſelf twice in 24 Hours; returning always, after ſix Hours abſence, with great Noiſe, and ſo forcibly as to drive three Mills not far off. The Inhabitants call it the *Bolderborn*, *q. d.* the boiſterous Spring.—*Lay-Well* near *Torbay*,

Torbay, ebbs and flows very often every Hour; tho ſomewhat oftener in Winter than Summer. Dr. *Oliver* obſerves, its Flux and Reflux ſometimes return every Minute, tho ſometimes not above 26 or 20 times an Hour. *Philoſoph. Tranſact.* N° 104.

WELL-*Water* is not ſo wholeſom or good for moſt Uſes, as *River-Water*. See WATER.

WELL-*Hole*, in Building, is the Hole left in a Floor for the Stairs to come up thro'. See STAIRS.

WELL, in the Military Art, is a Depth which the Miner ſinks into the Ground, to prepare a Mine, or find out and diſappoint the Enemy's Mine. See MINE, SAP, *&c.*

WEN, a Tumor, or Excreſcence growing on divers Parts of the Body; conſiſting of a Cyſtis, or Bag, fill'd with ſome peculiar Matter. See TUMOR, and EXCRESCENCE.

Of this, Phyſicians uſually reckon three Kinds, according to the Matter it is form'd of, *i. e.* the Humour contain'd therein.—If ſoft, reſembling a Pulp, the *Wen* is call'd *Atheroma*; if Honey, *Meliceris*; and if Suet, *Steatoma.*

M. *Littre*, in *Mem. de l'Acad. des Sciences*, adds a fourth Kind, which he calls *Lipoma*; by reaſon, the *Wen* is form'd of ſoft Fat.

They are all, uſually, of the like Colour with the reſt of the Body; begin from very little, and grow gradually. They are not dangerous, but frequently laſt a long while. Sometimes they degenerate into Abſceſſes.

The Cure is, to cut off the Cyſtis by the Root, which is always narrow.

In the *Philoſophical Tranſactions*, we have an Account of a very extraordinary *Wen*, on the lower Jaw of one *Alex. Palmer* of *Keith* in *Scotland*.—It was 27 Years a-growing: at length, its enormous Bulk, and the Pain it gave him, together with its emaciating him exceedingly, determin'd him to have it cut off. Dr. *Bowers* aſſures us, its Baſis was five Inches over, which ſhould ſeem too large for the whole Face, and that with Blood and all, it weigh'd one or two and twenty Pounds. Its form was Spheroidal; and when meaſur'd, was 34 Inches about, one way, and 28 another. It ſeem'd to be an *Atheroma*; being a glandulous Subſtance, with ſeveral big Blood-Veſſels in it; and Hair growing on it. It was as ſenſible as any other Part.—The Hemorrhage, after cutting it off, was ſtop'd by the Vitriolic Pouder, and the ordinary Dreſſing being us'd, a Cure was compleated in ſix Weeks time.

WERE, or WERRE, in our old Law-Books, ſignifies as much as *Æſtimatio Capitis*, or *Pretium hominis*; that is, ſo much as was antiently paid for killing a Man. When ſuch Crimes were puniſh'd with pecuniary Mulcts, not Death; the Price was ſet on every Man's Head, according to his Condition and Quality.——Were *ſuum*, id eſt, *pretium ſuæ redemptionis*, his Ranſom. See RANSOM.

WERELADA, from the Saxon *Were* and *ladian*, to purge; was thus: Where a Man was ſlain, the Price at which he was valu'd was to be paid to his Relations. For in the Time of the *Saxons*, the killing a Man was not puniſh'd by Death, but by a pecuniary Mulct, call'd *Wera*. See WERE.

WERGILD, WERGELD, in our antient Cuſtoms, *pretium ſeu Valor hominis occiſi, homicidii pretium*; which was paid partly to the King for the Loſs of his Subject, partly to the Lord whoſe Vaſſal he was, and partly to the next of kin.——*Quædam Crimina emendari non poſſunt; quæ ſunt* Husbrech, Bernet, *&* Openchef, *&* Everemord, *&* Latordfith, *& infractio pacis Eccleſiæ, vel per Manus Regis per homicidium*, L. L. *Hen.* I. c. 13.—Where are likewiſe enumerated the Crimes that might be redeemed *per Weram.* ——*De unoquoque fure per totam Scotiam eſt* Wergelt 30 *Vaccæ & una Juvenca, ſive fuerit liber homo ſive ſervus.*

The *Wergeld* of an Archbiſhop and of an Earl, was 15000 Thrimſa's. Selden's *Titles of Honour.*

If the Party deny'd the Fact, he was to purge himſelf by the Oaths of ſeveral Perſons, according to his Degree and Quality.—If the Guilt amounted to four Pounds, he was to have 18 Jurors on his Father's ſide, and four on his Mother's: If to 14 Pounds, he was to have ſixty Jurors. And this was called *Werelada.*—*Homicidium* Wera *ſolvatur aut* Werelada *negetur.*

WEST, *Occidens*, *Occaſus*, in Coſmography, one of the Cardinal Points of the Horizon; diametrically oppoſite to the Eaſt. See CARDINAL *Point*, EAST, *&c.*

Weſt is, ſtrictly defined, the Interſection of the Prime Vertical with the Horizon, on that ſide the Sun ſets in. See SETTING.

To draw a true Weſt-*Line.* See MERIDIAN.

In Aſtronomy, *Weſt* is chiefly uſed for the Places in or towards which, the Sun or Stars ſink under the Horizon.——Thus, we ſay, the *Sun*, *Mars*, &c. are in the *Weſt.*

The Point the Sun ſets in, when in the Equator, is particularly call'd the *Equinoctial Weſt*, or *Point of true Weſt.* See EQUINOCTIAL.

In Geography, *Weſt* and *Weſtern* are applied to certain Countries, *&c.* ſituate towards the Point of Sun-ſetting, with reſpect to certain others.—Thus, the Empire of *Rome*, antiently, and of *Germany*, at preſent, are called the Empire of the *Weſt*, or *Weſtern* Empire; in oppoſition to that of *Conſtantinople*, which is call'd the *Empire of the Eaſt.* See EMPIRE.

The *Latin* or *Roman* Church, is called the *Weſtern Church*; in oppoſition to the *Greek* Church.—The *French*, *Spaniards*, *Italians*, &c. are called *Weſtern Nations*, in reſpect to the *Aſiaticks*; and *America* the *Weſt-Indies*, in reſpect of the *Eaſt-Indies.*

WEST-*Wind*, is alſo called *Zephyrus*, and *Favonius.* See WIND.

WEST-*Saxonlage*, or WEST-*Saxonlaga*, the Law of the *Weſt-Saxons.* See LAW, MERCHENLAGE, *&c.*

WESTPHALIA *Ham.* See HAM.

WET-*Glover*, a Dreſſer of the Skins of Sheep, Lambs, Goats, *&c.* which are ſlender, thin, and gentle. See GLOVE, SKIN, *&c.*

WHALE, in Aſtronomy, one of the Conſtellations. See CETUS.

WHALE-*Bone*, a Commodity got from the *Whale*, uſed as Stiffening in Stays, Fans, Busks, Skreens, *&c.*

There are two Kinds of *Whales*; the one retaining that Name, the other called *Cachalot.* Their Difference conſiſts in this, that the Cachalot has Teeth, and the *Whale*, properly ſo call'd, inſtead of Teeth, has a kind of Whiſkers in his Throat, about a Span broad and 15 Foot long, ending in a kind of Fringe, much like Swines Briſtles.

They are ſet in the Palate, and do in ſome meaſure the Office of Teeth.—Theſe Whiſkers, ſplit and faſhion'd, are what we call *Whalebone.*—The Pizzle or Genital Member of the Animal ſerves likewiſe for the ſame Purpoſe.

WHALE-*Fiſhery.* See FISHERY.

WHARF, a Space on the Banks of a Haven, Creek, or Hithe; provided for the convenient loading and unloading of Veſſels upon. See HAVEN, HITHE, *&c.*

The Fee paid for the Landing of Goods on a *Wharf*, or for Shipping them off, is call'd *Wharfage.*—And the Perſon who has the Overſight and Direction of the *Wharf*, receives Wharfage, *&c.* is called the *Wharfinger.* See KEY.

WHARLS *of Flowers*, among Herbaliſts, are Rows of leſſer Flowers, ſet at certain Diſtances about the main Stalk or Spike. See FLOWER.

WHEAT. See CORN.

WHEEL, *Rota*, in Mechanicks, a ſimple Machine, conſiſting of a round piece of Wood, Metal, or other Matter; turning round on an Axis. See AXIS.

The *Wheel* is one of the principal Mechanick Powers.—It has place in moſt Engines; and, in effect, 'tis of an Aſſemblage of *Wheels*, that moſt of our chief Engines are compoſed.——Witneſs Clocks, Mills, *&c.* See CLOCK, MILL, *&c.*

Its form is various, according to the Motions it is to have; and the Uſe it is to anſwer.—By this it is diſtinguiſh'd into *Simple* and *Dented.*

Simple Wheels, are thoſe whoſe Circumference and Axis is uniform, and which are uſed ſingly, and not combined.—Such are *Wheels* of Carriages; which are to have a double Motion: the one circular, about their Axis; the other rectilinear; by which they advance along the Road, *&c.* which two Motions they appear to have; tho, in effect, they have but one: It being impoſſible the ſame Thing ſhould move or be agitated two different ways at the ſame time.

This one is a ſpiral Motion; as is eaſily ſeen by fixing a piece of Chalk on the Face of a *Wheel*, ſo as it may draw a Line on a Wall, as the *Wheel* moves.—The Line it here traces is a juſt Spiral, and ſtill the more Curve as the Chalk is fix'd nearer the Axis.

For a very nice Phænomenon in the Motion of theſe *Wheels*, ſee *Ariſtotle*'s WHEEL.

We ſhall add, that in *Wheels* of this kind, the Height ſhould always be proportion'd to the Stature of the Animal that draws or moves them.—The Rule is, that the Load and the Axis of the *Wheels*, be of the ſame Height with the Force that moves them: Otherwiſe, the Axis being higher than the Beaſt, part of the Load will lie on him; or, if it be lower, he pulls to diſadvantage, and muſt exert a greater Force. Tho, *Stevinus*, Dr. *Wallis*, &c. ſhew, that to draw a Vehicle, *&c.* over waſte, uneven Places, it were beſt to fix the Traces to the *Wheels* lower than the Horſe's Breaſt.

The Power of theſe *Wheels* reſults from the Difference of the Radii of the Axis, and Circumference.—The Canon is this: As the Radius of the Axis is to that of the Circumference, So is any Power, to the *Weight* it can ſuſtain hereby.

This is alſo the Rule in the Axis *in Peritrochio*; and, in effect, the *Wheel*, and the Axis *in Peritrochio*, are the ſame thing; only, in Theory it is uſually call'd by the former Name, and in Practice by the latter. See AXIS *in Peritrochio.*

Dented Wheels, are thoſe whoſe Circumference, or elſe Axis, is cut into Teeth, by which they are capable of moving and acting on one another, and of being combined together. See DENTED, TEETH, *&c.*

The uſe of theſe is very conſpicuous in Clocks, Jacks, *&c.* See CLOCKWORK, WATCHWORK, *&c.*

The Power of the *Dented Wheel* depends on the ſame Principle as that of the *Simple* one.—'Tis only that to the ſimple Axis *in Peritrochio*, which a compound Lever is to a ſimple Lever. See LEVER.

Its Doctrine is compriz'd in the following Canon, *viz.*—*The Ratio of the Power to the Weight*, in order for that to be equivalent to this, *muſt be a Ratio compounded of the Ratios of the Diameter of the Axis of the laſt* Wheel, *to the Diameter of the firſt ; and of the Ratio of the Revolutions of the laſt* Wheel *to thoſe of the firſt, in the ſame time.*—But this Doctrine will deſerve a more particular Explication.

1°, Then, If the Weight be multiply'd into the Product of the Radii of the Axis, and that Product be divided by the Product of the Radii of the *Wheels*, the Power requir'd to ſuſtain the Weight will be found.——Suppoſe, *e. g.* the Weight A, (Tab. *Mechanicks*, Fig. 61.) = 6000 Pounds, BC = 6 Inches, CD = 34 Inches, EF = 5 Inches, EG = 35 Inches, HI = 4 Inches, HK = 27 Inches. Then will BC, EF, HI = 120; and CD, EG, IK = 32130.—Hence the Power requir'd to ſuſtain the Weight, will be the Quotient of 6000—120 divided by 32139, *viz.* $22\frac{1}{3}$ of a Pound, very nearly ; a ſmall Addition to which will raiſe it.

2°, If the Power be multiply'd into the Product of the Radii of the *Wheels*, and the *Factum* be divided by the Product of the Radii of the Axes ; the Quotient will be the Weight which the Power is able to ſuſtain.—Thus, if the Power be $22\frac{1}{3}$ of Pound, the Weight will be 6000 Pound.

3°, *A Power and a Weight being given, to find the Number of* Wheels, *and in each* Wheel *the Ratio of the Radius of the Axis to the Radius of the* Wheel : *ſo, as that the Power being applied perpendicularly to the Periphery of the laſt* Wheel, *may ſuſtain the given Weight.*

Divide the Weight by the Power : Reſolve the Quotient into the Factors which produce it.—Then will the Number of Factors be the Number of *Wheels* ; and the Radii of the Axis will be to the Radii of the *Wheels*, as Unity to the ſeveral *Wheels.*—Suppoſe, *e. g.* a Weight of 3000 Pound and a Power of 60, which reſolves into theſe Factors, 4 5 5 5. Four *Wheels* are to be made, in one of which the Radius of the Axis is to the Radius of the *Wheel* as 1 to 4.—In the reſt, as 1 to 5:

4°, If a Power move a Weight by means of two *Wheels*, the Revolutions of the ſlower *Wheel* are to thoſe of the ſwifter, as the Periphery of the ſwifter Axis is to the Periphery of the *Wheel* that catches on it.

Hence, 1°, the Revolutions are as the Radius of the Axis FE, to the Radius of the *Wheel* DC.—2°, Since the Number of Teeth in the Axis FD, is to the Number of Teeth in the Circumference of the *Wheel* M as the Circumference of that, to the Circumference of this : The Revolutions of the ſlower *Wheel* M, are to the Revolutions of the ſwifter N, as the Number of Teeth in the Axis, to the Number of Teeth in the *Wheel* M it catches into.

5°, If the *Factum* of the Radii of the *Wheels* GD, DC be multiply'd into the Number of Revolutions of the ſloweſt *Wheel* M ; and the Product be divided by the *Factum* of the Radii of the Axes which catch into them, GH, DE, *&c.* The Quotient will be the Number of Revolutions of the ſwifteſt *Wheel* O. *E. g.* If GE = 8, DC = 12, GH = 4, DE = 3, and the Revolution of the *Wheel* M be one ; the Number of Revolutions of the *Wheel* O will be 8.

6°, If a Power move a Weight by means of divers *Wheels*, the Space paſs'd over by the Weight is to the Space of the Power, as the Power to the Weight.——Hence, the greater the Power, the faſter is the Weight mov'd ; and *vice verſa.*

7°, The Spaces paſs'd over by the Weight and the Power, are in a Ratio compounded of the Revolutions of the ſloweſt *Wheel*, to the Revolutions of the ſwifteſt ; and of the Periphery of the Axis of that, to the Periphery of this.—Hence, ſince the Space of the Weight and the Power are reciprocally as the ſuſtaining Power to the Weight ; the Power that ſuſtains a Weight, will be to the Weight, in a Ratio compounded of the Revolutions of the ſloweſt *Wheel* to thoſe of the ſwifteſt, and of the Periphery of the Axis of that, to the Periphery of this.

8°, *The Periphery of the Axis of the ſloweſt* Wheel, *with the Periphery of the ſwifteſt* Wheel, *given ; as alſo, the Ratio of the Revolutions of the one, to thoſe of the other : To find the Space which the Power is to paſs over, while the Weight goes any given length.*

Multiply the Periphery of the Axis of the ſloweſt *Wheel*, into the antecedent Term of the Ratio, and the Periphery of the ſwifteſt *Wheel* into the conſequent Term ; and to theſe two Products, and the given Space of the Weight, find a fourth Proportional : This will be the Space of the Power. Suppoſe, *e. g.* the Ratio of the Revolutions of the ſloweſt *Wheel* to thoſe of the ſwifteſt to be as 2 to 7 ; and the Space of the Weight 30 Feet : And let the Periphery of the Axis of the ſloweſt *Wheel* be to that of the ſwifteſt as 3 to 8. The Space of the Power will be found 280.

9°, *The Ratio of the Peripheries of the ſwifteſt* Wheel, *and of the Axis of the ſloweſt ; together with the Ratio of their Revolutions, and the Weight, being given : to find the Power able to ſuſtain it.*

Multiply both the Antecedents and the Conſequents of the given Ratios into each other : and to the Product of the Antecedents, the Product of the Conſequents, and the given Weight, find a fourth Proportional. That will be the Power requir'd.—Suppoſe, *e. g.* the Ratio of the Peripheries 8 : 13. That of the Revolutions 7 : 2 ; and the Weight 2000 : The Power will be found $214\frac{2}{7}$.—After the ſame manner may the Weight be found ; the Power and the Ratio of the Peripheries, *&c.* being given.

10°, *The Revolutions the ſwifteſt* Wheel *is to perform while the ſloweſt makes one Revolution, being given ; together with the Space the Weight is to be raiſ'd, and the Periphery of the ſloweſt Wheel ; to find the Time that will be ſpent in raiſing it.*

Say, as the Periphery of the Axis of the ſloweſt *Wheel* is to the Space of the Weight given ; ſo is the given Number of Revolutions of the ſwifteſt *Wheel* to a fourth Proportional ; which will be the Number of Revolutions perform'd while the Weight reaches the given Height.—Then, by Experiment, determine the Number of Revolutions the ſwifteſt *Wheel* performs in an Hour ; and by this divide the fourth Proportional found before.—The Quotient will be the Time ſpent in raiſing the Weight.

WHEELS *of a Clock*, &c. are the *Crown Wheel*, *Contrat Wheel*, *Great Wheel*, *Second Wheel*, *Third Wheel*, *Striking-Wheel*, *Detent-Wheel*, &c. See CLOCK, and WATCH.

WHEELS *of Coaches*, *Waggons*, &c.—In the *Philoſophical Tranſactions*, we have ſome Experiments ſhewing the Advantages of *high Wheels* in Carriages of all Kinds ; the Reſults of the Experiments amount to this :

1°, That, four *Wheels* of $5\frac{2}{3}$ Inches high, *viz.* one half of the ordinary Height of the *Wheels* of a Waggon, draw a Weight of $50\frac{1}{2}$ *l.* Averdupoiſe up an inclined Plane with leſs Weight by ſix Ounces, than two of them match'd with two ſmaller ones of $4\frac{1}{3}$ Inches height.

2°, That any Vehicle might be much more eaſily drawn in rough ways, if the *fore Wheels* were as high as the *hind-Wheels*, and the Thills fix'd under the Axis.

3°, That ſuch a Vehicle would likewiſe be drawn more eaſily where the *Wheels* cut in Clay, Sand, *&c.*

4°, That high *Wheels* would not cut ſo deep as low *Wheels.*

5°, That low *Wheels* are indeed beſt for turning in a narrow Compaſs.

Potter's WHEEL. See POTTERY.

Ariſtotle's WHEEL. See ROTA *Ariſtotelica.*

Meaſuring WHEEL. See PEDOMETER, PERAMBULATOR, WAYWISER, *&c.*

WHEEL is alſo a kind of Puniſhment which great Criminals are put to in divers Countries. See PUNISHMENT.

In *France*, their Aſſaſſins, Parricides, and Robbers on the Highway, are condemn'd to the *Wheel*, *i. e.* having their Bones firſt broke with an Iron Bar on a Scaffold, they are expos'd and left to expire on the Circumference of a *Wheel.*—In *Germany*, they break their Bones on the *Wheel* it ſelf.

This cruel Puniſhment was unknown to the Antients ; as is obſerv'd by *Cujas.*—'Tis not certain who was the Inventor.—Its firſt Introduction was in *Germany.* 'Twas but rarely practis'd any where elſe, till the Time of *Francis* I. of *France* ; who by an Edict of the Year 1534, appointed it to be inflicted on Robbers on the Highway. *Richelet* dates the Edict of the Year 1538, and quotes *Brodeus.*

WHEEL, in the Military Art, is the Word of Command when a Battalion is to alter its Front, either one way or the other. See EVOLUTION.

To *Wheel to the right*, the Man in the right Angle is to turn very ſlowly, and every one to *wheel* from the left to the right, regarding him as their Centre ; and *vice verſa*, when they are to *wheel to the left.*

When a Diviſion of Men are on the March, if the Word be *Wheel to the right*, or *to the left*, then the right or left-hand Man keeps his Ground, turning only on his Heel, and the reſt of the Rank move about quick, till they make an even Line with the ſaid right or left-hand Man.

Squadrons of Horſe *wheel* much after the ſame manner.

WHEEL-*Fire*, among Chymiſts, a Fire uſed for fuſing of Metals ; properly called *Ignis Rotæ.* See FUSION, METAL, *&c.*

It is a Fire which covers or incompaſſes the Crucible, Coppel, or Melting-Pot quite over ; a-top, as well as around the Sides. See FIRE.

WHERLICOTES, a ſort of open Chariots, uſed by Perſons of Quality before the Invention of Coaches. See COACH, CHARIOT, *&c.*

WHERRY. See VESSEL, BOAT, *&c.*

WHETSTONE, a Stone for the whetting or ſharpening Knives, and other Tools upon. See STONE, and HONE.

WHEY, the Serum or watery Part of Milk. See MILK.

WHIFFLER, of a Company of *London*, a young Freeman, who goes before, and waits on the Company on occaſions of public Solemnity. See COMPANY.

WHIGS, a Party or Faction in *England*, oppoſite to the *Tories*. See TORY.

The Origin of the Names of theſe two mighty Factions is very obſcure.——If ſome little trivial Circumſtance or Adventure, which eſcapes the Knowledge of Mankind, give the Name to a Party, which afterwards becomes famous; Poſterity labours in vain to find the Original of ſuch Names: It ſearches the Sources, forms Conjectures, invents Reaſons, and ſometimes meets the Truth, but always without knowing it aſſuredly.

Thus, in *France*, the *Calviniſts* are call'd *Huguonots*; yet no body was ever able certainly to aſſign the Cauſe of that Appellation. See HUGUONOT.

Whig is a *Scottiſh*, and ſome ſay, too, an *Iriſh* Word, literally ſignifying *Whey*.——*Tory* is another *Iriſh* Word, ſignifying a Robber or Highwayman.

Now, under the Reign of King *Charles* the Second, while his Brother, then Duke of *York*, was obliged to retire into *Scotland*, there were two Parties form'd in that Country——That of the Duke, which was ſtrongeſt, perſecuted the other, and frequently reduced them to fly into the Mountains and Woods, where thoſe unhappy Fugitives had often no other Subſiſtence for a long time but Cows Milk. Hence their Adverſaries they call'd *Tories*, *q. d.* Robbers; and the Tories upbraiding them with their Unhappineſs, and from the Milk whereof they liv'd, call'd them *Whigs*——From *Scotland* the two Names came over with the Duke into *England*.

Others give the Origin and Etymology of the two Words thus——During the unhappy War which brought King *Charles* I. to the Scaffold, the Partizans of that Prince were at firſt call'd *Cavaliers*, and thoſe of the Parliament *Round-Heads*.——Now, *Tory* was a Name for a kind of *Banditti* in *Ireland*, who ſhelter'd themſelves in the Mountains and the Iſlands form'd by the Bogs; as, then, the King's Enemies charged him with favouring the Rebellion in *Ireland*, which broke out at that time, they changed the Name *Cavalier* into that of *Tory*——And theſe laſt, to be even with their Enemies, who were ſtrictly leagued with the *Scots*, changed *Round-Heads* for *Whigs*, the Name of a ſort of Enthuſiaſts in *Scotland*, who living in the open Fields and Woods, fed much on Milk. *Diſſert. de Monſ.* Rapin Thoiras *ſur les* Wighs *& les* Torys. Haye Ann. 1717.

WHINE, a hunting Term, uſed in reſpect of the Cry of an Otter. See HUNTING.

WHIP, or WHIP-STAFF, in a Ship, a Piece of Timber in form of a ſtrong Staff, faſten'd into the Helm, for the Steers-Man in ſmall Ships, to hold in his Hand; thereby to move the Helm and direct the Ship. See HELM and STEERING.

WHIPPING, a Term uſed by Anglers, when they faſten a Line to the Hook, or Rod. See ANGLING.

The Word is alſo taken for the caſting in of the Hook, and drawing it gently on the Water.

WHIRL-POOL, an Eddy, Vortex, or Gulph, where the Water is continually turning round. See GULPH, EDDY, VORTEX, *&c.*

WHIRL-WIND, a Wind that riſes ſuddenly, is exceedingly rapid and impetuous, when riſen, but ſoon ſpent. See WIND and HURRICANE.

There are divers ſorts of *Whirl-Winds*, diſtinguiſh'd by their peculiar Names; as the *Preſter*, *Typho*, *Turbo*, *Exhydria*, and *Ecnephia*.

The *Preſter* is a violent Wind breaking forth with flaſhes of Lightning—— This is rarely obſerv'd, ſcarce ever without the *Ecnephia*.——*Seneca* ſays 'tis a *Typho*, or *Turbo*, kindled or ignited in the Air. See PRESTER.

The *Ecnephia* is a ſudden and impetuous Wind breaking out of ſome Cloud; frequent in the *Æthiopic* Sea, particularly about the *Cape of Good Hope*——The Seamen call them *Travados*. See TRAVADOS.

The *Exhydria* is a Wind burſting out of a Cloud with a great quantity of Water——This only ſeems to differ in degree from the *Ecnephias*, which is frequently attended with Showers.

A *Typho* is an impetuous Wind, running rapidly every way, and ſweeping all round the Place——It frequently deſcends from on high. The *Indians* call it *Orancan*, the *Turks*, &c. *Oliphant*. 'Tis frequent in the *Eaſtern Ocean*, chiefly about *Siam*, *China*, &c. and renders the Navigation of thoſe Parts exceeding dangerous. See VORTEX, SPOUT, *&c.*

WHISPERING; ſee HEARING, ATTENTION, *&c.*

WHISPERING-*Places* depend on this Principle, That the Voice being apply'd to one end of an Arch, eaſily rolls to the other. See SOUND, ARCH, *&c.*

Accordingly, all the Contrivance in a *Whiſpering-Place*, is, that near the Perſon who whiſpers there be a ſmooth Wall, arch'd, either Cylindrically, or Elliptically——A circular Arch will do, but not ſo well. See PHONICS.

Places form'd for the Conveyance of *Whiſpers*, are the Priſon of *Dionyſius* at *Syracuſe*, which increaſes a ſoft *Whiſper* to a Noiſe, the Clap of one's Hand to the Sound of a Cannon, *&c.*——The Aquæducts of *Claudius*, which carry a Voice ſixteen Miles: And divers others enumerated by *Kircher* in his *Phonurgia*.

The moſt conſiderable in *England*, are, the Dome of St. *Paul's*, *London*, where the Ticking of a Watch may be heard from Side to Side; and a very eaſy *Whiſper* be ſent all round the Dome.——This, Mr. *Derham* found to hold not only in the Gallery below, but above upon the Scaffold, where a *Whiſper* would be carried over one's Head round the Top of the Arch, tho' there be a large Opening in the Middle of it into the upper Part of the Dome.

The famous *Whiſpering-Place* in *Glouceſter* Cathedral, is no other than a Gallery above the Eaſt End of the Choir, leading from one Side thereof to the other.—It conſiſts of five Angles and ſix Sides, the Middlemoſt of which is a naked Window; yet two *Whiſperers* hear each other at the diſtance of twenty-five Yards.

WHITE, one of the Colours of natural Bodies. See COLOUR and BODY.

White is not ſo properly ſaid to be any one Colour, as a Compoſition of all the Colours.

It is demonſtrated by Sir *Iſaac Newton*, that thoſe Bodies only appear *White*, which reflect all the kinds of colour'd Rays alike. See WHITENESS.

Hevelius affirms it as a thing moſt certain, that in the Northern Countries, Animals, as Hares, Foxes, Bears, *&c.* become *White* in the Winter-time; and in Summer reſume their natural Colours. See HAIR.

Black Bodies are found to take heat ſooner than *white* ones; by reaſon the former abſorb or imbibe Rays of all Kinds and Colours, and the latter reflect all. See BLACKNESS.

Thus black Paper is ſooner put into Flame by a Burning-Glaſs, than *white*; and black Clothes hung up by the Dyers in the Sun, dry ſooner than *white* ones. See BLACK.

WHITE-*Paper* is that intended for Writing, Printing, *&c.* in contradiſtinction to brown Paper, marbled Paper, blotting Paper, *&c.* See PAPER.

WHITE *Pepper* is black Pepper blanch'd or *whiten'd*, by ſhelling off its upper Skin. See PEPPER.

WHITE *Wine* is that of a clear, bright, tranſparent Colour, bordering on *white*.——'Tis thus call'd, to diſtinguiſh it from the red Wines or Clarets.

The generality of *white Wines* are made from *white* Grapes; tho' there are ſome from black ones. See WINE.

WHITE *Wax*, is yellow Wax blanch'd, and puriſy'd by the Sun and Dew. See WAX.

WHITE *Linnen*, is Cloth of Hemp or Flax, bleach'd by divers Lyes and Waterings on the Ground. See BLEACHING.

WHITE *Salt* is Common, or Sea-Salt dried and calcined by the Fire, ſo as not to leave any Moiſture therein.——The Chymiſts call it *decrepitated Salt*.

There are ſome Salts naturally *white*; and others that need to be *whiten'd* either by diſſolving and purifying 'em in clear Water, which is afterwards evaporated; or by means of Fire; or by the Sun. See SALT.

Spaniſh WHITE, is a kind of Fucus uſed by the Ladies to *whiten* the Complexion, and hide the defects thereof.——'Tis made of Tin of Glaſs diſſolved in Spirit of Nitre, and precipitated into a very fine Powder, by means of Salt-water. See TIN.

WHITE *Lead*, is a Ruſt of Lead; or Lead diſſolved with Vinegar; much uſed by the Painters. See LEAD.

'Tis prepared two ways——either by reducing the Lead into thin Laminæ, ſteeping 'em in ſtrong Vinegar, and every ten days ſcraping off the Ruſt form'd on the Surface: and repeating this till the Lead be quite conſumed.

Or, by rolling the Laminæ into Cylinders like Sheets of Paper, only ſo as that there be a little Space left between the ſeveral Folds or Turns.——Theſe Laminæ they ſuſpend in the middle of Earthen Pots, at bottom of which is Vinegar——The Pots being well cloſed, are buried in a Dunghill for thirty days; after which being open'd, the Lead is found, as it were, calcined and reduced into what they call *white Lead*, to be broke into Pieces, and dried in the Sun.

'Tis uſed both in painting in Oil and in Water-Colours, and makes a beautiful Colour in each——But 'tis ſomewhat dangerous both in the grinding and uſing it, as being a rank Poiſon. See COLOUR.

Of this *white Lead* it is that the Paint uſed by the Ladies, call'd *Ceruſs*, is made. See CERUSS.

White *Friars*, a Name common to ſeveral Orders of Monks, from their being clothed in a *white* Habit. See Monk, Habit, &c.

Such are the regular Canons of St. *Auguſtin*, the *Premonſtrantes*, and *Bernardins*.

White *of the Eye*, is the firſt Tunic or Coat of the Eye, call'd *Albuginea*, and *Conjunctiva*, becauſe ſerving to bind together or incloſe the reſt. See Conjunctiva, &c.

White-*hart Silver*, *Candidi Cervi Argentum*, a Tribute or Mulct paid into the Exchequer, out of certain Lands in or near the Foreſt of *White-hart*; which has continued from *Henry* the Third's Time, who impoſed it upon *Thomas de la Linde*, for killing a very beautiful *white* Hart, which that King had purpoſely ſpared in hunting. See Hart and Hunting.

White *Line*, among Printers, a void Space greater than uſual, left between two Lines. See Printing.

White *Meats*, include Milk, Butter, Cheeſe, *White*-Pots, Cuſtards, and other Foods coming of Milk. See Milk, Food, &c.

White-*Pot* denotes Milk or Cream baked with the Yolks of Eggs, fine Bread, Sugar, and Spice, in an Earthen-Pot.

The Cooks furniſh us with a Variety of Diſhes under this Form and Denomination; *Norfolk White-Pot*, *Weſtminſter White-Pot*, *Rice White-Pot*, &c.

White *Sauce*, in Cookery, a Sauce made of blanched Almonds, and the Breaſt of a Capon, pounded together with Cloves, Cinnamon, &c.——We alſo hear of *White Broth*, being a ſort of Broth enriched with Sack, and Spices, having blanched Almonds ſcraped into it, and the whole thicken'd with the Yolks of Eggs, &c.

White *Line*; ſee Linea *Alba*.

White *Rent*, is a Rent or Duty of 8 *d.* payable yearly, by every Tanner in the County of *Devon*, to the Duke of *Cornwall*.

White *Spurs*; ſee Esquire.

WHITENESS, *Albedo*, the Quality which denominates a Body *white*. See White and Colour.

Sir *Iſaac Newton* ſhews, that *Whiteneſs* conſiſts in a Mixture of all the Colours; and that the Light of the Sun is *white*, becauſe conſiſting of Rays of all Colours. See Ray.

From the multitude of Rings of Colours, which appear upon Compreſſing two Priſms, or Object-Glaſſes of Teleſcopes together, it is manifeſt, that theſe do ſo interfere and mingle with one another at laſt, as after eight or nine Reflexions to dilute one another wholly, and conſtitute an even, and uniform *Whiteneſs*: Whence, as well as from other Experiments, it appears, that *Whiteneſs* is certainly a Mixture of all Colours, and that the Light which conveys it to the Eye is a Mixture of Rays indued with all thoſe Colours. See Light.

The ſame Author ſhews, that *Whiteneſs*, if it be moſt ſtrong and luminous, is to be reckon'd of the firſt Order of Colours; but if leſs, as a Mixture of the Colours of ſeveral Orders: Of the former ſort he reckons white Metals; and of the latter, the *Whiteneſs* of Froth, Paper, Linnen, and moſt other white Subſtances——And as the White of the firſt Order is the ſtrongeſt that can be made by Plates of tranſparent Subſtances, ſo it ought to be ſtronger in the denſer Subſtances of Metals, than in the rarer ones of Air, Water, and Glaſs.

Gold or Copper mixed either by Fuſion, or Amalgamation with a very little Mercury, with Silver, Tin, or Regulus of Antimony, becomes white; which ſhews, both that the Particles of white Metals have much more Surface, and therefore are ſmaller than thoſe of Gold or Copper; and alſo that they are ſo opake, as not to ſuffer the Particles of Gold or Copper to ſhine through them.—And as that Author doubts not, but that the Colours of Gold and Copper are of the ſecond or third Order, therefore the Particles of *white* Metals cannot be much bigger than is requiſite to make them reflect the *white* of the firſt Order. See Particle.

WHITENING; ſee Bleaching.

Whitening *of Wax.* } See { Wax.
Whitening *of Hair.* } { Hair.

WHITES, in Medicine; ſee Fluor *Albus*.

WHITLOW, in Medicine, a Tumor, by Phyſicians commonly call'd *Paronychia*, See Paronychia.

WHITSON *Farthings*; ſee Pentecostalia.

WHITSONTIDE—The Seaſon properly call'd *Pentecoſt*, is popularly call'd *Whitſontide*; ſome ſay, becauſe in the Primitive Church, thoſe who were newly baptized came to Church between *Eaſter* and *Pentecoſt* in *white* Garments.——*Whitſunday* always falls between the 9th of *May*, and the 14th of *June*, excluſive. See Pentecost.

WHOLE, in Arithmetic, &c. See Totum; ſee alſo Part, Division, Partition, &c.

WHOLESOM; ſee Food, Poison, Health, &c.

WHOODINGS, *q. d.* Hoodings, a Sea-Term, uſed for Planks joined and faſtned along the Ship's Sides to the Stern.

WHORE; ſee Meretrix, Harlot, &c.

WHORLBAT, of the *Saxon*, *Batt* and *Whirl*; a kind of Gauntlet, with Straps and leaden Plummets, uſed by the antient *Romans* in their ſolemn Games and Exerciſes. See Gauntlet, &c.

This *Whorlbat* is the ſame with what they call'd *Ceſtus*. See Cestus.

WHUR, in Falconry, is the Fluttering of Partridges or Pheaſants, as they riſe. See Hawk and Hawking.

WIC, denotes a Place on the Sea-Shore, or on the Bank of a River; tho', in the *Saxon*, it more properly ſignifies a Street, a Village, or Dwelling-Place, alſo a Caſtle. See Wyke.

We often meet with it in the *Saxon* Language as a Termination of the Name of a Town which had a compleat Name without it, as *Lunden-wic*, that is, *London* Town, which ſignifies no more than *London*; as in the *Saxon* Annals it is mentioned, that King *Æthelbert* made *Mellitus* Biſhop of *Lunden-wic*.——So *Ipſwich* is written in ſome old Charters *Villa de Gippo*, and ſometimes *Villa de Gippo Wico*, which is no variance, but the ſame thing; for *Gipps* is the compleat Name, and *Gipp-wic* is *Gipps* Town.

WICKER, of the *Daniſh Wiger*, or the *Teutonic Wicken*; a Twig of the Oſier-Shrub. See Vine, Basket, &c.

WICKET, of the *French Guichet*, a little Door within a Gate; or a Hole in a Door, through which to view what paſſes without. See Door.

WICKLIFFISTS, or Wickliffites, a Religious Sect who had their Riſe in *England*, and their Name from their Leader *John Wickliff*, a Profeſſor of Divinity in the Univerſity of *Oxford*,

To that immortal Author it is we owe the firſt Hint of the great Reformation effected 200 Years after him. See Reformation.

Wickliff maintained, that the Subſtance of the Sacramental Bread and Wine ſtill remained ſuch after Conſecration.——He alſo oppoſed the Doctrine of Purgatory, Indulgences, the Invocation of Saints, and the Worſhip of Images. See Transubstantiation, Purgatory, &c.

He made an *Engliſh* Verſion of the Bible; and compoſed two large Volumes call'd *Aletheia*, that is, *Truth*; which was the Source whence *John Hus* firſt learn'd moſt of his Doctrines. See Hussites.

The Archbiſhop of *Canterbury* call'd a Council againſt *Wickliff*, and he was condemn'd therein; but the good Reformer ſet the Condemnation at nought.——After this, King *Richard* baniſh'd him out of *England*, but he was afterwards recall'd, and died in his own Country in the Year 1384.

Forty Years afterwards, his Doctrine and the Adherers thereto were condemn'd by the Council of *Conſtance*; in conſequence of which, his Bones were dug up, and the Council condemn'd him of forty Errors.

WIDOW, *Vidua*, a Woman that has loſt her Husband. See Woman, Wife, Husband, &c.

Some alſo uſe the Term *Widower* for a Man who has loſt his Wife.——Marriage with a *Widow*, is a kind of Bigamy in the Eye of the Canon-Law. See Bigamy.

Widow *of the King*, was ſhe who, after her Husband's death, being the King's Tenant *in Capite*, was driven to recover her Dower by the Writ *de Dote Aſſignanda*; and could not marry again without the King's Conſent. See Viduity.

Widow *Bench*, in the County of *Suſſex*, is that Share which a Widow is allow'd of her Husband's Eſtate beſides her Jointure. See Bench.

WIDOWHOOD; ſee Viduity.

WIFE, *Uxor*, a married Woman; or one join'd with, and under the Protection of, a Husband. See Woman, Marriage, and Husband. See alſo Matron, &c.

A *Wife*, in our *Engliſh* Law, is termed *Feme Covert*; and in the Judgment of the Law is reputed to have no Will, as being ſuppoſed entirely under, and ſubject to that of her Husband: *Uxor fulget radiis Mariti*. See Feme and Coverture.

If any Goods or Chattels be given her, they all immediately become her Husband's.——She cannot let, ſell give away, or alienate any thing without her Husband's Conſent.——Her very neceſſary Apparel is not hers in Property——All her perſonal Chattels which ſhe held at her Marriage, are ſo much her Husband's, that after his Death they ſhall not return to her, but go to the Executor or Adminiſtrator of her Husband; except only her *Paraphernæ*, or *Præter-dotalia*, being her neceſſary Apparel, which, with the Conſent of her Husband, ſhe may demiſe by Will. See Paraphernalia.

The *Wife* can make no Contract without her Husband's Conſent, and in all Law-Matters, *ſine Viro reſpondere non poteſt*.

The Law ſuppoſes in the Husband, the full Power over his *Wife*, as over his Child or Servant; and therefore he muſt anſwer for all her Faults, and Treſpaſſes.

If a *Wife* bring forth a Child during her Husband's Abſence, tho' of many Years; yet if he lived all the time *inter quatuor Maria*, within the Iſland, he muſt father the Child; and the Child, if firſt born, ſhall inherit.

If a *Wife* bring forth a Child begot by a former Huſband, or any other Perſon, before Marriage, but born after Marriage with another Man; this latter muſt own the Child; and that Child ſhall be his Heir at Law.

The *Wife*, after her Husband's Death, having no Jointure ſettled before Marriage, may challenge the third part of his yearly Rents of Land during her Life; and within the City of *London*, a third part of all her Huſband's Moveables for ever.

The *Wife* partakes of the Honours, and Condition of her Husband; but none of the *Wife's* Dignities come by Marriage to her Husband.

Yet, the Husband, for getting his *Wife* with Child, which muſt appear by its being born alive, ſhall have all his *Wives* Lands for Life.

The *Engliſh* Laws are generally eſteem'd by Foreigners, as very hard in reſpect of the Women; and yet *Chamberlain* is of a very different Sentiment, aſſerting that the Condition of *Wives* in *England* is better than in any other Country.

Tertullian has two Books on the Ornaments and Attire of *Wives*——In the ſecond he labours to prove, that a Chriſtian *Wife* cannot in conſcience endeavour to pleaſe by her Beauty, which ſhe knows to be naturally liable to raiſe looſe Deſires; and that ſhe ought not only to avoid all affected Beauty, but even to conceal and cover her natural Beauty.

Mid-WIFE, *Obſtetrix*. See DELIVERY, FOETUS, *&c.* See alſo VIRGINITY.

WILDERNESS, ſee DESART, GROVE, WOOD, *&c.*

WILD-*Fire*, *Ignis Gregalis*, or *Græcus*. See FIRE.

WILD-*Fire Arrows*, ſuch as are trimmed with *Wild-Fire*, and ſhot burning, to ſtick in the Sails or Rigging of Ships in a Fight.

WILD-*Fire*, is alſo a Diſeaſe in Cattel; which is infectious, deadly, and even reputed incurable. See MURRAIN.

WILL, *Voluntas*, is uſually defined a Faculty of the Mind, whereby it embraces or rejects any thing repreſented to it as Good or Evil by the Judgment. See FACULTY, GOOD, EVIL, *&c.*

Others will have it to be the Mind itſelf, conſider'd as embracing or refuſing; adding, that as the Underſtanding is nothing elſe but the Soul, conſider'd as *perceiving*; ſo the *Will* is nothing elſe but the Soul conſider'd as *Willing*, *&c.* See UNDERSTANDING.

Mr. *Locke* more intelligibly defines the *Will* a Faculty, which the Soul has of beginning, or forbearing, continuing, or ending ſeveral Actions of the Mind, and Motions of the Body, barely by a Thought or Preference of the Mind, ordering, or, as it were, commanding the doing, or not doing ſuch and ſuch a particular Action——This Power the Mind has, to order the Conſideration of any Idea, or the forbearing to conſider it; or to prefer the Motion of any part of the Body to its Reſt, and *vice verſa*, is what we call the *Will*. See POWER.

The actual Exerciſe of that Power, is what we call *Volition*, or *Willing*; and the doing or forbearing any Action conſequent on ſuch Order of the Mind, is call'd *Voluntary*. See VOLITION, VOLUNTARY, *&c.*

Father *Mallebranch* lays it down, that the *Will* is that to the Soul, which Motion is to the Body; and argues, That as the Author of Nature is the univerſal Cauſe of all the Motions in Matter, ſo he is of all the Inclinations in the Mind: and that as all Motions are direct, unleſs their Courſe be diverted and chang'd by ſome foreign Cauſe; ſo all *Inclinations* are right, and could have no other End, but the Enjoyment of Truth and Goodneſs, were there not ſome foreign Cauſe to determine the natural Impreſſion to evil Ends.

Accordingly, he defines *Will* to be the Impreſſion, or natural Motion, which carries us towards Good indeterminately, and in the general; and the Power the Mind has to direct this general Impreſſion towards any particular Object that pleaſes it, is what he calls *Liberty*. See LIBERTY and NECESSITY.

Ariſtotle diſtinguiſhes two kinds of Acts of the *Will*; *viz.* βουλησιν, *Willing*, *Volition*; and προαιρεσιν, *Election*——The firſt, that employ'd about the ultimate End; the latter, about the Means.

The Schoolmen alſo diſtinguiſh the Actions of the *Will* into *Elicit* and *Commanded*——Elicit Acts, *Actiones Elicitæ*, are thoſe immediately produc'd by the *Will*, as really inherent therein; ſuch are *Willing* and *Nilling*——Commanded Acts, *Actiones Imperatæ*, are Effects produc'd by other Powers, *v. gr.* the Senſitive, Intellective, or Locomotive Powers, at the Command or Inſtigation of the *Will*——As to *follow*, *ſtay*, *fight*, *fly*, *&c.* See ACTION.

But others will have the former kind properly to belong to the Underſtanding; and only the latter, to the *Will*.

The Word *Will* is taken in three Senſes: 1°. For the Power, or Faculty of *Willing*; in which ſenſe it is, we have conſider'd it above—2°. For the Act, or Exerciſe of the Power; as, when we ſay, No Man *wills* his own Deſtruction—3°. For a Habit, or a conſtant Diſpoſition and Inclination to do any thing——In which ſenſe, Juſtice is defined a conſtant *Will* to give every one what belongs to him: *Juſtitia eſt conſtans & perpetua* Voluntas *jus ſuum unicuique tribuendi*. Inſtit. Juſtin.

Free-WILL. See LIBERTY.

WILL, or *Laſt* WILL, in Law, *&c.* a ſolemn Act, or Inſtrument, whereby a Perſon directs and orders the Diſpoſal of his Goods, Effects, *&c.* after his Death.

Wills are of two kinds: A *Will in Writing*, properly called alſo a *Teſtament*. See TESTAMENT.

And a *Will by word of mouth* only, call'd a *Nuncupative Will*; which being proved by three or more Witneſſes, may be of as good force as that in Writing; except for Lands, which are only deviſable by Teſtament in Writing during the Life of the Teſtator. See NUNCUPATIVE.

WILL *with a Whiſp*, a Meteor known among the People under this Name; but more uſually among Authors under that of *Ignis Fatuus*. See *Ignis* FATUUS.

WIMPLE, of the *Dutch Wimpel*, a Muffler, or plaited Linnen Cloth, which Nuns wear about their Neck.

The Word is alſo uſed for a Streamer or Flag. See FLAG, *&c.*

WIN, in the Beginning or End of the Names of Places, ſignifies that ſome great Battel was fought, or a Victory gain'd there.

The Word is form'd from the *Saxon Winge*, *Prælium*, Battel.

WIND, *Ventus*, a ſenſible Agitation of the Air, whereby a large quantity thereof flows out of one Place or Region into another. See AIR.

The *Winds* are divided into *perennial*, *ſtated*, and *variable*——They are alſo divided into *general*, and *particular*.

Perennial, or *conſtant* WINDS, are ſuch as always blow the ſame way.——Of theſe we have a very notable one, between the two Tropicks, blowing conſtantly from Eaſt to Weſt; call'd the *general Trade-Wind*. See TRADE-*Wind*.

Stated, or *periodical* WINDS, are ſuch as conſtantly return at certain Times——Such are the Sea and Land-Breezes, blowing from Sea to Land in the Evening; and from Land to Sea in the Morning. See BREEZE.

Such alſo are the *ſhifting*, or *particular Trade-Winds*, which for certain Months of the Year blow one way, and the reſt of the Year the contrary way. See MONSOON.

Variable, or *erratic* WINDS, are ſuch as blow now this, now that way; are now up, now huſh'd, without any Rule or Regularity, either as to Time or Place.

Such are all the *Winds* obſerv'd in the Inland Parts of *England*, *&c.* Tho' ſeveral of theſe claim their certain Times of the Day——Thus the *Weſt-Wind* is moſt frequent about Noon; the *South-Wind* in the Night; the *North* in the Morning, *&c.* See WEATHER.

General WIND is ſuch a one, as at the ſame time blows the ſame way over a very large Tract of Ground, almoſt all the Year——Such only is the *general Trade-Wind*.

But even this has its Interruptions: For, 1°. At Land it is ſcarce ſenſible at all, as being broke by the Interpoſition of Mountains, Valleys, *&c.* 2°. At Sea, near the Shore, it is diſturb'd by Vapours, Exhalations, and particular *Winds*, blowing from Landward; ſo that it is chiefly conſider'd as *general*, only at Mid-Sea: Where, 3°. It is liable to be diſturb'd by *Clouds* driven from other Quarters.

Particular WINDS——Excepting the general Trade-*Winds*, all others are *particular*.

Thoſe particular to one little Canton, or Part, are call'd *Topical*, or *Provincial Winds*——Such is the North *Wind* on the Weſtern Side of the *Alps*, which does not blow above one or two Leagues lengthwiſe, and much leſs in breadth: Such alſo is the *Pontias* in *France*. See PONTIAS.

Phyſical Cauſe of WINDS.

Some Philoſophers, as *Des Cartes*, *Rohault*, *&c.* account for the general *Wind* from the diurnal Rotation of the Earth; and from this general *Wind* derive all the particular ones——The Atmoſphere, ſay they, inveſting the Earth, and moving round it; that part will perform its Circuit ſooneſt, which has the ſmalleſt Circle to deſcribe: The Air, therefore, near the Equator, will require a ſomewhat longer time to perform its Courſe in from Weſt to

Eaſt, than that nearer the Poles——Thus, as the Earth turns Eaſtward, the Particles of the Air near the Equinoctial being exceeding light, are left behind, ſo that in reſpect of the Earth's Surface, they move Weſtwards, and become a conſtant *Eaſterly Wind*.

This Opinion ſeems confirmed by this, that theſe *Winds* are found only between the Tropicks, in thoſe Parallels of Latitude where the diurnal Motion is ſwifteſt——But the conſtant Calms in the *Atlantick* Sea, near the Equator, the weſterly *Winds* near the Coaſt of *Guinea*, and the periodical weſterly Monſoons under the Equator in the *Indian* Seas, declare the Inſufficiency of this Hypotheſis.

Beſides, the Air being kept cloſe to the Earth by the Principle of Gravity, would in time acquire the ſame degree of Velocity, that the Earth's Surface moves with, as well in reſpect of the diurnal Rotation, as of the annual about the Sun, which is about thirty times ſwifter

Dr. *Halley*, therefore, ſubſtitutes another Cauſe, capable of producing a like conſtant Effect, not liable to the ſame Objections, but agreeable to the known Properties of the Elements of Water and Air, and the Laws of the Motion of fluid Bodies.——Such a one is the Action of the Sun's Beams upon the Air and Water, as he paſſes every day over the Ocean, conſider'd together with the Quality of the Soil, and the Situation of the adjoining Continents.

According to the Laws of Staticks, the Air which is leſs rarefied or expanded by Heat, and conſequently more ponderous, muſt have a Motion towards thoſe Parts thereof which are more rarefied and leſs ponderous, to bring it to an Equilibrium; alſo the preſence of the Sun continually ſhifting to the Weſtward, that part towards which the Air tends by reaſon of the Rarefaction made by his greateſt Meridian Heat, is with him carried Weſtward, and conſequently the tendency of the whole Body of the lower Air is that way.

Thus a general Eaſterly *Wind* is formed, which being impreſs'd upon all the Air of a vaſt Ocean, the parts impel one the other, and ſo keep moving till the next return of the Sun, whereby ſo much of the Motion, as was loſt, is again reſtored; and thus the Eaſterly *Wind* is made perpetual.

From the ſame Principle it follows, that this Eaſterly *Wind* ſhould on the North Side of the Equator be to the Northwards of the Eaſt, and in South Latitudes to the Southwards thereof; for near the Line, the Air is much more rarefied, than at a greater diſtance from it; becauſe the Sun is twice in a Year vertical there; and at no time diſtant above 23 ½ Degrees: At which diſtance, the Heat being as the Sine of the Angle of Incidence, is but little ſhort of that of the perpendicular Ray; whereas under the Tropicks, tho' the Sun ſtay long Vertical, yet he is a long time 47 Degrees off; which is a kind of Winter, wherein the Air ſo cools, as that the Summer Heat cannot warm it to the ſame degree with that under the Equator. Wherefore the Air towards the Northward and Southward being leſs rarefied, than that in the middle, it follows, that from both Sides, it ought to tend towards the Equator. See HEAT.

This Motion compounded with the formerly Eaſterly *Wind*, accounts for all the Phænomena of the *general Trade-Winds*; which, if the whole Surface of the Globe were Sea, would undoubtedly blow quite round the World, as they are found to do in the *Atlantick*, and the *Ethiopick* Oceans.——But ſeeing ſo great Continents do interpoſe, and break the Continuity of the Oceans, regard muſt be had to the Nature of the Soil, and the Poſition of the high Mountains, which are the two principal Cauſes of the Variation of the *Wind* from the former general Rule; for if a Country lying near the Sun prove to be flat, ſandy, and low Land; ſuch as the Deſarts of *Libya* are uſually reported to be; the Heat occaſion'd by the Reflections of the Sun's Beams, and the retention thereof in the Sand, is incredible to thoſe who have not felt it; whereby the Air being exceedingly rarefied, it is neceſſary, that this cooler, and more denſe Air, ſhould run thitherwards to reſtore the Equilibrium.

This is ſuppoſed to be the Cauſe, why near the Coaſt of *Guinea*, the *Wind* always ſets in upon the Land, blowing Weſterly inſtead of Eaſterly; there being ſufficient reaſon to believe, that the inland Parts of *Africa* are prodigiouſly hot, ſince the Northern Borders thereof were ſo intemperate as to give the Antients cauſe to conclude, That all beyond the Tropicks was uninhabitable by exceſs of Heat.

From the ſame Cauſe it happens, that there are ſo conſtant Calms in that part of the Ocean call'd the *Rains*; for this Tract being placed in the Middle, between the Weſterly *Winds* blowing on the Coaſt of *Guinea*, and the Eaſterly *Trade-Winds* blowing to the Weſtwards thereof; the tendency of the Air here, is indifferent to either, and ſo ſtands *in Equilibrio* between both; and the weight of the incumbent Atmoſphere being diminiſhed by the continual contrary *Winds* blowing from hence, is the reaſon that the Air here holds not the copious Vapour it receives, but lets it fall in ſo frequent Rains.

But, as the cool and denſe Air, by reaſon of its greater Gravity, preſſes upon the hot and rarefied, it is demonſtrable, that this latter muſt deſcend in a continued Stream, as faſt as it rarefies; and that being aſcended, it muſt diſperſe itſelf to preſerve the Equilibrium; that is, by a contrary Current the upper Air muſt move from thoſe Parts where the greateſt Heat is: ſo by a kind of Circulation, the North-Eaſt *Trade-Wind* below, will be attended with a South-Weſterly above; and the South-Eaſt with a North-Weſt *Wind* above. See CURRENT, UNDER-*Current*, &c.

That this is more than a bare Conjecture, the almoſt inſtantaneous Change of the *Wind* to the oppoſite Point, which is frequently found in paſſing the Limits of the *Trade-Winds*, ſeems to aſſure us; but that which above all confirms this Hypotheſis, is the Phænomenon of the Monſoons, by this means, moſt eaſily ſolved, and without it hardly explicable. See MONSOON.

Suppoſing therefore ſuch a Circulation as above; it is to be conſider'd, that to the Northward of the *Indian* Ocean, there is every where Land, within the uſual Limits of the Latitude of 30, *viz Arabia*, *Perſia*, *India*, &c. which, for the ſame reaſon as the *Mediterranean* Parts of *Africa*, are ſubject to unſufferable Heats, when the Sun is to the North, paſſing nearly Vertical; but yet are temperate enough, when the Sun is remov'd towards the other Tropick, becauſe of a Ridge of Mountains at ſome diſtance within the Land, ſaid to be frequently in Winter cover'd with Snow, over which the Air, as it paſſes, muſt needs be much chill'd——Hence it happens, that the Air coming, according to the general Rule, out of the North-Eaſt, in the *Indian* Sea, is ſometimes hotter, ſometimes colder, than that which, by this Circulation, is return'd out of the South-Weſt; and by conſequence, ſometimes the Under-Current, or Wind, is from the North-Eaſt, ſometimes from the South-Weſt.

That this has no other Cauſe, is clear from the Times, wherein theſe Winds ſet, *viz.* in *April*; when the Sun begins to warm thoſe Countries to the North, the South-Weſt Monſoons begin, and blow during the Heats till *October*, when the Sun being retir'd, and all things growing cooler Northward, and the Heat increaſing to the South, the North-Eaſt enter, and blow all the Winter, till *April* again. And it is undoubtedly from the ſame Principle, that to the Southward of the Equator, in part of the *Indian* Ocean, the North-Weſt *Winds* ſucceed the South-Eaſt, when the Sun draws near the Tropic of *Capricorn*. See TIDE.

But, the Induſtry of ſome late Writers having brought the Theory of the Production and Motion of *Winds* to ſomewhat of a Mathematical Demonſtration; we ſhall here give it the Reader in that form.

Laws of the Production, &c. *of* WINDS.

If the Spring of the Air be weaken'd in any place, more than in the adjoining places; a *Wind* will blow thro' the place where the Diminution is. See ELASTICITY.

For, ſince the Air endeavours, by its elaſtic Force, to expand itſelf every way; if that Force be leſs in one place than another; the *Niſus* of the more, againſt the leſs elaſtic, will be greater than the *Niſus* of the latter againſt the former——The leſs elaſtic Air, therefore, will reſiſt with leſs force than it is urg'd, by the more elaſtic: Conſequently, the leſs elaſtic will be driven out of its place, and the more elaſtic will ſucceed.

If, now, the Exceſs of the Spring of the more elaſtic, above that of the leſs elaſtic, be ſuch as to occaſion a little alteration in the Baroſcope; the Motion both of the Air expell'd, and that which ſucceeds it, will become ſenſible. *Q. E. D.*

2. Hence, ſince the Spring of the Air increaſes, as the compreſſing Weight increaſes; and compreſs'd Air is denſer than Air leſs compreſs'd: All *Winds* blow into rarer Air out of a place fill'd with a denſer.

3. Wherefore, ſince a denſer Air is ſpecifically heavier than a rarer; an extraordinary Lightneſs of the Air in any place, muſt be attended with extraordinary *Winds* or Storms.

Now, an extraordinary Fall of the Mercury in the Barometer, ſhewing an extraordinary Lightneſs of the Atmoſphere; 'tis no wonder, if that foretels Storms.

4. If the Air be ſuddenly condens'd in any place, its Spring will be ſuddenly diminiſh'd: Hence, if this Diminution be great enough to affect the Barometer, there will a Wind blow thro' the condens'd Air.

5. But ſince it cannot be ſuddenly condens'd, unleſs it have before been much rarefy'd; there will a *Wind* blow thro' the Air, as it cools, after having been violently heated.

6. In like manner, if Air be ſuddenly rarefy'd, its Spring is ſuddenly increas'd; wherefore, it will flow thro' the contiguous Air, not acted on by the rarefying Force—

A *Wind*, therefore, will blow out of a place, in which the Air is ſuddenly rarefy'd: And on this Principle, in all probability, it is, that,

7. Moſt Caves are found to emit *Wind*, either more or leſs——Since the Sun's Power in rarefying the Air, is notorious; it muſt neceſſarily have a great influence on the Generation of *Winds*.

The riſing and changing of the *Wind* is determin'd experimentally, by means of Weather-cocks, placed a-top of Houſes, *&c.*——But theſe only indicate what paſſes about their own Height, or near the Surface of the Earth: *Wolfius* aſſuring us, from Obſervations of ſeveral Years, that the higher *Winds* which drive the Clouds, are different from the lower ones, which move the Weather-cocks—— Mr. *Derham* obſerves ſomething not unlike this; *Phyſ. Theol. l.* 1. *c.* 2.

The Author laſt mention'd obſerves, upon comparing ſeveral Series of Obſervations made of the *Winds* in divers Countries, *viz. England*, *Ireland*, *Switzerland*, *Italy*, *France*, *New England*, *&c.* That the *Winds* in thoſe ſeveral places ſeldom agree; but when they do, it is commonly when they are ſtrong, and of long continuance in the ſame Quarter; and more, he thinks, in the Northerly and Eaſterly, than in other Points——Alſo, that a ſtrong *Wind* in one place, is oftentimes a weak one in another; or moderate, according as the places are nearer, or more remote. *Philoſoph. Tranſact.* N° 297, and 321.

Laws of the Force, and Velocity of WIND.

Wind being only Air in Motion, and Air being a Fluid, ſubject to the Laws of other Fluids; its Force may be brought to a preciſe Computation: Thus——*The Ratio of the ſpecific Gravity of any other Fluid, to that of Air, together with the Space that Fluid impell'd by the Preſſure of the Air, moves in any given Time, being given; we can determine the Space which the Air itſelf, acted on by the ſame Force, will move in the ſame time:* By this Rule,

1. As the ſpecific Gravity of Air, is to that of any other Fluid; ſo, reciprocally, is the Square of the Space which that Fluid, impell'd by any Force, moves in any given time, to the Square of the Space which the Air, by the ſame Impulſe, will move in the ſame time.

Suppoſing, therefore, the Ratio of the Specific Gravity of that other Fluid to that of Air, to be $= b : c$; the Space deſcrib'd by the Fluid to be call'd $ſ$; and that which the Air will deſcribe by the ſame Impulſe, x. The Rule gives us $x = \sqrt{(bs\ : c)}$.

Hence, if we ſuppoſe Water impell'd by the given Force, to move two Feet in a Second of Time; then will $ſ = 2$; and ſince the ſpecific Gravity of Water to the Air, is as 970 to 1; we ſhall have $b = 970$, and $c = 1$; conſequently $x = \sqrt{970}.\ 4 = \sqrt{3880} = 623$ Feet. The Velocity of the *Wind*, therefore, to that of Water moved by the ſame Power, will be as 623 to 2; *i.e.* if Water move two Feet in a Second, the *Wind* will fly 623 Feet.

2. Add, that $ſ = \sqrt{(cx^2 : b)}$ and therefore the Space any Fluid, impell'd by any Impreſſion, moves in any time, is determin'd, by finding a fourth Proportional to the two Numbers that expreſs the Ratio of the ſpecific Gravity, and the Square of the Space the *Wind* moves in, in the given time——The ſquare Root of that fourth Proportional is the Space requir'd.

M. *Mariotte*, *e.gr.* found, by various Experiments, that a pretty ſtrong *Wind* moves 24 Feet in a Second of Time; wherefore, if the Space which the Water, acted on by the ſame Force as the Air, will deſcribe in the ſame time, be requir'd; then will $c = 1$, $x = 24$, $b = 970$; and we ſhall find $ſ = \sqrt{(576 : 970)} = \frac{24}{31}$.

3. *The Velocity of Wind being given, to determine the Preſſure requir'd to produce that Velocity*; we have this Rule:———The Space the *Wind* moves in one Second of Time, is to the height a Fluid is to be rais'd in an empty Tube in order to have a Preſſure capable of producing that Velocity; in a Ratio compounded of the ſpecific Gravity of the Fluid to that of the Air, and of quadruple the Altitude a Body deſcends in the firſt Second of Time, to the foreſaid Space of the Air.

Suppoſe, *e.gr.* the Space the Air moves in a Second, $a = 24$ Feet, or 288 Inches; call the Altitude of the third x, and the Ratio of Mercury to Air $b : c = 13580 : 1$, $d = 181$ Inches; x will be leſs than that Number by one Line, or $\frac{1}{12}$ of an Inch. And hence we ſee why a ſmall, but ſudden Change in the Barometer, ſhould be follow'd with violent *Winds*. See BAROMETER.

The Force of the *Wind* is determin'd experimentally by a peculiar Machine, call'd an *Anemometer*, *Wind Meaſurer*; which being moved by means of Sails, like thoſe of a *Wind-Mill*, raiſes a Weight, that, ſtill the higher it is rais'd, receding further from the Centre of Motion, by ſliding along an hollow Arm fitted on to the Axis of the Sails, becomes heavier and heavier, and preſſes on the Arm, till being a Counter-poiſe to the Force of the *Wind* on the Sails, it ſtops the Motion thereof. An Index, then, fitted upon the ſame Axis at right Angles with the Arm, by its riſing or falling, points out the Strength of the *Wind*, on a Plane divided like a Dial-Plate into Degrees. See ANEMOMETER.

Qualities of WINDS.

1. *A Wind blowing from the Sea, is always moiſt: In Summer, 'tis cold; and in Winter, warm: unleſs the Sea be froze up*——This is well demonſtrated thus: There is Vapour continually riſing out of all Water, (as appears even hence, that a Quantity of Water being left a little while in an open Veſſel, is found ſenſibly diminiſh'd) but eſpecially if it be expos'd to the Sun's Rays; in which Caſe, the Evaporation is beyond all expectation. See VAPOUR.)——By this means, the Air incumbent on the Sea, becomes impregnated with a deal of Vapour. But the Winds blowing from off the Sea, ſweep theſe Vapours along with them; and conſequently are always moiſt.

Again, Water in Summer, *&c.* conceives leſs Heat than terreſtrial Bodies expos'd to the ſame Rays of the Sun; but in Winter, Sea-Water is warmer than the Earth cover'd with Froſt and Snow, *&c.* Wherefore, as the Air contiguous to any Body, is found to partake of its Heat and Cold, the Air contiguous to Sea-Water will be warmer in Winter, and colder in Summer, than that contiguous to the Earth——Or thus: Vapours rais'd from Water by the Sun's Warmth in Winter, is warmer than the Air it riſes in; (as appears from the Vapours condenſing and becoming viſible almoſt as ſoon as they are got out into Air.) Freſh Quantities of Vapour, therefore, continually warming the Atmoſphere over the Sea, will raiſe its Heat beyond that of the Air over the Land——Again, the Sun's Rays reflected from the Earth into the Air, in Summer, are much more than thoſe from the Water into Air: The Air therefore over the Earth, warm'd by the Reflection of more Rays than that over Water, is warmer——Hence Sea-Winds make thick, cloudy, hazy Weather.

2. *Winds blowing from the Continent, are always dry; in Summer, warm; and cold in Winter*——For there is much leſs Vapour ariſing from the Earth, than from Water. And therefore the Air over the Continent will be impregnated with much fewer Vapours. Add, that the Vapours or Exhalations rais'd by a great degree of Heat out of the Earth, are much finer, and leſs ſenſible, than thoſe from Water——The *Wind*, therefore, blowing over the Continent, carries but little Vapour with it; and is therefore dry.

Further, the Earth in Summer is warmer than Water expos'd to the ſame Rays of the Sun——Hence, as the Air partakes of the Heat of contiguous Bodies; that over the Earth in Summer will be warmer than that over the Water: Therefore the *Wind*, *&c.*

After the like manner it is ſhewn, that the Land-*Winds* are cold in Winter———Hence we ſee why Land-*Winds* make clear, cold Weather. See WEATHER.

Our Northerly and Southerly *Winds*, however, which are commonly eſteem'd the Cauſes of cold and warm Weather, Mr. *Derham* obſerves, are really the Effect of the Cold, or Warmth of the Atmoſphere.——Hence it is, that we frequently ſee a warm ſoutherly *Wind* on a ſudden changed to the North, by the fall of Snow or Hail; and that in a cold, froſty Morning, we ſee the *Wind* North, which afterwards wheels about towards the Southerly Quarters, when the Sun has well warm'd the Air, and again in the cold Evening turns Northerly or Eaſterly.

For the manner wherein North-Eaſterly Winds *contribute to Blights*; ſee BLIGHT.

For the Effect of Winds *on the Barometer, and Thermometer*; ſee BAROMETER and THERMOMETER.

WIND, in Navigation, is the ſame Agitation of the Air, conſider'd as ſerving for the Motion of Veſſels on the Water. See SAILING.

The *Winds* are divided with reſpect to the Points of the Horizon from which they blow, into *Cardinal* and *Collateral*.

Cardinal Winds, are thoſe blowing from the four Cardinal Points, Eaſt, Weſt, North, and South. See CARDINAL.

Collateral Winds, are the intermediate *Winds* between two Cardinal *Winds*——The Number of theſe is infinite, as the Points from which they blow are; but only a few of them are conſider'd in Practice: *i.e.* only a few of them have their diſtinguiſhing Names. See COLLATERAL.

The antient *Greeks* at firſt only uſed the four Cardinal ones; at length, they took in four more.——*Vitruvius* gives us a Table of twenty, beſides the Cardinals, in uſe among the *Romans*.

The Moderns, as their Navigation is much more perfect than the antient, have given Names to twenty-eight Collateral ones; which they range into *primary* and *ſecundary*—and the *ſecundary* they ſubdivide into thoſe of the *firſt* and *ſecond Order*. See POINT.

The *Engliſh* Names of the primary Collateral *Winds* and Points are compounded of the Names of the Cardinal ones, *North* and *South* being ſtill prefix'd.

The Names of the ſecundary Collateral *Winds* of the firſt Order, are compounded of the Names of the Cardinals, and the adjacent primary one——Thoſe of the ſecond Order are compounded of the Names of the Cardinal, or the next adjacent primary; and the next Cardinal, with the addition of the Word (*by*).——The *Latins* have diſtinct Names for each; all which are expreſs'd in the following Table.

	Names of the *Winds*, and Points of the Compaſs.	Diſtance of the Parts, &c. From North.	
Engliſh.	*Latin* and *Greek.*		
1. *North.*	*Septentrio*, or *Boreas.*	0°	0'
2. North by Eaſt.	Hyperboreas. Hypaquilo.	11	15
3. North-North-Eaſt.	Gallicus. Aquilo.	22	30
4. North-Eaſt by North.	Meſoboreas Meſaquilo. Supernas.	33	45
5. *North-Eaſt.*	*Arctapeliotes.* *Borapeliotes.* *Græcus.*	45	
6. North-Eaſt by E.	Hypocæſias.	56	15
7. Eaſt-North-Eaſt.	Cæſias Helleſpontius. Meſocæſias.	67	30
8. Eaſt by North.	Carbas.	78	45
		from the Eaſt.	
9. *Eaſt.*	*Solanus*, *Subſolanus*, *Apeliotes.*	0°	0'
10. Eaſt by South.	Hypeurus, or Hypereurus.	11	15
11. Eaſt-South-Eaſt.	Eurus, or Volturnus.	22	30
12. South-Eaſt by Eaſt.	Meſeurus.	33	45
13. *South-Eaſt.*	*Notapeliotes Euroauſter.*	45	
14. South-Eaſt by South.	Hypophœnix.	56	15
15. South-South-Eaſt.	Phœnix, Phœnicias, Leuco-notus, Gangeticus.	67	30
16. South by Eaſt.	Meſophœnix.	78	45
		from the South.	
17. *South.*	*Auſter*, *Notus*, *Meridies.*	0°	0'
18. South by Weſt.	Hypolibononotus, Alſanus.	11	15
19. South-South-Weſt.	Libonotus, Notolybicus Auſtro-africus.	22	30
20. South-Weſt by South.	Meſolibonotus.	33	45
21. *South-Weſt.*	*Noto-Zephyrus.* *Noto-Lybicus.* *Africus.*	45	
22. South-Weſt by Weſt.	Hypolibs. Hypafricus. Subveſperus.	56	15
23. Weſt-South-W.	Libs.	67	30
24. Weſt by South.	Meſolibs. Meſozephyrus.	78	45
		from the Weſt.	
25. *Weſt.*	*Zephyrus*, *Favonius*, *Occidens.*	0°	0'
26. Weſt by North.	Hypargeſtes. Hypocorus.	11	15
27. Weſt-North-Weſt.	Argeſtes. Caurus, Corus, Japyx.	22	30
28. North-Weſt by Weſt.	Meſargeſtes. Meſocorus.	33	45
29. *North-Weſt.*	*Zephyro-boreas*, *Borolybicus*, *Olympias.*	45	
30. North-Weſt by North.	Hypocircius. Hypothraſcias. Scirem.	56	15
31. North-North-Weſt.	Circius, Thraſcias.	67	30
32. North by Weſt.	Meſocircius.	78	45

Note, The antient Names are here, after *Ricciolus*, adapted to the modern ones; not as the *Winds* formerly denoted by thoſe were preciſely the ſame with theſe, (for the antient Number and Diviſion being different from the Modern, the Points they refer to will be ſomewhat different) but as theſe are what come the neareſt.——Thus, *Vitruvius* only reckoning twenty-four *Winds*, diſpoſes the Points they refer to in a different Order; as in the following Table.

Names of the Winds.	*Diſtance from North.*		*Names of the* Winds.	*Diſtance from Eaſt.*	
1 *Septentrio.*	0°	0'	7 *Solanus.*	0°	0'
2 Gallicus.	15		8 Ornithias.	15	
3 Supernas.	30		9 Cæcias.	30	
4 Aquilo.	45		10 Eurus.	45	
5 Boreas.	60		11 Volturnus.	60	
6 Carbas.	75		12 Europotius.	75	

Names of the Winds.	*Diſtance from South.*		*Names of the* Winds.	*Diſtance from Weſt.*	
13 *Auſter.*	0°	0'	19 *Favonius.*	0°	0'
14 Alſanus.	15		20 Eteſiæ.	15	
15 Libonot.	30		21 Circius.	0	
16 Africus.	45		22 Caurus.	35	
17 Subveſper.	60		23 Corus.	40	
18 Argeſtes.	75		24 Thraſcias.	75	

For the Uſe of the Winds *in Navigation*, &c. See RHUMB, COMPASS, &c.

WIND-*Gun*, a Machine, ſerving to explode Bullets, and other Shot, with great Violence; by the force of the Air. See GUN.

This Arm charged with Air, has an Effect ſcarce inferior to that of a common Fire-Arm charged with Gun-Powder; but it diſcharges itſelf with a much leſs Report: And 'tis this, which, in all probability, gave occaſion to the Fable of white Gun-Powder. See GUN-*Powder*.

There are *Wind-Guns* of divers Contrivances; the moſt eaſy and portable one, and the moſt in uſe is repreſented, (Tab. PNEUMATICS, *Fig.* 14.) It conſiſts of a round Metalline Tube 3, 3. open at the end *c c*, and exactly ſtopp'd at the other end *a*, like the Barrels of other Guns; 1, 1, 1, 1, is another larger Metal Tube, wherein the former is diſpoſed ſo as to leave a Space between 'em 4, 4, wherein Air may be incloſed. The two Tubes are joined together at the common Aperture *c c* by a circular Plate exactly ſolder'd to both, ſo as to prevent the Air from eſcaping out of the Space 4, 4, &c. At 8 is a ſpring Valve, which opening inwardly, lets the Air paſs through from 2 into the Space 1, but prevents its return from 1 to 2. Near the cloſe end of the inner Tube are two Holes *6* and 5; by the firſt the Space 1 and the inner Tube communicate, ſo that the Air would paſs out of that into this, but that the Paſſage is ſtop'd by a Valve opening outwardly; by the latter there is a communication between the open Air, the Space 4, and the inner Barrel: only the Air pent up in the Space can't eſcape at this Hole by reaſon of a little Tube exactly ſolder'd to both Barrels, which ſtops the communication: nor can Air eſcape out of the inner Barrel through this little Tube, by reaſon of a little moveable Pin which exactly fills the Cavity of the Tube.

Laſtly, the Part 2, 2, 2, 2, repreſents the Body of a Syringe or Sucking-Pump; by which, as much Air as poſſible, is to be intruded into the Space 4, 4, &c.——After which, a Bullet being put into the Cavity of the inner Barrel, as high as the little Tube 5, the Gun is charged. See SYRINGE.

Now, to diſcharge it, the little Valve *6* is puſh'd up by means of the Pin that plays in the little Tube 5. Upon this, the compreſs'd Air in the Cavity of the outer Barrel 4, ruſhing through the Hole *6* into the Cavity of the inner Barrel; expels the Bullet with a vaſt force, ſufficient to penetrate a thick Board.

Note, To give the Machine the greater reſemblance of a Fire-Arm, the Part 2, 2, 2, 2, is uſually faſhion'd like the Butt-end of a Muſquet, and on the Part 28, 28 is fitted a Lock; by turning the Trigger of which, the Pin 5 is made to puſh back the Valve, and ſo diſcharge the Piece.——By the Lock too, it is contrived that either the whole Charge of Air may be ſpent at one Exploſion, or only part of it, and the reſt reſerved for freſh Bullets. By this piece of Mechaniſm, we can have half a dozen good, effective Shoots, with one Charge of Air.

WIND-*Egg*, an addle Egg, or Egg that has taken *Wind*. See EGG.

WIND-*Fall*, denotes Fruit blown off the Tree by the *Wind*.

WIND-*Gall*, in Horſes, a ſoft, flatulent Tumour or Bladder, ariſing on the fetlock Joint, and cauſing great Pain, eſpecially in hot Weather and hard Ways. See GALL.

It is uſually owing to a violent Strain, extreme Labour, and Heat, a Horſe's ſtanding on a ſloping Floor, a Blow from another, or the like.

WIND-*Mill*, a kind of Mill which receives its Motion from the Impulſe of the *Wind*. See MILL.

The *Windmill*, tho' a Machine common enough, has yet ſomewhat in it more ingenious than is uſually imagined.—Add, that it is uſually granted to have a degree of Perfection which few of the popular Engines have attained to, and which the Makers are but little aware of——Tho' the new Geometry, &c. has furniſhed ample Matter for its Improvement.

Structure of the WIND-*Mill.*

The internal Structure of the *Windmill* is much the ſame with that of Water-Mills——The difference between 'em lies chiefly in an external Apparatus for the Application of the Power.

This Apparatus conſiſts of an Axis L F (Tab. PNEUMATICS, *Fig.* 15.) thro' which paſs two Rods or Yards, A B and C D, interſecting each other at right Angles in E, whoſe length is uſually about 32 Feet: On theſe Rods are form'd a kind of Sails, Vanes, or Flights, in the Figure of Trapeziums, with parallel Baſes, the greater whereof H I is about ſix Feet, and the leſs F G determined by Radii drawn from the Centre E, to C and H.

Theſe Sails are to be capable of being always turn'd to the Wind, that they may receive its Impreſſion: In order to which, there are two different Contrivances, which conſtitute the two different kinds of *Wind-Mills* in uſe.

In the one, the whole Machine is ſuſtain'd upon a moveable Arbor or Axis perpendicular to the Horizon, on a Stand or Foot; and turn'd occaſionally this way or that, by means of a Lever.

In the other, only the Cover, or Roof of the Machine, with the Axis and Sails turn round.——In order to which,

The Cover is built Turret-wiſe, and the Turret encompaſs'd with a Wooden-Ring, wherein is a Groove, at the bottom whereof are placed at certain diſtances, a number of Braſs Truckles, and within the Groove is another Ring upon which the whole Turret ſtands. To the moveable Ring are connected Beams *a b* and *f c*; and to the Beam *a b*, in *b* is faſten'd a Rope, which at the other extreme thereof is fitted to a Windlaſs or Axis in Peritrochio: This Rope being drawn through the Iron Hook G, and the Windlaſs turn'd, the Sails will be moved round, and put in the direction requir'd.

Theory of the Motion of a WIND-*Mill, with the Poſition of the Sails or Vanes thereof.*

The Angle the Sails are to make with their common Axis, ſo as the *Wind* may have the greateſt Effect, is a Matter of nice Enquiry, and has employ'd the Thoughts of the Mathematicians.

To conceive why a *Wind-Mill* moves at all, the Theory of compound Motions muſt be ſuppoſed——A Body moving perpendicularly againſt any Surface, ſtrikes it with all its force.——If it move parallel to the Surface, it does not ſtrike it at all: And if it move obliquely, its Motion being compounded of the perpendicular and parallel Motion, only acts on the Surface conſider'd as it is perpendicular, and only drives it in the direction of the Perpendicular. So that every oblique Direction of a Motion is the Diagonal of a Parallelogram, whoſe perpendicular and parallel Directions are the two Sides. Add, That if a Surface, which being ſtruck obliquely has only received the perpendicular Direction, be faſten'd to ſome other Body, ſo as that it cannot purſue its perpendicular Direction, but muſt change it for ſome other; in that Caſe, the Perpendicular itſelf becomes the Diagonal of a new Parallelogram, one of whoſe Sides is the Direction the Surface may follow, and the other, that it cannot.

Thus, a Rudder faſten'd obliquely to the Keel of a Veſſel, being ſtruck by the Current of Water parallel to the Keel, and of conſequence obliquely with regard to itſelf; it will appear, by drawing the Line of perpendicular Impulſe, that it tends to tear the Rudder from the Keel, and to carry it away: And that this Direction perpendicular to the Rudder, is oblique to the Keel.——The Rudder, then, would be carried off in an oblique Direction: But, as, in effect, it is ſo ſecur'd, that it cannot be torn or carried off; we are only to conſider, in this compound Motion, that of the two Directions wherewith it can move without being torn from the Keel; and leave the other which would tear it off, as uſeleſs.

Now, the Direction in which it can move without parting from the Keel, is that which carries it circularly about its Extremity as a Centre. So that the effect of the oblique Impulſe of the Water on the Rudder, is reduced, firſt to a perpendicular Impreſſion, which is again reduced to the mere turning the Rudder round; or, if the Rudder be immoveable, to the turning of the Veſſel.

Now, in an oblique and compound Motion, where only one of the Directions is of ſervice; the greater Ratio the other has thereto, the leſs effect will the Motion have; and *vice verſa*.——In examining the compound Motions of the Rudder, we find that the more oblique it is to the Keel, the Ratio of the Direction that ſerves to turn it to the other, is the greater. But, on the other hand, the more oblique it is to the Keel, and of conſequence to the Courſe of the Water which is ſuppoſed parallel thereto, the more weakly it ſtrikes. The obliquity of the Rudder, therefore, has at the ſame time both an Advantage and a Diſadvantage; but as thoſe are not equal, and as each of 'em are ſtill varying with every different Poſition of the Rudder, they become complicated variouſly, ſo that ſometimes the one prevails, and ſometimes the other.

It has been a Point of Enquiry to find the Poſition of the Rudder wherein the Advantage ſhould be the greateſt. M. *Renau*, in his famous Theory of the Working of Ships, has found that the beſt ſituation of the Rudder is when it makes an Angle of 55 Degees with the Keel. See SAILING, STEERING, &c.

If, now, a *Wind-Mill* expoſed directly to the Wind, ſhould have its four Sails perpendicular to the common Axis wherein they are fitted, they would receive the Wind perpendicularly; and it is viſible that Impulſe would only tend to over-turn 'em——There is a neceſſity, therefore, to have 'em oblique to the common Axis, that they may receive the Wind obliquely.

For the greater eaſe; let us only conſider one Vertical Sail——The oblique Impulſe of the Wind on this Sail is reducible to a perpendicular Impulſe: And that Direction, as the Sail cannot abſolutely keep to it, is compounded of two; one whereof tends to make it turn on its Axis, and the other to fall backwards. But it is only the firſt of theſe Directions can be obey'd. Of conſequence the whole Impulſe of the Wind on the Sail has no other effect but to make it turn from right to left, or from left to right, as its acute Angle turns this way or that. And the Structure of the Machine is ſo happy, that the three other Sails are determined, from the ſame reaſons, to move the ſame way.

The Obliquity of the Sails with regard to their Axis, has preciſely the ſame Advantage, and Diſadvantage, with the Obliquity of the Rudder to the Keel.——And M. *Parent*, ſeeking, by the new Analyſis, the moſt advantageous Situation of the Sails on the Axis, finds it preciſely the ſame Angle of 55 Degrees. Yet, in practice this Rule is very little obſerved; as, indeed, being little known. They are uſually about 60 Degrees, which is very much out of the way.

Elliptical WIND-*Mill.*

M. *Parent* conſiders further, what Figure the Sails of a *Wind-Mill* ſhall have, to receive the greateſt Impulſe from the *Wind*; and he determines it to be a Sector of an Ellipſis whoſe Centre is that of the Axis or Arbor of the Mill; and the little Semi-Axis, the height of thirty-two Feet. As for the greater, it follows neceſſarily from the Rule that directs the Sail to be inclined to the Axis 55 Degrees.

On this foot, he aſſumes four ſuch Sails, each whereof is one-fourth of an Ellipſis; which, he ſhews, will receive all the Wind, and loſe none, as the common ones do.——Theſe four Surfaces multiply'd by the Lever with which the Wind acts on one of 'em, expreſs the whole force the Wind has to move the Machine, or the whole force the Machine has when in Motion.

The ſame manner of Reaſoning apply'd to a common *Wind-Mill* whoſe Sails are Rectangular, and their Height about five times their Breadth; ſhews that the *Elliptic Wind-Mill* has above ſeven times the force of the common one. A prodigious Advantage! And worthy, ſure, to have the common Practice ſet aſide for, could ſo common a Practice be eaſily changed.

A *Wind-Mill* with ſix Elliptic Sails, he ſhews, would ſtill have more force than one with four——It would only have the ſame Surface with the four; ſince the four contain the whole Space of the Ellipſis as well as the ſix. But the force of the ſix would be greater than that of the four in the Ratio of 245 to 231. If it were deſir'd to have only two Sails, each being a Semi-Ellipſis, the Surface would be ſtill the ſame, but the force would be diminiſhed by near one-third of that with ſix Sails; by reaſon the greatneſs of the Sectors would much ſhorten the Lever with which the Wind acts.

The beſt Form and Proportion of Rectangular WIND-*Mills.*

But, as Elliptical Sails would be ſomething ſo new, that there is little room to expect they will come into common Uſe; the ſame Author has conſider'd which Form, among the rectangular ones, will be the moſt advantageous, *i. e.* which, the Product of whoſe Surface by the Lever of the Wind will be the greateſt. And by the Method *de Maximis*

imis & Minimis, he finds them very different from the common ones.

The Reſult of his Enquiry is, that the Width of the rectangular Sail ſhould be nearly double its Height or Length; whereas the Height or Length are uſually made almoſt five times their Width.—Add, that as the Height, or Length, is the Dimenſion taken from the Centre of the Axis; the greateſt Dimenſion of the new rectangular Sail will be turn'd towards the Axis, and the ſmalleſt from it: Quite contrary to the Poſition of the common Sails.

The Force of a *Windmill* with four of theſe new rectangular Sails, M. *Parent* ſhews, will be to the Force of 4 Elliptic Sails, nearly as 13 to 23; which leaves a conſiderable advantage on the ſide of the Elliptic ones: yet will the Force of the new rectangular Sails be nearly four times as great as thoſe of the common ones.

M. *Parent* likewiſe conſiders what Number of the new Sails will be moſt advantageous, and finds that the fewer Sails, the more Surface there will be, but the leſs Force—The Ratio of the Force of a *Windmill* with 6 Sails, will be to another with 4, nearly as 14 to 13. And the Force of another with 2, will be to that with 4, nearly as 13 to 9.

As to the common *Windmill*, its force ſtill diminiſhes as the Breadth of the Sails is ſmaller in proportion to the Height. The uſual Proportion, therefore, of 5 to 1, is exceedingly diſadvantageous.

The Uſes of this new Theory of *Windmills* are very obvious——The more Force a *Windmill* has, the ſwifter it turns; the more it diſpatches, and the leſs Wind it needs. Add, that on this Theory, one may have a *Windmill*, whoſe Sail ſhall be a deal leſs, and yet the Force a deal greater, than in the common one.

WIND-*Inſtruments*, in Muſic, are Inſtruments play'd by the *Wind*, chiefly the Breath; in contradiſtinction to String-Inſtruments, and Inſtruments of the pulſatile Sound. See MUSIC.

The *Wind-Inſtruments* known to the Antients, were the *Tibia*, *Fiſtula*, *Syringa* of *Pan*, conſiſting of ſeven Reeds join'd ſide-wiſe; *Organs*, *Tubæ*, *Cornua*, and *Lituus*: See TIBIA, FISTULA, &c. each under the proper Article.

Thoſe of the Moderns, are the *Flute*, *Bagpipe*, *Hautboy*, *Trumpet*, &c. See FLUTE, BAGPIPE, &c.

WIND *Dropſy*,	See	TYMPANITES.
WIND *Colic*,	See	COLIC.
WIND *Tumors*, &c.	See	TUMOR.

WINDASS, WANDASS, and WANLASS, corruptly WINDLASS; a Term in Hunting——Thus, to drive the *Windlaſs*, ſignifies the chaſing a Deer to a Stand, where one is ready with a Bow or Gun to ſhoot. See HUNTING.

——*Omnes illi qui tenuerunt in Bondagii tenura ſolebant vocari Cuſtumarii: Et quotieſcunque Dominus ad venandum venerit, illi Cuſtumarii ſolebant fugare* Windaſſum, *ad ſtabulum in Venatione ferarum Beſtiarum ſecundum quantitatem Tenuræ ſuæ.* MS. de Conſuetud. Manerii de Sutton Colfield, An. 3. Ed. 2.

WINDLASS, or WINDLESS, a Machine uſed to raiſe huge Weights withal, as Guns, Stones, Anchors, &c. See MACHINE.

It is very ſimple, conſiſting only of three Pieces of Wood; a Roll or Axle-Tree, and a Pully——The Pieces of Wood meet a-top; being plac'd diagonally, ſo as to prop each other——The Axis or Roller goes thro' two of the Pieces, and turns in them——The Pully is faſten'd a-top, where the three Pieces join.

Laſtly, there are two Levers go thro' the Roll, whereby it is turn'd, and the Rope, which comes over the Pully, is wound off, and on the ſame.

WINDLASS *in a Ship*, is a Piece of Timber, having ſix or eight Squares, and fix'd abaft the Stern aloft, where the Cables come in from one ſide of the Ship to the other; uſed in Meal-Ships, and in the *Flemiſh* Ships, which are lightly mann'd.

This *Windlaſs* will purchaſe more by much than any Capſtan in the weighing of an Anchor, and without any danger to thoſe that heave; becauſe they heave here with Hand-Spikes, put into the Hole at either End of the *Windlaſs*. See CAPSTAN.

WIND-*Tackle-Blocks*, in a Ship, are the main double Blocks or Pulleys; which being made faſt to the end of a ſmall Cable, ſerve for the hoiſting of Goods into the Ship, &c. See BLOCK, TACKLE, &c.

To wind or wend a Ship, ſignifies to bring her Head about.

How winds or wends the Ship? is a Queſtion ask'd by Mariners concerning a Ship under Sail, ſignifying as much as, upon what Point of the Compaſs does ſhe lie with her Head?

WIND-*ward Tide*, in the Sea-Language, a Tide which runs againſt the *Wind*. See TIDE.

WINDOW, *q. d. Wind-Door*, an Aperture or open Place in the ſide of an Houſe, to let in the Air and Light. See BUILDING, APERTION, LIGHT.

We have various Kinds and Forms of *Windows*; as Glaſs *Windows*, Wire *Windows*, Horn *Windows*, &c.—Arch'd *Windows*, Circular *Windows*, Elliptical *Windows*, Square and Flat *Windows*; Round *Windows*, Oval *Windows*, Gothic *Windows*, Regular *Windows*, Ruſtic *Windows*, &c. Sky-Lights. See GLASS, GLAZIERY, LEAD, PLUMBERY, VICE, &c.

Dormer WINDOWS, or *Latherns*. See DORMER and LUTHERN.

Tranſom WINDOWS. See TRANSOM.

The chief Rules with regard to *Windows* are—1. That they be as few in Number, and as moderate in Dimenſions, as may conſiſt with other Reſpects; inaſmuch as all Openings are Weakenings——2. That they be placed at a convenient Diſtance from the Angles, or Corners of the Building; becauſe that part ought not to be open and infeebled, whoſe Office is to ſupport and faſten all the reſt of the Building——3. That Care be taken the *Windows* be all equal one with another in their Rank and Order; ſo that thoſe on the right hand may anſwer to thoſe on the left, and thoſe above be right over thoſe below: for this Situation of *Windows* will not only be handſome and uniform; but alſo the Void being upon the Void, and the Full upon the Full, it will be a ſtrengthening to the whole Fabrick.

As to their Dimenſions, Care is to be uſed neither to give them more, nor leſs Light than is needful; therefore regard is to be had to the Bigneſs of the Rooms which are to receive the Light. 'Tis evident that a great Room needs more Light, and conſequently a greater *Window* than a little Room; and *è contra*.

The Apertures of *Windows* in middle-ſized Houſes, may be four and a half, or five Feet between the Jambs; and in the greater Buildings, ſix and a half, or ſeven Feet; and their Height may be double the Length at the leaſt——But in high Rooms, or larger Buildings, their Height may be a third, a fourth, or half their Breadth, more than double their Length.

Such are the Proportions for *Windows* of the firſt Story; and according to theſe muſt thoſe in the upper Stories be for Breadth; but as to Height, they muſt diminiſh: the ſecond Story may be one third part lower than the firſt, and the third Story one fourth part lower than the ſecond. See STORY.

WINDOW, in Anatomy, &c. See FENESTRA.

WIND-*taught*, a Sea-Term, implying as much as, ſtiff in the *Wind*.

Thus they ſay, a thing is *taught*, when it is ſtiff——So, too much Rigging, high Ropes, or any thing catching or holding *Wind* aloft, is ſaid to hold a Ship *Wind-taught*; by which they mean, that ſhe ſtoops too much in her Sailing, in a ſtiff Gale of *Wind*. Again, when a Ship rides in a main ſtreſs of *Wind* and Weather, they ſtrike down her Top-maſts, and bring her Yards down, which elſe would hold too much *Wind*, or be too much diſtended.

WINE, *Vinum*, a brisk, agreeable, and ſpirituous Juice, drawn from vegetable Bodies, and fermented. See VEGETABLE and FERMENTATION.

The Character of a *Wine*, according to *Boerhaave*, is, that the firſt thing it affords by Diſtillation, be a thin, fatty, inflammable, &c. Fluid; call'd a *Spirit*. See SPIRIT.

This diſtinguiſhes *Wines* from another Claſs of fermented vegetable Juices, *viz. Vinegars*; which, inſtead of ſuch Spirit, yield, for the firſt thing, an acid, uninflammable Matter. See VINEGAR.

All ſorts of Vegetables, Fruits, Seeds, Roots, &c. afford *Wine*; as Grapes, Currants, Mulberries, Elder, Cherries, Apples, Pulſe, Beans, Peaſe, Turnips, Radiſhes, and even Graſs itſelf. See VINOUS *Liquor*.

Hence, under the Claſs of *Wines*, or Vinous Liquors, come *Wine*, abſolutely ſo call'd, Ale, Cyder, &c. See MALT *Liquor*, ALE, CYDER, &c.

WINE, is in a more particular manner appropriated to that drawn from the Fruit of the *Vine*, by ſtamping its Grapes in a Vat, or cruſhing and expreſſing the Juice out of them in a Preſs, and then fermenting, &c. See VINE, and VINEYARD.

The Goodneſs of *Wine* conſiſts in its being net, dry, clear, fine, brisk, without any Taſte of the Soil, of a clean, ſteddy Colour; in its having a Strength, without being heady; a Body, without being ſour; and its keeping, without growing hard.

Wine being a Liquor moſtly of foreign Produce; the divers Names, Forms, Kinds, Diſtinctions, &c. thereof, are borrow'd from the Countries where 'tis produc'd; the principal whereof, at this day, is *France*: To *Wines* of which of which Country, a good part of what we have to ſay of this noble Liquor, will more immediately belong.

Wine is diſtinguiſh'd from the ſeveral Degrees and Steps of its Preparation, into, 1. The *Mere-goutte*, Mother-drop; which is the Virgin *Wine*, or that which runs of itſelf out at the Tap of the Vat wherein the Grapes are laid, before the Vintager enters to tread or ſtamp the Grapes——The *Muſt*, *Surmouſt*, or *Stum*; which is the *Wine*, or Liquor, in the Vat, after the Grapes have been trod or ſtamp'd——The *preſs'd Wine*, *Vin de Preſſurage*, which is that ſqueez'd with a Preſs, out of the Grapes half bruiſed by the treading——The Husks left of the Grapes, are call'd Rape or Marc; by throwing Water upon which, and preſſing them a-freſh, they make a Liquor for Servants Uſe, anſwerable to our Water-Cyder, and call'd *Boiſſon*, *Draught*; which is of ſome uſe in Medicine in the Cure of Diſorders occaſion'd by viſcid Humours.

Sweet Wine, *Vin Poux*, is that which has not yet work'd nor boil'd——*Bouru*, that which has been prevented working, by caſting it in cold Water——*Cuve*, *work'd Wine*, or that which has been let work in the Vat, to give it a Colour——*Cuit*, *boiled Wine*, that which has had a boiling e'er it work'd; and which, by that means, ſtill retains its native Sweetneſs——*Paſſé*, or *ſtrain'd Wine*, that made by ſteeping dry Grapes in Water, and letting it ferment of itſelf.

WINES are alſo diſtinguiſh'd with regard to their Colour, into *White Wine*, *Red Wine*, *Claret Wine*, *Pale Wine*, *Roſe* or *Black Wine*——And with regard to their Country, or the Soil that produces them, into *French Wines*, *Spaniſh Wines*, *Rheniſh Wines*, *Hungary Wines*, *Greek Wines*, *Canary Wines*, &c.——And more particularly into *Port Wine*, *Madera Wine*, *Burgundy Wine*, *Champaigne Wine*, *Falernian Wine*, *Tokai Wine*, *Schiras Wine*, &c.

Wines, again, are diſtinguiſh'd with regard to their Quality, into *ſweet Wines*, rough or *dry Wines*, and *rich* or *luſcious Wines*, *Vins de liqueur*; of which laſt, ſome are exceedingly ſweet, others ſweet and poignant: all chiefly uſed by way of Dram after Meals, &c.

Such are the *French Frontigniac*, *Madera*, the *Canary*, the *Hungary*, *Tokai*, the *Italian Monteſiaſcone*, the *Perſian Schiras*, the *Malmſey Wines* of *Candia*, *Chio*, *Lesbos*, *Tenedos*, and other Iſlands of the *Archipelago*, which antiently belonging to the *Greeks*, but now to the *Turks*: theſe *Wines* are ſometimes call'd *Greek Wines*, and ſometimes *Turkey Wines*.

Method of Making and Fining WINE.

In the Southern Parts of *France* their way is, for *Red Wines*, to tread or ſqueeze the Grapes between the Hands, and to let the whole ſtand, Juice and Husks; till the Tincture be to their liking: after which they preſs it.——But for *White Wines*, they preſs the Grapes immediately.

When preſs'd, they tun the Muſt, and ſtop up the Veſſel; only leaving the depth of half a Foot or more empty, to give room for it to work——At ten days end, they fill this Space with ſome other proper *Wine*, that will not provoke it to work again——This they repeat from time to time; new *Wine* ſpending itſelf a little, e'er it be perfect.

About *Paris*, and in the Northern Parts of *France*, they let the Murk and Muſt ſtand two Days and Nights for *White Wines*, and at leaſt a Week for *Claret Wines*; e'er they tun it——While it continues working, 'tis kept as warm as poſſible.

Some, upon ſtopping it up for good and all, roll the Cask about the Cellar, to mix it with the Lees; and after ſettling a few days, rack it off with great Improvement.

To fine it down, they put Shavings of green Beech into the Veſſel; having firſt taken off all the Rind, and boil'd them an hour in Water, to extract their Rankneſs; and afterwards dry'd them in the Sun, or an Oven: a Buſhel of theſe ſerve for a Tun of *Wine*. They put it in a gentle Working, and purify it in twenty-four hours. They alſo give it an agreeable Flavour—The ſame Chips being waſh'd, ſerve again and again, till almoſt quite conſumed.

Some ſweeten their *Wines* with Raiſins of the Sun, trod in the Vat with the Grapes, having been firſt plump'd by boiling: Others, by boiling half the Muſt, ſcumming it, and tunning it up hot with the other.

For *Engliſh Wine*, the Method recommended by Mr. *Mortimer*, is, firſt to gather the Grapes when very dry, to pick them from the Stalks, then to preſs them, and let the Juice ſtand twenty-four hours in the Vat cover'd. Afterwards, to draw it off from the groſs Lees, and then put it up in a Cask, and to add a Pint or Quart of ſtrong Red or White Port to every Gallon of Juice; and let the whole work: bunging it up cloſe, and letting it ſtand till *January*; then bottle it in dry Weather.

By this Method he aſſures us, he has made *Engliſh Wine* as good as any the beſt and pureſt *French Wine*, drank either in *Paris* or *Champaigne*.

Mr. *Bradley* chuſes to have the Liquor when preſs'd, to ſtand with the Husks, Stalks, and all, in the Vat to ferment for fifteen days.

He adds, that according as the Vines have been manag'd, the *Wine* will be ſtronger or weaker——Thoſe, *e. gr.* which run at liberty up high Trees, and are never pruned, make the *ſmalleſt Wines*: Thoſe kept tied to Stakes about four Foot high, and which have their Branches kept pruned, make *ſtronger Wines*: And thoſe neareſt the Ground, the *ſtrongeſt*.

The Force of the fermenting *Wine* is very great; being able, if cloſe ſtop'd up, to burſt thro' the ſtrongeſt Cask——The readieſt and only way to ſtop or abate the Fermentation, is by the Fume of burning Sulphur.

Add, that when *Wine* already made is upon the Fret, or, by any Alteration in the Air, begins to ferment again; the way uſed by the Vintners and Wine-Coopers to ſave it, is by the flame of common Sulphur, or a lighted Match dip'd in it; which held under the Cask juſt ready to burſt its Hoops, calms its Fury, and makes it immediately ſubſide. See SULPHUR.

WINE is variouſly denominated, according to its State, Circumſtances, Qualities, &c.

Natural WINE, is ſuch as it comes from the Grape, without further Mixture or Sophiſtication.

Brew'd or *Adulterated* WINE, is that wherein ſome Drug is added to give it a Strength, Fineneſs, Flavour, Briskneſs, Sweetneſs, or ſome other Quality which it wanted.

Prick'd, or *Eager* WINE, is that turn'd ſouriſh.

Flat WINE, is that fallen weak and vappous for want of being drank in time.

Sulphur'd WINE, is that put in Casks wherein Sulphur has been burnt; in order to fit it for keeping, or for Carriage by Sea.

Colour WINE, is ſome thick *Wine*, of a very deep Colour, ſerving to dye the *Wines* that are too pale, &c. As the *Black Wine* in uſe among our Vintners.

Chip WINE, is that pour'd on Chips of Beech-wood, to fine or ſoften it.

Rape WINE, is that put in a Cask half full of freſh Grapes pick'd for the purpoſe, to recover the Strength, Briskneſs, &c. it had loſt by keeping, &c.

Burnt WINE, is that boil'd up with Sugar; and ſometimes with a little Spice.

There is alſo a ſort of *Malmſey* WINE, made by boiling of Muſcadine. See MALMSEY.

The Uſes of WINE are very great; not only as a Drink, but as a Medicine. See DRINK, &c.

Several Phyſicians recommend it as an excellent Cordial, and particularly ſerviceable in Fevers, the *Lues Venerea*, &c.

Pliny mentions *Staphilus* as the firſt who mixed *Wine* with Water; but *Athenæus* gives the Credit thereof to *Amphitryon* King of *Athens*——On this Occaſion a Fable was invented; *viz.* That *Bacchus* having been ſtruck with a Thunderbolt, and being all inflam'd, was preſently caſt into the Nymph's Bath, to be extinguiſh'd.

The Age of Wine is properly reckoned by Leaves——Thus they ſay *Wine* of two, four, ſix Leaves, to ſignify a *Wine* of ſix, four, or two Years old; taking each new Leaf put forth by the Vine ſince the *Wine* was made, for a Year.

Among the *Romans*, the Age of *Wines* was, as it were, the Criterion of their Goodneſs.——*Horace*, in his *Odes*, which one may call *Bacchic Songs*, boaſts of his drinking *Falernian Wine*, born, as it were, with him, or which reckon'd its Age from the ſame Conſuls.

Pliny mentions *Wines* kept above a hundred Years, and yet potable——Others he ſpeaks of kept two hundred Years, which by this time were reduced to the Conſiſtence of Honey.

But the Moderns keep no *Wines* to any ſuch Age. Where they are kept the longeſt, as in *Italy* and *Germany*, there are ſcarce any to be found above fifteen Leaves. In *France*, the *Wines* that keep beſt, as thoſe of *Dijon*, *Nants*, and *Orleans*, are reckon'd ſuperannuated at five or ſix Leaves old.

Lees of WINE, are the Impurities thereof, or the thick Sediment remaining at the bottom of the Casks, when the *Wine* is drawn out. See LEES and VINEGAR.

WINE is alſo a Name uſed in Medicine and Pharmacy, for divers Mixtures or Compoſitions, wherein the Juice of the Grape is a principal Ingredient. See VINUM.

Theſe *Medicated Wines* make a conſiderable Article in our Diſpenſatories, in quality of Diet-Drinks; ſome being denominated from the Ingredients uſed in 'em; ſome from the Intentions wherewith they are preſcribed; and ſome from their Qualities, &c.

Bitter WINE, *Vinum Amarum*, is an Infuſion of certain bitter Stomachic Herbs, as Gentian-Root, Juniper-Berries, Tops of Centaury, Orange and Lemon Peel, in white Port, or other white *Wine*; taken by way of Whet in a Morning, to reſtore the pall'd Stomach after a Debauch, and bring the Fibres to their due Tenſion.

Chalybeate, or *Steel* WINE, is prepared of Filings of Steel, and Saffron infuſed, and filter'd. It is good for removing Obſtructions in the Viſcera, as in the Chloroſis, *&c.*

Vinum Benedictum, the bleſſed WINE, is made of *Crocus Metallorum* and Mace infuſed in *Wine.* It was formerly a celebrated Emetic, but now almoſt out of uſe for its roughneſs.

Elecampane WINE, *Vinum Enulatum*, is an Infuſion of the Root of that Plant with Sugar and Currants, in white Port.——It cleanſes the Viſcera, prevents Diſorders and Obſtructions of the Lungs; and is good in Aſthmatic Caſes, Cachexies, *&c.*

Hog-lice WINE, *Vinum Millepedum*, is prepared of Hog-lice put alive in white Port; and after ſome infuſion, preſs'd and ſtrain'd out: To the Liquor is added Saffron, Salt of Steel, *&c.*——It is recommended againſt the Jaundice, Dropſy, Cachectic Habits, *&c.* See MILLEPEDES.

Pectoral WINE, *Vinum Pectorale*, is prepared of Liquorice, Saffron, Coriander-Seeds, Carraway, Aniſe, Salt of Tartar, Penny-royal, and Hyſſop-Waters, digeſted with Canary *Wine*, and ſtrain'd. It is a good Expectorant; helping to deterge and cleanſe the Lungs, *&c.*

Emetic WINE, *Vinum Emeticum.* See EMETIC.

Hippocrates's WINE, *Vinum Hippocraticum*, or *Hippocras.* See HIPPOCRAS.

Viper WINE, *Vinum Viperinum*, is a Preparation of female Vipers, infuſed ſix Months in *Canary Wine.*——It is a great Reſtorative, and provokes to Venery; good againſt Cutareous Eruptions, *&c.* See VIPER.

Vinum Scilliticum, WINE *of Squills*, is an Infuſion of thoſe Onions in white *Wine* for forty days, and then the Squills ſtrain'd out, and the Liquor preſerv'd for uſe. It is a gentle Emetic, good againſt inundations of Rheum, *&c.* See SQUILLÆ.

WINE-*Meaſure*; ſee MEASURE.

WING; ſee FEATHER and FLYING.

WINGS, in Heraldry, are bore ſometimes ſingle, ſometimes in pairs, in which caſe they are call'd *Conjoin'd*; when the Points are downward, they are ſaid to be *Inverted*; when up, *Elevated.* See VOL.

WING, *Ala*, in Botany, the Angle which the Leaves of a Plant, or the Pedicles of the Leaves, form with the Stem, or a Branch of the Plant. See LEAF.

This Angle is commonly acute, and always ſtands upward.——It has its Name from its reſembling the Angle which the *Wings* of a Bird form with the Body; or rather from the Angle which a Man's Arms makes with his Trunk, which is alſo call'd *Ala, Wing.*

WINGS, in Gardening, *&c.* are ſuch Branches of Trees, or other Plants, as grow up a-ſide of each other. See BRANCH.

La Quintiny ſays, the Term is particularly apply'd to Artichoaks, whoſe *Wings* or *Alæ*, are the leſſer Heads or Fruits that grow up with the principal one, on the ſame Stalk.

WINGS, *Alæ*, in the Military-Art, are the two Extremes of an Army, ranged in form of Battel; being the Right and Left Parts thereof, and including the Main Body. See ARMY and BATTEL.

The Cavalry are always poſted in the *Wings*; *i. e.* on the Flanks, or the Right and Left Sides of each Line; to cover the Foot in the Middle. See LINE and FLANK.

Pan, one of *Bacchus's* Captains, is ſaid to have been the firſt Inventor of this Method of ranging an Army; whence, ſay they, it is that the Antients painted him with Horns on his Head; what we call *Wings* being by them call'd *Cornua*, Horns. See PANIC.

This at leaſt is certain, that the Method of Arranging in *Wings* is very antient. The *Romans*, we know, uſed the Term *Alæ*, or *Wings*, for two Bodies of Men in their Army; one on the Right, the other on the Left, conſiſting each of 400 Horſe, and 4200 Foot uſually, and wholly made up of Confederate Troops.——Theſe were deſign'd to cover the *Roman* Army, as the *Wings* of a Bird cover its Body.

The Troops in theſe *Wings* they call'd *Alares*, and *Alares Copiæ*; and we at this day diſtinguiſh our Armies into the Main Body, the Right and Left *Wings.*

WING is alſo uſed for the two Files that terminate each Batailion, or Squadron, on the Right and Left——The Pikes are ranged in the Middle, and the Muſqueteers in the *Wings.*

WINGS, in Fortification, are the larger Sides of Horn-works, Crown-works, Tenailles, and the like Out-works; including the Ramparts, and Parapets, with which they are bounded on the Right and Left, from their Gorge to their Front.

Theſe *Wings* or Sides are capable of being flank'd either with the Body of the Place, if they ſtand not too far diſtant; or with certain Redoubts; or with a Traverſe made in their Ditch.

St. *Michael's* WING, is a Military Order in *Portugal*, inſtituted, according to the Jeſuit *Mendo*, in 1165; or, according to *di Michieli* in his *Teſoro Militar de Cavalleria*, in 1171.

Its Inſtitutor was *Alphonſus Henry* I. King of *Portugal*; and the Occaſion was a Victory gain'd by him over the King of *Sevil* and his *Sarazens*; for which he thought himſelf beholden to St. *Michael*, whom he had choſe for his Patron in the War againſt the Infidels.

The Banner they bore was a *Wing*, reſembling that of the Arch-Angel, of a purple Colour encompaſs'd with Rays of Gold——Their Rule was that of St. *Benedict*; the Vow they made was to defend the Chriſtian Religion, and the Borders of the Kingdom, and to protect Orphans. Their Word, *Quis ut Deus.*

WINGED, in Botany, a Term apply'd to ſuch Stems of Plants, as are furniſh'd, all their length, with a ſort of membranous Leaves. See STEM.

Several kinds of *Thiſtles* have *winged* Stalks, and Branches.

They alſo uſe the Term *winged Leaves* for ſuch as conſiſt of divers little Leaves rang'd in the ſame direction, ſo as to appear no more than one and the ſame Leaf. See LEAF.

Such are the Leaves of Agrimony, Acacia, Aſh, *&c.*

Winged Seeds, are ſuch as have Down or Hairs on 'em, whereby the Wind taking hold, blows 'em to a diſtance. See SEED and SEMINATION.

WINGED, in Heraldry, is apply'd to a Bird, when its *Wings* are of a different Colour or Metal, from the Body.

Winged is alſo apply'd to any thing repreſented with *Wings*, tho' contrary to its Nature; as a *winged or flying Hart*, &c. See FLYING.

WINNOW, ſignifies to fan, or ſeparate Corn from the Chaff by Wind.

WINTER, one of the four Seaſons, or Quarters of the Year. See SEASON, *&c.*

Winter commences on the Day when the Sun's diſtance from the Zenith of the Place is the greateſt, and ends on the Day when its diſtance is at a Mean between the greateſt and leaſt. See SUN.

Notwithſtanding the Coldneſs of this Seaſon, it is proved in Aſtronomy, that the Sun is really nearer to the Earth in *Winter* than in Summer. See EARTH.

The reaſon of the decay of Heat, *&c.* ſee under the Articles HEAT, LIGHT, *&c.*

Under the Equator the *Winter*, as well as the other Seaſons, return twice every Year; but all other Places have only one *Winter* in the Year; which, in the Northern Hemiſphere, begins when the Sun is in the Tropic of *Capricorn*; and in the Southern Hemiſphere, when in the Tropic of *Cancer*: So that all Places in the ſame Hemiſphere have their *Winter* at the ſame time.

WINTER *Solſtice*; ſee SOLSTICE.

WINTER'S *Bark*, *Cortex Winteri*, or *Winteranus*; ſee CORTEX and CINNAMON.

WINTER, among Printers, a part of the Printing-Preſs. See PRINTING-*Preſs.*

WINTER *Rig*, among Husbandmen, ſignifies to fallow, or till the Land in *Winter.* See FALLOW, *&c.*

WIRE, wrote alſo *Wyre*, and *Wiar*, is a piece of Metal, drawn thro' the Hole of an Iron, into a Thread, of a Fineneſs anſwerable to the Hole it is paſs'd through.

Wires are frequently drawn ſo fine, as to be wrought along with other Threads of Silk, Wool, or Hemp: And thus they become a conſiderable Article in the Manufactures.

The Metals moſt commonly drawn into *Wire* are Gold, Silver, Copper, and Iron——And hence we have *Gold Wire*, *Silver Wire*, *Iron-Wire*, &c. as in the following Articles.

Gold and *Silver* WIRE——What we call *Gold Wire* is made of cylindric Ingots of Silver cover'd over with a Skin of Gold, and thus drawn ſucceſſively thro' a vaſt Number of Holes, each ſmaller, and ſmaller; till at laſt it be brought to a Fineneſs exceeding that of a Hair.

That prodigious Ductility which makes one of the diſtinguiſhing Characters of Gold, is no where more conſpicuous than in this gilt *Wire*——A Cylinder of 48 Ounces of Gold cover'd with a Coat of Gold only weighing one Ounce, Dr. *Halley* informs us, is commonly drawn into a *Wire*, 2 Yards of which only weigh one Grain: Whence 98 Yards of the *Wire* only weigh 49 Grains; and one ſingle Grain of Gold covers the ſaid 98 Yards. So that the ten thouſandth part of a Grain is above $\frac{1}{3}$ of an Inch long.

The ſame Author computing the thickneſs of the Skin of Gold, found it to be only $\frac{1}{134500}$ Part of an Inch——yet ſo perfectly does it cover the Silver, that even a Microſcope does not diſcover any appearance of the Silver underneath.

M. *Rohault* obſerves, that a like Cylinder of Silver cover'd with Gold, 2 Feet 8 Inches long, and 2 Inches 9 Lines in Circumference, is drawn into a *Wire* 307200 long, *i. e.* into 115200, its former length.

Mr. *Boyle* relates, that 8 Grains of Gold covering a Cylinder of Silver, is commonly drawn into a *Wire* thirteen thouſand Feet long. See GOLD.

The Method of drawing it, ſee further illuſtrated under the Article DUCTILITY.

Silver WIRE is the ſame with Gold *Wire*, except that the latter is gilt, or cover'd with Gold, and the other is not. See SILVER.

There are alſo counterfeit Gold and Silver *Wires:* The firſt made of a Cylinder of Copper, ſilver'd over, then cover'd with Gold; and the ſecond of a like Cylinder of Copper ſilver'd over, and drawn thro' the Iron after the ſame manner as Gold and Silver *Wire*.

Braſs WIRE is drawn after the ſame manner as the former.——Of this, there are divers Sizes ſuited to the divers Kinds of Works. The fineſt is uſed for the Strings of Muſical-Inſtruments, as Spinets, Harpſichords, Manichords, *&c.* See CHORD.

The Pinmakers likewiſe uſe vaſt Quantities of *Wire* of ſeveral Sizes, to make their Pins of. See PIN.

Iron WIRE, is call'd by the *French Fil d'Archal*; the Reaſon of which, their Authors are not agreed about—— That celebrated Etymologiſt, M. *Menáge*, derives it from *filum & aurichalcum*; but others, more converſant in the Commerce thereof, deduce it from one *Richard Archal* the firſt Inventor thereof.

There are various Sizes of this *Wire*, from $\frac{1}{2}$ of an Inch to $\frac{1}{10}$ of an Inch Diameter. The ſmalleſt Sizes are uſed to ſtring Muſical Inſtruments withall, particularly Harpſichords, Pſalteries, *&c.*——Vaſt Quantities of *Iron-Wire* are brought yearly from the *Baltick*; partly ſpent at home, and part exported to *France*, &c.

WIRE-*drawing——For the ſeveral Manners of drawing Gold and Silver*; ſee DRAWING, GOLD, SILVER, DUCTILITY, *&c.*

The firſt Iron that runs from the Stone, when melting, being the ſofteſt, and tougheſt, is preſerv'd to make *Wire* of. See IRON.

WISDOM, *Sapientia*, uſually denotes a higher and more refined Knowledge of things, immediately preſented to the Mind, as it were by Intuition, without the aſſiſtance of Diſcourſing. See KNOWLEDGE, DISCOURSE, SCIENCE, *&c.*

In this Senſe, *Wiſdom* may be ſaid to be a Faculty of the Mind, or at leaſt a Modification and Habit thereof. See FACULTY, MODIFICATION, HABIT, *&c.*

Sometimes the Word is more immediately uſed in a Moral Senſe for what we call *Prudence*, or *Diſcretion*; which conſiſts in the Soundneſs of the Judgment, and a Conduct anſwerable thereto. See JUDGMENT.

The School-Divines ſometimes reſtrain it to the Knowledge of the more ſublime and remote Objects; as that of God, *&c.* In which ſenſe, Theology is properly ſaid to be *Wiſdom*.

The Word in *Latin*, is *Sapientia*, which literally expreſſes the Senſe of Taſting; to which *Wiſdom* is ſuppoſed to have ſome Conformity——The Sight, and other Senſes only repreſent to us the Surface of things: Taſte goes deeper, penetrates into the Subſtances; ſo that what, *e. gr.* to the Feeling ſeem'd cold, to the Taſte ſhall be found hot: So *Wiſdom* ariſing from a deep Attention to our Ideas, goes further, and frequently judges otherwiſe than the common Apprehenſions of Men would reach to. See UNDERSTANDING, REASON, *&c.*

WISTA, a Quantity, or Meaſure of Land among our *Saxon* Anceſtors.

It was different in different Places——In the *Monaſticon*, it is ſaid to be half a Hide, or ſixty Acres: In an old Chronicle of the Monaſtery of *Battle*, it is ſaid to be forty-eight Acres. See HIDE, *&c.*

WIT, a Faculty of the Mind, conſiſting, according to Mr. *Locke*, in the aſſembling, and putting together of thoſe Ideas with Quickneſs and Variety, wherein can be found any Reſemblance or Congruity; thereby to make up pleaſant Pictures and agreeable Viſions to the Phantaſy. See FACULTY and IMAGINATION.

This Faculty, the ſame great Author obſerves, is juſt the contrary of Judgment, which conſiſts in the ſeparating, carefully, from one another, ſuch Ideas wherein can be found the leaſt difference, thereby to avoid being miſled by Similitude, and by Affinity to take one thing for another. See JUDGMENT.

'Tis the Metaphor, and Alluſion, wherein, for the moſt part, lies the Entertainment and Pleaſantry of *Wit*; which ſtrikes ſo livelily on the Fancy, and is therefore ſo acceptable to all People, becauſe its Beauty appears at firſt Sight, and there is required no Labour of Thought to examine what Truth or Reaſon there is in it——The Mind, without looking any further, reſts ſatisfied with the Agreeableneſs of the Picture, and the Gaiety of the Imagination; and it is a kind of Affront to go about to examine it by the ſevere Rules of Truth, or Reaſon.——Whence it ſhould ſeem, that *Wit* conſiſts in ſomething that is not perfectly conformable to 'em. *Eſſay on Hum. Underſt.* L. I. c. 11.

WIT is alſo an Appellation given to Perſons poſſeſs'd of the Faculty call'd *Wit*, *Eſprit*.

A *French* Author, who, in 1695 publiſhed a Treatiſe *of Wit, du bel Eſprit*, lays down four Characteriſticks thereof. ——1. A Man, who, with an open Air, and eaſy Motions, affects thoſe he converſes withal agreeably; and on any Subject that preſents itſelf, advances new Thoughts, and adorns them with a ſprightly Turn; is, all the World over, a *Wit*.

2. Another, who leſs ſolicitous about the Choice and Delicacy of his Sentiments, knows how to make himſelf valued by I know not what Elevation of Diſcourſe; who draws a deal of Attention, and ſhews a deal of Vivacity in his Speaking, and Readineſs in his Anſwers; is likewiſe acknowledged a *Wit*.

3. A third, who takes leſs Care about thinking, than about ſpeaking well; who affects fine Words, tho' perhaps low and poor in Matter; who pleaſes by an eaſy Pronunciation, and a certain Tone of Voice, is placed in the ſame Rank.

4. Another, whoſe chief Aim is not to make himſelf eſteem'd, ſo much as to raiſe Mirth and Laughter: who jokes pertinently, rallies pleaſantly, and finds ſomething to amuſe himſelf withall in every petty Subject; is likewiſe allow'd a *Wit*.

Yet, it may be obſerv'd, that in all theſe Caſes, there is nothing of real *Wit*, as above defin'd; but the whole is Imagination, or Memory at moſt: The whole is no more than Temperament may give.

A *true Wit* muſt have a juſt Faculty of Diſcernment; muſt have, at the ſame time, both a deal of Energy and of Delicacy in his Sentiments; his Imagination muſt be noble, and withal happy and agreeable; his Expreſſions polite and well turn'd: without any thing of Pardoe or Vanity in his Diſcourſe, or his Carriage. 'Tis not at all eſſential to a *Wit* to be ever hunting after the *Brillant*; ſtill ſtudying fine Thoughts, and affecting to ſay nothing but what may ſtrike and ſurprize.

This is a Fault very frequent in Dramatic Perſons: The Duke of *Buckingham* rallies it very juſtly.

What is that thing which we ſheer Wit *do call?*
'Tis when the Wit *of ſome great Writer ſhall*
So overflow; that is, be none at all:
That even his Fools ſpeak Senſe——

Humour, ſay our Critics, is the genuine *Wit* of Comedies. See HUMOUR.

WITCHCRAFT; ſee SORCERY and MAGIC.

There may, perhaps, be ſome Foundation for what we call *Witchcraft*——We have infinite Inſtances and Hiſtories to this purpoſe; which it were not fair to ſet aſide, merely becauſe they are not reconcileable to our Philoſophy: But, as it happens, there ſeems to be ſomething in Philoſophy to countenance them.

All living things, we know, emit Effluvia, both by the Breath and the Pores of the Skin——All Bodies, therefore, within the Sphere of their perſpiratory, or expiratory Effluvia, will be affected by 'em; and that, in this or that manner, according to the Quality of the Effluvia; and in this or that degree, according to the Diſpoſition of the emittent and recipient Parts. See EFFLUVIA.

Thus far is inconteſtable; nor need we produce Inſtances of Animals exhaling ſweet or ſtinking Smells; of menſtruous Women's infecting a Looking-Glaſs with a bloody Tarniſh; or the infectious Diſeaſes convey'd by Effluvia, *&c.* in confirmation thereof.

Now, of all Parts of an Animal Body, the Eye, we know, is the quickeſt——It moves with the greateſt Celerity, and in all the Variety of Directions. Again, Its Coats and Humours are permeable as any other part of the Body, (witneſs the Rays of Light it ſo copiouſly receives.) The Eye, therefore, no doubt emits its Effluvia like the other parts. Nay, it muſt do ſo. The fine Humours of the Eye muſt be continually exhaling. The Heat of the pervading Rays muſt rarefy and attenuate 'em: And that, with the ſubtile Juice or Spirit of the neighbouring optic Nerve, ſupply'd in great abundance by the vicinity of the Brain, muſt make a fund of volatile Matter to be diſpens'd, and, as it were, determined by the Eye.

Here, then, we have both the Dart and the Hand to fling it——The one furniſh'd with all the Force and Vehemence, and the other with all the Sharpneſs and Activity, one would require. No wonder their Effects are great!

Do but conceive the Eye as a Sling, capable of the ſwifteſt and intenſeſt Motions and Vibrations: And, again, as communicating with a Source of ſuch Matter as the nervous Juice elaborated in the Brain; a Matter ſo ſubtile and penetrating, that it flies inſtantaneouſly thro' the ſolid Capillaments of the Nerves, and ſo active and forcible, that it diſtends and convulſes the Muſcles, and diſtorts the Limbs, and alters the whole Habitude of the Body, giving Motion and Action to a Maſs of inert, inactive Matter. A Projectile of ſuch a nature, flung by ſuch an Engine as the Eye, muſt have an Effect wherever it ſtrikes: And the Effect will be limited and modified by the Circumſtances of Diſtance, the Impetus of the Eye, the Quality, Subtility, Acrimony, *&c.*

of the Juices, and the Delicacy, Coarſeneſs, *&c.* of the Object it falls on.

This Theory, we are of opinion, will account for the general Phænomena of *Witchcraft*——'Tis certain the Eye has always been eſteem'd the chief Seat, or rather Organ of *Witchcraft*; tho' without knowing why or wherefore:—The Effect was apparently owing to the Eye; but how, was not dreamt of. Thus, the Phraſe, To have an *Evil Eye*, imports as much as to be a *Witch*. And thus *Virgil*,

Neſcio quis teneros oculus mihi faſcinat agnos.

Again, old, ſanguine Perſons are thoſe moſt frequently ſuppoſed to have the Faculty; the nervous Juice in them being depraved and irritated by a vicious Habitude of Body; and ſo render'd more penetrating and malignant——And young Perſons, chiefly Children and Girls are moſt affected by it; by reaſon their Pores are patent, their Juices incoherent, and their Fibres delicate and ſuſceptible. Accordingly, the *Witchcraft* mention'd by *Virgil*, only reaches to the tender Lambs.———Laſtly, the Faculty is only exerciſed when the Perſon is diſpleas'd, provoked, irritated, *&c.* It requiring ſome extraordinary Streſs and Emotion of Mind to dart a Quantity of the proper Effluvia, with a ſufficient Impetus to produce the Effect at the diſtance.

That the Eye has ſome very conſiderable Powers, is paſt diſpute. The antient Naturaliſts aſſure us, that the Baſiliſk, and Opoblepa kill other Animals merely by ſtaring at 'em. If this fail of Credit; a late Author aſſures us to have ſeen a Mouſe running round a large Toad which ſtood looking earneſtly at it, its Mouth open: Still the Mouſe made leſs and leſs Circles about it; crying all the while, as if compell'd thereto; and, at laſt, with a deal of ſeeming Reluctance, ran into the gaping Mouth, and was ſtrait ſwallow'd.

Who has not obſerv'd a Setting-Dog; and the Effect of its Eye on the Partridge? The poor Bird, when once its Eyes meet thoſe of the Dog, ſtands as if confounded, regardleſs of itſelf, and eaſily lets the Net be drawn over it. We remember to have read of Squirrels ſtupefy'd and overcome by a Dog's ſtaring hard at 'em, and thus made to drop out of their Trees into his Mouth.

That Man is not ſecure from the like Affections, is matter of eaſy Obſervation. Few People but have again and again felt the Effects of an angry, a fierce, a commanding, a diſdainful, a laſcivious, an intreating Eye, *&c.*——Theſe Effects, no doubt, are owing to the different Ejaculations from the Eye; and are a degree of *Witchcraft*.

WITE, Wita, or Wyte, in antient Cuſtoms, a Puniſhment, Forfeiture, Penalty, Fine or Mulct, antiently of XXX Shillings. See Wyte.

Hence *Wite*, or *Wittree*, one of the Terms of Privilege granted our Portſmen; ſignifying a Freedom or Immunity from Fines or Amerciaments: Or, as 'tis vulgarly conceiv'd, from being liable to be begg'd for Fools for lack of *Wit*.

Wita Plena, ſignify'd a Forfeiture of fifty Shillings——*Si Pundbreche fiat in Curia Regis* Plena Wita *ſit*; *alibi quinque Marcæ.*

Secundum Witam *jurare*, was to purge one's ſelf by the Oaths of ſo many Witneſſes, as the Nature of the Crime, and the Puniſhment, or *Wite*, did require. See Purgation.

——*Jurat ſecundum* Witam *quod nec fuerat furti conſcius nec coadjutor in eo.* Leg. Inæ.

Hence *Bloodwita*, *Fintwita*, *Legerwita*, *Ferdwita*, *Childwita*, *Wardwita*, *Heingwita*, *&c.* See Bloodwita, Fintwita, *&c.*

WITHERNAM——Where Goods are taken by colour of Diſtreſs, and driven to an Hold, or out of the County; ſo that the Sheriff cannot upon the Replevin make deliverance thereof to the Party diſtrain'd: In this Caſe the *Writ of Withernam*, or *de vetito namio*, is directed to the Sheriff, for the taking as many of the Party's Beaſts as he did thus unlawfully diſtrain; or as much Goods of his, till he has made deliverance of the firſt Diſtreſs. See Distress, Replevy, *&c.*

The Word is compounded of the *Saxon Wither*, *contra*, againſt, and *Nam*, *captio*, taking; *q. d.* Repriſals. See Nam.

WITHERS *of an Horſe*, the Juncture of the Shoulder-Bones at the bottom of the Neck and Main, toward the upper part of the Shoulder. See Horse.

WITNESS, *Teſtis*, a Perſon who certifies, or aſſerts the Truth of any Fact. See Evidence.

Two Eye-*Witneſſes*, or *de Viſu*, not ſuſpected, are deem'd a concluſive Proof. See Testimony.

Falſe *Witneſſes*, Suborners of *Witneſſes*, &c. are puniſh'd with the Pillory; in ſeveral other Countries, with Death.

In a Synod at *Rome*, under *Conſtantine*, in the Year 320, it was decreed, that there ſhould be 72 *Witneſſes* heard, to condemn a Biſhop; which was call'd *libra teſtium*, a Pound of *Witneſſes*. Accordingly there were 72 *Witneſſes* heard againſt Pope *Marcellinus*; who, ſays the Hiſtorian, *erant electi libra occidua.*

Antiently there were *Synodal Witneſſes*, *Teſtes Synodales*, in each Pariſh, choſe by the Biſhop, to enquire into the Hereſies, and other Crimes of the Pariſhioners; and to make Oath thereof on the Relicks of the Saints. See Sidesmen.

Among the *Romans* it was a Cuſtom to pull or pinch the Ears of *Witneſſes* preſent at any tranſaction; that they might remember it when they were call'd to give in their Teſtimony.

WITTENA-*Gemote*, among our *Saxon* Anceſtors, a Term literally ſignifying *Council*, or *Aſſembly of Sages*; apply'd to the Great Council of the Land, now call'd the *Parliament.* See Parliament.

WOAD, or Goud, or Gaud, *Guado*, *Guadum*, a Drug uſed by the Dyers, to give a blue Colour; call'd alſo *Paſtel.* See Blue.

It ariſes from a Seed, ſown annually in the Spring; which puts forth a Plant call'd *Glaſtum Sativum*, whoſe Leaves reſemble thoſe of Plantane———They have uſually three, four, or five Crops of Leaves every Year; but only the two or three firſt are of any Value; whereof the firſt is beſt, and the reſt in their Order.

When the Leaves are ripe, they gather them; and letting them lie ſome time, put them under the Wheel to bruiſe or grind them; after which they are laid eight or ten days in Piles or Heaps; and at laſt reduced into a kind of Balls which are laid in the Shade on Hurdles to dry.

This done, they grind 'em to Powder; and when ground, ſpread it on a Floor, and water it, which they call *Couching.*

Here they let it ſmoke and heat, till by torrifying it every day, it become quite dry, which they call *Silvering.* A week after which, it is in a condition to be uſed in dying.

The antient *Britons* uſed to dye their Bodies herewith; and it was from this Plant that Glaſs took its Denomination. See Glass.

A *Woad-blue* is a very deep blue, almoſt black; and is the Baſe of ſo many ſorts of Colours, that the Dyers have a Scale whereby they compoſe the divers Caſts or Degrees of *Woad* from the brighteſt to the deepeſt. See Dying.

WOLD, ſignifies a plain Down, or open Champain-Ground, hilly, and void of Wood—Hence the Names, *Stow in the Wold*, and *Cotſwold* in *Gloceſterſhire*; whence alſo that part of *Leiceſterſhire*, which lies Northward beyond the *Wreken*, is call'd the *Wold of Leiceſterſhire.*

WOLVES *Teeth of an Horſe*, are over-grown Grinders, the Points of which being higher than the reſt, prick the Tongue and Gums in feeding, ſo as to hinder the Chewing of the Meat.

They are ſeldom met with in young Horſes; but if the Teeth be not daily worn by chewing, they will grow up even to pierce the Roof of the Mouth. See Teeth.

WOMAN, Fæmina, *Mulier*, the Female of Man. See Female and Man.

St. *Auguſtine* calls *Women* the *Devout Sex*: at leaſt this is the common Opinion; tho' others rather think that in the Prayer uſually attributed to that Father, and ſtill rehearſed in the *Romiſh* Church to the holy Virgin, the Words *intercede pro devoto Fæmineo ſexu*, are to be underſtood of *Women* devoted or conſecrated to God in Religious Houſes, which had been ſufficiently expreſs'd by the Words, *Ora pro populo, interveni pro Clero.* See Sex; ſee alſo Religious, *&c.*

'Tis a popular Tradition among the *Mahometans*, which obtains to this day, that *Women* ſhall not enter Paradiſe. See Paradise.

An Anonymous Author, about the Cloſe of the XVIth Century, publiſhed a little *Latin* Diſſertation to prove that *Women* are not Men; that is, are not reaſonable Creatures: *Diſſertatio perjucunda qua Anonymus probare nititur* Mulieres *homines non eſſe*——He alſo endeavours to prove, what naturally follows from his Principle, *viz.* That *Women* ſhall not be ſaved; that there is no future Life or Happineſs for them.

His Proofs are all taken from Scripture, or founded on Scripture——Tho', after all, his Aim is not ſo much to degrade *Women* to the condition of Brutes; as to ſhew the Ridicule and Weakneſs of that Principle or Method of the Anabaptiſts and ſome others, who, in Points of Controverſy, admit of no Proofs or Conſiderations but what are taken from Scripture alone. This appears from the Concluſion of the Work. *Probavi, opinor, Invictiſſimis SS. Literarum Teſtimoniis,* Mulierem *non eſſe hominem, nec eam ſalvari: Quod ſi non effeci, oſtendi tamen univerſo Mundo quo modo hujus temporis Hæretici, & preſertim Anabaptiſtæ, Sacram ſoleant explicare Scripturam, & qua utantur Methodo ad ſtabilienda ſua execranda Dogmata.*

Yet, *Simon Gediceus*, a *Lutheran* Divine, wrote a ſerious Confutation of this Piece, in 1595; wherein he reſtores the *Women* to the Expectation of Heaven on their good Conditions.

The antient *Marcionites* allow'd their *Women* to baptize; as we are aſſured by St. *Epiphanius*, Hær. 42. c. 4.——The *Montaniſts* admitted *Women* to the Prieſthood, and even the Epiſcopate. *Epiph.* Hær. 49. c. 2.——The modern Quakers alſo permit their *Women* to preach and propheſy on an equal footing with the Men. See MARCIONITE, MONTANIST, and QUAKER.

'Tis a Point much controverted, how far, Learning and Study become the Sex.—*Eraſmus* handles the Queſtion at large in one of his Letters to *Budeus*: *Lud. Vives* in his *Inſtitutio Fœminæ Chriſtianæ* has a Chapter expreſs on the ſame Subject. Madam *Schurman*, a learned *German* Lady, has gone beyond 'em both, in a Treatiſe on this Problem; *Num Fœminæ Chriſtianæ conveniat ſtudium Literarum?*

Several of the *Women* remarkable for Learning have been alſo diſtinguiſh'd for their want of Conduct: The Reaſon, no doubt, lay in this, that their firſt Studies lying in Books of Gallantry and Intrigue, the Imagination was early turn'd that way, and the Memory fill'd with a ſort of Ideas, which a favourable Diſpoſition and Age adopted too eaſily, and improved too faſt—'Tis not that Study in itſelf, has any natural tendency to produce ſuch Effects; rather the contrary: The cloſe abſtracted Reſearches of Metaphyſics, Logics, Mathematics, Phyſics, Criticiſm, &c. no doubt, would be one of the ſureſt Means to ſecure, and eſtabliſh the Virtue of Continency in a *Woman*.

A WOMAN in *England*, as ſoon as ſhe is married, with all her Moveables, is wholly *in poteſtate viri*, at the Will and Diſpoſal of her Huſband. See FEME.

There are divers conſiderable things relating to *Women*, in the Laws of *England*; which ſee under the Article WIFE.

WONDER; ſee MIRACLE.

The *Seven Wonders of the World*, as they are popularly call'd, were, the *Egyptian* Pyramids; the *Mauſoleum* erected by *Artemiſa*; the Temple of *Diana* at *Epheſus*; the Walls and hanging Gardens of the City of *Babylon*; the Coloſſus or Brazen Image of the Sun at *Rhodes*; the Statue of *Jupiter Olympius*; and the Pharos or Watch-Tower of *Ptolemy Philadelphus*. See PYRAMID, MAUSOLEUM, COLOSSUS, PHAROS, &c.

WOOD, *Lignum*, a ſolid Subſtance, whereof the Trunks and Branches of Trees are form'd; and deriving its Growth from certain Juices in the Earth. See TRUNK, BRANCH, &c.

The *Wood* is all that part, in a Tree, included between the Bark and the Pith. See TREE and BARK.

Dr. *Grew*, in his Anatomy of Plants, has diſcover'd, by means of the Microſcope, that what we call *Wood* in a Vegetable, notwithſtanding all its Solidity, is only an aſſemblage of infinite minute Canals, or hollow Fibres, ſome of which riſe from the Root upwards, and are diſpoſed in form of a Circle; and the others, which he calls *Inſertions*, tend horizontally from the Surface to the Centre; ſo that they croſs each other, and are interwove like the Threads of a Weaver's Web. See VEGETATION, SAP, &c.

Woods are diſtinguiſh'd into divers Kinds; with regard to their Natures, Properties, Virtues, and Uſes.

Of WOOD, conſider'd according to its Qualities, whether Uſeful, Curious, Medicinal, &c. the Principal is that call'd *Timber*, uſed in building Houſes, laying Floors, Roofs, Machines, &c. See TIMBER.

WOODS valued on account of their Curioſity, are *Cedar*, *Ebony*, *Box*, *Calembouc*, &c. which, by reaſon of their extraordinary Hardneſs, agreeable Smell, or beautiful Poliſh, are made into Tables, Combs, Beads, &c. See EBONY, &c.

The *Medicinal* WOODS are *Guaiac*, which the *Spaniards* call *Ligno Sancto*; *Aloes* or *Agillochum*, *Saſſafraſs*, *Nephriticum*, *Santal*, *Sarſaparilla*, *Aſpalathum*, *Eagle Wood* or *Pao d'Aquilla*, &c. See ALOES, SASSAFRAS, &c.

WOODS uſed in Dying, are the *Indian Wood*, *Braſil*, *Campeche*, &c. See BRASIL, &c.

Cord WOOD is *Wood* for the Fire, generally made of the Branches or Loppings of Trees, piled up in Order.

This is limited to be below ſeventeen Inches, and above ſix Inches thick, and at leaſt three Foot and a half long. See CORD.

Foſſil, or *Subterraneous* WOOD —— There are divers Places where *Wood* is found under ground: Whether overturn'd, and buried there from the time of the Deluge, as many ſuppoſe; or whether form'd and produced there, as Jet is known to be. See FOSSIL, JET, &c.

Not long ago, there were found in *England*, at above a hundred Foot depth, ſeveral huge Oaks with all their Branches on, and which, by their ſubterraneous Situation, had contracted a black Colour, nothing inferior to Jet, join'd with a Hardneſs which far ſurpaſs'd that of any living Oak.——'Tis hard to conceive how ſuch Trees ſhould come there, unleſs by a general Subverſion of the whole terreſtrial Globe at the Flood. See DELUGE.

Mr. *Boyle* mentions a huge Oak dug out of a Salt-Mine in *Tranſilvania*, ſo hard as not eaſily to be wrought on by Iron-Tools; yet being expoſed to the Air out of the Mine, became ſo rotten, that in four days it crumbled between the Fingers. *Diſſert. de Admir. Hung.* And Mr. *Derham* obſerves the ſame of the Trees lately turn'd up by the Breaches at *Dagenham*, &c. *Philoſ. Tranſ.* Nº 335. See MOSS.

WOOD, *Sylva*, in Geography, a Multitude of Trees, extended over a large continued Track of Land, and propagated without Culture. See FOREST.

The generality of *Woods* only conſiſt of Trees of one Kind. ——At *Cape Verd* in *Africa* are *Woods* of Orange and Lemon Trees; in *Ceylon* are *Woods* of Cinnamon Trees; in the *Molucca* Iſlands *Woods* of Caroway Trees; in the Iſlands of *Nero*, *Lontour*, *Loſgain*, &c. *Woods* of Nutmeg Trees; in *Braſil*, *Woods* of Braſil Trees, &c. in *Numidia*, *Woods* of Date Trees; in *Madagaſcar*, *Woods* of Tamarind Trees, &c.

WOOD *and* WOOD, in the Sea-Language, is when two Pieces of Timber are ſo let into each other, that the Wood of the one joins cloſe to the other.

WOOD-GELD, WOODGELDUM, in our antient Cuſtoms, the gathering or cutting of Wood within the Foreſt——Or it may denote the Money paid for the ſame, to the Foreſters. Sometimes it alſo ſeems to ſignify an Immunity from this Payment by the King's Grant.

Crompton ſays expreſly, it ſignifies to be free from the Payment of Money, for taking of Wood in a Foreſt. See GELD.

WOOD-*Hay*, an antient Cuſtom at *Exeter*; whereby a Log out of every Seam of Wood brought over *Ex* Bridge, is taken towards the Reparation of that Bridge. *Antiq. of Exeter.*

WOOD-*Corn*, is a certain Quantity of Oats, or other Grain, antiently given by cuſtomary Tenants to their Lord, for the liberty to pick up dead or broken Wood.

WOOD-*Lands*, are Places where there are many Woods— the Word is alſo more generally taken to ſignify incloſed Countries.

WOOD-*Mote*, the antient Name of that Foreſt-Court, now call'd the Court of Attachment. See ATTACHMENT and FOREST.

WOOD-*Plea-Court*, is a Court held twice a Year in the Foreſt of *Clun* in *Shropſhire*, for determining all Matters relating to *Wood*, and the feeding of Cattel there.——Perhaps it was originally the ſame with *Wood-Mote-Court*.

WOODWARD, an Officer of the Foreſt, whoſe Function it is to obſerve any Offences either in Vert, or Veniſon, committed within his Charge; and to preſent the ſame; and in caſe any Deer are found kill'd or hurt, to inform the Verderer thereof, and preſent 'em at the next Court of the Foreſt. See FOREST.

Woodwards may not walk with Bows and Shafts, but with Foreſt-Bills. *Arcum & Calamos geſtare in Foreſta non licet, ſed (ut reſcripti utar Verbo) Hachetum tantummodo.* Term. Hil. An. 13 *Ed.* 3.

WOOF, among Manufacturers, the Threads which the Weavers ſhoot a-croſs, with an Inſtrument call'd the *Shuttle*, between the Threads of the Warp; to form the Web. See WARP, WEB, WEAVING, &c.

The *Woof* is of different Matter, according to the Piece to be wrought——In Taffaty both *Woof* and Warp are Silk. See TAFFATY.

In Mohairs the *Woof* is uſually Wool, and the Warp Silk ——In Sattins the Warp is frequently Flax, and the *Woof* Silk. See CLOTH, SERGE, SATIN, VELVET, &c.

WOOL, the Hair, or Covering of Sheep; which, waſh'd, ſhorn, dreſs'd, comb'd, ſpun, wove, &c. makes divers kinds of Stuffs, Cloths, &c. for Apparel, Furniture, &c. See HAIR and MANUFACTURE.

While the *Wool* remains in the State it was firſt ſhorn off the Sheep's Back, and not ſorted into its different Kinds, it is call'd *Fleece*. See FLEECE.

Each Fleece conſiſts of *Wool* of divers Qualities and Degrees of Fineneſs, which the Dealers therein take care to ſeparate.

The *French* and *Engliſh* uſually ſeparate each Fleece into three Sorts; *viz.* 1. *Mother-Wool*, which is that of the Back and Neck. 2. The *Wool* of the Tails and Legs. 3. That of the Breaſt and under the Belly.

The *Spaniards* make the like diviſion into three Sorts, which they call Prime, Second, and Third; and for the greater Eaſe, denote each Bale or Pack with a Capital Letter denoting the Sort——If the Triage or Separation be well made, in fifteen Bales there will be twelve mark'd R, that is, Refine or Prime; two mark'd F, for Fine or Second; and one S, for Thirds.

The *Wools* moſt eſteem'd are the *Engliſh*, chiefly thoſe about *Leominſter*, *Cotſwold*, and the Iſle of *Wight*; the *Spaniſh*, principally thoſe about *Segovia*; and the *French* about *Berry*:

which laſt are ſaid to have this peculiar Property, that they will knot or bind with any other ſort; whereas the reſt will only knot with their own kind.

Among the Antients, the *Wools* of *Attica*, *Megara*, *Laodicea*, *Apulia*, and eſpecially thoſe of *Tarentum*, *Parma*, and *Altino* were the moſt valued. *Columella* ſets the two laſt even above that of *Tarentum*, Lib. vii. c. 2. And *Varro* aſſures us, the People there uſed to clothe their Sheep with Skins, to ſecure the *Wool* from being damaged. *De Re Ruſt.* L. II. c. 2.

Tavernier affirms, that the *Wools* in *Aſia* are incomparably finer than thoſe of *Europe*; and there is no doubt but that *Wool* was the Golden Fleece ſought at *Colchos*. See GOLDEN FLEECE.

The Art of Preparing and Working *Wool* is attributed by the Antients to *Minerva*; who accordingly is made the Genius and Protectreſs thereof. See WOOLLEN.

Engliſh WOOL——The *Wools* of *England* have always been in the higheſt repute; and that more abroad than at home.——Some we have, which manufactured by our own Clothiers, *Chamberlain* obſerves, does both for ſoftneſs and fineneſs, vie with the choiceſt Silks. *Spaniſh Wools*, we know, bear a great Price among us; but 'tis certain much the greateſt part of that, which, when manufactured, our Clothiers, &c. call *Spaniſh Cloth*, grows in *England*. Add, that the *French* can make no good Cloth of their own *Wool*, without at leaſt one third of *Engliſh Wool* mix'd with it.——'Tis allow'd, the goodneſs of the *Spaniſh Wools* is owing to a few *Engliſh* Sheep ſent over into *Spain* as a Preſent by *Henry* II. of *England*; or, as others will have it, tho' we think miſtakenly, by *Edward* IV. in 1465.

The fineneſs and plenty of our *Wools* is owing, in ſome meaſure, to the ſweet, ſhort Graſs in many of our Paſtures and Downs; tho' the advantage of our Sheeps feeding on this Graſs all the Year, without being obliged to be ſhut up in Folds during the Winter, or to ſecure 'em from Wolves at other times; contributes not a little thereto.

The *Scotch* and *Iriſh Wools* are commonly ſold abroad for *Engliſh*; and upon the ſame footing.——But Foreigners, skill'd in thoſe Matters, find they come far ſhort of it in fineneſs, tho' at ſome Markets the *Iriſh* is even ſaid to be prefer'd to the *Engliſh*.

The yearly Produce of *Wool* in *England* is calculated by Dr. *Davenant* and Mr. *King* at two Millions Sterling. See WOOLLEN *Manufactory*.

Antiently, the principal Commerce of the Nation conſiſted in *Wool* unmanufactured; which Foreigners, eſpecially the *French*, *Dutch*, and *Flemiſh* bought of us. Inſomuch that the Cuſtoms of *Engliſh Wool* exported in *Edward* the Third's Reign, amounted, at 50 *s.* a Pack, to 250000 *l. per Annum*. An immenſe Sum in thoſe days. See COMMERCE.

This exceſſive Cuſtom on the Export of unmanufactured *Wool*, ſet our People to the making it into Cloth themſelves——In which they ſucceeded ſo well, that towards the Cloſe of the ſixteenth Century, under the Reign of Queen *Elizabeth*, the Exportation of any *Wool* at all was abſolutely prohibited, and this upon pain of having the right Hand ſtruck off. See CONTRABAND.

From that time, *England* has been exceedingly jealous of its *Wool*; to prompt their Vigilance, the Lords in Parliament are ſeated on *Wool*-Packs——Accordingly, ſcarce a Parliament but has renew'd and reinforced the Prohibition; particularly, about the middle of the ſeventeenth Century, the exporting of *Wool* was made a Capital Crime.

But all theſe Precautions are ineffectual; the *Engliſh* themſelves, particularly about the Coaſts of *Suſſex*, making uſe of the long Winter-Nights to waft over their *Wools* to *France*: being ſure of carrying them to a good Market, they deſpiſe the Penalty, with an Intrepidity, that the reſt of *Europe* are amaz'd at. See OWLERS.

M. *Colbert*, a Name the *French* Manufactures and Commerce are infinitely indebted to, had entertain'd a Deſign of procuring ſome of our *Engliſh* Sheep, and propagating them in *France*; hoping, that by chuſing them, in the Provinces of that Kingdom, ſuch Paſtures, and ſuch a Sky as they had in their own Iſland, they might there be perpetuated; and *France* be no longer obliged precariouſly to depend on the clandeſtine Supplies of *Wool* from the *Engliſh* Owlers.——But the Count *de Cominges*, then Embaſſador of *France* at the *Engliſh* Court, laid the Impoſſibility of having ſuch an Export of Sheep, and the almoſt equal Impoſſibility of keeping and making them multiply there, ſo ſtrongly before him; that he abandon'd the Deſign.

Wool is reckon'd by the *Sack*, containing two Weighs; the *Weigh* ſix Tod and a half; the *Tod* two Stone; the *Stone* two Cloves; and the *Clove* ſeven Pounds. Twelve Sacks make a *Laſt*, or 4368 Pounds. See LAST, &c.

A Sack of Wool, or 364 Pounds, is ſufficient for four Standard Cloths, to render them true Breadth, *i. e.* ſix Quarters and a half; true Weight, *i. e.* ſixty Pounds; and true Length, *i. e.* twenty-four Yards.

For the divers Preparations of Wool, ſee CARDING, COMBING, SPINNING, WEAVING, SCOWRING, FULLING, DYING, CLOTH, &c.

WOOL-*Drivers*, are thoſe who buy *Wool* of the Sheep-Maſters in the Country, and carry it on Horſe-Back to the Clothiers, or Market-Towns, to ſell it again.

WOOL-*Staple*, is a City or Town where *Wool* uſed to be ſold. See STAPLE.

WOOL-*Winders*, are Perſons employ'd in winding up Fleeces of *Wool* into Bundles, to be pack'd and ſold by Weight ——Theſe are ſworn to do it truly between the Owner and the Merchant.

WOOLLEN *Manufactory*, includes the ſeveral ſorts of Commodities into which *Wool* is wrought; as *broad Cloths*, *long* and *ſhort Kerſeys*, *Bays*, *Serges*, *Flannel*, *Perpetuanas*, *Says*, *Stuffs*, *Frize*, *Penniſtons*, *Stockings*, *Caps*, *Rugs*, &c. ——Each whereof ſee under its reſpective Article, CLOTH, SERGE, FLANNEL, &c.

The *Woollen Manufacture*, which now makes the principal Article both in our foreign and domeſtick Trade, being that which furniſhes the Cargoes of our Veſſels, that employs our People, &c. may be ſaid to have had its Riſe in the fifteenth Century.

Till that time, our *Wool* was all ſold in the Fleece, to ſuch of our Neighbours as came to fetch it.——Among our Cuſtomers, however, the principal were the *Flemings* and *Brabanters*, and particularly the Merchants of *Gant* and *Louvain*, who took off vaſt Quantities to ſupply two Manufactories that had flouriſh'd in thoſe two Cities from the tenth Century, and had furniſh'd the greateſt part of *Europe*, and even *England* itſelf with all ſorts of *Woollen* Cloths, &c. But the Richneſs of the Manufactories of *Gant*, and the incredible Number of Hands employ'd therein, having ſpirited up the Inhabitants to revolt, divers times, againſt their Sovereigns, on account of certain Taxes which they refuſed to pay; the Seditious were at length puniſh'd and diſperſed, and part of 'em took refuge in *Holland*, and the reſt in *Louvain*.

Theſe laſt, together with their Art of Manufacturing Cloths, carry'd with 'em their Spirit of Sedition——And it was not long e'er ſeveral of 'em, to avoid the Puniſhment they had deſerved for killing ſome of the Magiſtrates, removed into *England*; where they inſtructed our People how to work their own *Wools*.

This Eſtabliſhment is refer'd to the Year 1420; from which time no Endeavours have been ſpar'd to keep our *Wools* to ourſelves. See WOOL.

The Preſident *Thuanus* makes this Epocha an hundred Years later; and attributes the Eſtabliſhment of the *Woollen Manufactures* in *England* to Queen *Elizabeth*, and the Troubles about Religion which the Severity of the Duke of *Alva* and the *Spaniſh* Inquiſition had occaſion'd, and kept up ſo long in the *Low Countries* ——But what that noble Author ſays, is rather to be underſtood of their Perfection, than their firſt Eſtabliſhment; and of the ſeveral great Manufactures then ſet up at *Norwich*, *Colcheſter*, *Sandwich*, *Hampton*, &c. For in the *Engliſh* and *Flemiſh* Hiſtorians we find mention of the Manufactures of *London* long before any part of the ſeventeen Provinces had attempted to throw off the *Spaniſh* Yoak.

As this Manufacture now ſtands, Dr. *Davenant* and Mr. *King* compute the Produce thereof to be eight Millions *per Annum*; three fourths whereof are conſumed at home, and the reſt exported. See REVENUE, POLITICAL *Arithmetic*, &c.

So jealous are we now become of our *Woollens*, that beſides the Precautions taken to uſe all our own *Wools* ourſelves; we have added that of ſelling 'em ourſelves, and of carrying 'em to the Places where they are required; not admitting Strangers to come and buy any in *England*. See NAVIGATION,

And hence the eſtabliſhment of thoſe famous Magazines in *Holland*, the *Levant*, and the *North*, where our *Woollens* are repoſited to be vended by Factors or Commiſſioners.——The Magazine in *Holland* has changed place divers times; and it has been ſucceſſively at *Middlebourg*, *Delft*, *Rotterdam*, and *Dort* where it now remains; and where all the *Germans* come to furniſh themſelves——That for the *Levant* is at *Smyrna*; and that for the North at *Archangel*.

A Pack, or 240 Pounds Weight of ſhort *Wool*, 'tis computed, employs ſixty-three Perſons a Week, to manufacture it into Cloth; *viz.* three Men to *Sort*, *Dry*, *Mix*, and make it ready for the Stock-Carder; five to *Scribble*, or Stock-Card it; thirty-five Women and Girls to *Card* and *Spin* it; eight Men to *Weave* it; four Men and Boys to *Spoole* it, and *reed* Quills; eight Men and Boys to *Scower*, *Burl*, *Mill* or *Full* it, *Row*, *Shear*, *Pack*, and *Preſs* it.

A Pack of large long combing *Wool* made into Stuffs, Serges, Sagathies, &c. for the *Spaniſh* Trade, will employ for one Week 202 Perſons; whoſe Wages amount to 43 *l.* 10 *s.*——Thus, 7 *Combers* 3 *l.* 10 *s.* *Dyers* 5 *l.* 150 *Spinners* 18 *l.*

20 *Throwers* and *Doublers* 5 *l.* 25 *Weavers* and Attendants 12 *l.*

A Pack of *Wool* made into Stockings will employ for one Week 184 Perſons, who will earn 56 *l.*——Thus, 10 *Combers* 5 *l.* 5 *s.* the *Dyer* 1 *l.* 6 *s.* 102 *Spinners* 15 *l.* 12 *s.* *Doublers* and *Throwers* 4 *l.* 10 *s.* 60 *Stocking Weavers* 30 *l.*

WORD, *Vox*, *Vocabulum*, in Language, is an articulate Sound deſigned to repreſent ſome Idea. See SOUND, VOICE, IDEA, *&c.*

In writing, a *Word* is an aſſemblage of ſeveral Letters, forming one or more Syllables, and ſignifying ſome thing. See LETTER and SYLLABLE.

The *Port-Royaliſts* define *Words* to be diſtinct articulate Sounds agreed on by Mankind to convey their Thoughts and Sentiments by. See LANGUAGE.

Grammarians divide *Words* into eight Claſſes, call'd *Parts of Speech*; which are the *Noun*, *Pronoun*, *Verb*, *Participle*, *Adverb*, *Conjunction*, *Prepoſition*, and *Interjection*; to one or other of which all the *Words* and Terms in all Languages, which have or may be invented to expreſs our Ideas, are reducible. See each under its proper Article, NOUN, PRONOUN, VERB, *&c.*

Words, again, are divided into *Primitives* and *Derivatives*, *Simple* and *Compound*, *Synonymous* and *Equivocal*. See PRIMITIVE, DERIVATIVE, *&c.*

With regard to their Syllables, *Words* are further divided into *Monoſyllables*, and *Polyſyllables*. See MONOSYLLABLE, *&c.*

The Grammatical Figures of *Words*, *Tropi Verborum*, which occaſion changes in the Form, *&c.* of *Words*, are *Syncope*, *Apocope*, *Apoſtrophe*, *Diæreſis*, *Aphæreſis*, *Protheſis*, *Epentheſis*, *Paragoge*, *Metatheſis*, *&c.* See each in its proper Place, SYNCOPE, APOCOPE, *&c.* ſee alſo TROPE and FIGURE.

The Uſe of *Words*, we have obſerved, is to ſerve as ſenſible Signs of our Ideas; and the Ideas they ſtand for in the Mind of the Perſon that ſpeaks, are their proper Significations.

Simple and *Primitive Words* have no natural Connexion with the things they ſignify; whence there is no rationale to be given of them: It is by a mere arbitrary Inſtitution and Agreement of Men that they come to ſignify any thing. Certain *Words* have no natural Propriety or Aptitude to expreſs certain Thoughts, more than others; were that the caſe, there could have been but one Language. See PRIMITIVE.

But in *Derivative* and *Compound Words* the Caſe is ſomewhat different. In the forming of theſe, we ſee, a regard is had to Agreement, Relation, and Analogy: Thus, moſt *Words* that have the ſame ending, have one common and general way of denoting or ſignifying things; and thoſe compounded with the ſame Prepoſitions, have a ſimilar Manner of expreſſing and ſignifying ſimilar Ideas in all the learned Languages where they occur.

For the Perfection of Language, 'tis not enough, Mr. *Locke* obſerves, that Sounds can be made Signs of Ideas; unleſs theſe can be made uſe of, ſo as to comprehend ſeveral particular things; for the multiplication of *Words* would have perplexed their uſe, had every particular thing needed a diſtinct Name to be ſignified by.

To remedy this Inconvenience, Language had a farther Improvement in the uſe of general Terms whereby one *Word* was made to mark a Multitude of particular Exiſtences; which advantageous Uſe of Sounds was obtained only by the difference of the Ideas they were made ſigns of; Thoſe Names becoming general, which are made to ſtand for general Ideas; and thoſe remaining particular, where the Ideas they are uſed for are particular. See GENERAL *Terms*.

It is obſervable, that the *Words* which ſtand for Actions and Notions quite removed from Senſe, are borrow'd from ſenſible Ideas; as, to Imagine, Apprehend, Comprehend, Underſtand, Adhere, Conceive, Inſtill, Diſguſt, Diſturbance, Tranquillity, *&c.* which are all taken from the Operations of things ſenſible, and apply'd to Modes of Thinking——Spirit, in its primary Signification, is no more than Breath; Angel, a Meſſenger. By which we may gueſs what kind of Notions they were, and whence derived, which filled the Minds of the firſt beginners of Languages, and how Nature, even in the naming of things, unawares, ſuggeſted to Men the Originals of all their Knowledge: whilſt, to give Names that might make known to others any Operations they felt in themſelves, or any other Ideas, that came not under their Senſes, they were forced to borrow *Words* from the ordinary and known Ideas of Senſation. See SENSATION, PERCEPTION, *&c.*

The Ends of Language in our Diſcourſe with others, are chiefly three: Firſt, to make our Thoughts or Ideas known one to another——This we fail in, 1. When we uſe Names without clear and diſtinct Ideas in our Minds. 2. When we apply received Names to Ideas, to which the common uſe of that Language doth not apply them. 3. When we apply them unſteadily, making them ſtand now for one, and anon for another Idea.

Secondly, To make known our Thoughts with as much eaſe, and quickneſs as is poſſible——This, Men fail in, when they have complex Ideas, without having diſtinct Names for them; which may happen either through the defect of a Language, which has none; or the fault of that Man, who has not yet learned them.

Thirdly, To convey the Knowledge of Things——This cannot be done, but when our Ideas agree to the reality of things. He that hath Names without Ideas, wants meaning in his *Words*, and ſpeaks only empty Sounds. He that hath complex Ideas, without Names for them, wants diſpatch in his Expreſſion. He that uſeth his *Words* looſely and unſteadily, will either not be minded, or not underſtood. He that applies his Names to Ideas, different from their common uſe, wants Propriety in his Language, and ſpeaks Gibberiſh; and he that hath Ideas of Subſtances, diſagreeing with the real Exiſtence of things, ſo far wants the Materials of true Knowledge. See KNOWLEDGE.

WORD, or *Watch*-WORD, in an Army, or Garriſon, is ſome peculiar *Word*, or Sentence, by which the Soldiers know, and diſtinguiſh one another in the Night, *&c.* and by which Spies, and deſigning Perſons are diſcovered.

It is uſed alſo to prevent Surprizes.——The *Word* is given out in an Army every Night by the General, to the Lieutenant, or Major-General of the Day, who gives it to the Majors of the Brigades, and they to the Adjutants; who give it firſt to the Field-Officers, and afterwards to a Serjeant of each Company, who carry it to the Subalterns.

In Garriſons it is given after the Gate is ſhut, to the Town-Major, who gives it to the Adjutants, and they to the Serjeants. See ROUNDS.

WORD, in Heraldry, *&c.* See MOTTO.

WORK-*Houſe*, a Place where indigent, vagrant, and idle People are ſet to work, and maintain'd with Clothing, Diet, *&c.*

Such is *Bridewell*, and ſeveral other Places about the City and Suburbs; particularly that in *Biſhopſgate-ſtreet* for employing the poor Children of the City and Liberties, who have no Settlement; and that for the Pariſh of St. *Margaret's Weſtminſter*, call'd the *Grey-Coat Hoſpital*. See BRIDEWELL and HOSPITAL.

At *Amſterdam* they have a famous *Work-Houſe*, or Houſe of Correction, call'd the *Raſphuyſe*, which, by a Privilege granted in 1602, has alone the Right of Shaving and Cutting the Dyers Woods, as Braſil, Santal, Campeche, Saſſafras, *&c.*

Each Perſon, tolerably ſtrong, kept in the Houſe, is obliged to furniſh 250 Pounds of raſp'd Wood *per* Day; and the weaker, a certain Quantity of Chips. See RASPHUYSE.

WORKS, *Opera*, in Fortification, the ſeveral Lines, Trenches, Ditches, *&c.* made round a Place, an Army, *&c.* to fortify and defend it. See LINE, TRENCH, *&c.*

The principal *Works* in a Fortreſs or fortify'd Place, ſee under the Articles FORTIFY'D *Place*, FORTIFICATION, *&c.*

Crown-WORK, See CROWN-*Work*.
Horn-WORK, See HORN-*Work*.
Out-WORK, See OUT-*Work*.
Field-WORK, See FIELD-*Work*.

WORLD, *Mundus*, the Aſſemblage of Parts which compoſe the Univerſe; call'd by the *Greeks* τὸ πᾶν, and by the *Latins*, *Univerſum*. See UNIVERSE.

The *Duration of the World* is a thing has been greatly diſputed——*Plato*, after *Ocellus Lucanus*, held it to be eternal; and to have flow'd from God, as Rays flow from the Sun. *Ariſtotle* was much of the ſame mind: he aſſerts, that the *World* was not generated, ſo as to begin to be a *World*, which before was none: and, in effect, his whole eighth Book of *Phyſ.* and firſt Book *de Cœlo*, is ſpent in proving the Eternity of the *World*. See ETERNITY.

He lays down a pre-exiſting and eternal Matter as a Principle; and thence argues the *World* eternal. His Argument amounts to this, that it is impoſſible an eternal Agent, having an eternal paſſive Subject, ſhould continue long without Action. See ARISTOTELIAN.

His Opinion was generally follow'd; as ſeeming to be the fitteſt to end the Diſpute among ſo many Sects about the firſt Cauſe. See CAUSE.

Epicurus, however, tho' he makes Matter eternal; yet ſhews the *World* to be but a new thing form'd, out of a fortuitous Concourſe of Atoms. See *Lucretius*, lib. V. See MATTER, ATOM, *&c.* See alſo EPICUREAN, *&c.*

Some of the modern Philoſophers refute the imaginary Eternity of the *World*, by this Argument: That, if it be *ab Eterno*, there muſt have been a generation of Individuals in a continual Succeſſion from all Eternity; ſince no Cauſe can be aſſign'd why they ſhould not be generated, *viz.* one from another. Therefore, to conſider the Origin of Things, and the Series of Cauſes, we muſt go back *in infinitum*, *i. e.* there muſt have been an infinite Number of Men and other Individuals already generated; which ſubverts the very Notion of Number. And if the Cauſe which now generates have been produced by an infinite Series of Cauſes; How ſhall an infinite Series be finite, to give room for new Generations?

Dr. *Halley* ſuggeſts a new Method of finding the Age of the *World*, from the degree of Saltneſs of the Ocean. See SALTNESS, *&c.*

'Tis another popular Topic of Controverſy, Whether the *World* be finite, or infinite? *See the Arguments on both ſides under the Article*-UNIVERSE.

'Tis likewiſe diſputed, Whether it were poſſible for ſeveral *Worlds* to exiſt——Some hold the Affirmative, from an Opinion of the infinite Power of the Deity; it being a ſetting Bounds to Omnipotency, to ſay, that he created ſo many Bodies at firſt, that he could not create more.

The *Carteſians* maintain the Negative upon theſe Principles: That it is a Contradiction to ſay, there are ſeveral *Worlds* exiſting at the ſame time; ſince this implies ſeveral Univerſes of created Beings, the *World* being the τὸ πᾶν. That if there were ſeveral *Worlds*, they muſt either be at a diſtance from one another, or contiguous; but neither can be ſaid: For were they contiguous, they would only conſtitute one; and were they diſtant, there muſt be ſomething between. But what can be between? If it be extended, it is corporeal; and inſtead of ſeparating the ſeveral *Worlds*, will connect 'em into one.

The *World* is ſometimes divided into *Upper*, and *Lower*——The *Lower World*, or Sublunary, is the Globe of our Earth. See EARTH.

The *Upper World* includes the Heavens, and heavenly Bodies. See HEAVEN.

Syſtem of the WORLD; ſee SYSTEM.

Soul of the WORLD; ſee ANIMA *Mundi*.

Map of the WORLD; ſee MAP.

WORMS, in Medicine; ſee VERMES.

Sir *Theodore Mayerne* aſſures us, in the *Philoſoph. Tranſ.* Nº 211. That the famed Sugar, or Remedy given by *Pontæus*, (a celebrated Chymical Empiric) for the *Worms* in Children, is fifteen Grains of *Mercurius Dulcis* with five Grains of Scammony, or two or three times as much Sugar, made up in Lozenges. He adds, that this Doſe, which in *France* purges grown Perſons, is ineffectual in *England* to Perſons of above fifteen Years old, and ought to be augmented.

In the ſame *Tranſact.* Nº 113. we have Accounts of divers remarkable Operations whereby *Worms* were taken out of divers unſuſpected Parts of the Body; the Operators being chiefly Women. Mrs. *Mary Haſtings* is there recorded as famous for the diſcovery of *Worms* hid in the Face, Gums, Tongue, *&c.* which ſhe managed with ſuch Addreſs, that ſhe took them out of any part affected with a Gooſe-Quill. ——Mr. *Dent* relates, that he himſelf was cured of certain odd Tumors on his Tongue by one of thoſe *Worm* Doctreſſes, Mrs. *French*; who, piercing the parts affected with a Lancet, drew out five or ſix *Worms* at a time——In leſs than eight days, he aſſures us, ſhe took out of his Tongue above a hundred *Worms*, and thirty out of his Gums. See HYDATIDES.

In *Perſia*, &c. there are very long, ſlender *Worms*, ſix or ſeven Yards long, bred in the Legs and other Parts of Mens Bodies: When arriv'd at a certain Pitch, they put out their Heads, Necks, *&c.* and withdraw them (if diſpleaſed or hurt) again, cauſing intolerable Pains, Fevers, *&c.* See CRINONES.

Ariſtotle obſerves, that all Deer have *Worms* under their Tongues——Sheep's Noſes often abound with them.

WORM, in Chymiſtry, a long, winding Pewter-Pipe, which Diſtillers and Apothecaries place in a Tub of Water to cool and condenſe the Vapours in the Diſtillation of Spirits. See ALEMBIC, DISTILLATION, *&c.*

Formerly, this *Worm*, or ſomething like it, was placed above the Head of the Still, with a Refrigeratory at the upper end of it, which is uſeful enough in the Diſtilling of Spirit of Wine. See REFRIGERATORY.

This the Chymiſts call a *Serpentine*. See SERPENTINE.

To WORM *a Cable*, in the Sea-Phraſe, ſignifies to ſtrengthen it by winding a ſmall Rope all along between the Strands. See CABLE, *&c.*

To WORM *a Dog*, is to take out a kind of *Worm* from under his Tongue; which, if let alone, would make him mad.

WORM-SEED, a kind of WORM-*Powder*, call'd alſo *Barbotine*, *Semen contra*, *Semen ſanctum*, *Semen ſantonicum*, and *Abrotonum*, is a kind of Seed proper to deſtroy *Worms* generated in a human Body, particularly in Children. See WORMS.

This Seed is ſmall, of a browniſh Colour, an oblong Figure, a bitter Taſte, and a ſtrong Smell.

The Place where it is produced, is *Perſia*, about the Frontiers of *Muſcovy*. It is brought to us from *Aleppo*, *&c.* ——Naturaliſts are not agreed about the Plant that produces it. *J. Bauhin* has a large Diſſertation on the Subject——Some will have it the Species of *Abſynthium*, or *Wormwood* call'd *Santonicum*, or *Marinum Abſynthium*; others will have it the *Tanacetum*, others the *Abrotonum*.

Monſ. *Tournefort* gives us the following Account of this notable Drug, in the ſecond Volume of his Travels——The *Sementine* or *Worm-Powder*, is not gather'd like other Seeds——The Plant grows in the Meadows, and muſt be let ripen; and the miſchief is, that as it grows near to Maturity, the Wind ſcatters a good part of it among the Graſs, where it is loſt; and this it is makes it ſo dear.

As they dare not touch it with the Hand for fear of making it ſpoil the ſooner; when they would gather what is left in the Ear, they have recourſe to this Expedient——They take two Hand-Baskets, and walking along the Meadows, ſweep the Baskets the one from right to left, the other from left to right, as if they were mowing; by this means the Seed is ſhook out into the Baskets.

It muſt be choſen new, greeniſh, of a ſharp, bitter, aromatic Taſte, yet diſagreeable.

WORMWOOD, a Medicinal Herb, among Phyſicians, *&c.* call'd *Abſynthium*. See ABSYNTHIUM.

WORMWOOD-*Wine*, *Vinum Abſynthites*; ſee VINUM.

WORSHIP *of God*, *Cultus Dei*, is what we uſually call *Religion*. See RELIGION.

This *Worſhip* conſiſts in paying a due Reſpect, Veneration, and Homage to the Deity, under a certain Expectation of Reward. See GOD.

And this internal Reſpect, *&c.* to be ſhewn and teſtified by external Acts; as Prayers, Sacrifices, Thankſgivings, *&c.* See PRAYER, SACRIFICE, *&c.*

The *Quietiſts*, and ſome other myſtic Divines, ſet aſide not only all uſe of external *Worſhip*; but the Conſideration of Rewards and Puniſhments. See QUIETISM.

Yet, even the Heathens had a Notion, that God did not require us to ſerve him for nought:——*Dii quamobrem Colendi ſunt*, ſays *Cicero*, *non intelligo*, *nullo nec accepto ab illis nec ſperato bono*.

The School-Divines divide *Worſhip* into divers Kinds, *viz.* *Latria*, that render'd to God; and *Idolatria*, that render'd to Idols or Images. To which the *Romaniſts* add, *Dulia*, that render'd to Saints; and *Hyperdulia*, that to the Virgin. See IDOLATRY, IMAGE, DULIA, HYPERDULIA, *&c.*

WORSTED, or WOOLSTED, in Matters of Commerce and Manufacture, is a kind of Woollen-Thread. See WOOL.

Worſted is properly a Thread ſpun of Wool that has been combed; and which in the Spinning is twiſted harder than ordinary. See COMBING.

It is chiefly uſed either to be knit or wove into Stockings, Caps, Gloves, or the like. See STOCKING, *&c.*

The name *Worſted* is ſuppoſed to be borrow'd from a Town thus call'd in *Norfolk*, noted for fine Spinning——They who write it *Woolſted*, do it on ſuppoſition of the Word's being form'd from *Wool*, the Matter of this Thread.

WOULDING, a Sea-Term, for the winding of Ropes hard round about a Yard or Maſt of a Ship, after it has been ſtrengthned by ſome Piece of Timber nailed thereto.

WOUND, *Vulnus*, in Medicine and Chirurgery, a recent Separation made in the ſoft or fleſhy Parts of the Body, from an external Cauſe, and particularly the Action of ſome hard and ſharp Inſtrument. See SOLUTION.

Or, it is a Solution of the Continuity of a fleſhy Part, made by ſome penetrating Body; while it yet remains freſh, bloody, and without Putrefaction: By which Circumſtances it is diſtinguiſh'd from an *Ulcer*. See ULCER.

A like Separation happening in a bony Part, is call'd a *Fracture*. See FRACTURE. See alſo FLESH, BONE, *&c.*

All *Wounds* proceed either from Puncture, Inciſion, or Contuſion, according to the Nature and Make of the Inſtrument they were caus'd by. See PUNCTURE, INCISION, and CONTUSION.

Wounds are uſually divided, with reſpect to their Cauſe, Circumſtances, Cure, *&c.* into *Simple* and *Compound.*——*Simple Wounds* are thoſe made by Puncture, Inciſion, or Contuſion ſeparately; thoſe of the outer Skin, without any conſiderable loſs of Subſtance, or hurting any remarkable Veſſel; and thoſe not complicated with any dangerous Symptoms.

Compound Ulcers are thoſe made both by Puncture and Inciſion at the ſame time, to which is ſometimes alſo added Contuſion; thoſe attended with great loſs of Fleſh, or the hurt of ſome conſiderable Veſſel; and thoſe made by envenom'd Inſtruments, or attended with violent Symptoms.

The Hiſtory of a *Wound* is thus delivered by *Boerhaave* —Immediately upon the Solution, the *wounded* Parts recede further and further from each other. The Blood guſhes out, at firſt, with ſome violence; but ſtops of itſelf: then a bloody Scab is form'd in the Cavity of the *Wound*, and a thin ruddy Humour oozes out; the Lips of the *Wound* begin to redden, heat, ake, ſwell, and turn back; and (in great *Wounds*) a Fever and Thirſtineſs ſucceed. On the third or fourth day, there is found a white, viſcid Pus; upon which, the heat, redneſs, tumor, *&c.* abate, and the Cavity gradually fills up from the bottom upwards, and from the Circumference to the Centre with growing Fleſh. Laſtly, the *Wound* dries, and cicatriſes.

But note, theſe Symptoms vary according to the Nature and Cauſe of the *Wound*——Thus, if it be by Inciſion, and a large Blood-Veſſel be cut, the Hæmorrhage is more violent; eſpecially if it be an Artery; in which caſe, florid Blood flies out impetuouſly and by ſtarts: If only a Vein be cut, the Flux is more moderate and equable, and the Blood of a darker Colour——If the *Wound* be attended with Contuſion, the Hæmorrhage is ſmall.

In *Wounds*, where any large Artery is quite cut in two, the Flux uſually proves mortal. A leſſer Artery cut tranſverſely, flies back againſt the ſolid Parts, and will have its Mouths ſtop'd: If an Artery be not quite cut off, there ariſes a perpetual Flux; or if that be ſtop'd, an Aneuriſma. ——A Nerve being cut off, flies back, produces a Pain, and Obſtruction about the *Wound*; and below it, a Numbneſs, and waſting Immobility: The caſe is much the ſame in *wounded* Tendons and Membranes.—— *Wounds* of the temporal Muſcle are rarely cured; but generally bring on horrible Convulſions.

The following *Wounds* are commonly reputed mortal; *viz.* thoſe of the *Cerebellum*, and of the *Cerebrum*, if they be deep enough to hurt the *Medulla oblongata*; deep *Wounds* in the ſpinal Marrow, eſpecially the upper part thereof; thoſe of the Heart, Lungs, Liver, Spleen, Kidneys, Pancreas, Meſentery, Stomach, Inteſtines, *&c.* Thoſe of the *Cava*, *Aorta*, *Carotides*, pulmonary, and other large Veins and Arteries. Thoſe of the *Bronchia*, *Thorax*, *Diaphragm*; large *Wounds* of the *Oeſophagus*, *Trachea*, and the Bladder, and all invenom'd *Wounds*.

In young Children and aged Perſons, *Wounds* frequently prove mortal which ſeem'd but ſlight. Thoſe *Wounds* generally prove troubleſome which happen in an ill ſtate of Body, and eſpecially a low or hardy Diet. All *Wounds* are reputed more dangerous and difficult of Cure in Winter than Summer; in *Auguſt* than in Spring.

The Cure of *Wounds* conſiſts in the Uniting of the divided Parts; which is the Work of Nature alone, and which the Chirurgeon can only contribute to by removing external Impediments, and applying Medicines familiar to the Part, call'd *Vulneraries* and *Balſamicks*. See VULNERARY, *&c.*

The firſt Step, then, to be taken in a ſimple *Wound*, is to cleanſe it, and extract any heterogeneous Body that may chance to be lodged therein. Next, The Cavity to be gently wiped with Doſils dipt in warm red Wine. The Lips, now to be brought together by the Bandages or Sutures; and the *Wound* to be covered with a Pledget dipt in Balm of *Peru*, or Oil of ſweet Almonds——The Pain thus eaſed, and the Symptoms removed, the *Wound* is to be ſuppurated, deterged, incarned, and cicatrized after the manner of Tumors and Ulcers. See SUPPURATION, DETERGENT, INCARNATIVE, CICATRISIVE, *&c.*

If the *Wound* be dangerous, the Symptoms violent, and the Body Cacochymic, more powerful Means are had recourſe to; as, firſt, Phlebotomy, then gentle Cathartics or Clyſters; then vulnerary Drinks, Apozems, and Ptiſans, with Cardiacs and Paragorics interpoſed.

In internal *Wounds*, Vulneraries and Alcalies do well, particularly *Album Græcum*, River Lobſters, Mercurials, *&c.*

Freſh *Wounds* are cured ordinarily in three or four days, without any other Means than applying a few Drops of Balſam of *Peru*——Sometimes, however, Digeſtives are required.

Gun ſhot *Wounds* are uſually the worſt of all, by reaſon of the violent Contuſion and Secretion of the Parts; which prevent their coming to Digeſtion for the Space of three or four days.

In the Cure of large *Wounds*, Bandages and Sutures are required, to fit and diſpoſe 'em for healing. See SUTURE and BANDAGE.

WREATH, in Heraldry, a Roll of fine Linnen, or Silk, (like that of a *Turkiſh* Turbant) conſiſting of the Colours born in the Eſcutcheon; placed in an Atchievement between the Helmet and the Creſt, and immediately ſupporting the Creſt. See CREST, *&c.*

WRECK, or *Sea*-WRECK, in Natural Hiſtory, a kind of Herb, growing in the Sea, upon Rocks, and which the Waves tearing off, caſt upon Shore.

In ſome Places it is uſed to manure the Ground——In *Normandy* and other Parts they burn it, and of the Aſhes make a kind of Soude or Salt-wort, which they uſe in the making of common green Glaſs, to promote the Fuſion or Vitrification of the Matter. See GLASS.

WRECK, or *Ship*-WRECK, in Law, *&c.* is when a Ship periſhes in the Sea, and no Man eſcapes alive out of it.

The Civilians term it *Naufragium*——The Goods in the Ship, which are brought to Land by the Waves, belong to the King, or him to whom he aſſigns the Right thereof.

If a Man, a Dog, or even a Cat eſcape alive; the Party to whom the Goods belong coming within a Year and a Day, and proving the Goods to be his, ſhall have them again.

In divers Charters and old Writings, it appears that *Wreck* antiently not only comprehended Goods which came from a periſhing Ship, but whatever elſe the Sea caſt upon Land; whether it were precious Stones, Fiſhes, Sea-weed, or the like.

Thus in the *Stat. Prærog. Reg.* c. 11.——*Rex habebit* Wreckum Maris *per totum regnum, Balenas & Sturgeones captas in Mari vel alibi infra Regnum, exceptis quibuſlibet Privelegiatis locis, &c.*

This *Wreck* in the grand Cuſtomary of *Normandy*, c. 17. is call'd *Varech*, and latined *Veriſcum*; and in ſome of our antient Charters, *Wreche*, *Werec*, *Werenche*, and *Seupwerp*, q. d. *Sea-up-werp* and *up werpen*.

WRESTLING, a kind of Combat, or Engagement between two Perſons, unarm'd; Body to Body; to prove their Strength and Dexterity, and try which can throw his Opponent to the Ground. See EXERCISE, GAME, *&c.*

Wreſtling, *Paleſtra*, is an Exerciſe of very great Antiquity and Fame——'Twas in uſe in the Heroic Age; witneſs *Hercules*, who *wreſtled* with *Antæus*. See PALESTRA.

It continued a long time in the higheſt Repute; and had very conſiderable Rewards and Honours aſſign'd it at the *Olympic* Games——'Twas the Cuſtom for the *Athletæ*, to anoint their Bodies with Oil to give the leſs hold to their Antagoniſt. See ATHLETA, *&c.*

Ablancourt obſerves, that *Lycurgus* ordain'd the *Spartan* Maids to *wreſtle* in public, quite naked; to break them of their too much Delicacy and Niceneſs, to make 'em appear more robuſt, and to familiarize the People, *&c.* to ſuch Nudities. See GYMNASIUM, *&c.*

WRIST; ſee CARPUS.

WRIT, *Breve*, in Law, a Precept of the King, whereby any thing is commanded to be done, touching a Suit, Action, or Proceſs for Juſtice.

Such are the Summoning the Defendant, taking a Diſtreſs, redreſſing a Diſſeiſin, *&c.*

Writs are variouſly divided, and in various reſpects——Some, with regard to their Order, or manner of Granting, are term'd *Original*; and others *Judicial*.

Original WRITS are thoſe ſent out of the High Court of Chancery to ſummon the Defendant in a Perſonal, or Tenant in a real Action, either before the Suit begins, or to begin the Suit thereby. See PROCESS, *&c.*

Judicial WRITS are thoſe ſent out by Order of the Court where the Cauſe depends, upon emergent Occaſions, after the Suit begins.

Judicial Writs are diſtinguiſh'd from Original, in that their *Teſte* bears the Name of the Chief Juſtice of that Court whence they come; whereas the Original ſay, *Teſte me ipſo*, in the Name, or relating to, the King.

Writs are alſo diſtinguiſh'd, according to the nature of the Action, into *Real* and *Perſonal.*——*Real* are either touching the Poſſeſſion, call'd *Writs of Entry*, or the Property, call'd *Writs of Right*. See ENTRY and RIGHT.

Some *Writs*, again, are at the Suit of the Party; ſome of Office; ſome Ordinary; ſome of Privilege—A *Writ* of Privilege is that which a privileged Perſon brings to the Court for his Exemption, by reaſon of ſome Privilege. See BRIEF, *&c.*

The word *Writ* is form'd from the *Saxon Writan*, to write.

WRIT *of Rebellion*; ſee COMMISSION *of Rebellion*.

WRITS *Vicountiel*, are ſuch as are triable in the Sheriff's or County-Court. See VICOUNTIEL.

WRIT *of Aſſiſtance* iſſues out of the Exchequer to authorize any Perſon to take a Conſtable, or other publick Officer to ſeize Goods or Merchandize prohibited and uncuſtomed, *&c. Stat.* 14. 2 *Car.* 1. There is alſo a *Writ* of this Name iſſuing out of the Chancery to give a Poſſeſſion.

WRITER *of the Tallies*, an Officer of the Exchequer, being Clerk to the Auditor of the Receipt; who writes upon the Tallies the whole Letters of the Tellers Bills. See TALLY, EXCHEQUER, *&c.*

WRITING, *Scripture*, *Scriptura*, the Art or Act of ſignifying and conveying our Ideas to others, by Letters, or Characters viſible to the Eye. See CHARACTER, WORD, *&c.*

Writing is now chiefly practiſed among us by means of Pen, Ink, and Paper. See PAPER, INK, *&c.* ——The Antients had other Methods. See BOOK, BARK, STYLE, *&c.*

The Invention of the Art of *Writing* is refer'd to *Cadmus.* See LETTER and GREEK.

In Law, we ſay, Deeds, Conveyances, *&c.* are to be in *Writing.*——A Will may either be in *Writing* or by Word of Mouth. See DEED, CONVEYANCE, WILL, *&c.*

We alſo ſay, the *written* Law, *Lex ſcripta*, in oppoſition to common Law, which is call'd *Lex non ſcripta.* See LAW, STATUTE, COMMON *Law*, *&c.*——We have alſo *written* and *unwritten* Traditions, *&c.* See TRADITION.

Authentic *Writings* of any Contract, ſealed and delivered, make the Evidence thereof. See EVIDENCE, TESTIMONY, *&c.*

J. Ravenau has a Treatiſe entitled *des Inſcriptions en Faux*, wherein he ſhews how to revive and reſtore old *Writings* almoſt effaced, by means of Galls ground in white Wine, and diſtill'd; and thus rubb'd over the *Writing.*

La Vayer has a curious Diſſertation on the Proof of Facts by compariſon of Hand *Writings*, wherein he endeavours to ſhew this Method of Proof to be very ſuſpicious and fallacious. See PROOF, *&c.*

'Tis a Point controverted among the School-Philoſophers, what it is that *Writing* properly ſignifies, or repreſents; whether Ideas, or Things, or Words; *i. e.* whether it expreſſes Things themſelves, or our Ideas of Things, or the articulate Sounds by which, on other Occaſions, we expreſs thoſe Ideas.

The common Opinion is, that *Writing* only repreſents Words, that its proper Object is the Voice, and that it only ſignifies Ideas mediately, or ſecondarily; and by means of thoſe, Things themſelves.

Others, on the contrary, will have Ideas, Speech, and *Writing*, all equally and immediately repreſentatives of Things. See IDEA, NOTION, *&c.*

But the Controverſy is impertinent enough.——No doubt our Ideas of Things are the Things themſelves; there being no foundation for any diſtinction between them. See EXTERNAL.

And as to *Writing*, ſome may be ſaid to be real, or ſignificant of Things and Ideas——As the *Egyptian* Hieroglyphics; the Characters of Chymiſts, Aſtronomers, *&c.* which are a kind of Images, or bear ſome natural Reſemblance or Analogy with the Things they are intended to expreſs. See SYMBOL, HIEROGLYPHIC, *Real* CHARACTER, *&c.*

But the common *Writing* only repreſents Sounds, which is the firſt and moſt natural Language; and accordingly our Orthography is apparently form'd on, or adapted to the Pronunciation. See ORTHOGRAPHY and PRONUNCIATION.

Hence, the End of *Writing* is to excite, as it were, certain Sounds, which have been made the arbitrary Signs of certain Ideas—This they do by virtue of a Combination or Aſſociation between ſuch and ſuch Figures made with the Pen, and ſuch and ſuch Inflexions of the Voice.

In effect, we have a great many *written* Words which have no Ideas belonging to 'em; as *Scindapſus*, *Bladri*, &c. which tend no further than to produce Sounds.——Add, that People when they begin to learn to read *Writing*, take it from Sounds which they hear produced by the Perſon who teaches 'em: An abundant Argument, that *Writing* does not immediately ſignify Ideas and Things, but firſt Sounds, and then Things.

Short WRITING; ſee BRACHYGRAPHY.

Secret WRITING; ſee CRYPTOGRAPHY, CYPHER, *&c.*

Hand WRITING; ſee HAND.

WRONG, in a Logical Senſe; ſee ERROR, FALLACY, FALSHOOD, TRUTH, *&c.*

WRONG, in a Legal Senſe, *Injury*, *Tort.* See INJURY, JUSTICE, TORT, RIGHT, *&c.*

WULVESHEVED, or WULVESHEAD, from the *Saxon*, *Wulfe*, *Lupus*, and *Heofod*, *Caput*, q. d. *Caput Lupinum*, was the Condition of thoſe Out-law'd for Criminal Matters in the *Saxons* time, for not yielding themſelves to Juſtice. For if they could have been taken alive, they muſt have been brought to the King; and if they for fear of being apprehended, did defend themſelves, they might be ſlain, and their Heads brought to the King; for their Head was no more to be accounted of than a Wolf's Head. *LL. Edw.* in *Lamb.* fol. 127. and *Bract.* lib. 3. tract. 2. cap. 11. See UTLAWRY.——*Wolfeſhead* and *Wulferford*, are all one. *Coke* on *Littl.* fol. 28.

WYCH-*Houſe*, a Houſe in which the Salt is boiled. See SALT.

WYDRAUGHT, a Water-Courſe, or Water-Paſſage; properly, a Sink, or Common-Shore. See CLOACA.

WYKE, antiently denoted a Farm, Hamlet, or little Village. See FARM, HAMLET and VILLAGE.

WYTE or WYTA, WITE or WITA, in our antient Cuſtoms, a pecuniary Penalty or Mulct. See WITE.

The *Saxons* had two kinds of Puniſhments, *Were*, and *Wyte*; the firſt for the more grievous Offences. See WERE.

The *Wyte* was for the leſs heinous ones——It was not fixed to any certain Sum; but left at liberty, to be varied according to the Caſe.

WYTHE, in Law, the ſame as *Waif.* See WAIF.

X.

X, A double Conſonant, and the twenty-ſecond Letter in the *Engliſh* Alphabet. See LETTER, CONSONANT, ALPHABET, *&c.*

The *x* of the *Latins*, and ξ of the *Greeks* are compounded of *c s*, and κ σ; whence, to this day, the Letter *x* in the *Engliſh* and *French* has the ſame Sound with *c s* or *k s*.——Thus we pronounce *Alexander*, as if wrote *Alecſander* or *Alekſander*. See C, K, S, *&c.*

The *Italians* have no *x* at all in their Language; but, both ſpeak and write *Aleſſandro*——The *Spaniards* pronounce the *x* like our *c* before *a*; viz. *Alexandro*, as if it were *Alecandro*. The *Portugueze* pronounce it like our *ſh*.

In foreign Words uſed in *Engliſh* we ſometimes ſoften the *x* into a double *s*; as *Bruſſels* for *Bruxelles*, &c.

The Letter is not known in the *Hebrew*, or other Oriental Languages; but in lieu of it they write the two ſimple Letters whereof it is compounded——And the like do the modern *Germans*.

X is alſo a numeral Letter, and ſignifies *ten*; as repreſenting two V's placed one a-top of the other. See V.

X *Supra denos numero tibi dat retinendos.*

When a Daſh is added over it, $\overline{X}$, it ſignifies *ten thouſand*.

XENIA, in antient Cuſtoms, were Gifts or Preſents made to the Governours of Provinces by the Inhabitants thereof.

The Word occurs pretty frequently in Charters of Privileges; where, *Quictos eſſe à* Xeniis, denotes an Exemption from making ſuch Preſents to Kings and Queens upon their travelling through ſuch Precincts. See MUNUS, *&c.*

XENODOCHUS, an Eccleſiaſtical Officer in the *Greek* Church; the ſame with *Hoſpitaller*, or a Perſon who takes care of the Reception and Entertainment of Strangers. See HOSPITALLER.

St. *Iſidore*, a Prieſt and Solitary, ſurnamed the *Xenodochus*, liv'd in the IVth Century——He was thus call'd, becauſe entruſted with that Office in the Church of *Alexandria*.

XEROPHTHALMIA, a kind of *Ophthalmia*, wherein the Eyes itch, and are red, but without ſwelling or watering. See OPHTHALMIA.

The Word is compounded of ξηρος, dry, and ὀφθάλμος, Eye.

XEROPHAGIA, XEROPHAGY, in Church-Hiſtory, the uſe of dried Foods. See FOOD.

In the firſt Ages, ſome not contented with ſimple Faſting, added the *Xcrophagy* thereto; abſtaining not only from Fleſh and Wine, but alſo from all freſh, ſucculent, and vinous Fruits——And ſome even brought themſelves to bare Bread and Water. See FASTING and ABSTINENCE.

Tertullian in his Book *de Abſtinentia*, c. 9. ſpeaks of the *Xerophagia* as a thing commendable in time of Perſecution.

The Word is form'd from ξηρὸς, *ſiccus*, dry, and φάγω, I eat.

XESTA, Ξέϛης, an *Attic* Meaſure of Capacity. See MEASURE.

XIPHIAS, a fiery Meteor, in form of a Sword. See METEOR.

It differs from the *Acontias*, in that this latter is longer, and more like a Dart; and the former ſhorter and broader in the middle. See ACONTIAS.

XV.VIR, *Quindecimvir*; ſee QUINDECIMVIR.

Authors, and eſpecially the Antiquaries, make uſe of ſuch Abbreviations, which they borrow from Medals, and other Monuments of Antiquity, where thoſe Names are ſo expreſs'd.

XYLO-ALOES, in Medicine, *&c.* the *Lignum Aloes*: call'd alſo *Agillochum*. See ALOES and AGILLOCHUM.

The Word is compounded of ξυλον, *Lignum*, Wood, and αλον, Aloes.

XYLO-*Balſamum*, a Name which Naturaliſts, *&c.* give to the Wood of the Tree which yields that precious Gum known to the *Latins* by the Name of *Opo-Balſamum*, and among us by the Name of *Balm of Gilead*. See BALM.

We have Branches of this Tree brought us from *Cairo*. They are very ſtreight, brittle, unequal, and full of Knots; their Bark reddiſh without, and greeniſh within. The Wood is whitiſh, and full of Pith, and when broke, yields an agreeable ſmell reſembling that of the Balm.

The *Xylo-balſamum* is reputed good to ſtrengthen the Brain, and Stomach, and to expel Poiſon.

The Word is compounded of ξῦλον, Wood, and βάλσαμον, Balſam, Balm.

XYNOECIA, a Feaſt among the antient *Athenians*, inſtituted on occaſion of *Theſeus*'s uniting all the petty Communities of *Attica* into one Common-wealth; the Aſſemblies whereof were to be held at *Athens*, in the *Prytanæum*. See FEAST.

The Word is form'd of the *Greek* ξὺν or σὺν with, and οικεω, I inhabit.

XYPHOIDES, in Anatomy, a Cartilage at the bottom of the Sternum; call'd alſo *Enſiformis*. See CARTILAGE and ENSIFORMIS.

It is about an Inch long, and ſhaped like the Point of a Sword; whence its Appellation, from ξίφος, Sword, and ειδος, Figure. See STERNUM.

XYSTARCHA, in Antiquity, the Maſter or Director of the *Xyſtus*. See XYSTUS.

In the *Greek Gymnaſium*, the *Xyſtarcha* was the ſecond Officer——The firſt was the *Gymnaſiarcha*.

The *Xyſtarcha* was his Lieutenant, and preſided over the two *Xyſti*, and all Exerciſes of the *Athletæ* therein. See GYMNASIUM and GYMNASIARCH.

XYSTUS, in the antient Architecture——A *Xyſtus*, among the *Greeks*, was a long Portico, either open, or cover'd over; wherein the *Athletæ* practiſed Wreſtling, and Running. See ATHLETA, WRESTLING, *&c.*

The Gladiators who practiſed therein, were call'd *Xyſtici*. See GLADIATOR.

Among the *Romans*, the *Xyſtus* was only an Alley, or double Row of Trees, meeting Arbor-wiſe a-top, and forming a Shade to walk under.

The Word is *Greek*, ξύϛος, form'd of ξύειν, to poliſh, ſhave, rub.

Y.

Y, The twenty-third Letter in the *Engliſh* Alphabet, borrow'd originally from the *Greek* υ. See LETTER and ALPHABET.

It is occaſionally both Vowel, and Conſonant——As a Vowel, ſome Authors have judged it unneceſſary in our Language, in regard its Sound is preciſely the ſame with that of the *i*. Accordingly, it is but little uſed except in Words borrow'd from the *Greek*, to denote their Origin, by repreſenting their ὔψιλόν.

The Vowel *y*, however, has a place even in ſome Words purely *Engliſh*; and that both in the middle thereof, as in *dying*, *frying*, &c. and at the end, as in *lay*, &c.

Some aſcribe the uſe of the *y* in pure *Engliſh* and *French* Words, and thoſe that have no *y* in *Latin* or *Greek*, to this, that antiently thoſe Words were pronounced with a double ii; which having ſomething aukward in it, the *y* was ſubſtituted in lieu thereof. See I.

Others ſay, that thoſe Words being antiently wrote, as well as pronounced with a double ii, which they ſtill are in the *Walloon*, as *paiing*, *paiiſan*, &c. to avoid their being miſtaken for an u with two Dots over it, they made the ſecond i longer than the firſt, and ſo form'd the *y*.—Some give a particular Reaſon why Words ending in i, came to be wrote with *y*; *viz.* that the Copiſts found the Tail of the *y* very commodious or adorn the Margins and Bottoms of Pages withal.

When the *y* follows a Conſonant, it is a Vowel; and when it precedes a Vowel, it is a Conſonant, and ſhould be call'd *ye*, and not *wy*.

The *Romans* uſed the *y* for the Vowel *u*, which they had not; their way being to pronounce the common *u* as we do the Dipthong *ou*; and the *Greek* υψιλον as the *Engliſh* and *French u*.

In our own, and ſome other modern Tongues, Authors begin to diſpenſe more and more with the preciſe Orthography, which requires all Words that have an *Upſilon* in the *Greek* to be wrote with a *y*. And with reaſon; ſince our *Greek y* has loſt the Sound it had in the Language whence we borrow it. But 'tis certainly ridiculous to uſe it, as many do, in Words which indeed have a *Greek* Origin, but have no *u* in the *Greek*; as in *Eclipſe*. See ECLIPSE, ECLIPTIC, &c.

Y is alſo a numeral Letter, ſignifying 150, or, according to *Baronius*, 159; as in the Verſe:

Y *dat Centenos & quinquaginta Novenos.*

When a Daſh was added a-top, $\overline{\mathrm{Y}}$, it ſignified 150 thouſand.

Pythagoras uſed the Y as a Symbol of human Life; the Foot repreſenting Infancy, and the forked Top, the two Paths of Vice and Virtue, one or t'other of which, People are to enter upon after attaining to the Age of Diſcretion.

YACHT, a kind of Veſſel, uſed by the *Engliſh*, furniſh'd with Maſts and Sails; fit to go by Sea; and commodiouſly contriv'd and adorn'd, both withinſide and without, to ſuit it for State-Paſſengers, &c.

The *Dutch* have alſo *Yatchts*, but not ſo well prepared to live at Sea——They are ſeldom uſed but to ſail on Rivers and Canals.

The Word ſeems derived from the *Dutch Iacht*, hunting, by reaſon of the lightneſs of theſe Veſſels.

YARD, *Virga*, a long Meaſure uſed in *England*, and *Spain*; chiefly to meaſure Cloth, Stuffs, &c. See MEASURE.

The *Engliſh Yard* contains three Foot. See FOOT.

It was firſt ſettled by *Henry* I. from the length of his own Arm. See VIRGA.

The *Engliſh Yard* is juſt ſeven Ninths of the *Paris* Ell; ſo that nine *Yards* make ſeven Ells——To reduce Ells, therefore into *Yards*, ſay, If ſeven Ells give nine *Yards*, how many *Yards* will the given Number of Ells give?

Yards are converted into Ells *Flemiſh*, by adding a third part; into Ells *Engliſh*, by ſubſtracting a fifth part; or multiplying by 8, and caſting off the right-hand Figure——Ells *Engliſh* are converted into *Yards*, by adding a fourth. To turn Ells *Flemiſh* into *Yards*, ſubſtract one Quarter. See ELL.

The *Spaniſh Yard* chiefly uſed at *Sevil*, is, in ſome Places, call'd *Barra*——It contains $\frac{17}{24}$ of the *Paris* Ell; ſo that 17 Ells make 24 *Spaniſh Yards*.

YARD, in Anatomy, the *Penis*, or Virile Member; ſerving for the evacuating of the Urine, and Seed. See PENIS; ſee alſo URINE and SEED.

YARD-*Land*, *Virgata Terræ*, or *Virga Terræ*, is a certain Quantity of Land, various according to the Place——At *Wimbleton* in *Surrey*, it is only 15 Acres; but in moſt other Counties it contains 20, in ſome 24, in ſome 30, and in others 40 Acres. See ACRE.

Virgata Terræ continet 24 *Acras*; & 4 *Virgatæ conſtituunt unam Hidam*, & *quinque Hidæ conſtituunt Feodum Militare.* MS. Abbot Malmeſ. See HIDE, KNIGHT's *Fee*, CARRUCATE, &c.

YARDS, or *Sail-Yards*, of a Ship, are long pieces of Timber, tapering at each end, fitted a-croſs the ſeveral Maſts to carry the Sails. See MAST.

The Sails are faſten'd to the *Yards* at the Heads; ſo as to be hoiſted up, and let down together with them, by Ropes call'd Halliards. See SAIL and HALLIARD.

The Main *Yard* is that of the Main-Maſt——the Mizzen *Yard*, Bolt-ſprit *Yard*, &c. are thoſe of the Mizzen, &c. See MIZZEN, BOLT-SPRIT, &c.

They have ſeveral Phraſes and Words of Command relating to the Management of the *Yards*; as—*Brace the Yard*, which ſignifies to traverſe aft the *Yard*-Arm whoſe Brace is haled; ſo that to traverſe the *Yard*, is the ſame as to ſay, Brace it aft.——*Square the Yard*, is as much as to ſay, ſee that it hang right a-croſs the Ship, and one *Yard*-Arm not traverſed more than the other.——*Top the Yards*, *q. d.* make them hang even.

YARD's-*Arm*, is that half of the *Yard* which is on either ſide the Maſt, when it lies athwart the Ship.

YARDS are alſo Places belonging to the Navy, where the Ships of War, &c. are laid up in Harbour. See NAVY, HARBOUR, SHIP, &c.

The King's *Yards*, are *Chatham*, *Deptford*, *Woolwich*, *Portſmouth*, *Shereneſs*, *Plimouth* and *Harwich*; each of which is provided with ſeveral Docks, Wharfs, Lanches, and Graving Places for the Building, Repairing, and Cleaning his Majeſty's Ships. See DOCK, WHARF, &c.

In theſe *Yards* are alſo lodged great quantities of Timber, Maſts, Planks, Anchors, &c. There are alſo Store-Houſes belonging to each *Yard*, wherein are reſerv'd vaſt quantities of Cables, Rigging, Sails, Blocks, &c.

In the ſeveral *Yards* are great Rope-*Yards*, wherein Cables and all ſorts of Cordage are made. See CORDAGE, CABLE, &c.

YARE, among Sailors, implies as much as, nimble, ready, quick, expeditious.

Hence, to *Be Yare at the Helm*, ſignifies to ſet a freſh Man at the Helm.

YARN, Spun Wool. See WOOL, SPINNING, CLOTH, &c.

YARRINGLES, or YARRINGLE *Blades*, a kind of Reel, or Inſtrument with which Hanks of Yarn are wound in Clews, or Balls. See REEL.

YATCHES, Veſſels with one Deck, carrying from 4 to 12 Guns, with from 20 to 40 Men; being of Burden from 30 to 160 Ton. See VESSEL.

They draw little Water, and are uſed for running, and making ſhort Trips, &c.—Their Makes and Forms are various.

YAWES, in the Sea-Language,—A Ship is ſaid to make *Yawes*, when through the fault of him at the Helm, ſhe is not kept ſteady in her Courſe; but makes Angles in and out. See HELM.

To prevent this, the *Conner* cries to him at Helm, Steady, Steady. See CONNER.

YAWNING, *Oſcitatio*, an involuntary opening of the Mouth, occaſion'd by a Vapour or Ventoſity, endeavouring to eſcape; and generally witneſſing an irkſome Wearineſs, or an Inclination to Sleep.

The Remedy *Hippocrates* preſcribes againſt continual *Yawnings*, is to make long Breathings, or Reſpirations—The ſame he recommends againſt the Hiccough. See HICCOUGH.

The nervous Membrane of the *Oeſophagus* is the Seat of *Yawning*, which is certain to be produced whenever any irritation determines the Spirits to flow thither in too great abundance.——The Cauſe of the Irritation is ſuppoſed to be ſome troubleſome Humour wetting the inner Membrane of the *Oeſophagus*; which Humour proceeds either from the Glands ſpread throughout that Membrane, or from acid Vapours ariſing from the Stomach, as from a Boiling-Pot, and which condenſe on the Sides of the *Oeſophagus* as on a Pot-Lid.

On ſuch occaſions, the nervous Fibres of the Membrane of the Gullet being irritated, dilate the Gullet; and the

Mouth

Mouth is conſtrain'd to follow the ſame Motion, as being lined with the ſame Membrane.

YCONOMUS: ſee OECONOMUS.

YDRARGYROS, *Hydrargyros*, or *Quickſilver*; ſee MERCURY.

YEAR, *Annus*, in the full extent of the Word, is a Syſtem or Cycle of ſeveral *Months*; uſually *twelve*. See CYCLE and MONTH.

Others define *Year*, in the general, a Period, or Space of Time, meaſured by the Revolution of ſome Cœleſtial Body in its Orbit. See TIME and PERIOD.

Thus, the Time wherein the fixed Stars make a Revolution, is call'd the *great Year*. And the Times wherein *Jupiter*, *Saturn*, the *Sun*, *Moon*, &c. finiſh their Revolutions, and return to the ſame Point of the Zodiac, are reſpectively call'd the *Years of Jupiter*, and *Saturn*, the *Solar*, and the *Lunar Years*. See SUN, MOON, PLANET, &c. *Solar* YEAR, *Lunar* YEAR, &c.

YEAR, properly, and by way of eminence ſo call'd, is the *Solar Year*; or the Space of Time wherein the Sun moves thro' the Ecliptic. See ECLIPTIC.

This, by the Obſervations of *Caſſini*, *Bianchini*, and *de la Hire*, contains 365 Days, 5 Hours, and 49 Minutes; which is the Quantity of the *Year* aſſumed by the Authors of the *Gregorian* Calendar. See *Solar* YEAR.

But, in the Civil, or popular Account, this *Year* only contains 365 Days; except every fourth, which contains 366. See *Civil* YEAR.

The Viciſſitude of Seaſons ſeems to have given occaſion to the firſt Inſtitution of the Year.——Man, naturally curious to know the Cauſe of that Diverſity, ſoon found it was the proximity and diſtance of the Sun; and upon this, gave the Name *Year* to the Space of Time wherein that Luminary performing his whole Courſe, return'd to the ſame Point of his Orbit. See SEASON.

And hence, as it was on account of the Seaſons, in a great meaſure, that the *Year* was inſtituted; their chief Regard and Attention, was, that the ſame parts of the *Year* ſhould always correſpond to the ſame Seaſons; *i. e.* that the beginning of the *Year* ſhould always be when the Sun was in the ſame Point of his Orbit; and that they ſhould keep pace, come round, and end together.

This, different Nations aim'd to attain by different ways; making the *Year* to commence from different Points of the Zodiac; and even the time of his Progreſs different. So that ſome of their *Years* were much more perfect than others, but none of them quite juſt; *i. e.* none of them but whoſe Parts ſhifted with regard to the Parts of the Sun's Courſe.

'Twas the *Egyptians*, if we may credit *Herodotus*, that firſt form'd the *Year*, making it to contain 360 Days, which they ſubdivided into 12 Months.

Mercury Triſmegiſtus added 5 Days more to the Account——And on this footing, *Thales* is ſaid to have inſtituted the *Year* among the *Greeks*. Tho' that Form of the *Year* did not hold throughout all *Greece*——Add, that the *Jewiſh*, *Syrian*, *Roman*, *Perſian*, *Ethiopic*, *Arabic*, &c. *Years*, were all different.

In effect, conſidering the poor State of Aſtronomy in thoſe Ages, 'tis no wonder different People ſhould diſagree in the Calculus of the *Sun*'s Courſe——We are even aſſured by *Diod. Siculus*, Lib. I. *Plutarch* in *Numa*, and *Pliny*, Lib. VII. c. 48. that the *Egyptian Year* itſelf was at firſt very different from that now repreſented. See *Egyptian* YEAR, *Roman* YEAR, *Jewiſh* YEAR, &c.

Various Forms of Solar *and* Lunar YEARS.

Solar YEAR is the Interval of Time wherein the Sun finiſhes his Courſe through the Zodiac; or, wherein he returns to the ſame Point thereof whence he had departed. See SUN.

This, according to our Account, is 365 Days, 5 Hours, 49 Minutes; tho' ſome Aſtronomers make it a few Seconds, and ſome a whole Minute leſs; as *Kepler*, for inſtance, who makes it 365 Days, 5 Hours, 48 Minutes, 57 Seconds, 39 Thirds: *Ricciolus*, 365 Days, 5 Hours, 48 Minutes; and *Tycho Brahe* 365 Days, 5 Hours, 48 Minutes.

The *Solar Year* is either *Aſtronomical*, or *Civil*.

The *Solar Aſtronomical* YEAR is that determined preciſely by the Obſervations of Aſtronomy; and is of two kinds, *Tropical*, and *Siderial* or *Aſtral*.

The *Tropical*, or *Natural* YEAR, is the Time which the Sun employs in paſſing through the Zodiac; which, as before obſerved, is 365 Days, 5 Hours, 49 Minutes.

The *Siderial* or *Aſtral* YEAR, is the Space of Time wherein the Sun going from any fixed Star, returns to the ſame——This conſiſts of 365 Days, 6 Hours, 10 Minutes. See SIDERIAL.

Civil YEAR is that Form of *Year* which each Nation has contrived to compute Time by: or, the Civil, is the *Tropical Year* conſider'd as only conſiſting of a certain Number of whole Days; the odd Hours and Minutes being ſet aſide, to render the Computation of Time, in the common occaſions of Life, more eaſy. See CIVIL.

Hence, as the *Tropical Year* is 365 Days, 5 Hours, 49 Minutes, the *Civil Year* is 365 Days. And hence, alſo, as 'tis neceſſary to keep pace with the Heavens, it is required that every fourth Year conſiſt of 366 Days.

Hence, laſtly, the *Civil Year* is either *Common* or *Biſſextile*.

The COMMON *Civil* YEAR is that conſiſting of 365 Days. This, therefore, has ſeven Months of 30 Days each, and five of 31 Days.

Biſſextile or *Leap* YEAR is that conſiſting of 366 Days; or has one Day extraordinary, which Day is call'd the *Intercalary* or *Biſſextile Day*. See INTERCALARY.

This Intercalary, or additional Day to every fourth *Year*, was firſt appointed by *Julius Cæſar*, who, to make the *Civil Years* keep pace with the *Tropical* ones, contrived, that the 6 Hours which the former came ſhort of the latter, ſhould, in four Years, make a whole Day, and be added after the 23d of *February*, which was their ſixth of the Calends of *March*.

Hence, as, in that *Year*, they reckon'd this Day twice over, or had *bis ſexto Calendas*; the *Year* itſelf came to be call'd *Bis Sextus* and *Biſſextile*.

The Intercalary Day, however, among us, is not got in by telling the 24th of *February* twice over; but by adding a Day after the 28th of *February*; which by this means, that *Year*, comes to contain 29 Days. See BISSEXTILE.

A further Reformation in this *Year* was made by Pope *Gregory*. See *Gregorian* YEAR.

Lunar YEAR is a Syſtem of 12 Lunar Months. See LUNAR.

Hence, from the two kinds of Synodical Lunar Months, there ariſe two kinds of *Lunar Years*, the one *Aſtronomical*, the other *Civil*.

Lunar Aſtronomical YEAR conſiſts of twelve Lunar Synodical Months; and therefore contains 354 Days, 8 Hours, 48 Minutes, 38 Seconds, 12 Thirds. See SYNODICAL.

Lunar Civil YEAR, is either *Common*, or *Embolimic*.

The COMMON *Lunar* YEAR conſiſts of twelve Lunar Civil Months; and therefore contains 354 Days.

The EMBOLIMIC or *Intercalary* YEAR conſiſts of 13 Lunar Civil Months; and therefore contains 384 Days. See EMBOLIMIC.

Note, as the difference between the common Lunar Civil *Year* and the Tropical *Year*, is 11 Days, 5 Hours, and 49 Minutes; to have the former keep pace with the latter, there are 34 Months of 30 Days, and 4 Months of 31 Days each, to be inſerted in every 100 Lunar *Years*; which ſtill leave behind 'em an Appendix of 4 Hours, 21 Minutes, which in ſix Centuries make nearly a day more.

Thus far we have conſider'd *Years* and Months with a view to the Principles of Aſtronomy, whereon the diviſion is founded. By this, the various Forms of Civil *Years* that have antiently obtain'd, or ſtill do obtain, in divers Nations, are to be examined.

Various Forms of Civil YEARS.

Antient Roman YEAR, was the *Lunar Year*, which, as firſt ſettled by *Romulus*, only conſiſted of ten Months; *viz.* 1. *March*, containing 31 Days. 2. *April*, 30. 3. *May*, 31. 4. *June*, 30. 5. *Quintilis*, 31. 6. *Sextilis*, 30. 7. *September*, 30. 8. *October*, 31. 9. *November*, 30 10. *December*, 30; in all 304 Days, which came ſhort of the true Lunar *Year* by 50 Days, and of the Solar by 61 Days.

Hence, the beginning of *Romulus*'s *Year* was vague, and unfix'd to any preciſe Seaſon; which Inconvenience to remove, that Prince order'd ſo many days to be added yearly as would make the State of the Heavens correſpond to the firſt Month, without incorporating theſe additional Days, or calling them by the Name of any Month.

Numa Pompilius corrected this irregular Conſtitution of the *Year*, and compoſed two new Months, *January* and *February*, of the days that were uſed to be added to the former *Year*—Thus, *Numa's Year* conſiſted of twelve Months, *viz.* 1. *January*, containing 29 Days; 2. *February*, 28; 3. *March*, 31; 4. *April*, 29; 5. *May*, 31. 6. *June*, 29; 7. *Quintilis*, 31; 8. *Sextilis*, 29; 9. *September*, 29; 10. *October*, 31; 11. *November*, 29; 12. *December*, 29; in all 355 Days, which exceeds the quantity of a Lunar Civil *Year* by one day; and that of a Lunar Aſtronomical *Year* by 15 Hours, 11 Minutes, 24 Seconds; but came ſhort of the common Solar *Year* by ten Days; ſo that its beginning was vague, and unfix'd.

Numa, however, deſiring to have it fixed to the Winter-Solſtice, ordered 22 Days to be Intercalated in *February* every ſecond *Year*, 23 every fourth, 22 every ſixth, and 23 every eighth *Year*.

But this Rule failing to keep Matters even, recourſe was had to a new way of Intercalating; and inſtead of 23 Days every eighth *Year*, only 15 were added; and the Care of the whole committed to the *Pontifex Maximus*; who, neglecting the Truſt, let things run to the utmoſt Confuſion. And thus the *Roman Year* ſtood till *Julius Cæſar* made a Reformation. See *Julian* YEAR.

For the manner of reckoning the Days of the Roman *Months*; ſee CALENDS, NONES, and IDES.

Julian YEAR is a Solar *Year* containing, commonly, 365 Days; tho' every fourth *Year*, call'd *Biſſextile*, contains 366.

The Months, &c. of the *Julian Year* ſtand thus; 1. *January*, 31 Days; 2. *February*, 28; 3. *March*, 31; 4. *April*, 30; 5. *May*, 31; 6. *June*, 30; 7. *July*, 31; 8. *Auguſt*, 31; 9. *September*, 30; 10. *October*, 31; 11. *November*, 30; 12. *December*, 31.——But every *Biſſextile Year* a day is added after the 28th of *February*, which Month, then, contains 29 Days.

The Aſtronomical Quantity, therefore, of the *Julian Year* is 365 Days, 6 Hours, which exceeds the true Solar *Year* by 11 Minutes; which exceſs, in 131 *Years* amounts to a whole Day——And thus the *Roman Year* ſtood till the Reformation made therein by Pope *Gregory*. See *Gregorian* YEAR.

For this Form of the *Year* we are indebted to *Julius Cæſar*; who, in the Contrivance thereof, was aſſiſted by *Soſigenes*, a famous Mathematician, call'd over from *Egypt* for this very purpoſe; who, to ſupply the defect of 67 Days which had been loſt through the fault of the Pontifices, and to fix the beginning of the *Year* to the Winter-Solſtice, made that *Year* to conſiſt of 15 Months, or 445 Days; which, for that reaſon, is uſed to be call'd the *Year of Confuſion*.

This Form of the *Year* was uſed in all Chriſtian Nations till the middle of the 16th Century; and ſtill continues to be ſo not only by ſeveral Nations (and among the reſt by the *Engliſh*, *Swedes*, *Danes*, &c.) but alſo by the modern Aſtronomers and Chronologers——For, ſince the Error is known, there is no danger from it.

Gregorian YEAR is the *Julian Year* corrected by this Rule, that, whereas on the common footing every ſecular or hundredth *Year* is *Biſſextile*; on the new footing, three of 'em are common *Years*, and only the fourth *Biſſextile*.

The Error of 11 Minutes in the *Julian Year*, little as it was, yet, by being repeated over and over, at length became conſiderable; and from the time when *Cæſar* had made his Correction, was grown into 13 Days, by which means the Equinoxes were greatly diſturb'd——To remedy this Irregularity, which was ſtill a-growing, Pope *Gregory* XIII. call'd together the chief Aſtronomers of his Time, and concerted this Correction; and to reſtore the Equinoxes to their Place, threw out the ten days that had been got from the time of the Council of *Nice*, and which had ſhifted the 5th of *October* to the 15th.

In the *Year* 1700, the Error of 10 days was grown to 11; upon which the Proteſtant States of *Germany*, to prevent further Confuſion, accepted the *Gregorian* Correction. See CALENDAR, STYLE, &c.

Yet is the *Gregorian Year* far from being perfect; for we have ſhewn that in four Centuries the *Julian Year* gains 3 Days, 1 Hour, 20 Minutes: But 'tis only the three Days are kept out in the *Gregorian Year*; ſo that here is ſtill an exceſs of 1 Hour, 20 Minutes, in 4 Centuries; which, in 72 Centuries amounts to a whole Day. See EASTER.

Egyptian YEAR, call'd alſo the YEAR *of Nabonaſſar*, is the Solar *Year* of 365 Days, divided into twelve Months of 30 Days each, beſide 5 Intercalary Days added at the end.

The Names, &c. of the Months are as follows: 1. *Thot*, 2. *Paophi*, 3. *Athyr*, 4. *Chojac*, 5. *Tybi*, 6. *Mecheir*, 7. *Phamenoth*, 8. *Pharmuthi*, 9. *Pachon*, 10. *Pauni*, 11. *Epiphi*, 12. *Meſori*; beſide the ἡμέραι ἐπαγόμεναι.

Hence, as the *Egyptian Year*, in every four *Years* loſes a whole Day of the *Julian Year*; its beginning, in the Space of 460 *Years*, runs thro' every part of the *Julian Year*; which Space elapſed, they meet again.

This *Year* is uſed by *Ptolemy* in his *Almageſt*; ſo that the Knowledge thereof, is of uſe in Aſtronomy for comparing the antient Obſervations with the moderm.

The antient *Egyptians*, we are told by *Diodorus Siculus*, Lib. I. *Plutarch*, in the Life of *Numa*, and *Pliny*, Lib. VII. c. 48. meaſured their *Years* by the Courſe of the Moon——At firſt, they were only one Month; then three; then four, like that of the *Arcadians*; and then ſix, like that of the People of *Acarnania*. Thoſe Authors add, that 'tis on this account, they reckon ſuch a vaſt Number of *Years* from the beginning of the World; and that in the Hiſtory of their Kings, we meet with ſome who liv'd 1000 or 1200 *Years*.

But *Herodotus* is ſilent on this Point: He only ſays, that the *Egyptian Year* conſiſted of 12 Months, as we have above repreſented it. Beſides, we learn from Scripture, that from the time of the Flood the *Year* was compoſed of 12 Months: *Cham*, conſequently, and his Son *Miſraim*, the Founder of the *Egyptian* Monarchy, muſt have had that Cuſtom; and it is no way probable his Deſcendants ſhould alter it——Add, that *Plutarch* ſpeaks of it with a deal of Uncertainty; and as no more than a Report: And *Diod. Siculus* as only a Conjecture of I know not what Authors, whom he does not name; and who, in all probability, might have framed this Hypotheſis to reconcile the *Egyptian* Chronology with that of ſome other Nations——His Words are, Ἀπίςου δ' ὄντοις τοῦ πλήθους τῶν ἐτῶν ἐπιχειροῦσι τινες λέγειν ὅτι, &c. *This Number of Years being incredible, ſome undertake to ſay*, &c.

F. *Kircher*, however, maintains, that beſides the Solar *Year*, there were ſome of the *Nomæ*, or Cantons of *Egypt*, who uſed a Lunar one; and that in the remoteſt Ages there were ſome who took a Revolution of the Moon, that is, a Month, for a *Year*; and others, who finding the *Year* too ſhort, made it two Months, others three, and others four, &c. *Oedip. Ægypt*. Tom. II. p. 252.

A late Author obſerves, that *Varro* has affirm'd of all Nations, what we have here quoted of the *Egyptians*; and adds, that *Lactantius* takes him to task on that Subject——We don't know in what Places of *Varro* or *Lactantius* he has ſeen this: All we can ſay, is, that *Lactantius*, *Divin. Inſt.* Lib. II. c. 13. where he gives *Varro*'s Opinion, only repreſents him as ſpeaking of the *Egyptians*.——However, St. *Auguſtin*, *de Civit. Dei*, c. 14. ſhews, that the *Years* of the Patriarchs mention'd in Scripture, are like ours, and not one of ours equal to ten of theirs; as, it appears, had been the Opinion of ſome People.

Upon the *Egyptians* being ſubdued by the *Romans*, they received the *Julian Year*; tho' with ſome Alteration: For they ſtill retain'd their antient Months, with the five ἡμέραι ἐπαγόμεναι, and every fourth *Year* intercalated another Day between the 28th and 29th of *Auguſt*——Add, that the beginning of their *Year* anſwer'd to the 29th of *Auguſt* of the *Julian Year*.

This *Year* thus reform'd was call'd the *Annus Actiacus*, as being inſtituted ſoon after the Battel of *Actium*. See ACTIAN.

Antient Greek YEAR, was Lunar; conſiſting of twelve Months, which, at firſt were 30 Days a-piece, then alternately 30, and 29 Days, computed from the firſt Appearance of the new Moon; with the addition of an *Embolimic* Month of 30 Days, every 3d, 5th, 8th, 11th, 14th, 16th, and 19th Years of a Cycle of nineteen Years; in order to keep the New and Full Moons to the ſame Terms or Seaſons of the *Year*. See EMBOLIMIC.

Their *Year* commenced at the Full Moon next after the Summer Solſtice——The Order &c. of their Months was thus: 1. Ἑκατομβαιών, containing 29 Days; 2. Μεταγειτνιών, 30; 3. Βοηδρομιών, 29; 4. Μαιμακτηριών, 30; 5. Πυανεψιών, 29; 6. Ποσειδεών, 30; 7. Γαμηλιών, 29; 8. Ἀνθεστηριών, 30; 9. Ἐλαφηβολιών, 29; 10. Μουνυχιών, 30; 11. Θαργηλιών, 29; 12. Σκιροφοριών, 30.

The *Macedonians* had other Names for their Months: ſo had the *Syro-Macedonians*, *Smyrnæans*, *Tyrians*; ſo alſo the *Cypriots*, *Paphians*; and ſo the *Bithynians*. See *Macedonic* YEAR.

Antient Macedonian YEAR, is a *Lunar Year*, only differing from the *Attic* in the Names and Order of the Months; the firſt *Macedonian Year* agreeing with the *Attic Mæmacterion*. The Months ſtand thus: 1. Δῖος, 30 Days; 2. Ἀπελλαῖος, 29; 3. Αὐδυναῖος, 30; 4. Περίτιος, 29; 5. Δύστρος, 30; 6. Ξανθικός, 29; 7. Ἀρτεμίσιος 30; 8. Δαίσιος, 29; 9. Πάνεμος, 30; 10. Λῷος, 29; 11. Γορπιαῖος, 30; 12. Ὑπερβερεταῖος, 29.

Modern Macedonian YEAR, is a Solar *Year* whoſe beginning is fixed to the firſt of *January* of the *Julian Year*, with which it perfectly agrees.

This *Year* was particularly call'd the *Attic Year*; and the intercalary Month, after *Poſideon*, was call'd ποσειδεὼν β, or latter *Poſideon*.

Antient Jewiſh YEAR is a Lunar *Year*, conſiſting, commonly, of eleven Months, which alternately contain 30 and 29 Days.

It was made to agree with the Solar *Year* either by the adding of 11, and ſometimes 12 Days at the End of the *Year*, or by an Embolimic Month.

The Names and Quantities of the Months ſtand thus: 1. *Niſan*, or *Abib*, 30 Days; 2. *Jiar*, or *Zius*, 29; 3. *Siban*, or *Sivan*, 30; 4. *Thamus*, or *Tamuz*, 29; 5. *Ab*, 30; 6. *Elul*, 29; 7. *Thiſri*, or *Ethanim*, 30; 8. *Marcheſvan*, or *Bul*, 29; 9. *Caſleu*, 30; 10. *Tebeth*, 29; 11. *Sabat*, or *Schebat*, 30; 12. *Adar*, in the *Embolimic Year*, 30. *Adar* in the common *Year* was but 29.

Note, in the defective *Year*, *Caſleu* was only 29 Days; and in the redundant *Year*, *Marcheſvan* was 30.

Modern Jewiſh YEAR is likewiſe Lunar, conſiſting, in common *Years*, of 12 Months, but of 13 in *Embolimic Years*, which in a Cycle of 19 *Years* are the 3d, 6th, 8th, 11th, 14th, 17th, and 19th——Its beginning is fixed to the new Moon next the Autumnal Equinox.

The Names, &c. of the Months are, 1. *Tiſhri*, containing 30 Days; 2. *Marcheſvan*, 29; 3. *Caſleu*, 30; 4. *Tebeth*, 29;

29; 5. *Shebat*, 30; 6. *Adar*, 29; 7. *Veadar*, in the *Embolimic Year*, 30; 8. *Niſan*, 30; 9. *Ijar*, 29; 10. *Sivan*, 30; 11. *Tamuz*, 29, 12. *Ab*, 30; 13. *Elul*, 29.

Syrian YEAR is a Solar *Year*, having its beginning fixed to the beginning of *October* in the *Julian Year*; from which it only differs in the Names of the Months, the Quantities being the ſame; as follows:

1. *Tiſhrin*, anſwering to our *October*, and containing 31 Days; 2. Latter *Tiſhrin*, containing, like our *November*, 30; 3. *Canun*, 31; 4. Latter *Canun*, 31; 5. *Shabat*, 28; 6. *Adar*, 31; 7. *Niſan*, 30; 8. *Aiyar*, 31; 9. *Haziram*, 30; 10. *Tamuz*, 31; 11. *Ab*, 31; 12. *Elul*, 30.

Perſian YEAR, is a Solar *Year* of 365 Days, conſiſting of twelve Months of 30 Days each, with 5 *Muſteraka*, or Intercalary Days added at the end.

The Months are as follow: 1. *Aſrudia* meh; 2. *Ardibaſcht* meh; 3. *Cardi* meh; 4. *Thir* meh; 5. *Merded* meh; 6. *Schabarir* meh; 7. *Mehar* meh; 8. *Aben* meh; 9. *Adar* meh; 10. *Di* meh; 11. *Behen* meh; 12. *Aſſirer* meh.

This *Year* is call'd the *Yezdegerdic Year*, to diſtinguiſh it from the fixed Solar *Year*, call'd the *Gelalean Year*, which the *Perſians* began to uſe in the *Year* 1079; and which was form'd by an Intercalation made ſix or ſeven times in four *Years*, and then once every fifth *Year*.

The *Yezdegerdic Year*, it may be obſerved, is the ſame with *Nabonaſſar's Year*—As to the *Gelalean Year*, 'tis abſolutely the beſt and juſteſt of all the Civil *Years* yet invented, as being found by Calculation to keep the Solſtices and Equinoxes preciſely to the ſame days, and anſwering very accurately to the Solar Motions; which no other Civil *Year* does, not even the *Gregorian*, for want of ſo commodious an Intercalation.

Arabic and *Turkiſh* YEAR, is a Lunar *Year*, conſiſting of twelve Months, which contain alternately, 30 and 29 Days.

Tho', ſometimes it contains thirteen Months; the Names, &c. whereof are as follow: 1. *Muharram*, containing 30 Days; 2. *Saphar*, 29; 3. *Rabia*, 30; 4. Latter *Rabia*, 29; 5. *Jomada*, 30; 6. Latter *Jomada*, 29; 7. *Rajab*, 30; 8. *Shasban*, 29; 9. *Samadan*, 30; 10. *Shawal*, 29; 11. *Dulkaadah*, 30; 12. *Dulheggia*, 29; and in the Embolimic *Year*, 30.———An Intercalary Day is added every 2d, 5th, 7th, 10th, 13th, 15th, 18th, 21ſt, 24th, 26th, 29th, in a Cycle of 29 *Years*.

Ethiopic YEAR, is a Solar *Year* perfectly agreeing with the *Actiac*, except in this, that the Names of the Months are different———It commences with the *Egyptian Year*, on the 29th of *Auguſt* of the *Julian Year*.

Its Months are, 1. *Maſcaram*; 2. *Tykymt*; 3. *Hydar*; 4. *Tyſhas*; 5. *Tyr*; 6. *Jacatit*; 7. *Magabit*; 8. *Mijazia*; 9. *Ginbat*; 10. *Syne*; 11. *Hamle*; 12. *Habaſe*. Intercalary Days 5.

Metonic YEAR,	See	METONIC *Year*.
Actiac YEAR,		GREEK *Year*.
Attic YEAR,		GREEK *Year*.
Yezdegerdic YEAR,		PERSIAN *Year*.
Gelalean YEAR,		PERSIAN *Year*.
Nabonaſſar's YEAR,		EGYPTIAN *Year*.

Sabbatic YEAR, *Annus* SABBATICUS, among the Antients, was every ſeventh *Year*; during which, the *Jews* let their Land lie at reſt. See SABBATH.

Every ſeventh *Sabbatic Year*, *i. e.* every 49th *Year* was call'd the *Year of Jubilee*; and held with Solemnity extraordinary. See JUBILEE.

Climacteric YEAR,	See	CLIMACTERIC.
Platonic, or *great* YEAR,		PLATONIC.
YEAR *of the Hegira*,		HEGIRA.

New YEAR's *Day*, or the Day wherein the Year commences, has always been very different, in different Nations, and yet in all held in great Veneration.

Among the *Romans*, the firſt and laſt Day were conſecrated to *Janus*; on which account it was, that they repreſented him with two Faces.

To them we owe the Ceremony of wiſhing *a happy new Year*; which appears to be very antient——Before the firſt day was ſpent, they not only viſited and complimented each other, but alſo preſented *Strenæ*, and offer'd Vows to the Gods for the Preſervation of each other.—*Lucian* repreſents it as a Practice of a very antient ſtanding even in his Time; and refers it to *Numa*. See STRENÆ, VOTA, &c.

Ovid intimates the ſame Ceremony in the beginning of his *Faſti*:

> *Poſtera lux oritur linguiſque animiſque favete*
> *Nunc dicenda bono, ſunt bona verba die.*

And *Pliny*, more expreſly, Lib. XXVIII. cap. 1. *Primum anni incipientis diem lætis precationibus invicem fauſtum ominantur.*

The Civil or *Legal Year*, in *England*, commences on the Day of the Annunciation, *i. e.* on the 25th day of *March*; tho' the Hiſtorical *Year* begins on the Day of the Circumciſion, *i. e.* the firſt of *January*, on which day the *German* and *Italian* Year alſo begins———*Stow* obſerves, that *William the Conqueror*, having been crown'd on the firſt of *January*, that thenceforth became the firſt of the *Year* for Hiſtorians, &c. Tho' in all Civil Affairs they retain'd the antient manner of accounting, which began with the 25th of *March*. See CIRCUMCISION, NATIVITY, &c.

The part of the *Year* between thoſe Terms is uſually expreſſed both ways, as 172$\left\{\begin{matrix}4\\5\end{matrix}\right.$ or 172$\frac{4}{5}$.———Since the Conqueror, the King's Patents, Charters, Proclamations, &c. are uſually dated by the *Year* of the King's Reign.

The Church, as to her ſolemn Service, begins the *Year* on the firſt Sunday in Advent, which is always that next St. *Andrew*'s Day, or the 30th of *November*. See ADVENT.

The *Jews*, as moſt other Nations of the Eaſt, had a *Civil Year* which commenced with the new Moon in *September*; and an Eccleſiaſtic *Year*, which commenced from the new Moon in *March*.

The *French Year*, during the Reigns of the *Merovingian* Race, began on the Day wherein the Troops were review'd; which was the firſt day of *March*———Under the *Carlovingians* it began on Chriſtmas-day; and under the *Capetians* on Eaſter-day; which, therefore, varied between the 22d of *March* and the 25th of *April*.

And this is ſtill the beginning of their Eccleſiaſtic *Year*—But for the *Civil*, *Charles* IX. appointed in 1564, that for the future it ſhould commence on the firſt of *January*.

The *Mahometans* begin their *Year* the Minute the Sun enters *Aries*———The *Perſians* in the Month anſwering to our *June*———The *Chineſe*, and moſt of the *Indians*, begin it with the firſt Moon in *March*———The *Brachmans* begin it with the new Moon in *April*; on which day they hold a Feaſt call'd *Samwat Saradi Pauduga*, *q. d.* Feaſt of *New-Year's Day*———The *Mexicans*, according to *d'Acoſta*, begin the *Year* on our 23d of *February*, when the Leaves begin to grow green. Their *Year* conſiſts of 18 Months of 20 Days each: which making 360 Days, the remaining five days are ſpent in Mirth, and no Buſineſs ſuffer'd to be done, nor even any Service at the Temples.———*Alvarez* relates much the ſame of the *Abyſſinians*; who begin their *Year* on the 26th of *Auguſt*, and have five idle Days at the end, which they call *Pagomen*.———At *Rome* there are two ways of computing the Year; the one beginning at the Nativity of our Lord: This the Notaries uſe, dating *à Nativitate*. The other in *March*, on occaſion of the Incarnation: And 'tis by this the Bulls are dated, *Anno Incarnationis*.———The *Greeks* begin their *Year* of the World from the firſt of *September*.

YEARS are alſo diſtinguiſh'd with regard to the Epocha's whence they are number'd: Thus, *Years of our Lord*, are thoſe reckon'd from the Birth of Jeſus Chriſt, which are now 1727. *Years of the World* are thoſe elapſed ſince the Creation, which *Scaliger* makes to be 5676.———*Years of Rome, of the Hegira of Nabonaſſar*, &c. *See the difference between theſe* Years *under the Article* EPOCHA.

YEAR *and Day*, in Law, &c. is a Time that determines a Right in many Caſes, and is in ſome an Uſucaption, and in others a Preſcription. See PRESCRIPTION, &c.

Thus in the Caſe of an Eſtray, if the Owner, Proclamation being made, challenge it not within that time, it is forfeit.

In like manner is the *Year and Day* given in Caſes of Appeal, of Deſcent, after Entry or Claim, of Non-claim upon a Fine, or Writ of Right, of the death of a Man ſore bruis'd or wounded; of Protections, Eſſoins, in reſpect of the King's Service; of a Wreck, &c.

YEAR-*day and Waſte*, is a part of the King's Prerogative, whereby he challenges the Profits of the Lands and Tenements of Perſons attainted for Petit-Treaſon, or Felony for the Space of a *Year* and a Day.

Not only this, but at the end thereof he may waſte the Tenements, deſtroy the Houſes, root up the Woods, Gardens, Paſture, and plough up the Meadows, unleſs the Lord of the Fee agree with him for the Redemption of ſuch Waſte.

YEARN, in Hunting, ſignifies to bark, as Beagles properly do, at their Prey. See HUNTING.

YELLOW, a bright Colour, reflecting the moſt Light of any, after White. See COLOUR and LIGHT.

There are divers *yellow* Subſtances that become white upon wetting and drying them again ſeveral times at the Sun: As Wax, Linnen-Cloth, &c. See BLEACHING; ſee alſo HAIR, WHITENING, &c.

The ſame Bodies, if they be already white, and continue a long time in the Air without being wetted; turn *yellow*.

Paper and Ivory apply'd near the Fire, become ſucceſſively *yellow*, red, and black——Silk, when turn'd *yellow*, is whiten'd with the Fumes of Sulphur. See WHITE, WHITENESS, &c.

YELLOW, in Dying, is one of the five ſimple and mother Colours. See DYING.

For the fineſt *Yellows*, they firſt boil the Cloth, or Stuff in Allum and Pot-Aſhes; then, give the Colour with Goud. See GOUD.

Turmeric likewiſe gives a good *Yellow*, tho' not the beſt——There is alſo an *Indian* Wood that gives a *yellow* Colour bordering on Gold. A fourth ſort of *Yellow* is made with Savoury, but this is inferiour to them all.

Greens are uſually made of *Yellow* and Blue mixed. See GREEN.

With *Yellow*, red of Madder, and that of Goats-Hair prepared with Madder, are made the *gold Yellow*, *Aurora*, *Thought colour*, *Nacarate*, *Iſabella*, and *Chamois-colour*; which are all Caſts or Shades of *Yellow*.

Painters and Enamellers make their *Yellow* of *Maſſicot*, which is Ceruſs rais'd by the Fire; or with Oker. See ENAMEL and ENAMELING.

Limners and Colourers make it with Saffron, and *French* Berries, Orcanette, &c.

Bramton obſerves, it was antiently the Cuſtom to paint a Man's Door *yellow*, and ſtrew his Houſe with Salt; to declare him Traytor to his King.

The Word is form'd from the *Italian giallo*, or the *German geel*, or the *Latin galbanus*.

YELLOW, or *French Berries*; ſee BERRIES.

YELLOW *Jaundice*; ſee JAUNDICE.

YELLOWS, a Diſeaſe in a Horſe, the ſame with that call'd Jaundice in Man. See JAUNDICE.

There are two kinds of it, the *yellow* and the black.

The *Yellows* is a very frequent Diſorder, ſay the Farriers, ariſing from Obſtructions in the Gall-pipe, or the little Ducts opening into the ſame, occaſion'd by viſcid or gritty Matters lodged therein, or a Plenitude and Compreſſion of the neighbouring Blood-veſſels; by means whereof, the Matter that ſhould be turn'd into Gall, is taken up by the Vein, and carried back into the Maſs of Blood; which it tinctures *yellow*: So that the Eyes, inſide of the Lips, and other parts of the Mouth capable of ſhewing the Colour, appear *yellow*.

The Effect whereof is, that a Horſe will be dull, heavy, and low-ſpirited; eaſily jaded by the leaſt Labour or Exerciſe, &c.

YEOMEN, YEMEN, YOMEN, the firſt or higheſt Degree of the Commons or Plebeians of *England*; and thoſe next in order to the Gentry. See COMMONS and GENTLEMAN.

The *Yeomen* are properly the Freeholders, who have Land of their own; ſo call'd from the *German Gemen*, or *Gemain*, that is, common.

According to Sir *Thomas Smith*, a *Yeoman* is a free-born *Engliſhman*, who may lay out of his own free Land in yearly Revenue, to the Sum of forty Shillings *Sterling*.

The *Yeomanry* of *England* are capable of holding Lands of their own to a good value; are adjudged capable of certain Offices, as Conſtables, Church-Wardens, Jury-men, to vote in Elections to Parliament, and to ſerve in the Army.

The *Yeomen* were famous in antient times for Military-Valour, being particularly expert at the Management of the Bow; whence the Infantry was compoſed chiefly of them. See ARCHER.

In many Caſes, the Law conceives a better Opinion of the *Yeomanry* that occupy Lands, than of Tradeſmen, Artificers, &c. See FREEHOLDER.

By a Statute 2 *Hen.* 4. it is enacted, that no *Yeoman* ſhall take or wear a Livery of any Lord upon pain of Impriſonment, and a Fine at the King's Pleaſure.

The Word *Yongman* is uſed for *Yeoman* in the Statute 33 *Hen.* 8. and in old Deeds it is ſometimes written *Jeman*.

YEOMAN is alſo a Title of Office in the King's Houſhold, of a middle Place or Rank between an Uſher and a Groom. See USHER and GROOM.

Such are the——*Yeomen* of the Chandry; *Yeomen* of the Scullery; *Yeomen* of the Stirrop, &c. See HOUSHOLD.

YEOMEN *Warders*; ſee WARDERS *of the Tower*.

YEOMEN *of the Guard*, properly call'd *Yeomen of the Guard of the King's Body*, were antiently 250 Men of the beſt Rank under Gentry, and of larger Stature than ordinary; every one being required to be ſix Foot high. See GUARD.

At preſent there are but one hundred *Yeomen* in conſtant Duty; and ſeventy more not in Duty; and as any of the hundred die, his Place is ſupply'd out of the ſeventy.

They go clad after the manner of King *Henry* the Eighth's time——They had Diet as well as Wages, when in Waiting; but this was taken off in the Reign of Q. *Anne*.

Their Attendance is on the Sovereign's Perſon, both at home and abroad; and they have a Room allotted for them only, call'd the *Guard-Chamber*.

The Officers and *Yeomen* are at the diſpoſal of the Captain, but the Captain at the Appointment of the King.

YERKING, in the Manage, is when a Horſe ſtrikes with his hind Legs, or flings and kicks back with his whole hind Quarters; ſtretching out the two Legs nearly together and even. See AIR, SAULT, &c.

YEST, or *Barm*, a Head, or Scum riſing up on Beer, or Ale, while working or fermenting in the Vat. See BREWING, MALT-*Liquor*, &c.

It is uſed for a Leven or Ferment in the baking of Bread; as ſerving to ſwell or puff it up very conſiderably in a little Time, and to make it much lighter, ſofter, and more delicate——When there is too much of it, it renders the Bread bitter. See BREAD and BAKING.

The uſe of *Yeſt* in Bread is but of late ſtanding among us: 'Tis not above eighty Years ſince the Avarice of the Bakers firſt introduced it; and then it was only done by ſtealth——Tho' *Pliny* witneſſes it to have been uſed by the antient *Gauls*.

The Faculty of Medicine of *Paris*, by a Decree of the 24th of *March* 1688, ſolemnly maintain'd it noxious to the Health of the People; yet could not that prevent its Progreſs. See BEER.

YEZDEGERDIC *Year*, an Epocha thus call'd. See YEAR and EPOCHA.

YGROMETER; ſee HYGROMETER.

YIELDING *and paying*, a Law-Phraſe, form'd by corruption from the *Saxon Geldan*, and *Gildan*, to pay——Hence in *Domeſday*, *Gildare* is frequently uſed for *Solvere*, *Reddere*, the *Saxon* G being often miſtaken for a Y. See GELD and GILD.

YQUETAYA, in Natural Hiſtory, a Plant in *Braſil*, long uſed as a Medicine in that Country; and lately diſcovered to the *Europeans* by a *French* Surgeon.

It has been ſince found in *France*, where being cultivated and examined by M. *Marchant*, it appears to be a kind of Scrophulary or Blood-Nettle.

It has this remarkable Property, that it takes away from *Senna* all its ill taſte and ſmell, which Property of correcting the Infuſion of *Senna* was unknown in the Scrophulary. See SENNA.

To uſe this Plant, it muſt be dried ten or twelve days in the Shade, and afterwards expoſed to the Sun till quite dry.

YNCA, YNCAN, or INCA, a Name antiently given to the Kings of *Peru*, and the Princes of their Blood: The Word ſignifying literally *Lord*, *King*, *Emperor*, and *Royal Blood*.

The King himſelf was particularly call'd *Capac Ynca*, *i. e.* Great Lord——His Wife *Pallas*, and the Princes ſimply *Yncas*.

Theſe *Ynca's*, before the arrival of the *Spaniards*, were exceedingly powerful——Their People rever'd 'em to exceſs, as believing them to be Sons of the Sun, and never to have committed any fault.

If any Perſon offended the Royal Majeſty in the ſmalleſt Matter, the City he belong'd to was totally demoliſhed.

When they travelled, whatever Chamber they lay in on the Road, was wall'd up as ſoon as they departed, that no body might ever enter it, after them.——The like was done to the Room wherein the King died; in which, likewiſe, all the Gold, Silver, and precious Furniture were immured, and a new Apartment built for his Succeſſor.

Their beloved Wives, Domeſticks, &c. likewiſe ſacrificed themſelves, and were buried alive in the ſame Tomb along with him. *See the Hiſtory of the* Yncas *by* Garcilaſſo de la Vega.

YOAK, or **YOKE**, in Agriculture, a Frame of Wood, fitted over the Necks of Oxen; whereby they are coupled together, and harneſs'd to the Plough, &c. See PLOUGH.

It conſiſts of ſeveral Parts; as, the *Yoke* properly ſo call'd, which is a thick piece of Wood lying over the Neck; the *Bow*, which compaſſes the Neck about; the *Stitchings* and *Wreathings*, which hold the Bow faſt in the *Yoke*; and the *Yoke-Ring* and *Ox-Chain*.

The *Romans* made the Enemies they ſubdued, *paſs under the Yoke*, which they call'd *ſub jugum mittere*: That is, they made them paſs under a ſort of *Furcæ Patibulares*, or Gallows, conſiſting of a Pike, or other Weapon laid a-croſs two others planted upright in the Ground——This done, they treated 'em with Humanity enough, and ſent 'em home again. See FURCA.

The ſame Meaſure was ſometimes dealt 'em by their Enemies, upon the ſame Occaſion——Thus *Cæſar*, Lib. 2. obſerves, that the Conſul *L. Caſſius* had been kill'd by the *Swiſs*, his Army defeated, and made paſs under the *Yoak*.

YOAK *of Land*, *Jugata Terræ*, in our antient Cuſtoms, was the Space which a *Yoke* of Oxen, that is, two Oxen, may plough in one day. See JUGATA, HIDE, YARD-*Land*, &c.

YOIDES, or HYOIDES, in Anatomy, a Bone ſituate at the Root of the Tongue, and compoſed of divers little Bones united by Cartilages which ſometimes oſſify. See TONGUE.

It has its Name ὑοειδὴς, and ſometimes υψιλοειδὴς *Ypſiloides*, from its reſembling a *Greek υ*, or *Upſilon*——Some call it *Lambdoides*, as reſembling a *Lambda* inverted.

It is not contiguous to the Extremity of any other Bone, nor has any Articulation with 'em: on which account it is not ſhewn in the Skeletons.

Its Uſe is to fortify the Baſe or Root of the Tongue, and facilitate the Paſſage of the Air into the *Trachea*, and the Food into the Gullet.

It has five Pair of Muſcles, which move it together with the Tongue. See Lingua.

YPSILOIDES, or Ylypsiloides, in Anatomy, the third genuine Suture of the *Cranium*; thus call'd from its reſembling a *Greek y*, or *Upſilon*. See Suture.

Some alſo call it λαμβδοειδὴς, *Lamdoeides*.

There is alſo a Bone at the Root of the Tongue call'd *Ypſiloides*, and ſometimes *Yoides*. See Yoides.

YOLK, or Yelk, in Natural Hiſtory, the yellow part in the middle of an Egg. See Egg.

The Chicken is form'd out of, and nouriſh'd by, the *White* alone; till it be grown to ſome bulk: After which, the *Yolk* ſerves it for Nouriſhment, which it likewiſe does, in part, after it is hatched——For a good part of the *Yolk* remains after excluſion; being received into the Chicken's Belly; and being there reſerved, as in a Store-houſe, is by the *Ductus Inteſtinalis*, as by a Funnel, convey'd into the Guts, and ſerves inſtead of Milk. *Willough. Ornithol.* L. I. c. 3.

This was even known to *Pliny*: *Ipſum Animal ex albo liquore Ovi corporetur: Cibus ejus in Luteo eſt.* Lib. 10. c. 53.

YOUNG; ſee Generation, Conception, Geſtation, Embryo, Foetus, Delivery, Child, &c. See alſo Storge, &c.

In the Army, That Regiment, or Officer, is ſaid to be the *Younger* which was laſt raiſed, or whoſe Commiſſion is of lateſt Date, whatever be the Age of the Man, or however long he may have ſerved in other Capacities.

YOUNKERS, among Sailors, are the *young* Men, otherwiſe call'd *Foremaſt-men*; whoſe Buſineſs is to take in the Top-Sails, or Top and Yard, for Furling the Sails, Slinging the Yards, &c. and to take their turns at the Helm.

YOUTH, *Adoleſcence*; ſee Age and Adolescence.

Z.

Z, The laſt Letter in the Alphabet, and one of the double Conſonants, both among the *Latins* and *Greeks*. See Letter and Consonant.

Its Pronunciation is much more ſoft and obtuſe than the X, which makes *Quintilian* call it *Molliſſimum*, and *Suaviſſimum*——Nevertheleſs, the Sound was not always the ſame as it is now; which is but, as it were, half that of an *S*.

It had ſomething alſo in it of the D; but only what ſounded very ſmoothly: Thus, *Mezentius* was pronounced as if it had been *Medſentius*, *&c.* See D.

The Z had alſo an affinity with the G: Thus, *Capella*; Z, ſays he, *à Græcis venit, licet etiam ipſi primo* G *Græcâ utebantur*. See G.

Z was alſo a Numeral Letter, ſignifying 2000; according to the Verſe:

Ultima Z *tenens finem bis mille tenebit.*

When a Daſh was added a-top, $\bar{Z}$, it ſignified two thouſand times two thouſand.

ZAIM, a Portion of Land, allotted for the Subſiſtence of a Horſe-man in the *Turkiſh* Militia; call'd alſo *Timar*. See Timar and Timariot.

ZAIRAGIA, or Zairagiah, a kind of Divination, in uſe among the *Arabs*. See Divination.

It is perform'd by means of divers Wheels, or Circles placed Concentric to one another, and noted with ſeveral Letters, which are brought to anſwer to each other by moving the Circles according to certain Rules.

'Tis alſo call'd *Zaraiah*, by reaſon the Circles of this Machine, which are *Mutaraziat*, *Leſlak*, &c. correſpond to the Orbs of the Planets, and the Atmoſpheres of each Element.

ZEAL, Zelus, ζῆλος, the Exerciſe of a warm, vehement, animated Affection, or Paſſion for any thing. See Passion, Inclination, *&c.*

Some will have *Zeal* to be properly a mix'd, or compound Senſation, where one Affection is rais'd or inflam'd by another——On theſe Principles, it may be defined an Affection ariſing from Love and Indignation, which cannot bear a thing to be given to another that a Perſon deſires for himſelf, or one whom he loves and favours——Others make it conſiſt in an eager Study or Deſire to keep any thing inviolate; or a Fervour of Mind ariſing from an Indignation againſt thoſe who abuſe or do evil to a Perſon beloved.

The *Greek* Philoſophers make three Species of *Zeal*——The firſt, of Envy: The ſecond, of Emulation, or Imitation: The third, of Piety, or Devotion; which makes what the Divines call *Religious Zeal*. See Emulation, *&c.*

Joſephus ſpeaks much of a Party or Faction call'd the *Zealous*, or *Zealots*; which aroſe among the *Jews* during the War with *Veſpaſian* and *Titus*. Lib. XIV. c. 6. Antiq. & Lib. IV. c. 12. *de Bello Judaico.*

ZEDOARIA, Zedoary, a Medicinal Root belonging to a Plant growing in the *Eaſt-Indies*, whoſe Leaves are like thoſe of Ginger, only longer and broader. See Root.

Zedoary is of an Aſh-colour, has an Aromatic, bitteriſh Taſte; and comes into the Claſs of Cephalics: But it is alſo reckon'd by many amongſt the Alexipharmics, whereupon it comes to have a Place in the Capitals; and is even ſaid to prevent Infections by holding it only in the Mouth. See Alexipharmic, *&c.*

On account of its agreeable Bitter, it alſo is preſcribed among Stomachics; and for its ſpicy Warmth is commended in Cholics, and Hyſterical Affections, for promoting the Menſes, *&c.* See Aromatics.

ZENITH, in Aſtronomy, the Vertical Point; or a Point in the Heavens directly over our Head. See Vertex and Vertical.

Or the *Zenith* is a Point, as Z (Tab. Astronomy, *Fig.* 52) in the Surface of the Sphere, from which a right Line drawn through the Spectator's Head, paſſes through the Centre of the Earth. See Vertex and Vertical.

Hence, there are as many *Zeniths* as there are different Places on the Earth where the Heavens may be ſeen; and upon the changing our Place, we alſo change our *Zenith*.

The *Zenith* is alſo call'd the *Pole of the Horizon*, becauſe 90 Degrees diſtant from each Point thereof. See Horizon.

It is alſo the Pole of all the Almicantars, or Parallels of the Horizon, whereby the Altitude of the Stars is eſtimated. See Almicantar.

Through the *Zenith* paſſeth the Vertical-Circles, or Azimuth. See Vertical *Circle*.

The Point diametrically oppoſite to the *Zenith*, is call'd the *Nadir*; which is the Point directly under our Feet. See Nadir.

The *Nadir* is the *Zenith* to our Antipodes; as our *Zenith* is the *Nadir* to them. See Antipodes.

Zenith-*diſtance*, is the Complement of the Sun, or Stars Meridian Altitude; or what the Meridian Altitude wants of 90 Degrees. See Complement and Altitude.

ZENSUS, in Arithmetic, a Name which ſome Authors give to a ſquare Number; or the ſecond Power. See Square *Number* and Power.

The higher Powers they call *Zenſizenſus*, *Zenſicubus*, *Zenſizenzenſus*, *Zenſurdeſolidus*, *&c.* See Power.

ZEPHYRUS, or Zephyr, the Weſt-wind; or a Wind blowing from that Cardinal Point of the Horizon oppoſite to the Eaſt. See West, Wind, and Cardinal *Point*.

It is alſo call'd *Favonius*, and *Occidens*; and by many confounded with *Africus*.

The Word is *Greek* ζέφυρος.——The Poets perſonify it.

ZETETICE, Zetetic *Method*, in Mathematics, the Method made uſe of to inveſtigate or find the Solution of a Problem. See Resolution, Investigation, *&c.*

The Word is form'd from the *Greek* ζητέω, I ſeek.

The antient *Pyrrhonians* were ſometimes call'd *Zetetici*, *q. d.* Seekers. See Pyrrhonians.

ZEST, the woody, thick Skin, quartering the Kernel of a Walnut.

The Word is alſo uſed for a Chip of Orange or Lemmon-Peel; ſuch as is uſually ſqueezed into Ale, Wine, *&c.* to give it a Flavour.

Hence, to *Zeſt an Orange* or *Lemmon*, among Confectioners, is to cut the Peel from Top to Bottom into ſmall Slips, as thin as poſſible.

ZETA, or Zetecula, a little withdrawing Chamber, with Pipes running along the Walls to receive from below either the cool Air or the Heat of warm Water. See Caleduct, *&c.*

The Word is form'd either of τȣ ζεῖν, to be warm; or of τȣ ζῆν, *vivere*, to live.

ZEUGMA, a Figure in Grammar, whereby an Adjective or Verb which agrees with a nearer Word, is alſo, by way of Supplement, referr'd to another more remote. See Figure.

Thus, *Terence*——*Utinam aut hic ſurdus, aut hæc muta facta ſit*——So *Virgil*——*Hic illius Arma hic currus fuit*. In which Caſes, the Words *facta ſit* agreeing primarily with *hæc muta*, are alſo made to agree or extend to *hic ſurdus*: And the Verb *fuit* is not only refer'd to *hic currus*, which it properly reſpects, but further to *hic illius arma*.

The *Latins*, it may be here obſerved, take a liberty in Conſtruction, which ſome of the nicer Critics among the Moderns, particularly the *French*, will not allow in the modern Tongues. See Construction.

The word *Zeugma* is *Greek*, ζεῦγμα, which literally denotes a joining together.

ZIBETHUM, ζαπέτιον, in Natural Hiſtory, *Civet*; a Perfume like Musk, contain'd in a kernelly Bladder in the Groin of a Civet-Cat. See Civet.

ZINDIKITES, a Sect among the *Mahometans*, denominated from their Leader *Zindik*, whom *Grotius* makes to be one of the *Magi*, and a Follower of *Zoroaſter*. See Magi.

The *Zindikites* believe no Providence nor Reſurrection——They own no other God but the four Elements; and in this ſenſe aſſert, that a Man being a Mixture of thoſe ſimple Bodies, returns to God when he dies.

ZINK, or Zaim, a kind of Mineral, or Semi-metal, which ſome confound with *Biſmuth*, and others with Spelter. See Bismuth, Spelter, *&c.*

Others call it *Female-Antimony*. See Antimony.

Zink is a kind of Mineral-Lead, very hard, white, and brillant; and which, tho' not ductile enough to denominate it a Metal, yet ſtretches a little under the Hammer. See METAL, DUCTILITY, *&c.*

'Tis found in great Quantities in the Mines of *Goſſelaar* in *Saxony*——That commonly ſold is in large, thick, ſquare Cakes; which would make one ſuſpect it had been melted when taken out of the Mine, and caſt in Moulds of that Form.

Zink is uſed to purge and purify Tin; much as Lead is to purify Gold, Silver, and Copper. See LEAD.

Founders, Toy-men, *&c.* alſo uſe it with Turmeric to tinge Copper, *&c.* It gives a fine Gold Colour, tho' not a very laſting one. See COPPER, BRASS, *&c.*

M. *Homberg* conjectures, with a good deal of Probability, that *Zink* is no other than a natural Mixture of two real Metals, *viz.* Tin and Iron——What led him to the Opinion was, that *Zink* yields preciſely the ſame Fumes by the Burning-glaſs, as ſuch a Mixture does. Accordingly, he aſſures us, he often ſubſtituted the one for the other; and this always with the very ſame Effect.

ZINZIBER; ſee GINGER.

ZIZYPHUM, a Name ſometimes given to a kind of Fruit uſually call'd *Jujubes.* See JUJUBES.

ZOCCO, ZOCCOLO, ZOCLE, or SOCLE, in Architecture, a ſmall kind of Stand or Pedeſtal; being a low, ſquare Piece or Member, ſerving to ſupport a Buſto, Statue, or the like thing that needs to be rais'd. See SOCLE.

The Word is *Italian*, form'd from *Soccus*, a Sandal, or high Shoe. See SOCCUS.

Zocco, or *Zocle*, is alſo uſed for a low, ſquare Member ſerving to ſupport a Column, or other part of a Building, inſtead of a Pedeſtal, Baſe, or Plinth. See PEDESTAL, PLINTH, *&c.*

A *continued* ZOCLE is a kind of continued Pedeſtal whereon a Structure is raiſed; but having no Baſe or Cornice. See PEDESTAL.

ZODIAC, ZODIACUS, in Aſtronomy, a Faſcia, Belt, or broad Circle, whoſe Middle is the Ecliptic, and its Extremes, two Circles parallel thereto at ſuch diſtance from it as to bound, or comprehend the Excurſions of the Sun and Planets. See SUN and PLANET.

The Sun never deviates from the Middle of the *Zodiac*; *i.e.* from the Ecliptic; the Planets all do, more or leſs. See ECLIPTIC.

Their greateſt Deviations, call'd Latitudes, are the Meaſure of the Breadth of the *Zodiac*: which is broader or narrower as the greateſt Latitude of the Planets is made more or leſs——Accordingly, ſome make it 16, ſome 18, and ſome 20 Degrees broad. See LATITUDE.

The *Zodiac* cutting the Equator obliquely, makes an Angle therewith of 23 Degrees and an half; or more preciſely of 23°, 29′, which is what we call the *Obliquity of the Zodiac*, and is the Sun's greateſt Declination. See OBLIQUITY and DECLINATION.

The *Zodiac* is divided into twelve Portions, call'd *Signs*; and thoſe Diviſions or Signs are denominated from the Conſtellations which antiently poſſeſs'd each Part. See CONSTELLATION.——But, the *Zodiac* being immoveable, and the Stars having a Motion from Weſt to Eaſt, thoſe Conſtellations no longer correſpond to their proper Signs; whence ariſes what we call the *Preceſſion of the Equinoxes.* See PRECESSION.

When a Star, therefore, is ſaid to be in ſuch *a Sign of the Zodiac*, it is not to be underſtood of the Sign, or Conſtellation of the Firmament; but only of that twelfth Part of the *Zodiac*, or *Dodecatory* thereof. See SIGN, STAR, and DODECATORY.

The word *Zodiac* is form'd from the *Greek* ζῶον, an Animal; by reaſon of the Conſtellations therein: Others derive it from ζωὴ, Life; from an Opinion that the Planets have a great Influence on Animal Life.

Caſſini has alſo obſerv'd a Tract in the Heavens, within whoſe Bounds moſt of the Comets, tho' not all of them, are obſerved to keep; which, for this reaſon, he calls the *Zodiac of the Comets.* See COMET.

This he makes as broad as the other *Zodiac*, and marks it with Signs or Conſtellatinos like that; as, *Antinous*, *Pegaſus*, *Andromeda*, *Taurus*, *Orion*, the leſſer *Dog*, *Hydra*, the *Centaur*, *Scorpion*, and *Sagittary.*

ZONE, ZONA, in Geography and Aſtronomy, a Diviſion of the Terraqueous Globe with reſpect to the different Degree of Heat found in the different Parts thereof. See EARTH and HEAT.

A *Zone* is the fifth Part of the Surface of the Earth, contain'd between two Parallels. See PARALLEL.

The Word is *Greek* ζώνη, *q. d.* Belt, Girdle.

The *Zones* are denominated *Torrid*, *Frigid*, and *Temperate.*

The *Torrid Zone* is a Faſcia or Band ſurrounding the Terraqueous Globe, and terminated by the two Tropics. See TROPIC.——Its breadth, therefore, is 46°, 58′. The Equator running through the middle of it, divides it into two equal Parts, each containing 23°, 29′.

The Antients imagined the *Torrid Zone* uninhabitable. See TORRID.

The *Temperate Zones* are two Faſciæ, or Bands environing the Globe, and contain'd between the Tropics and the Antarctic Circles——The breadth of each is 43°, 2′. See TEMPERATE.

The *Frigid Zones* are Segments of the Surface of the Earth terminated, the one by the Antarctic, and the other by the Arctic Circle——The breadth of each is 46°, 58′. See ARCTIC, ANTARCTIC, *&c.*

The Difference of *Zone* is attended with a great diverſity of Phænomena.——1°. In the torrid *Zone*, the Sun paſſes through the Zenith twice a Year; and his receſs from the Equator toward the Pole which is above the Horizon, is twice a Year equal to the height of the Pole.

2°. In the temperate and frigid *Zones*, the leaſt height of the Pole exceeds the greateſt diſtance of the Sun from the Equator; and therefore to the Inhabitants thereof the Sun never paſſes thro' the Zenith; yet if on the ſame day the Sun riſes at the ſame time to a greater height, the height of the Pole is the leſs, in regard the Inclination of the Circles of diurnal Revolution to the Horizon is leſs.

3°. In the temperate and torrid *Zones* the Sun riſes and ſets every natural Day, by reaſon the diſtance of the Sun from the Pole always exceeds the height of the Pole; yet every where but under the Equator, the artificial Days are unequal, and the Inequality is the greater, as the Place is leſs diſtant from the frigid *Zone.* See DAY.

4°. Where the temperate *Zones* terminate on the frigid, the height of the Pole is equal to the Sun's diſtance from the Pole, when in the neighbouring Tropic; and, conſequently once a Year, the Sun in its diurnal Motion performs an entire Revolution, without going down under the Horizon.

5°. Every where in a frigid *Zone*, the height of the Pole is greater than the leaſt diſtance of the Sun from the Pole; and therefore during ſome Revolutions of the Earth, the Sun is at a diſtance from the Pole leſs than the Pole's height; and during all that time, does not ſet, nor ſo much as touch the Horizon——Where the diſtance from the Pole, as the Sun recedes from it, exceeds the height of the Pole, or Latitude of the Place; the Sun riſes or ſets every natural Day. See DAY, NIGHT, RISING, SETTING, *&c.*

ZONNAR, a Term corrupted from the vulgar *Greek* ζωνδες, of ζωνη, a Girdle.

The *Zonnar* is a kind of Belt or Girdle of black Leather, which the Chriſtians and *Jews* of the *Levant*, particularly thoſe in *Aſia* and the Territories of the Grand Signor, are obliged to wear; to diſtinguiſh themſelves from the *Mahometans.*

It was *Motavakkel* Xth Kalif of the Houſe of the *Abaſſides* that firſt enjoined the Chriſtians, *&c.* to wear the *Zonnar*——The Ordonnance to this effect was publiſhed in the Year of the *Hegira* 235.

Hence, as moſt of the Chriſtians of *Syria*, *Meſopotamia*, *&c.* are either *Neſtorians*, or *Jacobites*; thoſe Sectaries, are often call'd *Chriſtians of the Girdle.* See GIRDLE.

ZOOLOGIA, ZOOLOGY, a Diſcourſe or Treatiſe upon Animals or living Creatures. See ANIMAL.

Zoology makes a conſiderable Article in Natural Hiſtory; comprehending what relates to the Form, Structure, Method of Living, Feeding, Propagating, *&c.* of the divers Species of Brute Creatures. See NATURAL *Hiſtory.*

The Word is compounded of ζων, Life, and λογος, Speech, Diſcourſe.

ZOOPHORUS, or ZOPHORUS, in the antient Architecture, the ſame thing with the *Frieze* in the Modern. See FRIEZE.

It was thus call'd in *Greek*, becauſe antiently adorned with the Figures of Animals; from ζῶον, *Animal*, and φερώ, I bear.

The *Greeks* ſometimes alſo call the Zodiac, *Zoophorus*, becauſe of the Signs or Conſtellations therein. See ZODIAC.

ZOOPHORIC *Column*, is a Statuary Column; or a Column that bears or ſupports the Figure of an Animal. See COLUMN.

ZOOPHYTA, ZOOPHYTES, ZOOPHYTE, in Natural Hiſtory, *q. d.* *Plant-Animal*; a kind of intermediate Body, partaking both of the Nature of a Senſitive and a Vegetable.

Such is the *Planta Pudica* commonly ſuppoſed to be; tho' with little foundation. See SENSITIVE *Plant.*

The Antients alſo reputed Sponges to be *Zoophytes.* See SPONGE.

The Word is compounded of ζῶον, *Animal*, and φυτὸν, *Plant.*

The *Fœtus* while in the Womb appears to be a real *Zoophyta*; growing to the Mother by the *Funiculus Umbilicalis*, as Plants do to the Earth by their Stem. See FOETUS, EMBRYO, *&c.*

Olearius mentions a very extraordinary ſort of *Zoophyte* growing near *Samara* on the *Volga*——'Tis a kind of Melon ſhaped like a Lamb, all the Parts whereof it has, and grows to the Earth by a Stem which ſerves it for a Navel-ſtring. As it grows, it changes Place, as much as its Stem will allow of; and it conſumes and dries up all the Graſs where it grows. When ripe, the Stem withers, and the Body or Fruit becomes cover'd with a downy Skin, which may be dreſs'd and uſed as a Fur.

He affirms to have ſeen of this Skin, and that it was cover'd with a ſoft curled Wool like that of a young Lamb.

Scaliger adds, that this Fruit lives, and grows, till ſuch time as it wants Graſs——In ſome Accounts it is call'd *Agnus Scythicus*, and *Borametz*.

ZOOTOMY, the Art or Act of Diſſecting Animals or living Creatures. See DISSECTION.

Zootomy amounts to the ſame with Anatomy. See ANATOMY.

The Word is compounded of ζωον, Animal, and τεμνω, *ſeco*, I cut.

ZOPATA, or *Sapata*, a kind of Feaſt or Ceremony held in *Italy*, in the Courts of certain Princes, on St. *Nicholas*'s Day, wherein People hide Preſents in the Shoes or Slippers of thoſe they would do honour to, in ſuch manner as may ſurprize 'em the Morrow when they come to dreſs.

It is done in Imitation of the Practice of St. *Nicholas*, who uſed in the Night-time to throw Purſes of Money in at Windows, to marry poor Maids withal.

F. *Meneſtrier* has deſcribed theſe *Sapates*, their Origin, and different Uſages, in his Treatiſe *des Ballets Anciens & Moderns*.

The Word *Zapata* is originally *Spaniſh*, and ſignifies Shoe.

ZOPISSA, a kind of Mixture of Pitch and Tar; ſcraped off Ships that have been a long time at Sea. See PITCH and TAR.

This Matter by being gradually penetrated by the Salt of the Sea, becomes partaker of its Qualities; and being apply'd to the Body, externally, is found Reſolutive and Deſiccative.

The Word is form'd from ζέειν, *bullire*, to boil, and πίσσα, Pitch; *q. d. boil'd Pitch*.

ZUINGLIANS, a Branch of antient Reformers, or Proteſtants; denominated from their Author *Uldric* or *Huldric Zuinglius*. See REFORMATION.

This eminent Divine was born at *Wildehauſen*, in the County of *Toggenbourg* in *Switzerland*, in 1487.—After having finiſhed his Studies in Theology, and received the Doctor's Cap at *Baſil*, in 1505, he apply'd himſelf to preaching; and with good Succeſs.

Soon after *Luther* had taken up Arms againſt *Rome*, *Zuinglius*, being then Miniſter of the chief Church in *Zurich*, fell in with him; preach'd openly againſt Indulgences, then againſt the Interceſſion of the Saints, then againſt the Maſs, the Hierarchy, the Vows, and Celibate of the Clergy, Abſtinence from Fleſh, &c.

As to the Euchariſt, interpreting *hoc eſt Corpus meum* by *hoc ſignificat Corpus meum*; he maintain'd, that the Bread and Wine were only bare Significations, or Repreſentations of the Body and Blood of Jeſus Chriſt; in which he differ'd from *Luther*, who held a Conſubſtantiation. See LUTHERAN, EUCHARIST, CONSUBSTANTIATION, &c.

In a Conference held with the Deputies of the Biſhop of *Conſtans*, in 1523, he procured moſt of the external Ceremonies of Religion to be aboliſhed——As to Matters of Grace, *Zuinglius* ſeem'd inclined to *Pelagianiſm*; giving all to Free-will, conſider'd as acting by the mere ſtrength of Nature; in which he differ'd from *Calvin*. See CALVINISTS, GRACE, WILL, PELAGIAN, &c.

ZYGOMA, in Anatomy, a Bone, by ſome call'd *Os Jugale*. See JUGALE.

The *Zygoma* is no ſingle Bone, but an Union or Aſſemblage of two Proceſſes or Eminences of Bones; the one from the *Os temporis*, the other from the *Os malæ*. See BONE.

Theſe two Eminences, or *Apophyſes*, are joined together by a Suture thence call'd *Zygomaticus*. See ZYGOMATICUS.

The Word is form'd from ζευγνυμαι, *I join*; ſo that *Zygoma*, properly ſpeaking, is the Juncture of thoſe two Bones.

ZYGOMATICUS, an Epithet given to the Suture that binds the two Proceſſes of the *Zygoma* together. See ZYGOMA and SUTURE.

ZYGOMATICUS, in Anatomy, a Muſcle that has its Origin in the *Proceſſus Jugalis*, or *Zygoma*; and paſſing obliquely, is inſerted near the Angle of the Lips——It helps to draw the Lips obliquely upwards. See LIPS.

ZYMOSIMETER, an Inſtrument propoſed by *Swammerdam*, in his Book *de Reſpiratione*, wherewith to meaſure the degree of Fermentation occaſion'd by the Mixture of different Matters; and the Degree of Heat which thoſe Matters acquire in fermenting; as alſo the Heat or Temperament of the Blood of Animals. See FERMENTATION, HEAT, &c.

The Word is form'd from ζύμωσις, Fermentation, and μετρον, Meaſure.

ZYTHUM, or ZITHUM, a ſort of Malt-Liquor, in uſe among the antient *Germans*. See MALT-*Liquor*.

Matthiolus repreſents the antient *Zythum* and *Curmi* as the ſame with our Beer and Ale. See BEER and ALE.

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